Oklahoma School Testing Program / College-and Career-Readiness Assessment Grades 3–8, 11

2021–22 Technical Report

Prepared by Cognia and

the Oklahoma Department of Education

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CHAPTER 1. INTRODUCTION TO THE OSTP/CCRA

1.1 PURPOSE AND USES OF THE OKLAHOMA SCHOOL TESTING PROGRAM

The Oklahoma School Testing Program (OSTP) assessments are state-mandated, criterion-referenced tests that measure student proficiency in specific content areas. Each test measures the student's knowledge relative to the Oklahoma Academic Standards (OAS)—Oklahoma's content standards for public schools (Appendix A). OSTP assessments are also used for state and federal accountability and reporting. In spring 2022, the OSTP assessments were administered to all eligible students in grades 3-8 and grade 11. The OSTP included mathematics and English Language Arts (ELA) for grades 3-8 and science testing for grades 5 and 8. The OSTP also included the College-and-Career-Readiness Assessment (CCRA) in science and U.S. history for grade 11 students. Test forms included operational tests (OP), breach forms (replacement forms used in cases of large-scale security breaches or cheating), Braille forms, and large-print forms, which were administered when such accommodations were needed. Spanish forms were also available online.

The Oklahoma State Department of Education (SDE) contracted Cognia to develop and administer the OSTP.

1.2 INTENDED OSTP AND CCRA SCORE INTERPRETATIONS AND USES

The OSTP is designed, developed, and implemented to support six primary intended score interpretations and uses. All are described in the following sections. Appendix B provides a glossary of commonly used assessment terms found throughout the remainder of this report.

1.2.1 Primary Intended OSTP and CCRA Score Interpretations

OSTP scores provide reliable and valid information about student knowledge relative to the Oklahoma Academic Standards (OAS) in grade-level mathematics and English language arts for students in grades 3–8 and 11, science for students in grades 5, 8, and 11, and U.S. history for students in grade 11.

CCRA scores provide reliable and valid information about student knowledge in science and U.S. history predictive of college and career readiness for students in grade 11.

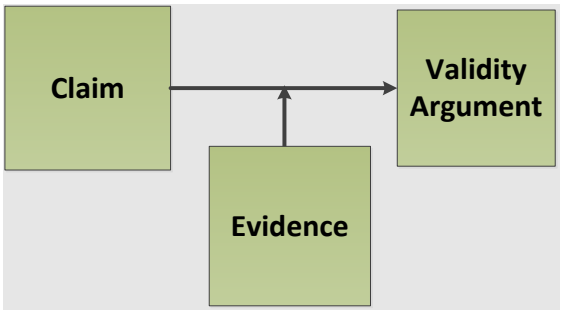
1.2.2 Primary Intended OSTP and CCRA Score Uses

- OSTP and CCRA scores provide instructionally useful information to teachers and students with appropriate detail and timely reporting.
- Teachers can use OSTP and CCRA scores to support future curricular planning and identifying instructional needs within student subgroups.
- Parents and students can use OSTP and CCRA scores to monitor academic achievement and progress toward college and career readiness.
- The state and districts can use OSTP and CCRA scores to support evaluation and enhancement of curricula and programs.
- The state uses OSTP and CCRA scores for comparison to national assessments such as NAEP and ACT.
- The OSTP and CCRA meet reporting requirements set by federal and state governments for their use in making accountability decisions.
- OSTP and CCRA scores can be used as a point in time indicator of student knowledge, skills and abilities of the Oklahoma Academic Standards.

1.3 Validity Arguments for the OSTP and CCRA

This technical report describes several procedural and psychometric processes of the OSTP and CCRA programs. These processes contribute to the accumulation of validity evidence supporting the score interpretations that, in turn, support the intended uses of OSTP and CCRA assessments. Because tests themselves are only validated in terms of their scores' interpretability for their intended uses, this report presents gathered evidence of the validity of the intended interpretations and uses of the OSTP and CCRA test scores (AERA, APA, & NCME, 2014, p. 11). Each chapter in this report contributes important information about the OSTP and CCRA: test design and development, test administration, scoring, reliability, performance levels, and reporting. The information to support validity arguments for intended OSTP and CCRA score interpretations and uses, summarized in the last section of each chapter, and then compiled and fully summarized in Chapter 10, are formed as claims: elements that underlie the interpretations and uses articulated within the validity argument. Strength of the validity argument is established by providing evidence supporting each of these claims. The logic of the validity argument structure is shown in Figure 1-1.

Figure 1-1. Logic of Validity Arguments for Tests



The phrase "intended score interpretations for uses" appears several times in the *Standards for Educational and Psychological Testing* (AERA et al., 2014) and is the core of the field's views on validity and validation. For the OSTP and CCRA (and assessment programs more generally), the phrase refers broadly to **test scores** (e.g., total test scale scores, aggregations of test scores, the percentage of students at or above a given level), and other test performance information elements (e.g., the definition of a given level in the performance level descriptors). The *Standards for Educational and Psychological Testing* also provides a framework for describing sources of evidence that should be considered when constructing a validity argument. These sources include evidence based on the following five areas: test content, response processes, internal structure, relationship to other variables, and consequences of testing. These sources address different aspects of supporting evidence for validity arguments but are not considered distinct types of validity. Instead, each contributes to a body of evidence about the individual validity arguments and overall arguments for the validity of intended score interpretations and uses. Moreover, these sources represent only a partial list of potential sources of evidence from the OSTP and CCRA design, development, test administration, analysis, and reporting processes that are relevant to the overall validity arguments for intended interpretations and uses of OSTP and CCRA scores and related information.

Validity arguments for the OSTP and CCRA are crafted to not just provide evidence that all steps in the test design, development, and implementation process are taken correctly, but that they are working together to ensure that the resulting scores validly support intended interpretations and uses. The arguments and the logical inferential steps they provide are structured based upon the framework developed by Chappelle (2020) and can be summarized as follows:

1.1 Description Inference: Items sample from domain appropriately such that high-quality forms can be produced. (Domain to Item)

1.2 Evaluation Inference: Forms sample from items appropriately such that observed scores reflective of the domain can be produced. (Item to Form)

1.3 Generalization Inference: Observed scores from individual forms are reliable such that they are reflective of expected scores across forms. (Form to Score) *

1.4 Explanation Inference: Expected scores are associated with classification cuts such that classification decisions are interpretable. (Score to Classification)

1.5 Extrapolation Inference: Classification decisions are accurate such that intended interpretations correspond to other valid metrics of knowledge and ability. (Classification to Interpretation)

1.6 (through 1.10) Utilization Inferences: Interpretations of scores and classifications are used as intended and only in ways considered appropriate and fair. (Interpretation to Use)

*It is important for the gathering of information in support of the Generalization Inference (1.3) to define what is meant by the term “form” in this context. A test form, in the context of the validity argument, is not just the set of items on which the score is based, but the structure of the exam in terms of all elements that can affect an individual’s performance. This can include, among other things, the raters scoring an exam, the occasion on which the exam is administered, and the setting in which it is administered. Generalization from observed to expected score is optimized when all sources of potential variability of test scores are identified and accounted for such that observed scores maximally reflect a student’s ability and not the influence of unwanted sources of variance.

1.4 Excerpts from the Assessment System and Assessment System Requirements Report

Please see the following link for the full report: Assessment System and Assessment Requirements Full Report.

1.4.1 Executive Summary

The Oklahoma Legislature directed the State Board of Education (OSBE) to evaluate Oklahoma’s current state assessment system and make recommendations for its future. As a result, the Oklahoma State Department of Education (OSDE) held regional meetings across the state and convened the Oklahoma Assessment and Accountability Task Force to deliberate over many technical, policy, and practical issues associated with implementing an improved assessment system. The 95 Task Force members met four times between August 4 and October 18, 2016.

This report presents the results of those deliberations in the form of recommendations from the OSDE to the Oklahoma State Board of Education (OSBE).

1.4.2 House Bill 3218

In June 2016, Oklahoma Governor Mary Fallin signed House Bill 3218 (HB 3218), which relates to the adoption of a statewide system of student assessments. HB 3218 required the OSBE to study and develop assessment recommendations for the statewide assessment system. The House Bill specifically

tasks the OSBE, in consultation with representatives from the Oklahoma State Regents for Higher Education, the Commission for Educational Quality and Accountability, the State Board of Career and Technology Education, and the Secretary of Education and Workforce Development, to study and develop assessment requirements. Additionally, HB 3218 requires the State Board to address accountability requirements under ESSA, which will be presented in a separate report for accountability. This report focuses specifically on the assessment requirements of HB 3218, which include the degree to which the Oklahoma assessment:

- aligns to the Oklahoma Academic Standards (OAS);
- provides a measure of comparability among other states;
- yields both norm-referenced and criterion-referenced scores;
- has a track record of statistical reliability and accuracy; and
- provides a measure of future academic performance for assessments administered in high school.

1.4.3 Collecting Feedback from Regional Engage Oklahoma Meetings and the Oklahoma Task Force

Prior to convening Oklahoma's Assessment and Accountability Task Force, the OSDE held regional meetings in Broken Arrow, Sallisaw, Durant, Edmond, Woodward, and Lawton. These meetings yielded responses to various questions addressing the desired purposes and types of assessments. This regional feedback was incorporated in the discussions with the Oklahoma Assessment and Accountability Task Force. The Task Force included 95 members who represented districts across the state, educators, parents, business and community leaders, tribal leaders, and lawmakers. Additionally, members from the Oklahoma State Regents for Higher Education, the Commission for Educational Quality and Accountability, the State Board of Career and Technology Education, and the Secretary of Education and Workforce Development were also represented on the Task Force. For a complete list of Task Force members, please refer to Appendix A of the Assessment System and Assessment Requirements Full Report.

On four occasions, the members of the Task Force met with experts in assessment and accountability to consider each of the study requirements and provide feedback to improve the state's assessment and accountability systems. Two of those experts also served as the primary facilitators of the Task Force: Juan D'Brot, Ph.D., from the National Center for the Improvement of Educational Assessment (NCIEA) and Marianne Perie, Ph.D., from the University of Kansas' Achievement and Assessment Institute. These meetings occurred on August 4 and 5, September 19, and October 18, 2016. At each meeting, the Task Force discussed the elements of HB 3218, research and best practices in assessment and accountability development, and feedback addressing the requirements of HB 3218. This feedback was subsequently incorporated into OSDE's recommendations to the OSBE.

1.4.4 Key Summative Assessment Recommendations

Oklahoma's Assessment and Accountability Task Force and the OSDE recognized that assessment design is a case of optimization under constraints[1][1]. In other words, there may be many desirable purposes, uses, and goals for assessment, but they may be in conflict. Any given assessment can serve only a limited number of purposes well. Finally, assessments always have some type of restrictions (e.g., legislative requirements, time, and cost) that must be weighed in finalizing recommendations. Therefore, a critical early activity of the Task Force was to identify and prioritize desired characteristics and intended uses for a new Oklahoma statewide summative assessment for OSDE to consider.

Upon consolidating the uses and characteristics, the facilitators returned to the Task Force with draft goals for the assessment system. The Task Force provided revisions and input to these goals. Facilitators then presented the final goals to the Task Force. Once goals were defined, the desired uses and characteristics were clarified within the context of the Task Force's goals. The members of the Task Force agreed to the following goals for OSDE to consider for Oklahoma's assessment system:

1) **Provide instructionally useful information to teachers and students with appropriate detail (i.e., differing grain sizes for different stakeholder groups) and timely reporting;**
2) **Provide clear and accurate information to parents and students regarding achievement and progress toward college and career readiness using an assessment that is meaningful to students;**
3) **Provide meaningful information to support evaluation and enhancement of curriculum and programs; and**
4) **Provide information to appropriately support federal and state accountability decisions.**

Following discussion of the Oklahoma assessment system's goals, the Task Force worked with the facilitators to articulate feedback for the grade 3–8 and high school statewide summative assessments. This feedback was subsequently incorporated into the OSDE's recommendations to the State Board. These recommendations are separated into those for grades 3–8 and those for high school.

1.4.5 Recommendations for Assessments in Grades 3–8

The feedback provided by the Task Force and subsequently incorporated by the OSDE for grades 3–8 can be grouped into four categories: Content Alignment and Timing, Intended Purpose and Use, Score Interpretation, and Reporting and State Comparability. The OSDE's recommendations are presented below.

1 *To view this footnote, please review the Assessment System and Assessment Requirements Full Report.*

1.4.5.1 CONTENT ALIGNMENT AND TIMING

- Maintain the focus of the new assessments on the Oklahoma Academic Standards (OAS) and continue to administer them at the end of grades 3 through 8; and
- Include an adequate assessment of writing to support coverage of the Oklahoma English Language Arts (ELA) standards.

1.4.5.2 INTENDED PURPOSE AND USE

- Ensure the assessment can support calculating growth for students in at least grades 4–8 and explore the potential of expanding growth to high school depending on the defensibility of the link between grade 8 and high school assessments and intended interpretations; and
- Ensure the assessment demonstrates sufficient technical quality to support the intended purposes and current uses of student accountability (e.g., promotion in grade 3 based on reading).

1.4.5.3 SCORE INTERPRETATION

- Provide a measure of performance indicative of being on track to college and career readiness, which can inform preparation for the Oklahoma high school assessment;
- Support criterion-referenced interpretations (i.e., performance against the OAS) and report individual claims including, but not limited to, scale score[2], Lexile[3], Quantile[4], content cluster[5], and growth[6] performance; and
- Provide normative information to help contextualize the performance of students statewide, such as intra-state percentiles.

1.4.5.4 REPORTING AND STATE COMPARABILITY

- Support aggregate reporting on claims including, but not limited to, scale score, Lexile, Quantile, content cluster, and growth performance at appropriate levels of grain size (e.g., grade, subgroup, teacher, building/district administrator, state); and

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2 A scale score (or scaled scores) is a raw score that has been transformed through a customized set of mathematical procedures (i.e., scaling and equating) to account for differences in difficulty across multiple forms and to enable the score to represent the same level of difficulty from one year to the next.

3 A score developed by MetaMetrics that represents either the difficulty of a text or a student's reading ability level.

4 A score developed by MetaMetrics that represents a forecast of or a measure of a student's ability to successfully work with certain mathematics skills and concepts.

5 A content cluster may be a group of items that measures a similar concept in a content area on a given test.

6 Growth can be conceptualized as the academic performance of the same student over two or more points in time. This is different from improvement, which is change in performance over time as groups of students matriculate or when comparing the same collection of students across time (e.g., Grade 3 students in 2016 and Grade 3 students in 2015).

- Utilize the existing National Assessment of Educational Progress (NAEP) data to establish statewide comparisons at grades 4 and 8. NAEP data should also be used during standard-setting[7] activities to ensure the CCRA cut score is set using national and other state data.

1.4.6 Recommendations for Assessments in High School

The feedback provided by the Task Force and subsequently incorporated by the OSDE can be grouped into four categories: Content Alignment and Timing, Intended Purpose and Use, Score Interpretation, and Reporting and State Comparability. The OSDE's recommendations are presented below.

1.4.6.1 CONTENT ALIGNMENT AND TIMING

- Use a commercial off-the-shelf college-readiness assessment (e.g., SAT, ACT) in lieu of state-developed high school assessments in ELA & Mathematics; and
- Consider how assessments measuring college readiness can still adequately address assessment peer review requirements, including, but not limited to, alignment.

1.4.6.2 INTENDED PURPOSE AND USE

- Ensure the assessment demonstrates sufficient technical quality to support the need for multiple and differing uses of assessment results;
- Maintain a focus on rigorous expectations of college and career readiness; and
- Ensure that all students in the state of Oklahoma can be provided with a reliable, valid, and fair score, regardless of accommodations provided or the amount of time needed for a student to take the test.

1.4.6.3 SCORE INTERPRETATION

- Support criterion-referenced interpretations (i.e., performance against the OAS) and report individual claims appropriate for high school students;
- Provide evidence to support claims of college and career readiness. These claims should be (1) supported using theoretically related data in standard-setting activities (e.g., measures of college readiness and other nationally available data) and (2) validated empirically using available postsecondary data linking to performance on the college readiness assessment; and
- Provide normative information to help contextualize the performance of students statewide, such as intra-state percentiles.

1.4.6.4 REPORTING AND STATE COMPARABILITY

- Support aggregate reporting on claims at appropriate levels of grain size for high school assessments (e.g., grade, subgroup, teacher, building/district administrator, state); and
- Support the ability to provide norm-referenced information based on other states that may be administering the same college-ready assessments, as long as unreasonable administration constraints do not inhibit those comparisons.

7 The process through which subject matter experts set performance standards, or cut scores, on an assessment or series of assessments

1.4.7 Key Considerations for Summative Assessment Recommendations

While the Task Force addressed a targeted set of issues stemming from HB 3218, the facilitators were intentional in informing Task Force members of three key areas that must be considered in large-scale assessment development and/or selection:

1) **Technical quality, which serves to ensure the assessment is reliable, valid for its intended use, and fair for all students;**
2) **Peer Review, which serves as a means to present evidence of technical quality; and**
3) **Accountability, which forces the issue of intended purpose and use.**

In the time allotted, the Task Force was not able to consider all the constraints and requirements necessary to fully expand upon their feedback to the OSDE. The facilitators worked to inform the Task Force that the desired purposes and uses reflected in their feedback would be optimized to the greatest extent possible in light of technical- and policy-based constraints. As historically demonstrated, we can expect that the OSDE will continue to prioritize fairness, equity, reliability, and validity as the agency moves forward in maximizing the efficiency of Oklahoma's assessment system. A more detailed explanation of the context and considerations for adopting OSDE's recommendations is provided in the full report below.

1.5 CONCLUSION

The conversations that occurred among Task Force members, assessment and accountability experts, and the OSDE resulted in a cohesive set of goals for an aligned comprehensive assessment system that includes state and locally selected assessments designed to meet a variety of purposes and uses. These goals are listed on page 9 of this report. (To view page 9 please review the Assessment System and Assessment Requirements Full Report.) The feedback provided by the Task Force and the recommendations presented by the OSDE, however, are focused only on Oklahoma's statewide summative assessments.

While the OSDE's recommendations can be grouped into the four categories of (1) Content Alignment and Timing, (2) Intended Purpose and Use, (3) Score Interpretation, and (4) Reporting and State Comparability, it is important to understand how these recommendations address the overarching requirements outlined in HB 3218.

1.5.1 ALIGNMENT TO THE OAS

Summative assessments used for accountability are required to undergo peer review to ensure the assessments are reliable, fair, and valid for their intended uses. One such use is to measure student progress against Oklahoma's college-and career-ready standards. The Task Force and OSDE believe it

is of vital importance that students have the opportunity to demonstrate their mastery of the state's standards. However, there is also a perceived need to increase the relevance of assessments, especially in high school. The Task Force and OSDE believe a state-developed set of assessments for grades 3–8 and a college-readiness assessment in high school would best support teaching and learning efforts in the state.

1.5.1.1 COMPARABILITY WITH OTHER STATES

Throughout feedback sessions, Task Force meetings, and OSDE deliberations, the ability to compare Oklahoma performance with that of other states was considered a valuable feature of the assessment system. However, there are tensions among administration constraints, test design requirements, and the strength of the comparisons that may make direct comparisons difficult. Currently, Oklahoma can make comparisons using statewide aggregated data (e.g., NAEP scores in grades 4 and 8, college-readiness scores in grade 11), but is unable to support comparisons at each grade. Task Force feedback and OSDE recommendations suggest leveraging available national comparison data beyond its current use and incorporating it into assessment standard-setting activities. This will allow the OSDE and its stakeholders to determine college- and career-readiness cut scores on the assessment that reflect nationally competitive expectations.

1.5.1.2 NORM-REFERENCED AND CRITERION-REFERENCED SCORES

Based on Task Force feedback, the OSDE confirmed that reported information supporting criterion-referenced interpretations (e.g., scale score, Lexile, Quantile, content cluster, and growth performance) are valuable and should continue to be provided in meaningful and accessible ways. Additional feedback and OSDE's recommendations note that norm-referenced interpretations would enhance the value of statewide summative assessment results by contextualizing student learning and performance. By working with a prospective vendor, the OSDE should be able to supplement the information provided to stakeholders with meaningful normative data based on the performance of other Oklahoma students.

1.5.1.3 STATISTICAL RELIABILITY AND ACCURACY

The technical quality of an assessment is an absolute requirement for tests intended to communicate student grade-level mastery and for use in accountability. The Standards for Educational and Psychological Testing[8]. present critical issues that test developers and test administrators must consider during assessment design, development, and administration. While custom state-developed assessments require field testing and operational administration to accumulate evidence of statistical reliability and accuracy, the quality of the processes used to develop those assessments can be easily demonstrated by prospective vendors and the state. In contrast, off-the-shelf assessments should already have evidence of this, and the state can generalize their technical quality if the assessment is given under the conditions

[8] *AERA, APA, & NCME. (2014). Standards for Educational and Psychological Testing. Washington, DC: AERA*

defined for the assessment. Thus, the technical quality of an assessment is a key factor in ensuring assessment results are reliable, valid, and fair.

1.5.1.4 FUTURE ACADEMIC PERFORMANCE FOR ASSESSMENTS ADMINISTERED IN HIGH SCHOOL

As noted earlier in the report, there is a clear value in high school assessment results being able to predict future academic performance. Based on OSDE's recommendation of using a college-readiness assessment in high school, the state and its prospective vendor should be able to determine the probability of success in early post-secondary academics based on high school assessments.

However, the state and its prospective vendor should amass additional Oklahoma-specific evidence that strengthens the claims of likely postsecondary success. This can be supported both through standard-setting activities and empirical analyses that examine high school performance based on postsecondary success. The recommendations made to the OSDE in the previous section offer relatively fine-grain suggestions that can be interpreted through the lens of the HB 3218 requirements. These recommendations also reflect the Task Force's awareness of the three areas of technical quality, peer review requirements, and accountability uses, which were addressed throughout deliberations. Through regional meetings and in-depth conversations with the Task Force, the OSDE was able to critically examine the feedback provided and present recommendations to support a strong statewide summative assessment that examines the requirements of HB 3218 and seeks to maximize the efficiency of the Oklahoma assessment system in support of preparing students for college and careers.

1.5.1.5 ISSUES IN SUBSCORE REPORTING

Subscores serve as achievement reports on subsets of the full set of knowledge and skill represented by a total score. For example, many ELA summative assessments produce a total score for ELA, subscores for at least reading and writing, and often finer grained subscores for topics such as informational and literary reading. Similarly, a mathematics test typically yields an overall math score and potential subscores in topics such as numbers and operations, algebraic reasoning, measurement and geometry, and data and probability. One of the greatest challenges in current large-scale summative assessment design is to create tests that are no longer than necessary to produce a very reliable total score (e.g., grade 5 mathematics) while yielding adequately reliable subscores to help educators and others gain more instructionally relevant information than gleaned from just the total score.

Unfortunately, there is a little-known aspect of educational measurement (outside of measurement professionals) that large-scale tests are generally designed to report scores on a "unidimensional" scale. This means the grade 5 math test, for example, is designed to report overall math performance, but not to tease out differences in performance on things like geometry or algebra because the only questions that survive the statistical review processes are those that relate strongly to the total score of overall math. If the test was designed to include questions that better distinguish among potential subscores, the reliability (consistency) of the total score would be diminished. There are "multidimensional" procedures

that can be employed to potentially produce reliable and valid subscores, but these are much more expensive and complicated to implement to ensure the comparability of these subscores and the total score across years. The National Assessment of Educational Progress (NAEP) is the one example of a well-known assessment designed to produce meaningful results at the subscore level, but NAEP has huge samples to work with and more financial resources and psychometric capacity at its disposal than any state assessment. In other words, it is not realistic at this time to consider moving away from a unidimensional framework for Oklahoma's next statewide summative assessment, which means the subscores will unfortunately be much less reliable estimates of the total score than useful content-based reports. This is true for essentially all commercially available interim assessments as well, so despite user reports that they like assessment X or Y because it produces fine grain subscores useful for instructional planning, any differences in subscores are likely due to error rather than anything educationally meaningful.

Despite this widely held knowledge by measurement professionals, every state assessment designer knows they need to produce scores beyond the total score; otherwise, stakeholders would complain they are not getting enough from the assessment. Recall producing very reliable total scores is critical for accountability uses of statewide assessments and, all things being equal, the reliability is related to the number of questions (or score points) on a test.

Therefore, most measurement experts recommend having at least 10 score points for each subscore to achieve at least some minimal level of reliability, so statewide summative tests tend to get longer to accommodate subscore reporting. Therefore, one way to lessen the time required on the statewide summative assessment is to focus the summative assessment on reporting the total score and use the optional modules for districts that would like more detailed and accurate information about particular aspects of the content domain.

On July 1, 2016, a new Oklahoma legislative bill (HB 3218) went into effect that made several changes to Oklahoma's student assessment and accountability system, including high school graduation requirements.

CHAPTER 2. OVERVIEW OF THE OSTP AND CCRA

2.1 History of the Oklahoma School Testing Program

On July 1, 2016, a new Oklahoma legislative bill (HB 3218) went into effect that made several changes to Oklahoma's student assessment and accountability system, including high school graduation requirements. The most significant change is that it is no longer a state requirement for Oklahoma students to pass End-of-Instruction exams in order to graduate with a standard high school diploma. HB 3218 directed the Oklahoma State Board of Education (OSBE) to establish a new system of assessments that students who entered Grade 9 in 2017–2018 would be required to take in order to graduate with a standard diploma. The End-of-Instruction (EOI) exams and Achieving Classroom Excellence (ACE) graduation requirements were repealed as of July 1, 2016. During the 2016–17 academic year, tenth graders took assessments in ELA, mathematics, and science. The tenth-grade test will not be given in future years. Beginning with the 2017–18 year, grade 11 students took either the ACT or the SAT and a grade 11 science content assessment to determine college and career readiness and high school accountability. In 2019, a grade 11 U.S. history content assessment was also added.

The U.S. history content assessment was field tested in 2019, 2021, and 2022. U.S. history standard setting occurred in June 2022. U.S. history cut scores were approved as of August 2022, and thus information from that assessment will be included in a technical report for this year.

In addition, the United States Department of Education Office of Elementary and Secondary Education issued a determination letter based on OSDE's January 2018 Title I Assessment Peer Review submission. According to the October 2018 determination letter issued by Frank T. Brogan, Assistant Secretary for Elementary and Secondary Education, OSDE's assessment system "substantially meets requirements" for OSTP 3–8 reading/language and mathematics and OSTP science general assessments in grades 5 and 8 in accordance with section 1111(b)(1) and (3) of the Elementary and Secondary Education Act (ESEA).

2.2 OSTP and CCRA Participation

The OSTP assessments are administered to all public-school students in grades 3–8 and 11. The OSTP includes mathematics and English language arts (ELA) testing for grades 3–8 and science testing for grades 5 and 8. The OSTP also includes the College- and Career-Readiness Assessment (CCRA) in science and U.S. history for grade 11 students.

CHAPTER 3. TEST CONTENT AND DEVELOPMENT

3.1 GRADES 3–8 OSTP ELA ASSESSMENTS

3.1.1 Develop/Review/Approve Test Blueprints with DOK Percentages

All items on the OSTP ELA grades 3–8 tests were developed specifically for Oklahoma and are directly linked to the OAS. The standards are the basis for the reporting categories developed for each content area and were used to help guide the development of test items. Each item was designed to measure a specific standard and objective. The test blueprints were developed by the SDE, and test specifications were created in a collaboration between Cognia and the SDE.

The test blueprints identify the amount of content covered on the tests and are based on the importance and coverage of the OAS in Oklahoma schools. The ideal test blueprints are provided by the SDE at their website: https://sde.ok.gov/assessment-material or see Appendix C.

The distribution of emphasis for the OSTP ELA grades 3–8 content standards is shown in Tables 3-1 and 3-2. As indicated in Tables 3-1 through 3-2 below, the actual and ideal distributions of content standards on each assessment match. The ideal number of items aligned to each standard can be found in Appendix C.

Table 3-1. Distribution of Emphasis in Terms of Target Percentage of Test by Grade—Grades 3–5 OAS ELA Standards 2021–22

Standard	Grade 3		Grade 4		Grade 5	
	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage
2: Reading and Writing Process	38-42%	38%	30-34%	32%	30-34%	31%
3: Critical Reading and Writing	12-18%	14%	18-22%	22%	22-26%	23%
4: Vocabulary	22-26%	24%	22-26%	22%	18-22%	20%
5: Language	12-18%	12%	12-18%	12%	12-18%	12%
6: Research	12-18%	12%	12-18%	12%	12-18%	14%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 3-2. Distribution of Emphasis in Terms of Target Percentage of Test by Grade—Grades 6–8 OAS ELA Standards 2021–22

Standard	Grade 6		Grade 7		Grade 8	
	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage
2: Reading and Writing Process	34-38%	38%	34-38%	34%	24-30%	27%
3: Critical Reading and Writing	18-22%	20%	18-22%	22%	24-30%	29%
4: Vocabulary	18-22%	18%	14-20%	16%	14-20%	18%
5: Language	12-18%	12%	12-18%	12%	12-18%	14%
6: Research	12-18%	12%	12-18%	16%	12-18%	12%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Each item on the OSTP ELA grades 3–8 tests was assigned a Depth of Knowledge (DOK) level according to the cognitive demand of the item. DOK is not synonymous with difficulty. The DOK level rates the complexity of the mental processing a student must use to answer the question. Items at each DOK level can be found in the Test and Item Specifications here: https://sde.ok.gov/assessment-material.

DOK 1—RECALL: requires students to recall, observe, question, or represent facts, simple skills or abilities. It requires only surface understanding of text, often verbatim recall. Level 1 activities include supporting ideas by reference to details in the text; using a dictionary to find meaning; identifying figurative language in a passage; and identifying the correct spelling or meaning of words.

DOK 2—SKILL/CONCEPT: requires processing beyond recall and observation; requires both comprehension and subsequent processing of text; and involves ordering and classifying text, as well as identifying patterns, relationships, and main points. Level 2 activities include using context to identify unfamiliar words; predicting logical outcomes; identifying and summarizing main points; applying knowledge of conventions of Standard American English; composing accurate summaries; and making general inferences and predictions for a portion of a text.

DOK 3—STRATEGIC THINKING: requires students to go beyond the text; requires students to explain, generalize, and connect ideas; involves inferencing, predicting, elaborating, and summarizing; and requires students to support positions using prior knowledge and to manipulate themes across passages. Level 3 activities include determining the effect of the author's purpose on text elements; summarizing information from multiple sources; critically analyzing literature; composing focused, organized, coherent, and purposeful prose; and making explanatory and descriptive inferences and interpretations across an entire passage.

Tables 3-3 and 3-4 show that for each DOK level, the actual percentages of items on the test fell mostly within the recommended range for each grade level.

Table 3-3. ELA DOK Levels by Grade—Form A 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
3	15-30%	16%	65-80%	70%	5-10%	14%
4	10-20%	22%	65-75%	60%	5-15%	18%
5	5-15%	16%	70-85%	72%	5-20%	12%
6	5-15%	14%	70-85%	74%	5-20%	12%
7	5-15%	10%	70-85%	72%	5-20%	18%
8	5-10%	14%	60-75%	66%	20-30%	20%

Table 3-4. ELA DOK Levels by Grade—Breach Form 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
3	15-30%	18%	65-80%	70%	5-10%	12%
4	10-20%	16%	65-75%	68%	5-15%	16%
5	5-15%	18%	70-85%	70%	5-20%	12%
6	5-15%	10%	70-85%	80%	5-20%	10%
7	5-15%	8%	70-85%	74%	5-20%	18%
8	5-10%	10%	60-75%	66%	20-30%	24%

3.1.2 Test and Item Specification Development

Multiple-choice items that were developed for administration in grades 3–8 ELA require approximately one minute for most students to answer. This item type affords efficient use of limited testing time and allows coverage of a wide range of knowledge and skills. At grades 3, 4, 6 and 7, short constructed-response items provide students with the opportunity to respond to items in their own words. A typical response is 1–3 sentences. At grades 5 and 8, the writing portion of the ELA tests included extended responses that were associated with passages. Responses were scored with rubrics that assessed ideas and development; organization, unity, and coherence; word choice; sentences and paragraphs; and grammar, usage, and mechanics. Previous test items released for public use are provided by the SDE at http://sde.ok.gov/sde/assessment-material.

The test framework for grades 3–8 ELA was based on the OAS, and each item was designed to measure a specific standard and objective. The measure of Oklahoma students' level of proficiency responding to a variety of items linked to grade-level ELA content standards are identified in the OAS. The five assessable content standards in the OAS are shown in Table 3-5.

Table 3-5. OAS ELA Assessable Content Standards

Grades 3–8
Standard 2 Reading and Writing Process
Standard 3 Critical Reading and Writing
Standard 4 Vocabulary
Standard 5 Language
Standard 6 Research

3.1.3 Passage Development

Grade-level passages contain identifiable key concepts with relevant supporting details. Each passage is appropriate for determining the purpose for reading, such as analyzing character traits; comparing and contrasting; problem-solving and deriving solutions; interpreting; application; analyzing; synthesizing; drawing conclusions; making an inference; determining relationships in vocabulary analogies; and other relevant reading tasks as defined by the OAS for the specific grade level.

The passages have a variety of sentence types and lengths, may include dialogue, reflect Oklahoma's cultural diversity, and possess sufficient structural integrity to allow the passages to be self-contained.

Passages reflect a balance of genres from literary to expository texts, as shown in Table 3–6. The majority of passages selected for the ELA test include authentic literature; a minor portion have been selected from commissioned works. Passages have been reviewed by both SDE and Cognia not only for content, but also to eliminate cultural or other forms of bias that might disadvantage any group(s) of students. Further, passages were reviewed by teacher committees who had received bias and sensitivity training. The passages avoid subject matter that might prompt emotional distress. Permissions to use selections from copyrighted material were obtained as necessary.

The readability level of all passages was evaluated using recognized readability formulas. The formulas chosen for each grade vary according to the purpose for which the formula was developed. Appropriate readability formulas for all ELA passages include the Flesch-Kincaid Rating, the Dale-Chall Readability Formula, and other formulas considered reliable.

In addition, sentence structure, length, vocabulary, content, visuals, and organization were reviewed when selecting appropriate grade-level passages for the 2021-22 administration. The teacher panel that reviewed the passages provided the final evaluation used to decide on the readability of a passage.

The vocabulary words tested in OSTP come directly from the passage content. Words used for vocabulary items have sufficient surrounding context clues for the reader to determine the meaning. Students may encounter words in the text that are not tested but are above the student's grade placement. In grades 3–5, these challenging words and their definitions may appear in a word box above the story or article. In grades 6–8, the definitions of challenging words may appear in footnotes.

No single source is available to determine the reading level of various words. Therefore, the appropriateness and difficulty of a word is determined in different ways. Vocabulary words were checked in the following sources: *EDL Core Vocabularies in Reading, Mathematics, Science, and Social Studies* (Taylor,1989); or other reliable readability sources. In addition to using these resources to assist in creating vocabulary items, each vocabulary item was approved by Oklahoma's Content Review Committee. The committee, composed of Oklahoma educators from across the state, reviewed proposed vocabulary items for grade-level appropriateness. ELA tests have vocabulary at grade level; in all other tests, the vocabulary level is below the grade being tested, except for content words. Grades 3–4 are one grade level below, and grades 5–8 are two grade levels below.

New passages were developed for the 2021–2022 ELA administration. Grades 3-4 each had a single narrative and informational passage. Grade 5 had a single narrative and an informational pair. Grade 6 had a single narrative and a single informational passage. Grades 7 and 8 each had a narrative pair and an informational pair. Where necessary, the passages used to assess Standard 5 (Language) were selected from commissioned works developed specifically for that standard. Otherwise, Standard 5 items were written to the same passages as the other standards. All the passages assessing Standards 2 (Reading and Writing Process), 3 (Critical Reading and Writing), 4 (Vocabulary), and 6 (Research) were individually selected to eliminate cultural or other forms of bias that might disadvantage any group(s) of students.

Table 3-6. Grades 3–8 and Eligible Passage Types

Grades	Literary	Expository
3–5	contemporary realistic fiction, historical fiction, modern fantasy, poetry, drama, and traditional stories (legends, myths, fairy tales, and fables)	informational, biography, autobiographies, and functional text
6–7	short story, novel excerpt, drama, poetry, fable, folk tale, mystery, and myth	informational, biography, autobiographies, and functional text
8	short story, novel excerpt, drama, lyric poetry, historical fiction, fable, folk tale, mystery, myth, limericks, tall tales, and plays	informational, biography, autobiographies, and functional text

3.1.4 Item Development

In preparation for the OSTP 2021–22 ELA administration, a gap analysis of the existing Oklahoma item bank was conducted. The purpose of this analysis was to identify any deficits for particular standards and objectives, and item counts were determined to address those deficits during development.

3.1.5 Spring 2022 Test Design and Development

The 2021–22 OSTP ELA tests were structured using both operational items (designated to contribute to the student's score) and embedded field-test items (not designated to contribute to the student's score), as noted in figure 3-1. Operational items were taken by all students in a given grade level. Across the operational and breach forms that were constructed, there were common linking items that both forms

shared, and unique items associated with each particular form. Student scores were based only on operational items. Breach forms were a reuse of spring 2021 forms.

The percentages of common linking items for the 2021–22 OSTP ELA tests for grades 3–8 are shown in Table 3-6a.

Table 3-6a. Percentages of Common Linking Items across Operational and Breach Forms 2021–22

Content	Grade	Common Linking Items across Operational and Breach Forms
ELA	3	60%
	4	60%
	5	55%
	6	66%
	7	66%
	8	39%

In the 2021-22 administration, each form in grades 3, 4, 6, & 7 included 60 items: 50 operational items contributed to the student's score and 10 were field-test items (did not contribute to the student's score). In grades 5 & 8 each form included 61 items: 51 operational items contributed to the student's score and 10 were field-test items (did not contribute to the student's score).

The combined student experience for the 2021–22 OSTP ELA tests for grades 3–8 is shown in Tables 3-7 through 3-9. In grades 3–8, all students experienced 60 items (50 operational items and 10 field-test items) addressing either single or paired passages. Students in grades 5 and 8 experienced 60 multiple choice items and experienced a writing prompt related to a paired passage. Students in grades 3, 4, 6, and 7 experienced 56 multiple choice items and four constructed response items.

Table 3-7. ELA Grades 3–8 Student Test Experience: Operational Items Across Forms 2021–22

	WP		*MC*		*CR*		***Total***	
Grades	Items	Pts	Items	Pts	Items	Pts	**Items**	**Pts**
3-4	0	0	48	48	2	4	**50**	**52**
5	1	4	50	50	0	0	**51**	**54**
6-7	0	0	48	48	2	4	**50**	**52**
8	1	4	50	50	0	0	**51**	**54**

WP = Writing Prompt, MC = Multiple-Choice, CR = Constructed Response

Table 3-8. ELA Grades 3–8 Student Test Experience: Field-Test Items Across Forms 2021–22

	WP		*MC*		*CR*		***Total***	
Grades	Items	Pts	Items	Pts	Items	Pts	**Items**	**Pts**
3-4	0	0	8	8	2	4	**10**	**12**
5	0	0	10	10	0	0	**10**	**10**
6-7	0	0	8	8	2	4	**10**	**12**
8	0	0	10	10	0	0	**10**	**10**

WP = Writing Prompt, MC = Multiple-Choice, CR = Constructed Response

Table 3-9. ELA Grades 3–8 Student Test Experience: Combined Operational and Field-Test Items Across Forms 2021–22

	WP		*MC*		*CR*		***Total***	
Grades	Items	Pts	Items	Pts	Items	Pts	**Items**	**Pts**
3-4	0	0	56	56	4	8	**60**	**64**
5	1	4	60	60	0	0	**61**	**64**
6-7	0	0	56	56	4	8	**60**	**64**
8	1	4	60	60	0	0	**61**	**64**

WP = Writing Prompt, MC = Multiple-Choice, CR = Constructed Response

3.1.6 Writing (Grades 5 and 8)

Student essays in grades 5 and 8 were assessed according to a holistic writing rubric on a 1–4 scale, with 4 as the highest score. All student responses were scored using grade-specific rubrics that assessed idea development, organization (including unity and coherence), word choice, sentence structure, grammar, usage, and mechanics. Students were asked to demonstrate these skills by integrating them in producing a unified essay. The final score represents the overall writing performance to a mode-specific prompt and its associated passages; students were expected to address the task appropriately and incorporate ideas from the passages to connect with the audience. To help guide students, a reference sheet that contained a writer's checklist was made available (https://oklahoma.onlinehelp.cognia.org/writers-checklist/). Student responses to previous test items released for public use are provided by the Scoring Content Specialist at http://sde.ok.gov/sde/ assessment-material.

3.1.7 Reading Sufficiency Act (RSA)

The purpose of the Reading Sufficiency Act (RSA) is to ensure that all Oklahoma students are reading at grade level at the end of third grade (a critical juncture that occurs when students go from learning to read, to reading to learn). As part of meeting the requirements of the RSA, student performance on a subset of 32 items on the OSTP ELA will be used as one of the criteria to determine student readiness to be promoted to the fourth grade. These 32 items measure ELA Standard 2: Reading and Writing Process and Standard 4: Vocabulary. Separate performance level descriptors (PLDs–Appendix D) were developed to support standard setting and score reporting for RSA requirements as follows:

- **Meets RSA Criteria**—Third-grade students meeting the RSA criteria are performing at grade level on the reading portion of the OSTP Grade 3 English language arts assessment.
- **Does Not Meet RSA Criteria**—Third grade students not meeting the RSA criteria are not performing at grade level on the reading portion of the OSTP Grade 3 English language arts assessment.

3.1.8 Data Review

A conference call/WebEx between the SDE and Cognia was conducted to review the content of spring 2022 ELA field-test items that were flagged due to psychometric criteria. Table 3-10 shows the criteria used for reviewing the flagged items.

Table 3-10. ELA Flagged Item Criteria

Statistic	Flagging for Dichotomous Items	Flagging for Polytomous Items
Item Difficulty (*p*-value)	Below 0.2 may be too difficult; above 0.9 may be too easy.	Below 0.2 may be too difficult; above 0.9 may be too easy.
Item Discrimination (corrwtotal)	Generally, 0.20 or higher is desired; must be >0.10; negative or zero values should not be used. For values between 0.10 and 0.20, difference between corrwtotal and any distractor option correlation value must be ≥ 0.09.	Must be ≥ 0.40.
Differential Item Functioning (DIF)	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.

Statistics for flagged field-test items were reviewed by considering item difficulty (*p*-value), item discrimination (corrwtotal), and differential item functioning (DIF). (Section 6.2 drills down into the DIF statistical testing.) Decisions were made whether flagged items should be included in the Oklahoma item bank for future operational use. Results of the Data Review meeting are presented in Table 3-11. A total of 31 ELA items were flagged for review due to psychometric criteria with 77% of the flagged items being accepted for operational use in spring 2023 and beyond.

Table 3-11. ELA Data Review Results for 2021–2022

Grade	Accepted	Rejected	Revise & reFT	Total
3	20	0	0	20
4	16	3	1	20
5	18	1	1	20
6	18	2	0	20
7	17	2	1	20
8	19	0	1	20
Total	**108**	**8**	**4**	**120**

3.1.9 Item Types

ELA item types include: MS1, machine scored 1 point, CR, open ended response 2 points, Writing prompt ER, open ended response 4 points.

Most items are arranged in item clusters; a few items are presented as stand-alone items. Presenting the items in item clusters allows for better alignment to the breadth and depth of the standards in the OAS-ELA. Examples of test items for public use are provided by the SDE within the test, and item specifications and can be found at its website: https://sde.ok.gov/assessment-material.

3.2 Grades 3–8—OSTP Mathematics Assessments

3.2.1 Develop/Review/Approve Test Blueprints with DOK Percentages

Items on the OSTP mathematics assessments for grades 3–8 were developed specifically for Oklahoma and are directly linked to the OAS. The standards are the basis for the reporting categories developed for each content area and are used to help guide the development of test items. Each item is designed to

measure a specific standard and objective. The test blueprints were developed by the SDE, and test specifications were done in collaboration between Cognia and the SDE.

The test blueprints identify the amount of content covered on the tests and are based on the importance and coverage of the OAS in Oklahoma schools. The ideal test blueprints are provided by the SDE at their website https://sde.ok.gov/assessment-material or see Appendix C.

The distribution of emphasis for the OSTP grades 3–8 mathematics content standards is shown in Tables 3-12 and 3-13. As indicated in the tables below, the actual and ideal distributions of content standards on each assessment match perfectly. The ideal number of items aligned to each standard can be found in Appendix C.

Table 3-12. Distribution of Emphasis in Terms of Target Percentage of Test by Grade for Grades 3–5 OAS Mathematics Standards 2021–22

Standard	Grade 3		Grade 4		Grade 5	
	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage
Number and Operations	44-48%	46%	42-46%	44%	44-48%	44%
Algebraic Reasoning	12-16%	14%	14-18%	16%	16-20%	18%
Geometry and Measurement	26-30%	28%	26-30%	28%	22-26%	26%
Data and Probability	12-16%	12%	12-16%	12%	12-16%	12%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 3-13. Distribution of Emphasis in Terms of Target Percentage of Test by Grade for Grades 6–8 OAS Mathematics Standards 2021–22

Standard	Grade 6		Grade 7		Grade 8	
	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage
Number and Operations	38-40%	40%	18-22%	20%	16-18%	18%
Algebraic Reasoning	20-24%	24%	28-32%	28%	44-48%	44%
Geometry and Measurement	22-26%	22%	28-32%	32%	18-22%	22%
Data and Probability	12-16%	14%	18-22%	20%	14-18%	16%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Each item on the OSTP grades 3–8 mathematics tests was assigned a DOK level according to the cognitive demand of the item. DOK ranges are based on the DOK of the OAS. As discussed earlier, DOK is not synonymous with difficulty. Instead, the DOK level rates the complexity of the mental processing a student must use to answer the question. The standards increase grade-level expectations and rigor and

set expectations for students to be college and career ready. Items at each DOK level can be found in the Test and Item Specifications here: https://sde.ok.gov/assessment-material.

DOK 1 RECALL AND REPRODUCTION: requires the student to recall facts, terms, definitions, or simple procedures, and to perform simple algorithms or apply formulas. One-step, well-defined, or straight algorithmic procedures should be included at this level.

DOK 2 SKILLS AND CONCEPTS: requires the student to make some decisions as to how to approach the problem or activity. Level 2 activities include making observations and collecting data; classifying, comparing, and organizing data; and organizing and displaying data in tables, charts, and graphs.

DOK 3 STRATEGIC THINKING: requires reasoning, planning, using evidence, and a higher level of thinking. Level 3 activities include making conjectures, drawing conclusions from observations, citing evidence and developing a logical argument for concepts, explaining phenomena in terms of concepts, and using concepts to solve nonroutine problems.

At each grade level, the actual percentage of items at each DOK level fell within the recommended range except for one instance on Breach G6, as shown below in Tables 3-14 and 3-15.

Table 3-14. Mathematics DOK Levels by Grade—Form A 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
3	40–50%	42%	45–55%	48%	5–10%	10%
4	25–35%	30%	60–70%	62%	5–15%	8%
5	20–30%	24%	65–75%	66%	5–15%	10%
6	15–25%	24%	65–75%	66%	10–20%	10%
7	15–25%	22%	65–75%	66%	10–20%	12%
8	10–20%	18%	65–75%	66%	15–25%	16%

Table 3-15. Mathematics DOK Levels by Grade—Breach 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
3	40–50%	44%	45–55%	48%	5–10%	8%
4	25–35%	34%	60–70%	60%	5–15%	6%
5	20–30%	20%	65–75%	66%	5–15%	14%
6	15–25%	26%	65–75%	64%	10–20%	10%
7	15–25%	22%	65–75%	68%	10–20%	10%
8	10–20%	14%	65–75%	70%	15–25%	16%

3.2.2 Test and Item Specification Development

Multiple-choice items were administered in grades 3–8 mathematics assessments. Multiple-choice items require students to demonstrate a wide range of knowledge and skills. Each item requires approximately

one minute for most students to answer. This item type affords efficient use of limited testing time and allows coverage of a wide range of knowledge and skills. In addition, technology-enhanced items (TEIs) were developed for grades 3–8. TEIs are used to address some aspects of the OAS performance expectations more authentically and/or to provide more opportunity for students to construct rather than select their response.

Interaction types are matching, hot-spot, drag-and-drop, and drop-down. Each TEI contains only one interaction type per item. Examples of test items released for public use are provided by the SDE in the Test and Item Specifications (see https://sde.ok.gov/assessment-material).

The test framework for mathematics at grades 3–8 was based on the OAS. Each item on the grades 3–8 OSTP tests was designed to measure a specific standard and objective. The measure of Oklahoma students' level of proficiency in responding to a variety of items linked to grade-level mathematics content standards are identified in the OAS. The mathematics objectives are organized into four content strands:

- Number and Operations
- Algebraic Reasoning and Algebra
- Geometry and Measurement
- Data and Probability

3.2.3 Item Development

New items were developed for this administration. In preparation for the 2021–22 OSTP administration for mathematics, a gap analysis of the existing Oklahoma item bank was conducted to identify any deficits in particular standards and objectives and to determine item counts needed to address those deficits during development.

3.2.4 Spring 2022 Test Design and Development

The OSTP mathematics tests were structured using both operational items (designated to contribute to a student's score) and embedded field-test items (not designated to contribute to the student's score).

Operational items were taken by all students in a given grade level. Across the operational and breach forms that were constructed, there were common linking items that both forms shared, and unique items associated with each particular form. Student scores were based only on operational items. Operational items and field-test items were not distinguishable to students.

In the 2021–22 administration, each form included 60 items: 50 items contributed to the student's score and 10 did not contribute to the student's score, as they were field-test items. Breach forms were rebuilt in grades 3–8 so that they met psychometric requirements. The percentages of common linking items for the 2021–22 OSTP mathematics tests for grades 3–8 are shown in Table 3-16.

Table 3-16. Percentages of Common Linking Items across Operational and Breach Forms 2021–22

Content	Grade	Common Linking Items across Operational and Breach Forms
Mathematics	3	28%
	4	32%
	5	34%
	6	42%
	7	30%
	8	46%

The student experience for the 2021–22 OSTP mathematics tests for grades 3–8 is shown in Tables 3-17 through 3-19. In grade 3, all students experienced 59 multiple-choice items and 1 technology-enhanced item. In grades 4-5, all students experienced 59 multiple-choice items and 2 technology-enhanced items. In grades 6–8, all students experienced 55 multiple-choice items and 5 technology-enhanced items.

Table 3-17. Mathematics Grades 3-8 Student Test Experience – Operational Items Across Forms 2021–22

	MC		TEI/PE		Total	
Grades	Items	Pts	Items	Pts	Items	Pts
3	50	50	0	0	50	50
4–5	49	49	1	1	50	50
6–8	47	47	3	3	50	50

MC = Multiple Choice. TEI = Technology-Enhanced Item, PE = Paper Equivalent

Table 3-18. Mathematics Grades 3-8 Student Test Experience – Field Test Items Across Forms 2021–22

	MC		TEI/PE		Total	
Grades	Items	Pts	Items	Pts	Items	Pts
3-5	9	9	1*	1	10	10
6-8	8	8	2	2	10	10

MC = Multiple Choice, TEI = Technology-Enhanced Item, PE = Paper Equivalent

One grade 3 mathematics TEI item was field tested but not used operationally.

Table 3-19. Mathematics Grades 3-8 Student Test Experience – Combined Operational and Field Test Items Across Forms 2021–22

	MC		TEI/PE		Total	
Grades	Items	Pts	Items	Pts	Items	Pts
3	59	59	1	1	60	60
4–5	58	58	2	2	60	60
6–8	55	55	5	5	60	60

MC = Multiple Choice, TEI = Technology-Enhanced Item, PE = Paper Equivalent

3.2.5 Data Review

A conference call/Zoom meeting between the SDE and Cognia was conducted to review the content of spring 2022 mathematics field-test items that were flagged due to psychometric criteria. Table 3-20 shows the criteria used for reviewing the flagged items.

Table 3-20. Mathematics Flagged Item Criteria

Statistic	Flagging for Dichotomous Items	Flagging for Polytomous Items
Item Difficulty (*p*-value)	Below 0.2 may be too difficult; above 0.9 may be too easy.	Below 0.2 may be too difficult; above 0.9 may be too easy.
Item Discrimination (corrwtotal)	Generally, 0.20 or higher is desired; must be >0.10; negative or zero values should not be used. For values between 0.10 and 0.20, difference between corrwtotal and any distractor option correlation value must be ≥ 0.09.	Must be ≥ 0.40.
Differential Item Functioning (DIF)	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.

Statistics for flagged field-test items were reviewed by considering item difficulty (*p*-value), item discrimination (corrwtotal), and DIF. Decisions were made whether flagged items should or should not be included in the Oklahoma item bank for future operational use. Results of the Data Review meeting are presented in Table 3-21. A total of 23 mathematics items were flagged for review due to psychometric criteria, with 78% of the flagged items being accepted for future operational use in spring 2023 and beyond.

Table 3-21. Mathematics Data Review Results 2021–22

Grade	Accepted	Rejected	Revise& reFT	Total
3	21	0	1	22
4	21	0	1	22
5	18	4	0	22
6	22	0	2	24
7	23	0	1	24
8	22	2	0	24
Total	**127**	**6**	**5**	**138**

3.2.6 Use of Calculators and Reference Sheets

Approved calculators were allowed on the OSTP grades 6–8 mathematics assessments. Reference sheets were provided to students in grades 6–8 during the test. For approved calculators, see the calculator policy posted on the SDE website: https://sde.ok.gov/sites/default/files/documents/files/FINAL_Calculator%20Policy%202017 .

3.3 Grades 5 and 8 – OSTP Science Assessments

3.3.1 Develop/Review/Approve Test Blueprints

Items on the science OSTP grades 5 and 8 tests were developed specifically for Oklahoma and are directly linked to the Oklahoma Academic Standards for Science (OAS-Science). The standards are the basis for the reporting categories developed for each grade and are used to help guide the development of test items. Each item is designed to measure a specific standard in the OAS-Science. The test blueprints were developed in collaboration with Cognia and the SDE. The test blueprints identify the amount of content covered on the tests and are based on the coverage of the OAS-Science in Oklahoma

schools. The ideal test blueprints are provided by the SDE on its website. For grades 5 and 8 science, see the following: https://sde.ok.gov/assessment-material; these test blueprints can also be found in Appendix C.

The distribution of emphasis for the OSTP grades 5 and 8 assessable standards is shown in Table 3-22. The actual and ideal distributions of standards on each assessment match reasonably.

Table 3-22. Distribution of Emphasis in Terms of Target Percentage of Test by Grade—Grades 5 and 8 OAS-Science Standards 2021–22

Standard	Grade 5		Grade 8	
	Ideal Percentage	Actual Percentage	Ideal Percentage	Actual Percentage
Physical Sciences	27-33%	53.3%	33-40%	33%
Life Sciences	27-33%	26.7%	21-27%	27%
Earth and Space Sciences	33-40%	20%	40-46%	40%
Total	100%	100%	100%	100%

3.3.2 Item Development

The OSTP science tests consist of clusters of items. A cluster is a set of items linked to a common stimulus. No new MC clusters were developed for grade 5. Eleven new MC clusters were developed for grade 8, with two additional TEI clusters for grade 8 for field testing within the spring 2022 operational test forms. Three additional clusters were developed for the TIS. In preparation for the 2021–22 administration of OSTP science, a gap analysis of the existing Oklahoma item bank was conducted to identify deficits for particular standards, and item counts were determined that would address those deficits during development.

3.3.3 Spring 2022 Test Design and Development

The OSTP science tests were structured using both operational items (designated to contribute to a student's score) and embedded field-test items (not designated to contribute to the student's score). The items used on the OSTP grades 5 and 8 science tests were written as clusters of items aligned to the standards of the 2014 OAS-S that were determined to be assessable on the state summative assessment.[9] (For reference, the full OAS-S can also be found at sde.ok.gov/sde/sites/ok.gov.sde/files/OAS_Science_Standards_3-2-15.pdf).

Operational items (or equivalent items in the paper form or in technology-enhanced items in the online form for grade 8 science) were taken by all students in a given grade level. One operational form and one breach form were constructed. Across the operational and breach forms, 42% of the grade 5 items and 47% of the grade 8 items were common linking items; the rest of each form contained unique items. There were a total of 15 operational clusters (45 operational items) on each form.

[9] *For test blueprints for Science grades 5 and 8, see Appendix C. For both test blueprints and item specifications for grade 5, see https://sde.ok.gov/sites/default/files/documents/files/OSTP_2018-19_TIS_Sci_G5_web.pdf and for grade 8, see https://sde.ok.gov/sites/default/files/documents/files/OSTP_2018-19_TIS_Sci_G8_web.pdf.*

Field-test items for a range of standards were tested to continue building an item bank that will support an appropriate sampling of the assessable standards of the OAS-S each year. Field-test items were embedded in each form. One online form was administered for grade 5 and ten online forms were administered for grade 8, with a paper/pencil form as an accommodation in each grade level. Each form contained three field-test clusters (nine field-test items in total). Field-test items were not distinguishable to students. Student scores were based only on the operational items. Breach forms were rebuilt in grades 5 and 8 so that they met psychometric requirements.

The student experience for the 2021–22 OSTP science tests for grades 5 and 8 is shown in Tables 3-23 through 3-25 below.

Table 3-23. Science Clusters in Core / Operational Items Across Forms 2021–22

	Stm	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
5	15	45	45	0	0	45	45
8	15	42	42	3	6	45	48

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

Table 3-24. Science Clusters to Field Test / Field-Test Items Across Forms 2021–22

	Stm	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
5	3	9	9	0	0	9	10
8	3	8	8	1	2	9	10

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

Table 3-25. Science Clusters in Combined Test/Operational & Field Test Items Across Forms 2021–22

	Stm	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
5	18	54	54	0	0	54	55
8	18	50	50	4	8	54	58

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

3.3.4 Data Review

A conference call/WebEx between the SDE and Cognia was conducted to review the content of Spring 2022 grades 5 and 8 science field-test items that were flagged due to psychometric criteria. This included items that were flagged in the previous administration and were being tracked to see how they performed during the 2022 administration. Table 3-26 shows the criteria used for reviewing the flagged items.

Table 3-26. Science Flagged Item Criteria

Statistic	Flagging for Dichotomous Items	Flagging for Polytomous Items
Item Difficulty (*p*-value)	Below 0.2 may be too difficult; above 0.9 may be too easy.	Below 0.2 may be too difficult; above 0.9 may be too easy
Item Discrimination (corrwtotal)	Generally, 0.20 or higher is desired; must be >0.10; negative or zero values should not be used. For values between 0.10 and 0.20, difference between corrwtotal and any distractor option correlation value must be ≥ 0.09.	Must be ≥ 0.40.
Differential Item Functioning (DIF)	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.	Values +/-C are serious DIF that must be looked at closely; +/-B values indicate moderate DIF that may warrant inspection.

Statistics for flagged field-test items were reviewed by considering item difficulty (p-value), item discrimination (corrwtotal), and DIF. Decisions were made whether flagged items should or should not be included in the Oklahoma item bank for future operational use. Results of the Data Review meeting are presented in Table 3-27. There was a total of 32 grade 5 and 8 science field test items flagged for review due to psychometric criteria. Forty-six percent of the flagged field test items were accepted for future operational use.

Table 3-27. Science Data Review Results for 2021-22 Items

Grade	Accept	Reject	Re-field test	Total
5	4	0	1	5
8	55	19	8	82
Total	**59**	**19**	**9**	**87**

3.3.5 Standards

The test frameworks for science at grades 5 and 8 are based on the OAS-Science. Items are developed within clusters, and each cluster/item is designed to measure a specific standard in the OAS-Science. The grades 5 and 8 science standards are organized across three content domains: Physical Sciences (PS), Life Sciences (LS), and Earth and Space Sciences (ESS).

3.3.6 Item Types

The grade 5 science test consists of clusters with multiple-choice items. The use of multiple-choice items affords efficient use of limited testing time. The grade 8 test also consists of clusters of items. A cluster, for the grade 8 test, is either a set of three multiple-choice items linked with a common stimulus or a set of two multiple-choice items and a technology-enhanced item linked with a common stimulus. On the accommodated paper form for grade 8, the technology-enhanced items are replaced by paired multiple-choice items.

All items are arranged in item clusters; no items are presented as stand-alone items. Presenting the items in item clusters allows for better alignment to the breadth and depth of the standards in the OAS-Science. Examples of test items for public use are provided by the SDE within the test and item specifications and can be found at sde.ok.gov/sde/assessment-material.

3.3.7 Cognitive Complexity

The OSTP Science Assessment will have items within a cluster structured to assess a range of skills and knowledge applications within a standard. Clusters require sense-making and problem-solving using the three dimensions. Sense-making happens when students must apply, via science and engineering practices, their understanding of core ideas and crosscutting concepts to address the uncertainty associated with a scenario. The degree of sense-making required to complete an item is directly correlated to the level of cognitive complexity the student must engage with, as described in Figure 3-1.

Figure 3-1. OSTP Levels of Cognitive Complexity

Reference Guide

Alignment to each dimension: To what extent does the item require the student to engage with the dimension (full, partial, N/A).

Full	Partial	N/A
The item requires the skills/knowledge stated in the language of the **bullet point/s.**	The item requires the skills/knowledge of the **general heading** of the dimension.	The item does not require the dimension.

Sample Standard:

Science & Engineering Practice:	Disciplinary Core Idea:	Crosscutting Concept:
Analyzing and Interpreting Data • Analyze and interpret data to determine similarities and differences in findings.	**LS4.A: Evidence of Common Ancestry and Diversity** • The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**Patterns** • Graphs, charts, and images can be used to identify patterns in data.

	SEP	DCI	CCC
Full	The item requires the student to analyze or interpret data specifically to find similarities or differences.	The item requires the student to use knowledge of common ancestry and diversity in the context of the chronological order of the fossil record.	The item requires the student to specifically engage in identifying patterns in data (can be graphs, charts, or images)
Partial	The item does involve data but does not require using the data to find a similarity or difference.	The item requires the student to use knowledge of common ancestry and diversity but does not have to be in relation to the fossil record.	The item involves patterns, but students are not specifically identifying patterns from data to answer the question.
N/A	The item does not require the use of data.	The item does not require knowledge of common ancestry or diversity.	The item does not contain any patterns.

Sense-Making*-To what degree is sense-making occurring in regard to the phenomenon presented in the stimulus?

Low	Medium	High
The item is answering a question **about** the phenomenon or further **describing** a piece of the phenomenon. A student must **understand** what the phenomenon is. Students are provided a well-defined set of actions or procedures are used to complete a given task. *Ex. Which statement correctly compares the information in the two graphs?*	The item will help **explain** the given phenomenon. A student must be able to understand the phenomenon in order to **explain why** it is occurring. Students are provided some information and then asked to provide the rest of it. *Ex. Which statement explains why there is a difference in the data found in the two graphs?*	The item will require an **understanding** of the original phenomenon in order to **apply** that understanding to a related scenario or extension of the original phenomenon. Students must connect multiple pieces of information without being provided that information. *Ex. Based on the information in the graph, predict what the data will be if a new predator moves into the area?*

***Sense-Making**

Sense Making Defined

Sense-making or problem solving requires students to refine and/or use their ideas to address a new phenomenon or problem. 'Sense-making' or 'making sense' in this document is defined as students connecting their (assumed, based on the target of the assessment) existing understanding and abilities to new information (provided by the scenario or previous investigations) to construct new understanding of the scenario presented. This new understanding could be in the form of a claim, hypothesis, prediction, model, question, explanation, argument, etc. The emphasis here is on using their knowledge/understanding to develop a new understanding, rather than representing a previously developed understanding. When making a decision about sense-making, consider whether the question asks students to do at least one of the following:

1. Identify and/or generate evidence. Clusters require students to make sense of data, observations, and other kinds of information to generate evidence to address some aspect of a phenomenon or problem. [Note: data doesn't have to be provided--data could come from previous investigations; if this is the case, it needs to be provided by the developer for our purposes]
2. Apply evidence to claims/ideas with reasoning. Clusters require students to interpret or use evidence and/or models to make, evaluate, support, and/or refute claims (e.g., ideas, predictions) about a problem or phenomenon.
3. Evaluate or critique claims. Clusters require students to evaluate claims, evidence, reasoning, and/or models based on expected understanding students bring to the cluster, quality, and/or additional or revised information.
4. Generate questions to guide exploration of a phenomenon or problem presented. Clusters require students to ask questions that arise from examining and evaluating claims, data, evidence, and/or reasoning related to a phenomenon or problem.

3.3.8 Use of Calculators and Reference Sheets

Approved calculators were allowed on the OSTP grade 8 science test. No other resource materials or reference sheets could be used by students during the test. See https://sde.ok.gov/sites/ok.gov.sde/files/CalculatorPolicy17-18%20ver%202.pdf.

3.4 Grade 11—CCRA Science & U.S. History

3.4.1 Develop/Review/Approve Test Blueprints

Science

Items on the grade 11 CCRA science tests were developed specifically for Oklahoma and are directly linked to the Oklahoma Academic Standards for Science (OAS-S). The standards are the basis for the reporting categories developed for each grade and are used to help guide the development of test items. Each item is designed to measure a specific standard in the OAS-S. The test blueprints were developed in collaboration with Cognia and the SDE. The test blueprints identify the amount of content covered on the tests and are based on the coverage of the OAS-S in Oklahoma schools. The ideal test blueprints are provided by the SDE on its website: https://sde.ok.gov/assessment-material; these can also be found in Appendix C.

The distribution of emphasis for the CCRA science assessable performance expectations is shown in Table 3-28. The actual and ideal distributions of performance expectations on each assessment match reasonably. The ideal number of items aligned to each standard can be found in the test blueprints in Appendix C.

Table 3-28. Distribution of Emphasis in Terms of Target Percentage of Test by Grade—Grade 11 OAS-Science Standards 2021–22

Standard	Grade 11	
	Ideal Percentage	Actual Percentage
Physical Sciences	45-55%	50%
Life Sciences	45-55%	50%
Earth and Space Sciences	0-0%	0%
Total	100%	100%

US History

Items on the grade 11 CCRA U.S. History tests were developed specifically for Oklahoma and are directly linked to the Oklahoma Academic Standards for US History. The standards are the basis for the reporting categories developed for each grade and are used to help guide the development of test items. Each item is designed to measure a specific Performance Expectation in the OAS-US History. The test blueprints were developed in collaboration with Cognia and the SDE. The test blueprints identify the amount of content covered on the tests and are based on the importance and coverage of the OAS-US History in Oklahoma schools. The ideal test blueprints are provided by the SDE on its website: https://sde.ok.gov/assessment-material; these can also be found in Appendix C.

The distribution of emphasis for the CCRA US History assessable standards is shown in Table 3-29. The actual and ideal distributions of standards on each assessment match reasonably. The ideal number of items aligned to each standard can be found in the test blueprints in Appendix C.

Table 3-29. Distribution of Emphasis in Terms of Target Percentage of Test by Grade -Grade 11 OAS-US History Standards 2021–22

Standard	Grade 11	
	Ideal Percentage	Actual Percentage
US History	45-55%	50%
Civics	45-55%	50%
Total	100%	100%

3.4.2 Item Development

Science

The grade 11 CCRA science test also consists of clusters of items. A cluster, for the grade 11 test, is either a set of three multiple-choice items linked with a common stimulus or a set of two multiple-choice items and a technology-enhanced item linked with a common stimulus. On the accommodated paper form for grade 11, the technology-enhanced items are replaced by paired multiple-choice items.

All items are arranged in item clusters; no items are presented as stand-alone items. Presenting the items in item clusters allows for better alignment to the breadth and depth of the standards in the OAS-S. Examples of test items for public use are provided by the SDE within the test, and item specifications and can be found at its website: https://sde.ok.gov/assessment-material.

U.S. History

The grade 11 CCRA U.S. history test consists of multiple-choice items and complex stimuli clusters. The complex stimuli clusters consist of multiple stimuli and multiple-choice items. Examples of test items for public use are provided by the SDE within the test, and item specifications and can be found at its website: https://sde.ok.gov/assessment-material.

3.4.3 Spring 2022 Test Design and Development

Science

The CCRA science tests were structured using both operational items (designated to contribute to a student's score) and embedded field-test items (not designated to contribute to the student's score). Operational items (or equivalent items in the paper form or in technology-enhanced items in the online form) were taken by all students in this grade level. One operational form and one breach form were constructed. Across the operational and breach forms, approximately 51% of the items were common linking items; the rest of each form contained unique items. There was a total of 20 operational clusters (60 operational items) on each form.

Field-test items were embedded in each form. In grade 11, eight online forms were administered, with a paper/pencil form as an accommodation. Each form contained two field-test clusters (six field-test items in

total). Field-test items were not distinguishable to students. Student scores were based only on the operational items. Breach forms were a reuse of spring 2021 forms.

The **student experience** for the 2021–22 CCRA science tests for grade 11 is shown in Tables 3-30 through 3-32 below.

Table 3-30. Science Clusters in Core / Operational Items Across Forms 2021–22

	Stimulus	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
11	20	58	58	2	4	60	62

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

Table 3-31. Science Clusters to Field Test / Field-Test Items Across Forms 2021–22

	Stimulus	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
11 (varies per form)	2	6	6	0	0	6	6
	2	5	5	1	2	6	7

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

Table 3-32. Science Clusters in Combined Test / Field Test and Operational Items Across Forms 2021–22

	Stimulus	MC		TEI/PMC		Total	
Grade	Single	Items	Pts	Items	Pts	Items	Pts
11 (varies per form)	2	64	64	2	4	66	66
	2	63	63	3	6	66	69

MC = Multiple Choice, TEI = Technology-Enhanced Item, PMC = Paired Multiple Choice

U.S. History

The CCRA U.S. history tests were structured using both operational and embedded field-test items. Operational items were taken by all students in this grade level. Two operational forms and one breach form were constructed. The Breach form was a 'scramble' operational form. There was a total of 50 operational items on each form.

Field-test items were embedded in each form. In grade 11, two online forms were administered, with a paper/pencil form as an accommodation. Each form contained ten field-test items in total. Field-test items were not distinguishable to students. Student scores were based only on the operational items. Breach forms were a reuse of spring 2021 forms.

The student experience for the 2021–22 CCRA U.S. history tests for grade 11 is shown in Tables 3-33 through 3-35 below.

Table 3-33. U.S. History Items in Core / Operational Items Across Forms 2021–22

	Stimulus	MC		Standalone Items		Total	
Grade	Passage	Items	Pts	Items	Pts	Items	Pts
11	2	8	8	42	42	50	50

MC = Multiple Choice.

Table 3-34. U.S. History Items to Field Test / Field-Test Items Across Forms 2021–22

	Stimulus	MC		Standalone Items		Total	
Grade	Passage	Items	Pts	Items	Pts	Items	Pts
11	1	4	4	6	6	10	10

MC = Multiple Choice.

Table 3-35. U.S. History Clusters in Combined Test / Field Test and Operational Items Across Forms 2021–22

	Stimulus	MC		Standalone		Total	
Grade	Passage	Items	Pts	Items	Pts	Items	Pts
11	3	12	12	48	48	60	60

MC = Multiple Choice.

3.4.4 Data Review

A conference call/WebEx between the SDE and Cognia was conducted to review the content of spring 2022 grade 11 science and U.S. history field-test items that were flagged due to psychometric criteria. Table 3-36 shows the criteria used for reviewing the flagged items.

Table 3-36. Science-Flagged Item Criteria

Statistic	Flagging for Dichotomous Items	Flagging for Polytomous Items
Item Difficulty (*p*-value)	Below 0.2 may be too difficult; above 0.9 may be too easy.	Below 0.2 may be too difficult; above 0.9 may be too easy.
Item Discrimination (corrwtotal)	Generally, 0.20 or higher is desired; must be > 0.10; negative or zero, values should not be used. For values between 0.10 and 0.20, difference between corrwtotal and any distractor option correlation value must be ≥ 0.09.	Must be ≥ 0.40.
Differential Item Functioning (DIF)	Values +/- C are serious DIF that must be looked at closely; +/- B values indicate moderate DIF that may warrant inspection.	Values +/- C are serious DIF that must be looked at closely; +/- B values indicate moderate DIF that may warrant inspection.

Science

Statistics for flagged field-test items were reviewed by considering item difficulty (p-value), item discrimination (corrwtotal), and DIF. Decisions were made whether flagged items should or should not be included in the Oklahoma item bank for future operational use. Results of the Science Data Review meeting are presented in Table 3-37. There was a total of 38 grade 11 science field test items, 14 of which had been flagged for review due to psychometric criteria and 92% were accepted for operational use.

Table 3-37. Science Data Review Results for 2021–2022

Grade	Accepted	Rejected	Re-Field test	Total
11	25	3	10	38

**This table shows the total number of items field tested. Following acceptance at Data Review, these items are available for operational use in 2022–23 and beyond.*

U.S. History

Statistics for flagged field-test items were reviewed by considering item difficulty (p-value), item discrimination (corrwtotal), and DIF. Decisions were made whether flagged items should or should not be included in the Oklahoma item bank for future operational use. Results of the Science Data Review meeting are presented in Table 3-38. There was a total of 34 grade 11 U.S. history field test items, four of which had been flagged for review due to psychometric criteria and 91% were accepted for operational use.

Table 3-38. US History Data Review Results for 2021–2022

Grade	Accepted	Rejected	Re-Field Test	Total
11	30	3	1	34

**This table shows the total number of items field tested. Following acceptance at Data Review, these items are available for operational use in 2022–23 and beyond.*

3.4.5 Standards

The test frameworks for science at grade 11 are based on the OAS-Science. Items are developed within clusters, and each cluster/item is designed to measure a specific standard in the OAS-Science. The grade 11 science standards are organized across two content domains: Physical Sciences (PS) and Life Sciences (LS).

The test frameworks for U.S. history at grade 11 are based on the OAS-US History. Items include multiple choice items and complex stimuli clusters. The complex stimuli clusters consist of multiple stimuli and multiple-choice items. The stand-alone items are multiple choice items. All U.S. history items are aligned to the OAS-U.S. History standards. The grade 11 U.S. history standards are organized across two content domains: U.S. History and Civics.

3.4.6 Item Types

Science

The grade 11 science test consists of clusters of items. A cluster is either a set of three multiple-choice items linked with a common stimulus or a set of two multiple-choice items and a technology-enhanced item linked with a common stimulus. On the accommodated paper form for grade 11, the technology-enhanced items are replaced by paired multiple-choice items.

All items are arranged in item clusters; no items are presented as standalone items. Presenting the items in item clusters allows for better alignment to the breadth and depth of the standards in the OAS-Science. Examples of test items for public use are provided by the SDE within the test, and item specifications and can be found at its website: https://sde.ok.gov/assessment-material.

U.S. History

The grade 11 CCRA U.S. history test consists of multiple-choice items and complex stimuli clusters. The complex stimuli clusters consist of multiple stimuli and multiple-choice items. Examples of test items for public use are provided by the SDE; the test and item specifications can be found at its website: https://sde.ok.gov/assessment-material.

3.4.7 Cognitive Complexity

The CCRA science tests will have items within a cluster structured to assess a range of skills and knowledge applications within a standard. Clusters require sense-making and problem-solving using the three dimensions. Sense-making happens when students must apply, via science and engineering practices, their understanding of core ideas and crosscutting concepts to address the uncertainty associated with a scenario. The degree of sense-making required to complete an item is directly correlated to the level of cognitive complexity the student must engage with, as described in Figure 3-2.

Figure 3-2. CCRA Levels of Cognitive Complexity

Reference Guide

Alignment to each dimension: To what extent does the item require the student to engage with the dimension (full, partial, N/A).

Full	Partial	N/A
The item requires the skills/knowledge stated in the language of the **bullet point/s.**	The item requires the skills/knowledge of the **general heading** of the dimension.	The item does not require the dimension.

Sample Standard:

Science & Engineering Practice:	Disciplinary Core Idea:	Crosscutting Concept:
Analyzing and Interpreting Data • Analyze and interpret data to determine similarities and differences in findings.	**LS4.A: Evidence of Common Ancestry and Diversity** • The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**Patterns** • Graphs, charts, and images can be used to identify patterns in data.

	SEP	DCI	CCC
Full	The item requires the student to analyze or interpret data specifically to find similarities or differences.	The item requires the student to use knowledge of common ancestry and diversity in the context of the chronological order of the fossil record.	The item requires the student to specifically engage in identifying patterns in data (can be graphs, charts, or images)
Partial	The item does involve data but does not require using the data to find a similarity or difference.	The item requires the student to use knowledge of common ancestry and diversity but does not have to be in relation to the fossil record.	The item involves patterns, but students are not specifically identifying patterns from data to answer the question.
N/A	The item does not require the use of data.	The item does not require knowledge of common ancestry or diversity.	The item does not contain any patterns.

Sense-Making*-To what degree is sense-making occurring in regard to the phenomenon presented in the stimulus?

Low	Medium	High
The item is answering a question **about** the phenomenon or further **describing** a piece of the phenomenon. A student must **understand** what the phenomenon is. Students are provided a well-defined set of actions or procedures are used to complete a given task. *Ex. Which statement correctly compares the information in the two graphs?*	The item will help **explain** the given phenomenon. A student must be able to understand the phenomenon in order to **explain why** it is occurring. Students are provided some information and then asked to provide the rest of it. *Ex. Which statement explains why there is a difference in the data found in the two graphs?*	The item will require an **understanding** of the original phenomenon in order to **apply** that understanding to a related scenario or extension of the original phenomenon. Students must connect multiple pieces of information without being provided that information. *Ex. Based on the information in the graph, predict what the data will be if a new predator moves into the area?*

***Sense-Making**

Sense Making Defined

Sense-making or problem solving requires students to refine and/or use their ideas to address a new phenomenon or problem. 'Sense-making' or 'making sense' in this document is defined as students connecting their (assumed, based on the target of the assessment) existing understanding and abilities to new information (provided by the scenario or previous investigations) to construct new understanding of the scenario presented. This new understanding could be in the form of a claim, hypothesis, prediction, model, question, explanation, argument, etc. The emphasis here is on using their knowledge/understanding to develop a new understanding, rather than representing a previously developed understanding. When making a decision about sense-making, consider whether the question asks students to do at least one of the following:

1. Identify and/or generate evidence. Clusters require students to make sense of data, observations, and other kinds of information to generate evidence to address some aspect of a phenomenon or problem. [Note: data doesn't have to be provided--data could come from previous investigations; if this is the case, it needs to be provided by the developer for our purposes]
2. Apply evidence to claims/ideas with reasoning. Clusters require students to interpret or use evidence and/or models to make, evaluate, support, and/or refute claims (e.g., ideas, predictions) about a problem or phenomenon.
3. Evaluate or critique claims. Clusters require students to evaluate claims, evidence, reasoning, and/or models based on expected understanding students bring to the cluster, quality, and/or additional or revised information.
4. Generate questions to guide exploration of a phenomenon or problem presented. Clusters require students to ask questions that arise from examining and evaluating claims, data, evidence, and/or reasoning related to a phenomenon or problem.

Each item on the OAS-U.S. history tests was assigned a DOK level according to the cognitive demand of the item. DOK ranges are based on the DOK of the OAS. As discussed earlier, DOK is not synonymous with difficulty. Instead, the DOK level rates the complexity of the mental processing a student must use to answer the question. The standards increase grade-level expectations and rigor and set expectations for students to be college and career ready. Items at each DOK level can be found in the Test and Item Specifications here: https://sde.ok.gov/assessment-material.

DOK 1 RECALL AND REPRODUCTION: requires the student to recall facts, terms, definitions, or simple procedures, and to perform simple algorithms or apply formulas. One-step, well-defined, or straight algorithmic procedures should be included at this level.

DOK 2 SKILLS AND CONCEPTS: requires the student to make some decisions as to how to approach the problem or activity. Level 2 activities include making observations and collecting data; classifying, comparing, and organizing data; and organizing and displaying data in tables, charts, and graphs.

DOK 3 STRATEGIC THINKING: requires reasoning, planning, using evidence, and a higher level of thinking. Level 3 activities include making conjectures, drawing conclusions from observations, citing evidence, and developing a logical argument for concepts, explaining phenomena in terms of concepts, and using concepts to solve non-routine problems.

For U.S. history, the actual percentage of items at each DOK level fell within the recommended range, as shown below in Table 3-39 and 3-40.

Table 3-39. U.S. History DOK Levels —Form A 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
11	10-15%	10%	60-70%	66%	15-25%	24%

Table 3-40. U.S. History DOK Levels —Breach 2021–22

Grade	DOK 1		DOK 2		DOK 3	
	Recommended	Actual	Recommended	Actual	Recommended	Actual
11	10-15%	10%	60-70%	66%	15-25%	24%

3.4.8 Use of Calculators and Reference Sheets

Approved calculators were allowed on the CCRA grade 11 science test. For approved calculators, see the calculator policy posted on the SDE website: https://sde.ok.gov/sites/default/files/documents/files/FINAL_Calculator%20Policy%202017-2018_Updated%202020.pdf. Students were provided a periodic table of elements.

3.5 Overall Test Development Process

3.5.1 Item Selection and Operational Test Assembly

In preparation for the item selection meeting, the test developers and psychometricians at Cognia considered the following when selecting sets of items to propose for the common (including items for release) and the embedded field-test items:

- **Content coverage/match to test design.** The test design stipulates a specific number of multiple-choice items from each content area.
- **Item difficulty and complexity.** Item statistics drawn from the data analysis of previously tested items were used to ensure similar levels of difficulty and complexity from year to year, as well as for quality psychometric characteristics.
- **"Cueing" items.** Items were reviewed for any information that might "cue" or provide information that would help students to answer another item.

During assembly of the test forms, the following criteria were considered:

- **Option balance.** Items were balanced among the forms so that each form contained an approximately equal distribution of keys (correct answers).
- **Key patterns.** The sequence of keys was reviewed to ensure that key order appeared random.
- **Page fit.** Item placement was modified to ensure the best fit and arrangement of items on any given page.
- **Facing-page issues.** For multiple items associated with a single stimulus (inquiry task) and multiple-choice items with large graphics, consideration was given to whether those items needed to begin on a left- or a right-hand page and to the nature and amount of material that needed to be placed on facing pages. These considerations serve to minimize the amount of page-flipping required of students.
- **Relationship between forms.** Although equating and field-test items differ across forms, these items must take up the same number of pages in each form so that sessions begin on the same page in every form. Therefore, the number of pages needed for the longest form often determines the layout of each form.
- **Visual appeal.** The visual accessibility of each page of the form was taken into consideration, including such aspects as the amount of white space, the density of the text, and the number of graphics.

3.5.2 Item Writer Training

Item writing is done internally with Senior Specialists overseeing all development.

3.5.3 Operational Test Draft Review

After the forms were laid out as they would appear in the final test booklets, the forms were again thoroughly reviewed by Cognia editors and test developers to ensure that the items appeared exactly as the state specialists had requested. Finally, all the forms were reviewed by the state specialists for their final approval.

3.5.4 Alternative Presentations

One form of each grade content area was translated into Braille by a subcontractor who specializes in test materials for students who are blind or visually impaired. In addition, this Braille form was also adapted into a large-print version. The Braille vendor reviewed the form concurrently with the SDE review. This review included looking at items for any potential Braille ability issues. No concerns were identified for the items in the forms.

3.6 Relating Evidence Regarding Test Content and Development to the Validity Arguments

Chapter 3 provides evidence in support of Claims 1.1, 1.2, and 1.3, specifically relating the following evidence regarding test content and development to the validity arguments:

1.1 ***Argument:*** Observations of performance on the OSTP reflect the knowledge, skills and abilities (KSA) articulated in the OAS with appropriate assessment tasks representing the full breadth and depth of the domain as articulated within these standards. (Description Inference)

1.1.1 ***Claim***: Expected knowledge and abilities are thoroughly articulated and considered appropriate to the grade and subject being assessed.

Evidence: The direct link between the OAS and the assessments throughout the test design, development, and implementation processes for all grades and subjects is thoroughly articulated in Chapter 3.

1.1.2 ***Claim:*** Assessment tasks are developed to provide evidence of the expected knowledge and abilities for each grade and subject being assessed.

Evidence: Subsections 3.x.1 (Sections 3.x each representing a different subject on the OSTP) all explicitly state that OSTP items in the subject and grades being assessed "were developed specifically for Oklahoma and are directly linked to the OAS." Section 3.1.3 describes passage development for ELA specifically in terms of how reading passages are selected for alignment to the OAS. Sections 3.1.4, 3.2.3, 3.3.2, and 3.4.2 describe item development for specific subjects.

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.1 ***Claim:*** Each form is constructed to draw from available items such that the underlying domain of knowledge and abilities is adequately sampled.

Evidence: Subsections 3.x.1 describe blueprints for identifying the amount of content covered on the test forms, specifically stating that test blueprints "are based on the importance and coverage of [the OAS] in Oklahoma schools." Ideal blueprints are included in Appendix C. For existing assessments (all but CCRA Science), tables are provided showing that content and depth of knowledge distributions on test forms are within the target blueprint ranges for all assessments.

1.2.4 Claim: Items on the assessment demonstrate appropriate statistical quality.

Evidence: Subsections 3.1.8, 3.2.5, 3.3.4, and 3.4.4 describe the review process for evaluating items flagged by item analyses.

1.3 Argument: The observed score on any specific test form for a given grade and subject is reflective of the expected score on any form of the test for that grade and subject. (Generalization Inference)

> ***1.3.1 Claim:*** Task specifications adequately inform production or selection of items with similar content and statistical characteristics.
>
> ***Evidence:*** Sections 3.1.2 and 3.2.2 contain some information about item specifications for ELA and mathematics assessments, respectively. It is stated that "each item was designed to measure a specific standard and objective" in the OAS.
>
> ***1.3.2 Claim:*** Test specifications result in forms of similar length and task distribution.
>
> ***Evidence:*** Section 3.5 describes the test development process in detail, specifically outlining item selection, test assembly, and review to ensure the equivalency of forms based on a robust set of criteria. Within Chapter 3, the section for each OSTP subject has a subsection on Test Design and Development for the current year's assessments. These demonstrate the common structure of forms within a given grade and subject. Subsections 3.x.1, which describe blueprint distributions, provide further evidence that the selection of tasks considers and meets content coverage requirements.

1.4 Argument: Expected scores are attributable to proficiency in the target knowledge and abilities. (Explanation Inference)

> ***1.4.3 Claim:*** Characteristics of knowledge expected to affect task difficulty correlate with empirical item difficulty.
>
> ***Evidence:*** Subsections 3.1.1, 3.2.1, and 3.3.1 contain Depth of Knowledge distributions for ELA, mathematics and science, respectively. Subsections 3.3.7 and 3.4.7 describe how cognitive complexity is captured within the science and history exams. These are attributes that are incorporated within item development approaches that correlate with expected item difficulty.

CHAPTER 4. TEST ADMINISTRATION

4.1 General Administration Information and Guiding Principles

Table 4-1. 2021–22 Testing Windows

	Grade	Paper/Pencil Testing Window	Online Testing Window	Assessments
OSTP	Grade 3	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA and Mathematics
	Grade 4	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA and Mathematics
	Grade 5	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA, Mathematics, and Science
	Grade 6	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA and Mathematics
	Grade 7	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA and Mathematics
	Grade 8	4/20/22 – 5/3/22	4/20/22 – 5/17/22	ELA, Mathematics, and Science
CCRA	Grade 11	4/4/22 – 4/15/22	4/4/22 – 5/3/22	Science and U.S. History

Total administration by test mode, of either paper-based tests (PBT) or online computer-based tests (CBT), for each grade and content area is shown in Table 4-2 below. Grades 3–8, CCRA Science and U.S. History Grade 11 are offered as online assessments with paper assessments offered only as an accommodation. CBT tests of the OSTP and CCRA may be administered on a variety of device types including different operating systems and displays. Evidence of comparability between groups using different approved CBT device types and online accommodation tools is provided in Appendix E

Table 4-2. Administration by Grade and Test Mode

Grade	Content Area and Form	Test Mode	Count
3	ELA Breach Form	Online	19
	ELA Operational Form	Online	49605
	ELA Operational Form	Paper	247
	Mathematics Breach Form	Online	37
	Mathematics Operational Form	Online	49531
	Mathematics Operational Form	Paper	242
	Mathematics Spanish Form	Online	61
4	ELA Breach Form	Online	13
	ELA Operational Form	Online	48344
	ELA Operational Form	Paper	223
	Mathematics Breach Form	Online	20
	Mathematics Operational Form	Online	48282
	Mathematics Operational Form	Paper	225
	Mathematics Spanish Form	Online	62
5	ELA Breach Form	Online	36
	ELA Operational Form	Online	48492
	ELA Operational Form	Paper	213
	Mathematics Breach Form	Online	33

continued

Grade	Content Area and Form	Test Mode	Count
5	Mathematics Operational Form	Online	48339
	Mathematics Operational Form	Paper	246
	Mathematics Spanish Form	Online	81
	Science Breach Form	Online	2
	Science Operational Form	Online	48260
	Science Operational Form	Paper	228
	Science Spanish Form	Online	78
6	ELA Breach Form	Online	16
	ELA Breach Form	Paper	3
	ELA Operational Form	Online	49576
	ELA Operational Form	Paper	205
	Mathematics Breach Form	Online	11
	Mathematics Operational Form	Online	49431
	Mathematics Operational Form	Paper	239
	Mathematics Spanish Form	Online	80
7	ELA Breach Form	Online	20
	ELA Operational Form	Online	50998
	ELA Operational Form	Paper	158
	Mathematics Breach Form	Online	28
	Mathematics Operational Form	Online	50842
	Mathematics Operational Form	Paper	174
	Mathematics Spanish Form	Online	76
8	ELA Breach Form	Online	28
	ELA Operational Form	Online	51186
	ELA Operational Form	Paper	182
	Mathematics Breach Form	Online	5
	Mathematics Operational Form	Online	50941
	Mathematics Operational Form	Paper	209
	Mathematics Spanish Form	Online	87
	Science Breach Form	Online	18
	Science Operational Form	Online	50769
	Science Operational Form	Paper	197
	Science Spanish Form	Online	70
11	CCRA Science Breach Form	Online	6
	CCRA Science Operational	Online	44156
	CCRA Science Operational	Paper	101
	CCRA Science Spanish	Online	86
	CCRA U.S. History Breach Form	Online	6
	CCRA U.S. History Operational	Online	44165
	CCRA U.S. History Operational	Paper	98
	CCRA U.S. History Spanish	Online	61

4.2 Roles and Responsibilities for Administration

The *2021-22 OSTP Test Administration Manual* indicated that school principals and/or their designated OSTP test coordinators were responsible for the proper administration of the OSTP tests. Uniformity of administration procedures from school to school was ensured by using manuals that contained explicit directions and scripts to be read aloud to students by test administrators and by providing training. The SDE also conducted site-monitoring visits during the test administration to ensure all guidelines were followed.

4.3 Administration Procedures

Assessment training modules, test administration workshops, prerecorded webinars, and test administration manuals were provided to District Test Coordinators and to other assessment support staff, to give clear direction and support for the test administration for paper/pencil and computer-based assessments. Refer to section 4.5 for a brief description of the training. The districts' designated OSTP test coordinators were instructed by the SDE to read the *2021-22 OSTP Test Administration Manual*. The checklists included in the *2021-22 OSTP Test Administration Manual* outlined tasks to be performed by school staff before, during, and after test administration. In addition to these checklists, the *2021-22 OSTP Test Administration Manual* described the testing material sent to each school and how to inventory it, track it during administration, and return it after testing was complete. An additional focus was on maintaining security of the test materials. The *2021-22 OSTP Test Administration Manual* included checklists for the administrators to use to prepare themselves, their classrooms, and the students for the administration of the tests. The *2021-22 OSTP Test Administration Manual* contained sections that detailed the procedures to be followed for each testing session and instructions for preparing paper-based and computer-based materials before the test coordinator returned them to Cognia.

4.4 Participation Requirements and Documentation

The intent of the SDE in Oklahoma is for all public-school students in grades 3–8 and grade 11 to participate in the OSTP and CCRA tests through a standard administration, an administration with test accommodations (see Appendix F), or an alternate assessment. Furthermore, any student who is absent during any session of either the OSTP or CCRA tests is expected to take a make-up test within the testing window. The state of Oklahoma does not recognize OSTP opt-outs. Approximately 98.6% of students participated in the 2021-22 OSTP. Approximately 95.6% of students participated in the 2021-22 CCRA

Because of statutory and rule requirements resulting from the adoption of House Bill 3218, there is no opt-out option offered through the SDE. Schools were required to return a Student Answer Document for every enrolled student in the grade level, except for students who took an alternate assessment. Students who were alternately assessed in the 2021–22 school year were not required to participate in the 2021–22 OSTP. On those occasions when it was deemed impossible to test a particular student, school personnel were required to inform the SDE. A summary of participation in the 2021–22 OSTP and CCRA by demographic category and content area is shown in Appendix G.

4.4.1 Students with Disabilities

All students were expected to participate in the 2021-22 OSTP and CCRA unless they completed an alternate assessment during the 2021-22 school year.

4.4.2 English Learners

Students who had received fewer than 12 months of consecutive instruction in a U.S. public school and were designated as English Learners (ELs) were required to take the ELA, mathematics, and science OSTP tests. Spanish versions of mathematics and science tests were provided for both paper-based and online assessments.

4.5 Administrator Training

In addition to distributing the *2021–22 OSTP Test Administration Manual*, the SDE and Cognia conducted test administration workshops and webinars to inform school personnel about the OSTP tests and to provide training on the policies and procedures regarding administration of the tests. Six virtual trainings were conducted in February 2022. District Test Coordinators were required to attend the trainings, while other support personnel were optional attendees. Approximately twelve hundred people attended the trainings. In addition, an audio PowerPoint test administration workshop presentation was prerecorded and provided to the state for inclusion on the SDE website. These trainings were geared toward the District Test Coordinators.

Test Administrators and Test Proctors were also required to attend training in their schools or districts prior to administration. These trainings were in the form of online modules. A test was provided at the end of the module requiring a score of at least 80% to pass. Test Administrators and Test Proctors were required to pass this test and provide their Building Test Coordinator a copy of the certificate that prints upon completion.

4.6 Documentation of Accommodations

A test accommodation is a change in the way a test is administered or in the way a student responds to test questions. Similar to instructional accommodations, test accommodations are intended to offset the effects of a student's disability and to provide him or her with the opportunity to demonstrate knowledge and skills on statewide assessments. The right of a student with a disability to receive allowable accommodations on OSTP tests is protected by both federal and state laws.

The student's current individualized education program (IEP) or 504 plan must specify precisely which test accommodation(s) he or she will receive. In cases where an IEP/504 plan is under development, the IEP/504 team must have already met and agreed upon the necessary accommodation(s) before a student may be provided the accommodation(s).

A student who does not have a documented disability or is not served by a current IEP/504 plan is not eligible to receive accommodations on OSTP tests, except for Emergency Accommodation situations. Scribes may be provided for any student (with or without an IEP or Section 504 plan) who has a short-term medical condition that affects his or her physical dexterity and thus impedes his or her ability to respond to the assessment format. For more detailed information regarding assessment accommodations for students with an IEP/504 plan, see Appendix F or access the *OSTP Accommodations Manual* at https://sde.ok.gov/assessment- administrator-resources-administrators.

Large-print versions of the tests were created using Form 1 of the tests at all grade levels, for students with visual impairments. At all grades, only the operational items were translated into Braille by American Printing House for the Blind, a subcontractor that specializes in test materials for students who are blind or who need accommodations due to visual impairments.

For computer-based testing (CBT), the following accommodations were available:

- Color Contrast, where the student can select alternative font and background colors;
- Reverse Contrast, where all colors are inverted;
- Screen Zoom, where the entire screen is zoomed up to 300%;
- Text-to-Speech, where the computer reads the text to the student.

The *OSTP Accommodations Manual* provides directions for coding information related to test accommodations and modifications in the Student Answer Document. All accommodations used during any test session were required to be coded by authorized school personnel—not by students—after testing was completed.

See Table 4-3 for the numbers of students tested with and without accommodations. In addition, the number of students who were tested with online testing accommodations are presented by accommodation type in Appendix H. That appendix also contains two tables of state-approved accommodations.

Table 4-3. Numbers of Students Tested with and Without Accommodations by Content Area and Grade

Tested Grade	Content Area	Number of Students	
		With Accommodations	Without Accommodations
3	ELA	293	49578
	Mathematics	7799	42035
4	ELA	310	48270
	Mathematics	8085	40484
5	ELA	5786	42955
	Mathematics	7899	40767
	Science	7449	41119
6	ELA	242	49558
	Mathematics	6701	43049
7	ELA	263	50913
	Mathematics	6817	44275
8	ELA	5040	46356
	Mathematics	6738	44499
	Science	6339	44697
11	Science	2076	42273
	US History	2069	42261

4.7 TEST SECURITY

Maintaining test security is critical to the success of the OSTP. The *2021-22 OSTP Test Administration Manual* explains in detail all test security measures and test administration procedures. The SDE takes the matter of test security very seriously and has implemented stringent procedures to protect the security of the OSTP.

Each District Test Coordinator, Building Test Coordinator, Test Administrator, and Test Proctor was responsible for receiving all secure test materials and for returning all secure test materials (see Section 210:10-13-4 of the Oklahoma Administrative Code). Violation of regulations could result in revocation of a person's teaching, counseling, administrative, and/or other certificates. The tests, and all the materials associated with these tests, were to be considered secure materials. It was important to prevent any student from having access to the tests, and thus, an advantage over other students before the administration of the tests. Prior exposure to the tests or to individual items would invalidate scores. It was expressly forbidden that the materials associated with these tests be photographed, photocopied, or reproduced in any other fashion, including paraphrasing—to do so would be in violation of copyright law. All test items had been copyrighted by the SDE. In addition, students were not permitted to have cell phones during testing, to avoid reproduction or communication of secure test materials.

The *2021–22 OSTP Test Administration Manual* describes in detail the policy and procedures for nondisclosure of test content, securing test materials, use of proctors, use of security forms, test administrator responsibilities, and reporting test irregularities. The SDE also conducted site visits during test administration to assure compliance with policies. During this administration, 313 sites were selected for desk monitoring and 17 sites for on-site monitoring. On-site monitoring included the following:

Assessment monitors checked into the site offices, presenting proper identification. They asked to see the Building Test Coordinator and signed in.

If time permitted, prior to the beginning of the testing session, monitors conducted a walkthrough of the testing rooms, observed the location where the secure materials were kept, and checked the copiers for the required signage.

When observing assessment activities, monitors practiced the principle of "observation from a distance," with the understanding that the site staff needed to go about performing their job tasks while taking little or no notice of their observers. Monitors must be able to conduct their observation without participating in the administration in any way.

Most of the activities on assessment day were easily visible to observers. Before and after the administration, the observer may have walked among the district and site assessment personnel to view their work.

The State (SDE) Office of Assessment observers may have requested access to view documentation for students who were receiving accommodations on the assessments.

During the assessment, the monitors attempted to seat themselves where they could observe all assessment activities and complete the observation checklist while maintaining a comfortable distance from students and the site assessment personnel.

The observation may have been extended after the conclusion of the assessment so that post-assessment activities could be observed.

If district or site staff were not following assessment protocol, this would be noted on the observation checklist. The observer was not to correct site staff or make comments about task performance while in a testing room.

If an observation was made that needed immediate attention, monitors were to notify the Office of Assessments and Accountability for additional guidance and permission to invalidate assessments. District Test Coordinators would be notified of the violation and concern.

At the end of the visit, observation feedback was submitted to the State Office of Assessments and Accountability using the checklist document (paper-based or electronic versions).

The section for Other Comments was available for observers to include their thoughts about administration of the assessment, such as appropriate tone, management, and monitoring of the session; provision for security and confidentiality of test materials; school and student information; any information that might require action during this assessment cycle; and overall impressions of the assessment administration.

Completed checklists were to be submitted to the State (SDE) Office of Assessment in a timely manner, preferably within two days of completing the visit.

Materials were inventoried when returned to Cognia at the end of the test administration. A materials discrepancy report was provided after all secure materials were scanned. Cognia used this report to note and then make all attempts to recover any missing materials. The process for researching any missing materials includes the following directions:

- Contact the District Test Coordinators at schools on the list and have them conduct a search for any missing materials to ensure they were returned. If those materials are located, Cognia

arranges for the return of those materials. (Cognia also conducts a physical box search on site at their facilities to search for materials.)

- Maintain a spreadsheet to document the missing materials if materials were not located by Cognia or the District Test Coordinator.

At the end of the secure material discrepancy clean-up period for 2022, there were 44 test books that were not recovered. These materials included a combination of test books, integrated test books, and large-print kits; all those materials are listed in Table 4-4 below.

Table 4-4. Secure Material Discrepancy

Grade	ELA	Math	Science	U.S. History
Grade 3				
Grade 4		1 Regular Print		
Grade 5	8 Regular Print 1 & 2			
Grade 6	1 Large Print 1 & 2	7 Regular Print	7 Regular Print	
Grade 7	4 Large Print 1 & 2	1 Regular Print		
Grade 8	1 Regular Print 1 & 2			
Grade 11				
Totals	28	9	7	

Additionally, Cognia uses two statistical methods for detecting possible test security violations: inordinate response similarity analyses and inordinate score gain analyses. Statistical detection findings, provided in Appendix I, are used to indicate whether additional follow-up may be required to determine if a test security violation may have occurred.

4.8 Test and Administration Irregularities

There were no major testing irregularities to report this administration. The only situation to note was an issue with the writing portion of the ELA test when taken on a Chromebook. Due to an update in the Chrome operating system that was released during the administration window, there was a combination of buttons that could be pressed by students that would remove them from the testing session and return them from the login screen. In all cases, the test sessions were able to be unlocked, students' work was saved, and students were able to continue working on the writing prompt. This irregularity happened only in the Chrome operating system.

4.9 Service Center

To provide additional support to schools before, during, and after testing, Cognia operates the OSTP Service Center. The support of a service center is essential to the successful administration of any statewide testing program. The service center provides a centralized location that individuals in the field can call, using a toll-free number, to ask specific questions or to report any problems he or she may be experiencing with paper/pencil testing or computer-based testing. Representatives are responsible for

receiving, responding to, and tracking calls, and then routing issues to the appropriate person(s) for resolution. All calls are logged into a database that includes entry for notes regarding the issue and resolution of each call.

The service center is staffed year-round and is available to receive calls from 7:30 a.m. to 4:30 p.m. CST, Monday through Friday. Extra representatives and extended hours were added during the test administration window to assist with handling the additional call volume. There are three levels of support provided:

- Level 1 Support—Cognia Technical Product Support
- Level 2 Support—Cognia OSTP Program Help Desk
- Level 3 Support—eMetric Support for Computer-Based Testing Issues

Technical Support Figure 4-1 shows the "total contacts" (phone calls + email tickets) during the testing window.

Figure 4-1. Total Contacts (Phone Calls + Email Tickets) During Testing Window

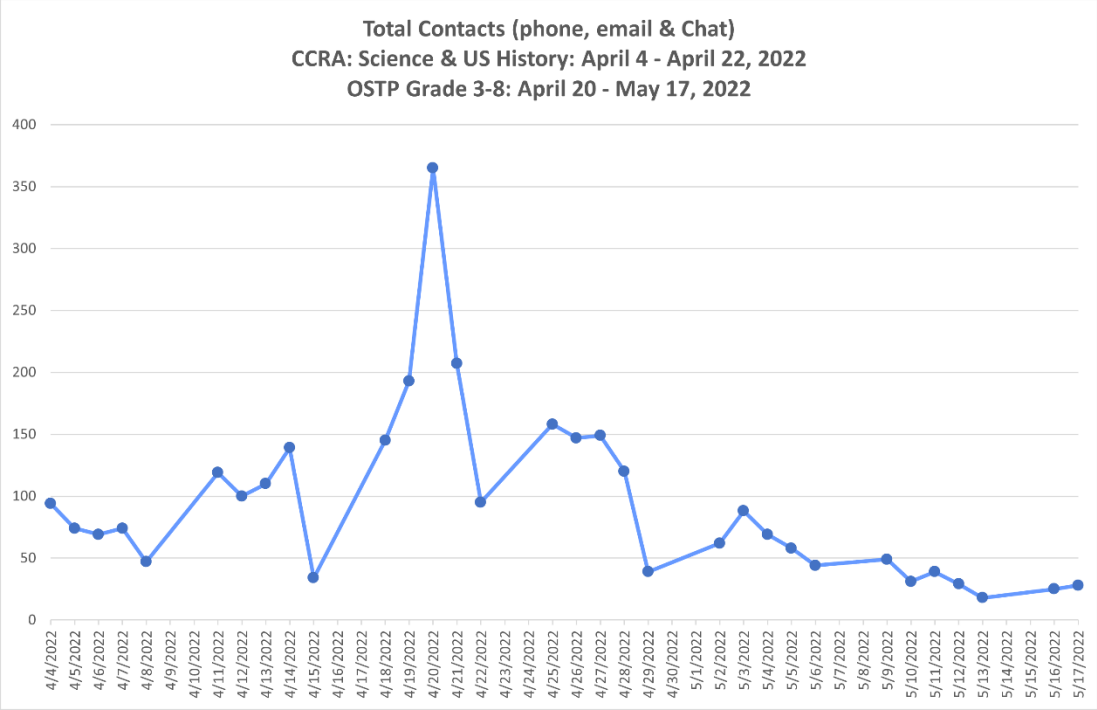
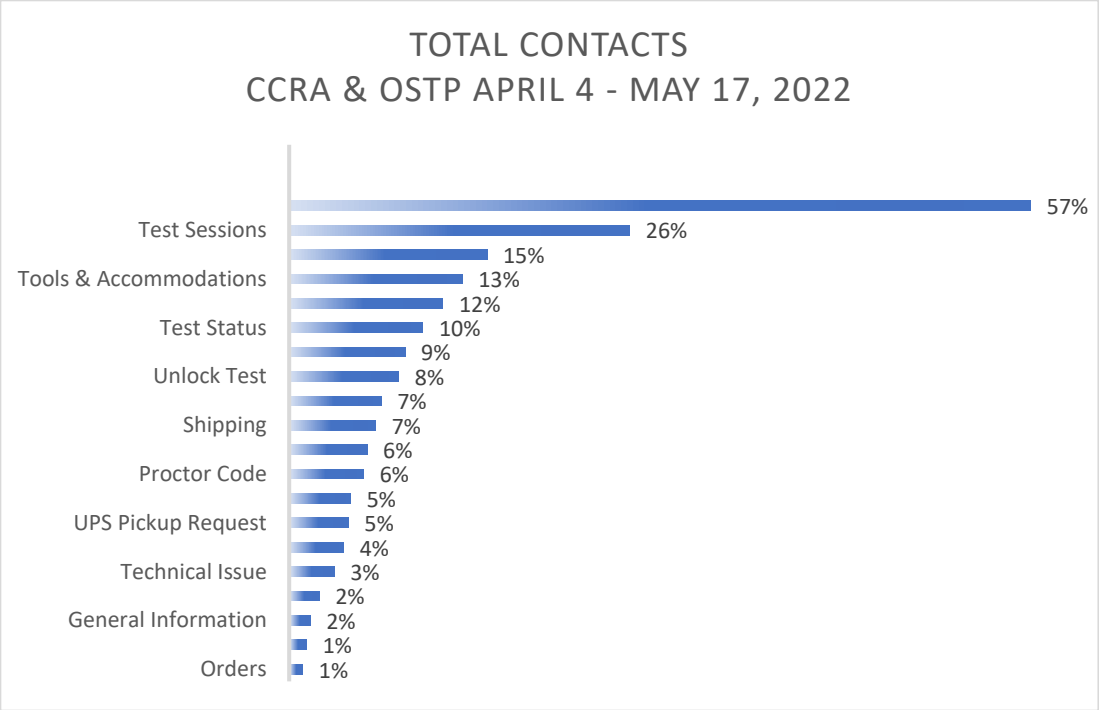


Figure 4-2 shows the summary of "total contacts" (phone calls + email tickets) by category during the testing window.

Figure 4-2. Summary of Total Contacts by Category



4.10 Relating Evidence Regarding Test Administration to the Validity Arguments

Chapter 4 provides evidence in support of Argument 1.2, specifically relating the following evidence regarding test administration to this validity argument and related claims:

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.2 ***Claim:*** The assessment is administered under appropriate conditions.

Evidence: Chapter 4 describes the administration process for the OSTP assessments. This includes administration modes, procedures, requirements and documentation, training, accommodations, test security, documentation of irregularities, and support provided by the OSTP Service Center. The administration process is described in greater detail in an administration manual. Details concerning the accommodations are provided in Appendix F.

CHAPTER 5. SCORING

Following a handoff from the test administration platform to the scoring system, all open-response items administered through computer-based testing were scored in iScore, a secure server-to-server electronic scoring software designed by Cognia for hand-scoring. Very few booklets from paper-based testing were received for importing into iScore: 0.5% in grades 3, 4, 5, and 6; 0.3% in grade 7; and 0.4% in grade 8. The scoring of student work from both CBT and PBT follow the same scoring rules and specifications. All imaged data for multiple-choice responses were machine-scored.

5.1 Machine-Scored Items

Multiple-choice responses were compared to scoring keys using item analysis software. Correct answers were assigned a score of 1 point; incorrect answers were given a score of 0 points. Student responses with multiple marks or blank responses were also assigned 0 points.

The hardware elements of the scanners monitored themselves continuously for correct reads, and the software driving these scanners monitored the correct data reads. Standard checks included recognition of a sheet that did not belong or was positioned upside down or backward; identification of missing critical data, including a student ID number or test form that was out of range or missing; and identification of page/document sequence errors. When a problem was detected, the scanner stopped and displayed an error message directing the operator to investigate and correct the situation.

5.2 Scoring Platform and Scoring Positions

iScore is the proprietary image-based scoring system used by Cognia to view and record scores submitted by scorers for each open-ended item. The iScore system ensures the security of student responses and test items. During scoring, no student names or schools/districts associated with viewed student work are visible to scorers, and all Scoring Services temporary associates are subject to the same non-disclosure requirements as full-time Cognia staff. Cognia maintained security during scoring by using a highly secure, server-to-server interface, ensuring that access to all student response images was limited only to scorers and appropriate Cognia staff.

Scorers evaluated most student responses from images rendered by the online testing platform and a small number of responses from scanned images of paper-based tests. Whether administered in an online or a paper/pencil environment, all responses were scored applying the same scoring criteria.

Prior to the beginning of scoring, Cognia's iScore operational management created a contract database, and student responses were subsequently uploaded into the iScore system. To provide maximum security for all test and scoring materials in a distributed scoring environment, scorers were asked to

download the iScore Kiosk onto their computers. The iScore Kiosk is a security feature that locks down the user's operating system so that no other application outside of iScore can run during scoring. Scorers and scoring leadership were given unique user authorization passwords as additional components of Cognia's stringent security procedures. Each scorer was required to log on to the image scoring system using a unique combination of an assigned username, a password, and a 6-digit code that was delivered via text or email.

The following staff members were involved with scoring the 2021–22 OSTP and CCRA responses:

- The Scoring Project Manager and the Director of Scoring Content and Quality oversaw communication and coordination of scoring, scheduling of activities, and general management of all Oklahoma scoring-related tasks.
- The iScore Operations Manager guided the technical aspects of the iScore scoring platform.
- The Scoring Content Specialists ensured consistency of scoring and managed the scoring leadership teams for all grades. The Content Specialist was responsible for monitoring scorer accuracy and accepting or rejecting the work product of scorers.
- Multiple Scoring Supervisors trained staff and oversaw items at each grade level. They were selected from a pool of experienced Scoring Team Leaders for their proven ability to score accurately and to instruct and train other scorers. Scoring Supervisors trained Scoring Team Leaders and scorers on the item, answered questions during the scoring process, and worked closely with the Scoring Content Specialist.
- Numerous Scoring Team Leaders (STLs), selected from a pool of skilled and experienced scorers, performed read-behind activities for the scorers to whom they were assigned. Scoring Team Leaders worked closely with the Scoring Supervisors to ensure accurate and consistent scoring for their assigned grade levels.
- Per OSTP requirements as expressed in the scoring specifications document, Scoring Supervisors, STLs, and scorers were required to hold a bachelor's degree with coursework related to the content area being scored. All potential scorers and leadership staff submitted documentation (e.g., résumés and/or transcripts) as evidence of meeting the education and experience requirements. As well, each scorer and leadership staff signed a binding non-disclosure/confidentiality agreement. Table 5.1 summarizes the qualifications of the 2021–22 OSTP scoring leadership and scorers.

Table 5-1. Educational Background of Scorers and Scoring Leadership for OSTP

Education	Scorers		Leadership	
	Total	Percentage	Total	Percentage
Bachelor's degree	81	58%	16	67%
Master's degree	52	38%	7	29%
Doctorate	5	4%	1	4%

5.3 Scoring of Writing Prompts

5.3.1 Scope of work and scoring methodology

The writing component for grades 5 and 8 consisted of one item per grade. Responses to all writing prompts were scored on a holistic 1-4 scale. Scorers assigned one of the following codes to those responses that did not meet the criteria of the scoring rubric:

- Blank—No response or no intentional marks on the answer space.
- Unreadable—Response could not be read, either due to a scanning error, light or hard-to-read handwriting, or for other reasons. Unreadable responses were sent to Edit Scoring Supervisors who reviewed the paper copy of the test book to assess the response. This designation typically applied to PBT responses only.
- Non-English—Response was written in a language other than English.
- Off Topic—Response included a direct copy of the prompt without any original text, an irrelevant response that did not respond to the prompt, or any unrelated artwork.
- Refusal—Response indicated a clear refusal to answer the prompt.
- Illegible—Response showed illegible handwriting, a random sequence of keystrokes, or spelling that was so poor that the response could not be evaluated.

5.3.2 Leadership Training

Scoring Supervisors reviewed training materials and consulted with the Scoring Content Specialist in advance of scorer training to ensure full understanding of the scoring parameters and decisions for the item. Scoring Supervisors then conducted training for Scoring Team Leaders in a separate training session prior to scorer training. In addition to a discussion of the items and their responses, leadership training included greater detail on the client's scoring rationale of each score point, so that as leaders they would be better equipped to handle questions from the scorers.

5.3.3 Scorer Training

Scorer training began with an introduction of all scoring staff and an overview of the purpose and goals of the project—including discussion about the security, confidentiality, and proprietary nature of testing materials, scoring materials, and procedures. Next, scorers thoroughly reviewed and discussed the rubric as well as the anchor and practice set for each item before taking a qualification set.

Rubric Training

The grade 5 and grade 8 OSTP Holistic Writing rubrics served as tools for providing a single score to student writing based on its overall qualities. Feedback was given on a scale of 1–4. The rubrics delineated clear cut-points between score points using distinctly scaffolded language. While rubric training focused on the holistic nature of the rubrics, the individual features that contributed to determining each specific holistic score point were thoroughly reviewed. Those features were:

- Content: The degree of appropriateness related to the audience and task/purpose of the writing, the extent to which the focus was clearly maintained, and the depth of idea development.
- Organization: The degree of unity and coherence, the presence and impact of introduction and conclusion, and the use of sequencing tools such as transitions.
- Word Choice: The degree of variety of vocabulary used and the effectiveness of the language.
- Sentence Structure: The degree of variety of structures and correctness of sentences.
- Grammar, Usage, and Mechanics: The degree of control over grammar, usage, and mechanics.

These criteria served as excellent tools reflecting the key holistic features at each score point level. However, they were not intended to be used in isolation, but in concert with anchor exemplars that defined those features and provided context.

Anchor Set

Responses in anchor sets were typical, midrange examples of each score point. They were read aloud in ascending order of score points. By announcing the true score of each anchor response, trainers facilitated group discussion of responses in relation to score point descriptions to help scorers internalize the characteristics associated with each score point. This anchor set continued to serve as a reference for scorers as they went on to qualification, scoring, and recalibration activities for that item.

Practice Set

To mimic live scoring, scorers practiced applying the rubric and anchors to responses in the practice set. As such, scorers assigned scores without any knowledge of the given score. After scorers independently read and scored each response in the practice set, trainers would poll scorers, taking note of their initial assignments of scores. Trainers then led a group discussion of the responses, directing scorers' attention to difficult scoring issues (e.g., the borderline between two score points). Throughout the training, trainers modeled how to evaluate student responses by referring to the scoring standards as defined by the rubric and exemplified in the anchor set.

Qualifying Set

Scorers were required to score responses accurately and reliably in the qualifying set. The ten responses in the qualifying set were selected from an array of responses that clearly represented and illustrated the range of score points for that item as reviewed and approved by the state specialists.

To be eligible to score, scorers were required to achieve a scoring accuracy rate of at least 70% exact agreement and at least 90% exact or adjacent agreement.

5.3.4 Monitoring Scoring Quality

Scorers were required to demonstrate and maintain their ability to score student responses accurately and consistently throughout the scoring process. The iScore image-scoring system enabled scoring leadership to measure and monitor individual and group performance on each scored item in terms of accuracy and consistency and in terms of read rate (scoring speed) and overall production rate on a constant, real-time basis. The iScore scoring tools that measured OSTP scoring quality were as follows:

- Read-behind scoring
- Double-blind scoring
- Recalibration sets

Read-behind and double-blind statistics were reviewed daily. Recalibration sets were administered consistently during the project. The use of these multiple monitoring techniques is critical for monitoring scorer accuracy during the process of live scoring.

Each scorer's performance on the above quality measures was monitored and recorded by iScore and scoring leadership could review data related to the accuracy, consistency, and overall quality of scoring. Scoring leadership was always available to answer scorer questions. They also counseled and retrained scorers as needed to determine whether a scorer should continue scoring. Scorers who demonstrated inaccurate or inconsistent scoring through these quality control measures were stopped from scoring and retrained. Upon approval by the Scoring Supervisor or Scoring Content Specialist, the scorer could resume scoring. If a scorer's performance warranted removal from scoring, scoring leadership initiated a process through which that scorer's work was invalidated and returned to the scoring queue of unscored responses to be re-scored by those scorers who demonstrated scoring accuracy at or above standard.

Read-Behind Scoring Procedures

Read-behind scoring allowed scoring leadership to monitor each scorer's performance by way of an immediate real-time snapshot of the scorer's accuracy. The data that was generated by read-behind scoring presented leadership with opportunities to answer questions and to provide counsel to scorers who may have had trouble maintaining the scoring standards. iScore is designed such that the selection of any scored student responses for read-behind scoring was done without a scorer knowing which response was selected for a read-behind. The Scoring Team Leader (STL) would, at various points throughout the scoring session, instruct the system to assign the next one, two, or three responses per scorer to be placed into the read-behind queue at a time. Responses could be pulled for all scorers who were assigned to an STL or for certain scorers only. Each read-behind response was scored blindly by the STL; that is, each scorer's response score was revealed only to the STL after the STL had submitted his or her score to the system. The STL would then have an opportunity to compare his or her score against the score assigned by the scorer. If the scores were discrepant (more than one score point apart) or if there were a considerable number of adjacent scores (one score point apart) between the scorer and

the STL, scoring leadership then counseled and retrained the scorer. The Scoring Team Leader entered his or her score into iScore before being allowed to see the scorer's score. The Scoring Team Leader then compared the two scores, and the score-of-record (i.e., the reported score) was determined as follows:

- If there was exact agreement between the scorer and the STL scores, no action was taken—the scorer's original score remained.
- If scores were adjacent (a difference of one score point), the STL's score became the score of record.
- If the scores were discrepant (i.e., differed by more than one point), the STL's score became the score-of-record.

Scoring Team Leaders were tasked with conducting read behinds on 10% of the total student responses, with targets to distribute the read-behinds across all the scorers to which they were assigned. Scorers who hovered at the threshold of acceptable accuracy would have been targeted with more read-behinds than scorers who were consistently demonstrating high levels of accuracy.

Double-Blind Scoring

All student responses were 100% double-blind scored by the AI engine.

In double-blind scoring, the situation might arise that the score assigned by the human scorer and the AI engine did not match. If there was a discrepancy (a difference greater than one score point) between two scores assigned to the same student response, it was placed into an arbitration queue. Arbitration responses were reviewed by scoring leadership (Scoring Team Leader or Scoring Supervisor) who assigned the final score. If the human score and the AI score were adjacent (a difference of one score point), then the first (human) score became the score of record.

Recalibration Sets

To determine whether scorers were still calibrated to the scoring standard, they were required to take an online recalibration set starting on the second day of scoring and on every subsequent day of scoring that item throughout the scoring project. Each recalibration set consisted of five responses representing a range of possible scores. Any scorer who demonstrated difficulty was retrained before being allowed by the Scoring Supervisor to continue scoring. Once the scorer was allowed to resume scoring, scoring leadership carefully monitored these scorers by increasing the number of read-behinds.

Scoring Reports

iScore generated multiple reports that were used by scoring leadership to measure and monitor scorers for scoring accuracy, consistency, and productivity. Samples of these reports are provided in Appendix J.

5.3.5 Interrater Consistency

Interrater consistency information is presented as evidence for the reliability of the scoring results for ELA Grades 5 and 8. Specifically, these results demonstrate the agreement between scores assigned by the human rater and the AI engine serving as the second rater.

Various statistics are employed to evaluate interrater consistency or reliability, such as the number of included scores, percent of exact agreement, percent of adjacent agreement, and Cohen's weighted kappa (κ). The percentage of responses that required a third score is also included to quantify the discrepancy resolution between human rater and the AI engine when their scores are not adjacent. The correlation describes the degree of consistency between human rater and AI engine with a correlation of 1.0 being perfect agreement. Cohen's weighted kappa is a commonly used descriptor of interrater agreement, especially in cases where ratings are ordinal in nature, which describes interrater reliability while also accounting for agreement by chance. As with the correlation statistic presented, kappa achieves its maximum value of 1.0 only when all pairs of ratings are in exact agreement. Table 5-2 presents a summary of interrater consistency statistics for the items in grades 5 and 8.

Table 5-2. Summary of Interrater Consistency Statistics for Grades 5 & 8 Writing

Grade	Item Number	Score Categories	Included Scores	Exact	Adjacent	% of Third Score	Weighted Kappa
5	761899	4	1-4	68.3	29.7	3.5	0.5
8	761992	4	1-4	70.4	28.5	1.6	0.58

On average, the human rater and the AI engine for the items in grade 5 agreed exactly (i.e., both modes of scoring independently rated the responses with the same score) 68.3% of the time and in grade 8 70.4% of the time. Greater agreement was shown in Grade 8 than in Grade 5: average $\kappa = 0.58$ and $\kappa = 0.5$, respectively. While there was predictable and anticipated disagreement indicated by these statistical analyses, it should be noted that in cases in which disagreement was more than one score point, a third rater was used, mitigating the impact of any such disparity.

5.4 SCORING OF CONSTRUCTED RESPONSE ITEMS

5.4.1 Scope of Work

The OSTP test administration for ELA also consisted of two operational constructed-response items and four field-test items each in grades 3, 4, 6, and 7.

5.4.2 Benchmarking Meetings

Benchmarking meetings were held between the Scoring Content Specialist, the Content Development Specialist, and the SDE Content Specialist to discuss the way the students engaged with each item and to review the suggested scores assigned to the benchmarked materials. Other SDE members were also

present at the benchmarking meetings. Each of the 16 field-test items across grades 3, 4, 6, and 7 was reviewed to determine their scorability and to set the scoring standards using exemplar student responses. As per standard protocol and best practice, SDE representatives officially approved the responses and their respective scores for their use in scorer training.

5.4.3 Quality Control Tools and Interrater Consistency

The scoring of the CR questions mostly followed the same scoring specifications and parameters as the grade 5 and 8 writing prompts. Compared to the qualification threshold set at 70% exact and 90% adjacent agreement for the Writing Prompts in grades 5 and 8, the scorer qualification threshold for the CRs in grades 3, 4, 6, and 7 was 80% exact and 90% adjacent. The double-blind rate for the two operational items per grade was 100% with the second score provided by the AI engine. The double-blind rate for the field-test items was ~ 8% with the second score provided by a human rater. The same quality control tools were used for the CR items as for the Writing items in grades 5 and 8 and as described in section 5.3.4.

Table 5-3 shows a summary of interrater consistency statistics for the CR items in grades 3, 4, 6, and 7. Please note that the weighted kappa coefficient is not calculated for items scored on a scale of 0-2.

Table 5-3. Summary of Interrater Consistency Statistics for Grades 3, 4, 6, and 7 CRs

Grade	Admin.	Item Number	Score Categories	Included Scores	Exact	Adjacent	Percent of Third Score
3	FT	01026	3	2-0	83.1	16.8	0.10
	FT	01042	3	2-0	80.1	19.4	0.50
	FT	02026	3	2-0	86.7	12.1	1.20
	FT	02042	3	2-0	87.3	12.5	0.20
	OP	CC021	3	2-0	78.8	21.2	0.00
	OP	CC047	3	2-0	82.2	17.8	0.00
4	FT	01019	3	2-0	70.4	29.0	0.60
	FT	01051	3	2-0	71.5	27.8	0.60
	FT	02019	3	2-0	72.9	26.0	1.00
	FT	02051	3	2-0	79.0	20.4	0.60
	OP	CC023	3	2-0	100.0	0.0	0.00
	OP	CC056	3	2-0	94.8	5.2	0.00
6	FT	01011	3	2-0	79.4	20.2	0.40
	FT	01053	3	2-0	87.5	12.0	0.60
	FT	02011	3	2-0	75.1	24.7	0.20
	FT	02053	3	2-0	89.7	10.0	0.30
	OP	CC006	3	2-0	89.0	10.9	0.00
	OP	CC043	3	2-0	98.7	1.3	0.00
7	FT	01018	3	2-0	83.6	16.3	0.10
	FT	01054	3	2-0	86.6	12.5	0.80
	FT	02018	3	2-0	81.7	17.9	0.40
	FT	02054	3	2-0	84.9	14.1	0.90
	OP	CC013	3	2-0	96.8	3.2	0.00
	OP	CC036	3	2-0	89.9	10.1	0.00

The degree of interrater agreement between all items and grades was influenced by the level of difficulty that students experienced in answering the question. Questions that addressed concepts with which

students were more familiar resulted in student work that clearly fell within the parameters of a particular score point whereas less clear responses often fell between two adjacent score points, as notable in the interrater consistency statistics.

5.5 Relating Evidence Regarding Scoring to the Validity Arguments

Chapter 5 provides evidence in support of Claim 1.2, specifically relating the following evidence regarding scoring to the validity arguments:

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.3 ***Claim:*** The scoring procedures and models produce scores accurately reflective of targeted knowledge and abilities.

Evidence: Chapter 5 has detailed sections describing the scoring process for the OSTP assessments, including processes for machine scoring multiple-choice responses on paper-and-pencil tests, online scoring of computer-based tests, scoring of writing prompts, field-testing procedures for constructed-response items, and methodology for scoring polytomous items.

CHAPTER 6. CLASSICAL ITEM ANALYSIS

As noted in the *Principles of Educational and Psychological Testing* (Brown, 1983), "A test is only as good as the items it contains." A complete evaluation of a test's quality must include an evaluation of each item. Both *Standards for Educational and Psychological Testing* (AERA et al., 2014) and *Code of Fair Testing Practices in Education* (Joint Committee on Testing Practices, 2004) include standards for identifying quality items. Items should assess only knowledge or skills that are identified as part of the domain being tested and should avoid assessing irrelevant factors. Items should also be unambiguous and free of grammatical errors, potentially insensitive content or language, and other confounding characteristics. In addition, items must not unfairly disadvantage students, particularly racial, ethnic, or gender groups.

Both qualitative and quantitative analyses have been conducted to ensure that OSTP and CCRA items meet these standards. Qualitative analyses are described in earlier chapters of this report; this chapter focuses on quantitative evaluations. Statistical evaluations are presented in four parts: (1) difficulty indices, (2) item-test correlations, (3) differential item functioning (DIF) statistics, and (4) dimensionality analyses. The item analyses presented here are based on the statewide administration of the OSTP and CCRA in spring 2022. Note that the information presented in this chapter is based on operational items (the items on which student scores are calculated). Item analyses were also performed for field-test items; the statistics were used during the item review process and form assembly for future administrations.

6.1 Classical Difficulty and Discrimination Indices

All multiple-choice items were evaluated in terms of item difficulty according to standard classical test theory practices. Difficulty is defined as the average proportion of points achieved on an item and is measured by obtaining the average score on an item and dividing it by the maximum possible score for the item. Multiple-choice items are scored dichotomously (correct vs. incorrect); for these items, the difficulty index is simply the proportion of students who correctly answered the item. Although this index is traditionally described as a measure of difficulty, it is properly interpreted as an *easiness* index, because larger values indicate easier items. An index of 0.0 indicates that all students received no credit for the item, and an index of 1.0 indicates that all students received full credit for the item.

Items that are answered correctly by almost all students provide little information about differences in student abilities, but they do indicate knowledge or skills that have been mastered by most students. Similarly, items that are correctly answered by very few students provide little information about

differences in student abilities, but they may indicate knowledge or skills that have not yet been mastered by most students. In general, to provide the best measurement, difficulty indices should range from near-chance performance (0.25 for four-option multiple-choice items) to 0.90, with most items generally falling between around 0.4 to 0.7. However, on a standards-referenced assessment such as the OSTP, it may be appropriate to include some items with very low or very high item difficulty values to ensure sufficient content coverage.

A desirable characteristic of an item is for higher-ability students to perform better on the item than lower-ability students do. The correlation between student performance on a single item and total test score is a commonly used measure of this characteristic of the item. Within classical test theory, the item-test correlation is referred to as the item's discrimination because it indicates the extent to which successful performance on an item discriminates between high and low scores on the test. The theoretical range of these statistics is –1.0 to +1.0, with a typical observed range from 0.2 to 0.6.

Discrimination indices can be thought of as measures of how closely an item assesses the same knowledge and skills assessed by other items contributing to the criterion total score. That is, the discrimination index can be thought of as a measure of construct consistency.

A summary of the item difficulty and item discrimination statistics for each content area and grade combination is presented in Table 6-1. Note that the statistics are presented for all multiple-choice items. The mean difficulty and discrimination values shown in the table are within the generally acceptable and expected ranges, with mean difficulties (*p*-values) between 0.43 and 0.68 and mean discriminations between 0.35 and 0.47.

Table 6-1. Summary of Item Difficulty and Discrimination Statistics of Multiple-Choice Items by Content Area and Grade

Content Area	Grade	Number of Items	*p*-Value				Discrimination			
			Mean	Standard Deviation	Min	Max	Mean	Standard Deviation	Min	Max
ELA	3	48	0.56	0.12	0.26	0.83	0.41	0.10	0.09	0.61
	4	48	0.59	0.13	0.31	0.84	0.44	0.09	0.15	0.59
	5	50	0.68	0.14	0.37	0.95	0.43	0.07	0.22	0.61
	6	48	0.60	0.14	0.30	0.84	0.42	0.09	0.16	0.60
	7	48	0.55	0.13	0.25	0.83	0.39	0.10	0.17	0.56
	8	50	0.59	0.18	0.21	0.92	0.35	0.09	0.11	0.52
Mathematics	3	50	0.64	0.15	0.28	0.94	0.47	0.10	0.17	0.68
	4	49	0.59	0.16	0.29	0.89	0.45	0.09	0.21	0.58
	5	49	0.56	0.17	0.18	0.88	0.45	0.08	0.28	0.59
	6	47	0.53	0.17	0.19	0.86	0.40	0.10	0.18	0.59
	7	47	0.43	0.14	0.20	0.75	0.40	0.10	0.15	0.58
	8	47	0.44	0.14	0.21	0.70	0.40	0.11	0.18	0.62
Science	5	45	0.54	0.15	0.31	0.83	0.40	0.09	0.22	0.56
	8	42	0.48	0.13	0.19	0.74	0.37	0.10	0.18	0.58
	11	58	0.44	0.12	0.22	0.75	0.36	0.10	0.12	0.58
U.S. History	11	50	0.51	0.13	0.26	0.84	0.40	0.09	0.17	0.57

A comparison of indices across grade levels is complicated because these indices are population-dependent. Direct comparisons would require that either the items or the students were common across groups. Since that is not the case, it cannot be determined whether differences in performance across grade levels are due to differences in student abilities, differences in item difficulties, or both. With this caveat in mind, it appears generally that for mathematics and science, students in higher grades found their items more difficult than did students in lower grades, while in ELA difficulty values are more constant across grades.

In addition to the item difficulty and discrimination summaries presented above, item level classical statistics and item level score distributions were also calculated. Item level classical statistics are provided in Appendix K with item difficulty and discrimination values listed for each item. The item difficulty and discrimination indices are within generally desirable ranges. Very few items were answered correctly at near-chance or near-perfect rates. Similarly, the positive discrimination indices indicate that students who performed well on individual items tended to perform well overall. There were a small number of items that had near-zero discrimination indices.

6.2 Differential Item Functioning (DIF) Analysis

Code of Fair Testing Practices in Education (2004) explicitly states that subgroup differences in performance should be examined when sample sizes permit, and that actions should be taken to ensure that differences in performance are due to construct-relevant, rather than irrelevant, factors. *Standards for Educational and Psychological Testing* (AERA et al., 2014) includes similar guidelines. As part of the effort to identify such problems, all 2021–22 OSTP and CCRA assessment items (operational and field test) were evaluated in terms of differential item functioning (DIF) statistics.

Following the classical item analyses, differential item functioning (DIF) analyses were performed. One goal of test development is to assemble a set of items that provides an estimate of student ability that is as fair and accurate as possible for all groups within the population. DIF statistics are used to identify items in which focal groups (e.g., females, African Americans, Hispanics) of students with the same underlying level of ability have different probabilities than those of reference groups (e.g., males, whites) of answering correctly. If the item is more difficult or easier for an identifiable focal subgroup, the item may be measuring something different from the intended construct.

For the 2021–22 OSTP and CCRA, 10 demographic subgroup comparisons were evaluated for DIF:

- Male versus female
- White versus Hispanic or Latino
- White versus Black/African American
- White versus American Indian/Alaskan Native
- White versus Pacific Islander

- White versus two or more races
- Non-EL versus EL (English Learner)
- Non-IEP versus IEP (Individualized Education Program)
- Non-Economically Disadvantaged versus Economically Disadvantaged

For the OSTP and CCRA, the standardization DIF procedure (Dorans & Kulick, 1986) was employed to evaluate subgroup differences. The standardization DIF procedure is designed to identify items for which subgroups of interest perform differently, beyond the impact of differences in overall achievement. The DIF procedure calculates the difference in item performance for two groups of students (at a time) matched for achievement on the total test. Specifically, average item performance is calculated for students at every total score. Then an overall average is calculated, weighting the total score distribution so that it is the same for the two groups.

When differential performance between two groups occurs on an item (i.e., a DIF index in the "low" or "high" categories, explained below), it may or may not be indicative of item bias. Course-taking patterns or differences in school curricula can lead to DIF, but for construct-relevant reasons. On the other hand, if subgroup differences in performance could be traced to differential experience (such as geographical living conditions or access to technology), the inclusion of such items should be reconsidered.

Computed DIF indices have a theoretical range from -1.0 to 1.0 for multiple-choice items. Dorans and Holland (1993) suggested that index values between -0.05 and 0.05 should be considered negligible. Dorans and Holland further stated that items with values between -0.10 and -0.05 or between 0.05 and 0.10 (i.e., "low" DIF) should be inspected to ensure that no possible effect is overlooked and that items with values outside the [-0.10, 0.10] range (i.e., "high" DIF) are more unusual and should be examined very carefully.[10]

Generally, the number of high DIF items was low for most tests. Most tests had zero items flagged for any of the subgroup comparisons, with the remaining tests having four or fewer items flagged. These differences typically result from subgroup comparisons with small focal groups (e.g., white versus Pacific Islander). Two tests had four items flagged (grades 5 and 6 ELA), again likely due to the small sample size of the focal group. Notably, no items were flagged for high DIF based on Economic Disadvantage. With so few items flagged, no other patterns are evident. The tables in Appendix L present the number of items classified as either "low" or "high" DIF, overall and by group favored.

[10] *It should be pointed out here that DIF for items is evaluated initially at the time of field-testing. If an item displays high DIF, it is flagged for review by a Cognia content specialist. The content specialist consults with the SDE to determine whether to include the flagged item in a future operational test administration.*

6.3 Dimensionality Analysis

Because tests are constructed with multiple content area subcategories and their associated knowledge and skills, the potential exists for many dimensions to be invoked beyond the common primary dimension. Generally, the subcategories are highly correlated with each other; therefore, the primary dimension they share typically explains an overwhelming majority of variance in test scores (Roussos & Ozbek, 2006). In fact, the presence of just such a dominant primary dimension is the psychometric assumption that provides the foundation for the unidimensional item response theory (IRT) models that are used for calibrating, linking, scaling, and equating the 2021–22 OSTP and CCRA test forms.

The purpose of dimensionality analyses is to investigate whether violation of the assumption of test unidimensionality is statistically detectable and, if so, (1) the degree to which unidimensionality is violated and (2) the nature of the multidimensionality. Findings from dimensionality analyses performed on the 2021–22 OSTP and CCRA common items for mathematics, ELA, science, and U.S. history are reported in Table 6-2. (Note: Only common and operational items were analyzed because they are used for score reporting.)

The dimensionality analyses were conducted using the nonparametric IRT-based methods DIMTEST (Stout, 1987; Stout, Froelich, & Gao, 2001) and DETECT (Zhang & Stout, 1999). Both methods use as their basic statistical building block the estimated average conditional covariances for item pairs. A conditional covariance is the covariance between two items conditioned on total score for the rest of the test, and the average conditional covariance is obtained by averaging overall possible conditioning scores. When a test is strictly unidimensional, all conditional covariances are expected to take on values within random noise of zero, indicating statistically independent item responses for examinees with equal expected scores. Nonzero conditional covariances are essentially violations of the principle of local independence, and local dependence implies multidimensionality. Thus, nonrandom patterns of positive and negative conditional covariances are indicative of multidimensionality.

DIMTEST is a hypothesis-testing procedure for detecting violations of local independence. The data are first randomly divided into a training sample and a cross-validation sample. Then an exploratory analysis of the conditional covariances is conducted on the training sample data to find the cluster of items that displays the greatest evidence of local dependence. The cross-validation sample is then used to test whether the conditional covariances of the selected cluster of items displays local dependence, conditioning on total score on the nonclustered items. The DIMTEST statistic follows a standard normal distribution under the null hypothesis of unidimensionality.

DETECT is an effect-size measure of multidimensionality. As with DIMTEST, the data are first randomly divided into a training sample and a cross-validation sample (these samples are drawn independently of those used with DIMTEST). The training sample is used to find a set of mutually exclusive and collectively exhaustive clusters of items that best fit a systematic pattern of positive conditional covariances for pairs

of items from the same cluster and negative conditional covariances from different clusters. Next, the clusters from the training sample are used with the cross-validation sample data to average the conditional covariances: within-cluster conditional covariances are summed; from this sum the between-cluster conditional covariances are subtracted; this difference is divided by the total number of item pairs, and this average is multiplied by 100 to yield an index of the average violation of local independence for an item pair. DETECT values less than 0.2 indicate very weak multidimensionality (or near unidimensionality), values of 0.2 to 0.4 indicate weak to moderate multidimensionality, values of 0.4 to 1.0 moderate to strong multidimensionality, and values greater than 1.0 signify very strong multidimensionality (Roussos & Ozbek, 2006).

DIMTEST and DETECT were applied to the 2021–22 OSTP and CCRA, which consisted of 16 different combinations of grade levels and content areas (six in mathematics, six in ELA, three in science, and one in U.S. History). Because DIMTEST software has an upper limit of 24,000 students, the training and cross-validation samples for all test forms were limited to 12,000 each and were randomly sampled from the total sample. DETECT, on the other hand, has an upper limit of 500,000 students, so every training sample and cross-validation sample used all the available data. After randomly splitting the data into training and cross-validation samples, DIMTEST was applied to each dataset to see if the null hypothesis of unidimensionality would be rejected. Next, DETECT was applied to each dataset for which the DIMTEST null hypothesis was rejected, in order to estimate the effect size of the multidimensionality.

Because of the large sample sizes, DIMTEST would be sensitive even to quite small violations of unidimensionality, and the null hypothesis was strongly rejected for nearly every dataset with most p-values being less than 0.01 (see Table 6-2). Strong rejection of the null hypothesis of unidimensionality is not surprising because strict unidimensionality is an idealization that almost never holds exactly for a given dataset. Thus, it was important to use DETECT to estimate the effect size of the violations of local independence found by DIMTEST. Table 6-2 displays the multidimensional effect-size estimates from DETECT.

Table 6-2. Multidimensionality Effect Sizes by Content Area and Grade

Content Area	Grade	DIMTEST *p*-value	DETECT Effect Size
ELA	3	<.001	0.14
	4	<.001	0.10
	5	<.001	0.13
	6	.696	0.11
	7	<.001	0.11
	8	.001	0.09
Mathematics	3	<.001	0.14
	4	<.001	0.17
	5	<.001	0.20
	6	<.001	0.17
	7	<.001	0.22
	8	<.001	0.17
Science	5	<.001	0.17
	8	.311	0.18
	11	<.001	0.27
U.S. History	11	.927	0.02

All the DETECT values for 2021–22 indicated very weak to weak multidimensionality. The average DETECT values for three of the four content areas were 0.11 for ELA, 0.18 for mathematics, and 0.21 for science. In addition, the calculated DETECT value for U.S. History was 0.02. The violations of local independence, as evidenced by the DETECT effect sizes, were very weak (DETECT Effect Size < 0.20), with two exceptions (Grade 7 mathematics and Grade 11 Science), which were still weak (DETECT Effect Size = 0.22 and .27 respectively), and do not suggest deviations from unidimensionality, which would warrant changes in test design or scoring.

6.4 Relating Evidence Regarding Classical Item Analysis to the Validity Arguments

Chapter 6 provides evidence in support of Claim 1.2, specifically relating the following evidence regarding classical item analysis to the validity arguments:

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.4 ***Claim:*** Items on the assessment demonstrate appropriate statistical quality.

Evidence: Chapter 6 describes the classical item analysis procedures conducted to ensure that all items meet the standards of quality outlined by the *Standards for Educational and Psychological Testing* (AERA et al., 2014) and *Code of Fair Testing Practices in Education* (Joint Committee on Testing Practices, 2004).

CHAPTER 7. ITEM RESPONSE THEORY SCALING AND EQUATING

In addition to the classical test theory item analyses previously described, the 2021–22 OSTP and CCRA were analyzed according to item response theory (IRT) models. IRT analyses were used to place all 2021–22 forms on the same scale; details on the IRT calibration and equating procedures for the assessment are described in this chapter. IRT calibration and equating results are provided in the *Oklahoma School Testing Program 2021–2022 Equating Report* (provided as Appendix M), which was shared with members of the SDE and reviewed with Cognia psychometricians on August 4, 2022. The Equating Report presents information about the psychometric activities and results in support of calibration and equating for all 2021-22 OSTP assessments, as well as the CCRA science grade 11 assessment. As such, readers are referred to this document frequently throughout this chapter. Note that the Equating Report does not include information related to CCRA U.S. History Grade 11 as 2021–22 was the first operational year of that test; no equating procedure was required.

7.1 Item Response Theory Calibration

All 2021–22 OSTP and CCRA items were calibrated using IRT, which uses mathematical models to define a relationship between an unobserved measure of student performance, usually referred to as theta (θ), and the probability (p) of getting a dichotomous item correct or of getting a particular score on a polytomous item. In IRT, it is assumed that all items are independent measures of the same construct (i.e., of the same θ). Another way to think of θ is as a mathematical representation of the latent trait of interest. Several common IRT models are used to specify the relationship between θ and p (Hambleton & van der Linden, 1997; Hambleton & Swaminathan, 1985). The process of determining the specific mathematical relationship between θ and p is called item calibration. After items are calibrated, they are defined by a set of parameters that specify a nonlinear, monotonically increasing relationship between θ and p. Once the item parameters are known, an estimate of θ for each student can be calculated. This estimate, $\hat{\theta}$, is an estimate of the student's true score or a general representation of student performance. It has characteristics that are preferable to those of raw scores for equating purposes.

For the 2021–22 OSTP and CCRA tests, the three-parameter logistic (3PL) model was used for dichotomous items. The graded-response model (GRM) was used for polytomous items (Nering & Ostini, 2010), including polytomously scored multipart items and open-response items.

The 3PL model for dichotomous items can be defined as follows:

$$P_i(\theta_j) = c_i + (1 - c_i)\frac{\exp[Da_i(\theta_j - b_i)]}{1+\exp[Da_i(\theta_j - b_i)]}, \quad \text{(Equation 1)}$$

where
i indexes the items,
j indexes students,
a represents item discrimination,
b represents item difficulty,
c is the pseudo-guessing parameter, and
D is a normalizing constant equal to 1.701.

In the GRM for polytomous items, an item is scored in k + 1 graded categories that can be viewed as a set of k dichotomies. At each point of dichotomization (i.e., at each threshold), a two-parameter model can be used to model the probability that a student's response falls at or above a particular ordered category, given θ. This implies that a polytomous item with k + 1 categories can be characterized by k item category threshold curves (ICTCs) of the two-parameter logistic form:

$$P_{ik}^*(\theta_j) = P(U_i \geq k|\theta_j) = \frac{\exp[Da_i(\theta_j - b_i + d_{ik})]}{1+\exp[Da_i(\theta_j - b_i + d_{ik})]}, \quad \text{(Equation 2)}$$

where
U indexes the scored response on an item,
i indexes the items,
j indexes students,
k indexes threshold,
θ is the student ability,
a represents item discrimination,
b represents item difficulty,
d represents threshold, and
D is a normalizing constant equal to 1.701.

After computing *k* ICTCs in the GRM, *k* + 1 item category characteristic curves (ICCCs), which indicate the probability of responding to a particular category given θ, are derived by subtracting adjacent ICTCs:

$$P_{ik}(\theta_j) = P(U_i = \mathrm{k}|\theta_j) = P_{ik}^*(\theta_j) - P_{i(k+1)}^*(\theta_j), \quad \text{(Equation 3)}$$

where
i indexes the items,
j indexes students,
k indexes threshold,
θ is the student ability,
P_{ik} represents the probability that the score on item *i* falls in category *k*, and
P_{ik}^* represents the probability that the score on item *i* falls at or above the threshold *k* ($P_{i0}^* = 1$ and $P_{i(m+1)}^* = 0$).

The GRM is also commonly expressed as follows:

$$P_{ik}(\theta_j) = \frac{\exp[Da_i(\theta_j - b_i + d_k)]}{1+\exp[Da_i(\theta_j - b_i + d_k)]} - \frac{\exp[Da_i(\theta_j - b_i + d_{k+1})]}{1+\exp[Da_i(\theta_j - b_i + d_{k+1})]} \quad \text{(Equation 4)}$$

Test Characteristic Curves (TCCs) display the expected (average) raw score associated with each θ_j value between -3.0 and 3.0. Mathematically, the TCC is computed by summing the item characteristic curves (ICCs) of all items that contribute to the raw score. The expected raw score at a given value of θ_j is as follows:

$$E(X|\theta_j) = \sum_{i=1}^{n} P_i(1|\theta_j), \quad \text{(Equation 5)}$$

where
i indexes the items (and n is the number of items contributing to the raw score),
j indexes students (here, θ_j runs from –4 to 4), and
$E(X|\theta_j)$ is the expected raw score for a student of ability θ_j.

The expected raw score monotonically increases with θ_j, consistent with the notion that students of high ability tend to earn higher raw scores than do students of low ability. Most TCCs are "S-shaped," as they are flatter at the ends of the distribution and steeper in the middle.

The Test Information Function (TIF) displays the amount of statistical information that the test provides at each value of θ_j. Information functions depict test precision across the entire latent trait continuum. There is an inverse relationship between the information of a test and its standard error of measurement (SEM). For long tests, the SEM at a given θ_j is approximately equal to the inverse of the square root of the statistical information at θ_j (Hambleton, Swaminathan, & Rogers, 1991), as follows:

$$SEM(\theta_j) = \frac{1}{\sqrt{I(\theta_j)}}. \quad \text{(Equation 6)}$$

Compared to the tails, TIFs are often higher near the middle of the distribution, where most students are located and where most items are sensitive by design.

For more information about item calibration and determination, the reader is referred to Lord and Novick (1968), Hambleton and Swaminathan (1985), or Baker and Kim (2004).

7.1.1 IRT Results

PARSCALE v4.1 (Muraki & Bock, 2003) software was used to perform all IRT analyses for the OSTP and CCRA. Each item occupied only one block in the calibration run, and the 1.701 normalizing constant was used for three-parameter logistic (3PL) items. A default convergence criterion of 0.001 was used. Further details about calibration settings are provided in Equating Report Section 1.2. The number of Newton

cycles required for convergence for each grade and content area during the IRT analysis can be found in Equating Report Table 1.2.1. The number of cycles required fell within acceptable ranges (less than 150) for all tests.

Equating Report Table 1.2.2 lists items that were flagged based on the quality control checks implemented during the calibration process. Most items flagged during this step were identified because of the guessing parameter (c-parameter) being poorly estimated. Difficulty in estimating the c-parameter is not at all unusual and is well-documented in psychometric literature (for example, see Nering & Ostini, 2010), especially when the item's discrimination is below 0.50. In all cases, fixing the c-parameter resulted in reasonable and stable item parameter estimates and improved model fit. Other items were flagged because of the equating procedures; those results are described in the Equating section.

The tables in Appendix M (Equating Report Section 2.6) give the IRT item parameters of all dichotomous and polytomous items on the 2021–22 OSTP tests and the CCRA Science grade 11 test by content area and grade. Appendix M (Equating Report Section 2.1) provides the test characteristic curves (TCCs) and test information functions (TIFs) for the 2021-22 OSTP and CCRA Science grade 11 tests by content area and grade.

7.2 EQUATING

The purpose of equating is to ensure that scores obtained from different forms of a test are equivalent to each other. Equating may be used if multiple test forms are administered in the same year, as well as to equate one year's forms to those given in the previous year. Equating ensures that students are not given an unfair advantage or disadvantage because the test form they took is easier or harder than those taken by other students.

The 2021–22 administration of the OSTP and CCRA tests used a raw score-to-theta equating procedure in which test forms were equated to the theta scale established on the reference form (i.e., the form used in the most recent standard setting). This is accomplished through the chained linking design, in which every new form is equated back to the theta scale of the previous year's test form. It can therefore be assumed that the theta scale of every new test form is the same as the theta scale of the reference form since this is where the chain originated.

The groups of students who took the equating items on the 2021–22 OSTP and CCRA tests are not equivalent to the groups who took them in the reference year. IRT is particularly useful for equating scenarios that involve nonequivalent groups (Allen & Yen, 1979). Equating for OSTP and CCRA uses the anchor-test-nonequivalent-groups design described by Petersen, Kolen, and Hoover (1989). In this equating design, no assumption is made about the equivalence of the examinee groups taking different test forms (that is, naturally occurring groups are assumed). Comparability is instead evaluated by utilizing a set of anchor items (also called equating items). However, the equating items are designed to

mirror the operational test in terms of item types and distribution of emphasis. In the OSTP and CCRA tests, every operational item is treated as an equating item.

Item parameter estimates for the 2021–22 OSTP tests were placed on the 2017–18 scale by using the method of Stocking and Lord (1983), which is based on the IRT principle of item parameter invariance.

According to this principle, the equating items for both the 2017–18 and 2021–22 OSTP tests should have the same item parameters. After the item parameters for each 2021–22 test were estimated using PARSCALE (Muraki & Bock, 2003), the Stocking and Lord method was employed to find the linear transformation (slope and intercept) that adjusted the equating items' parameter estimates such that the 2021–22 OSTP tests' TCC for the equating items was as close as possible to that of the 2017–18 OSTP tests.

Note the method described above was also used to place the item parameter estimates for 2021-22 CCRA Science grade 11 test on the 2018-19 scale, as standard setting for CCRA science grade 11 took place in the summer of 2019.

7.3 Equating Results

Prior to calculating the Stocking and Lord transformation constants, a variety of evaluations of the equating items were conducted. Equating items that were flagged for evaluation as a result of these procedures are listed in Appendix M (Equating Report Table 1.2.2). These items were scrutinized, and a decision was made as to whether to include the item as an equating item or to exclude it. The procedures used to evaluate the equating items are described below. In total, 39 items were excluded from equating; seven items were excluded in grade 8 science while one to three items were excluded from equating for all other tests.

Delta analysis results are provided graphically in Equating Report Section 2.1 and tabled in Equating Report Section 2.4. The delta procedure was used to evaluate adequacy of equating items; the discard status presented in the appendix indicates whether the item was flagged as potentially inappropriate for use in equating. Finally, *a*-*a* plots and *b*-*b* plots, which show the IRT parameters for 2021–22 equating items plotted against their previous values are presented in Appendix M (Equating Report Section 2.1). Any items that appeared as outliers in the plots were evaluated in terms of suitability for use as equating items.

Once all evaluations of the equating items were complete, the Stocking and Lord method of equating was used to place the item parameters onto the previous year's scale, as described above. The Stocking and Lord transformation constants are presented in Table 7-1. Note that no constants are provided for CCRA U.S. History Grade 11 as 2021–22 was the first operational year of that test; no equating procedure was required.

Table 7-1. Stocking and Lord Constants

Subject	Grade	Slope	Intercept
ELA	3	1.08	-0.38
	4	1.07	-0.46
	5	0.92	-0.16
	6	1.05	-0.41
	7	1.07	-0.41
	8	0.93	-0.21
Mathematics	3	1.09	-0.37
	4	1.16	-0.29
	5	1.11	-0.32
	6	1.11	-0.4
	7	1.03	-0.3
	8	1.06	-0.36
Science	5	1.06	-0.27
	8	1.02	-0.3
	11	1.01	0.05

7.4 Performance Standards

The OSTP standards to establish performance level cut scores in ELA, mathematics, and science for grades 3–8 were established in the summer of 2017. Details of these standard-setting procedures can be found in the *Oklahoma School Testing Program: Standard Setting Report* (Measured Progress, 2017) provided as Appendix N. The CCRA standards were set in the summer of 2019 for science grade 11 (Appendix O), and in the summer of 2022 for U.S. history grade 11 (Appendix P).

The cuts on the theta scale that were established via standard setting are presented in Table 7-2. Also shown in the table are the cut points on the reporting score scale (described below). These cut points will remain fixed throughout the assessment program unless standards are reset for any reason.

The tables in Appendix Q show performance level distributions for 2021–22 by content area and grade.

Table 7-2. Cut Scores on the Theta Metric and Reporting Scale by Content Area and Grade

Content Area	Grade	Theta			Scaled Score				
		Cut 1	Cut 2	Cut 3	Min	Cut 1	Cut 2	Cut 3	Max
ELA	RSA	-0.9224	*	*	*	*	*	*	
	3	-0.53135	0.34092	1.39558	200	277	300	329	399
	4	-0.52719	0.38608	1.4987	200	275	300	331	399
	5	-0.78321	0.32533	1.17231	200	271	300	323	399
	6	-0.90856	0.28516	1.39169	200	269	300	330	399
	7	-0.49771	0.4666	1.2589	200	273	300	323	399
	8	-0.69508	0.4507	1.20801	200	269	300	322	399
Mathematics	3	-0.84047	0.1866	0.9875	200	274	300	321	399
	4	-0.77087	0.26986	1.06199	200	273	300	322	399
	5	-0.82901	0.42687	1.16994	200	266	300	321	399
	6	-0.75897	0.44047	1.5112	200	267	300	330	399
	7	-0.33556	0.44732	1.47147	200	279	300	329	399
	8	-0.02698	0.75594	1.26746	200	277	300	316	399
Science	5	-0.91364	0.1757	1.32213	200	272	300	330	399
	8	-0.34011	0.27999	1.32579	200	284	300	328	399
	11	0.16841	0.80213	1.52891	200	278	300	327	399
U.S. History	11	-0.25579	0.13963	1.29546	200	290	300	330	399

** Note that only a single cut point was set for grade 3 RSA and no scaled scores were reported.*

Standard-setting procedures were designed to facilitate alignment between student performance on the OSTP assessments and as demonstrated on the NAEP and ACT assessments. A benchmarking procedure was implemented during standard setting that enabled panelists and stakeholders to evaluate student performance in the context of proficiency on these comparable, external assessments. This resulted in cut points that are both appropriate and aspirational for student performance in Oklahoma.

7.5 Oklahoma Performance Index Scores

Because the θ scale used in IRT calibrations is not readily understood by most stakeholders, reporting scales were developed for OSTP and CCRA, and are known as Oklahoma Performance Index scores. The reporting scales are simple linear transformations of the underlying θ scale, which were developed to range from 200 through 399. The lowest scaled score required to achieve Proficient is fixed at 300 for each subject and grade level.

By providing information that is more specific about the position of a student's results, scaled scores supplement performance-level scores. Students' raw scores (i.e., total number of points) on the 2021–22 OSTP and CCRA were translated to scaled scores using a data analysis process called scaling. Scaling simply converts data from one scale to another. In the same way that a given temperature can be expressed in either Fahrenheit or Celsius scales, or the same distance can be expressed in either miles or

kilometers, student scores on the 2021–22 OSTP and CCRA tests can be expressed in either raw or scaled scores.

It is important to note that converting from raw scores to scaled scores does not change students' performance-level classifications. Given the relative simplicity of raw scores, it is fair to ask why scaled scores instead of raw scores are used in OSTP and CCRA reports. Foremost, scaled scores offer the advantage of simplifying result reporting across content areas and subsequent years. Because the standard-setting process typically results in different cut scores across content areas on a raw score basis, it is useful to transform these raw cut scores to a scale that is more easily interpretable and consistent. For the OSTP and CCRA, a score of 300 is the cut score determining proficiency in ELA, mathematics, science, and U.S. History. Using scaled scores greatly simplifies the task of understanding how a student performed. The psychometric advantage of scaled scores over raw scores is that they are linear transformations of θ. Since the θ scale is used for equating, scaled scores are comparable from one year to the next. Raw scores are not.

The scaled scores are obtained by a simple translation of ability estimates (θ) using the linear relationship between threshold values on the θ metric and their equivalent values on the scaled score metric.

Students' ability estimates are based on their raw scores and are found by mapping through the TCC. Scaled scores are calculated using the linear equation as follows:

$$SS = m\hat{\theta} + b, \qquad \text{(Equation 7)}$$

where
m is the slope and
b is the intercept.

A separate linear transformation is used for each grade and content area combination. Table 7-3 shows the slope and intercept terms used to calculate the scaled scores for each grade, content area, and performance level. Note that the values in Table 7-3 will not change unless the standards are reset.

Table 7-3. Scaled Score Slope and Intercept by Content Area and Grade

Content Area	Grade	*m*-Slope	*b*-Intercept
Mathematics	3	27.055981	290.776075
	4	27.394076	289.423695
	5	26.941195	291.235221
	6	26.649869	292.400523
	7	28.018339	286.926643
	8	27.892824	287.428704
ELA	3	25.961085	295.155662
	4	26.540559	292.837765
	5	27.706800	288.172798
	6	27.812661	287.749357
	7	27.866287	287.534853
	8	30.517315	276.930741
Science	5	25.887090	295.451638
	8	26.612832	292.548673
	11	35.877646	271.221287
U.S. History	11	25.9553	296.375

The raw score to scaled score lookup tables for each content area are presented in Appendix M (Equating Report Section 2.2). Graphs of the scaled score cumulative frequency distributions for 2021–22 are also presented in Appendix M (Equating Report Section 2.1).

7.6 Relating Evidence Regarding IRT Scaling and Equating to the Validity Arguments

Chapter 7 provides evidence in support of Claims 1.2, 1.3, and 1.4, specifically relating the following evidence regarding IRT scaling and equating to the validity arguments:

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.3 ***Claim:*** The scoring procedures and models produce scores accurately reflective of targeted knowledge and abilities.

Evidence: Section 7.1 describes the scoring models used for dichotomous and polytomous items, describing the models used in detail and citing the references that establish the appropriateness of these models for placing student performances on a common scale for scoring purposes.

1.2.4 ***Claim:*** Items on the assessments demonstrate appropriate statistical quality.

Evidence: Subsection 7.1.1 describes IRT results referring to tables within the equating report (Appendix M) that describe quality control checks on items and procedures for making interventions based on items being flagged during these checks.

1.3 ***Argument:*** The observed score on any specific test form for a given grade and subject is reflective of the expected score on any form of the test for that grade and subject. (Generalization Inference)

1.3.4 ***Claim:*** Equating and scaling methods accurately place scores from different forms onto a common scale.

Evidence: Section 7.2 describes equating procedures in detail, Section 7.3 summarizes equating results, and Appendix M provides a full report of equating results. These sections demonstrate a high level of rigor in selection, application, and interpretation of equating results.

1.4 ***Argument:*** Expected scores are attributable to proficiency in the target knowledge and abilities. (Explanation Inference)

1.4.1 ***Claim:*** Cut scores are established through defensible standard-setting methods.

Evidence: Section 7.4 summarizes standard-setting procedures and results, and Appendices N, O, and P provide a full report of standard-setting procedures and results. These demonstrate rigorous adherence to well-accepted standard-setting procedures.

1.5 ***Argument:*** OSTP scores, classification decisions, and attributed knowledge and abilities are reflected in contexts outside of the assessment environment through correlation to external criteria. (Extrapolation Inference)

1.5.1 ***Claim:*** Test scores correlate with scores on other assessments or proficiency metrics measuring similar knowledge and abilities.

Evidence: Section 7.4 indicates that standard-setting activities for the OSTP are conducted with the intention of setting cuts in alignment to NAEP and ACT scores.

1.5.2 ***Claim:*** Test classifications associated with college and career readiness correspond to other college and career readiness assessment results.

Evidence: Section 7.4 indicates that standard-setting activities for the OSTP are conducted with the intention of setting cuts in alignment to NAEP and ACT scores.

1.5.3 ***Claim:*** Test classifications correspond to other known metrics of knowledge and ability measured by the OSTP.

Evidence: Section 7.4 indicates that standard-setting activities for the OSTP are conducted with the intention of setting cuts in alignment to NAEP and ACT scores. As such, test classifications are intended to correspond to these other known metrics by design.

CHAPTER 8. RELIABILITY

Although an individual item's performance is an important focus for evaluation, a complete evaluation of an assessment must also address the way items function together and complement one another. Tests that function well provide a dependable assessment of the student's level of ability. Unfortunately, no test can do this perfectly. A variety of factors can contribute to a given student's score being either higher or lower than his or her true ability. For example, a student may misread an item or mistakenly fill in the wrong bubble when he or she knew the answer. Collectively, extraneous factors that impact a student's score are referred to as measurement error. Any assessment includes some amount of measurement error; that is, no measurement is perfect. This is true of all academic assessments—some students will receive scores that underestimate their true ability, and other students will receive scores that overestimate their true ability.

When tests have a high amount of measurement error, student scores are very unstable. Students with high ability may get low scores or vice versa. Consequently, one cannot reliably measure a student's true level of ability with such a test. Assessments that have less measurement error (i.e., errors made are small on average and student scores on such a test will consistently represent his or her ability) are described as more reliable.

There are several ways to estimate an assessment's reliability. One possible approach is to give the same test to the same students at two time points that are close to each other. If students receive the same scores on each test, then the extraneous factors affecting performance are small and the test is reliable. (This is referred to as "test-retest reliability.") A potential problem with this approach is that students may remember items from the first administration or may have gained (or lost) knowledge or skills in the interim between the two administrations. A solution to the "remembering items" problem is to give a different but parallel test at the second administration. If student scores on each test correlate highly, the test is considered reliable. (This is known as "alternate forms reliability," because an alternate form of the test is used in each administration.) This approach, however, does not address the problem that students may have gained (or lost) knowledge or skills in the interim between the two administrations. In addition, the practical challenges of developing and administering parallel forms generally preclude the use of parallel forms reliability indices.

One way to address the latter problem is to split the test in half and then correlate students' scores on the two half-tests; this in effect treats each half-test as a complete test. By doing this, the problems associated with an intervening time interval and of creating and administering two parallel forms of the test are alleviated. This is known as a "split-half estimate of reliability." If the two half-test scores correlate highly, items on the two half-tests must be measuring very similar knowledge or skills. This is evidence

that the items complement one another and function well as a group. This also suggests that measurement error will be minimal.

The split-half method requires psychometricians to select items that contribute to each half-test score. This decision may have an impact on the resulting correlation since each different possible split of the test halves will result in a different correlation. Another problem with the split-half method of calculating reliability is that it underestimates reliability, because test length is cut in half. All else being equal, a shorter test is less reliable than a longer test. Cronbach (1951) provided a statistic, α (alpha), that eliminates the problem of the split-half method by comparing individual item variances to total test variance. Cronbach's α was used to assess the reliability of the 2021–22 OSTP and CCRA as follows:

$$\alpha \equiv \frac{n}{n-1}\left[1 - \frac{\sum_{i=1}^{n} \sigma^2_{(Y_i)}}{\sigma^2_x}\right], \qquad \text{(Equation 8)}$$

where
i indexes the item,
n is the total number of items,
$\sigma^2_{(Y_i)}$ represents individual item variance, and
σ^2_x represents the total test variance.

8.1 Reliability and Standard Errors of Measurement

All reliability calculations (i.e., Cronbach's alpha and SEM) were based on the final sets of common and unique items that passed data review and were retained for operational scoring. Average values and ranges of Cronbach's α coefficient and raw score standard errors of measurement (SEMs) for each content area and grade based on the overall population of students who took the 2021–22 OSTP and CCRA tests are presented in Table 8-1. Additionally, Appendix R presents descriptive statistics for raw scores and reliability results.

Table 8-1. Summary of Reliability and SEM Results by Content Area and Grade

Subject	Grade	Number of Students	Raw Score			Alpha	Standard Error
			Max.	Mean	Stand Deviation		
ELA	3	49563	51	28.40	10.15	0.90	3.14
	4	48326	52	29.57	10.45	0.91	3.08
	5	42835	55	35.94	10.18	0.91	3.09
	6	49567	52	29.77	9.94	0.90	3.08
	7	50993	52	27.82	9.64	0.89	3.19
	8	46257	56	33.66	8.78	0.86	3.32
Mathematics	3	49530	50	31.98	10.57	0.93	2.88
	4	48282	50	29.58	10.51	0.92	2.96
	5	48340	50	27.81	10.38	0.92	2.98
	6	49431	50	25.58	9.48	0.90	3.05
	7	50842	50	20.51	9.46	0.90	3.07
	8	50941	50	21.70	9.60	0.90	3.11
Science	5	48261	45	24.42	8.56	0.88	2.95
	8	50769	48	23.79	8.73	0.86	3.22
	11	44157	62	27.33	10.86	0.89	3.58
U.S. History	11	44168	50	25.46	9.68	0.89	3.15

Appendix R also presents reliabilities for various subgroups of interest. Subgroup Cronbach's α's were calculated using the formula defined above, based only on the members of the subgroup in question in the computations. Values are calculated only for subgroups with 10 or more students. For several reasons, these results should be interpreted with caution. First, inherent differences between grades and content areas preclude making valid inferences about the quality of a test based on statistical comparisons with other tests. Second, reliabilities are dependent not only on the measurement properties of a test but also on the statistical distribution of the studied subgroup. For example, it can be readily seen that the subgroup sample sizes vary considerably, which results in natural variation in reliability coefficients. Additionally, Cronbach's α, a type of correlation coefficient, may be artificially depressed for subgroups with little variability (Draper & Smith, 1998). Third, there is no industry standard to interpret the strength of a reliability coefficient, and this is particularly true when the population of interest is a single subgroup.

Of more interest are reliabilities for the reporting categories within OSTP and CCRA content areas, as described in Chapter 3. Cronbach's α coefficients for reporting categories were calculated with the same formula defined previously using just the items of a given subcategory in the computations. Again, these results are presented in Appendix R. Because results are based on a subset of items rather than the full test, computed reporting category reliabilities were lower (sometimes substantially so) than overall test reliabilities approximately to the degree one would expect based on classical test theory; interpretations should take this into account. Of specific note is Grade 5 and 8 ELA Reporting Category 6 (Writing): having only one item (a writing prompt), values for Cronbach's α could not be calculated. Qualitative

differences between grades and content areas once again preclude valid inferences about the quality of the full test based on statistical comparisons among reporting categories.

8.2 Reliability of Performance Level Categorization

While related to reliability, the accuracy and consistency of classifying students into performance categories are even more important statistics in a standards-based reporting framework (Livingston and Lewis, 1995). After the performance levels were specified and students were classified into those levels, empirical analyses were conducted to determine the statistical accuracy and consistency of the classifications. For the OSTP and CCRA, students are classified into one of four performance levels: Below Basic, Basic, Proficient, or Advanced. This section of the report explains the methodologies used to assess the reliability of classification decisions.

Accuracy refers to the extent to which decisions based on test scores match decisions that would have been made if the scores did not contain any measurement error. Accuracy must be estimated because errorless test scores do not exist. Consistency measures the extent to which classification decisions based on test scores match the decisions based on scores from a second, parallel form of the same test. Consistency can be evaluated directly from actual responses to test items if two complete and parallel forms of the test are given to the same group of students. In operational test programs, however, such a design is usually impractical. Instead, techniques have been developed to estimate both the accuracy and consistency of classification decisions based on a single administration of a test. The Livingston and Lewis (1995) technique was used for the 2021–22 OSTP CCRA because their technique is easily adaptable to all types of testing formats, including mixed-format tests.

The accuracy and consistency estimates reported in Appendix S make use of “true scores” in the classical test theory sense. A true score is the score that would be obtained if a test had no measurement error. Of course, true scores cannot be observed and so must be estimated. In the Livingston and Lewis (1995) method, estimated true scores are used to categorize students into their “true” classifications.

For the 2021–22 OSTP and CCRA, after various technical adjustments (described in Livingston & Lewis, 1995), a four-by-four contingency table of accuracy was created for each content area and grade, where cell $[i, j]$ represented the estimated proportion of students whose true score fell into classification i (where $i = 1$ to 4) and observed score fell into classification j (where $j = 1$ to 4). The sum of the diagonal entries (i.e., the proportion of students whose true and observed classifications matched) signified overall accuracy.

To calculate consistency, true scores were used to estimate the joint distribution of classifications on two independent, parallel test forms. Following statistical adjustments per Livingston and Lewis (1995), a new four-by-four contingency table was created for each content area and grade and populated by the proportion of students who would be categorized into each combination of classifications according to the

two (hypothetical) parallel test forms. Cell $[i, j]$ of this table represented the estimated proportion of students whose observed score on the first form would fall into classification i (where $i = 1$ to 4) and whose observed score on the second form would fall into classification j (where $j = 1$ to 4). The sum of the diagonal entries (i.e., the proportion of students categorized by the two forms into exactly the same classification) signified overall consistency.

The above indices are derived from Livingston and Lewis's (1995) method of estimating the accuracy and consistency of classifications. It should be noted that Livingston and Lewis discuss two versions of the accuracy and consistency tables. A standard version performs calculations for forms parallel to the form taken. An "adjusted" version adjusts the results of one form to match the observed score distribution obtained in the data. The tables use the standard version for two reasons: (1) this "unadjusted" version can be considered a smoothing of the data, thereby decreasing the variability of the results; and (2) for results dealing with the consistency of two parallel forms, the unadjusted tables are symmetrical, indicating that the two parallel forms have the same statistical properties. This second reason is consistent with the notion of forms that are parallel; that is, it is more intuitive and interpretable for two parallel forms to have the same statistical distribution.

Another way to measure consistency is to use Cohen's (1960) coefficient κ (kappa), which assesses the proportion of consistent classifications after removing the proportion of consistent classifications that would be expected by chance. It is calculated using the following formula:

$$\kappa = \frac{(\text{Observed agreement}) - (\text{Chance agreement})}{1 - (\text{Chance agreement})} = \frac{\sum_i C_{ii} - \sum_i C_{i.} C_{.i}}{1 - \sum_i C_{i.} C_{.i}}, \qquad \text{(Equation 9)}$$

where

$C_{i.}$ Is the proportion of students whose observed performance level would be Level I (where I = 1–4) on the first hypothetical parallel form of the test;

$C_{.i}$ is the proportion of students whose observed performance level would be Level I (where I = 1–4) on the second hypothetical parallel form of the test; and

C_{ii} is the proportion of students whose observed performance level would be Level I (where I = 1–4) on both hypothetical parallel forms of the test.

Because κ is corrected for chance, its values are lower than are those of other consistency estimates.

8.3 Accuracy and Consistency Results

The accuracy and consistency analyses described above are provided in Table 8-2. The table includes overall accuracy and consistency indices, including kappa. Accuracy and consistency values conditional on performance level are also given. For these calculations, the denominator is the proportion of students associated with a given performance level. For example, the conditional accuracy value is 0.75 for Basic

for mathematics grade 3. This figure indicates that among the students whose true scores placed them in this classification, 75% would be expected to be in this classification when categorized according to their observed scores. Similarly, again for mathematics grade 3, a consistency value of 0.61 indicates that 61% of students with observed scores in the Proficient level would be expected to score in this classification again if a second, parallel test forms were used.

Table 8-2. Summary of Decision Accuracy (and Consistency) Results by Content Area and Grade Overall and Conditional on Achievement Level

Content Area	Grade	Overall	Kappa	Conditional on Performance Level			
				Below Basic	Basic	Proficient	Advanced
ELA	3	0.79 (0.71)	0.58	0.88 (0.84)	0.75 (0.66)	0.7 (0.61)	0.72 (0.53)
	4	0.81 (0.74)	0.61	0.91 (0.86)	0.77 (0.68)	0.7 (0.63)	1 (0.24)
	5	0.80 (0.72)	0.59	0.85 (0.79)	0.82 (0.76)	0.71 (0.6)	0.79 (0.64)
	6	0.82 (0.74)	0.61	0.86 (0.81)	0.83 (0.76)	0.74 (0.65)	0.69 (0.47)
	7	0.78 (0.71)	0.56	0.91 (0.86)	0.77 (0.68)	0.56 (0.49)	0.62 (0.39)
	8	0.76 (0.68)	0.53	0.86 (0.81)	0.79 (0.71)	0.61 (0.53)	0.61 (0.36)
Mathematics	3	0.80 (0.72)	0.62	0.88 (0.84)	0.77 (0.69)	0.72 (0.61)	0.81 (0.69)
	4	0.80 (0.73)	0.62	0.89 (0.85)	0.78 (0.7)	0.68 (0.56)	0.82 (0.71)
	5	0.81 (0.74)	0.62	0.85 (0.83)	0.82 (0.76)	0.69 (0.56)	0.78 (0.62)
	6	0.82 (0.75)	0.62	0.88 (0.85)	0.83 (0.76)	0.68 (0.58)	0.76 (0.54)
	7	0.81 (0.73)	0.59	0.9 (0.86)	0.71 (0.61)	0.72 (0.63)	0.75 (0.56)
	8	0.82 (0.76)	0.57	0.94 (0.91)	0.71 (0.6)	0.49 (0.38)	0.69 (0.53)
Science	5	0.79 (0.71)	0.59	0.88 (0.81)	0.75 (0.67)	0.78 (0.7)	0.72 (0.55)
	8	0.78 (0.71)	0.55	0.9 (0.86)	0.6 (0.49)	0.7 (0.61)	0.7 (0.51)
	11	0.81 (0.74)	0.59	0.93 (0.9)	0.67 (0.56)	0.65 (0.55)	0.72 (0.55)

For some testing situations, the greatest concern may be making decisions around level thresholds. For example, if a college gave credit to students who achieved an Advanced Placement test score of 4 or 5 but not to students with scores of 1, 2, or 3, one might be interested in the accuracy of the dichotomous decision below 4 versus 4 or above. For the 2021–22 OSTP and CCRA, Appendix S provides accuracy and consistency estimates at each cut point, as well as false positive and false negative decision rates. (A false positive is the proportion of students whose observed scores were above the cut and whose true scores were below the cut. A false negative is the proportion of students whose observed scores were below the cut and whose true scores were above the cut). Accuracy and consistency estimates at each cut point were 0.85 or higher across all content areas and grades for OSTP and CCRA 2021–22. Further, false positive and false negative rates were at the nominal level (0.06) or lower, indicating that student classification according to true scores is in agreement with observed score classification.

8.4 Relating Evidence of Reliability to the Validity Arguments

Chapter 8 provides evidence in support of Claims 1.3 and 1.4, specifically relating the following evidence regarding IRT scaling and equating to the validity arguments:

1.3 Argument: The observed score on any specific test form for a given grade and subject is reflective of the expected score on any form of the test for that grade and subject. (Generalization Inference)

1.3.3 ***Claim:*** Statistical analyses of observed scores on specific forms show that they are good predictors of expected scores on other forms.

Evidence: Section 8.1 describes the process for analyzing the reliability of OSTP forms and the results of these analyses. These analyses establish the reliability of each form. Subject to the accuracy of equating and scaling methods, adequate reliability of individual forms establishes them as good predictors of expected score.

1.4 Argument: Expected scores are attributable to proficiency in the target knowledge and abilities. (Explanation Inference)

1.4.2 ***Claim:*** Tests are assembled with adequate precision near cut points.

Evidence: Section 8.2 describes decision consistency analysis procedures and results. Appendix S describes the results in further detail. Accuracy and consistency rates were reported as being adequately high while false positive and negatives demonstrated strong agreement between true score and observed score classification decisions.

CHAPTER 9. SCORE REPORTING

The OSTP and CCRA are designed to measure student performance against Oklahoma's content standards. Consistent with this purpose, results for OSTP and CCRA are reported in terms of four performance levels that describe student performance in relation to these established state standards: Below Basic, Basic, Proficient, and Advanced. Students receive a separate performance-level classification (based on overall scaled score) for each content area assessed in the student's grade.

All OSTP and CCRA tests were primarily administered online, with paper forms provided as an accommodation.

Results were generated at the student, school, and district levels. For OSTP and CCRA, student results labels and student reports were printed and mailed to the districts for distribution to the schools. In addition to the paper reports, an online reporting tool was provided for school, district, and state users to dynamically generate their own reports and review the student and summary results of each test. The details of each report are presented in the sections that follow. Samples of the reports are included in Appendix T. As part of the reporting tools, the parent portal provides families with an online portal to access their student's results.

9.1 Business Requirements

To ensure that reported results for the OSTP and CCRA are accurate relative to collected data and other pertinent information, a document delineating the processing and reporting business requirements is prepared prior to each reporting year. The requirements are documented in the Processing and Reporting Business Requirements document that is used in the analyses of OSTP and CCRA test data and in reporting content area results. These requirements also guide data analysts in identifying students to be excluded from school-, district-, and state-level summary computations where applicable. A copy of the Processing and Reporting Business Requirements document is included in Appendix U. Each year edits are made to the requirements document based on SDE changes to the programs or reports. The document is approved by SDE. Any changes or additions after approval are documented in the Addenda of the document.

9.2 Static Reports

The following reporting deliverables were produced for the operational Oklahoma tests:

- Student Report
- Student Results Label
- eMetric Data Interaction Online Reporting Tool

- eMetric Parent Portal

The student reports and student results labels (for all tested grades) were printed and shipped to the districts for distribution to the schools. In addition, the school, district, and state users also had access to the eMetric Data Interaction reporting tool. Printed and online materials are available in both English and Spanish. Each of these reporting deliverables is described in the following sections.

9.2.1 Student Report

The student report created for each student in grades 3-8 is a double-sided color folio report printed on 11 x 17-inch paper. The report provides scaled score, performance level, and reporting category results for each tested content area, as well as a state level breakdown of student performance by performance level for each content area. (See Appendix T for an example.) Students receive a report with information on each content area tested at that grade. One copy of the report is produced for schools to send home to parents/guardians. Schools were provided with instruction on how to pull information from the eMetric portal if paper copies were needed for the student's file. In 2022, the CCRA student report was designed. The report is a double-sided report printed on 8 ½- x 11-inch paper. The report is printed in color. A resource page is printed for all students and provides resources for parents and students. The report provides results for science and U.S. history. In 2022, U.S. history standards setting was conducted. After approval of the U.S. history cuts, the new scales were used to report scaled scores and performance levels on the student report.

The front page of the report begins by providing the following identifying demographics about the student:

- Student name
- Local ID
- State ID
- Date of birth
- Grade
- School name
- District name
- Code (district and school code)

In 2022, Class name was removed from the report by request of SDE. The top section of the front page presents a letter from the State Superintendent of Public Instruction. Following the letter is a graphical display of the student's scaled score and the earned performance level for each content area tested. Below that information there is a graphical display of the student's test results in that content area over the last three years if that information is available. Historical scores are only available for ELA and mathematics. For 2022, results for 2021 are reported with 2020 marked as "Score not available." For grade 3 ELA tests, there is also a statement about whether a student did or did not meet the RSA Criteria based upon Standard 2.0 (Reading and Writing Process) and Standard 4.0 (Vocabulary).

The middle section of the folio provides detailed information on how families can support students in each content area. The top sections provide the performance level descriptor information behind the performance level achieved by the student in each performance level. Next, each content area is broken down into reporting categories and shows an indication of how many points the student earned in each category out of the total points possible. Alongside each reporting category are the normative performance comparisons for that category and ways in which families can support their student's continued growth. In CCRA student reports, the Ways to Support text is not included. In 2022, the writing composite score and performance level were reported on the OSTP student reports. Beneath that section, the student results in each content area tested are compared to the school and district performance in a bar graph. Finally, beneath ELA and mathematics score information, Lexile measures (for reading) and Quantile measures (for mathematics) are displayed, respectively.

The back page of the report provides additional information for families looking to gather more information about the report or their student's performance in school. There is a section to assist families with using the report when meeting with the student's teacher or school. There is also a list of resources and links to family guides to further support student growth and achievement as well as a short Glossary of Terms.

9.2.2 Student Results Labels

A student results label was generated for each student. Each student label is two by four inches and provides the following student information:

- Student name
- State Student ID
- Date of birth
- Gender
- Grade
- School name
- District name

The label provides the student's scaled score and performance level for all content areas tested at the grade level. If a student did not earn a scaled score, the report states the reason the student was not tested in the score and performance level columns. The label also indicates if the student the read-aloud accommodation. In the subject column of the label there is an indication of whether the student took a Braille or Equivalent Form in the subject.

9.3 Interactive Reports

Data Interaction, eMetric's web-based reporting solution, features a range of report types that allow analysis across years from the group level down to the individual student level. Each report type may be

customized to include or exclude fields and attributes to meet the SDE's specific needs. Report types include the following:

- Roster Report
- Group Summary Report
- Graphical Summary Report
- Longitudinal Roster Report
- Quick Reports
- Individual Student Report

9.3.1 Roster Report

The Roster Report includes individual student scores and demographics for each content area and single administration. Users can select to view, search, and filter by organization (school, district, or entire state, depending on the user's access level) and a variety of demographic data and score data. Drill-down features allow users to directly access individual student results.

9.3.2 Group Summary Report (Performance Levels)

The Group Summary Report provides a comparison of school, district, and state group performance over various summary statistics. Statistics include the number of students tested, mean scaled score, and number and percent of students at each performance level. Users can customize the display by selecting different content areas, statistics, multiple administrations, demographic variables, and report views, resulting in powerful and flexible ways to create dynamic reports. Drill-down features allow users to disaggregate by subgroup or directly access individual student results for a selected subgroup.

9.3.3 Group Summary Report (Standards and Objectives)

The Group Summary Report for Standards and Objectives creates reports by school or district with results of standards and objectives by content area for one administration. The data can be filtered and disaggregated by score and demographic data. Drill-down features allow users to disaggregate by subgroup or to directly access individual student results.

9.3.4 Graphical Summary Report (Performance Levels)

The Graphical Summary Report provides a visual alternative to analyze group data through the use of graphs and other visualization tools. Summary statistics include percent of students in each performance level, percent of students at or above Proficient, percent of students below Proficient, and RSA status level. Graphs include bar charts, pie charts, and histograms. Users can customize their graphs by selecting different content areas, statistics, multiple administrations, demographic variables, and views. Drill-down features allow users to disaggregate by subgroup or to directly access individual student results.

9.3.5 Longitudinal Roster Report

The Longitudinal Roster Report displays results of individual student scores and demographics by content area in multiple administrations. Users can select to view, search, and filter by organization (school, district, or entire state, depending on the user's access level) and a variety of demographic data and score data. Drill-down features allow users to directly access individual student results.

9.3.6 Quick Reports

Six quick reports are provided. These are the same summary or roster reports outlined above with specific preselected filters requested by the client that provide the most commonly used report data. Quick Reports provided are as follows:

- Summary Report of Total Tested (by organization, administration, and subject)
- Roster: All Selections (with all scores preselected)
- Group Summary PL: All Selections (with all scores and disaggregate variables preselected)
- Group Summary S & O: All Selections (with all scores and disaggregate variables preselected)
- Graphical Summary PL: All Selections (with all disaggregate variables preselected)
- Longitudinal Roster: All Selections (with all scores preselected)

It is important to note that some of these are legacy reports that are only available when viewing data from the former OCCT assessment.

9.3.7 Parent Portal

This year families have been provided with an online portal to access student reports. The Oklahoma Parent Portal is designed to provide students and parents/guardians with online access to a student's state assessment scores. This portal will assist a student and his or her parents/guardians with tracking assessment information throughout the student's academic career.

The portal provides scores from the OSTP 2020-2021 and 2021–22 assessments.

9.4 Quality Assurance

The Software Quality Assurance (SQA) team worked together with the data processing and data analysis teams to ensure quality data was captured and delivered accurately. Using multiple software tools, quality control checks were performed by the data processors and data analysts as the data was handed off.

These quality checks initialized the accuracy of the data being ingested into the database and subsequent tables and columns.

Software Quality Assurance developed a test plan that included previously agreed upon report designs and the *Processing and Reporting Business Requirements* document. Test cases housed in an internal test cases repository software were then executed, including, but not limited to, the following:

- testing data counts of data imported;
- testing data quality of individual fields for valid values, such as gender, ethnicity, etc.;
- validating scripts developed by the software developers to ensure they match business requirements and technical specifications.

Included in this testing effort to ensure the quality of the data, the SQA team used a sample of schools and districts which were selected based on multiple criteria. A few criteria are identified below:

- students' unique testing records
- students' complete testing
- students' partial complete testing
- invalidated students

Working closely with the data processing and data analysis teams allowed a timely and precise turnaround if any data anomalies were found. Test cases were tied to tickets outlining required work to allow for full transparency and cohesive teamwork in validation of the data.

Later, the SQA team executed test cases validating student printed reports and student labels to ensure that they met the specifications.

When all the test cases were passed, the SQA team notified the Cognia State Services department for final sign off.

9.5 Additional Resources

In addition to the resources provided within the reports, the OSDE provides many supplemental materials to assist students, families, teachers, administrators, and other stakeholders to interpret the meanings of test scores and apply their interpretations toward appropriate and valid uses of the test results. Most of these resources are available through stakeholder-specific web pages within the Oklahoma SDE website (https://sde.ok.gov/) with a central page for assessment guidance (https://sde.ok.gov/assessment-guidance) providing access to many of these resources as well.

9.5.1 Families and Students

For families and students, supplemental materials may be found at https://sde.ok.gov/oklahoma-school-testing-program-ostp-families and include:

A Parent Portal Toolkit document (https://sde.ok.gov/sites/default/files/09_27_OSTP%20Parent%20Portal%20Toolkit_MC_0.pdf) guiding use of the portal provides not only access information, but also information regarding how schools use

test scores, how families can apply test scores to support student learning, and some basic information for interpreting the score information provided within the portal

A link to a set of Family Guides (https://sde.ok.gov/oklahoma-family-guides) can help families support students appropriately across grades and subjects.

Documents describing OSTP performance level descriptors for all grades and subjects being assessed, enabling families and students to better understand what students are likely to know and be able to do based on their performances on the state tests that they take.

Guidance for understanding quantile (https://sde.ok.gov/quantiles) and lexile (https://sde.ok.gov/sites/ok.gov.sde/files/OK%20Lexile%20Parent%20Guide.pdf) scores.

Resources for educators and administrators include approaches for interpreting assessment scores to connect with families and supporting students, providing additional supports for valid score interpretation and use by families and students.

9.5.2 Educators

The OSDE provides an educators' web page (https://sde.ok.gov/educators-page) providing a wide range of educator resources, including links to several assessment-specific tools and guides. Resources available through this page include:

A link to an assessment materials page (https://sde.ok.gov/assessment-material) includes links to test blueprints, test and item specifications, depth of knowledge definitions, and performance level descriptor definitions.

A link to the assessments office (https://sde.ok.gov/office-assessments), which, in turn, includes links to an educator toolkit comprised of a "key questions" document (https://sde.ok.gov/sites/default/files/documents/files/FE_2022_OSTP_Educators_Key_Questions%20BK.MC_docx.pdf), and accompanying webinar (https://www.youtube.com/watch?v=B31EScvag7w) and slide deck (https://sde.ok.gov/sites/default/files/documents/files/FE_SY2022_Educators%20Using%20OSTP%20to%20Monitor%20Covid%20Recovery_ppt..pdf). These provide important information regarding interpretation of data within the OSTP portal, specific guidance for monitoring COVID recovery, and key questions that may be of interest to educators for determining how well their students are performing relative to the standards in the subjects being assessed.

The document *Interpreting Assessment Scores to Inform Next Steps, Connect with Families and Support Students* which provides general guidance for interpretation of assessment scores and specific guidance for next steps educators can take based on these interpretations, including providing support to families and students is located here:(https://sde.ok.gov/sites/default/files/documents/files/F_09_22_Y%202021_Overview%20and%20Framing%20Questions_0.pdf)

Additionally, though not specifically related to the assessment, equitable application of test score interpretations rely upon educators' ability to maintain equity in the classroom. To that end, the Oklahoma SDE provided a set or resources to educators dedicated to providing understanding of equity in the classroom (https://sde.ok.gov/maintenance-equity).

9.5.3 Administrators

For administrators, the materials available to educators are also applicable as guidance for administrator interpretation and use of test scores. On the assessments office website (https://sde.ok.gov/office-assessments), an administrator-specific toolkit is provided, also including a key questions document (https://sde.ok.gov/sites/default/files/documents/files/FE_2022_OSTP_Key_Questions%20for%20Administrators%208.26_BK.MCdocx_0.pdf), a webinar (https://www.youtube.com/watch?v=wAz4IVLwskE), and a slide deck (https://sde.ok.gov/sites/default/files/documents/files/F_SY_2022%20Administrators_Using%20OSTP%20to%20Monitor%20COVID%20Recovery%20BK.pdf).

Resources for administrators relating to accountability-based decisions are available at https://sde.ok.gov/oklahoma-report-card-resources and include an overview of Oklahoma School Report Cards (https://sde.ok.gov/sites/default/files/documents/files/02-25-19%20Report%20Card%20Overview.pdf) and a more detailed guide of the measures and indicators found within those report cards and available actions based on those measures and indicators (https://sde.ok.gov/sites/default/files/05-04_Final-Oklahoma%20School%20Report%20Card%20Guide%20-%20Measures%2C%20Indicators%20and%20Actions_MH_RM_1.pdf).

Though not specific to the assessment, links to resources related to equitable access to education and appropriate metrics for equitable decision-making are available at https://sde.ok.gov/maintenance-equity and https://sde.ok.gov/equity-plan.

9.6 Relating Evidence Regarding Score Reporting to the Validity Arguments.

Chapter 9 provides evidence in support of Claims 1.6, 1.7, and 1.8, specifically relating the following evidence regarding Score Reporting to the validity arguments:

1.6 ***Argument:*** OSTP score reports provide educators with classification and score information that is useful, fair, and appropriate for making decisions regarding curricular planning and identification of instructional needs at both the classroom and individual student level. (Utilization Inference)

1.6.1 ***Claim:*** Educators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limits on their interpretability, as applied to curricular planning and identification of instructional needs.

Evidence: Subsection 9.5.2 describes resources available to educators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations within the classroom.

1.6.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to educators for the purposes of curricular planning and identification of instructional needs.

Evidence: Subsection 9.5.2 describes resources available to educators that provide specific guidance to educators for applying test scores and interpretations based on those scores to their instruction.

1.6.3 ***Claim:*** Curricular planning and instructional decisions that educators make based on scores are fair and just to students and classes.

Evidence: Subsection 9.5.2 describes resources available to educators that provide tools for maintaining equity in the classroom. These resources, in combination with a test designed to produce scores in a fair and just way allow educators to make fair and just decisions in the classroom.

1.7 ***Argument:*** OSTP score reports provide students and their families with classification and score information that is useful, fair, and appropriate for monitoring academic achievement and progress toward college and career readiness. (Utilization Inference)

1.7.1 ***Claim:*** Students and their families understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limits on their interpretability, as applied to monitoring academic achievement and progress toward college and career readiness.

Evidence: Chapter 9, which describes score reporting efforts, and Appendix T, which provides a sample of the report provided to parents and students, demonstrates the effort to present information within the report in an understandable way.

Subsection 9.5.1 describes resources available to students and their families that provide instructions for accessing the Parent Portal and explanations of scores and classifications, how to interpret those scores and classifications, and application of those interpretations when discussing test results with educators.

1.7.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to parents and students for the purposes of monitoring academic achievement and progress toward college and career readiness.

Evidence: Subsection 9.2.1 refers to sections of the score reports that parents and students receive that include "detailed information on how families can support students", and "ways in which families can support their student's continued growth", assistance "using the report when meeting with the student's teacher or school", and "a list of resources and links to family guides to further support student growth and achievement." This demonstrates considerable effort in providing courses of action to parents and students based on scores and classifications.

Subsection 9.5.1 describes resources available to students and their families that describe ways that they can use score reporting information to take positive actions toward furthering students' education and college and career readiness.

1.7.3 ***Claim:*** Courses of action parents and students may take based on knowledge of students' academic achievement and career and college readiness are made available to parents and students in a fair and just way.

Evidence: Chapter 9 describes different modes of availability (e.g., paper and online) and in both Spanish and English, which speaks to an effort to making the reports available to parents and students with different access to these modes and of different backgrounds.

1.8 Argument: OSTP score reports provide state and district administrators with classification and score information that usefully, fairly, and appropriately supports evaluation and enhancement of curricula and programs. (Utilization Inference)

1.8.1 Claim: State and district administrators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limitations on their interpretability, as applied in support of evaluation and enhancement of curricula and programs.

Evidence: Chapter 9, which describes score reporting efforts, demonstrates the effort to present information to state and district administrators in an understandable way.

Subsection 9.5.3 describes resources available to administrators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations to support evaluation and enhancement of curricula and programs.

1.8.2 Claim: Interpretations of scores and classifications are genuinely useful to state and district administrators for evaluating and enhancing curricula and programs.

Evidence: Section 9.3 describes the interactive reporting tools made available to state and district administrators. Types of information available within the tool and quality assurance efforts are further described.

Subsection 9.5.3 describes resources available to administrators that describe ways that administrators may apply interpretations of test scores to support evaluation and enhancement of curricula and programs.

1.8.3 ***Claim:*** Curriculum and program evaluation and enhancement decisions made based on OSTP score and classification information are fair and just.

Evidence: Section 9.5.3 describes resources available to administrators that provide guidance for making fair and equitable decisions regarding their educational programs, including application of appropriate metrics for making those decisions.

1.10 ***Argument:*** OSTP score reports provide federal and state administrators, agencies, and legislators with classification and score information that is useful, fair, and appropriate for making accountability decisions. (Utilization Inference)

1.10.1 ***Claim:*** State administrators, agencies, and legislators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limitations on their interpretability, as applied to accountability decisions.

Evidence: Chapter 9, which describes score reporting efforts, demonstrates the effort to present information to state and district administrators in an understandable way.

Subsection 9.5.3 describes resources available to administrators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations to support evaluation and enhancement of curricula and programs.

1.10.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to state administrators, agencies, and legislators for making accountability decisions.

Evidence:

Section 9.3 describes the interactive reporting tools made available to state and district administrators. Types of information available within the tool and quality assurance efforts are further described.

Subsection 9.5.3 describes resources available to administrators that describe ways that administrators may apply interpretations of test scores to support accountability decisions.

1.10.3 ***Claim:*** Accountability decisions based on OSTP score and classification information are fair and just.

Evidence:

Section 9.5.3 describes resources available to administrators that provide guidance for making fair and equitable decisions regarding their educational programs, including application of appropriate metrics for making those decisions.

CHAPTER 10. VALIDITY ARGUMENTS TO SUPPORT INTENDED SCORE INTERPRETATIONS AND USES

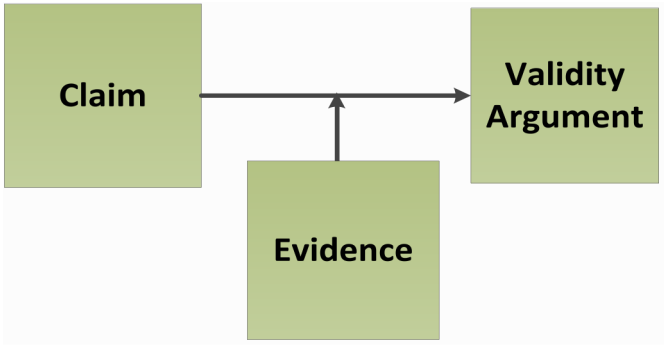
10.1 Rationale for Validity Argument Technical Report

Chapter 10 presents the primary intended score interpretations and uses for the OSTP and CCRA. This chapter presents the assumptions that underlie these score interpretations and uses and the evidence that supports the assumptions. A validity argument logic model is introduced and applied to develop validity arguments to support all intended score interpretations and uses.

The Standards for Educational and Psychological Testing (2014) define validity as "the degree to which evidence and theory support the interpretations of test scores for proposed uses of tests" (p. 11). Elaborating on that definition, the Standards assert that "it is the interpretations of test scores for proposed uses that are evaluated, not the test itself" (p. 11) and that "validation logically begins with an explicit statement of the proposed interpretation of test scores, along with a rationale for the relevance of the interpretation to the proposed use" (p. 11). This definition applies specifically to intended interpretations and uses of test scores, rather than to the broader program of curriculum and instruction in which a testing program is embedded or to the surrounding education and school improvement policies and aspirations for student learning.

The Standards further state that "a sound validity argument integrates various strands of evidence into a coherent account of the degree to which existing evidence and theory support the intended interpretations of test scores for specific uses" (p. 21; emphasis added). An emerging common practice in state assessment programs is to construct validity arguments based on Toulmin's model of argumentation (Toulmin, 1958). A model for validity arguments, derived from the Toulmin model, is shown in Figure 10-1. The first figure shows the model, and the second figure is an illustration of the model applied.

Figure 10-1. Validity Argument Logic Model



10.2 THE OSTP AND CCRA VALIDITY ARGUMENT LOGIC MODEL

In the OSTP and CCRA validity argument logic models, the overall validity argument is that the existing design, procedural, and psychometric evidence supports all intended score interpretations and uses. Each of the interpretation and uses represents a sub-claim that requires supporting evidence and warrants (Toulmin's term; here, an assumption) that connect the evidence to the claim. This line of reasoning and argumentation leads to supported conclusions, which are the OSTP and CCRA validity arguments. Sections 10.2.1 and 10.2.2 describe, respectively, the primary intended score interpretation of the OSTP and CCRA and the primary intended score uses of the OSTP and CCRA. Claims 1.1 to 1.5 provide the chain of inference necessary to support intended score interpretation while Claims 1.6 to 1.10 each provides the inferential step to get from interpretation to a specific intended score use. Each score interpretation and use, assumption, and element in the table is presented following the table, with descriptions and summaries of the supporting evidence.

10.2.1 Claims supporting Intended Interpretations of OSTP and CCRA Assessments

The primary intended interpretation of OSTP scores is that they provide reliable and valid information about student knowledge and ability relative to the Oklahoma Academic Standards (OAS) in grade-level mathematics and English Language arts in grades 3-8 and science for students in grades 5 and 8. The primary intended interpretation of CCRA scores is that they provide reliable and valid information about student knowledge relative to the OAS in U.S. history and science for students in grade 11. These interpretations are supported by the same series of claims. Where different evidence is required for the different assessments, this will be noted within the evidence for the relevant claim or subclaim.

1.1 ***Argument:*** Observations of performance on the OSTP reflect the knowledge and abilities articulated in the OAS with appropriate assessment tasks representing the full breadth and depth of the domain as articulated within these standards. (Description Inference)

1.1.1 ***Claim:*** Expected knowledge and abilities are thoroughly articulated and considered appropriate to the grade and subject being assessed.

Evidence: The need for alignment of the assessments to the OAS is articulated in the stated purpose of the program (1.1). The direct link between the OAS and the assessments throughout the test design, development, and implementation processes for all grades and subjects is thoroughly articulated in Chapter 3.

1.1.2 ***Claim:*** Assessment tasks are developed to provide evidence of the expected knowledge and abilities for each grade and subject being assessed.

Evidence: Subsections within each section of Chapter 3 (each section representing a different subject on the OSTP or CCRA) all explicitly state that items in the subject and grades being assessed "were developed specifically for Oklahoma and are directly linked to the OAS." Section 3.1.3 describes passage development for ELA specifically in terms of how reading passages are selected for alignment to the OAS. Sections 3.1.4, 3.2.3, 3.3.2 and 3.4.2 describe item development for specific subjects.

1.2 ***Argument:*** Each test form, an organized sampling of assessment tasks, results in an observed score that reflects a student's knowledge and abilities in the subject being assessed through appropriate test assembly, administration, and scoring procedures. (Evaluation Inference)

1.2.1 ***Claim:*** Each form is constructed to draw from available items such that the underlying domain of knowledge and abilities is adequately sampled.

Evidence: Subsections within Chapter 3 describe blueprints for identifying the amount of content covered on the test forms for all subjects, specifically stating that test blueprints "are based on the importance and coverage of [the OAS] in Oklahoma schools." Ideal blueprints are included in Appendix C. For existing assessments, tables are provided showing that content and depth of knowledge distributions on test forms are within the target blueprint ranges for all assessments.

1.2.2 ***Claim:*** The assessment is administered under appropriate conditions.

Evidence: Chapter 4 describes the administration process for the OSTP assessments. This includes administration modes, procedures, requirements and documentation, training, accommodations, test security, documentation of irregularities, and support provided by the

OSTP Service Center. The administration process is described in greater detail in an Administration Manual. Details of accommodations are provided in Appendix F.

1.2.3 ***Claim:*** The scoring procedures and models produce scores accurately reflective of targeted knowledge and abilities.

Evidence: Chapter 5 has detailed sections describing the scoring process for the OSTP assessments, including processes for machine scoring multiple choice responses on paper-and-pencil tests, online scoring of computer-based tests, scoring of writing prompts, field-testing procedures for constructed-response items, and methodology for scoring polytomous items. Section 7.1 describes the scoring models used for dichotomous and polytomous items, describing the models used in detail and citing the references that establish the appropriateness of these models for placing student performances on a common scale for scoring purposes.

1.2.4 ***Claim:*** Items on the assessment demonstrate appropriate statistical quality.

Evidence: Chapter 6 describes the classical item analysis procedures conducted to ensure that all items meet the standards of quality outlined by the Standards for Educational and Psychological Testing (AERA et al., 2014) and Code of Fair Testing Practices in Education (Joint Committee on Testing Practices, 2004). Subsections 3.1.8, 3.2.5, 3.3.4, and 3.4.4 describe the review process for evaluating items flagged by these analyses. Subsection 7.1.1 describes IRT results referring to tables within the equating report (Appendix M) that describe quality control checks on items and procedures for making interventions based on items being flagged during these checks.

1.3 ***Argument:*** The observed score on any specific test form for a given grade and subject is reflective of the expected score on any form of the test for that grade and subject. (Generalization Inference)

1.3.1 ***Claim:*** Task specifications adequately inform production or selection of items with similar content and statistical characteristics.

Evidence: Subsections 3.1.2 and 3.2.2 contain some information about item specification for ELA and mathematics assessments, respectively. It is stated that “each item was designed to measure a specific standard and objective” in the OAS.

1.3.2 ***Claim:*** Test specifications result in forms of similar length and task distribution.

Evidence: Section 3.5 describes the test development process in detail, specifically outlining item selection, test assembly, and review to ensure the equivalency of forms based on a robust set of criteria. Within Chapter 3, the section for each OSTP subject has a subsection on Test Design and Development for the current year’s assessments. These demonstrate the common structure of forms within a given grade and subject. The first subsection within each section of

Chapter 3 describes blueprint distributions and adherence to those blueprints, providing further evidence that the selection of tasks considers and meets content coverage requirements across all forms.

1.3.3 ***Claim:*** Statistical analyses of observed scores on specific forms show that they are good predictors of expected scores on other forms.

Evidence: Section 8.1 describes the process for analyzing the reliability of OSTP forms and the results of these analyses. These analyses establish the reliability of each form. Subject to the accuracy of equating and scaling methods, adequate reliability of individual forms establishes them as good predictors of expected score.

1.3.4 ***Claim:*** Equating and scaling methods accurately place scores from different forms onto a common scale.

Evidence: Section 7.2 describes equating procedures in detail, Section 7.3 summarizes equating results, and Appendix M provides a full report of equating results. These sections demonstrate a high level of rigor in selection, application, and interpretation of equating results.

1.4 ***Argument:*** Expected scores are attributable to proficiency in the target knowledge and abilities. (Explanation Inference)

1.4.1 ***Claim:*** Cut scores are established through defensible standard setting methods.

Evidence: Section 7.4 summarizes standard-setting procedures and results, and Appendices N, O, and P provide a full report of standard-setting procedures and results. These demonstrate rigorous adherence to well-accepted standard-setting procedures.

1.4.2 ***Claim:*** Tests are assembled with adequate precision near cut points.

Evidence: Section 8.2 describes decision consistency analysis procedures and results. Appendix S describes the results in further detail. Accuracy and consistency rates were reported as being adequately high while false positive and negatives demonstrated strong agreement between true score and observed score classification decisions.

1.4.3 ***Claim:*** Characteristics of knowledge expected to affect task difficulty correlate with empirical item difficulty.

Evidence: Subsections 3.1.1, 3.2.1, 3.3.1 contain Depth of Knowledge distributions for ELA, Mathematics and Science, respectively. Subsections 3.3.7 and 3.4.7 describe how cognitive complexity is captured within the Science and History Exams. These are attributes that are incorporated within item development approaches that correlate with expected item difficulty.

1.5 ***Argument:*** OSTP scores, classification decisions, and attributed knowledge and abilities are reflected in contexts outside of the assessment environment through correlation to external criteria. (Extrapolation Inference)

1.5.1 ***Claim:*** Test scores correlate with scores on other assessments or proficiency metrics measuring similar knowledge and abilities.

Evidence: Section 7.4 indicates that standard setting activities are conducted with the intention of setting cuts in alignment to NAEP and ACT scores. Resulting correlations of these scores are not established within the technical report.

1.5.2 ***Claim:*** Test classifications associated with college and career readiness correspond to other college and career readiness assessment results.

Evidence: Section 7.4 indicates that standard setting activities are conducted with the intention of setting cuts in alignment to NAEP and ACT scores.

1.5.3 ***Claim:*** Test classifications correspond to other known metrics of knowledge and ability measured by the OSTP.

Evidence: Section 7.4 indicates that standard setting activities are conducted with the intention of setting cuts in alignment to NAEP and ACT scores. As such test classifications are intended to correspond to these other known metrics by design.

10.2.2 Claims Supporting Intended Uses of OSTP and CCRA Assessments

With evidence provided in support of intended interpretations of the OSTP and CCRA scores, validation of the primary intended uses of these scores only requires evidence that these interpretations can be applied to each use in an appropriate, fair, and just way. Evidence for each use, except the participation requirement for graduation, should show that the intended audience (i.e., those using the scores)

- understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limits on their interpretability, as applied to the intended use,
- find the scores and classifications genuinely useful for that intended use,
- make decisions, when using the scores and classifications as intended, that are fair and just to those affected by the decisions being made, and
- support for each intended use will provide evidence that each of these three claims is met within the argument for that specific intended use.

1.6 ***Argument:*** OSTP score reports provide educators with classification and score information that is useful, fair, and appropriate for making decisions regarding curricular planning and identification of instructional needs at both the classroom and individual student level. (Utilization Inference)

1.6.1 ***Claim:*** Educators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limits on their interpretability, as applied to curricular planning and identification of instructional needs.

Evidence: Subsection 9.5.2 describes resources available to educators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations within the classroom.

1.6.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to educators for the purposes of curricular planning and identification of instructional needs.

Evidence: Subsection 9.5.2 describes resources available to educators that provide specific guidance to educators for applying test scores and interpretations based on those scores to their instruction.

1.6.3 ***Claim:*** Curricular planning and instructional decisions that educators make based on scores are fair and just to students and classes.

Evidence: Subsection 9.5.2 describes resources available to educators that provide tools for maintaining equity in the classroom. These resources, in combination with a test designed to produce scores in a fair and just way, allow educators to make fair and just decisions in the classroom.

1.7 ***Argument:*** OSTP score reports provide students and their families with classification and score information that is useful, fair, and appropriate for monitoring academic achievement and progress toward college and career readiness. (Utilization Inference)

1.7.1 ***Claim:*** Students and their families understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limits on their interpretability, as applied to monitoring academic achievement and progress toward college and career readiness.

Evidence: Chapter 9, which describes score reporting efforts, and Appendix T, which provides a sample of the report provided to parents and students, demonstrates the effort to present information within the report in an understandable way.

Subsection 9.5.1 describes resources available to students and their families that provide instructions for accessing the Parent Portal and explanations of scores and classifications, how to interpret those scores and classifications, and application of those interpretations when discussing test results with educators.

1.7.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to parents and students for the purposes of monitoring academic achievement and progress toward college and career readiness.

Evidence: Subsection 9.2.1 refers to sections of the score reports that parents and students receive that include "detailed information on how families can support students", and "ways in which families can support their student's continued growth", assistance "using the report when meeting with the student's teacher or school", and "a list of resources and links to family guides to further support student growth and achievement." This demonstrates considerable effort in providing courses of action to parents and students based on scores and classifications.

Subsection 9.5.1 describes resources available to students and their families that describe ways that they can use score reporting information to take positive actions toward furthering students' education and college and career readiness.

1.7.3 ***Claim:*** Courses of action parents and students may take based on knowledge of students' academic achievement and career and college readiness are made available to parents and students in a fair and just way.

Evidence: Chapter 9 describes different modes of availability (e.g., paper and online) and in both Spanish and English, which speaks to an effort to making the reports available to parents and students with different access to these modes and of different backgrounds.

1.8 ***Argument:*** OSTP score reports provide state and district administrators with classification and score information that usefully, fairly, and appropriately supports evaluation and enhancement of curricula and programs. (Utilization Inference)

1.8.1 Claim: State and district administrators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limitations on their interpretability, as applied in support of evaluation and enhancement of curricula and programs.

Evidence: Chapter 9, which describes score reporting efforts, demonstrates the effort to present information to state and district administrators in an understandable way.

Subsection 9.5.3 describes resources available to administrators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations to support evaluation and enhancement of curricula and programs.

1.8.2 Claim: Interpretations of scores and classifications are genuinely useful to state and district administrators for evaluating and enhancing curricula and programs.

Evidence: Section 9.3 describes the interactive reporting tools made available to state and district administrators. Types of information available within the tool and quality assurance efforts are further described.

Subsection 9.5.3 describes resources available to administrators that describe ways that administrators may apply interpretations of test scores to support evaluation and enhancement of curricula and programs.

1.8.3 ***Claim:*** Curriculum and program evaluation and enhancement decisions made based on OSTP score and classification information are fair and just.

Evidence: Section 9.5.3 describes resources available to administrators that provide guidance for making fair and equitable decisions regarding their educational programs, including application of appropriate metrics for making those decisions.

1.9 ***Argument:*** OSTP score reports provide state administrators with classification and score information that is useful, fair, and appropriate for comparing academic achievement of Oklahoma students to academic achievement of students in other states. (Utilization Inference)

1.9.1 ***Claim:*** State administrators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limitations on their interpretability, as applied to comparisons of academic achievement of Oklahoma students to academic achievement of students in other states.

Evidence: Section 7.4 describes how standards are set, including alignment of cuts to NAEP and ACT scores. This alignment allows for some comparability between states.

1.10 ***Argument:*** OSTP score reports provide federal and state administrators, agencies, and legislators with classification and score information that is useful, fair, and appropriate for making accountability decisions. (Utilization Inference)

1.10.1 ***Claim:*** State administrators, agencies, and legislators understand the meaning of scores and classifications, appropriate uses and interpretations of those scores and classifications, and any limitations on their interpretability, as applied to accountability decisions.

Evidence: Chapter 9, which describes score reporting efforts, demonstrates the effort to present information to state and district administrators in an understandable way.

Subsection 9.5.3 describes resources available to administrators that provide explanations of scores and classifications, underlying interpretations in terms of knowledge and ability based on those classifications, and applications of those interpretations to support evaluation and enhancement of curricula and programs.

1.10.2 ***Claim:*** Interpretations of scores and classifications are genuinely useful to state administrators, agencies, and legislators for making accountability decisions.

Evidence: Section 9.3 describes the interactive reporting tools made available to state and district administrators. Types of information available within the tool and quality assurance efforts are further described.

Subsection 9.5.3 describes resources available to administrators that describe ways that administrators may apply interpretations of test scores to support accountability decisions.1.10.3

Claim: Accountability decisions based on OSTP score and classification information are fair and just.

Evidence: Section 9.5.3 describes resources available to administrators that provide guidance for making fair and equitable decisions regarding their educational programs, including application of appropriate metrics for making those decisions.

10.3 CONCLUSION

Validity arguments for the OSTP and CCRA are crafted to not just provide evidence that all steps in the test design, development, and implementation process are taken correctly, but that they are working together to ensure that the resulting scores validly support intended interpretations and uses. The arguments and the logical inferential steps they provide can be summarized as follows:

1.1 Description Inference: Items sample from domain appropriately such that high-quality forms can be produced. (Domain to Item)

1.2 Evaluation Inference: Forms sample from items appropriately such that observed scores reflective of the domain can be produced. (Item to Form)

1.3 Generalization Inference: Observed scores from individual forms are reliable such that they are reflective of expected scores across forms. (Form to Score) *

1.4 Explanation Inference: Expected scores are associated with classification cuts such that classification decisions are interpretable. (Score to Classification)

1.5 Extrapolation Inference: Classification decisions are accurate such that intended interpretations correspond to other valid metrics of knowledge and ability. (Classification to Interpretation)

1.6 (through 1.10) Utilization Inferences: Interpretations of scores and classifications are used as intended and only in ways considered appropriate and fair. (Interpretation to Use)

*It is important for the gathering of information in support of the Generalization Inference (1.3) to define what is meant by the term “form” in this context. A test form is not just the set of items on which the score

is based, but the structure of the exam in terms of all elements that can affect an individual's performance. This can include, among other things, the raters scoring an exam, the occasion on which the exam is administered, and the setting in which it is administered. Generalization from observed to expected score is optimized when all sources of potential variability of test scores are identified and accounted for such that observed scores maximally reflect a student's ability and not the influence of unwanted sources of variance.

Evidence for these claims and their subclaims ranges from complete to unprovided within this report. For the most part, evidence quite strongly supports interpretability of scores. In this example report, based on information available from a non-validity-enhanced technical report, some subclaims supporting interpretability and many subclaims supporting use are not sufficiently supported by evidence. This is not meant to suggest that such evidence is unavailable but offers insight into sources of evidence that should be considered for inclusion in validity-enhanced technical reports going forward.

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APPENDICES

APPENDIX A
CONTENT STANDARDS

OKLAHOMA ACADEMIC STANDARDS

ENGLISH LANGUAGE ARTS

OKLAHOMA STATE DEPARTMENT OF EDUCATION
CHAMPION EXCELLENCE

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OKLAHOMA ENGLISH LANGUAGE ARTS STANDARDS GUIDING PRINCIPLES

Teachers use standards as guides for developing curriculum and instruction that is appropriately engaging, challenging, and sequenced for the students in their care. By nature, acquiring language arts knowledge and skills is a recursive learning endeavor: students revisit concepts again and again as they use language at increasingly sophisticated levels. Because of this recursive learning process, language arts learning will not progress for students in the strictly linear way it may in other content areas. Nonetheless, it is important for any set of standards to provide "concise, written descriptions of what students are expected to know and be able to do at a specific stage of their education" (Great Schools Partnership, 2014). In order to make this document a clear, coherent description of what students are expected to know and be able to do at specific stages, the writers have adopted some guidelines for design and organization.

Clarity

- ★ Standard statements are written with verbs that indicate specifically what learning students must demonstrate and at what depth. When students *defend, compare, estimate, paraphrase, predict,* or *summarize,* they are able to show a broader range of mastery of a concept than when they are expected to *identify, recognize,* or *recall*. However, the writers also have given full consideration to the complexity of the content itself. For example, it is more challenging to identify the implied theme of an extended essay than to identify the subject of a sentence. The progression of language arts learning from pre-kindergarten through high school should reflect a grade-level appropriate relationship between the level of critical thinking students use and the actual listening, speaking, reading, and writing experiences students have.
- ★ Content to be emphasized and assessed at specific grade levels (e.g., modes of writing or particular elements of grammar) is clearly identified.
- ★ Definitions for terms used in the standards document are compiled in an updated, expanded glossary.

Coherence

- ★ Eight overarching standards, the College- and Career- Ready English Language Arts standards, identify the knowledge and skills of the discipline that PK-12 students are to learn; each standard for every grade is delineated at the appropriate level.
- ★ A PK-12 vertical progression of standards, organized by the eight overarching standards, allows for educators to recognize how all the standards are intertwined to develop the total literacy of a student. When a skill is no longer present, mastery is implied; however, teachers must support previous grade level skills according to the mastery level of their students. This grade-to-grade, standard-by-standard progression can be viewed in a horizontal format, organized into overlapping grade bands.
- ★ Users must examine all of the standards for each grade level as a whole to have a coherent understanding of what is required of learners.
- ★ Because of the interconnectedness of language arts concepts and skills, various aspects of what students know and can do may be described in more than one standard. For example, learners conducting research (Standard 6) should use speaking and listening (Standard 1), the reading and writing processes (Standard 2), academic vocabulary (Standard 4), critical reading and writing (Standard 3), formal grammar and usage (Standard

5), and more than likely, they will access research and complete their research products because they are competent in multimodal literacies (Standard 7).

★ As students progress through grade levels, expectations encompass the content of the previous grades. Specifically in connection to reading assignments, the complexity of texts increases as students advance to later grades; however, simpler texts can be used effectively in order for learners to develop a deeper understanding of content (as examples – theme, figurative language, genre, structure).

Purpose

In addition to a commitment to clear and coherent standards, the writers were guided by four fundamental purposes of English language arts education.

★ All learners must hear the voices of their own heritage in the literature they encounter. They must be given the opportunity to speak with the voices they choose for themselves in the writing they create. The language arts classroom is a place that is inclusive of race, ethnicity, culture, and all perspectives that reflect the richness of human experience.

★ All learners are supported to become independent readers in a range of disciplines. The ability to interpret literature as well as informative, highly technical, and often lengthy reading passages on one's own is paramount in achieving academic and career success. Furthermore, learners who possess the skills required to read independently have the power to choose both what they *need* and what they *want* to read.

★ All learners are supported to become independent writers for a variety of audiences and a range of purposes. Four- and five-year-olds begin writing by verbally telling their ideas and stories to others, but their status as independent writers is not earned with mastery of the five-paragraph essay form in high school. Independent writers are able to access multiple strategies and formats to communicate and craft the message so that it resonates with any readers they want to reach.

★ A literate citizenry possesses the skills required to analyze, evaluate, act upon, and compose a wide range of communications. An ultimate goal of language arts education is the development of informed citizens who can contribute to the common good.

OKLAHOMA COLLEGE- AND CAREER-READY ENGLISH LANGUAGE ARTS STUDENTS

The following eight standards encompass the content and competencies of English language arts. Each standard reflects both reading and writing applications, as these processes are bound together in the literate world.

The order of the standards is meant to suggest that students learn to read and write by speaking and listening on their way to the ultimate goal of becoming independent, critical readers and writers. At the same time, speaking and listening skills will continue to be developed as students progress through the grade levels, and concepts of independent reading and writing will be introduced even in the earliest grades.

Independent reading and writing is a natural outgrowth of strong standards implementation through rigorous curriculum. Standard 8 addresses the integrated nature of English language arts and acknowledges students' need to grow increasingly independent for college and career readiness. Being able to work independently and seek out opportunities to read and write is a significant part of life-long learning. These skills easily transfer to test taking, civic engagement, and citizen participation.

Standard 1: Speaking and Listening
Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.

Standard 2: Reading Foundations/Reading Process and Writing Process
Students will develop foundational skills for future reading success by working with sounds, letters, and text. Students will use recursive processes when reading and writing.

Standard 3: Critical Reading and Writing
Students will apply critical thinking skills to reading and writing.

Standard 4: Vocabulary
Students will expand their working vocabularies to effectively communicate and understand texts.

Standard 5: Language
Students will apply knowledge of grammar and rhetorical style to reading and writing.

Standard 6: Research
Students will engage in inquiry to acquire, refine, and share knowledge.

Standard 7: Multimodal Literacies
Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.

Standard 8: Independent Reading and Writing
Students will read and write for a variety of purposes including, but not limited to, academic and personal, for extended periods of time.

OKLAHOMA ENGLISH LANGUAGE ARTS STANDARDS GUIDING RESEARCH

Well-recognized guiding research in language arts upholds Oklahoma's Eight CCR Standards as a whole, especially the standards' emphasis on the reciprocal relationship between reading and writing: we read what others have written and write to create reading for audiences beyond ourselves. This guiding research deserves expanded commentary.

READING FOUNDATIONS

The International Literacy Association (ILA) and the Report of the Subgroups of the National Reading Panel have identified important components of reading. Foundational reading skills are included within Standard 2: Reading Process.

PRINT CONCEPTS - the ability to understand distinguishing features of print, including knowing that the print on the page contains a message, that print contains words that can be read aloud, that print has a distinct "right side up," and that words are read from left to right.

PHONOLOGICAL/PHONEMIC AWARENESS - the understanding that words and syllables can be broken down into smaller units or phonemes is a strong predictor of later reading success.

PHONICS/DECODING - instruction that provides students with a consistent strategy to apply knowledge of sound-symbol relationships to assist them in identifying unfamiliar words.

VOCABULARY – a comprehension that a reader's understanding of text is inextricably linked to his or her vocabulary base that can be developed through reading, direct instruction, and student-centered activities.

READING FLUENCY – a recognition that fluent reading is characterized by reading words with automaticity and expression and recognizing words with speed, accuracy, and prosody; such automatic word recognition frees a student's attention to comprehend the text.

COMPREHENSION/CRITICAL LITERACY – a recognition that the goal of reading is understanding text by establishing a purpose for reading and determining what is literal and what is implied in the text. Critical literacy involves the reader being able to make connections between parts of a text and between texts. In addition to these foundational components, skilled reading is influenced by the development of motivation and engagement, attitude, and stance toward reading and writing and the process of interacting with text before, during and after reading.

MOTIVATION and ENGAGEMENT - readers' desire to interact with a text, influenced by their own self-efficacy as well as the genre, text level, author, illustrator, or topic of a text. The reader's engagement with text may be influenced by motivation to interact with a specific text.

ATTITUDE - a reader's attitude toward reading for academic or leisure purposes influences the probability that he/she will choose to become engaged in the reading process.

STANCE - whether a reader is approaching a text for pleasure or for information.

READING PROCESS - the importance of a reader being involved with the text before (setting a purpose for reading), during (reading, monitoring comprehension, investigating terms he/she does not understand), and after (referring back to the text to strengthen one's understanding, answer questions, engage in discussions and complete projects) reading.

WRITING PROCESS

The National Council of Teachers of English (NCTE) has identified a process, confirmed by research, that skilled writers use to create text. Because writing is recursive, the stages of the process may not occur in a linear sequence, but the writer may revert to an activity characteristic of an earlier stage. The stages of the writing process include –

PREWRITING - preparing to write by gathering and organizing ideas, generating a topic, and clarifying purpose, audience, and form.

DRAFTING - putting ideas down on paper with a focus on content while using notes or ideas generated during prewriting, without over-concern about adherence to grammatical rules, spelling, or mechanics.

REVISING - refining of content, not mechanics. Revision begins during the prewriting activity and continues through the final draft, as writers think again about the choices made for content and add, delete, or rearrange the material. Skilled writers may revise a draft several times, accepting suggestions for improvement from peers and teachers in addition to self-critique.

EDITING – making writing suitable for publication, including the correction of errors in punctuation, capitalization, spelling, usage, sentence structure, and legibility so that errors in conventions do not interfere with an audience's ability to understand the message.

PUBLISHING - sharing the writer's product with and/or being evaluated by the intended audience, or readers in general. An authentic audience, one with whom the students want to communicate, is necessary for effective writing. It is important to note that not every piece that a writer begins will be carried through the entire writing process and polished for publication. However, each student should be expected to develop some pieces of writing thoroughly enough to be published. Publishing reinforces the knowledge that writing is an act of communication.

MULTIMODAL LITERACIES

The Multimodal Literacies advanced from the Oklahoma *Priority Academic Student Skills'* Visual Literacy standard.

Text in the twenty-first century is not limited to print. Increasingly, texts are composites of print, images, sound, video, charts, and interactive links. Students need to know how to interpret and produce these kinds of texts for college, career, and informed citizenship. A statement by the NCTE Executive Committee (February 2013) confirms,

> ... the 21st century demands that a literate person possess a wide range of abilities and competencies, many literacies. These literacies are multiple, dynamic, and malleable. As in the past, they are inextricably linked with particular histories, life possibilities, and social trajectories of individuals and groups. Active, successful participants in this 21st century global society must be able to
>
> - develop proficiency and fluency with the tools of technology;
> - build intentional cross-cultural connections and relationships with others so as to pose and solve problems collaboratively and strengthen independent thought;
> - design and share information for global communities to meet a variety of purposes;
> - manage, analyze, and synthesize multiple streams of simultaneous information; create, critique, analyze, and evaluate multimedia texts; and
> - attend to the ethical responsibilities required by these complex environments.

The committee asserts,

> The use of multimodal literacies has expanded the ways we acquire information and understand concepts. Ever since the days of illustrated books and maps texts have included visual elements for the purpose of imparting information. The contemporary difference is the ease with which we can combine words, images, sound, color, animation, video, and styles of print in projects so that they are part of our everyday lives and, at least by our youngest generation, often taken for granted.

What this means for teaching

The techniques of acquiring, organizing, evaluating, and creatively using multimodal information should become an increasingly important component of the English language arts classroom (November 2005).

Further Support

A large body of research has been consulted for each of Oklahoma's Eight College- and Career- Ready Standards; these sources are provided in a complete bibliography which can be accessed on the Oklahoma Department of Education's English Language Arts Standards webpage.

OKLAHOMA ENGLISH LANGUAGE ARTS EIGHT OVERARCHING STANDARDS IN READING AND WRITING

Academic standards establish objective performance criteria. They are used as guides for developing curriculum and instruction that is appropriately engaging, challenging, and sequenced for students. Acquiring language arts knowledge and skills is a recursive learning endeavor. Students need to revisit concepts as they develop language arts acumen at increasingly higher levels of complexity.

The eight overarching standards reinforce the recursive nature of the language arts, a non-linear process that involves the continuous and thoughtful refinement of concepts and skills. In each of the eight overarching English language arts standards, concepts and skills are expressed in terms of both reading and writing, intended to support integrated, rather than isolated, reading/writing instruction. Research supports this integrated model of English language arts, where students read to understand the meaning and composition of a text and write with readers' expectations and assumptions in mind.

ENGLISH LANGUAGE ARTS COLLEGE- AND CAREER- STANDARDS

Standard 1: Speaking and Listening Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.

Reading
Students will develop and apply effective communication skills through speaking and active listening.

Writing
Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.

Standard 2: Reading Foundations/Reading and Writing Process Students will develop foundational skills for future reading success by working with sounds, letters, and text. Students will use a variety of recursive reading and writing processes.

Reading
Students will read and comprehend increasingly complex literary and informational texts.

Writing
Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.

Standard 3: Critical Reading and Critical Writing Students will apply critical thinking skills to reading and writing.

Reading
Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.

Writing
Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

Standard 4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

Reading
Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.

Writing
Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.

Standard 5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

Reading
Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.

Writing
Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.

Standard 6: Research Students will engage in inquiry to acquire, refine, and share knowledge.

Reading
Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.

Writing
Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.

Standard 7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.

Reading
Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.

Writing
Students will create multimodal texts to communicate knowledge and develop arguments.

Standard 8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal, for extended periods of time.

Reading
Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.

Writing
Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.

Navigating the Vertical Alignment

Overarching Oklahoma College- and Career- Ready Standard for English Language Arts

1: Speaking and Listening - Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.

	5th Grade	6th Grade	7th Grade
Reading Students will develop and apply effective communication skills through speaking and active listening.	**5.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness of verbal and nonverbal cues. **5.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally through text or other media to confirm understanding. **5.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**6.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness of verbal and nonverbal cues. **6.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **6.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**7.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness and control of verbal and nonverbal cues. **7.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **7.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**5.1.W.1** Students will give formal and informal presentations in a group or individually, organizing information and determining appropriate content for audience. **5.1.W.2** Students will work effectively and respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**6.1.W.1** Students will give formal and informal presentations in a group or individually, organizing information and determining appropriate content and purpose for audience. **6.1.W.2** Students will work effectively and respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**7.1.W.1** Students will give formal and informal presentations in a group or individually, providing evidence to support a main idea. **7.1.W.2** Students will work effectively and respectfully within diverse groups, show willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.

Vertical Grade-level Progressions

Recursive Reading and Writing Strands

with Guiding Principles

Standard Objectives

delineated for each grade and vertically aligned

Standard Code

Grade . Standard Number . Strand . Objective

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Instructional Design Considerations

EIGHT CONSISTENT STANDARDS

The standards were developed with consideration to teachers and curriculum designers. **Rich units of study can be designed by incorporating each of the eight overarching standards.** Further grade-specific guidance is provided in the Reading and Writing strands.

READING and WRITING STRANDS

The standards were designed to develop the total literacy of students by intentionally taking into consideration what they do when reading and writing. **Every standard includes a reading and writing strand with standard objectives delineated by grade-level.**

Reading instruction supports the development and refinement of writing skills. Writing instruction supports the development and refinement of reading skills.

RECURSIVE TEACHING and LEARNING

Teaching and learning language arts is a recursive endeavor: students will revisit concepts again and again as they use language at increasingly sophisticated levels. **Skills are repeated with an implied expectation that they are attributed to increasingly more complex texts.**

Because of this recursive learning process, language arts learning does not progress for students in a strictly linear way.

Oklahoma ELA standards are not taught in isolation. Standards can be bundled for educators to develop grade-appropriate lessons, tasks, and assessments.

Standard 1

Speaking and Listening

Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.

Reading

Students will develop and apply effective communication skills through speaking and active listening.

Writing

Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.

1: Speaking and Listening Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.			
	Pre-Kindergarten	**Kindergarten**	**1st Grade**
Reading Students will develop and apply effective communication skills through speaking and active listening.	**PK.1.R.1** Students will actively listen and speak using agreed-upon rules with guidance and support. **PK.1.R.2.** Students will begin to ask and answer questions about information presented orally or through text or other media with guidance and support. **PK.1.R.3** Students will begin to engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups with guidance and support. **PK.1.R.4** Students will follow simple oral directions.	**K.1.R.1** Students will actively listen and speak using agreed-upon rules for discussion with guidance and support. **K.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally or through text or other media with guidance and support. **K.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups with guidance and support. **K.1.R.4** Students will follow one and two step directions.	**1.1.R.1** Students will actively listen and speak using agreed-upon rules for discussion. **1.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally through text or other media, to confirm understanding. **1.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups. **1.1.R.4** Students will restate and follow simple two-step directions.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**PK.1.W.1** Students will begin to orally describe personal interests or tell stories to classmates with guidance and support. **PK.1.W.2** Students will work respectfully with others with guidance and support.	**K.1.W.1** Students will orally describe personal interests or tell stories, facing the audience and speaking clearly in complete sentences and following implicit rules for conversation, including taking turns and staying on topic. **K.1.W.2** Students will work respectfully with others with guidance and support.	**1.1.W.1** Students will orally describe people, places, things, and events with relevant details expressing their ideas. **1.1.W.2** Students will work respectfully in groups.

1: Speaking and Listening Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.			
	2nd Grade	**3rd Grade**	**4th Grade**
Reading Students will develop and apply effective communication skills through speaking and active listening.	**2.1.R.1** Students will actively listen and speak using appropriate discussion rules. **2.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally, through text or other media to confirm understanding. **2.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts with peers and adults in small and large groups. **2.1.R.4** Students will restate and follow multi-step directions.	**3.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules. **3.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally through text or other media to confirm understanding. **3.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly in pairs, diverse groups, and whole class settings.	**4.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules. **4.1.R.2** Students will ask and answer questions to seek help, get information, or clarify information presented orally through text or other media to confirm understanding. **4.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**2.1.W.1** Students will report on a topic or text, tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences. **2.1.W.2** Students will work respectfully within groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**3.1.W.1** Students will report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences at an appropriate pace. **3.1.W.2** Students will work respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**4.1.W.1** Students will report on a topic or text, tell a story, or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly in coherent sentences at an appropriate pace. **4.1.W.2** Students will work effectively and respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.

1: Speaking and Listening	Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.		
	5th Grade	**6th Grade**	**7th Grade**
Reading Students will develop and apply effective communication skills through speaking and active listening.	**5.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness of verbal and nonverbal cues. **5.1.R.2** Students will ask and answer questions to seek help, get information, or clarify about information presented orally through text or other media to confirm understanding. **5.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**6.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness of verbal and nonverbal cues. **6.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **6.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**7.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with awareness and control of verbal and nonverbal cues. **7.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **7.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**5.1.W.1** Students will give formal and informal presentations in a group or individually, organizing information and determining appropriate content for audience. **5.1.W.2** Students will work effectively and respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**6.1.W.1** Students will give formal and informal presentations in a group or individually, organizing information and determining appropriate content and purpose for audience. **6.1.W.2** Students will work effectively and respectfully within diverse groups, share responsibility for collaborative work, and value individual contributions made by each group member.	**7.1.W.1** Students will give formal and informal presentations in a group or individually, providing evidence to support a main idea. **7.1.W.2** Students will work effectively and respectfully within diverse groups, show willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.

1: Speaking and Listening Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.			
	8th Grade	**9th Grade - English I**	**10th Grade - English II**
Reading Students will develop and apply effective communication skills through speaking and active listening.	**8.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with control of verbal and nonverbal cues. **8.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **8.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**9.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with control of verbal and nonverbal cues. **9.1.R.2** Students will actively listen and interpret a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **9.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.	**10.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with control of verbal and nonverbal cues. **10.1.R.2** Students will actively listen and evaluate, analyze, and synthesize a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **10.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas clearly while building on the ideas of others in pairs, diverse groups, and whole class settings.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**8.1.W.1** Students will give formal and informal presentations in a group or individually, providing textual and visual evidence to support a main idea. **8.1.W.2** Students will work effectively and respectfully within diverse groups, show willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.	**9.1.W.1** Students will give formal and informal presentations in a group or individually, providing textual and visual evidence to support a main idea. **9.1.W.2** Students will work effectively and respectfully within diverse groups, show willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.	**10.1.W.1** Students will give formal and informal presentations in a group or individually, providing textual and visual evidence to support a main idea. **10.1.W.2** Students will work effectively and respectfully within diverse groups, show willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.

1: Speaking and Listening	Students will speak and listen effectively in a variety of situations including, but not limited to, responses to reading and writing.	
	11th Grade - English III	**12th Grade - English IV**
Reading Students will develop and apply effective communication skills through speaking and active listening.	**11.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with control of verbal and nonverbal cues. **11.1.R.2** Students will actively listen and evaluate, analyze, and synthesize a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **11.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas by contributing to, building on, and questioning the ideas of others in pairs, diverse groups, and whole class settings.	**12.1.R.1** Students will actively listen and speak clearly using appropriate discussion rules with control of verbal and nonverbal cues. **12.1.R.2** Students will actively listen and evaluate, analyze, and synthesize a speaker's messages (both verbal and nonverbal) and ask questions to clarify the speaker's purpose and perspective. **12.1.R.3** Students will engage in collaborative discussions about appropriate topics and texts, expressing their own ideas by contributing to, building on, and questioning the ideas of others in pairs, diverse groups, and whole class settings.
Writing Students will develop and apply effective communication skills through speaking and active listening to create individual and group projects and presentations.	**11.1.W.1** Students will give formal and informal presentations in a group or individually, providing textual and visual evidence to support a main idea. **11.1.W.2** Students will work effectively and respectfully within diverse groups, demonstrate willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.	**12.1.W.1** Students will give formal and informal presentations in a group or individually, providing textual and visual evidence to support a main idea. **12.1.W.2** Students will work effectively and respectfully within diverse groups, demonstrate willingness to make necessary compromises to accomplish a goal, share responsibility for collaborative work, and value individual contributions made by each group member.

Standard 2:

Reading Foundations

Students will develop foundational skills for future reading success by working with sounds, letters, and text.

Phonological Awareness
Phonological awareness is the ability to recognize, think about, and manipulate sounds in spoken language without using text.
pg. 20

Print Concepts
Students will demonstrate their understanding of the organization and basic features of print, including book handling skills and the understanding that printed materials provide information and tell stories.
pg. 22

Phonics and Word Study
Students will decode and read words in context and isolation by applying phonics and word analysis skills.
pg. 24

Fluency
Students will recognize high-frequency words and read grade-level text smoothly and accurately, with expression that connotes comprehension.
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2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	Pre-Kindergarten	Kindergarten	1st Grade
Phonological Awareness Phonological awareness is the ability to recognize, think about, and manipulate sounds in spoken language without using text.	**PK.2.PA.1** Students will distinguish spoken words in a sentence with guidance and support. **PK.2.PA.2** Students will recognize spoken words that rhyme. **PK.2.PA.3** Students will begin to recognize syllables in spoken words *(e.g., sunshine= sun + shine).* **PK.2.PA.4** Students will begin to isolate initial and final sounds in spoken words. **PK.2.PA.5** Students will begin to recognize initial sounds in a set of spoken words (*i.e., alliteration*). **PK.2.PA.6** Students will combine onsets and rimes to form familiar one syllable spoken words with pictorial support (*e.g., /c/ + at = cat).*	**K.2.PA.1** Students will distinguish spoken words in a sentence. **K.2.PA.2** Students will recognize and produce pairs of rhyming words, and distinguish them from non-rhyming pairs. **K.2.PA.3** Students will isolate and pronounce the same initial sounds in a set of spoken words *(i.e., alliteration*) (*e.g., "the puppy pounces"*). **K.2. PA.4** Students will recognize the short or long vowel sound in one syllable words. **K.2.PA.5** Students will count, pronounce, blend, segment, and delete syllables in spoken words. **K.2.PA.6** Students will blend and segment onset and rime in one syllable spoken words *(e.g., Blending: /ch/ + at = chat; segmenting: cat = /c/+ at).* **K.2.PA.7** Students will blend phonemes to form one syllable spoken words with 3 to 5 phonemes *(e.g., /f/ /a/ /s/ /t/= fast)* **K.2.PA.8** Students will segment phonemes in one syllable spoken words with 3 to 5 phonemes *(e.g., "fast" = /f/ /a/ /s/ /t/).* **K.2.PA.9** Students will add, delete, and substitute phonemes in one syllable spoken words *(e.g., "add /c/ to the beginning of "at" to say "cat;" "remove the /p/ from "pin," to say "in;" "change the /d/ in "dog" to /f/ /r/ to say "frog").*	**1.2.PA.1** Students will blend and segment onset and rime in spoken words *(e.g., /ch/+ /at/ = chat).* **1.2.PA.2** Students will differentiate short from long vowel sounds in one syllable words. **1.2.PA.3** Students will isolate and pronounce initial, medial, and final sounds in spoken words. **1.2.PA.4** Students will blend phonemes to form spoken words with 4 to 6 phonemes*)* including consonant blends *(e.g., /s/ /t/ /r/ /i/ /ng/=string).* **1.2.PA.5** Students will segment phonemes in spoken words with 4 to 6 phonemes into individual phonemes *(e.g. string= /s/ /t/ /r/ /i/ /ng/).* **1.2.PA.6** Students will add, delete, and substitute phonemes in spoken words *(e.g., "add /g/ to the beginning of low to say 'glow;' "remove the /idge/ from 'bridge,' to say 'br;' "change the /ar/ in 'charm' to /u/ to say 'chum').*

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	2nd Grade	3rd Grade	4th Grade
Phonological Awareness Phonological awareness is the ability to recognize, think about, and manipulate sounds in spoken language without using text.	***Students will continue to review and apply earlier grade level expectations for this standard.*** ***If phonological awareness skills are not mastered, students will address skills from previous grades.***		

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	Pre-Kindergarten	Kindergarten	1st Grade
Print Concepts Students will demonstrate their understanding of the organization and basic features of print, including book handling skills and the understanding that printed materials provide information and tell stories.	**PK.2.PC.1** Students will write the majority of the letters in their first name and some uppercase and lowercase letters with guidance and support. **PK.2.PC.2** Students will understand that print carries a message by recognizing labels, signs, and other print in the environment with guidance and support. **PK.2.PC.3** Students will begin to demonstrate correct book orientation and identify the front and back covers of a book. **PK.2.PC.4** Students will recognize that written words are made up of letters and are separated by spaces with guidance and support. **PK.2.PC.5** Students will begin to understand that print moves from top to bottom, left to right, and front to back. **PK.2.PC.6** Students will recognize ending punctuation marks in print during shared reading or other text experiences with guidance and support.	**K.2.PC.1** Students will correctly form letters to write their first and last name and most uppercase and lowercase letters correctly. **K.2.PC.2** Students will demonstrate their understanding that print carries a message by recognizing labels, signs, and other print in the environment. **K.2.PC.3** Students will demonstrate correct book orientation and identify the title, title page, and the front and back covers of a book. **K.2.PC.4** Students will recognize that written words are made up of letters and are separated by spaces. **K.2.PC.5** Students will recognize that print moves from top to bottom, left to right, and front to back (does not have to be matched to voice). **K.2.PC.6** Students will recognize the distinguishing features of a sentence. *(e.g., capitalization of the first word, ending punctuation: period, exclamation mark, question mark)* with guidance and support.	**1.2.PC.1** Students will correctly form letters and use appropriate spacing for letters, words, and sentences using left-to-right and top-to-bottom progression. **1.2.PC.2** Students will recognize the distinguishing features of a sentence *(e.g., capitalization of the first word, ending punctuation,comma, quotation marks)*. --- ***Students will continue to review and apply earlier grade level expectations for this standard.*** ***If print concepts skills are not mastered, students will address skills from previous grades.***

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	2nd Grade	3rd Grade	4th Grade
Print Concepts Students will demonstrate their understanding of the organization and basic features of print, including book handling skills and the understanding that printed materials provide information and tell stories.	**2.2.PC** Students will correctly form letters in print and use appropriate spacing for letters, words, and sentences.	**3.2.PC** Students will correctly form letters in print and cursive and use appropriate spacing for letters, words, and sentences.	**4.2.PC** Students will correctly form letters in print and cursive and use appropriate spacing for letters, words, and sentences.
	Students will continue to review and apply earlier grade level expectations for this standard. ***If print concepts skills are not mastered, students will address skills from previous grades.***		

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	Pre-Kindergarten	Kindergarten	1st Grade

Phonics and Word Study
Students will decode and read words in context and isolation by applying phonics and word analysis skills.
	PK.2.PWS.1 Students will name the majority of the letters in their first name and many uppercase and lowercase letters with guidance and support.	**K.2.PWS.1** Students will name all uppercase and lowercase letters.	**1.2.PWS.1** Students will decode phonetically regular words by using their knowledge of:
			• single consonants *(e.g., c = /k/, c = /s/, s = /s/, s = /z/, x = /ks/, x = /z/)*
			• consonant blends *(e.g., bl, br, cr)*
			• consonant digraphs and trigraphs *(e.g., sh-, -tch)*
			• vowel sounds:
			  ○ long
			  ○ short
			• r-controlled vowels *(e.g., ar, er, ir or, ur)*
			• vowel spelling patterns:
			  ○ vowel digraphs *(e.g., ea, oa, ee)*
			  ○ vowel-consonant-silent-e *(e.g., lake)*

	PK.2.PWS.2 Students will produce some sounds represented by letters with guidance and support.	**K.2.PWS.2** Students will sequence the letters of the alphabet.	**1.2.PWS.2** Students will decode words by applying knowledge of structural analysis: • most major syllable patterns *(e.g., closed, open, vowel team, vowel silent e, r-controlled)* • inflectional endings *(e.g., -s, -ed, -ing)* • compound words • contractions
		K.2.PWS.3 Students will produce the primary or most common sound for each consonant, short and long vowel sounds *(e.g., c = /k/, c = /s/, s = /s/, s = /z/, x = /ks/, x = /z/).* **K.2.PWS.4** Students will blend letter sounds to decode simple *Vowel / Consonant (VC)* and *Consonant / Vowel / Consonant (CVC)* words *(e.g., VC words= at, in, up; CVC words = pat, hen, lot).*	**1.2.PWS.3** Students will read words in common word families *(e.g., -at, -ab, -am, -in).*

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	2nd Grade	3rd Grade	4th Grade

Phonics and Word Study
Students will decode and read words in context and isolation by applying phonics and word analysis skills.
	2.2.PWS.1 Students will decode one- and two- syllable words by using their knowledge of:
	• single consonants, including those with two different sounds *(e.g., soft and hard c [cent, cat] and g [gem,goat])*
	• consonant blends *(e.g., bl, br, cr)*
	• consonant digraphs and trigraphs *(e.g., sh-, -tch)*
	• vowel sounds:
	  ○ long
	  ○ short
	  ○ "r" controlled vowels *(e.g., ar, er, ir or, ur)*
	• vowel spelling patterns:
	  ○ vowel digraphs *(e.g., ea, oa, ee)*
	  ○ vowel-consonant-silent-e *(e.g., lake)*
	  ○ vowel diphthongs *(vowel combinations having two vowel sounds e.g., oi as in boil, oy as in boy]*
		3.2.PWS.1 Students will decode multisyllabic words using their knowledge of:
		• "r" controlled vowels (*e.g., ar, er, ir or, ur)*
		• vowel diphthongs *(vowel combinations having two vowel sounds e.g., oi as in boil, oy as in boy]*
			4.2.PWS.1 Students will use their combined knowledge of letter-sound correspondences, syllable patterns, morphology and semantics to accurately read unfamiliar words, including multisyllabic words.

	2.2.PWS.2 Students will decode words by applying knowledge of structural analysis: • all major syllable patterns *(e.g., closed, consonant +le, open, vowel team, vowel silent e, r-controlled)* • inflectional endings *(e.g., -s, -ed, -ing)* • compound words • contractions • abbreviations • common roots and related prefixes and suffixes	**3.2.PWS.2** Students will decode multisyllabic words by applying knowledge of structural analysis: • all major syllable patterns • contractions • abbreviations • common roots and related prefixes and suffixes	
	2.2.PWS.3 Students will read words in common word families *(e.g., -ight, -ink, -ine, ow)*.	**3.2.PWS.3** Students will use decoding skills and semantics in context when reading new words in a text, including multisyllabic words.	
	Students will continue to review and apply earlier grade level expectations for this standard. If these decoding skills are not mastered, students will address skills from previous grades.		

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	Pre-Kindergarten	Kindergarten	1st Grade
Fluency Students will recognize high-frequency words and read grade-level text smoothly and accurately, with expression that connotes comprehension.	**PK.2.F.1** Students will read first name in print.	**K.2.F.1** Students will read first and last name in print. **K.2.F.2** Students will read common high frequency grade-level words by sight *(e.g., not, was, to, have, you, he, is, with, are).*	**1.2.F.1** Students will read high frequency and/or common irregularly spelled grade-level words with automaticity in text. **1.2.F.2** Students will orally read grade-level text at an appropriate rate, smoothly and accurately, with expression that connotes comprehension.

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	2nd Grade	3rd Grade	4th Grade
Fluency Students will recognize high-frequency words and read grade-level text smoothly and accurately, with expression that connotes comprehension.	**2.2.F.1** Students will read high frequency and/or common irregularly spelled grade-level words with automaticity in text. **2.2.F.2** Students will orally read grade-level text at an appropriate rate, smoothly and accurately, with expression that connotes comprehension.	**3.2.F.1** Students will read high frequency and/or irregularly spelled grade-level words with automaticity in text. **3.2.F.2** Students will orally read grade-level text at an appropriate rate, smoothly and accurately, with expression that connotes comprehension.	**4.2.F.1** Students will read high frequency and irregularly spelled grade-level words with automaticity in text. **4.2.F.2** Students will orally read grade-level text at an appropriate rate, smoothly and accurately, with expression that connotes comprehension.
	Students will continue to review and apply earlier grade level expectations for this standard. If these fluency skills are not mastered, students will address skills from previous grades.		

2: Reading Foundations Students will develop foundational skills for future reading success by working with sounds, letters, and text.

	5th Grade	6th Grade	7th Grade	8th Grade
Fluency Students will recognize high-frequency words and read grade-level text smoothly and accurately, with expression that connotes comprehension.	***Students will continue to review and apply earlier grade level expectations for this standard.*** ***If these fluency skills are not mastered, students will address skills from previous grades.***			

Standard 2

Reading and Writing Process

Students will use a variety of recursive reading and writing processes.

Reading

Students will read and comprehend increasingly complex literary and informational texts.

Writing

Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.

2: Reading and Writing Process Students will use a variety of recursive reading and writing processes.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will read and comprehend increasingly complex literary and informational texts.	**PK.2.R** Students will begin to retell or reenact major events from a read-aloud with guidance and support to recognize the main idea.	**K.2.R.1** Students will retell or reenact major events from a read-aloud with guidance and support to recognize the main idea. **K.2.R.2** Students will discriminate between fiction and nonfiction/informational text with guidance and support. **K.2.R.3** Students will sequence the events/plot *(i.e., beginning, middle, and end)* of a story or text with guidance and support.	**1.2.R.1** Students will retell or reenact major events in a text, focusing on important details to recognize the main idea. **1.2.R.2** Students will discriminate between fiction and nonfiction/informational text. **1.2.R.3** Students will sequence the events/plot *(i.e., beginning, middle, and end)* of a story or text.
Writing Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.	**PK.2.W** Students will begin to express themselves through drawing, dictating, and emergent writing.	**K.2.W.1** Students will begin to develop first drafts by expressing themselves through drawing and emergent writing. **K.2.W.2** Students will begin to develop first drafts by sequencing the action or details of stories/texts. **K.2.W.3** Students will begin to edit first drafts using appropriate spacing between letters and words.	**1.2.W.1** Students will develop and edit first drafts using appropriate spacing between letters, words, and sentences using left-to-right and top-to-bottom progression. **1.2.W.2** Students will develop drafts by sequencing the action or details in a story or about a topic through writing sentences with guidance and support. **1.2.W.3** Students will correctly spell grade-appropriate, highly decodable words *(e.g., cup, like, cart)* and common, irregularly spelled sight words *(e.g., the)* while editing. **1.2.W.4** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook).*

2: Reading and Writing Process Students will use a variety of recursive reading and writing processes.

	2nd Grade	3rd Grade	4th Grade
Reading Students will read and comprehend increasingly complex literary and informational texts.	**2.2.R.1** Students will locate the main idea and supporting details of a text. **2.2.R.2** Students will begin to compare and contrast details *(e.g., plots or events, settings, and characters)* to discriminate genres. **2.2.R.3** Students will begin to summarize events or plots *(i.e., beginning, middle, end, and conflict)* of a story or text.	**3.2.R.1** Students will locate the main idea and key supporting details of a text or section of text. **3.2.R.2** Students will compare and contrast details *(e.g., plots or events, settings, and characters)* to discriminate genres. **3.2.R.3** Students will summarize events or plots *(i.e., beginning, middle, end, and conflict)* of a story or text.	**4.2.R.1** Students will distinguish how key details support the main idea of a passage. **4.2.R.2** Students will compare and contrast details in literary and nonfiction/informational texts to discriminate various genres. **4.2.R.3** Students will summarize events or plots *(i.e., beginning, middle, end, conflict, and climax)* of a story or text. **4.2.R.4** Students will begin to paraphrase main ideas with supporting details in a text.
Writing Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.	**2.2.W.1** Students will develop drafts by sequencing the action or details in a story or about a topic through writing sentences. **2.2.W.2** Students will develop and edit first drafts using appropriate spacing between letters, words, and sentences. **2.2.W.3** Students will correctly spell grade-appropriate words while editing. **2.2.W.4** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, dictionaries).*	**3.2.W.1** Students will develop drafts by categorizing ideas and organizing them into paragraphs using correct paragraph indentations. **3.2.W.2** Students will edit drafts and revise for clarity and organization. **3.2.W.3** Students will correctly spell grade-appropriate words while editing. **3.2.W.4** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries).*	**4.2.W.1** Students will develop drafts by categorizing ideas and organizing them into paragraphs. **4.2.W.2** Students will edit drafts and revise for clarity and organization. **4.2.W.3** Students will correctly spell grade-appropriate words while editing. **4.2.W.4** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*

2: Reading and Writing Process Students will use a variety of recursive reading and writing processes.

	5th Grade	6th Grade	7th Grade
Reading Students will read and comprehend increasingly complex literary and informational texts.	**5.2.R.1** Students will create an objective summary, including main idea and supporting details, while maintaining meaning and a logical sequence of events. **5.2.R.2** Students will compare and contrast details in literary and nonfiction/informational texts to distinguish genres. **5.2.R.3** Students will begin to paraphrase main ideas with supporting details in a text.	**6.2.R.1** Students will create an objective summary, including main idea and supporting details, while maintaining meaning and a logical sequence of events. **6.2.R.2** Students will analyze details in literary and nonfiction/informational texts to distinguish genres. **6.2.R.3** Students will paraphrase main ideas with supporting details in a text.	**7.2.R.1** Students will create an objective summary, including main idea and supporting details, while maintaining meaning and a logical sequence of events. **7.2.R.2** Students will analyze details in literary and nonfiction/informational texts to distinguish genres. **7.2.R.3** Students will paraphrase main ideas with supporting details in a text.
Writing Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.	**5.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **5.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **5.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **5.2.W.4** Students will edit and revise multiple drafts for intended purpose *(e.g., staying on topic),* organization, and coherence. **5.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*	**6.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **6.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **6.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **6.2.W.4** Students will edit and revise multiple drafts for intended purpose *(e.g., staying on topic),* organization, coherence, using a consistent point of view. **6.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*	**7.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **7.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **7.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **7.2.W.4** Students will edit and revise multiple drafts for organization, transitions to improve coherence and meaning, using a consistent point of view. **7.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*

2: Reading and Writing Process Students will use a variety of recursive reading and writing processes.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will read and comprehend increasingly complex literary and informational texts.	**8.2.R.1** Students will summarize and paraphrase ideas, while maintaining meaning and a logical sequence of events, within and between texts. **8.2.R.2** Students will analyze details in literary and nonfiction/informational texts to evaluate patterns of genres. **8.2.R.3** Students will generalize main ideas with supporting details in a text.	**9.2.R.1** Students will summarize, paraphrase, and generalize ideas, while maintaining meaning and a logical sequence of events, within and between texts. **9.2.R.2** Students will analyze details in literary and nonfiction/informational texts to evaluate patterns of genres. **9.2.R.3** Students will synthesize main ideas with supporting details in texts.	**10.2.R.1** Students will summarize, paraphrase, and synthesize ideas, while maintaining meaning and a logical sequence of events, within and between texts. **10.2.R.2** Students will analyze details in literary and nonfiction/informational texts to connect how genre supports the author's purpose.
Writing Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.	**8.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **8.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **8.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **8.2.W.4** Students will edit and revise multiple drafts for organization, transitions to improve coherence and meaning, sentence variety, and use of consistent point of view. **8.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*	**9.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **9.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **9.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **9.2.W.4** Students will edit and revise multiple drafts for organization, transitions to improve coherence and meaning, sentence variety, and use of consistent tone and point of view. **9.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*	**10.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **10.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **10.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **10.2.W.4** Students will edit and revise multiple drafts for organization, enhanced transitions and coherence, sentence variety, and consistency in tone and point of view to establish meaningful texts. **10.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*

2: Reading and Writing Process Students will use a variety of recursive reading and writing processes.

	11th Grade - English III	12th Grade - English IV
Reading Students will read and comprehend increasingly complex literary and informational texts.	**11.2.R.1** Students will summarize, paraphrase, and synthesize ideas, while maintaining meaning and a logical sequence of events, within and between texts. **11.2.R.2** Students will evaluate details in literary and non-fiction/informational texts to connect how genre supports the author's purpose.	**12.2.R.1** Students will summarize, paraphrase, and synthesize ideas, while maintaining meaning and a logical sequence of events, within and between texts. **12.2.R.2** Students will evaluate details in literary and non-fiction/informational texts to connect how genre supports the author's purpose.
Writing Students will develop and strengthen writing by engaging in a recursive process that includes prewriting, drafting, revising, editing, and publishing.	**11.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **11.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **11.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **11.2.W.4** Students will edit and revise multiple drafts for logical organization, enhanced transitions and coherence, sentence variety, and use of tone and point of view through specific rhetorical devices to establish meaningful texts. **11.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*	**12.2.W.1** Students will apply components of a recursive writing process for multiple purposes to create a focused, organized, and coherent piece of writing. **12.2.W.2** Students will plan *(e.g., outline)* and prewrite a first draft as necessary. **12.2.W.3** Students will develop drafts by choosing an organizational structure *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect, etc.)* and building on ideas in multi-paragraph essays. **12.2.W.4** Students will edit and revise multiple drafts for logical organization, enhanced transitions and coherence, sentence variety, and use of tone and point of view through specific rhetorical devices to establish meaningful texts. **12.2.W.5** Students will use resources to find correct spellings of words *(e.g., word wall, vocabulary notebook, print and electronic dictionaries, and spell-check).*

Standard 3

Critical Reading and Writing

Students will apply critical thinking skills to reading and writing.

Reading

Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.

Writing

Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

3: Critical Reading and Writing Students will apply critical thinking skills to reading and writing.			
	Pre-Kindergarten	**Kindergarten**	**1st Grade**
Reading Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.	**PK.3.R.1** Students will describe the role of an author and illustrator, telling how they contribute to a story, with guidance and support. **PK.3.R.2** Students will describe characters in a story with guidance and support. **PK.3.R.3** Students will tell what is happening in a picture or illustration with guidance and support. **PK.3.R.4** Students will ask and answer basic questions *(e.g., who, what, where, and when)* about texts during shared reading or other text experiences with guidance and support.	**K.3.R.1** Students will name the author and illustrator, and explain the roles of each in a particular story. **K.3.R.2** Students will describe characters and setting in a story with guidance and support. **K.3.R.3** Students will tell what is happening in a picture or illustration. **K.3.R.4** Students will ask and answer basic questions *(e.g., who, what, where, and when)* about texts during shared reading or other text experiences with guidance and support	**1.3.R.1** Students will identify the author's purpose *(i.e., tell a story, provide information)* with guidance and support. **1.3.R.2** Students will describe who is telling the story *(i.e., point of view).* **1.3.R.3** Students will find textual evidence when provided with examples of literary elements and organization: • setting *(i.e., time, place)* • plot • main characters and their traits in a story **1.3.R.4** Students will ask and answer basic questions *(e.g., who, what, where, why,and when)* about texts. **1.3.R.5** Students will begin to locate facts that are clearly stated in a text.

	Pre-Kindergarten	Kindergarten	1st Grade
Writing Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	**PK.3.W** Students will use drawing, labeling, and dictating to express thoughts and ideas with guidance and support.	**K.3.W** Students will use drawing, labeling, dictating, and writing to tell a story, share information, or express an opinion with guidance and support.	**NARRATIVE** **1.3.W.1** Students will begin to write narratives incorporating characters, plot *(i.e., beginning, middle, end)*, and a basic setting *(i.e., time, place)* with guidance and support. **INFORMATIVE** **1.3.W.2** Students will begin to write facts about a subject in response to a text read aloud to demonstrate understanding with guidance and support. **OPINION** **1.3.W.3** Students will express an opinion in writing about a topic and provide a reason to support the opinion.

3: Critical Reading and Writing Students will apply critical thinking skills to reading and writing.

	2nd Grade	3rd Grade	4th Grade
Reading Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.	**2.3.R.1** Students will determine the author's purpose *(i.e., tell a story, provide information).*	**3.3.R.1** Students determine the author's stated and implied purpose *(i.e., entertain, inform, persuade)*.	**4.3.R.1** Students will determine the author's purpose *(i.e., entertain, inform, persuade)* and infer the difference between the stated and implied purpose.
	2.3.R.2 Students will infer whether a story is narrated in first or third person point of view in grade-level literary and/or informational text.	**3.3.R.2** Students will infer whether a story is narrated in first or third person point of view in grade-level literary and/or informational text.	**4.3.R.2** Students will infer whether a story is narrated in first or third person point of view in grade-level literary and/or informational text.
	2.3.R.3 Students will find textual evidence when provided with examples of literary elements and organization: • setting *(i.e., time, place)* • plot • characters • characterization	**3.3.R.3** Students will find textual evidence when provided with examples of literary elements and organization: • setting *(i.e., time, place)* • plot • characters • characterization • theme	**4.3.R.3** Students will describe key literary elements: • setting • plot • characters *(i.e., protagonist, antagonist)* • characterization • theme
	2.3.R.4 Students will find examples of literary devices: • simile • metaphor	**3.3.R.4** Students will find examples of literary devices: • simile • metaphor • personification • onomatopoeia • hyperbole	**4.3.R.4** Students will find examples of literary devices: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • symbolism* • tone* **Students will find textual evidence when provided with examples.*
	2.3.R.5 Students will locate facts that are clearly stated in a text.	**3.3.R.5** Students will distinguish fact from opinion in a text.	**4.3.R.5** Students will distinguish fact from opinion in a text and investigate facts for accuracy.

	2nd Grade	3rd Grade	4th Grade
Reading (Continued)	**2.3.R.6** Students will describe the structure of a text *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect)* with guidance and support. **2.3.R.7** Students will answer inferential questions *(e.g., how and why)* with guidance and support.	**3.3 R.6** Students will describe the structure of a text *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect)* with guidance and support. **3.3.R.7** Students will ask and answer inferential questions using the text to support answers with guidance and support.	**4.3.R.6** Students will describe the structure of a text *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect).* **4.3.R.7** Students will ask and answer inferential questions using the text to support answers.
Writing Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	**NARRATIVE** **2.3.W.1** Students will write narratives incorporating characters, plot *(i.e., beginning, middle, end)*, and a basic setting *(i.e., time, place)* with guidance and support. **INFORMATIVE** **2.3.W.2** Students will write facts about a subject and include a main idea with supporting details. **OPINION** **2.3.W.3** Students will express an opinion about a topic and provide reasons as support.	**NARRATIVE - Grade Level Focus** **3.3.W.1** Students will write narratives incorporating characters, plot, setting, point of view, and conflict *(i.e., solution and resolution).* **INFORMATIVE** **3.3.W.2** Students will write facts about a subject, including a main idea with supporting details, and use transitional and signal words. **OPINION** **3.3.W.3** Students will express an opinion about a topic and provide reasons as support.	**NARRATIVE** **4.3.W.1** Students will write narratives incorporating characters, plot, setting, point of view, conflict *(i.e., solution and resolution),* and dialogue. **INFORMATIVE - Grade Level Focus** **4.3.W.2** Students will write facts about a subject, including a clear main idea with supporting details, and use transitional and signal words. **OPINION** **4.3.W.3** Students will express an opinion about a topic and provide fact-based reasons as support.

3: Critical Reading and Writing Students will apply critical thinking skills to reading and writing.

	5th Grade	6th Grade	7th Grade
Reading Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.	**5.3.R.1** Students will determine an author's stated or implied purpose and draw conclusions to evaluate how well the author's purpose was achieved. **5.3.R.2** Students will determine the point of view and describe how it affects grade-level literary and/or informational text. **5.3.R.3** Students will describe and find textual evidence of key literary elements: • setting • plot • characters *(i.e., protagonist, antagonist)* • characterization • theme **5.3.R.4** Students will evaluate literary devices to support interpretations of literary texts: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • symbolism* • tone* **Students will find textual evidence when provided with examples.*	**6.3.R.1** Students will compare and contrast stated or implied purposes of authors writing on the same topic in grade-level literary and/or informational texts. **6.3.R.2** Students will evaluate how the point of view and perspective affect grade-level literary and/or informational text. **6.3.R.3** Students will analyze how key literary elements contribute to the meaning of the literary work: • setting • plot • characters *(i.e., protagonist, antagonist)* • characterization • theme • conflict *(i.e., internal and external)* **6.3.R.4** Students will evaluate literary devices to support interpretations of literary texts: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • symbolism* • tone* **Students will find textual evidence when provided with examples.*	**7.3.R.1** Students will compare and contrast stated or implied purposes of authors writing on the same topic in grade-level literary and/or informational texts. **7.3.R.2** Students will evaluate how the point of view and perspective affect grade-level literary and/or informational text. **7.3.R.3** Students will analyze how key literary elements contribute to the meaning of the literary work: • setting • plot • characters *(i.e., protagonist, antagonist)* • characterization • theme • conflict *(i.e., internal and external)* **7.3.R.4** Students will evaluate literary devices to support interpretations of literary texts: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • symbolism • tone • irony* **Students will find textual evidence when provided with examples.*

	5th Grade	6th Grade	7th Grade
Reading (Continued)	**5.3.R.5** Students will distinguish fact from opinion in non-fiction text and investigate facts for accuracy. **5.3.R.6** Students will distinguish the structures of texts *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect)* and content by making inferences about texts and use textual evidence to support understanding. **5.3.R.7** Students will compare and contrast texts and ideas within and between texts.	**6.3.R.5** Students will categorize facts included in an argument as *for* or *against* an issue. **6.3.R.6** Students will analyze the structures of texts *(e.g., description, compare/contrast, sequential, problem/solution, cause/effect)* and content by making inferences about texts and use textual evidence to support understanding. **6.3.R.7** Students will analyze texts and ideas within and between texts and provide textual evidence to support their inferences.	**7.3.R.5** Students will distinguish factual claims from opinions. **7.3.R.6** Students will analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/evidence)* and content by making inferences about texts and use textual evidence to draw simple logical conclusions. **7.3.R.7** Students will make connections *(e.g., thematic links)* between and across multiple texts and provide textual evidence to support their inferences.
Writing Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	**NARRATIVE** **5.3.W.1** Students will write narratives incorporating characters, plot, setting, point of view, conflict *(i.e., internal, external),* and dialogue. **INFORMATIVE - Grade Level Focus** **5.3.W.2** Students will introduce and develop a topic, incorporating evidence *(e.g., specific facts, examples, details)* and maintaining an organized structure. **OPINION** **5.3.W.3** Students will clearly state an opinion supported with facts and details. **5.3.W.4** Students will show relationships among facts, opinions, and supporting details.	**NARRATIVE** **6.3.W.1** Students will write narratives incorporating characters, plot, setting, point of view, conflict *(i.e., internal, external),* and dialogue. **INFORMATIVE** **6.3.W.2** Students will compose essays and reports about topics, incorporating evidence *(e.g., specific facts, examples, details)* and maintaining an organized structure. **OPINION - Grade Level Focus** **6.3.W.3** Students will clearly state an opinion supported with facts and details. **6.3.W.4** Students will show relationships among facts, opinions, and supporting details.	**NARRATIVE** **7.3.W.1** Students will write narratives incorporating characters, plot, setting, point of view, conflict, dialogue, and sensory details to convey experiences and events. **INFORMATIVE** **7.3.W.2** Students will compose essays and reports about topics, incorporating evidence *(e.g., specific facts, examples, details)* and maintaining an organized structure and a formal style. **ARGUMENT - Grade Level Focus** **7.3.W.3** Students will introduce a claim and organize reasons and evidence, using credible sources. **7.3.W.4** Students will show relationships among the claim, reasons, and evidence.

3: Critical Reading and Writing Students will apply critical thinking skills to reading and writing.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.	**8.3.R.1** Students will analyze works written on the same topic and compare the methods the authors use to achieve similar or different purposes and include support using textual evidence. **8.3.R.2** Students will evaluate points of view and perspectives and describe how this affects grade-level literary and/or informational text. **8.3.R.3** Students will analyze how authors use key literary elements to contribute to the meaning of a text: • setting • plot • characters *(i.e., protagonist, antagonist)* • characterization • theme • conflict *(i.e., internal and external)*	**9.3.R.1** Students will analyze works written on the same topic and compare the methods the authors use to achieve similar or different purposes and include support using textual evidence. **9.3.R.2** Students will evaluate points of view and perspectives in more than one grade-level literary and/or informational text and explain how multiple points of view contribute to the meaning of a work. **9.3.R.3** Students will analyze how authors use key literary elements to contribute to meaning and interpret how themes are connected across texts: • setting • plot • characters *(i.e., protagonist, antagonist)* • character development • theme • conflict *(i.e., internal and external)* • archetypes	**10.3.R.1** Students will evaluate the extent to which historical, cultural, and/or global perspectives affect authors' stylistic and organizational choices in grade-level literary and informational genres. **10.3.R.2** Students will evaluate points of view and perspectives in more than one grade-level literary and/or informational text and explain how multiple points of view contribute to the meaning of a work. **10.3.R.3** Students will analyze how authors use key literary elements to contribute to meaning and interpret how themes are connected across texts: • character development • theme • conflict *(i.e., internal and external)* • archetypes

	8th Grade	9th Grade - English I	10th Grade - English II
Reading (Continued)	**8.3.R.4** Students will evaluate literary devices to support interpretations of literary texts: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • tone • symbolism • irony	**9.3.R.4** Students will evaluate literary devices to support interpretations of texts, including comparisons across texts: • simile • metaphor • personification • onomatopoeia • hyperbole • imagery • tone • symbolism • irony	**10.3.R.4** Students will evaluate literary devices to support interpretations of texts, including comparisons across texts: • figurative language • imagery • tone • symbolism • irony
	8.3.R.5 Students will evaluate textual evidence to determine whether a claim is substantiated or unsubstantiated.	**9.3.R.5** Students will evaluate textual evidence to determine whether a claim is substantiated or unsubstantiated.	**10.3.R.5** Students will distinguish among different kinds of evidence *(e.g., logical, empirical, anecdotal)* used to support conclusions and arguments in texts.
	8.3.R.6 Students will analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/evidence)* and content by making complex inferences about texts to draw logical conclusions from textual evidence.	**9.3.R.6** Students will comparatively analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/counterclaims/evidence)* and content by inferring connections among multiple texts and providing textual evidence to support their inferences.	**10.3.R.6** Students will comparatively analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/counterclaims/evidence)* and content by inferring connections among multiple texts and providing textual evidence to support their inferences.
	8.3.R.7 Students will make connections *(e.g., thematic links, literary analysis)* between and across multiple texts and provide textual evidence to support their inferences.	**9.3.R.7** Students will make connections *(e.g., thematic links, literary analysis)* between and across multiple texts and provide textual evidence to support their inferences.	**10.3.R.7** Students will make connections *(e.g., thematic links, literary analysis)* between and across multiple texts and provide textual evidence to support their inferences.

	8th Grade	9th Grade - English I	10th Grade - English II
Writing Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	**NARRATIVE** **8.3.W.1** Students will write narratives incorporating characters, plot *(i.e., flashback and foreshadowing)*, setting, point of view, conflict, dialogue, and sensory details. **INFORMATIVE** **8.3.W.2** Students will compose essays and reports about topics, incorporating evidence *(e.g., specific facts, examples, details)* and maintaining an organized structure and a formal style. **ARGUMENT - Grade Level Focus** **8.3.W.3** Students will introduce a claim, recognize at least one claim from an opposing viewpoint, and organize reasons and evidences, using credible sources. **8.3.W.4** Students will show relationships among the claim, reasons, and evidence and include a conclusion that follows logically from the information presented.	**NARRATIVE - Grade Level Focus** **9.3.W.1** Students will write nonfiction narratives *(e.g., memoirs, personal essays)*. **INFORMATIVE - Grade Level Focus** **9.3.W.2** Students will compose essays and reports to objectively introduce and develop topics, incorporating evidence *(e.g., specific facts, examples, details, data)* and maintaining an organized structure and a formal style. **9.3.W.3** Students will elaborate on ideas by using logical reasoning and illustrative examples to connect evidences to claim(s). **ARGUMENT** **9.3.W.4** Students will introduce claims, recognize and distinguish from alternate or opposing claims, and organize reasons and evidences, using credible sources. **9.3.W.5** Students will show relationships among the claim, reasons, and evidence and include a conclusion that follows logically from the information presented and supports the argument. **9.3.W.6** Students will blend multiple modes of writing to produce effective argumentative essays.	**NARRATIVE** **10.3.W.1** Students will write narratives embedded in other modes as appropriate. **INFORMATIVE - Grade Level Focus** **10.3.W.2** Students will compose essays and reports to objectively introduce and develop topics, incorporating evidence *(e.g., specific facts, examples, details, data)* and maintaining an organized structure and a formal style. **10.3.W.3** Students will elaborate on ideas by using logical reasoning and illustrative examples to connect evidences to claim(s). **ARGUMENT - Grade Level Focus** **10.3.W.4** Students will introduce precise claims and distinguish them from counterclaims and provide sufficient evidences to develop balanced arguments, using credible sources. **10.3.W.5** Students will use words, phrases, and clauses to connect claims, counterclaims, evidence, and commentary to create a cohesive argument and include a conclusion that follows logically from the information presented and supports the argument. **10.3.W.6** Students will blend multiple modes of writing to produce effective argumentative essays.

3: Critical Reading and Writing Students will apply critical thinking skills to reading and writing.

	11th Grade - English III	12th Grade - English IV
Reading Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.	**11.3.R.1** Students will analyze the extent to which historical, cultural, and/or global perspectives affect authors' stylistic and organizational choices in grade-level literary and informational genres.	**12.3.R.1** Students will analyze the extent to which historical, cultural, and/or global perspectives affect authors' stylistic and organizational choices in grade-level literary and informational genres.
	11.3.R.2 Students will evaluate points of view and perspectives in more than one grade-level literary and/or informational text and explain how multiple points of view contribute to the meaning of a work.	**12.3.R.2** Students will evaluate points of view and perspectives in more than one grade-level literary and/or informational text and explain how multiple points of view contribute to the meaning of a work.
	11.3.R.3 Students will analyze how authors use key literary elements to contribute to meaning and interpret how themes are connected across texts: • theme • archetypes	**12.3.R.3** Students will analyze how authors use key literary elements to contribute to meaning and interpret how themes are connected across texts.
	11.3.R.4 Students will evaluate literary devices to support interpretations of texts, including comparisons across texts: • imagery • tone • symbolism • irony	**12.3.R.4** Students will evaluate literary devices to support interpretations of texts, including comparisons across texts.
	11.3.R.5 Students will evaluate how authors writing on the same issue reached different conclusions because of differences in assumptions, evidence, reasoning, and viewpoints.	**12.3.R.5** Students will evaluate how authors writing on the same issue reached different conclusions because of differences in assumptions, evidence, reasoning, and viewpoints.
	11.3.R.6 Students will comparatively analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/counterclaims/evidence)* and content by inferring connections among multiple texts and providing textual evidence to support their conclusions.	**12.3.R.6** Students will comparatively analyze the structures of texts *(e.g., compare/contrast, problem/solution, cause/effect, claims/counterclaims/evidence)* and content by inferring connections among multiple texts and providing textual evidence to support their conclusions.
	11.3.R.7 Students will make connections *(e.g., thematic links, literary analysis, authors' style)* between and across multiple texts and provide textual evidence to support their inferences.	**12.3.R.7** Students will make connections *(e.g., thematic links, literary analysis, authors' style)* between and across multiple texts and provide textual evidence to support their inferences.

	11th Grade - English III	12th Grade - English IV
Writing Students will write for varied purposes and audiences in all modes, using fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	**NARRATIVE** **11.3.W.1** Students will write narratives embedded in other modes as appropriate. **INFORMATIVE** **11.3.W.2** Students will compose essays and reports to objectively introduce and develop topics, incorporating evidence *(e.g., specific facts, examples, details, data)* and maintaining an organized structure and a formal style. **11.3.W.3** Students will elaborate on ideas by using logical reasoning and illustrative examples to connect evidences to claim(s). **ARGUMENT** **11.3.W.4** Students will (1) introduce precise, informed claims, (2) distinguish them from alternate or opposing claims, (3) organize claims, counterclaims, and evidence in a way that provides a logical sequence for the entire argument, and (4) provide the most relevant evidences to develop balanced arguments, using credible sources. **11.3.W.5** Students will use words, phrases, clauses, and varied syntax to connect all parts of the argument and create cohesion and include a conclusion that follows logically from the information presented and supports the argument. **11.3.W.6** Students will blend multiple modes of writing to produce effective argumentative essays.	**NARRATIVE** **12.3.W.1** Students will write narratives embedded in other modes as appropriate. **INFORMATIVE** **12.3.W.2** Students will compose essays and reports to objectively introduce and develop topics, incorporating evidence *(e.g., specific facts, examples, details, data)* and maintaining an organized structure and a formal style. **12.3.W.3** Students will elaborate on ideas by using logical reasoning and illustrative examples to connect evidences to claim(s). **ARGUMENT** **12.3.W.4** Students will (1) introduce precise, informed claims, (2) distinguish them from alternate or opposing claims, (3) organize claims, counterclaims, and evidence in a way that provides a logical sequence for the entire argument, and (4) provide the most relevant evidences to develop balanced arguments, using credible sources. **12.3.W.5** Students will use words, phrases, clauses, and varied syntax to connect all parts of the argument and create cohesion and include a conclusion that follows logically from the information presented and supports the argument. **12.3.W.6** Students will blend multiple modes of writing to produce effective argumentative essays.

Standard 4

Vocabulary

Students will expand their working vocabularies to effectively communicate and understand texts.

Reading

Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.

Writing

Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.

4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.	**PK.4.R.1** Students will acquire new academic, content-specific, grade-level vocabulary and relate new words to prior knowledge with guidance and support. **PK.4.R.2** Students will begin to develop an awareness of context clues through read-alouds and other text experiences. **PK.4.R.3** Students will name and sort familiar objects into categories based on common attributes with guidance and support.	**K.4.R.1** Students will acquire new academic, content-specific, grade-level vocabulary and relate new words to prior knowledge with guidance and support. **K.4.R.2** Students will begin to develop an awareness of context clues through read-alouds and other text experiences. **K.4.R.3** Students will name and sort pictures of objects into categories based on common attributes with guidance and support.	**1.4.R.1** Students will acquire new academic, content-specific, grade-level vocabulary, relate new words to prior knowledge, and apply vocabulary in new situations. **1.4.R.2** Students will use word parts *(e.g., affixes, roots, stems)* to define unfamiliar words with guidance and support. **1.4.R.3** Students will use context clues to determine the meaning of words with guidance and support. **1.4.R.4** Students will name and sort words into categories based on common attributes. **1.4.R.5** Students will use a dictionary *(print and/or electronic)* to find words.
Writing Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.	**PK.4.W.1** Students will begin to use new vocabulary to produce and expand complete sentences in shared language activities. **PK.4.W.2** Students will begin to select appropriate language according to purpose.	**K.4.W.1** Students will use new vocabulary to produce and expand complete sentences in shared language activities with guidance and support. **K.4.W.2** Students will select appropriate language according to purpose with guidance and support.	**1.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing with guidance and support. **1.4.W.2** Students will select appropriate language according to purpose in writing with guidance and support.

4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

	2nd Grade	3rd Grade	4th Grade
Reading Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.	**2.4.R.1** Students will acquire new academic, content-specific, grade-level vocabulary, relate new words to prior knowledge, and apply vocabulary in new situations. **2.4.R.2** Students will use word parts *(e.g., affixes, roots, stems)* to define and determine the meaning of new words. **2.4.R.3** Students will use context clues to determine the meaning of words with guidance and support. **2.4.R.4** Students will infer relationships among words, including synonyms, antonyms, and simple multiple-meaning words. **2.4.R.5** Students will use a dictionary or glossary *(print and/or electronic)* to determine or clarify the meanings of words or phrases.	**3.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **3.4.R.2** Students will use word parts *(e.g., affixes, roots, stems)* to define and determine the meaning of new words. **3.4.R.3** Students will use context clues to determine the meaning of words or distinguish among multiple-meaning words. **3.4.R.4** Students will infer relationships among words, including synonyms, antonyms, homographs, and homonyms. **3.4.R.5** Students will use a dictionary or glossary *(print and/or electronic)* to determine or clarify the meanings, syllabication, and pronunciation of words.	**4.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **4.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of new words. **4.4.R.3** Students will use context clues to determine the meaning of words or distinguish among multiple-meaning words. **4.4.R.4** Students will infer relationships among words with multiple meanings, including synonyms, antonyms, and more complex homographs and homonyms. **4.4.R.5** Students will use a dictionary or glossary *(print and/or electronic)* to determine or clarify the meanings, syllabication, and pronunciation of words.
Writing Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.	**2.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing. **2.4.W.2** Students will select appropriate language according to purpose in writing.	**3.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing. **3.4.W.2** Students will select appropriate language according to purpose in writing.	**4.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing. **4.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.

4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

	5th Grade	6th Grade	7th Grade
Reading Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.	**5.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **5.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define new words and determine the meaning of new words. **5.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **5.4.R.4** Students will infer the relationships among words with multiple meanings, including synonyms, antonyms, analogies, and more complex homographs and homonyms. **5.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, and parts of speech of words.	**6.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **6.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **6.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **6.4.R.4** Students will infer the relationships among words with multiple meanings, including synonyms, antonyms, analogies, and more complex homographs and homonyms. **6.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, and parts of speech of words.	**7.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **7.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **7.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **7.4.R.4** Students will infer the relationships among words with multiple meanings and recognize the connotation and denotation of words. **7.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, and parts of speech of words.
Writing Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.	**5.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing clearly. **5.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.	**6.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing clearly. **6.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.	**7.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing clearly. **7.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.

4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.	**8.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **8.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **8.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **8.4.R.4** Students will infer the relationships among words with multiple meanings and recognize the connotation and denotation of words. **8.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, and parts of speech of words.	**9.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **9.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **9.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **9.4.R.4** Students will analyze the relationships among words with multiple meanings and recognize the connotation and denotation of words. **9.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, parts of speech, and etymology of words or phrases.	**10.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **10.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **10.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **10.4.R.4** Students will analyze the relationships among words with multiple meanings and recognize the connotation and denotation of words. **10.4.R.5** Students will use a dictionary, glossary, or a thesaurus *(print and/or electronic)* to determine or clarify the meanings, syllabication, pronunciation, synonyms, parts of speech, and etymology of words or phrases.
Writing Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.	**8.4.W.1** Students will use domain-appropriate vocabulary to communicate ideas in writing clearly. **8.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.	**9.4.W.1** Students will use domain-appropriate vocabulary to communicate complex ideas in writing clearly. **9.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.	**10.4.W.1** Students will use domain-appropriate vocabulary to communicate complex ideas in writing clearly. **10.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.

4: Vocabulary Students will expand their working vocabularies to effectively communicate and understand texts.

	11th Grade - English III	12th Grade - English IV
Reading Students will expand academic, domain-appropriate, grade-level vocabularies through reading, word study, and class discussion.	**11.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **11.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **11.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **11.4.R.4** Students will analyze and evaluate the relationships among words with multiple meanings and recognize the connotation and denotation of words. **11.4.R.5** Students will use general and specialized dictionaries, thesauri, glossaries, histories of language, books of quotations, and other related references *(print and/or electronic)* as needed.	**12.4.R.1** Students will increase knowledge of academic, domain-appropriate, grade-level vocabulary to infer meaning of grade-level text. **12.4.R.2** Students will use word parts *(e.g., affixes, Greek and Latin roots, stems)* to define and determine the meaning of increasingly complex words. **12.4.R.3** Students will use context clues to determine or clarify the meaning of words or distinguish among multiple-meaning words. **12.4.R.4** Students will analyze and evaluate the relationships among words with multiple meanings and recognize the connotation and denotation of words. **12.4.R.5** Students will use general and specialized dictionaries, thesauri, glossaries, histories of language, books of quotations, and other related references *(print and/or electronic)* as needed.
Writing Students will apply knowledge of vocabularies to communicate by using descriptive, academic, and domain-appropriate abstract and concrete words in their writing.	**11.4.W.1** Students will use domain-appropriate vocabulary to communicate complex ideas in writing clearly. **11.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.	**12.4.W.1** Students will use domain-appropriate vocabulary to communicate complex ideas in writing clearly. **12.4.W.2** Students will select appropriate language to create a specific effect according to purpose in writing.

Standard 5

Language

Students will apply knowledge of grammar and rhetorical style to reading and writing.

Reading

Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.

Writing

Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.

5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.	**PK.5.R.1** Students will begin to understand the function of grammar through exposure to conversations, read-alouds, and interactive reading. **PK.5.R.2** Students will recognize concrete objects as persons, places or things *(i.e., nouns)* with guidance and support. **PK.5.R.3** Students will recognize words as actions *(i.e., verbs)* with guidance and support. **PK.5.R.4** Students will group pictures and movement, and determine spatial and time relationships such as up, down, before, and after with guidance and support.	**K.5.R.1** Students will begin to understand the function of grammar through exposure to conversations, read-alouds, and interactive reading. **K.5.R.2** Students will recognize concrete objects as persons, places or things *(i.e., nouns)* with guidance and support. **K.5.R.3** Students will recognize words as actions *(i.e., verbs)* with guidance and support. **K.5.R.4** Students will group pictures and movement, and determine spatial and time relationships such as up, down, before, and after with guidance and support.	**1.5.R.1** Students will recognize nouns as concrete objects *(i.e., people persons, places, and things)* and use the pronoun *"I."* **1.5.R.2** Students will recognize verbs as actions **1.5.R.3** Students will recognize color and number adjectives. **1.5.R.4** Students will recognize the prepositions *(e.g., The dog is on top of the doghouse)* through pictures and movement. **1.5.R.5** Students will recognize singular and plural nouns with correct verbs in simple sentences *(e.g. He sits; we sit).*
Writing Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.	*These standards begin in Kindergarten.*	**K.5.W.1** Students will capitalize, with guidance and support: • their first name • the pronoun *"I."* **K.5.W.2** Students will begin to compose simple sentences that begin with a capital letter and end with a period or question mark.	**1.5.W.1** Students will capitalize: • the first letter of a sentence • proper names • months and days of the week **1.5.W.2** Students will compose grammatically correct simple and compound sentences and questions (interrogatives) with appropriate end marks.

5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

	2nd Grade	3rd Grade	4th Grade
Reading Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.	**2.5.R.1** Students will recognize nouns, pronouns, and irregular plural nouns. **2.5.R.2** Students will recognize different types and tenses of verbs. **2.5.R.3** Students will recognize adjectives. **2.5.R.4** Students will recognize prepositions. **2.5.R.5** Students will recognize the subject and predicate of a sentence.	**3.5.R.1** Students will recognize pronouns and possessive nouns. **3.5.R.2** Students will recognize irregular and past participle verbs and verb tense to identify settings, times, and sequences in text. **3.5.R.3** Students will recognize adjectives, articles as adjectives, and adverbs. **3.5.R.4** Students will recognize prepositions and conjunctions. **3.5.R.5** Students will recognize the subject and verb agreement.	**4.5.R.1** Students will recognize pronouns and irregular possessive nouns. **4.5.R.2** Students will recognize present perfect verbs and verb tense to identify settings, times, sequences, and conditions in text. **4.5.R.3** Students will recognize comparative and superlative adjectives and adverbs. **4.5.R.4** Students will recognize prepositional phrases and conjunctions. **4.5.R.5** Students will recognize the subject and verb agreement.
Writing Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.	**2.5.W.1** Students will capitalize and appropriately punctuate: • the first letter of a quotation • holidays • product names • initials • months and days of the week **2.5.W.2** Students will use simple contractions *(e.g., isn't, aren't, can't).* **2.5.W.3** Students will compose grammatically correct simple and compound declarative, interrogative, imperative, and exclamatory sentences with appropriate end marks.	**3.5.W.1** Students will capitalize and appropriately punctuate: • titles of respect • appropriate words in titles • geographical names **3.5.W.2** Students will use complex contractions *(e.g., should've, won't).* **3.5.W.3** Students will compose and expand grammatically correct sentences and questions with appropriate commas, apostrophes, quotation marks, and end marks as needed for dialogue. **3.5.W.4** Students will compose simple, compound and complex declarative, interrogative, imperative, and exclamatory sentences.	**4.5.W.1** Students will capitalize • familial relations • proper adjectives • conventions of letter writing **4.5.W.2** Students will compose and expand grammatically correct sentences and questions with appropriate commas, end marks, apostrophes, and quotation marks as needed for dialogue. **4.5.W.3** Students will compose simple, compound, and complex sentences and questions, create sentences with an understood subject, and correct fragments and run-on sentences. **4.5.W.4** Students will compose declarative, interrogative, imperative, and exclamatory sentences.

5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

	5th Grade	6th Grade	7th Grade
Reading Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.	**5.5.R.1** Students will recognize conjunctions, prepositions, and interjections and explain their effect in particular sentences. **5.5.R.2** Students will recognize verb tense to signify various times, sequences, states, and conditions in text. **5.5.R.3** Students will recognize the subject and verb agreement.	**6.5.R.1** Students will recognize simple and compound sentences to signal differing relationships among ideas. **6.5.R.2** Students will recognize verb tense to signify various times, sequences, states, and conditions in text. **6.5.R.3** Students will recognize the subject and verb agreement.	**7.5.R.1** Students will recognize the correct use of prepositional phrases and dependent clauses. **7.5.R.2** Students will recognize simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas. **7.5.R.3** Students will recognize the subject and verb agreement. **7.5.R.4** Students will recognize and correct misplaced and dangling modifiers.
Writing Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.	**5.5.W.1** Students will write using correct mechanics with a focus on commas, apostrophes, and quotation marks as needed for dialogue and quoted material. **5.5.W.2** Students will compose simple, compound, and complex sentences and questions, create sentences with an understood subject, and correct fragments and run-on sentences. **5.5.W.3** Students will form and use the present and past verb tenses. **5.5.W.4** Students will form and use verb tense to convey various times, sequences, states, and conditions. **5.5.W.5** Students will recognize and correct inappropriate shifts in verb tense.	**6.5.W.1** Students will write using correct mechanics with a focus on commas, apostrophes, quotation marks, colons, and semi-colons. **6.5.W.2** Students will compose simple, compound, and complex sentences and questions to signal differing relationships among ideas. **6.5.W.3** Students will use intensive and reflexive pronouns. **6.5.W.4** Students will recognize and correct inappropriate shifts in pronoun number and person. **6.5.W.5** Students will recognize and correct vague pronouns *(i.e., ones with unclear or ambiguous antecedents).*	**7.5.W.1** Students will write using correct mechanics with a focus on commas, apostrophes, quotation marks, colons, and semi-colons. **7.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions to signal differing relationships among ideas. **7.5.W.3** Students will use prepositional phrases and clauses *(e.g., dependent and independent)* in writing.

5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.	**8.5.R.1** Students will recognize the use of verbals *(e.g., gerunds, participles, infinitives)* and clauses. **8.5.R.2** Students will recognize the use of active and passive voice. **8.5.R.3** Students will recognize and correct inappropriate shifts in verb tense. **8.5.R.4** Students will recognize the subject and verb agreement, and correct as necessary.	**9.5.R.1** Students will examine the function of parallel structures, various types of phrases, and clauses to convey specific meanings. **9.5.R.2** Students will recognize the use of active and passive voice. **9.5.R.3** Students will recognize and correct inappropriate shifts in verb tense. **9.5.R.4** Students will recognize the subject and verb agreement, and correct as necessary.	**10.5.R** Students will examine the function of parallel structures, various types of phrases, clauses, and active and passive voice to convey specific meanings and/or reflect specific rhetorical styles.
Writing Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.	**8.5.W.1** Students will write using correct mechanics with a focus on commas, apostrophes, quotation marks, colons, and semi-colons. **8.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions to signal differing relationships among ideas. **8.5.W.3** Students will use verbals *(e.g., gerunds, participles, infinitives)* in writing. **8.5.W.4** Students will form and use verbs in the active and passive voice. **8.5.W.5** Students will form and use verbs in the indicative, imperative, interrogative, conditional, and subjunctive mood.	**9.5.W.1** Students will write using correct mechanics with a focus on punctuation marks as needed. **9.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions to signal differing relationships among ideas. **9.5.W.3** Students will use parallel structure. **9.5.W.4** Students will use various types of phrases *(e.g., appositive, adjectival, adverbial, participial, prepositional)* and clauses *(e.g., independent, dependent, adverbial)* to convey specific meanings and add variety and interest to writing or presentations.	**10.5.W.1** Students will write using correct mechanics. **10.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions, to signal differing relationships among ideas. **10.5.W.3** Students will practice their use of Standard American English, grammar, mechanics, and usage through writing, presentations, and/or other modes of communication to convey specific meanings and interests.

5: Language Students will apply knowledge of grammar and rhetorical style to reading and writing.

	11th Grade - English III	12th Grade - English IV
Reading Students will apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts.	**11.5.R** Students will apply their knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts, understanding that usage and convention change over time and using that understanding to manipulate style when appropriate.	**12.5.R** Students will apply their knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts, understanding that usage and convention change over time and using that understanding to manipulate style when appropriate.
Writing Students will demonstrate command of Standard English grammar, mechanics, and usage through writing and other modes of communication.	**11.5.W.1** Students will write using correct mechanics. **11.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions, including the use of phrases and clauses, to signal differing relationships among ideas. **11.5.W.3** Students will demonstrate command of Standard American English, grammar, mechanics, and usage through writing, presentations, and/or other modes of communication to convey specific meanings and interests.	**12.5.W.1** Students will write using correct mechanics. **12.5.W.2** Students will compose simple, compound, complex, and compound-complex sentences and questions, including the use of phrases and clauses, to signal differing relationships among ideas. **12.5.W.3** Students will demonstrate command of Standard American English, grammar, mechanics, and usage through writing, presentations, and/or other modes of communication to convey specific meanings and interests.

Standard 6

Research

Students will engage in inquiry to acquire, refine, and share knowledge.

Reading

Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.

Writing

Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.

6: Research Students will engage in inquiry to acquire, refine, and share knowledge.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.	**PK.6.R** Students will begin to identify pictures, charts, grade-appropriate texts, or people as sources of information on a topic of interest.	**K.6.R.1** Students will identify relevant pictures, charts, grade-appropriate texts, or people as sources of information on a topic of interest. **K.6.R.2** Students will identify graphic features to understand a text including photos, illustrations, and titles to understand a text.	**1.6.R.1** Students will decide who can answer questions about their topic or what resources they will need to find the information. **1.6.R.2** Students will identify graphic features including photos, illustrations, titles, labels, headings, charts, and graphs to understand a text. **1.6.R.3** Students will identify the location and purpose of various visual and text reference sources.
Writing Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.	**PK.6.W** Students will generate topics of interest and decide if a friend, teacher, or expert can answer their questions with guidance and support.	**K.6.W.1** Students will generate topics of interest and decide if a friend, teacher, or expert can answer their questions with guidance and support. **K.6.W.2** Students will find information from provided sources during group research with guidance and support.	**1.6.W.1** Students will generate questions about topics of interest. **1.6.W.2** Students will organize information found during group or individual research, using graphic organizers or other aids with guidance and support. **1.6.W.3** Students will make informal presentations of information gathered.

6: Research Students will engage in inquiry to acquire, refine, and share knowledge.			
	2nd Grade	**3rd Grade**	**4th Grade**
Reading Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.	**2.6.R.1** Students will create their own questions to find information on their topic. **2.6.R.2** Students will use graphic features including photos, illustrations, titles, labels, headings, subheadings, charts, and graphs to understand a text. **2.6.R.3** Students will consult various visual and text reference sources to gather information.	**3.6.R.1** Students will use their own questions to find information on their topic. **3.6.R.2** Students will use graphic features including photos, illustrations, captions, titles, labels, headings, subheadings, italics, sidebars, charts, graphs, and legends to define a text. **3.6.R.3** Students will locate information in visual and text reference sources, electronic resources, and/or interviews. **3.6.R.4** Students will determine the relevance and reliability of the information for their specific topic of interest with guidance and support.	**4.6.R.1** Students will use their own viable research questions to find information about a specific topic. **4.6.R.2** Students will use graphic features including photos, illustrations, captions, titles, labels, headings, subheadings, italics, sidebars, charts, graphs, and legends to interpret a text. **4.6.R.3** Students will determine the relevance and reliability of the information gathered.
Writing Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.	**2.6.W.1** Students will generate a list of topics of interest and individual questions about one specific topic of interest. **2.6.W.2** Students will organize information found during group or individual research, using graphic organizers or other aids. **2.6.W.3** Students will organize and present their information in written and/or oral reports or display.	**3.6.W.1** Students will generate a list of topics of interest and individual questions about one specific topic of interest. **3.6.W.2** Students will organize information found during group or individual research, using graphic organizers or other aids. **3.6.W.3** Students will summarize and present information in a report.	**4.6.W.1** Students will generate a viable research question about a specific topic. **4.6.W.2** Students will organize information found during research, following a modified citation style *(e.g., author, title, publication date)* with guidance and support. **4.6.W.3** Students will summarize and present information in a report.

6: Research Students will engage in inquiry to acquire, refine, and share knowledge.

	5th Grade	6th Grade	7th Grade
Reading Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.	**5.6.R.1** Students will use their own viable research questions to find information about a specific topic.	**6.6.R.1** Students will use their own viable research questions to find information about a specific topic.	**7.6.R.1** Students will use their own viable research questions and thesis statements to find information about a specific topic.
	5.6.R.2 Students will record and organize information from various print and/or digital sources.	**6.6.R.2** Students will record and organize information from various primary and secondary sources *(e.g., print and digital).*	**7.6.R.2** Students will follow ethical and legal guidelines for finding and recording information from a variety of primary and secondary sources *(e.g., print and digital).*
	5.6.R.3 Students will determine the relevance and reliability of the information gathered.	**6.6.R.3** Students will determine the relevance, reliability, and validity of the information gathered.	**7.6.R.3** Students will determine the relevance, reliability, and validity of the information gathered.
Writing Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.	**5.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*.	**6.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*.	**7.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*.
	5.6.W.2 Students will formulate a viable research question from findings.	**6.6.W.2** Students will refine and formulate a viable research question and/or topic from initial findings.	**7.6.W.2** Students will refine and formulate a viable research question and report findings clearly and concisely, using a thesis statement.
	5.6.W.3 Students will organize information found during research, following a modified citation style *(e.g., author, title, publication date)* with guidance and support.	**6.6.W.3** Students will organize information found during research, following a citation style *(e.g., MLA, APA, etc.)* with guidance and support.	**7.6.W.3** Students will quote, paraphrase, and summarize findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism.
	5.6.W.4 Students will summarize and present information in a report.	**6.6.W.4** Students will summarize and present information in a report.	**7.6.W.4** Students will summarize and present information in a report.

6: Research Students will engage in inquiry to acquire, refine, and share knowledge.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.	**8.6.R.1** Students will use their own viable research questions and well-developed thesis statements to find information about a specific topic. **8.6.R.2** Students will follow ethical and legal guidelines for finding and recording information from a variety of primary and secondary sources *(e.g., print and digital).* **8.6.R.3** Students will determine the relevance, reliability, and validity of the information gathered.	**9.6.R.1** Students will use their own viable research questions and well-developed thesis statements to find information about a specific topic. **9.6.R.2** Students will follow ethical and legal guidelines for finding and recording information from a variety of primary and secondary sources *(e.g., print and digital).* **9.6.R.3** Students will evaluate the relevance, reliability, and validity of the information gathered.	**10.6.R.1** Students will use their own viable research questions and well-developed thesis statements to find information about a specific topic. **10.6.R.2** Students will synthesize the most relevant information from a variety of primary and secondary sources *(e.g., print and digital),* following ethical and legal citation guidelines. **10.6.R.3** Students will evaluate the relevance, reliability, and validity of the information gathered.
Writing Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.	**8.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*. **8.6.W.2** Students will refine and formulate a viable research question and report findings clearly and concisely, using a well-developed thesis statement. **8.6.W.3** Students will quote, paraphrase, and summarize findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism. **8.6.W.4** Students will summarize and present information in a report.	**9.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*. **9.6.W.2** Students will refine and formulate a viable research question, integrate findings from sources, and clearly use a well-developed thesis statement. **9.6.W.3** Students will quote, paraphrase, and summarize findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism. **9.6.W.4** Students will summarize and present information in a report.	**10.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*. **10.6.W.2** Students will refine and formulate a viable research question, integrate findings from sources, and clearly use a well-developed thesis statement. **10.6.W.3** Students will integrate into their own writing quotes, paraphrases, and summaries of findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism. **10.6.W.4** Students will synthesize and present information in a report.

6: Research Students will engage in inquiry to acquire, refine, and share knowledge.

	11th Grade - English III	12th Grade - English IV
Reading Students will comprehend, evaluate, and synthesize resources to acquire and refine knowledge.	**11.6.R.1** Students will use their own viable research questions and well-developed thesis statements to find information about a specific topic. **11.6.R.2** Students will synthesize the most relevant information from a variety of primary and secondary sources *(e.g., print and digital),* following ethical and legal citation guidelines. **11.6.R.3** Students will evaluate the relevance, reliability, and validity of the information gathered.	**12.6.R.1** Students will use their own viable research questions and well-developed thesis statements to find information about a specific topic. **12.6.R.2** Students will synthesize resources to acquire and refine knowledge, following ethical and legal citation guidelines. **12.6.R.3** Students will evaluate the relevance, reliability, and validity of the information gathered.
Writing Students will summarize and paraphrase, integrate evidence, and cite sources to create reports, projects, papers, texts, and presentations for multiple purposes.	**11.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*. **11.6.W.2** Students will integrate findings from sources using a well-developed thesis statement. **11.6.W.3** Students will integrate into their own writing quotes, paraphrases, and summaries of findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism. **11.6.W.4** Students will synthesize and present information in a report.	**12.6.W.1** Students will write research papers and/or texts independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*. **12.6.W.2** Students will integrate findings from sources using a well-developed thesis statement. **12.6.W.3** Students will integrate into their own writing quotes, paraphrases, and summaries of findings following an appropriate citation style *(e.g., MLA, APA, etc.)* and avoiding plagiarism. **12.6.W.4** Students will synthesize and present information in a report.

Standard 7

Multimodal Literacies

Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non-verbal, and interactive texts.

Reading

Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.

Writing

Students will create multimodal texts to communicate knowledge and develop arguments.

7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.	**PK.7.R** Students will recognize formats of print and digital text with guidance and support.	**K.7.R.1** Students will recognize formats of print and digital text with guidance and support. **K.7.R.2** Students will explore how ideas and topics are depicted in a variety of media and formats.	**1.7.R.1** Students will use provided print and digital resources with guidance and support. **1.7.R.2** Students will explore and compare how ideas and topics are depicted in a variety of media and formats.
Writing Students will create multimodal texts to communicate knowledge and develop arguments.	**PK.7.W** Students will use appropriate technology to communicate with others with guidance and support.	**K.7.W.1** Students will use appropriate technology to communicate with others with guidance and support. **K.7.W.2** Students will use appropriate props, images, or illustrations to support verbal communication.	**1.7.W.1** Students will select and use appropriate technology or media to communicate with others with guidance and support. **1.7.W.2** Students will use visual displays to support verbal communication and clarify ideas, thoughts, and feelings.

7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.

	2nd Grade	3rd Grade	4th Grade
Reading Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.	**2.7.R.1** Students will locate and use print and digital resources with guidance and support. **2.7.R.2** Students will explain how ideas and topics are depicted in a variety of media and formats.	**3.7.R.1** Students will locate, organize, and use information from a variety of written, oral, visual, digital, non-verbal, and interactive texts to generate and answer literal questions. **3.7.R.2** Students will compare how ideas and topics are depicted in a variety of media and formats	**4.7.R.1** Students will locate, organize, and analyze information from a variety of written, oral, visual, digital, non-verbal, and interactive texts to generate and answer literal and interpretive questions to create new understandings. **4.7.R.2** Students will compare and contrast how ideas and topics are depicted in a variety of media and formats.
Writing Students will create multimodal texts to communicate knowledge and develop arguments.	**2.7.W.1** Students will select and use appropriate technology or media to communicate with others with guidance and support. **2.7.W.2** Students will create a simple presentation using audio, visual, and/or multimedia tools to support communication and clarify ideas, thoughts, and feelings	**3.7.W.1** Students will create multimodal content that communicates an idea using technology or appropriate media. **3.7.W.2** Students will create presentations using video, photos, and other multimedia elements to support communication and clarify ideas, thoughts, and feelings.	**4.7.W.1** Students will create multimodal content that effectively communicates an idea using technology or appropriate media. **4.7.W.2** Students will create presentations using videos, photos, and other multimedia elements to support communication and clarify ideas, thoughts, and feelings.

7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.			
	5th Grade	**6th Grade**	**7th Grade**
Reading Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.	**5.7.R.1** Students will analyze the characteristics and effectiveness of a variety of written, oral, visual, digital, non-verbal, and interactive texts to generate and answer literal and interpretive questions to create new understandings. **5.7.R.2** Students will compare and contrast how ideas and topics are depicted in a variety of media and formats.	**6.7.R.1** Students will compare and contrast the effectiveness of a variety of written, oral, visual, digital, non-verbal, and interactive texts to generate and answer literal, interpretive, and applied questions to create new understandings. **6.7.R.2** Students will analyze the impact of selected media and formats on meaning.	**7.7.R.1** Students will compare and contrast the effectiveness of techniques used in a variety of written, oral, visual, digital, non-verbal, and interactive texts to generate and answer literal, interpretive, and applied questions to create new understandings. **7.7.R.2** Students will analyze the impact of selected media and formats on meaning.
Writing Students will create multimodal texts to communicate knowledge and develop arguments.	**5.7.W.1** Students will create multimodal content that effectively communicates an idea using technology and appropriate media. **5.7.W.2** Students will create presentations that integrate visual displays and other multimedia to enrich the presentation.	**6.7.W.1** Students will create multimodal content that effectively communicates ideas using technologies and appropriate media. **6.7.W.2** Students will create presentations that integrate visual displays and other multimedia to enrich the presentation.	**7.7.W.1** Students will select, organize, or create multimodal content to complement and extend meaning for a selected topic. **7.7.W.2** Students will utilize multimedia to clarify information and strengthen claims or evidence.

7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.

	8th Grade	9th Grade - English I	10th Grade - English II
Reading Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.	**8.7.R.1** Students will determine the intended purposes of techniques used for rhetorical effects in written, oral, visual, digital, non-verbal, and interactive texts to generate and answer interpretive and applied questions to create new understandings. **8.7.R.2** Students will analyze the impact of selected media and formats on meaning.	**9.7.R.1** Students will analyze and evaluate the effectiveness of techniques used in a variety of written, oral, visual, digital, non-verbal, and interactive texts with a focus on persuasion and argument to generate and answer literal, interpretive, and applied questions to create new understandings. **9.7.R.2** Students will analyze the impact of selected media and formats on meaning.	**10.7.R.1** Students will analyze techniques used to achieve the intended rhetorical purposes in written, oral, visual, digital, non-verbal, and interactive texts to generate and answer interpretive and applied questions to create new understandings. **10.7.R.2** Students will analyze the impact of selected media and formats on meaning.
Writing Students will create multimodal texts to communicate knowledge and develop arguments.	**8.7.W.1** Students will select, organize, or create multimodal content that encompasses different points of view. **8.7.W.2** Students will utilize multimedia to clarify information and emphasize salient points.	**9.7.W.1** Students will create a variety of multimodal content to engage specific audiences. **9.7.W.2** Students will create engaging visual and/or multimedia presentations, using a variety of media forms to enhance understanding of findings, reasoning, and evidence for diverse audiences.	**10.7.W.1** Students will critique the sources of multimodal content. **10.7.W.2** Students will create visual and/or multimedia presentations using a variety of media forms to enhance understanding of findings, reasoning, and evidence for diverse audiences.

7: Multimodal Literacies Students will acquire, refine, and share knowledge through a variety of written, oral, visual, digital, non verbal, and interactive texts.

	11th Grade - English III	12th Grade - English IV
Reading Students will evaluate written, oral, visual, and digital texts in order to draw conclusions and analyze arguments.	**11.7.R.1** Students will analyze and evaluate the various techniques used to construct arguments in written, oral, visual, digital, non-verbal, and interactive texts, to generate and answer applied questions, and to create new understandings. **11.7.R.2** Students will analyze the impact of selected media and formats on meaning.	**12.7.R.1** Students will analyze and evaluate written, oral, visual, digital, non-verbal, and interactive texts in order to draw conclusions and defend arguments. **12.7.R.2** Students will analyze the impact of selected media and formats on meaning.
Writing Students will create multimodal texts to communicate knowledge and develop arguments.	**11.7.W.1** Students will design and develop multimodal content for a variety of purposes. **11.7.W.2** Students will construct engaging visual and/or multimedia presentations using a variety of media forms to enhance understanding of findings, reasoning, and evidence for diverse audiences.	**12.7.W.1** Students will create multimodal content to communicate knowledge and defend arguments. **12.7.W.2** Students will construct engaging visual and/or multimedia presentations using a variety of media forms to enhance understanding of findings, reasoning, and evidence for diverse audiences.

Standard 8

Independent Reading and Writing

Students will read and write for a variety of purposes including, but not limited to, academic and personal, for extended periods of time.

Reading

Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.

Writing

Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.

8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal.

	Pre-Kindergarten	Kindergarten	1st Grade
Reading Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.	**PK.8.R** Students will demonstrate interest in books during read-alouds and shared reading, and interact independently with books.	**K.8.R** Students will demonstrate interest in books during read-alouds and shared reading, and interact independently with books.	**1.8.R** Students will select appropriate texts for academic and personal purposes and read independently for extended periods of time with guidance and support.
Writing Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.	**PK.8.W** Students will express their ideas through a combination of drawing and emergent writing with guidance and support.	**K.8.W** Students will express their ideas through a combination of drawing and emergent writing with guidance and support.	**1.8.W** Students will write independently for extended and shorter periods of time through a combination of emergent and conventional writing with guidance and support.

8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal.

	2nd Grade	3rd Grade	4th Grade
Reading Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.	**2.8.R** Students will select appropriate texts for academic and personal purposes and read independently for extended periods of time.	**3.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**4.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.
Writing Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.	**2.8.W** Students will write independently over extended periods of time *(e.g., time for reflection and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*.	**3.8.W** Students will write independently over extended periods of time *(e.g., time for reflection and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)* to communicate with different audiences for a variety of purposes.	**4.8.W** Students will write independently over extended periods of time *(e.g., time for reflection and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)* to communicate with different audiences for a variety of purposes.

8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal.			
	5th Grade	**6th Grade**	**7th Grade**
Reading Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.	**5.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**6.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**7.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.
Writing Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.	**5.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)* to communicate with different audiences for a variety of purposes.	**6.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and explain how concepts relate to one another.	**7.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and discover different perspectives.

8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal.			
	8th Grade	**9th Grade - English I**	**10th Grade - English II**
Reading Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.	**8.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**9.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**10.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.
Writing Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.	**8.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and analyze different perspectives.	**9.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and draw appropriate conclusions.	**10.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and draw and justify appropriate conclusions.

8: Independent Reading and Writing Students will read and write for a variety of purposes including, but not limited to, academic and personal.

	11th Grade - English III	12th Grade - English IV
Reading Students will read independently for a variety of purposes and for extended periods of time. Students will select appropriate texts for specific purposes.	**11.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.	**12.8.R** Students will select appropriate texts for specific purposes and read independently for extended periods of time.
Writing Students will write independently for extended periods of time. Students will vary their modes of expression to suit audience and task.	**11.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, and be able to apply new understandings in an original way.	**12.8.W** Students will write independently over extended periods of time *(e.g., time for research, reflection, and revision)* and for shorter timeframes *(e.g., a single sitting or a day or two)*, vary their modes of expression to suit audience and task, synthesize information across multiple sources, and articulate new perspectives.

Glossary

A

Academic vocabulary : refers to words associated with content knowledge. Within every discipline there is a specific set of words to represent its concepts and processes.

Abbreviation : a shortened or contracted form of a word or phrase, used to represent the whole, as Dr. for Doctor, U.S. for United States, and lb. for pound.

Active listening : the active pursuit of what another person is saying and feeling, as a way to improve mutual understanding. Active listening involves hearing content, listening for tone, observing body language, paraphrasing, summarizing, questioning, clarifying, and reflecting.

Affix : a morpheme or meaningful part of a word attached before or after a root to modify its meaning. Principal kinds of affixes are prefixes and suffixes. The prefix un- is an affix, which added to balanced, makes unbalanced. The suffix -ed is an affix which, added to wish, makes wished.

Alliteration : the repetition of the same initial consonant sound of each word in connected text (e.g., Harry the happy hippo hula-hoops with Henrietta).

Allusion : a brief and indirect reference to a person, place, thing, or idea of historical, cultural, literary, or political significance.

Analogy : a comparison of the similar aspects of two different things.

Annotation : a critical or explanatory note or body of notes added to a text.

Antagonist : the adversary of the hero or protagonist of a drama or other literary work.

Antonyms : words which have opposite meanings (e.g., hot and cold).

Appropriate technology : technology that students can use independently or with minimal scaffolding.

Archetype : a symbol, plot pattern, character type, or theme that recurs in many different cultures.

Argument essay : a genre of writing that requires the student to investigate a topic; collect, generate, and evaluate evidence; and establish and defend a position on the topic in a concise manner.

Argumentation : writing that seeks to influence through appeals that direct readers to specific goals or try to win them to specific beliefs.

Audience : writer's targeted reader or readers.

Author's craft : specific techniques that an author chooses to relay an intended message.

Automaticity : reading without conscious effort or attention to decoding.

B

Base : a free morpheme to which affixes can be added, usually of Anglo-Saxon origin.

Blending : the task of combining sounds rapidly to accurately represent the word.

C

Cause & effect : text structure that notes a relationship in which an event or events (the cause) make(s) another event or action happen (effect).

Citing sources : a quotation of or explicit reference to a source indicating where the paraphrased or quoted materials came. Examples of citation style include MLA (Modern Language Association) and APA (American Psychological Association).

Claim : an assertion of the truth of something.

Close reading : a strategy that requires a student to focus on and arrive at a deep understanding of individual texts by reading and re-reading. Fisher, Frey, and Lapp (2012) describe four reader roles that help the reader uncover meaning in a text:

1. Code Breaker: understanding the text at the surface level (i.e., alphabetic, structural)

2. Meaning maker: comprehending the text at the level intended by the author

3. Text user: analyzing the factors that influenced the author and the text, including a historical grounding of the context within which it was written

4. Text critic: understanding that the text is not neutral and that existing biases inform calls to action.

Closed syllable : a written syllable containing a single vowel and ending in one or more consonants; the vowel sound is short.

Coherence : continuity of meaning that enables others to make sense of a text.

Collaborative discussions : discussions that provide opportunities for speakers and listeners to use dialogue and interaction to raise issues, explore ideas, make claims, discover differences, and find ways to explore all aspects of ELA. These take many forms like a Socratic seminar, debate, or blog and combine students in small or large discourse communities.

Compare : find similarities between two or more texts or text elements.

Comparison : text structure in which ideas are related to one another on the basis of similarities and differences. The text presents ideas organized to compare, to contrast, or to provide an alternative perspective.

Compound word : a word made by putting two or more words together (e.g., cowboy).

Comprehension : understanding what one is reading, the ultimate goal of all reading activity.

Conflict : struggle or clash between opposing characters, forces, or emotions.

Connotation : a meaning that is implied by a word apart from the thing it describes explicitly. Words carry cultural and emotional associations or meanings in addition to their literal meanings or denotations.

Consonant blend : two or more consecutive consonants that retain their individual sounds (e.g., /bl/ in block; /str/ in string).

Consonant digraph : two consecutive consonants that represent one phoneme, or sound (e.g., /ch/, /sh/).

Consonant trigraph : a combination of three letters used to represent a single speech sound or phoneme*. (e.g.*/tch/)

Content-specific : vocabulary that includes technical words related to specific academic disciplines. *(See also academic and domain-specific vocabulary)*

Context : the parts of a written or spoken statement/text that precede or follow a specific word or passage, usually influencing its meaning or effect.

Context clue : the information from the textual setting that helps identify a word or word group.

Contraction : a short way to write two words as one by writing the two words together, leaving out one or more letters and replacing the missing letters with an apostrophe (e.g., cannot = can't).

Conventional writing : expressing thoughts and ideas with agreed upon symbols, like the alphabet.

Counterclaim : a claim made to rebut a previous claim.

D

Declarative sentence : the kind of sentence that makes a statement or "declares" something.

Decode : translate a word from print to speech, usually by employing knowledge of sound symbol correspondences; also the act of deciphering a new word by sounding it out.

Denotation : the literal or dictionary meaning of a word.

Description : text structure that presents a topic, along with the attributes, specifics, or setting information that describe that topic.

Detail : piece of information revealed by the author or speaker that supports the attitude or tone in a piece of poetry or prose. In informational text, details provide information to support the author's main point.

Diction : the choice and use of words by a speaker or a writer.

Digital media : media created, viewed, distributed, modified, and preserved on digital devices (e.g. computers, tablets, phones). Digital media include computer programs, digital videos, video games, web pages and websites, social media, databases, audio, and e-books. Digital media are contrasted with print media such as books, newspapers, magazines, pictures, film, and audiotape.

Domain-specific vocabulary : **"**relatively low-frequency, content-specific words that appear in textbooks and other instructional materials; for example, apex in math, escarpment in geography, and isobar in science" (Blachowicz, C. & Fisher, P., p.1). *(See also academic and content-specific vocabulary)*

E

Edit : to review writing to make sure that it is free of any grammatical errors or strange phrases that make it difficult for readers to understand the meaning.

Emergent writing : “means that children begin to understand that writing is a form of communication and their marks on paper convey a message” (Mayer, 2007, p. 35). Emergent writing progresses along a developmental continuum.

Ethical and legal guidelines for research : guidelines for correctly citing print and digital text when using primary and secondary sources for research. In addition, copying and pasting texts, purchasing essays online, using another author’s work, or violating copyright laws are unethical and could result in legal action.

Exclamatory sentence : a type of sentence that expresses strong feelings by making an exclamation.

F

Fiction : imaginative literary works representing invented rather than actual persons, places, or events.

Figurative language : writing or speech not meant to be taken literally but used to express ideas in vivid or imaginative ways. Figurative language includes simile, metaphor, personification, analogy, hyperbole, and idiom.

Flashback : scene that interrupts the action of a work to show a previous event.

Fluency : ability to read grade-level text accurately, with expression, and with automaticity. The combination of accuracy, automaticity, and prosody allow the reader to build comprehension.

Foreshadowing : use of hints or clues in a narrative to suggest future action.

G

Generalize : to make general or broad statements by inferring from text details.

Genre : a category used to classify literary and other works, usually by form, technique, or content. The novel, the short story, and the lyric poems are all examples of literary genres.

Grammar : rules of language.

Grapheme : a letter or letter combination that spells a phoneme; can be one, two, three, or four letters in English (e.g., e, ei, igh, eigh).

Graphic features : pictorial representation of data or ideas using columns, matrices, or other formats. Graphics can be simple or complex, present information in a straightforward way as in a list or pie graph, or embed or nest information within the document's structure. Graphics may be included in texts or be stand-alone documents.

H

High frequency Irregular words : words in print containing letters that stray from the most common sound pronunciation because they do not follow common phonic patterns (e.g., were, was, laugh, been).

High frequency words : a small group of words (300-500) that account for a large percentage of the words in print and can be regular or irregular words. Often, they are referred to as "sight words" since automatic recognition of these words is required for fluent reading.

Homographs : words that are spelled alike but have different sounds and meanings (e.g., bow used with an arrow vs. bow of a ship).

Homonyms : words that sound the same but have different spellings and meanings (e.g., bear, bare).

Hyperbole : obvious and deliberate exaggeration; an extravagant statement.

I

Idiom : an expression that does not mean what it literally says (e.g., to have the upper hand has nothing to do with the hands).

Imagery : multiple words or a continuous phrase that a writer uses to represent persons, objects, actions, feelings, or ideas descriptively by appealing to the senses.

Imperative sentence : a sentence that gives a command, makes a request, or expresses a wish.

Indent : to set in or back from the margin, as the first line of a paragraph.

Independent reading levels : the level at which a reader can read text with 95% accuracy (i.e., no more than one error per 20 words read). Independent reading level is relatively easy text for the reader.

Inference : act or process of deriving logical conclusions from premises known or assumed to be true; the conclusions drawn from this process.

Inferring : making a reasonable assumption about meaning that is not explicitly stated in the text.

Inflectional endings : in English, a suffix that expresses plurality or possession when added to a noun, tense when added to a verb, and comparison when added to an adjective and some adverbs; Added to verbs, nouns, or adjectives do not change the grammatical role or part of speech of the base words (-s, -es,-ing, ¬ed).

Informational : non-fiction books; also referred to as expository text, that contain facts and information.

Interactive texts : multimodal texts in which readers may determine the order and duration of reading. For example, interactive texts, may include hyperlinks to other pages containing embedded images, videos and audio.

Interrogative sentence : the kind of sentence that asks a question and uses a question mark.

Irony : the use of words to express something other than and especially the opposite of the literal meaning.

L

Legend : inscription or title on an object (e.g., a key to symbols used on a map).

Letter-sound correspondences : the matching of an oral sound to its corresponding letter or group of letters.

Lexile : a quantitative measure of text complexity and individual reading level that can be used to predict how well a reader will likely comprehend a text.

Literal : information directly from the text (e.g., on the line).

Literary nonfiction : text that conveys factual information. The text may or may not employ a narrative structure and characteristics such as dialogue.

M

Main idea : the central thought or premise of a reading passage.

Meaning vocabulary : application of one's understanding of word meanings to passage comprehension.

Memoir : type of autobiography that usually focuses on a single time period or historical event.

Metaphor : a direct comparison of two unlike things.

Modified citation style : using author, title, and publication date of sources to document research. This special style is used only at the fifth grade level to ease students into more stringent citation styles which are used in later grades.

Mood : atmosphere or predominant emotion in a literary work.

Morpheme : the smallest meaningful unit of the language.

Morphology : the study and description of how words are formed from prefixes, roots, and suffixes (e.g., mis-spell-ing), and how words are related to each other.

Multimodal : multiple + mode. A mode refers to a way of meaning-making or communicating. The New London Group (1996) outlines five modes through which meaning is made: Linguistic, Aural, Visual, Gestural, and Spatial. Any combination of modes makes a multimodal text, and all texts—every piece of communication that a human composes—use more than one mode. Thus, all writing is multimodal."All Writing is Multimodal**,"** Cheryl Ball and Colin Charlton, in *Naming What We Know: Threshold Concepts of Writing Studies*, Linda Adler- Kassner & Elizabeth Wardle (Eds.), forthcoming from Utah State University Press.

Multimodal content : content utilizing more than one mode (e.g. still images + words, words + video) to convey a meaning.

Multimodal literacy : "the interplay of meaning-making systems (alphabetic, oral, visual, etc.) that teachers and students should strive to study and produce." NCTE Position Statement on Multimodal Literacies.

Multisyllabic : these are words with more than one syllable. A systematic introduction of prefixes, suffixes, and multisyllabic words should occur throughout a reading program. The average number of syllables in the words students read should increase steadily throughout the grades.

N

Narrative writing : writing that tells a story. This writing is often anecdotal, experiential, and personal—allowing students to express themselves in creative and, quite often, moving ways.

Nonfiction : text that is factual and may be presented by detailed descriptions or examples; organization follows a logical pattern and may include textual aids.

Nonverbal cues : nonverbal messages that are a key aspect of speaking, for example, intonation, pauses, facial expressions, eye contact, gestures, and body language. Listeners should study these cues to determine a speaker's message, argument, and credibility.

Nonverbal texts : In place of words, nonverbal texts may include images, gestures, and movement.

O

Onomatopoeia : use of words that mimic the sounds they describe; imitative harmony.

Onset : all of the sounds in a syllable that come before the first vowel.

Opinion writing : writing that clearly states a view or judgment about a topic, supported by examples, and offering reasons for assertions and/or explaining cause and effect.

P

Parallel structure : repetition of words, phrases, or sentences that have the same grammatical structure or that restate a similar idea.

Paraphrase : to sum something up or clarify a statement by rephrasing it; to say something in other simpler words.

Personification : the bestowing of human qualities on animals, ideas, or things.

Persuasion : form of discourse whose function is to convince an audience or to prove or refute a point of view or an issue.

Phoneme : a speech sound that combines with others in a language system to make words.

Phonemic awareness : the ability to notice, think about, or manipulate the individual phonemes (sounds) in words. It is the ability to understand that sounds in spoken language work together to make words. This term is used to refer to the highest level of phonological awareness: awareness of individual phonemes in words.

Phonics : the study of the relationships between letters and the sounds they represent; also used to describe reading instruction that teaches sound-symbol correspondences. Sound-symbol correspondence are the rules and patterns by which letters and letter combinations represent speech sounds.

Phonological awareness : one's sensitivity to, or explicit awareness of, the phonological structure of words in one's language. This is an "umbrella" term that is used to refer to a student's sensitivity to any aspect of phonological structure in language. It encompasses awareness of individual words in sentences, syllables, and onset-rime segments, as well as awareness of individual phonemes.

Picture walk : a strategy for previewing a book prior to reading by looking at the cover and illustrations and asking questions that require students to make predictions about the text.

Plagiarism : using another person or source's words or ideas without giving credit or obtaining permission.

Plot : sequence of events or actions in a short story, novel, drama, or narrative poem.

Point of view : the way in which an author reveals a viewpoint or perspective. This can be done through characters, ideas, events, and narration.

Prefix : a morpheme that precedes a root and that contributes to or modifies the meaning of a word, as "re" in reprint.

Pre-reading strategies : strategies for preparing students to read a text prior to reading. Examples include: picture walk, brainstorming about the topic/text, advance organizers, activating prior knowledge, vocabulary previews, structural organizers, establishing a purpose for reading, etc.

Primary source : firsthand account of an event or a time period written or created during that time period (examples: *Diary of Anne Frank*, Dorothea Lange's photographs, newspaper article about Hurricane Katrina).

Print concepts : the ability of a child to know and recognize the ways in which print "works" for the purposes of reading, particularly with regard to books.

Prior knowledge : refers to schema, the knowledge and experience that readers bring to the text.

Problem/solution : text structure in which the main ideas are organized into two parts: a problem and a subsequent solution that responds to the problem, or a question and an answer that responds to the question.

Protagonist : central character of a short story, novel, or narrative poem. The antagonist is the character who stands directly opposed to the protagonist.

Purpose : specific reason or reasons for the writing. It conveys what the readers have to gain by reading the selection. Purpose is the objective or the goal that the writer wishes to establish.

Q

Quote : in research, to directly copy down the words from a source, set off in quotation marks.

R

R-controlled vowels : the modified sound of a vowel immediately preceding /r/ in the same syllable (e.g., care, never, sir, or).

Rate : the speed at which a person reads.

Recursive : moving back and forth through a text in either reading or writing, as new ideas are developed or problems encountered. In reading a text, recursive processes might include rereading earlier portions in light of later ones, looking ahead to see what topics are addressed or how a narrative ends, and skimming through text to search for particular ideas or events before continuing a linear reading. In creating a written composition, recursive processes include moving back and forth among the planning, drafting, and revising phases of writing.

Reenact : to act out the events of a text.

Retell : recall the content of what was read or heard.

Revise : the process of rereading a text and making changes (in content, organization, sentence structures, and word choice) to improve it; not to be confused with edit.

Rhetorical device : technique used by writers to persuade an audience. (e.g. alliteration, hyperbole, metaphor, etc.)

Rhyme : words that have the same ending sound.

Rime : a vowel plus the consonants that follow in a syllable; (e.g., -ame, -ick, -out).

Root : a bound morpheme, usually of Latin origin, that cannot stand alone but is used to form a family of words with related meanings.

S

Schema : refers to prior knowledge, the knowledge and experience that readers bring to the text.

Secondary source : an interpretation or analysis of a primary source (examples: book about diaries kept during the Holocaust, book about Great Depression photography, an op-ed about how New Orleans handled the Hurricane Katrina aftermath from a later date).

Segmenting : separating the individual phonemes, or sounds, of a word into discrete units.

Semantics : the study of meaning in language.

Semantic relationships : associations that exist between the meanings of words.

Sequential structure: text structure in which ideas are grouped on the basis of order or time.

Setting : time and place in which events in a short story, novel, drama, or narrative poem take place.

Shared reading : an interactive reading experience that occurs when students join in or share the reading of a big book or other enlarged text while guided and supported by a teacher or other experienced reader.

Simile : a combination of two things that are unlike, usually using the words like or as.

Stem : the base form of a word; also called the root word.

Structural analysis : a procedure for teaching students to read words formed with prefixes, suffixes, or other meaningful word parts.

Style : writer's characteristic manner of employing language.

Suffix : a derivational morpheme added to the end of root or base that often changes the word's part of speech and that modifies its meaning.

Summarize : reducing large selections of text to their base essentials: the gist, the key ideas, the main points that are worth noting and remembering.

Supporting details : reasons, examples, facts, steps, or other kinds of evidence that back up and explain a main idea. Details make up most of the information in what a person reads, but some details are more important than others.

Syllable : a unit of pronunciation that is organized around a vowel sound; it may or may not have consonants before or after the vowel.

Symbol : object, person, place, or action that has both a meaning in itself and that stands for something larger than itself, such as a quality, attitude, belief, or value.

Synonyms : words which have the same meaning. (e.g. example, instance, occurrence)

Syntax : arrangement of words and order of grammatical elements in a sentence.

Synthesize : creating original insights, perspectives, and understanding by reflecting on text(s) and merging elements from text and existing schema.

T

Text complexity : based on Fisher and Frey (2013), three inter-related aspects determine text complexity: quantitative evaluation, qualitative evaluation, and matching readers with texts and tasks.

1. **Quantitative evaluation**: readability measures and other scores of text complexity
2. **Qualitative evaluation**: levels of meaning, structure, language features, and knowledge demands
3. **Matching readers with texts and tasks**: reader variables (such as motivation, knowledge, and experiences) and task variables (such as purpose and the complexity generated by the task assigned and the questions posed) (p.7)

Theme : central meaning of a literary work. A literary work can have more than one theme. Most themes are not directly stated but rather are implied. A literary theme is not the same as a topic or main idea.

Thesis statement : the guiding, arguable statement or claim an essay attempts to prove through evidence and reasoning.

Tone : writer or speaker's attitude toward a subject, character, or audience conveyed through the author's choice of words and detail. Tone can be serious, humorous, sarcastic, objective, etc.

Topic : the subject of the entire paragraph/text selection; tells what the passage is mainly about.

Track print : look and process all the letters in order from left-to-right.

Trait : distinguishing feature, as of a person's character.

V

Verbal cues : words and phrases that speakers use to add emphasis, clarify organization, make connections, and create ethos. Listeners should be focusing on these cues as it helps listeners determine a speaker's message, argument, and credibility.

Vocabulary notebook : a teaching strategy used to help students learn new vocabulary.

Voice : distinctive style or manner of expression of an author or of a character.

Vowel digraph : two vowels together that represent one phoneme, or sound (e.g., ea, ai, oa).

Vowel diphthong : a sound made by combining two vowels, specifically when it starts as one vowel sound and proceeds to another, like the *oy* sound in *oil*.

W

Word study : the integration of phonics, spelling, and vocabulary instruction. This approach teaches students how to look closely at words to discover the regularities and conventions of English orthography, or spelling. The purpose is twofold: (1) develop a general knowledge of English spelling and discover generalizations about spelling, and (2) increase students' specific knowledge of words and their meanings.

Word family : group of words that share a rime (a vowel plus the consonants that follow; e.g., -ame, -ick, -out).

Word wall : a literacy tool used for displaying commonly used vocabulary and/or sight words in large print so that all students can read the words from their desks. The purpose of a word wall is to help students naturally gain familiarity with high frequency words, as well as to gain reinforcement of vocabulary.

Writing Modes : major types of writing. (Narrative, Opinion, Informational, Argumentation).

Writing process : steps contained in the writing process include prewriting, drafting, revising, editing, and publishing. This process is often recursive.

The 44* Phonemes of the English Language

	Phoneme	Graphemes**	Examples		Phoneme	Graphemes**	Examples
	Consonant Sounds:						
1	/**b**/	b, bb	big, ru**bb**er	14	/**t**/	t,tt,ed	**t**op,le**tt**er,stopp**ed**
2	/**d**/	d,dd,ed	**d**og, a**dd**, fill**ed**	15	/**v**/	v,ve	**v**et, gi**ve**
3	/**f**/	f,ph	**f**ish, **ph**one	16	/**w**/	w	**w**et, **w**in, s**w**im
4	/**g**/	g,gg	**g**o,e**gg**	17	/**y**/	y,i	**y**es, on**i**on
5	/**h**/	h	**h**ot	18	/**z**/	z,zz,ze,s,se,x	**z**ip, fi**zz**, snee**ze**, la**s**er,i**s**,wa**s**,plea**se**,**x**ylophone
6	/**j**/	j,g,ge,dge	**j**et,ca**g**e,bar**ge**,ju**dge**		**Consonant Digraphs:**		
7	/**k**/	c,k,ck,ch,cc,que	**c**at,**k**itten,du**ck**,s**ch**ool,o**cc**ur, anti**que**	19	/**th**/ (not voiced)	th	**th**umb, **th**in, thing
8	/**l**/	l.ll	**l**eg, be**ll**	20	/**th**/ (voiced)	th	**th**is, fea**th**er, **th**en
9	/**m**/	m,mm, mb	**m**ad, ha**mm**er, la**mb**	21	/**ng**/	ng,n	si**ng**, mo**n**key, si**n**k
10	/**n**/	n,nn,kn,gn	**n**o,di**nn**er,**kn**ee, **gn**ome	22	/**sh**/	sh,ss,ch,ti,ci	**sh**ip, mi**ss**ion, **ch**ef, mo**ti**on, spe**ci**al
11	/**p**/	p,pp	**p**ie, a**pp**le	23	/**ch**/	ch,tch	chip, ma**tch**
12	/**r**/	r,rr,wr	**r**un, ma**rr**y, **wr**ite	24	/**zh**/	ge,s	gara**ge**, mea**s**ure, divi**s**ion
13	/**s**/	s,se,ss,c,ce,sc	**s**un,mou**se**,dre**ss**,**c**ity,i**ce**, **sc**ience	25	/**wh**/ (with breath)	wh	**wh**at, **wh**en, **wh**ere, **wh**y

The 44* Phonemes of the English Language

	Phoneme	Graphemes**	Examples
	Short Vowel Sounds:		
26	/**a**/	a, au	h**a**t, l**au**gh
27	/**e**/	e, ea	b**e**d, br**ea**d
28	/**i**/	i	**i**f
29	/**o**/	o, a, au, aw, ough	h**o**t, w**a**nt, h**au**l, dr**aw**, b**ough**t
30	/**u**/	u, o	**u**p, ton
	Long Vowel Sounds:		
31	/**ā**/	a, a_e, ay, ai, ey, ei	b**a**con, l**a**te, d**ay**, tr**ai**n, th**ey**, **ei**ght, v**ei**n
32	/**ē**/	e, e_e, ea, ee, ey, ie, y	m**e**, th**ese**, b**ea**t, f**ee**t, k**ey**, ch**ief**, bab**y**
33	/**ī**/	i, i_e, igh, y, ie	f**i**nd, r**ide**, l**igh**t, fl**y**, p**ie**
34	/**ō**/	o, o_e, oa, ou, ow	n**o**, n**ote**, b**oa**t, s**ou**l, r**ow**
35	/**ū**/	u, u_e, ew	h**u**man, **use**, **few**, ch**ew**
	Other Vowel Sounds:		
36	/**oo**/	oo,u,oul	b**oo**k, p**u**t, c**ould**
37	/**ōō**/	oo,u,u_e	m**oo**n, tr**u**th, r**ule**

	Phoneme	Graphemes**	Examples
	Vowel Diphthongs:		
38	/**ow**/	ow, ou, ou_e	c**ow**, **out**, m**ouse**, h**ouse**
39	/**oy**/	oi, oy	c**oi**n, t**oy**
	Vowel Sounds Influenced by r:		
40	/**a(r)**/	ar	c**ar**
41	/**ā(r)**/	air, ear, are	**air**, ch**air**, f**air**, h**air**, b**ear**, c**are**
42	/**i(r)**/	irr, ere, eer	m**irr**or, h**ere**, ch**eer**
43	/**o(r)**/	or, ore, oor	**for**, c**ore**, d**oor**
44	/**u(r)**/	ur, ir, er, ear, or, ar	b**ur**n, **fir**st, f**er**n, h**ear**d, w**or**k, doll**ar**

Phoneme (speech sound)

Grapheme (letters or groups of letters representing the most common spellings for the individual phonemes

* The number of phonemes is different in some linguistics textbooks; this is evidence of the difficulty of classifying (Moats, 1998).

** This list does not include all possible graphemes for a given phoneme.

Source: Orchestrating Success in Reading by Dawn Reithaug (2002)

Genre Guidance

The following provides a broad index of appropriate genres. This index does not include all genres or subgenres that students are expected to read. The genres align with expectations of the Standard 3 Critical Reading and Writing: Reading Strand - *Students will comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres from a variety of historical, cultural, ethnic, and global perspectives.*

By end of **third grade,** students will have read grade-level appropriate texts in following:	By end of **fifth grade,** students will have read grade-level appropriate texts in following:	By end of **eighth grade,** students will have read grade-level appropriate texts in following:	By end of **English IV,** students will have read grade-level appropriate texts in following:
informational text	informational text	informational text	informational text
fiction	fiction	fiction	fiction
nonfiction	nonfiction	nonfiction	nonfiction
poetry	poetry	poetry	poetry
drama	drama	drama	drama
nursery rhyme	fable	fable	*Plus increasingly complex application of previous grades*
fable	legend	legend	
folk, fairy, and tall tale	fairy tale	fairy tale	
autobiography and biography	myth	myth	
	autobiography and biography	autobiography and biography	
	Plus increasingly complex application of previous grades	*Plus increasingly complex application of previous grades*	

Text Complexity Bands

In order to determine the complexity of a text, it is essential to consider three inter-related aspects: quantitative measures, qualitative measures, and reader-task considerations, (Fisher, Frey and Lapp, 2012).

Quantitative measures

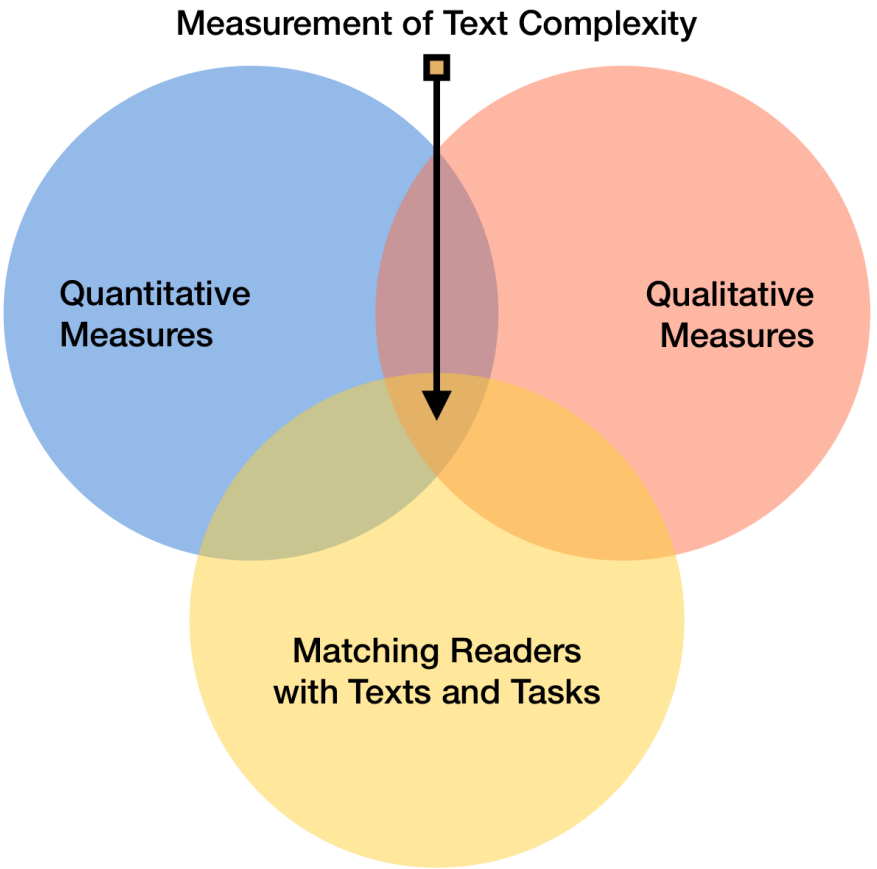
Readability ranges (e.g. ATOS, Lexile Framework, Flesch-Kincaid) are available in order to measure the difficulty of the text. These ranges are created from an evaluation of word frequency and sentence length to determine text difficulty. Word frequency and sentence length are strong predictors of how difficult a text is to comprehend.

Qualitative measures

Readability ranges (quantitative measures) are not capable of assessing the subtleties of meaning, structure, language features and knowledge demands; therefore, Oklahoma educators will evaluate these qualitative measures using their professional judgment and expertise through a research- based rubric.

Matching readers with texts and tasks

Input from parents, local classroom teachers, reading specialists, and/ or school librarians help determine the appropriateness of a text in regards to the reader's age, interests and the content of the text. Matching readers with texts and tasks are foremost in selecting appropriate texts for readers. Reader variables include motivation, knowledge, and experiences, and task variables consist of purpose and the complexity generated by the task assigned and the questions posed.

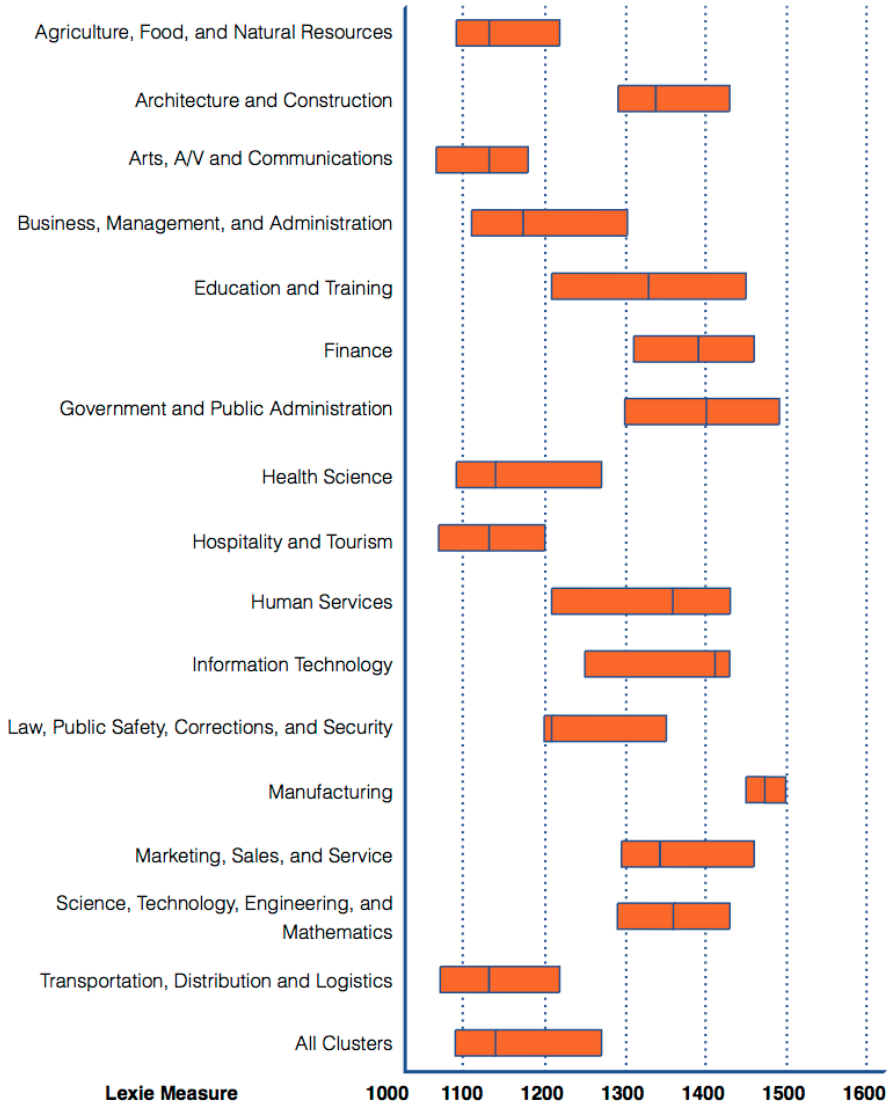


Prekindergarten through Kindergarten guidance

According to Dr. Douglas Fisher in *Text Complexity, Raising the Rigor in Reading*," text complexity is a staircase effect and the first steps on this staircase need to be carefully scaled so the youngest readers successfully acquire the fundamental of reading, which means that they are reading texts that allow for practice with decoding and fluency" (p. 37)

College- and Career-Readiness Reading Range

National Career Clusters® Framework
Text Complexity for 16 Career Clusters



Minimum reading range required for careers.

Typical Lexile Reader Measures, by Grade
lexile.com/about-lexile/grade-equivalent/grade-equivalent-chart

Grade	Lexie Reader Measures, Mid-Year 25th Percentile to 75th percentile (IQR)
1	Up to 300L
2	140L to 500L
3	330L 700L
4	445L to 810L
5	565L to 910L
6	665L to 1000L
7	735L to 1065L
8	805L to 1100L
9	855L to 1165L
10	905L to 1195L
11 and 12	940L to 1210L

If students read in the mid range and continue to progress through the grades, they should be effectively prepared for postsecondary education or the workforce.

Grammar Companion

Eight Parts of Speech

Noun - a word that names a person, place, thing, or idea.

- Proper Noun - the specific name of a particular person, place, or thing. These will always be capitalized.

  Ex: Mr. Smith, Riverdale Elementary, American

- Common noun - refers to a general group of persons, places, things, or ideas.

  Ex: teacher, school, citizen

- Concrete noun - these can be sensed by your five senses; they can be seen, touched, felt, tasted, heard, or smelled.

  Ex: apple, ball, telephone

- Abstract noun - represents a feeling, idea, or quality. These cannot be sensed by your five senses.

  Ex: hope, love, peace, hatred

- Collective noun - refers to things or people as a unit.

  Ex: team, family, class

Pronoun - a word that takes the place of a noun.

- Personal pronoun - refers to who is speaking, being spoken to, or spoken about.

	Personal Pronouns	
	Singular	**Plural**
First Person	I, me	we, us
Second Person	you	you
Third Person	he, him, she, it	they, them

- Possessive pronoun - a word that shows possession and defines who owns a particular object.

	Possessive Pronouns	
	Singular	**Plural**
First Person	my, mine	our, ours
Second Person	your, yours	your, yours
Third Person	his, her, hers, its	their, theirs

- Reflexive pronoun - a word that refers back to the subject of a sentence, clause, or phrase. It is formed by adding **–self** or **–selves** to a personal pronoun.

  Ex: myself, herself, himself, itself, ourselves, themselves

- Demonstrative pronoun - **this, that, these, those.** Points out a person, place, thing, or idea.

  Ex: This is my book. Those are my shoes. These are mine.

- Interrogative pronoun - **what, which, who, whom, whose.** Used at the beginning of a question.

- Antecedent - the noun the pronoun replaces.

    Ex: **Joann** placed **her** coat in the closet**. Joann** is the antecedent for **her**.

Verb - a word that expresses action or state of being.

- Action verb - a verb that expresses physical or mental action of the subject.

    Ex: Joe **walks** to school. The team **played** a great game. She is **talking** to me.

- Linking verb - **am, is, are, was, were, be, being, been.** These words are used to link the subject to some other word in the sentence that describes, identifies, or gives more information about it.

    Ex: John **was** sick for two days. (sick describes John) | John **is** hungry. (hungry describes John)

- Helping verb - used with the main verb to tell what happens or what exists.

may	am	do	should	have	will
might	is	does	could	had	can
must	are	did	would	has	shall
	was				
	were				
	be				
	being				
	been (also linking)				

    Ex: We **might win** the game tomorrow. (might is the helping verb and win is the main verb)

Adjectives - a word that modifies or describes a noun or pronoun. Adjectives tell **what kind, how many, how much,** and **which one**.

- Articles- **a, an, the,** are always adjectives.
- Adjectives tell What Kind. Ex: We stayed in a **large high-rise** hotel.
- Adjectives tell How Many. Ex: I have attended **four** schools.
- Adjectives tell How Much. Ex: We have **some** books to shelve in the library.
- Adjectives tell Which One. Ex: I live in **the blue** house.
    - Demonstrative Adjectives: **this, that, these, those.** When these words are used to describe a noun, they are adjectives. When they are used in place of a noun, they are demonstrative pronouns.

      Ex: This is my book. – demonstrative pronoun taking the place of book.

      This book is mine. – demonstrative adjective describing book.
- Adjectives that Compare - these are usually formed by adding **–er, -ier, -est, -iest.** Ex: **larger** hat, **angrier** than you, **biggest** car.
- Other comparative adjectives - better, best, more, most, little, less

Adverbs - a word that modifies or describes a verb, adjective, or other adverb. Adverbs tell **when, where, how, how often, how much, to what extent.** Common adverbs end in **–ly.**

- Adverbs tell **How**.

  Ex: The dolphin floated **gracefully** in the water.

  John finished the race **strong**.

- Adverbs tell **When**.

  Ex: Lisa will go **first**.

  Sometimes I eat cereal for dinner.

- Adverbs tell **Where**.

  Ex: Turn **left** at the stoplight.

  The dogs are **outside**.

- Adverbs modify other Adjectives and other Adverbs by showing the degree such as **almost, entirely, early, so, frequently, extremely, occasionally, too, awfully, completely, always, very.**

  Ex: It is **very** cold here. (The adverb *very* tells about the adjective *cold*.)

  I work **extremely** fast. (The adverb *extremely* tells about the adverb *fast.*)

Prepositions and Prepositional Phrases - a word or group of words linked to a noun or verb to describe direction or condition.

- One-word Prepositions - consists of one word

  Examples in sentences: The deer ran across the road. We stopped at the store down the street.

Common One-word Prepositions

about	at	but (meaning except)	in	out	under
above	before	by	inside	outside	underneath
across	behind	concerning	into	over	until
after	below	despite	like	past	unto
against	beneath	down	near	since	up
along	beside	during	of	through	upon
among	besides	except	off	throughout	with
around	between	for	on	toward	within
as	beyond	from	onto	to (unless a verb comes after it)	without

- Phrasal Prepositions- consist of more than one word.

  Example in a sentence: Water flowed in front of the rocks.

Common Phrasal Prepositions

according to	from among	in case of	in spite of	out of
along with	from between	in front of	instead of	next to
as for	in accordance with	in place of	on account of	with reference
except for	in addition to	in regard to	on top of	with regard to

Conjunction - a word that connects parts of a sentence.

- Coordinate conjunctions - **and, or, nor, for, so, but, yet -** connect equal parts of a sentence.

  Ex: I like to read **and** watch TV.

  We are going to go to a movie **and** we are going to go to dinner.

- Subordinate conjunctions - connect a dependent clause to an independent clause.

Common Subordinating Conjunctions

after	if	than	until	which
although	how	that	when	
as	since	though	where	
because	supposing	unless	whether	

- Correlative conjunctions - connect two ideas in pairs. **Neither…nor, either…or, not only…but also**

  Ex: **Not only** do I like football, **but** I **also** like baseball.

Interjection - a word or phrase that expresses emotion and often stands alone in a sentence.

Ex: wow, yes, well, please, yuck

Parts of the Sentence

Subject

The subject of a sentence is the person, place, or thing that is performing the action of the sentence. It is what or whom the sentence is about.

Ex: The young **man** built the family a the new house.

The simple subject is the subject and any modifiers.

Ex. **The young man** built the family a new house.

Predicate

The predicate of a sentence expresses the action or being within the sentence.

Ex: The young man **built** the family a new house.

The simple predicate contains the verb and words that modify the verb.

Ex: The young man **built the family a new house.**

Direct Object

The direct object receives the action of the sentence. It is usually a noun or pronoun.

Ex: The young man built the family a new **house**.

Indirect Object

The indirect object indicates to whom or for whom the action of the sentence is being done.

Ex: The young man built the **family** a new house.

Subject Complement

A subject complement either renames or describes the subject and is usually a noun, pronoun, or adjective. Subject complements follow a linking verb within the sentence.

Ex: The man is a good **father**. (father is the noun complement of man.) | The man seems **kind**. (kind is the adjective complement of man.)

Phrases - groups of words that do not contain both a subject and a verb.

Prepositional Phrase -made up of a preposition and its modifiers. It can function as an adjective or adverb in a sentence.

- Adjectival prepositional phrase: The store **around the corner** is green. (around the corner describes the noun store.)
- Adverbial prepositional phrase: Sally is coloring **outside the lines**. (outside the lines describes where the coloring takes place.)

Verbal Phrases - groups of words using verbs as other parts of the sentence. Infinitive, Gerund, and Participial

- **Infinitive Phrase - the word "to" plus a verb. Infinitive phrases can function as adjective, adverbs, or nouns**

  Ex: **To dance gracefully** is my ambition. (noun as the subject of a sentence)

  Her plan **to become a millionaire** fell through when the stock market crashed. (adjective describing plan)

  John went to college **to study engineering**. (adverb describing why he went)

- **Participial Phrase - a verb form functioning as an adjective.**

  Ex: **Swimming for his life**, John made it to shore. (swimming for his life describes John)

- **Gerund Phrase - an –ing verb form functioning as a noun.**

  Ex: **Walking the dog** is not my favorite task. (subject)

Appositive Phrase - renames or identifies a noun or pronoun. It is set off by commas if the added information is nonessential to the meaning of the sentence.

Ex: My teacher, **a woman with curly hair**, is very fun. (curly hair is nonessential to the teacher being fun)

The dog with the sharp teeth **Bowser** is the one who bit me. (Bowser is essential to identifying which dog bites)

Absolute Phrase - is a modifier, or a modifier and a few other words, that attaches to a sentence or a noun, with no conjunction. It cannot contain a finite verb.

Absolute phrases usually consist of a noun and a modifier that modifies this noun, NOT another noun in the sentence.

Absolute phrases are optional in sentences, i.e., they can be removed without damaging the grammatical integrity of the sentence. Since absolute phrases are optional in the sentence, they are often set off from the sentence with commas or, less often, with dashes. We normally explain absolute phrases by saying that they modify entire sentences, rather than one word.

Ex: **Their minds whirling from the events of the school day**, the students made their way to the parking lot.

His head pounding, his hands shaking, the young man knelt and proposed marriage to his girlfriend.

Clauses

Clauses - a group of related words that contains a subject and a verb. Independent clauses can stand alone as complete sentences. Dependent or subordinate clauses cannot stand alone and must be in the sentence with an independent clause.

Adjective Clauses - dependent clauses that describe nouns or pronouns. They begin with relative pronouns: **that, where, which, who, whose.**

Ex: The teacher **who left her papers on the desk** will be late turning in her grades.

Adverb Clauses - dependent clauses that describe verbs, adjectives, or adverbs. They begin with subordinating conjunctions.

Subordinating conjunctions to show time: **after, before, when, while, as , whenever, since, until, as soon as, as long as, once**

Subordinating conjunctions to show cause and effect: **because, since, now that, as, so, in order that**

Subordinating conjunctions to show condition: **if, unless, whether, providing**

Subordinating conjunctions to show contrast: **although, even though, though, whereas, while**

Examples:

Time: **After the family spent the day at the zoo,** they were very tired.

Cause and Effect: The family was very tired **since they spent the day at the zoo.**

Condition: **Unless you plan your trip to the zoo carefully,** you won't be able to see all the animals in one day.

Contrast: The family visited the park, **although they really wanted to spend the day at the zoo.**

Noun Clauses - dependent clauses that function as the subject, object, or compliment of a sentence.
They begin with subordinating conjunctions.

how	when	who
however	whenever	whoever
if	where	whom
that	wherever	whomever
what	which	whose
whether	whichever	why
whatever		

Examples:

Whatever you want for dinner is fine with me. (subject)

John will make **whatever you want for dinner.** (direct object)

I have dinner ready for **whoever wants to eat.** (object of the preposition)

Verb Tense

The tense of a verb is determined by when the action took place. The three tenses are:

- The Past Tense
- The Present Tense
- The Future Tense

Examples of Tenses

Here are some examples of verbs in different tenses:

- I walked to work. (The verb *walked* is in the **past tense**.)
- I walk to work. (The verb *walk* is in the **present tense**.)
- I will walk to work. (The verb *will walk* is in the **future tense**.)

Verbs do not just express actions. They can also express a state of being. For example:

- I was happy. (The verb *was* is in the **past tense**.)
- I am happy. (The verb *am* is in the **present tense**.)
- I will be happy. (The verb *will be* is in the **future tense**.)

Some of the verbs in the past tense are made up of more than one word. We need these different versions of the tenses because the tenses are further categorized depending on whether the action (or state of being) they describe is in progress or completed. For example, the different versions of the verb *to laugh* are:

- **Past Tense**: laughed, was/were laughing, had laughed, had been laughing
- **Present Tense**: laugh, am/is/are laughing, has/have laughed, has/have been laughing
- **Future Tense**: will laugh, will be laughing, will have laughed, will have been laughing

The Full List of Tenses

The table below shows the full list of the tenses:

The 4 Past Tenses	Example
simple past tense	I went
past progressive tense	I was going
past perfect tense	I had gone
past perfect progressive tense	I had been going
The 4 Present Tenses	**Example**
simple present tense	I go
present progressive tense	I am going
present perfect tense	I have gone
present perfect progressive tense	I have been going
The 4 Future Tenses	**Example**
simple future tense	I will go
future progressive tense	I will be going
future perfect tense	I will have gone
future perfect progressive tense	I will have been going

Sentence Structure

1. Simple - a simple sentence contains one independent clause.

Ex: Judy laughed.

2. Compound - a compound sentence contains two or more independent clauses joined by a conjunction.

Ex: Judy laughed and Jimmy cried.

3. Complex - a complex sentence contains an independent clause and at least one dependent clause.

Ex: Jimmy cried when Judy laughed.

4. Compound Complex - a compound-complex sentence contains two or more independent clauses and at least one dependent clause.

Ex: Judy laughed and Jimmy cried when the clowns ran past their seats.

Types of Sentences

1. Declarative sentences make a statement to relay information or ideas. They are punctuated with a simple period. Formal essays or reports are composed almost entirely of declarative sentences.

Ex: The concert begins in two hours. July 4th is Independence Day.

2. Imperative sentences issue commands or requests or they can express a desire or wish. They are punctuated with a simple period or they can be exclamations requiring an exclamation mark. It all depends on the strength of emotion you want to express. Imperative sentences can consist of a single verb or they can be more lengthy and complex.

Ex: Watch out for oncoming traffic. Please do your homework.

3. Exclamatory sentences express strong emotion. It doesn't really matter what the emotion is, an exclamatory sentence is the type of sentence needed to express it. Exclamatory sentences always end in an exclamation mark, so it's pretty easy to spot them.

Ex: The river is rising! I can't wait for the party!

4. Interrogative sentences are also easy to spot. That's because they always ask a question and end in a question mark.

Ex: Is it snowing? Have you had breakfast?

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OKLAHOMA ACADEMIC STANDARDS

MATHEMATICS

OKLAHOMA STATE DEPARTMENT OF EDUCATION

CHAMPION EXCELLENCE

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Introduction

The Oklahoma Academic Standards for Mathematics 2016 is the result of the contributions of hundreds of mathematics teachers, mathematics educators, and mathematicians from across the state of Oklahoma. This document reflects a balanced synthesis of the work of all members of the Oklahoma Academic Standards for Mathematics Writing Committee and feedback from teachers, mathematicians, external reviews, and numerous education stakeholders including business, industry and commerce, parent groups, career tech, higher education, and external reviewers.

The Oklahoma Academic Standards for Mathematics 2016 specify what students should know and be able to do as learners of mathematics at the end of each grade level or course. Students are held responsible for learning standards listed at earlier grade levels as well as their current grade level. Throughout this document, the standards are written to allow time for study of additional material at every grade level. The order of the standards at any grade level is not meant to imply a sequence of topics and should be considered flexible for the organization of any course. The document provides standards for PK-7, Pre-Algebra, Algebra I, Geometry, and Algebra II with Algebra I as the pre-requisite for both Geometry and Algebra II.

Development of the Oklahoma Academic Standards for Mathematics

The Oklahoma Academic Standards for Mathematics writing team drew on the work of the National Council of Teachers of Mathematics (NCTM) standards documents; the National Research Council's report Adding It Up, the Oklahoma Priority Academic Standards (PASS), and other states' standards documents and curriculum framework guides (e.g., Minnesota, Virginia, and Massachusetts). Please see the reference list at the end of this document for a more complete list of all resources consulted.

Vision and Guiding Principles

These standards envision all students in Oklahoma will become mathematically proficient and literate through a strong mathematics program that emphasizes and engages them in problem solving, communicating, reasoning and proof, making connections, and using representations. Mathematically proficient and literate students can confidently and effectively use mathematics concepts, computation skills, and numbers to problem-solve, reason, and analyze information. Developing mathematical proficiency and literacy for Oklahoma students depends in large part on a clear, comprehensive, coherent, and developmentally appropriate set of standards to guide curricular decisions. The understanding and implementation of these standards throughout PK-12 mathematics experience for students is based on the following guiding principles:

Guiding Principle 1: Excellence in mathematics education requires equity—high expectations and strong support for all students.
All students must have opportunities to study—and support to learn—mathematics. Equity does not mean that every student should receive identical instruction; instead, it demands that reasonable and appropriate accommodations be made as needed to promote access and attainment for all students.

Guiding Principle 2: Mathematical ideas should be explored in ways that stimulate curiosity, create enjoyment of mathematics, and develop depth of understanding.
Students need to understand mathematics deeply and use it effectively. To achieve mathematical understanding, students should be actively engaged in doing meaningful mathematics, discussing mathematical ideas, and applying mathematics in interesting, thought provoking situations. Student understanding is

further developed through ongoing reflection about cognitively demanding and tasks relevant to their lives.

Tasks should challenge and engage students in mathematics in multiple ways. Short- and long-term investigations that connect procedures and skills with conceptual understanding are integral components of an effective mathematics program. Activities should build upon curiosity and prior knowledge, and enable students to solve progressively deeper, broader, and more sophisticated problems. Mathematical tasks reflecting significant mathematics should generate active classroom talk, promote the development of conjectures, and lead to an understanding of the necessity for mathematical reasoning.

Guiding Principle 3: An effective mathematics program focuses on problem solving.
Mathematical problem solving is the hallmark of an effective mathematics program. Skill in mathematical problem solving requires practice with a variety of mathematical problems as well as a firm grasp of mathematical techniques and their underlying principles. Students who possess a deeper knowledge of mathematics can then use mathematics in a flexible way to attack various problems and devise different ways of solving any particular problem. Mathematical problem solving calls for reflective thinking, persistence, and learning from the ideas of others. Success in solving mathematical problems helps to create an abiding interest in mathematics.

Guiding Principle 4: Technology is essential in teaching and learning mathematics.
Technology enhances the mathematics curriculum in many ways. Technology enables students to communicate ideas within the classroom or to search for needed information. It can be especially helpful in assisting students with special needs in regular and special classrooms, at home, and in the community. Technology changes what mathematics is to be learned and when and how it is learned. Tools such as measuring instruments, manipulatives (such as base ten blocks and fraction pieces), scientific and graphing calculators, and computers with appropriate software, if properly used, contribute to a rich learning environment for developing and applying mathematical concepts. Appropriate use of calculators is essential; calculators should not be used as a replacement for basic understanding and skills. Although the use of a graphing calculator can help middle and secondary students to visualize properties of functions and their graphs, graphing calculators should be used to enhance their understanding and skills rather than replace them.

Standards Overview

The Oklahoma Academic Standards for Mathematics are developed around four main content strands, Algebraic Reasoning and Algebra, Number and Operations, Geometry and Measurement, and Data and Probability organize the content standards throughout PK-7 and Pre-Algebra. The standards for Algebra I, Algebra II, and Geometry are fundamentally organized around these strands as well. The process standards are defined as the Mathematical Actions and Processes and are comprised of the skills and abilities students should develop and be engaged in throughout their PK-12 mathematics education. Among these are the ability to problem solve, communicate, and reason about mathematics which will help students be ready for the mathematics expectations of college and the skills desired by many employers. While the process and content standards work in concert to create clear, concise, and rigorous mathematics standards and expectations for Oklahoma students with the aim of helping them be college and career ready, it is not intended that each mathematical action and process will be utilized or developed with each standard. Certainly some standards and objectives can be achieved more readily with particular mathematics actions and processes. For example, an objective that involves explaining a particular concept may be best accomplished by also engaging students in communicating mathematically. Whereas, standards and objectives that focus in the early grades on fluency with operations will align well with the mathematical action and process focused on procedural fluency.

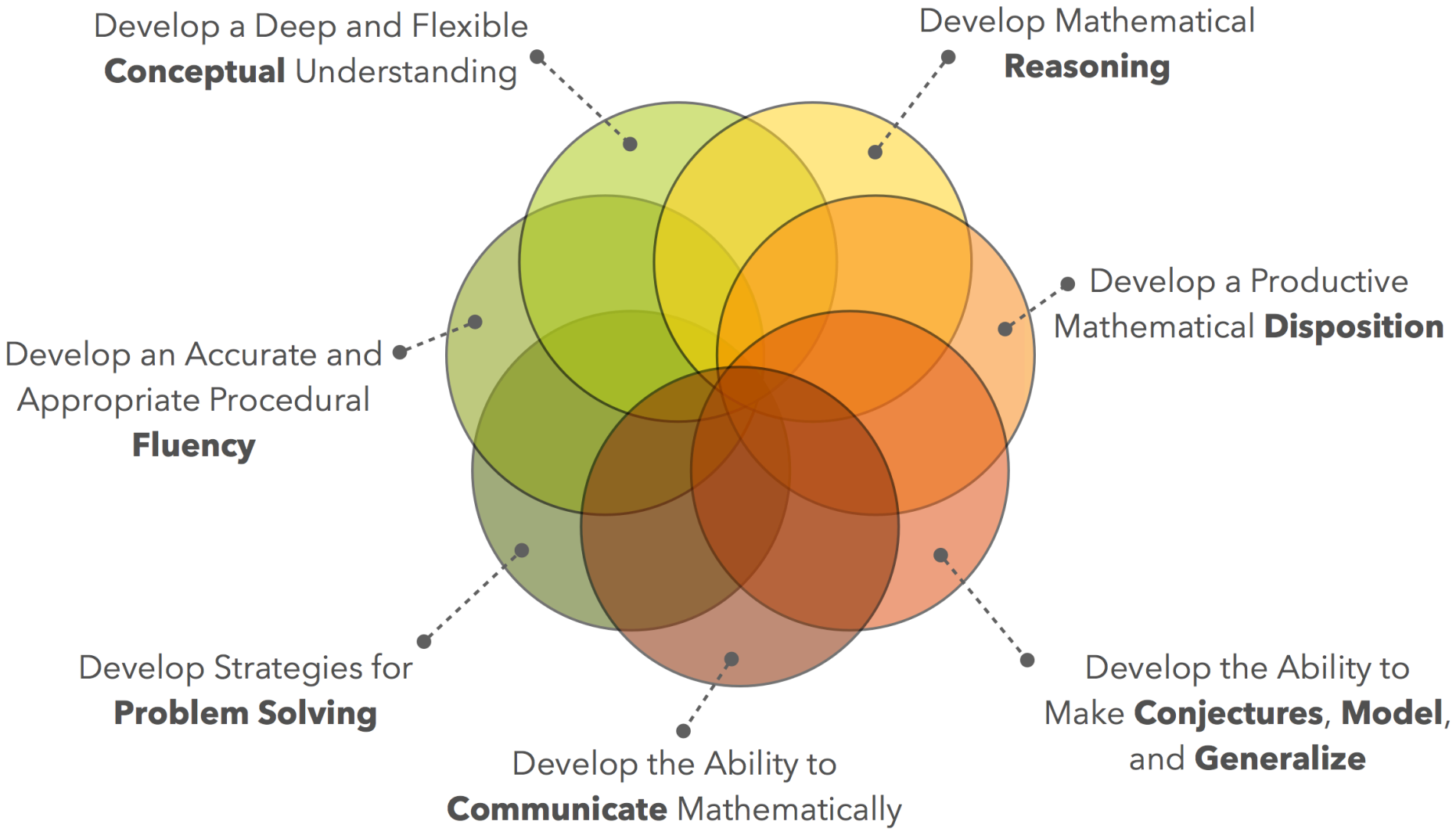
Number and Operations Strand: A focus on number and operations is the cornerstone of a strong mathematics program. Developing students' fluency with number and operations throughout their PK-12 mathematics experience requires a balance and connection between conceptual understanding and computational proficiency and efficiency. This strand provides focus on the importance of students' understanding of numbers, ways of representing numbers, relationships among numbers, relationships among number systems, and meanings of operations and how they relate to one another. An emphasis is placed on the development of estimation so students can determine the reasonableness of solutions and answers. Further, it requires that students should be able to compute efficiently and proficiently.

Algebraic Reasoning and Algebra Strand: All students should be able to reason algebraically and learn algebra. This strand provides focus for the PK-7 and Pre-Algebra standards around the notion that algebra is more than moving symbols around. It is about understanding patterns, relations and functions, representing and analyzing mathematical situations and structures using algebraic symbols, using mathematical models to represent and understand quantitative relationships, and analyzing change in various contexts. Understanding change is fundamental to algebraic reasoning and the concept of function with depth. This understanding is critical for success in college-level mathematics. It is also fundamental to understanding many real-world problems and situations students will face in their future careers.

Geometry and Measurement Strand: All students should gain experience using a variety of visual and coordinate representations to analyze and solve problems and learn how to use appropriate units and tools for measuring. This strand provides focus for the PK-7 and Geometry standards around the notion that geometry and measurement help students understand and represent ideas and solve problems they will encounter in their daily lives. A focus on geometry should enable students to analyze characteristics of two- and three-dimensional objects, develop arguments based on geometric relationships, describe spatial relationships using coordinate geometry and other representational systems, apply transformations and symmetry to analyze mathematical situations, and utilize visualization, spatial reasoning and geometric modeling to solve problems. A focus on measurement should enable students to understand measureable attributes of objects and the units, systems, and processes of measurement, and apply appropriate techniques, tools, and formulas to determine measurements.

Data and Probability Strand: An increased emphasis on understanding data should span all grade levels. Making sense of data and probability has become a part of our daily lives, supporting the importance of this strand throughout a students' PK-12 mathematics experience. A focus on data and probability should enable all students to formulate questions that can be addressed with data, and to collect, organize, and display relevant data to answer them. Students should select and use appropriate statistical methods to analyze data, develop and evaluate inferences and predictions that are based on data, and understand and apply basic concepts of probability. The study of data is also an opportunity to apply the basic skills of computing with numbers and being an educated consumer of information presented in the news and media while the study of probability provides application and use of fractions in daily life.

Mathematical Actions and Processes



Mathematical Actions and Processes

The Mathematical Actions and Processes simultaneously reflect the holistic nature of mathematics as a discipline in which patterns and relationships among quantities, numbers, and space are studied (National Academies of Sciences, 2014) and as a form of literacy such that all students are supported in accessing and understanding mathematics for life, for the workplace, for the scientific and technical community, and as a part of cultural heritage (NCTM, 2000). The seven Mathematical Actions and Processes leverage both the NCTM Process Standards and the Five Mathematical Proficiencies (NRC, 2001) to capture the mathematical experience of Oklahoma students as they pursue mathematical literacy.

Throughout their Pk-12 education experience, mathematically literate students will:

Develop a Deep and Flexible Conceptual Understanding
Demonstrate a deep and flexible conceptual understanding of mathematical concepts, operations, and relations while making mathematical and real-world connections. Students will develop an understanding of how and when to apply and use the mathematics they know to solve problems.

Develop Accurate and Appropriate Procedural Fluency
Learn efficient procedures and algorithms for computations and repeated processes based on a strong sense of numbers. Develop fluency in addition, subtraction, multiplication, and division of numbers and expressions. Students will generate a sophisticated understanding of the development and application of algorithms and procedures.

Develop Strategies for Problem Solving
Analyze the parts of complex mathematical tasks and identify entry points to begin the search for a solution. Students will select from a variety of problem solving strategies and use corresponding multiple representations (verbal, physical, symbolic, pictorial, graphical, tabular) when appropriate. They will pursue solutions to various tasks from real-world situations and applications that are often interdisciplinary in nature. They will find methods to verify their answers in context and will always question the reasonableness of solutions.

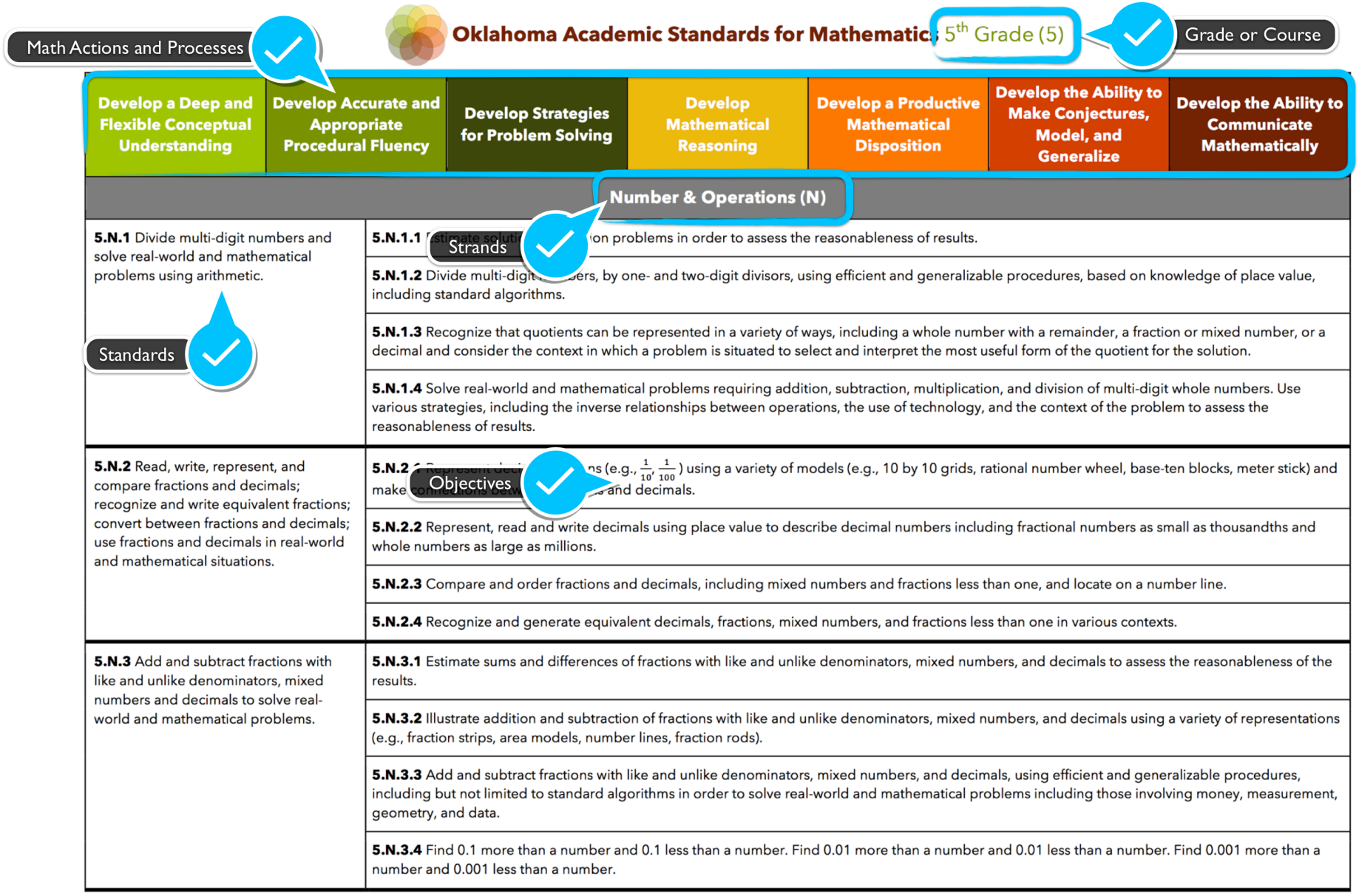
Develop Mathematical Reasoning
Explore and communicate a variety of reasoning strategies to think through problems. Students will apply their logic to critique the thinking and strategies of others to develop and evaluate mathematical arguments, including making arguments and counterarguments and making connections to other contexts.

Develop a Productive Mathematical Disposition
Hold the belief that mathematics is sensible, useful and worthwhile. Students will develop the habit of looking for and making use of patterns and mathematical structures. They will persevere and become resilient, effective problem solvers.

Develop the Ability to Make Conjectures, Model, and Generalize
Make predictions and conjectures and draw conclusions throughout the problem solving process based on patterns and the repeated structures in mathematics. Students will create, identify, and extend patterns as a strategy for solving and making sense of problems.

Develop the Ability to Communicate Mathematically
Students will discuss, write, read, interpret and translate ideas and concepts mathematically. As they progress, students' ability to communicate mathematically will include their increased use of mathematical language and terms and analysis of mathematical definitions.

Reading the Oklahoma Academic Standards for Mathematics



5.N.1 Divide multi-digit numbers and solve real-world and mathematical problems using arithmetic.	**5.N.1.1** [illegible]on problems in order to assess the reasonableness of results.
	5.N.1.2 Divide multi-digit [illegible]bers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.
	5.N.1.3 Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution.
	5.N.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
5.N.2 Read, write, represent, and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.	**5.N.2** [illegible]ns (e.g., $\frac{1}{10}$, $\frac{1}{100}$) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make [illegible] and decimals.
	5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions.
	5.N.2.3 Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line.
	5.N.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts.
5.N.3 Add and subtract fractions with like and unlike denominators, mixed numbers and decimals to solve real-world and mathematical problems.	**5.N.3.1** Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results.
	5.N.3.2 Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods).
	5.N.3.3 Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data.
	5.N.3.4 Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.

Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically

Number & Operations (N)	
PK.N.1 Know number names and count in sequence.	**PK.N.1.1** Count aloud forward in sequence by 1s to 20.
	PK.N.1.2 Recognize and name written numerals 0-10.
	PK.N.1.3 Recognize that zero represents the count of no objects.
PK.N.2 Count to tell the number of objects.	**PK.N.2.1** Identify the number of objects, up to 10, in a row or column.
	PK.N.2.2 Use one-to-one correspondence in counting objects and matching groups of objects.
	PK.N.2.3 Understand the last numeral spoken, when counting aloud, tells how many total objects are in a set.
	PK.N.2.4 Count up to 5 items in a scattered configuration; not in a row or column.
PK.N.3 Compare sets using number.	**PK.N.3.1** Compare two sets of 1-5 objects using comparative language such as same, more, or fewer.
Algebraic Reasoning & Algebra (A)	
PK.A.1 Recognize, duplicate, and extend patterns.	**PK.A.1.1** Sort and group up to 5 objects into a set based upon characteristics such as color, size, and shape and explain verbally what the objects have in common.
	PK.A.1.2 Recognize, duplicate, and extend repeating patterns involving manipulatives, sound, movement, and other contexts.
Geometry & Measurement (GM)	
PK.GM.1 Identify common shapes.	**PK.GM.1.1** Identify circles, squares, rectangles, and triangles by pointing to the shape when given the name.
PK.GM.2 Describe and compare measureable attributes.	**PK.GM.2.1** Identify measurable attributes of objects. Describe them as little, big, long, short, tall, heavy, light, or other age appropriate vocabulary.
	PK.GM.2.2 Directly compare two objects with a common measurable attribute using words such as longer/shorter; heavier/lighter; or taller/shorter.
	PK.GM.2.3 Sort objects into sets by one or more attributes.

Data & Probability (D)	
PK.D.1 Collect and organize categorical data.	**PK.D.1.1** Collect and organize information about objects and events in the environment.
	PK.D.1.2 Use categorical data to create real-object graphs.

Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically

Number & Operations (N)	
K.N.1 Understand the relationship between quantities and whole numbers.	**K.N.1.1** Count aloud forward in sequence to 100 by 1's and 10's.
	K.N.1.2 Recognize that a number can be used to represent how many objects are in a set up to 10.
	K.N.1.3 Use ordinal numbers to represent the position of an object in a sequence up to 10.
	K.N.1.4 Recognize without counting (subitize) the quantity of a small group of objects in organized and random arrangements up to 10. **Clarification statement**: Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age.
	K.N.1.5 Count forward, with and without objects, from any given number up to 10.
	K.N.1.6 Read, write, discuss, and represent whole numbers from 0 to at least 10. Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives.
	K.N.1.7 Find a number that is 1 more or 1 less than a given number up to 10.
	K.N.1.8 Using the words more than, less than or equal to compare and order whole numbers, with and without objects, from 0 to 10.
K.N.2 Develop conceptual fluency with addition and subtraction (up to 10) using objects and pictures.	**K.N.2.1** Compose and decompose numbers up to 10 with objects and pictures.
K.N.3 Understand the relationship between whole numbers and fractions through fair share.	**K.N.3.1** Distribute equally a set of objects into at least two smaller equal sets.
K.N.4 Identify coins by name.	**K.N.4.1** Identify pennies, nickels, dimes, and quarters by name.

Algebraic Reasoning & Algebra (A)	
K.A.1 Duplicate patterns in a variety of contexts.	**K.A.1.1** Sort and group up to 10 objects into a set based upon characteristics such as color, size, and shape. Explain verbally what the objects have in common.
	K.A.1.2 Recognize, duplicate, complete, and extend repeating, shrinking and growing patterns involving shape, color, size, objects, sounds, movement, and other contexts.
Geometry & Measurement (GM)	
K.GM.1 Recognize and sort basic two-dimensional shapes and use them to represent real-world objects.	**K.GM.1.1** Recognize squares, circles, triangles, and rectangles.
	K.GM.1.2 Sort two-dimensional objects using characteristics such as shape, size, color, and thickness.
	K.GM.1.3 Identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably.
	K.GM.1.4 Use smaller shapes to form a larger shape when there is an outline to follow.
	K.GM.1.5 Compose free-form shapes with blocks.
	K.GM.1.6 Use basic shapes and spatial reasoning to represent objects in the real world.
K.GM.2 Compare and order objects according to location and measurable attributes.	**K.GM.2.1** Use words to compare objects according to length, size, weight, position, and location.
	K.GM.2.2 Order up to 6 objects using measurable attributes, such as length and weight.
	K.GM.2.3 Sort objects into sets by more than one attribute.
	K.GM.2.4 Compare the number of objects needed to fill two different containers.
K.GM.3 Tell time as it relates to daily life.	**K.GM.3.1** Develop an awareness of simple time concepts using words such as yesterday, today, tomorrow, morning, afternoon, and night within his/her daily life.
Data & Probability (D)	
K.D.1 Collect, organize, and interpret categorical data.	**K.D.1.1** Collect and sort information about objects and events in the environment.
	K.D.1.2 Use categorical data to create real-object and picture graphs.
	K.D.1.3 Draw conclusions from real-object and picture graphs.

Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically

Number & Operations (N)	
1.N.1 Count, compare, and represent whole numbers up to 100, with an emphasis on groups of tens and ones.	**1.N.1.1** Recognize numbers to 20 without counting (subitize) the quantity of structured arrangements. **Clarification statement**: Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age.
	1.N.1.2 Use concrete representations to describe whole numbers between 10 and 100 in terms of tens and ones.
	1.N.1.3 Read, write, discuss, and represent whole numbers up to 100. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks.
	1.N.1.4 Count forward, with and without objects, from any given number up to 100 by 1s, 2s, 5s and 10s.
	1.N.1.5 Find a number that is 10 more or 10 less than a given number up to 100.
	1.N.1.6 Compare and order whole numbers from 0 to 100.
	1.N.1.7 Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 20.
	1.N.1.8 Use objects to represent and use words to describe the relative size of numbers, such as more than, less than, and equal to.
1.N.2 Solve addition and subtraction problems up to 10 in real-world and mathematical contexts.	**1.N.2.1** Represent and solve real-world and mathematical problems using addition and subtraction up to ten.
	1.N.2.2 Determine if equations involving addition and subtraction are true.
	1.N.2.3 Demonstrate fluency with basic addition facts and related subtraction facts up to 10.
1.N.3 Develop foundational ideas for fractions.	**1.N.3.1** Partition a regular polygon using physical models and recognize when those parts are equal.
	1.N.3.2 Partition (fair share) sets of objects into equal groupings.

1.N.4 Identify coins and their values.	**1.N.4.1** Identifying pennies, nickels, dimes, and quarters by name and value.
	1.N.4.2 Write a number with the cent symbol to describe the value of a coin.
	1.N.4.3 Determine the value of a collection of pennies, nickels, or dimes up to one dollar counting by ones, fives, or tens.
Algebraic Reasoning & Algebra (A)	
1.A.1 Identify patterns found in real-world and mathematical situations.	**1.A.1.1** Identify, create, complete, and extend repeating, growing, and shrinking patterns with quantity, numbers, or shapes in a variety of real-world and mathematical contexts.
Geometry & Measurement (GM)	
1.GM.1 Recognize, compose, and decompose two- and three-dimensional shapes.	**1.GM.1.1** Identify trapezoids and hexagons by pointing to the shape when given the name.
	1.GM.1.2 Compose and decompose larger shapes using smaller two-dimensional shapes.
	1.GM.1.3 Compose structures with three-dimensional shapes.
	1.GM.1.4 Recognize three-dimensional shapes such as cubes, cones, cylinders, and spheres.
1.GM.2 Select and use nonstandard and standard units to describe length and volume/capacity.	**1.GM.2.1** Use nonstandard and standard measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement.
	1.GM.2.2 Illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other.
	1.GM.2.3 Measure the same object/distance with units of two different lengths and describe how and why the measurements differ.
	1.GM.2.4 Describe a length to the nearest whole unit using a number and a unit.
	1.GM.2.5 Use standard and nonstandard tools to identify volume/capacity. Compare and sort containers that hold more, less, or the same amount.
1.GM.3 Tell time to the half and full hour.	**1.GM.3.1** Tell time to the hour and half-hour (analog and digital).
Data & Probability (D)	
1.D.1 Collect, organize, and interpret categorical and numerical data.	**1.D.1.1** Collect, sort, and organize data in up to three categories using representations (e.g., tally marks, tables, Venn diagrams).
	1.D.1.2 Use data to create picture and bar-type graphs to demonstrate one-to-one correspondence.
	1.D.1.3 Draw conclusions from picture and bar-type graphs.

Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically

Number & Operations (N)

2.N.1 Compare and represent whole numbers up to 1,000 with an emphasis on place value and equality.	**2.N.1.1** Read, write, discuss, and represent whole numbers up to 1,000. Representations may include numerals, words, pictures, tally marks, number lines and manipulatives.
	2.N.1.2 Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 100.
	2.N.1.3 Use place value to describe whole numbers between 10 and 1,000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1,000 is 10 hundreds.
	2.N.1.4 Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number.
	2.N.1.5 Recognize when to round numbers to the nearest 10 and 100.
	2.N.1.6 Use place value to compare and order whole numbers up to 1,000 using comparative language, numbers, and symbols (e.g., 425 > 276, 73 < 107, page 351 comes after page 350, 753 is between 700 and 800).
2.N.2 Add and subtract one- and two-digit numbers in real-world and mathematical problems.	**2.N.2.1** Use the relationship between addition and subtraction to generate basic facts up to 20.
	2.N.2.2 Demonstrate fluency with basic addition facts and related subtraction facts up to 20.
	2.N.2.3 Estimate sums and differences up to 100.
	2.N.2.4 Use strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers.
	2.N.2.5 Solve real-world and mathematical addition and subtraction problems involving whole numbers up to 2 digits.
	2.N.2.6 Use concrete models and structured arrangements, such as repeated addition, arrays and ten frames to develop understanding of multiplication.
2.N.3 Explore the foundational ideas of fractions.	**2.N.3.1** Identify the parts of a set and area that represent fractions for halves, thirds, and fourths.
	2.N.3.2 Construct equal-sized portions through fair sharing including length, set, and area models for halves, thirds, and fourths.
2.N.4 Determine the value of a set of coins.	**2.N.4.1** Determine the value of a collection(s) of coins up to one dollar using the cent symbol.
	2.N.4.2 Use a combination of coins to represent a given amount of money up to one dollar.

Algebraic Reasoning & Algebra (A)	
2.A.1 Describe the relationship found in patterns to solve real-world and mathematical problems.	**2.A.1.1** Represent, create, describe, complete, and extend growing and shrinking patterns with quantity and numbers in a variety of real-world and mathematical contexts.
	2.A.1.2 Represent and describe repeating patterns involving shapes in a variety of contexts.
2.A.2 Use number sentences involving unknowns to represent and solve real-world and mathematical problems.	**2.A.2.1** Use objects and number lines to represent number sentences.
	2.A.2.2 Generate real-world situations to represent number sentences and vice versa.
	2.A.2.3 Apply commutative and identity properties and number sense to find values for unknowns that make number sentences involving addition and subtraction true or false.
Geometry & Measurement (GM)	
2.GM.1 Analyze attributes of two-dimensional figures and develop generalizations about their properties.	**2.GM.1.1** Recognize trapezoids and hexagons.
	2.GM.1.2 Describe, compare, and classify two-dimensional figures according to their geometric attributes.
	2.GM.1.3 Compose two-dimensional shapes using triangles, squares, hexagons, trapezoids, and rhombi.
	2.GM.1.4 Recognize right angles and classify angles as smaller or larger than a right angle.
2.GM.2 Understand length as a measurable attribute and explore capacity.	**2.GM.2.1** Explain the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object.
	2.GM.2.2 Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit.
	2.GM.2.3 Explore how varying shapes and styles of containers can have the same capacity.
2.GM.3 Tell time to the quarter hour.	**2.GM.3.1** Read and write time to the quarter-hour on an analog and digital clock. Distinguish between a.m. and p.m.
Data & Probability (D)	
2.D.1 Collect, organize, and interpret data.	**2.D.1.1** Explain that the length of a bar in a bar graph or the number of objects in a picture graph represents the number of data points for a given category.
	2.D.1.2 Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of 1s, 2s, 5s or 10s.
	2.D.1.3 Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one.
	2.D.1.4 Draw conclusions and make predictions from information in a graph.

Develop a Deep and Flexible Conceptual Understanding	Develop Accurate and Appropriate Procedural Fluency	Develop Strategies for Problem Solving	Develop Mathematical Reasoning	Develop a Productive Mathematical Disposition	Develop the Ability to Make Conjectures, Model, and Generalize	Develop the Ability to Communicate Mathematically

Number & Operations (N)

3.N.1 Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.	**3.N.1.1** Read, write, discuss, and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives.
	3.N.1.2 Use place value to describe whole numbers between 1,000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones, including expanded form.
	3.N.1.3 Find 10,000 more or 10,000 less than a given five-digit number. Find 1,000 more or 1,000 less than a given four- or five-digit number. Find 100 more or 100 less than a given four- or five-digit number.
	3.N.1.4 Use place value to compare and order whole numbers up to 100,000, using comparative language, numbers, and symbols.
3.N.2 Add and subtract multi-digit whole numbers; multiply with factors up to 10; represent multiplication and division in various ways; Solve real-world and mathematical problems through the representation of related operations.	**3.N.2.1** Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting.
	3.N.2.2 Demonstrate fluency of multiplication facts with factors up to 10.
	3.N.2.3 Use strategies and algorithms based on knowledge of place value and equality to fluently add and subtract multi-digit numbers.
	3.N.2.4 Recognize when to round numbers and apply understanding to round numbers to the nearest ten thousand, thousand, hundred, and ten and use compatible numbers to estimate sums and differences.
	3.N.2.5 Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results.
	3.N.2.6 Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups.
	3.N.2.7 Recognize the relationship between multiplication and division to represent and solve real-world problems.
	3.N.2.8 Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two-digit number by a one-digit number.

3.N.3 Understand meanings and uses of fractions in real-world and mathematical situations.	**3.N.3.1** Read and write fractions with words and symbols.
	3.N.3.2 Construct fractions using length, set, and area models.
	3.N.3.3 Recognize unit fractions and use them to compose and decompose fractions related to the same whole. Use the numerator to describe the number of parts and the denominator to describe the number of partitions.
	3.N.3.4 Use models and number lines to order and compare fractions that are related to the same whole.
3.N.4 Determine the value of a set of coins or bills.	**3.N.4.1** Use addition to determine the value of a collection of coins up to one dollar using the cent symbol and a collection of bills up to twenty dollars.
	3.N.4.2 Select the fewest number of coins for a given amount of money up to one dollar.
Algebraic Reasoning & Algebra (A)	
3.A.1 Describe and create representations of numerical and geometric patterns.	**3.A.1.1** Create, describe, and extend patterns involving addition, subtraction, or multiplication to solve problems in a variety of contexts.
	3.A.1.2 Describe the rule (single operation) for a pattern from an input/output table or function machine involving addition, subtraction, or multiplication.
	3.A.1.3 Explore and develop visual representations of growing geometric patterns and construct the next steps.
3.A.2 Use number sentences involving multiplication and unknowns to represent and solve real-world and mathematical problems.	**3.A.2.1** Find unknowns represented by symbols in arithmetic problems by solving one-step open sentences (equations) and other problems involving addition, subtraction, and multiplication. Generate real-world situations to represent number sentences.
	3.A.2.2 Recognize, represent and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems.
Geometry & Measurement (GM)	
3.GM.1 Use geometric attributes to describe and create shapes in various contexts.	**3.GM.1.1** Sort three-dimensional shapes based on attributes.
	3.GM.1.2 Build a three-dimensional figure using unit cubes when picture/shape is shown.
	3.GM.1.3 Classify angles as acute, right, obtuse, and straight.
3.GM.2 Understand measurable attributes of real-world and mathematical objects using various tools.	**3.GM.2.1** Find perimeter of polygon, given whole number lengths of the sides, in real-world and mathematical situations.
	3.GM.2.2 Develop and use formulas to determine the area of rectangles. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns.
	3.GM.2.3 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole centimeter or meter.
	3.GM.2.4 Choose an appropriate measurement instrument and measure the length of objects to the nearest whole yard, whole foot, or half inch.

	3.GM.2.5 Using common benchmarks, estimate the lengths (customary and metric) of a variety of objects.
	3.GM.2.6 Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius.
	3.GM.2.7 Count cubes systematically to identify number of cubes needed to pack the whole or half of a three-dimensional structure.
	3.GM.2.8 Find the area of two-dimensional figures by counting total number of same size unit squares that fill the shape without gaps or overlaps.
3.GM.3 Solve problems by telling time to the nearest 5 minutes.	**3.GM.3.1** Read and write time to the nearest 5-minute (analog and digital).
	3.GM.3.2 Determine the solutions to problems involving addition and subtraction of time in intervals of 5 minutes, up to one hour, using pictorial models, number line diagrams, or other tools.
Data & Probability (D)	
3.D.1 Summarize, construct, and analyze data.	**3.D.1.1** Summarize and construct a data set with multiple categories using a frequency table, line plot, pictograph, and/or bar graph with scaled intervals.
	3.D.1.2 Solve one- and two-step problems using categorical data represented with a frequency table, pictograph, or bar graph with scaled intervals.

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Number & Operations (N)

4.N.1 Solve real-world and mathematical problems using multiplication and division.	**4.N.1.1** Demonstrate fluency with multiplication and division facts with factors up to 12.
	4.N.1.2 Use an understanding of place value to multiply or divide a number by 10, 100 and 1,000.
	4.N.1.3 Multiply 3-digit by 1-digit or a 2-digit by 2-digit whole numbers, using efficient and generalizable procedures and strategies, based on knowledge of place value, including but not limited to standard algorithms.
	4.N.1.4 Estimate products of 3-digit by 1-digit or 2-digit by 2-digit whole numbers using rounding, benchmarks and place value to assess the reasonableness of results. Explore larger numbers using technology to investigate patterns.
	4.N.1.5 Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction, and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of appropriate technology, and the context of the problem to assess the reasonableness of results.
	4.N.1.6 Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide 3-digit dividend by 1-digit whole number divisors. (e.g., mental strategies, standard algorithms, partial quotients, repeated subtraction, the commutative, associative, and distributive properties).
	4.N.1.7 Determine the unknown addend(s) or factor(s) in equivalent and non-equivalent expressions. (e.g., 5 + 6 = 4 + □ , 3 x 8 < 3 x □).
4.N.2 Represent and compare fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities.	**4.N.2.1** Represent and rename equivalent fractions using fraction models (e.g. parts of a set, area models, fraction strips, number lines).
	4.N.2.2 Use benchmark fractions (0, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, 1) to locate additional fractions on a number line. Use models to order and compare whole numbers and fractions less than and greater than one using comparative language and symbols.
	4.N.2.3 Decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations (e.g., $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$).
	4.N.2.4 Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations.
	4.N.2.5 Represent tenths and hundredths with concrete models, making connections between fractions and decimals.
	4.N.2.6 Represent, read and write decimals up to at least the hundredths place in a variety of contexts including money.

	4.N.2.7 Compare and order decimals and whole numbers using place value, a number line and models such as grids and base 10 blocks.
	4.N.2.8 Compare benchmark fractions ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$) and decimals (0.25, 0.50, 0.75) in real-world and mathematical situations.
4.N.3 Determine the value of coins in order to solve monetary transactions.	**4.N.3.1** Given a total cost (whole dollars up to $20 or coins) and amount paid (whole dollars up to $20 or coins), find the change required in a variety of ways. Limited to whole dollars up to $20 or sets of coins.
Algebraic Reasoning & Algebra (A)	
4.A.1 Use multiple representations of patterns to solve real-world and mathematical problems.	**4.A.1.1** Create an input/output chart or table to represent or extend a numerical pattern.
	4.A.1.2 Describe the single operation rule for a pattern from an input/output table or function machine involving any operation of a whole number.
	4.A.1.3 Create growth patterns involving geometric shapes and define the single operation rule of the pattern.
4.A.2 Use multiplication and division with unknowns to create number sentences representing a given problem situation.	**4.A.2.1** Use number sense, properties of multiplication and the relationship between multiplication and division to solve problems and find values for the unknowns represented by letters and symbols that make number sentences true.
	4.A.2.2 Solve for unknowns in problems by solving open sentences (equations) and other problems involving addition, subtraction, multiplication, or division with whole numbers. Use real-world situations to represent number sentences and vice versa.
Geometry & Measurement (GM)	
4.GM.1 Name, describe, classify and construct polygons, and three-dimensional figures.	**4.GM.1.1** Identify points, lines, line segments, rays, angles, endpoints, and parallel and perpendicular lines in various contexts.
	4.GM.1.2 Describe, classify, and sketch quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms, and kites. Recognize quadrilaterals in various contexts.
	4.GM.1.3 Given two three-dimensional shapes, identify similarities, and differences.
4.GM.2 Understand angle, length, and area as measurable attributes of real-world and mathematical objects. Use various tools to measure angles, length, area, and volume.	**4.GM.2.1** Measure angles in geometric figures and real-world objects with a protractor or angle ruler.
	4.GM.2.2 Find the area of polygons that can be decomposed into rectangles.
	4.GM.2.3 Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with whole-number edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm^3.
	4.GM.2.4 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or quarter-inch.
	4.GM.2.5 Solve problems that deal with measurements of length, when to use liquid volumes, when to use mass, temperatures above zero and money using addition, subtraction, multiplication, or division as appropriate (customary and metric).

4.GM.3 Determine elapsed time and convert between units of time.	**4.GM.3.1** Determine elapsed time.
	4.GM.3.2 Solve problems involving the conversion of one measure of time to another.
Data & Probability (D)	
4.D.1 Collect, organize, and analyze data.	**4.D.1.1** Represent data on a frequency table or line plot marked with whole numbers and fractions using appropriate titles, labels, and units.
	4.D.1.2 Use tables, bar graphs, timelines, and Venn diagrams to display data sets. The data may include benchmark fractions or decimals ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, 0.25, 0.50, 0.75).
	4.D.1.3 Solve one- and two-step problems using data in whole number, decimal, or fraction form in a frequency table and line plot.

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Number & Operations (N)

5.N.1 Divide multi-digit numbers and solve real-world and mathematical problems using arithmetic.	**5.N.1.1** Estimate solutions to division problems in order to assess the reasonableness of results.
	5.N.1.2 Divide multi-digit numbers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms.
	5.N.1.3 Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution.
	5.N.1.4 Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results.
5.N.2 Read, write, represent, and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.	**5.N.2.1** Represent decimal fractions (e.g., $\frac{1}{10}$, $\frac{1}{100}$) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make connections between fractions and decimals.
	5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions.
	5.N.2.3 Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line.
	5.N.2.4 Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts.
5.N.3 Add and subtract fractions with like and unlike denominators, mixed numbers and decimals to solve real-world and mathematical problems.	**5.N.3.1** Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results.
	5.N.3.2 Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods).
	5.N.3.3 Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data.
	5.N.3.4 Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a number. Find 0.001 more than a number and 0.001 less than a number.

Algebraic Reasoning & Algebra (A)	
5.A.1 Describe and graph patterns of change created through numerical patterns.	**5.A.1.1** Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems.
	5.A.1.2 Use a rule or table to represent ordered pairs of whole numbers and graph these ordered pairs on a coordinate plane, identifying the origin and axes in relation to the coordinates.
5.A.2 Understand and interpret expressions, equations, and inequalities involving variables and whole numbers, and use them to represent and evaluate real-world and mathematical problems.	**5.A.2.1** Generate equivalent numerical expressions and solve problems involving whole numbers by applying the commutative, associative, and distributive properties and order of operations (no exponents).
	5.A.2.2 Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.
	5.A.2.3 Evaluate expressions involving variables when values for the variables are given.
Geometry & Measurement (GM)	
5.GM.1 Describe, classify, and draw representations of two- and three-dimensional figures.	**5.GM.1.1** Describe, classify and construct triangles, including equilateral, right, scalene, and isosceles triangles. Recognize triangles in various contexts.
	5.GM.1.2 Describe and classify three-dimensional figures including cubes, rectangular prisms, and pyramids by the number of edges, faces or vertices as well as the shapes of faces.
	5.GM.1.3 Recognize and draw a net for a three-dimensional figure (e.g., cubes, rectangular prisms, pyramids).
5.GM.2 Understand how the volume of rectangular prisms and surface area of shapes with polygonal faces are determined by the dimensions of the object and that shapes with varying dimensions can have equivalent values of surface area or volume.	**5.GM.2.1** Recognize that the volume of rectangular prisms can be determined by the number of cubes (n) and by the product of the dimensions of the prism ($a \times b \times c = n$). Know that rectangular prisms of different dimensions (p, q, and r) can have the same volume if $a \times b \times c = p \times q \times r = n$.
	5.GM.2.2 Recognize that the surface area of a three-dimensional figure with rectangular faces with whole numbered edges can be found by finding the area of each component of the net of that figure. Know that three-dimensional shapes of different dimensions can have the same surface area.
	5.GM.2.3 Find the perimeter of polygons and create arguments for reasonable values for the perimeter of shapes that include curves.
5.GM.3 Understand angle and length as measurable attributes of real-world and mathematical objects. Use various tools to measure angles and lengths.	**5.GM.3.1** Measure and compare angles according to size.
	5.GM.3.2 Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or 1/16-inch.
	5.GM.3.3 Recognize and use the relationship between inches, feet, and yards to measure and compare objects.
	5.GM.3.4 Recognize and use the relationship between millimeters, centimeters, and meters to measure and compare objects.

Data & Probability (D)	
5.D.1 Display and analyze data to find the range and measures of central tendency (mean, median, and mode).	**5.D.1.1** Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a "leveling out" or central balance point of the data.
	5.D.1.2 Create and analyze line and double-bar graphs with whole numbers, fractions, and decimals increments.

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Number & Operations (N)

6.N.1 Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations.	**6.N.1.1** Represent integers with counters and on a number line and rational numbers on a number line, recognizing the concepts of opposites, direction, and magnitude; use integers and rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation.
	6.N.1.2 Compare and order positive rational numbers, represented in various forms, or integers using the symbols <, >, and =.
	6.N.1.3 Explain that a percent represents parts "out of 100" and ratios "to 100."
	6.N.1.4 Determine equivalencies among fractions, decimals, and percents. Select among these representations to solve problems.
	6.N.1.5 Factor whole numbers and express prime and composite numbers as a product of prime factors with exponents.
	6.N.1.6 Determine the greatest common factors and least common multiples. Use common factors and multiples to calculate with fractions, find equivalent fractions, and express the sum of two-digit numbers with a common factor using the distributive property.
6.N.2 Add and subtract integers in order to solve real-world and mathematical problems.	**6.N.2.1** Estimate solutions to addition and subtraction of integers problems in order to assess the reasonableness of results.
	6.N.2.2 Illustrate addition and subtraction of integers using a variety of representations.
	6.N.2.3 Add and subtract integers; use efficient and generalizable procedures including but not limited to standard algorithms.
6.N.3 Understand the concept of ratio and its relationship to fractions and percents and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.	**6.N.3.1** Identify and use ratios to compare quantities. Recognize that multiplicative comparison and additive comparison are different.
	6.N.3.2 Determine the unit rate for ratios.
	6.N.3.3 Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixture and concentrations.
	6.N.3.4 Use multiplicative reasoning and representations to solve ratio and unit rate problems.
6.N.4 Multiply and divide decimals, fractions, and mixed numbers; solve real-world and mathematical problems with rational numbers.	**6.N.4.1** Estimate solutions to problems with whole numbers, decimals, fractions, and mixed numbers and use the estimates to assess the reasonableness of results in the context of the problem.
	6.N.4.2 Illustrate multiplication and division of fractions and decimals to show connections to fractions, whole number multiplication, and inverse relationships.

	6.N.4.3 Multiply and divide fractions and decimals using efficient and generalizable procedures.
	6.N.4.4 Solve and interpret real-world and mathematical problems including those involving money, measurement, geometry, and data requiring arithmetic with decimals, fractions and mixed numbers.
Algebraic Reasoning & Algebra (A)	
6.A.1 Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems.	**6.A.1.1** Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs.
	6.A.1.2 Represent relationships between two varying quantities involving no more than two operations with rules, graphs, and tables; translate between any two of these representations.
	6.A.1.3 Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false.
6.A.2 Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving positive rational numbers.	**6.A.2.1** Generate equivalent expressions and evaluate expressions involving positive rational numbers by applying the commutative, associative, and distributive properties and order of operations to solve real-world and mathematical problems.
6.A.3 Use equations and inequalities to represent real-world and mathematical problems and use the idea of maintaining equality to solve equations. Interpret solutions in the original context.	**6.A.3.1** Represent real-world or mathematical situations using expressions, equations and inequalities involving variables and rational numbers.
	6.A.3.2 Use number sense and properties of operations and equality to solve real-world and mathematical problems involving equations in the form $x + p = q$ and $px = q$, where x, p, and q are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.
Geometry & Measurement (GM)	
6.GM.1 Calculate area of squares, parallelograms, and triangles to solve real-world and mathematical problems.	**6.GM.1.1** Develop and use formulas for the area of squares and parallelograms using a variety of methods including but not limited to the standard algorithm.
	6.GM.1.2 Develop and use formulas to determine the area of triangles.
	6.GM.1.3 Find the area of right triangles, other triangles, special quadrilaterals, and polygons that can be decomposed into triangles and other shapes to solve real-world and mathematical problems.
6.GM.2 Understand and use relationships between angles in geometric figures.	**6.GM.2.1** Solve problems using the relationships between the angles (vertical, complementary, and supplementary) formed by intersecting lines.
	6.GM.2.2 Develop and use the fact that the sum of the interior angles of a triangle is 180° to determine missing angle measures in a triangle.

6.GM.3 Choose appropriate units of measurement and use ratios to convert within measurement systems to solve real-world and mathematical problems.	**6.GM.3.1** Estimate weights, capacities and geometric measurements using benchmarks in customary and metric measurement systems with appropriate units.
	6.GM.3.2 Solve problems in various real-world and mathematical contexts that require the conversion of weights, capacities, geometric measurements, and time within the same measurement systems using appropriate units.
6.GM.4 Use translations, reflections, and rotations to establish congruency and understand symmetries.	**6.GM.4.1** Predict, describe, and apply translations (slides), reflections (flips), and rotations (turns) to a two-dimensional figure.
	6.GM.4.2 Recognize that translations, reflections, and rotations preserve congruency and use them to show that two figures are congruent.
	6.GM.4.3 Use distances between two points that are either vertical or horizontal to each other (not requiring the distance formula) to solve real-world and mathematical problems about congruent two-dimensional figures.
	6.GM.4.4 Identify and describe the line(s) of symmetry in two-dimensional shapes.
Data & Probability (D)	
6.D.1 Display and analyze data.	**6.D.1.1** Calculate the mean, median, and mode for a set of real-world data.
	6.D.1.2 Explain and justify which measure of central tendency (mean, median, or mode) would provide the most descriptive information for a given set of data.
	6.D.1.3 Create and analyze box and whisker plots observing how each segment contains one quarter of the data.
6.D.2 Use probability to solve real-world and mathematical problems; represent probabilities using fractions and decimals.	**6.D.2.1** Represent possible outcomes using a probability continuum from impossible to certain.
	6.D.2.2 Determine the sample space for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations.
	6.D.2.3 Demonstrate simple experiments in which the probabilities are known and compare the resulting relative frequencies with the known probabilities, recognizing that there may be differences between the two results.

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Number & Operations (N)	
7.N.1 Read, write, represent, and compare rational numbers, expressed as integers, fractions, and decimals.	**7.N.1.1** Know that every rational number can be written as the ratio of two integers or as a terminating or repeating decimal.
	7.N.1.2 Compare and order rational numbers expressed in various forms using the symbols <, >, and =.
	7.N.1.3 Recognize and generate equivalent representations of rational numbers, including equivalent fractions.
7.N.2 Calculate with integers and rational numbers, with and without positive integer exponents, to solve real-world and mathematical problems; explain the relationship between absolute value of a rational number and the distance of that number from zero.	**7.N.2.1** Estimate solutions to multiplication and division of integers in order to assess the reasonableness of results.
	7.N.2.2 Illustrate multiplication and division of integers using a variety of representations.
	7.N.2.3 Solve real-world and mathematical problems involving addition, subtraction, multiplication and division of rational numbers; use efficient and generalizable procedures including but not limited to standard algorithms.
	7.N.2.4 Raise integers to positive integer exponents.
	7.N.2.5 Solve real-world and mathematical problems involving calculations with rational numbers and positive integer exponents.
	7.N.2.6 Explain the relationship between the absolute value of a rational number and the distance of that number from zero on a number line. Use the symbol for absolute value.
Algebraic Reasoning & Algebra (A)	
7.A.1 Understand the concept of proportionality in real-world and mathematical situations, and distinguish between proportional and other relationships.	**7.A.1.1** Describe that the relationship between two variables, x and y, is proportional if it can be expressed in the form $\frac{y}{x} = k$ or $y = kx$; distinguish proportional relationships from other relationships, including inversely proportional relationships ($xy = k$ or $y = \frac{k}{x}$).
	7.A.1.2 Recognize that the graph of a proportional relationship is a line through the origin and the coordinate (1, r), where both r and the slope are the unit rate (constant of proportionality, k).

7.A.2 Recognize proportional relationships in real-world and mathematical situations; represent these and other relationships with tables, verbal descriptions, symbols, and graphs; solve problems involving proportional relationships and interpret results in the original context.	**7.A.2.1** Represent proportional relationships with tables, verbal descriptions, symbols, and graphs; translate from one representation to another. Determine and compare the unit rate (constant of proportionality, slope, or rate of change) given any of these representations.
	7.A.2.2 Solve multi-step problems involving proportional relationships involving distance-time, percent increase or decrease, discounts, tips, unit pricing, similar figures, and other real-world and mathematical situations.
	7.A.2.3 Use proportional reasoning to solve real-world and mathematical problems involving ratios.
	7.A.2.4 Use proportional reasoning to assess the reasonableness of solutions.
7.A.3 Represent and solve linear equations and inequalities.	**7.A.3.1** Write and solve problems leading to linear equations with one variable in the form $px + q = r$ and $p(x + q) = r$, where $p, q, and\ r$ are rational numbers.
	7.A.3.2 Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $x + p > q$ and $x + p < q$, where p, and q are nonnegative rational numbers.
	7.A.3.3 Represent real-world or mathematical situations using equations and inequalities involving variables and rational numbers.
7.A.4 Use order of operations and properties of operations to generate equivalent numerical and algebraic expressions containing rational numbers and grouping symbols; evaluate such expressions.	**7.A.4.1** Use properties of operations (limited to associative, commutative, and distributive) to generate equivalent numerical and algebraic expressions containing rational numbers, grouping symbols and whole number exponents.
	7.A.4.2 Apply understanding of order of operations and grouping symbols when using calculators and other technologies.
Geometry & Measurement (GM)	
7.GM.1 Develop and understand the concept of surface area and volume of rectangular prisms.	**7.GM.1.1** Using a variety of tools and strategies, develop the concept that surface area of a rectangular prism with rational-valued edge lengths can be found by wrapping the figure with same-sized square units without gaps or overlap. Use appropriate measurements such as cm^2.
	7.GM.1.2 Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with rational-valued edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm^3.
7.GM.2 Determine the area of trapezoids and area and perimeter of composite figures.	**7.GM.2.1** Develop and use the formula to determine the area of a trapezoid to solve problems.
	7.GM.2.2 Find the area and perimeter of composite figures to solve real-world and mathematical problems.
7.GM.3 Use reasoning with proportions and ratios to determine measurements, justify formulas, and solve real-world and mathematical problems involving circles and related geometric figures.	**7.GM.3.1** Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is π and can be approximated by rational numbers such as $\frac{22}{7}$ and 3.14.
	7.GM.3.2 Calculate the circumference and area of circles to solve problems in various contexts, in terms of π and using approximations for π.

7.GM.4 Analyze the effect of dilations, translations, and reflections on the attributes of two-dimensional figures on and off the coordinate plane.	**7.GM.4.1** Describe the properties of similarity, compare geometric figures for similarity, and determine scale factors resulting from dilations.
	7.GM.4.2 Apply proportions, ratios, and scale factors to solve problems involving scale drawings and determine side lengths and areas of similar triangles and rectangles.
	7.GM.4.3 Graph and describe translations and reflections of figures on a coordinate plane and determine the coordinates of the vertices of the figure after the transformation.
Data & Probability (D)	
7.D.1 Display and analyze data in a variety of ways.	**7.D.1.1** Design simple experiments, collect data and calculate measures of central tendency (mean, median, and mode) and spread (range). Use these quantities to draw conclusions about the data collected and make predictions.
	7.D.1.2 Use reasoning with proportions to display and interpret data in circle graphs (pie charts) and histograms. Choose the appropriate data display and know how to create the display using a spreadsheet or other graphing technology.
7.D.2 Calculate probabilities and reason about probabilities using proportions to solve real-world and mathematical problems.	**7.D.2.1** Determine the theoretical probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1.
	7.D.2.2 Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals and fractions.
	7.D.2.3 Use proportional reasoning to draw conclusions about and predict relative frequencies of outcomes based on probabilities.

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Number & Operations (N)	
PA.N.1 Read, write, compare, classify, and represent real numbers and use them to solve problems in various contexts.	**PA.N.1.1** Develop and apply the properties of integer exponents, including $a^0 = 1$ (with $a \neq 0$), to generate equivalent numerical and algebraic expressions.
	PA.N.1.2 Express and compare approximations of very large and very small numbers using scientific notation.
	PA.N.1.3 Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation.
	PA.N.1.4 Classify real numbers as rational or irrational. Explain why the rational number system is closed under addition and multiplication and why the irrational system is not. Explain why the sum of a rational number and an irrational number is irrational; and the product of a non-zero rational number and an irrational number is irrational.
	PA.N.1.5 Compare real numbers; locate real numbers on a number line. Identify the square root of a perfect square to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.
Algebraic Reasoning & Algebra (A)	
PA.A.1 Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.	**PA.A.1.1** Recognize that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable.
	PA.A.1.2 Use linear functions to represent and explain real-world and mathematical situations.
	PA.A.1.3 Identify a function as linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line.
PA.A.2 Recognize linear functions in real-world and mathematical situations; represent linear functions and other functions with tables, verbal descriptions, symbols, and graphs; solve problems involving linear functions and interpret results in the original context.	**PA.A.2.1** Represent linear functions with tables, verbal descriptions, symbols, and graphs; translate from one representation to another.
	PA.A.2.2 Identify, describe, and analyze linear relationships between two variables.
	PA.A.2.3 Identify graphical properties of linear functions including slope and intercepts. Know that the slope equals the rate of change, and that the *y*-intercept is zero when the function represents a proportional relationship.
	PA.A.2.4 Predict the effect on the graph of a linear function when the slope or *y*-intercept changes. Use appropriate tools to examine these effects.
	PA.A.2.5 Solve problems involving linear functions and interpret results in the original context.

PA.A.3 Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.	**PA.A.3.1** Use substitution to simplify and evaluate algebraic expressions.
	PA.A.3.2 Justify steps in generating equivalent expressions by identifying the properties used, including the properties of operations (associative, commutative, and distributive laws) and the order of operations, including grouping symbols.
PA.A.4 Represent real-world and mathematical problems using equations and inequalities involving linear expressions. Solve and graph equations and inequalities symbolically and graphically. Interpret solutions in the original context.	**PA.A.4.1** Illustrate, write, and solve mathematical and real-world problems using linear equations with one variable with one solution, infinitely many solutions, or no solutions. Interpret solutions in the original context.
	PA.A.4.2 Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $px + q > r$ and $px + q < r$, where p, q, and r are rational numbers.
	PA.A.4.3 Represent real-world situations using equations and inequalities involving one variable.
Geometry & Measurement (GM)	
PA.GM.1 Solve problems involving right triangles using the Pythagorean Theorem.	**PA.GM.1.1** Informally justify the Pythagorean Theorem using measurements, diagrams, or dynamic software and use the Pythagorean Theorem to solve problems in two and three dimensions involving right triangles.
	PA.GM.1.2 Use the Pythagorean Theorem to find the distance between any two points in a coordinate plane.
PA.GM.2 Calculate surface area and volume of three-dimensional figures.	**PA.GM.2.1** Calculate the surface area of a rectangular prism using decomposition or nets. Use appropriate measurements such as cm^2.
	PA.GM.2.2 Calculate the surface area of a cylinder, in terms of π and using approximations for π, using decomposition or nets. Use appropriate measurements such as cm^2.
	PA.GM.2.3 Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area (B) and height (h) are multiplied to find the volume of a rectangular prism. Use appropriate measurements such as cm^3.
	PA.GM.2.4 Develop and use the formulas $V = \pi r^2 h$ and $V = Bh$ to determine the volume of right cylinders, in terms of π and using approximations for π. Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate measurements such as cm^3.

Data & Probability (D)	
PA.D.1 Display and interpret data in a variety of ways, including using scatterplots and approximate lines of best fit. Use line of best fit and average rate of change to make predictions and draw conclusions about data.	**PA.D.1.1** Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet and use a calculator to examine this impact.
	PA.D.1.2 Explain how outliers affect measures of central tendency.
	PA.D.1.3 Collect, display and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit, make statements about average rate of change, and make predictions about values not in the original data set. Use appropriate titles, labels and units.
PA.D.2 Calculate experimental probabilities and reason about probabilities to solve real-world and mathematical problems.	**PA.D.2.1** Calculate experimental probabilities and represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown.
	PA.D.2.2 Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population.
	PA.D.2.3 Compare and contrast dependent and independent events.

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Number & Operations (N)	
A1.N.1 Extend the understanding of number and operations to include square roots and cube roots.	**A1.N.1.1** Write square roots and cube roots of monomial algebraic expressions in simplest radical form.
	A1.N.1.2 Add, subtract, multiply, and simplify square roots of monomial algebraic expressions and divide square roots of whole numbers, rationalizing the denominator when necessary.
Algebraic Reasoning & Algebra (A)	
A1.A.1 Represent and solve mathematical and real-world problems using linear equations, absolute value equations, and systems of equations; interpret solutions in the original context.	**A1.A.1.1** Use knowledge of solving equations with rational values to represent and solve mathematical and real-world problems (e.g., angle measures, geometric formulas, science, or statistics) and interpret the solutions in the original context.
	A1.A.1.2 Solve absolute value equations and interpret the solutions in the original context.
	A1.A.1.3 Analyze and solve real-world and mathematical problems involving systems of linear equations with a maximum of two variables by graphing (may include graphing calculator or other appropriate technology), substitution, and elimination. Interpret the solutions in the original context.
A1.A.2 Represent and solve real-world and mathematical problems using linear inequalities, compound inequalities and systems of linear inequalities; interpret solutions in the original context.	**A1.A.2.1** Represent relationships in various contexts with linear inequalities; solve the resulting inequalities, graph on a coordinate plane, and interpret the solutions.
	A1.A.2.2 Represent relationships in various contexts with compound and absolute value inequalities and solve the resulting inequalities by graphing and interpreting the solutions on a number line.
	A1.A.2.3 Solve systems of linear inequalities with a maximum of two variables; graph and interpret the solutions on a coordinate plane.
A1.A.3 Generate equivalent algebraic expressions and use algebraic properties to evaluate expressions and arithmetic and geometric sequences.	**A1.A.3.1** Solve equations involving several variables for one variable in terms of the others.
	A1.A.3.2 Simplify polynomial expressions by adding, subtracting, or multiplying.
	A1.A.3.3 Factor common monomial factors from polynomial expressions and factor quadratic expressions with a leading coefficient of 1.
	A1.A.3.4 Evaluate linear, absolute value, rational, and radical expressions. Include applying a nonstandard operation such as $a \odot b = 2a + b$.
	A1.A.3.5 Recognize that arithmetic sequences are linear using equations, tables, graphs, and verbal descriptions. Use the pattern, find the next term.
	A1.A.3.6 Recognize that geometric sequences are exponential using equations, tables, graphs and verbal descriptions. Given the formula $f(x) = a(r)^x$, find the next term and define the meaning of a and r within the context of the problem.

A1.A.4 Analyze mathematical change involving linear equations in real-world and mathematical problems.	**A1.A.4.1** Calculate and interpret slope and the x- and y-intercepts of a line using a graph, an equation, two points, or a set of data points to solve real-world and mathematical problems.
	A1.A.4.2 Solve mathematical and real-world problems involving lines that are parallel, perpendicular, horizontal, or vertical.
	A1.A.4.3 Express linear equations in slope-intercept, point-slope, and standard forms and convert between these forms. Given sufficient information (slope and *y*-intercept, slope and one-point on the line, two points on the line, *x*- and *y*-intercept, or a set of data points), write the equation of a line.
	A1.A.4.4 Translate between a graph and a situation described qualitatively.
Functions (F)	
A1.F.1 Understand functions as descriptions of covariation (how related quantities vary together) in real-world and mathematical problems.	**A1.F.1.1** Distinguish between relations and functions.
	A1.F.1.2 Identify the dependent and independent variables as well as the domain and range given a function, equation, or graph. Identify restrictions on the domain and range in real-world contexts.
	A1.F.1.3 Write linear functions, using function notation, to model real-world and mathematical situations.
	A1.F.1.4 Given a graph modeling a real-world situation, read and interpret the linear piecewise function (excluding step functions).
A1.F.2 Recognize functions and understand that families of functions are characterized by their rate of change.	**A1.F.2.1** Distinguish between linear and nonlinear (including exponential) functions arising from real-world and mathematical situations that are represented in tables, graphs, and equations. Understand that linear functions grow by equal intervals and that exponential functions grow by equal factors over equal intervals.
	A1.F.2.2 Recognize the graph of the functions $f(x) = x$ and $f(x) = \|x\|$ and predict the effects of transformations [$f(x + c)$ and $f(x) + c$, where c is a positive or negative constant] algebraically and graphically using various methods and tools that may include graphing calculators.
A1.F.3 Represent functions in multiple ways and use the representation to interpret real-world and mathematical problems.	**A1.F.3.1** Identify and generate equivalent representations of linear equations, graphs, tables, and real-world situations.
	A1.F.3.2 Use function notation; evaluate a function, including nonlinear, at a given point in its domain algebraically and graphically. Interpret the results in terms of real-world and mathematical problems.
	A1.F.3.3 Add, subtract, and multiply functions using function notation.

Data & Probability (D)	
A1.D.1 Display, describe, and compare data. For linear relationships, make predictions and assess the reliability of those predictions.	**A1.D.1.1** Describe a data set using data displays, describe and compare data sets using summary statistics, including measures of central tendency, location, and spread. Know how to use calculators, spreadsheets, or other appropriate technology to display data and calculate summary statistics.
	A1.D.1.2 Collect data and use scatterplots to analyze patterns and describe linear relationships between two variables. Using graphing technology, determine regression lines and correlation coefficients; use regression lines to make predictions and correlation coefficients to assess the reliability of those predictions.
	A1.D.1.3 Interpret graphs as being discrete or continuous.
A1.D.2 Calculate probabilities and apply probability concepts.	**A1.D.2.1** Select and apply counting procedures, such as the multiplication and addition principles and tree diagrams, to determine the size of a sample space (the number of possible outcomes) and to calculate probabilities.
	A1.D.2.2 Describe the concepts of intersections, unions, and complements using Venn diagrams to evaluate probabilities. Understand the relationships between these concepts and the words AND, OR, and NOT.
	A1.D.2.3 Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes.
	A1.D.2.4 Apply probability concepts to real-world situations to make informed decisions.

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Geometry: Reasoning & Logic (G.RL)	
G.RL.1 Use appropriate tools and logic to evaluate mathematical arguments.	**G.RL.1.1** Understand the use of undefined terms, definitions, postulates, and theorems in logical arguments/proofs.
	G.RL.1.2 Analyze and draw conclusions based on a set of conditions using inductive and deductive reasoning. Recognize the logical relationships between a conditional statement and its inverse, converse, and contrapositive.
	G.RL.1.3 Assess the validity of a logical argument and give counterexamples to disprove a statement.
Geometry: Two Dimensional Shapes (G.2D)	
G.2D.1 Discover, evaluate and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.	**G.2D.1.1** Apply the properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve real-world and mathematical problems and determine if two lines are parallel, using algebraic reasoning and proofs.
	G.2D.1.2 Apply the properties of angles, including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve real-world and mathematical problems using algebraic reasoning and proofs.
	G.2D.1.3 Apply theorems involving the interior and exterior angle sums of polygons and use them to solve real-world and mathematical problems using algebraic reasoning and proofs.
	G.2D.1.4 Apply the properties of special quadrilaterals (square, rectangle, trapezoid, isosceles trapezoid, rhombus, kite, parallelogram) and use them to solve real-world and mathematical problems involving angle measures and segment lengths using algebraic reasoning and proofs.
	G.2D.1.5 Use coordinate geometry to represent and analyze line segments and polygons, including determining lengths, midpoints, and slopes of line segments.
	G.2D.1.6 Apply the properties of polygons to solve real-world and mathematical problems involving perimeter and area (e.g., triangles, special quadrilaterals, regular polygons up to 12 sides, composite figures).
	G.2D.1.7 Apply the properties of congruent or similar polygons to solve real-world and mathematical problems using algebraic and logical reasoning.
	G.2D.1.8 Construct logical arguments to prove triangle congruence (SSS, SAS, ASA, AAS and HL) and triangle similarity (AA, SSS, SAS).
	G.2D.1.9 Use numeric, graphic and algebraic representations of transformations in two dimensions, such as reflections, translations, dilations, and rotations about the origin by multiples of 90°, to solve problems involving figures on a coordinate plane and identify types of symmetry.

Geometry: Three Dimensional Shapes (G.3D)	
G.3D.1 Solve real-world and mathematical problems involving three-dimensional figures.	**G.3D.1.1** Solve real-world and mathematical problems using the surface area and volume of prisms, cylinders, pyramids, cones, spheres, and composites of these figures. Use nets, measuring devices, or formulas as appropriate.
	G.3D.1.2 Use ratios derived from similar three-dimensional figures to make conjectures, generalize, and to solve for unknown values such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.
Geometry: Circles (G.C)	
G.C.1 Solve real-world and mathematical problems using the properties of circles.	**G.C.1.1** Apply the properties of circles to solve problems involving circumference and area, approximate values and in terms of π, using algebraic and logical reasoning.
	G.C.1.2 Apply the properties of circles and relationships among angles; arcs; and distances in a circle among radii, chords, secants and tangents to solve problems using algebraic and logical reasoning.
	G.C.1.3 Recognize and write the radius r, center (h, k), and standard form of the equation of a circle $(x-h)^2+(y-k)^2=r^2$ with and without graphs.
	G.C.1.4 Apply the distance and midpoint formula, where appropriate, to develop the equation of a circle in standard form.
Geometry: Right Triangle Trigonometry (G.RT)	
G.RT.1 Develop and verify mathematical relationships of right triangles and trigonometric ratios to solve real-world and mathematical problems.	**G.RT.1.1** Apply the distance formula and the Pythagorean Theorem and its converse to solve real-world and mathematical problems, as approximate and exact values, using algebraic and logical reasoning (include Pythagorean Triples).
	G.RT.1.2 Verify and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems using algebraic and logical reasoning.
	G.RT.1.3 Use the definition of the trigonometric functions to determine the sine, cosine, and tangent ratio of an acute angle in a right triangle. Apply the inverse trigonometric functions to find the measure of an acute angle in right triangles.
	G.RT.1.4 Apply the trigonometric functions as ratios (sine, cosine, and tangent) to find side lengths in right triangles in real-world and mathematical problems.

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Number & Operations (N)	
A2.N.1 Extend the understanding of number and operations to include complex numbers, matrices, radical expressions, and expressions written with rational exponents.	**A2.N.1.1** Find the value of i^n for any whole number n.
	A2.N.1.2 Simplify, add, subtract, multiply, and divide complex numbers.
	A2.N.1.3 Use matrices to organize and represent data. Identify the order (dimension) of a matrix, add and subtract matrices of appropriate dimensions, and multiply a matrix by a scalar to create a new matrix to solve problems.
	A2.N.1.4 Understand and apply the relationship of rational exponents to integer exponents and radicals to solve problems.
Algebraic Reasoning & Algebra (A)	
A2.A.1 Represent and solve mathematical and real-world problems using nonlinear equations and systems of linear equations; interpret the solutions in the original context.	**A2.A.1.1** Represent real-world or mathematical problems using quadratic equations and solve using various methods (including graphing calculator or other appropriate technology), factoring, completing the square, and the quadratic formula. Find non-real roots when they exist.
	A2.A.1.2 Represent real-world or mathematical problems using exponential equations, such as compound interest, depreciation, and population growth, and solve these equations graphically (including graphing calculator or other appropriate technology) or algebraically.
	A2.A.1.3 Solve one-variable rational equations and check for extraneous solutions.
	A2.A.1.4 Solve polynomial equations with real roots using various methods and tools that may include factoring, polynomial division, synthetic division, graphing calculators or other appropriate technology.
	A2.A.1.5 Solve square root equations with one variable and check for extraneous solutions.
	A2.A.1.6 Solve common and natural logarithmic equations using the properties of logarithms.
	A2.A.1.7 Solve real-world and mathematical problems that can be modeled using arithmetic or finite geometric sequences or series given the n^{th} terms and sum formulas. Graphing calculators or other appropriate technology may be used.
	A2.A.1.8 Represent real-world or mathematical problems using systems of linear equations with a maximum of three variables and solve using various methods that may include substitution, elimination, and graphing (may include graphing calculators or other appropriate technology).
	A2.A.1.9 Solve systems of equations containing one linear equation and one quadratic equation using tools that may include graphing calculators or other appropriate technology.

A2.A.2 Represent and analyze mathematical situations and structures using algebraic symbols using various strategies to write equivalent forms of expressions.	**A2.A.2.1** Factor polynomial expressions including but not limited to trinomials, differences of squares, sum and difference of cubes, and factoring by grouping using a variety of tools and strategies.
	A2.A.2.2 Add, subtract, multiply, divide, and simplify polynomial and rational expressions.
	A2.A.2.3 Recognize that a quadratic function has different equivalent representations [$f(x) = ax^2 + bx + c$, $f(x) = a(x - h)^2 + k$, and $f(x) = (x - h)(x - k)$]. Identify and use the representation that is most appropriate to solve real-world and mathematical problems.
	A2.A.2.4 Rewrite expressions involving radicals and rational exponents using the properties of exponents.
Functions (F)	
A2.F.1 Understand functions as descriptions of covariation (how related quantities vary together).	**A2.F.1.1** Use algebraic, interval, and set notations to specify the domain and range of functions of various types and evaluate a function at a given point in its domain.
	A2.F.1.2 Recognize the graphs of exponential, radical (square root and cube root only), quadratic, and logarithmic functions. Predict the effects of transformations [$f(x + c)$, $f(x) + c$, $f(cx)$, and $cf(x)$, where c is a positive or negative real-valued constant] algebraically and graphically, using various methods and tools that may include graphing calculators or other appropriate technology.
	A2.F.1.3 Graph a quadratic function. Identify the *x*- and *y*-intercepts, maximum or minimum value, axis of symmetry, and vertex using various methods and tools that may include a graphing calculator or appropriate technology.
	A2.F.1.4 Graph exponential and logarithmic functions. Identify asymptotes and *x*- and *y*-intercepts using various methods and tools that may include graphing calculators or other appropriate technology. Recognize exponential decay and growth graphically and algebraically.
	A2.F.1.5 Analyze the graph of a polynomial function by identifying the domain, range, intercepts, zeros, relative maxima, relative minima, and intervals of increase and decrease.
	A2.F.1.6 Graph a rational function and identify the *x*- and *y*-intercepts, vertical and horizontal asymptotes, using various methods and tools that may include a graphing calculator or other appropriate technology. (Excluding slant or oblique asymptotes and holes.)
	A2.F.1.7 Graph a radical function (square root and cube root only) and identify the *x*- and *y*-intercepts using various methods and tools that may include a graphing calculator or other appropriate technology.
	A2.F.1.8 Graph piecewise functions with no more than three branches (including linear, quadratic, or exponential branches) and analyze the function by identifying the domain, range, intercepts, and intervals for which it is increasing, decreasing, and constant.

A2.F.2 Analyze functions through algebraic combinations, compositions, and inverses, if they exist.	**A2.F.2.1** Add, subtract, multiply, and divide functions using function notation and recognize domain restrictions.
	A2.F.2.2 Combine functions by composition and recognize that $g(x) = f^{-1}(x)$, the inverse function of $f(x)$, if and only if $f(g(x)) = g(f(x)) = x$.
	A2.F.2.3 Find and graph the inverse of a function, if it exists, in real-world and mathematical situations. Know that the domain of a function f is the range of the inverse function f^{-1}, and the range of the function f is the domain of the inverse function f^{-1}.
	A2.F.2.4 Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.
Data & Probability (D)	
A2.D.1 Display, describe, and compare data. For linear and nonlinear relationships, make predictions and assess the reliability of those predictions.	**A2.D.1.1** Use the mean and standard deviation of a data set to fit it to a normal distribution (bell-shaped curve).
	A2.D.1.2 Collect data and use scatterplots to analyze patterns and describe linear, exponential or quadratic relationships between two variables. Using graphing calculators or other appropriate technology, determine regression equation and correlation coefficients; use regression equations to make predictions and correlation coefficients to assess the reliability of those predictions.
	A2.D.1.3 Based upon a real-world context, recognize whether a discrete or continuous graphical representation is appropriate and then create the graph.
A2.D.2 Analyze statistical thinking to draw inferences, make predictions, and justify conclusions.	**A2.D.2.1** Evaluate reports based on data published in the media by identifying the source of the data, the design of the study, and the way the data are analyzed and displayed. Given spreadsheets, tables, or graphs, recognize and analyze distortions in data displays. Show how graphs and data can be distorted to support different points of view.
	A2.D.2.2 Identify and explain misleading uses of data. Recognize when arguments based on data confuse correlation and causation.

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Mathematical Glossary Terms and Tables

Whenever possible a reference was identified for glossary terms from the following resources:

(DPI) *http://dpi.wi.gov/standards*
(H) *http://www.hbschool.com/glossary/math2/*
(M) *http://www.merriam-webster.com/*
(MW) *http://www.mathwords.com*
(MA) *http://www.doe.mass.edu/frameworks/current.html*
(NCTM) *http://www.nctm.org*
(PASS) *http://www.ok.gov./sde/sites/ok.gov.sde/files/C3%20PASS%20math.pdf*

AA similarity (Angle-Angle similarity) If two triangles have two pairs of corresponding angles that are congruent, then the triangles are similar. (MW)

ASA congruence (Angle-Side-Angle congruence) If two triangles have two corresponding angles and the side adjacent to both angles congruent, then the triangles themselves are congruent. (MW)

Absolute value The absolute value of a real number is its (non-negative) distance from 0 on a number line. Formally,

$$|k| = \begin{cases} k \text{ if } k \geq 0 \\ -k \text{ if } k < 0 \end{cases}$$

Addend In the addition problem 3+2+6 = 11, the addends are 3, 2, and 6. (PASS)

Addition and subtraction within 5, 10, 20, 100, or 1,000 Addition or subtraction of two whole numbers with whole number answers, and with sum or minuend in the range 0–5, 0–10, 0–20, or 0–100, respectively. *Example: 8 + 2 = 10 is an addition within 10, 14 – 5 = 9 is a subtraction within 20, and 55 – 18 = 37 is a subtraction within 100. (MA)*

Additive inverses Two numbers whose sum is 0 are additive inverses of one another. *Example: 3/4 and –3/4 are additive inverses of one another because 3/4 + (–3/4) = (–3/4) + 3/4 = 0. (MA)*

Algorithm A finite set of steps for completing a procedure, e.g., long division. (H)

Analog Having to do with data represented by continuous variables, e.g., a clock with hour, minute, and second hands. (M)

Arc (minor and major) A portion of the circumference of a circle with ending points A and B. Unless stated otherwise, arc AB always refers to the shorter segment of the two (the minor arc). Together with the major arc the two portions beginning and ending at points A and B form the entire circumference of a circle.

Arc length The distance along the curved line forming the arc.

Arc measure The angle formed by the arc at the center of the circle.

Area A measurement of the amount of space within a closed two-dimensional shape. Area is usually measured in terms of "square units", in which 1 square unit is the amount of space within a square that measures 1 unit by 1 unit (for a given unit of length). For example, area may be measured in "square centimeters", 1 square centimeter being the amount of space within a 1cm by 1cm square.

Arithmetic sequence (progression) A sequence in which successive terms exhibit a common difference.

Array (rectangular) An orderly arrangement of objects into a rectangular configuration (e.g., take six tiles and arrange two long and three wide to form a rectangle). (PASS)

Associative property of addition See Table 1 in this Glossary.

Associative property of multiplication See Table 1 in this Glossary.

Assumption A fact or statement (as a proposition, axiom, postulate, or notion) taken for granted. (M)

Attribute Characteristic (e.g., size, shape, color, weight). (PASS)

Benchmark fraction A common fraction against which other fractions can be measured, such as ½. (MA)

Bar graph A display of categorical data in which vertical or horizontal bars represent the count of a category. The relative lengths of the various bars in the graph are commensurate with the relative sizes of the counts of the data.

Bivariate data Pairs of linked numerical observations. *Example: a list of heights and weights for each player on a football team*. (MA)

Box plot A graphic method that shows the distribution of data values by using the median, quartiles, and extremes of the data set. A box shows the middle 50% of the data. (DPI)

Capacity The maximum amount or number that can be contained or accommodated, e.g., a jug with a one-gallon *capacity;* the auditorium was filled to *capacity*. (MA)

Cardinal number A number (such as 1, 5, 15) that is used in simple counting and that indicates how many elements there are in a set. (MA)

Cardinality The cardinality of a finite collection of objects is the number of objects in the set. (For example, in PK-Grade 1 students are still learning that "5" represents the number of objects in any group of "five" objects.)

Categorical data Data that measures the number of occurrences of a discrete set of outcomes (e.g., noticing the different colors of shoes in the class and then recording the number of each color).

Chord A chord is a line that connects two points on a circle.

Circle The set of all points that are equidistant from a given point, called the center of the circle. The set of all points that lie inside the circle is called the *interior* of the circle.

> **Radius of a circle** Both a segment with one endpoint on the center of the circle and the other endpoint on the circle, and the length of this segment (which is necessarily the same for any point on the circle).
>
> **Diameter of a circle** Both a segment with endpoints on the circle that contains the center, and the length of this segment.
>
> **Circumference of a circle** The length of the circle if cut and opened up to make a straight line segment, which can be found with $C = 2\pi r$ where r is the radius and π is the irrational number "pi". (Can be thought of as the perimeter of the circle.)
>
> **Area of a circle** The area of the interior of the circle, which can be found with $A = \pi r^2$ where r is the radius and π the irrational number "pi".

Combinations A selection of objects without regard to order. (PASS)

Coefficient Any of the factors of a product considered in relation to a specific factor. Often, this will be a numerical factor in a product of numbers and variables, e.g., $3x^2$ has coefficient 3. (W)

Commutative property See Table 1 in this Glossary.

Complement (of a set) A set *A* is typically considered to be a subset of an understood "universal set." The complement of *A,* denoted by *A/C* is the set of all elements of the universal set that are not members of *A*.

Complementary angles Two angles whose measures have a sum of 90 degrees. (PASS)

Complex fraction A fraction *A/B* where *A* and/or *B* are fractions ($B \neq 0$). (MA)

Complex number Numbers of the form $a + bi$, where a, a real number, is the "real part" and b, also a real number, is the "imaginary part," and i is the imaginary number. *See also:* ***imaginary number***.

Complex plane A Cartesian plane in which the point (a,b) is used to represent $a + bi$.

Compose numbers To compose numbers is to create new numbers using any of the four operations with other numbers. For example, students compose 10 in many ways (9+1, 8+2, … , 5+5, …). Also, each place in the base ten place value is composed of ten units of the place to the left, i.e., one hundred is composed of ten bundles of ten, one ten is composed of ten ones, etc.

Compose shapes Join geometric shapes without overlaps to form new shapes. (MA)

Composite number Any positive integer divisible by one or more positive integers other than itself and 1. (PASS)

Computation algorithm A set of predefined steps applicable to a class of problems that gives the correct result in every case when the steps are carried out correctly. *See also:* ***algorithm***; ***computation strategy***. (MA)

Computation strategy Purposeful manipulations that may be chosen for specific problems, may not have a fixed order, and may be aimed at converting one problem into another. *See also:* ***computation algorithm***. (MA)

Conditional statement A statement of the form, "If P, then Q," where each of P and Q are themselves statements. For example, "If *it rains*, then *the streets get wet*," is a conditional statement. If the conditional statement "If P, then Q," is *true,* then this means that it is never the case that the statement P is true while the statement Q is false. For example, it will never be the case that "it rained" but "the streets are not wet".

Related statements are:

> **Converse:** "If Q, then P." This may or may not be true if the original statement is true.
>
> **Inverse:** "If NOT P, then NOT Q." This may or may not be true if the original statement is true.
>
> **Contrapositive:** "If NOT Q, then NOT P." This is always true if the original statement is true, and vice versa. For an example, notice that, "If the streets are NOT wet, then it did NOT rain," is logically equivalent to the example statement above.

Congruent Two geometric objects are congruent if one can be mapped onto the other using a sequence of rigid motions (*rigid motions* are geometric transformations that preserve lengths and angles).

Conjugate The result of writing a sum of two terms as a difference, or vice versa. *For example, the conjugate of x – 2 is x + 2.* (MW)

Conjecture A statement believed to be true but not yet proved. (PASS)

Constant A number on its own, or sometimes a letter such as a, b or c to stand for a fixed number. Example: in "x + 5 = 9", 5 and 9 are constants. If it is not a constant it is called a variable.

Constant of proportionality Given a proportional relationship expressed as $y=kx$, the number k is often called the constant of proportionality.

Coordinate plane A plane in which a point is represented using two coordinates that determine the precise location of the point. In the Cartesian plane, two perpendicular number lines are used to determine the locations of points. In the polar coordinate plane, points are determined by their distance along a ray through that point and the origin, and the angle that ray makes with a pre-determined horizontal axis.

Cosine (of an acute angle) In a right triangle, the cosine of an acute angle is the ratio of the length of the leg adjacent to the angle to the length of the hypotenuse. (PASS)

Counterexample An example to show that a given statement is false. For example, to disprove the statement "All right triangles are isosceles," all one needs to do is produce a right triangle that is scalene.

Counting number A number used in counting objects, i.e., a number from the set

$$\{1, 2, 3, 4, 5, \ldots\}.$$

See also: ***Natural number***.

Counting on A strategy for finding the number of objects in a group without having to count every member of the group. *For example, if a stack of books is known to have 8 books and 3 more books are added to the top, it is not necessary to count the stack all over again; one can find the total by counting on—pointing to the top book and saying "eight," following this with, "nine, ten, eleven. There are eleven books now."* (MA)

Continuous graph (of data) A graph is continuous if it contains intervals of data points.

Decimal expansion The resulting decimal number found when dividing a rational number in fraction form. May include terminating and repeating decimals.

Decimal fraction A fraction (as 0.25 = 25/100 or 0.025 = 25/1000) or mixed number (as 3.025 = 3 25/1000) in which the denominator is a power of ten, usually expressed by the use of the decimal point. (M)

Decimal number Any real number expressed in base 10 notation, such as 2.673. (MA)

Decompose numbers Given a number, identify pairs, triples, etc. of numbers that combine to form the given number.

Decompose shapes. Given a geometric shape, identify geometric shapes that meet without overlap to form the given shape. (MA)

Deductive reasoning Informally, the process of using known facts and relationships to derive new facts and relationships.

Dependent events. Events that influence each other. If one of the events occurs, it changes the probability of the other event. (PASS)

Dependent variable The output of a function. The quantity that is affected when the input is changed.

Digit a) Any of the Arabic numerals 1 to 9 and usually the symbol 0; b) One of the elements that combine to form numbers in a system other than the decimal system. (MA)

Digital Having to do with data that is represented in the form of numerical digits; providing a readout in numerical digits, e.g., a digital watch. (MA)

Dilation A transformation that moves each point along the ray through the point emanating from a fixed center, and multiplies distances from the center by a common scale factor. (MA)

Discrete graph (of data) A graph is discrete if it consists of separated data points and contains no intervals of data.

Divisible A non-zero integer p is said to be divisible by a non-zero integer q if there exists an integer r such that $q \times r = p$.

Domain of a relation The set of all the first elements or x-coordinates of a relation. (PASS)

Dot plot *See:* ***line plot***.

Equivalent expressions Two expressions (numerical or otherwise) are said to be equivalent if one can be obtained from the other using the properties of operations, such as the commutative, associative and distributive properties, as well as by representing numbers in the expressions in different but equivalent forms.

Equivalent fractions Two fractions a/b and c/d are said to be equivalent if there exists a non-zero number n such that $na/nb=c/d$. Equivalent fractions represent the same amount by changing both the size and the number of parts of a given fraction.

Equivalent ratios Two ratios $a:b$ and $c:d$ are equivalent if there is a non-zero number k such that $ka=c$ and $kb=d$. Equivalent ratios can be shown to have the same unit rate.

Expanded form A multi-digit number is expressed in expanded form when it is written as a sum of single-digit multiples of powers of ten. *For example, 643 = 600 + 40 + 3. (MA)*

Expected value For a random variable, the weighted average of its possible values, with weights given by their respective probabilities. (MA)

Experimental probability When trials of a probability experiment are run and data is collected, the experimental probability of a desired outcome is the relative frequency of that outcome as a ratio of the number of such outcomes to the total number of outcomes. For example, if a coin is flipped 100 times, and heads comes up 45 times, then the experimental probability of heads is 45/100 or 0.45. (The *theoretical probability* is 0.50, and if the number of trials is increased the experimental probability will get closer and closer to 0.50.)

Exponent (Integer) A negative integer exponent denotes the reciprocal of the base raised to the corresponding opposite integer. Thus $x^{-2} = \frac{1}{x^2}$.

Exponent (Whole Number) The number that indicates how many times the base is used as a factor, e.g., in $4^3 = 4 \times 4 \times 4 = 64$, the exponent is 3, indicating that 4 is repeated as a factor three times. (MA)

Exponential function An exponential function with base b is defined by $y = b^x$, where $b > 0$ and b is not equal to 1. (PASS).

Expression A mathematical phrase that combines operations, numbers, and/or variables (e.g., $3^2 \div a$). (H)

Exterior angles (of a polygon) The supplement of an interior angle of a polygon that is formed by extending one of the line segments determining the interior angle at a given vertex.

Extraneous solution A solution, such as that to an equation, that emerges from the process of solving the problem but is not a valid solution to the original problem. For example, consider the equation $\sqrt{2x+12} - 2 = x$. After adding 2 to both sides and squaring both sides of the equation, we obtain $2x + 12 = x^2 + 4x + 4$. We can subtract $2x$ and 12 to both sides to obtain the quadratic equation $x^2 + 2x - 8 = 0$. Solving this quadratic equation, we obtain two possible solutions, $x = 2$ and $x = -4$. While the original equation is true when evaluated at $x = 2$, -4 is considered an extraneous solution because it is false when evaluated at $x = -4$.

$$\sqrt{2x+12} - 2 = x$$
$$\sqrt{2(-4)+12} - 2 = -4$$
$$\sqrt{-8+12} - 2 = -4$$
$$\sqrt{4} - 2 = -4$$
$$2 - 2 = -4$$
$$0 \neq -4$$

Fluency Easily and accurately responding to calculations (Van de Walle). See Table 4 in this Glossary.

First quartile[1] For a data set with median *M*, the first quartile is the median of the data values less than *M*. *Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the first quartile is 6. See also:* ***median, third quartile, interquartile range***. (MA)

Fraction A number expressible in the form *a*/*b* where *a* is a whole number and *b* is a positive whole number. (The word *fraction* in these standards always refers to a non-negative number.) *See also:* ***rational number*** *and* ***complex fraction***. (MA)

[1] Many different methods for computing quartiles are in use. The method defined here is sometimes called the Moore and McCabe method. See Langford, E., "Quartiles in Elementary Statistics," *Journal of Statistics Education* Volume 14, Number 3 (2006).

Frequency table A representation of data in which categories are listed in one column (row) of a table and the number of occurrences (frequency) of each category is indicated in another column (row).

Function A rule that assigns to every element of one set (the domain) exactly one element of another set (the range). A function is often thought of as an "input/output" rule, as in every input determines an output (usually according to mathematical operations performed on the input).

Function machine An input/output model (often made with milk cartons, boxes, or drawn on the board) to show one number entering and a different number exiting. Students guess the rule that produced the second number (e.g., enter 3, exit 5, rule: add 2). (PASS)

Function notation A notation that describes a function. For a function f, when *x* is a member of the domain, the symbol $f(x)$ denotes the corresponding member of the range (e.g., $f(x) = x + 3$).

Geometric sequence (progression) An ordered list of numbers that has a common ratio between consecutive terms, e.g., 2, 6, 18, 54. (H)

Histogram A type of bar graph used to display the distribution of measurement data across a continuous range. (MA)

Hypotenuse The longest side of a right triangle, necessarily opposite to the right angle. The other sides are called the *legs* of the right triangle (*longer* and *shorter* if applicable).

HL (Hypotenuse-Leg) congruence If two right triangles have hypotenuse and one corresponding leg congruent, then the triangles are congruent.

Identity property of 0 See Table 1 in this Glossary.

Imaginary number A number i is considered imaginary if $i^2 = -1$. *See also:* ***complex number***.

Independent events Events that do not influence one another. Each event occurs without changing the probability of the other event. Specifically, two events *A* and *B* are independent if $P(A \text{ AND } B) = P(A) \cdot P(B)$. (PASS)

Independent variable The input of a function. The quantity whose value is changed to affect the output.

Independently combined probability models. Two probability models are said to be combined independently if the probability of each ordered pair in the combined model equals the product of the original probabilities of the two individual outcomes in the ordered pair. (MA)

Inductive reasoning Informally, the process of examining patterns and making conclusions based on observed patterns.

Input/Output table Usually a two-column table (or two-row table) with one column (row) listing the inputs of a rule and the other column (row) listing the corresponding outputs for each input.

Integer The set of numbers that contains the whole numbers and their additive inverses (opposites). I.e., $\{\dots, -2, -1, 0, 1, 2, 3, \dots\}$.

Intercepts (of a graph) Geometrically, where a graph intersects an axis in a Cartesian plane.

Interquartile range A measure of variation in a set of numerical data, the interquartile range is the distance between the first and third quartiles of the data set. Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the interquartile range is 15 – 6 = 9. *See also:* ***first quartile, third quartile***. (MA)

Intersection (of sets) For two sets and , the intersection ∩ is the set of all elements that are members of both sets simultaneously.

Inverse function. A function g that satisfies $g(f(x)) = x$ and $f(g(x)) = x$ is said to be an inverse function for f. The inverse of f is often denoted by f^{-1}.

Inverse operations Operations that undo each other (e.g., addition and subtraction are inverse operations; multiplication and division are inverse operations). (PASS)

Irrational number Numbers that are not rational. Irrational numbers have nonterminating, nonrepeating decimal expansions (e.g., square root of 2, pi). (MA)

Length (of a segment) The length of a (straight) line segment is a measurement of the distance from one endpoint of the object to the other. Once a unit of length is specified, the length of a segment is found by placing such units end-to-end without gaps or overlaps and counting how many such units are used.

Line Plot A representation of data in which categories are listed underneath points on a number line, and in which the number of occurrences (frequency) of each category is represented by a corresponding number of marks (X's, dots) above each category's point.

Linear association A set of bivariate data exhibits a linear association if a scatter plot of the data can be well-approximated by a line. (MA)

Linear equation Any equation that can be written in the form $Ax + By + C = 0$ where A and B cannot both be 0. The graph of such an equation is a line. (MA)

Linear function A function f is linear if it can be written in the form $f(x) = mx + b$.

Literal equation An equation involving multiple variables and numbers, often that cannot be solved for an explicit numerical value of any of the individual variables. In such a case one may solve for one variable as an expression of the others.

Logarithm The exponent that indicates the power to which a base number is raised to produce a given number. *For example, the logarithm of 100 to the base 10 is 2.* (M)

Logarithmic function Any function in which an independent variable appears in the form of a logarithm; they are the inverse functions of exponential functions. (MA)

Manipulatives Concrete materials (e.g., buttons, beans, egg and milk cartons, counters, attribute and pattern blocks, interlocking cubes, base-10 blocks, geometric models, geo-boards, fractions pieces, rulers, balances, spinners, dot paper) used to represent mathematical concepts, operations, and relationships. (PASS)

Matrix (pl. matrices) A rectangular array of numbers or variables. (MA)

Mean (arithmetic) A measure of center in a set of numerical data, computed by adding the values in a list and then dividing by the number of values in the list. *Example: For the data set {1, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the mean is 21.* (MA)

Mean absolute deviation A measure of variation in a set of numerical data, computed by adding the distances between each data value and the mean, then dividing by the number of data values. *Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the mean absolute deviation is 20.* (MA)

Measure of central tendency A determination of the center of a data set meant to describe a set of data. *See also:* ***mean***, ***median***, ***mode***, *and* ***percentile***.

Measure of spread (or variability) A determination of how much the data in a set deviates from a measure of center .The most frequently used measure is standard deviation. *See also:* ***standard deviation***, ***range***.

Median A measure of center in a set of numerical data. The median of a list of values is the value appearing at the center of a sorted version of the list; or the mean of the two central values, if the list contains an even number of values. *Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 90}, the median is 11.* (MA)

Midline In the graph of a sine or cosine function, the horizontal line halfway between its maximum and minimum values. (MA)

Mixed number A number written in the form $A\frac{b}{c}$, which is a shorthand way to represent the quantity $A+\frac{b}{c}$. A mixed number may be written as a fraction greater than 1 by writing $A\frac{b}{c}=A+\frac{b}{c}=\frac{Ac}{c}+\frac{b}{c}=\frac{Ac+b}{c}$.

Model A mathematical representation (e.g., number, graph, matrix, equation(s), geometric figure) for real-world or mathematical objects, properties, actions, or relationships. (DPI)

Modulus of a complex number The distance between a complex number and the origin on the complex plane. The modulus of a complex number, $a+bi$ is written $|a+bi|$ and is found by finding the hypotenuse of the triangle with legs a and b. Thus, $|a+bi|=\sqrt{a^2+b^2}$. For a complex number in polar form, $r(\cos\theta+i\sin\theta)$, the modulus is $|r|$.

Multiplication and division within 100 Multiplication or division of two whole numbers with whole number answers, and with product or dividend in the range 0–100. *Example:* $72 \div 8 = 9$. (MA)

Multiplication counting principle If *k* actions can be taken in N_1, N_2, … , N_k different ways, then there are a total of N_1, N_2, … , N_k different ways to perform those actions in sequence.

Multiplicative inverses Two numbers whose product is 1 are multiplicative inverses of one another. *Example: 3/4 and 4/3 are multiplicative inverses of one another because 3/4 ´ 4/3 = 4/3 ´ 3/4 = 1.* (MA)

Natural number A number used in counting objects, i.e., a number from the set

$$\{1, 2, 3, 4, 5, \ldots\}.$$

See also: ***Counting number***.

Net A two-dimensional representation of a three-dimensional figure constructed of polygons, such that if folds were made on certain edges of the net and appropriate sides were "glued" together, the resulting figure would be the original three-dimensional figure.

Network a) A figure consisting of vertices and edges that shows how objects are connected, b) A collection of points (vertices), with certain connections (edges) between them. (MA)

Non-linear association The relationship between two variables is nonlinear if the change in the second is not simply proportional to the change in the first, independent of the value of the first variable. (MA)

Nonstandard measurement A measurement determined by the use of nonstandard units such as hands, paper clips, beans, cotton balls, etc. (PASS)

Number line diagram A diagram of the number line used to represent numbers and support reasoning about them. In a number line diagram for measurement quantities, the interval from 0 to 1 on the diagram represents the unit of measure for the quantity. (MA)

Number sense The understanding of number size (relative magnitude), number representations, number operations, referents for quantities and measurement used in everyday situations, etc. (PASS)

Numeral A symbol or mark used to represent a number. (MA)

One-to-one correspondence A matching of the elements of two sets such that each element from the first set is matched with one and only one element of the second set, and such that each element of the second set is matched with some element of the first. Early grades students use this to establish the concept of cardinal use of numbers (as in "5" can represent any collection of five objects; if I can match the fingers on one hand to all the elements of a given set then that set has "5" objects.)

Operation General term for any one of addition, subtraction, multiplication, and division. (PASS)

Order of operations Convention adopted to perform mathematical operations in a consistent order.

Step 1. Perform all operations inside grouping symbols, and/or above and below a fraction bar in the order specified in Steps 2, 3 and 4.

Step 2. Find the value of any powers or roots;

Step 3. Multiply, including division, from left to right;

Step 4. Add, including subtraction, from left to right. (NCTM)

Ordinal number A number designating the place (as first, second, or third) occupied by an item in an ordered sequence. (M)

Outlier A data point that is far outside a representative range of the data set. For example, once the inter-quartile range (IQR) is computed, one might calculate the interval of 1.5× IQR above the median and 1.5× IQR below the median and decide that any data point that lies outside this range is considered an outlier.

Parallel lines Lines that do not intersect. Distinct lines can be shown to be parallel if and only if they have equal slopes.

Partition A process of dividing an object into parts or a set into (smaller) subsets. (MA)

Pascal's triangle A triangular arrangement of numbers in which each row starts and ends with 1, and each other number is the sum of the two numbers above it. (H)

Piecewise function A function that is defined differently on different intervals.

Percent rate of change A rate of change expressed as a percent. *Example: if a population grows from 50 to 55 in a year, it grows by 5/50 = 10% per year.* (MA)

Perfect square A number that is a whole number squared, that is, a number that can be expressed as n^2 for n a whole number.

Perimeter (of a polygon) The total length of all the edges of a polygon. Often, perimeter is thought of as the distance around an object, traversed once along the edges starting from one vertex and ending at the same vertex.

Periodic phenomena Events that recur over regular intervals, for example, ocean tides, machine cycles. (MA)

Perpendicular lines Lines that intersect such that all four angles that are created are congruent. Two lines can be shown to be perpendicular if and only if the product of their slopes is -1.

Pi (π) The irrational number that is derived by finding the ratio of the circumference to the diameter of circles. That this ratio is constant and an irrational number are important concepts and challenging to prove, so they are often arrived at empirically by students.

Picture graph A graph that uses pictures to show and compare information. (MA)

Place value The concept that the order in which digits are written in the base-10 number system determines the value of that digit. Thus, in the number 245, the digit 2 is in the "hundreds place", indicating that the value of that particular 2 is actually 2 hundreds or 200.

Polygon A closed, two-dimensional figure comprised of line segments connected end-to-end, and such that no two segments cross each other. The segments are typically called sides or edges, and the common endpoints of adjacent segments are called vertices (sing. vertex). The space within the polygon is called its *interior*. The angles formed by adjacent sides that lie in the interior of a polygon are called its *interior* angles.

Polynomial The sum or difference of terms which have variables raised to positive integer powers and which have coefficients that may be real or complex. The following are all polynomials: $5x^3 - 2x^2 + x - 13$, $x^2y^3 + xy$, and $(1 + i)a^2 + ib^2$. (MW)

Polynomial function Any function whose output is given by a polynomial expression of the input.

Postulate A statement accepted as true without proof. (MA)

Prime factorization A number written as the product of all its prime factors. (H)

Prime number A whole number greater than 1 whose only factors are 1 and itself. (MA)

Probability distribution The set of possible values of a random variable with a probability assigned to each. (MA)

Properties of equality See Table 2 in this Glossary.

Properties of inequality See Table 3 in this Glossary.

Properties of operations See Table 1 in this Glossary.

Probability The study and measure of the likelihood of an event happening. (PASS)

Probability model A probability model is used to assign probabilities to outcomes of a chance process by examining the nature of the process. The set of all outcomes is called the sample space, and their probabilities sum to 1. *See also:* ***uniform probability model***. (MA)

Proof A method of constructing a valid argument using deductive reasoning. (MA)

Proportion An equation that states that two ratios are equivalent, e.g., 4/8 = ½ or 4 : 8 = 1 : 2. (MA)

Pyramid A three-dimensional shape constructed from a polygon (called the *base*) and triangles that have one edge matching the edges of the base and such that the triangles share a common vertex.

Pythagorean theorem For any right triangle, the sum of the squares of the lengths of the legs equals the square of the lengths of the hypotenuse. (MA)

Quadratic equation An equation that is equivalent to $ax^2 + bx + c = 0$, where $a \neq 0$.

Quadratic expression An expression that contains variables raised to whole number exponents no higher than 2.

Quadratic function A function that can be represented by an equation of the form $y = ax^2 + bx + c$, where a, b, and c are arbitrary, but fixed, numbers and $a \neq 0$. The graph of this function is a parabola. (DPI)

Quadratic polynomial A polynomial where the highest degree of any of its terms is 2. (MA)

Quadrilateral A polygon with 4 sides. Important classes of quadrilaterals:

Trapezoid A quadrilateral in which at least two sides are parallel.

Parallelogram A quadrilateral in which opposite sides are parallel.

Rhombus A parallelogram in which opposite sides are congruent (have the same length).

Rectangle A parallelogram that has at least one right interior angle.

Square A rectangle that has all sides congruent.

Kite A quadrilateral that has two pairs of congruent adjacent sides.

Quotient The result of a division problem. Also, given whole numbers n and m with $n>m$, if we write $n=mq+r$ with $0\leq r<m$, then we say q is the quotient and r is the remainder.

Radical The $\sqrt{\ }$ symbol, which is used to indicate square roots or n^{th} roots. (MW)

Random sampling A smaller group of people or objects chosen from a larger group or population by a process giving equal chance of selection to all possible people or objects. (H)

Random variable An assignment of a numerical value to each outcome in a sample space. (M)

Range (of a relation) The set of all the second elements or y-coordinates of a relation is called the range. (PASS)

Range (of a data set) The difference between the maximum and minimum values of a data set, a measure of the spread of the data.

Ratio A relationship between quantities such that for every a units of one quantity there are b units of the other. A ratio is often denoted by $a:b$, and read "a to b."

Rational expression A quotient of two polynomials with a non-zero denominator. (MA)

Rational number A number expressible in the form a/b or $-a/b$ for some fraction a/b. The rational numbers include the integers. (MA)

Real number An element of the set of numbers consisting of all rational and all irrational numbers. (MA)

Rectangular array An arrangement of mathematical elements into rows and columns.(MA)

Rectangular prism A three-dimensional object constructed from three pairs of parallel rectangles (called *faces* in this context) that share common edges so as to form an enclosed space and such that opposite rectangles are congruent. The vertices of the rectangles are the vertices of the prism, and the sides of the rectangles are called edges. A **cube** is a rectangular prism in which each face is a square of the same size as the other faces.

Rectilinear figure A polygon, all angles of which are right angles. (MA)

Recursive pattern (or sequence) Patterns in which each number is found from the previous number by repeating a process (e.g. Fibonacci numbers). (PASS)

Reflection A type of transformation that flips points about a line, called the *line of reflection*. Taken together, the image and the pre-image have the line of reflection as a line of symmetry. (MA)

Real numbers (set of) The set of all rational and irrational numbers (PASS)

Relation A collection of ordered pairs of real numbers.

Relative frequency The empirical counterpart of probability. If an event occurs N' times in N trials, its relative frequency is N'/N. (M)

Remainder Theorem If f(x) is a polynomial in x then the remainder on dividing f(x) by x − a is f(a). (M)

Repeating decimal. A decimal in which, after a certain point, a particular digit or sequence of digits repeats itself indefinitely. (M) *See also:* ***terminating decimal***. (MA)

Right angle Informally, an angle whose measure is 90 degrees. Formally, if two congruent copies of a given angle are supplementary (that is, they form a straight line when one matches an edge of one copy with one edge of the other), then the given angle is said to be a right angle. (We can then define the measure of this angle to be 90 degrees and measure other angles in terms of a right angle.)

Rigid motion A transformation of points in space consisting of a sequence of one or more translations, reflections, and/or rotations. Rigid motions are here assumed to preserve distances and angle measures. (MA)

Rotation A type of transformation that turns a figure about a fixed point, called the *center of rotation*. (MA)

SAS congruence (Side-Angle-Side congruence) If in two triangles two corresponding sides and the angles formed by those sides are congruent, then the triangles are congruent. (MW)

SSS congruence (Side-Side-Side congruence) If two triangles have corresponding sides that are congruent, then the triangles are congruent. (MW)

Sample space In a probability model for a random process, a list of the individual outcomes that are to be considered. (MA)

Scale factor For similar shapes, the common ratio of corresponding side lengths is called the scale factor. Informally, it is the multiplicative amount by which the lengths of one shape are "blown up" or "shrunk down" to obtain the other shape to which it is similar.

Scatter plot A graph in the coordinate plane representing a set of bivariate data. *For example, the heights and weights of a group of people could be displayed on a scatter plot.* (DPI)

Scientific notation A widely used floating-point system in which numbers are expressed as products consisting of a number between 1 and 10 multiplied by an appropriate power of 10, e.g., $562 = 5.62 \times 10^2$. (MW)

Secant (of a circle) A line that intersects a circle at two points.

Sequence A set of elements ordered so that they can be labeled with consecutive positive integers starting with 1, e.g., 1, 3, 9, 27, 81. In this sequence, 1 is the *first term*, 3 is the *second term*, 9 is the *third term*, and so on. (MA)

Set model (for fractions) The use of a discrete set of objects to represent the whole and a subset of those objects to represent a fraction. For example, since 3 of the 15 students in class are wearing blue shirts, 3/15 of the students are wearing blue shirts.

Significant figures (digits) Digits included in a measurement that purposely indicate the precision of the measurement. For example, writing a measurement as 3.50 seconds instead of 3.5 seconds indicates that the measurement is accurate to the hundredths place.

Similar (shapes) Two geometric shapes are said to be similar (to each other) if one can be mapped onto the other by a sequence of similarity transformations.

Similarity transformation A rigid motion followed by a dilation. (MA)

Simultaneous equations Two or more equations containing common variables. (MW)

Sine (of an acute angle) The trigonometric function that for an acute angle is the ratio between the leg opposite the angle when the angle is considered part of a right triangle and the hypotenuse. (M)

Slope (of a line) A measure of the steepness of a line in a Cartesian plane, found by determining the constant change in the y-coordinate per 1-unit change in the x-coordinate.

Spatial sense The ability to build and manipulate mental representations of 2- and 3-dimensional objects and ideas. (PASS)

Standard deviation A measurement of how much each value in the data differs from the mean of the data. (PASS)

Statistics The study of data. (PASS)

Stem-and-leaf plot A frequency distribution made by arranging data in the following way (e.g., student scores on a test were 96, 87, 77, 93, 85, 85, and 75 would be displayed as:

9] 6,3

8] 7,5,5

7] 7,5

Subitize Instantly knowing "how many." Recognizing a number without using other mathematical processes. (Clements)

Substitution The substitution of one expression for an equivalent expression, used when rewriting expressions as equivalent ones or solving equations. It is based on the *transitive property of equality*, which states, "If = ,and = , then = ."

Summary statistics A collection of statistics (measurements based on data) that describe the data set. For example, the range, mean, and standard deviation of a given data set indicate certain features of the data set and hence are summary statistics.

Supplementary angles Two angles whose measures have a sum of 180 degrees. (PASS)

Supposition (act of supposing) Making a statement or assumption without proof. (PASS)

Surface area (of a rectangular prism) The total measure of the area of the faces of a rectangular prism. Equivalently, the total area of a net for the prism.

Tangent a) Meeting a curve or surface in a single point if a sufficiently small interval is considered. b) (of an acute angle) The trigonometric function that, for an acute angle, is the ratio between the leg opposite the angle and the leg adjacent to the angle when the angle is considered part of a right triangle. (MW)

Tape diagram A drawing that looks like a segment of tape, used to illustrate number relationships. Also known as a strip diagram, bar model, fraction strip, or length model. (MA)

Terminating decimal A decimal is called terminating if its repeating digit is 0. Every terminating decimal is the decimal form of some rational number. *See also:* ***repeating decimal***. (MA)

Third quartile For a data set with median *M*, the third quartile is the median of the data values greater than *M*. *Example: For the data set {2, 3, 6, 7, 10, 12, 14, 15, 22, 120}, the third quartile is 15. See also:* ***median, first quartile, interquartile range***. (MA)

Transformation A prescription, or rule, that sets up a one-to-one correspondence between the points in a geometric object (the *pre-image*) and the points in another geometric object (the *image*). Reflections, rotations, translations, and dilations are particular examples of transformations. (MA)

Transitivity principle for indirect measurement If the length of object A is greater than the length of object B, and the length of object B is greater than the length of object C, then the length of object A is greater than the length of object C. This principle applies to measurement of other quantities as well. (MA)

Translation A type of transformation that moves every point in a graph or geometric figure by the same distance in the same direction without a change in orientation or size. (MW)

Transversal line A line that crosses two or more other lines is called a transversal.

Triangle A polygon with three sides. Important classes of triangles:

Equilateral triangle A triangle with all sides congruent.

Right triangle Contains an interior angle that is a right angle.

Scalene triangle A triangle with no side congruent to another.

Isosceles triangle A triangle with two congruent sides.

Trigonometric function Trigonometric functions (sine, cosine, tangent, and their reciprocals) are commonly defined as ratios of two sides of a right triangle containing the angle, and can equivalently be defined as the lengths of various line segments from a unit circle.

Trigonometry The study of trigonometric functions.

Uniform probability model A probability model which assigns equal probability to all outcomes. *See also:* ***probability model***.

Unit fraction A fraction with a numerator of 1, such as 1/3 or 1/5. (MA)

Unit of measurement When measuring a given attribute of an object, a "unit" is defined in terms of which all other measurements are determined. That a given unit is fixed is a concept to be learned by young students (e.g. we wouldn't measure the length of a room in hands because your hand is different from mine, and we wouldn't measure the length of a room using cm and inches at the same time).

Union (of sets) For two sets and , the union $\cup$ is the set of all elements that are members of one or both of the sets.

Variable (a) A quantity that can change or that may take on different values. (b) A symbol (often a letter of the alphabet, sometimes including the Greek alphabet) that represents a number in a mathematical expression.

Venn diagram A data display in which (typically) circles are used to represent categories and in which the overlapping of two (or more) circles indicates data that lies in each category in the overlap.

Visual fraction model A diagram or representation to show the relative size of a fraction, for example, a tape diagram, number line diagram, or area model. (MA)

Volume (of a 3D object) A measurement of the amount of space within a closed three-dimensional shape. Volume is often measured in terms of "cubic units", in which 1 cubic unit is the amount of space within a cube that measures 1 unit by 1 unit by 1 unit (for a given unit of length). For example, volume may be measured in "cubic centimeters", 1 cubic centimeter being the amount of space within a 1cm by 1cm by 1cm cube. Note that since one can measure the volume of a liquid by placing said liquid into a 3D shape, volume has historically been measured in various units such as cups, fluid ounces, and liters. Note that 1 cubic centimeter is equal to 1 milliliter, one way to connect such fluid units to cubic units.

Whole numbers The numbers 0, 1, 2, 3, …

Table 1: The Properties of Operations	
Here a, b and c stand for arbitrary numbers in a given number system. The properties of operations apply to the rational number system, the real number system, and the complex number system.	
Associative property of addition	$(a + b) + c = a + (b + c)$
Commutative property of addition	$a + b = b + a$
Additive identity property of 0	$a + 0 = 0 + a = a$
Existence of additive inverses	For every a there exists $-a$ so that $a + (-a) = (-a) + a = 0$.
Associative property of multiplication	$(a \times b) \times c = a \times (b \times c)$
Commutative property of multiplication	$a \times b = b \times a$
Multiplicative identity property of 1	$a \times 1 = 1 \times a = a$
Existence of multiplicative inverses	For every a (where $a \neq 0$) there exists $\frac{1}{a}$ so that $a \times \frac{1}{a} = \frac{1}{a} \times a = 1$.
Distributive property of multiplication over addition	$a \times (b + c) = a \times b + a \times c$

Table 2: The Properties of Equality	
Here a, b, and c stand for arbitrary numbers in the rational, real, or complex number systems.	
Reflexive property of equality	$a = a$
Symmetric property of equality	If $a = b$, then $b = a$.
Transitive property of equality	If $a = b$ and $b = c$, then $a = c$.
Addition property of equality	If $a = b$, then $a + c = b + c$.
Subtraction property of equality	If $a = b$, then $a - c = b - c$.
Multiplication property of equality	If $a = b$, then $a \times c = b \times c$.
Division property of equality	If $a = b$ and $c \neq 0$, then $a \div c = b \div c$.
Substitution property of equality	If $a = b$, then b may be substituted for a in any expression containing a.

Table 3: The Properties of Inequality	
Here a, b, and c stand for arbitrary numbers in the rational or real number systems.	
Law of Trichotomy	Exactly one of the following is true: $a < b$, $a = b$, or $a > b$
Reversal Property	If $a > b$, then $b < a$.
Additive Inverse	If $a > b$, then $-a < -b$.
Addition and Subtraction Property of Inequality	If $a > b$, then $a \pm c > b \pm c$.
Positive Multiplication Property of Inequality	If $a > b$ and $c > 0$, then $a \times c > b \times c$.
Negative Multiplication Property of Inequality	If $a > b$ and $c < 0$, then $a \times c < b \times c$.
Positive Division Property of Inequality	If $a > b$ and $c > 0$, then $a \div c > b \div c$.
Negative Division Property of Inequality	If $a > b$ and $c < 0$, then $a \div c < b \div c$.

Table 4: Fluency Expectations				
Grade level fluency expectations apply to operations of whole numbers.	**Addition**	**Subtraction**	**Multiplication**	**Division**
1st Grade	Through 10	Through 10		
2nd Grade	Through 20	Through 20		
3rd Grade			Through factors of 10	
4th Grade			Through factors of 12	Through factors of 12

Number & Operations (N)			
Topic	**Pre-Kindergarten (PK)**	**Kindergarten (K)**	**First Grade (1)**
Quantity	**PK.N.1 Know number names and count in sequence.** **PK.N.1.1** Count aloud forward in sequence by 1's to 20. **PK.N.1.2** Recognize and name written numerals 0-10. **PK.N.1.3** Recognize that zero represents the count of no objects. **PK.N.2 Count to tell the number of objects.** **PK.N.2.1** Identify the number of objects, up to 10, in a row or column. **PK.N.2.2** Use one-to-one correspondence in counting objects and matching groups of objects. **PK.N.2.3** Understand the last numeral spoken, when counting aloud, tells how many total objects are in a set. **PK.N.2.4** Count up to 5 items in a scattered configuration; not in a row or column. **PK.N.3 Compare sets using number.** **PK.N.3.1** Compare two sets of 1-5 objects using comparative language such as same, more, or fewer.	**K.N.1 Understand the relationship between quantities and whole numbers.** **K.N.1.1** Count aloud forward in sequence to 100 by 1's and 10's. **K.N.1.2** Recognize that a number can be used to represent how many objects are in a set up to 10. **K.N.1.3** Use ordinal numbers to represent the position of an object in a sequence up to 10. **K.N.1.4** Recognize without counting (subitize) the quantity of a small group of objects in organized and random arrangements up to 10. **Clarification statement:** Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age. **K.N.1.5** Count forward, with and without objects, from any given number up to 10. **K.N.1.6** Read, write, discuss, and represent whole numbers from 0 to at least 10. Representations may include numerals, pictures, real objects and picture graphs, spoken words, and manipulatives. **K.N.1.7** Find a number that is 1 more or 1 less than a given number up to 10. **K.N.1.8** Using the words more than, less than or equal to compare and order whole numbers, with and without objects, from 0 to 10.	**1.N.1 Count, compare and represent whole numbers up to 100, with an emphasis on groups of tens and ones.** **1.N.1.1** Recognize numbers to 20 without counting (subitize) the quantity of structured arrangements. **Clarification statement:** Subitizing is defined as instantly recognizing the quantity of a set without having to count. "Subitizing" is not a vocabulary word and is not meant for student discussion at this age. **1.N.1.2** Use concrete representations to describe whole numbers between 10 and 100 in terms of tens and ones. **1.N.1.3** Read, write, discuss, and represent whole numbers up to 100. Representations may include numerals, addition and subtraction, pictures, tally marks, number lines and manipulatives, such as bundles of sticks and base 10 blocks. **1.N.1.4** Count forward, with and without objects, from any given number up to 100 by 1s, 2s, 5s and 10s. **1.N.1.5** Find a number that is 10 more or 10 less than a given number up to 100. **1.N.1.6** Compare and order whole numbers from 0 to 100. **1.N.1.7** Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 20. **1.N.1.8** Use objects to represent and use words to describe the relative size of numbers, such as more than, less than, and equal to.
Operations	Topic addressed at other grade levels.	**K.N.2 Develop conceptual fluency with addition and subtraction (up to 10) using objects and pictures.** **K.N.2.1** Compose and decompose numbers up to 10 with objects and pictures.	**1.N.2 Solve addition and subtraction problems up to 10 in real-world and mathematical contexts.** **1.N.2.1** Represent and solve real-world and mathematical problems using addition and subtraction up to ten. **1.N.2.2** Determine if equations involving addition and subtraction are true. **1.N.2.3** Demonstrate fluency with basic addition facts and related subtraction facts up to 10.

Number & Operations (N)			
Topic	**Pre-Kindergarten (PK)**	**Kindergarten (K)**	**First Grade (1)**
Fractions	Topic addressed at other grade levels.	**K.N.3 Understand the relationship between whole numbers and fractions through fair share.** **K.N.3.1** Distribute equally a set of objects into at least two smaller equal sets.	**1.N.3 Develop foundational ideas for fractions.** **1.N.3.1** Partition a regular polygon using physical models and recognize when those parts are equal. **1.N.3.2** Partition (fair share) sets of objects into equal groupings.
Money	Topic addressed at other grade levels.	**K.N.4 Identify coins by name.** **K.N.4.1** Identify pennies, nickels, dimes, and quarters by name.	**1.N.4 Identify coins and their values.** **1.N.4.1** Identify pennies, nickels, dimes, and quarters by name and value. **1.N.4.2** Write a number with the cent symbol to describe the value of a coin. **1.N.4.3** Determine the value of a collection of pennies, nickels, or dimes up to one dollar counting by ones, fives, or tens.
Algebraic Reasoning & Algebra (A)			
Topic	**Pre-Kindergarten (PK)**	**Kindergarten (K)**	**First Grade (1)**
Patterns	**PK.A.1 Recognize, duplicate, and extend patterns.** **PK.A.1.1** Sort and group up to 5 objects into a set based upon characteristics such as color, size, and shape and explain verbally what the objects have in common. **PK.A.1.2** Recognize, duplicate, and extend repeating patterns involving manipulatives, sound, movement, and other contexts.	**K.A.1 Duplicate patterns in a variety of contexts.** **K.A.1.1** Sort and group up to 10 objects into a set based upon characteristics such as color, size, and shape. Explain verbally what the objects have in common. **K.A.1.2** Recognize, duplicate, complete, and extend repeating, shrinking and growing patterns involving shape, color, size, objects, sounds, movement, and other contexts.	**1.A.1 Identify patterns found in real-world and mathematical situations.** **1.A.1.1** Identify, create, complete, and extend repeating, growing, and shrinking patterns with quantity, numbers, or shapes in a variety of real-world and mathematical contexts.
Number Sentences	Topic addressed at other grade levels.	Topic addressed at other grade levels.	Topic addressed at other grade levels.

Geometry & Measurement (GM)			
Topic	**Pre-Kindergarten (PK)**	**Kindergarten (K)**	**First Grade (1)**
Geometry	**PK.GM.1 Identify common shapes.** **PK.GM.1.1** Identify circles, squares, rectangles, and triangles by pointing to the shape when given the name.	**K.GM.1 Recognize and sort basic two-dimensional shapes and use them to represent real-world objects.** **K.GM.1.1** Recognize squares, circles, triangles, and rectangles. **K.GM.1.2** Sort two-dimensional objects using characteristics such as shape, size, color, and thickness. **K.GM.1.3** Identify attributes of two-dimensional shapes using informal and formal geometric language interchangeably. **K.GM.1.4** Use smaller shapes to form a larger shape when there is an outline to follow. **K.GM.1.5** Compose free-form shapes with blocks. **K.GM.1.6** Use basic shapes and spatial reasoning to represent objects in the real world.	**1.GM.1 Recognize, compose, and decompose two- and three-dimensional shapes.** **1.GM.1.1** Identify trapezoids and hexagons by pointing to the shape when given the name. **1.GM.1.2** Compose and decompose larger shapes using smaller two-dimensional shapes. **1.GM.1.3** Compose structures with three-dimensional shapes. **1.GM.1.4** Recognize three-dimensional shapes such as cubes, cones, cylinders, and spheres.
Measurement	**PK.GM.2 Describe and compare measureable attributes.** **PK.GM.2.**1 Identify measurable attributes of objects. Describe them as little, big, long, short, tall, heavy, light, or other age appropriate vocabulary. **PK.GM.2.2** Directly compare two objects with a common measurable attribute using words such as longer/shorter; heavier/lighter; or taller/shorter. **PK.GM.2.3** Sort objects into sets by one or more attributes.	**K.GM.2 Compare and order objects according to location and measurable attributes.** **K.GM.2.1** Use words to compare objects according to length, size, weight, position, and location. **K.GM.2.2** Order up to 6 objects using measurable attributes, such as length and weight. **K.GM.2.3** Sort objects into sets by more than one attribute. **K.GM.2.4** Compare the number of objects needed to fill two different containers.	**1.GM.2 Select and use nonstandard and standard units to describe length and volume/capacity.** **1.GM.2.1** Use nonstandard and standard measuring tools to measure the length of objects to reinforce the continuous nature of linear measurement. **1.GM.2.2** Illustrate that the length of an object is the number of same-size units of length that, when laid end-to-end with no gaps or overlaps, reach from one end of the object to the other. **1.GM.2.3** Measure the same object/distance with units of two different lengths and describe how and why the measurements differ. **1.GM.2.4** Describe a length to the nearest whole unit using a number and a unit. **1.GM.2.5** Use standard and nonstandard tools to identify volume/capacity. Compare and sort containers that hold more, less, or the same amount.
Time	Topic addressed at other grade levels.	**K.GM.3 Tell time as it relates to daily life.** **K.GM.3.1** Develop an awareness of simple time concepts using words such as yesterday, today, tomorrow, morning, afternoon, and night within his/her daily life.	**1.GM.3 Tell time to the half and full hour.** **1.GM.3.1** Tell time to the hour and half-hour (analog and digital).

Data & Probability (D)			
Topic	**Pre-Kindergarten (PK)**	**Kindergarten (K)**	**First Grade (1)**
Data Analysis	**PK.D.1 Collect and organize categorical data.** **PK.D.1.1** Collect and organize information about objects and events in the environment. **PK.D.1.2** Use categorical data to create real-object graphs.	**K.D.1 Collect, organize, and interpret categorical data.** **K.D.1.1** Collect and sort information about objects and events in the environment. **K.D.1.2** Use categorical data to create real-object and picture graphs. **K.D.1.3** Draw conclusions from real-object and picture graphs.	**1.D.1 Collect, organize, and interpret categorical and numerical data.** **1.D.1.1** Collect, sort, and organize data in up to three categories using representations (e.g., tally marks, tables, Venn diagrams). **1.D.1.2** Use data to create picture and bar-type graphs to demonstrate one-to-one correspondence. **1.D.1.3** Draw conclusions from picture and bar-type graphs.

Number & Operations (N)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Quantity	**2.N.1 Compare and represent whole numbers up to 1,000 with an emphasis on place value and equality.** **2.N.1.1** Read, write, discuss, and represent whole numbers up to 1,000. Representations may include numerals, words, pictures, tally marks, number lines and manipulatives. **2.N.1.2** Use knowledge of number relationships to locate the position of a given whole number on an open number line up to 100. **2.N.1.3** Use place value to describe whole numbers between 10 and 1,000 in terms of hundreds, tens and ones. Know that 100 is 10 tens, and 1,000 is 10 hundreds. **2.N.1.4** Find 10 more or 10 less than a given three-digit number. Find 100 more or 100 less than a given three-digit number. **2.N.1.5** Recognize when to round numbers to the nearest 10 and 100. **2.N.1.6** Use place value to compare and order whole numbers up to 1,000 using comparative language, numbers, and symbols (e.g., 425 > 276, 73 < 107, page 351 comes after page 350, 753 is between 700 and 800).	**3.N.1 Compare and represent whole numbers up to 100,000 with an emphasis on place value and equality.** **3.N.1.1** Read, write, discuss, and represent whole numbers up to 100,000. Representations may include numerals, expressions with operations, words, pictures, number lines, and manipulatives. **3.N.1.2** Use place value to describe whole numbers between 1,000 and 100,000 in terms of ten thousands, thousands, hundreds, tens and ones, including expanded form. **3.N.1.3** Find 10,000 more or 10,000 less than a given five-digit number. Find 1,000 more or 1,000 less than a given four- or five-digit number. Find 100 more or 100 less than a given four- or five-digit number. **3.N.1.4** Use place value to compare and order whole numbers up to 100,000, using comparative language, numbers, and symbols.	Topic addressed at other grade levels.

Number & Operations (N)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Operations	**2.N.2 Add and subtract one- and two-digit numbers in real-world and mathematical problems.** **2.N.2.1** Use the relationship between addition and subtraction to generate basic facts up to 20. **2.N.2.2** Demonstrate fluency with basic addition facts and related subtraction facts up to 20. **2.N.2.3** Estimate sums and differences up to 100. **2.N.2.4** Use strategies and algorithms based on knowledge of place value and equality to add and subtract two-digit numbers. **2.N.2.5** Solve real-world and mathematical addition and subtraction problems involving whole numbers up to 2 digits. **2.N.2.6** Use concrete models and structured arrangements, such as repeated addition, arrays and ten frames to develop understanding of multiplication.	**3.N.2 Add and subtract multi-digit whole numbers; multiply with factors up to 10; represent multiplication and division in various ways; Solve real-world and mathematical problems through the representation of related operations.** **3.N.2.1** Represent multiplication facts by using a variety of approaches, such as repeated addition, equal-sized groups, arrays, area models, equal jumps on a number line and skip counting. **3.N.2.2** Demonstrate fluency of multiplication facts with factors up to 10. **3.N.2.3** Use strategies and algorithms based on knowledge of place value and equality to fluently add and subtract multi-digit numbers. **3.N.2.4** Recognize when to round numbers and apply understanding to round numbers to the nearest ten thousand, thousand, hundred, and ten and use compatible numbers to estimate sums and differences. **3.N.2.5** Use addition and subtraction to solve real-world and mathematical problems involving whole numbers. Use various strategies, including the relationship between addition and subtraction, the use of technology, and the context of the problem to assess the reasonableness of results. **3.N.2.6** Represent division facts by using a variety of approaches, such as repeated subtraction, equal sharing and forming equal groups. **3.N.2.7** Recognize the relationship between multiplication and division to represent and solve real-world problems. **3.N.2.8** Use strategies and algorithms based on knowledge of place value, equality and properties of addition and multiplication to multiply a two-digit number by a one-digit number.	**4.N.1 Solve real-world and mathematical problems using multiplication and division.** **4.N.1.1** Demonstrate fluency with multiplication and division facts with factors up to 12. **4.N.1.2** Use an understanding of place value to multiply or divide a number by 10, 100 and 1,000. **4.N.1.3** Multiply 3-digit by 1-digit or a 2-digit by 2-digit whole numbers, using efficient and generalizable procedures and strategies, based on knowledge of place value, including but not limited to standard algorithms. **4.N.1.4** Estimate products of 3-digit by 1-digit or 2-digit by 2-digit whole numbers using rounding, benchmarks and place value to assess the reasonableness of results. Explore larger numbers using technology to investigate patterns. **4.N.1.5** Solve multi-step real-world and mathematical problems requiring the use of addition, subtraction, and multiplication of multi-digit whole numbers. Use various strategies, including the relationship between operations, the use of appropriate technology, and the context of the problem to assess the reasonableness of results. **4.N.1.6** Use strategies and algorithms based on knowledge of place value, equality and properties of operations to divide 3-digit dividend by 1-digit whole number divisors. (e.g., mental strategies, standard algorithms, partial quotients, repeated subtraction, the commutative, associative, and distributive properties). **4.N.1.7** Determine the unknown addend(s) or factor(s) in equivalent and non-equivalent expressions. (e.g., 5 + 6 = 4 + ☐ , 3 x 8 < 3 x ☐).

Number & Operations (N)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Fractions	**2.N.3 Explore the foundational ideas of fractions.** **2.N.3.1** Identify the parts of a set and area that represent fractions for halves, thirds, and fourths. **2.N.3.2** Construct equal-sized portions through fair sharing including length, set, and area models for halves, thirds, and fourths.	**3.N.3 Understand meanings and uses of fractions in real-world and mathematical situations**. **3.N.3.1** Read and write fractions with words and symbols. **3.N.3.2** Construct fractions using length, set, and area models. **3.N.3.3** Recognize unit fractions and use them to compose and decompose fractions related to the same whole. Use the numerator to describe the number of parts and the denominator to describe the number of partitions. **3.N.3.4** Use models and number lines to order and compare fractions that are related to the same whole.	**4.N.2 Represent and compare fractions and decimals in real-world and mathematical situations; use place value to understand how decimals represent quantities**. **4.N.2.**1 Represent and rename equivalent fractions using fraction models (e.g. parts of a set, area models, fraction strips, number lines). **4.N.2.2** Use benchmark fractions (0, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, 1) to locate additional fractions on a number line. Use models to order and compare whole numbers and fractions less than and greater than one using comparative language and symbols. **4.N.2.3** Decompose a fraction in more than one way into a sum of fractions with the same denominator using concrete and pictorial models and recording results with symbolic representations (e.g., $\frac{3}{4} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4}$). **4.N.2.4** Use fraction models to add and subtract fractions with like denominators in real-world and mathematical situations. **4.N.2.5** Represent tenths and hundredths with concrete models, making connections between fractions and decimals. **4.N.2.6** Represent, read and write decimals up to at least the hundredths place in a variety of contexts including money. **4.N.2.7** Compare and order decimals and whole numbers using place value, a number line and models such as grids and base 10 blocks. **4.N.2.8** Compare benchmark fractions ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$) and decimals (0.25, 0.50, 0.75) in real-world and mathematical situations.
Money	**2.N.4 Determine the value of a set of coins**. **2.N.4.1** Determine the value of a collection(s) of coins up to one dollar using the cent symbol. **2.N.4.2** Use a combination of coins to represent a given amount of money up to one dollar.	**3.N.4 Determine the value of a set of coins or bills.** **3.N.4.1** Use addition to determine the value of a collection of coins up to one dollar using the cent symbol and a collection of bills up to twenty dollars. **3.N.4.2** Select the fewest number of coins for a given amount of money up to one dollar.	**4.N.3 Determine the value of coins in order to solve monetary transactions.** **4.N.3.1** Given a total cost (whole dollars up to $20 or coins) and amount paid (whole dollars up to $20 or coins), find the change required in a variety of ways. Limited to whole dollars up to $20 or sets of coins.

Algebraic Reasoning & Algebra (A)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Patterns	**2.A.1 Describe the relationship found in patterns to solve real-world and mathematical problems.** **2.A.1.1** Represent, create, describe, complete, and extend growing and shrinking patterns with quantity and numbers in a variety of real-world and mathematical contexts. **2.A.1.2** Represent and describe repeating patterns involving shapes in a variety of contexts.	**3.A.1 Describe and create representations of numerical and geometric patterns.** **3.A.1.1** Create, describe, and extend patterns involving addition, subtraction, or multiplication to solve problems in a variety of contexts. **3.A.1.2** Describe the rule (single operation) for a pattern from an input/output table or function machine involving addition, subtraction, or multiplication. **3.A.1.3** Explore and develop visual representations of growing geometric patterns and construct the next steps.	**4.A.1 Use multiple representations of patterns to solve real-world and mathematical problems.** **4.A.1.1** Create an input/output chart or table to represent or extend a numerical pattern. **4.A.1.2** Describe the single operation rule for a pattern from an input/output table or function machine involving any operation of a whole number. **4.A.1.3** Create growth patterns involving geometric shapes and define the single operation rule of the pattern.
Number Sentences	**2.A.2 Use number sentences involving unknowns to represent and solve real-world and mathematical problems.** **2.A.2.1** Use objects and number lines to represent number sentences. **2.A.2.2** Generate real-world situations to represent number sentences and vice versa. **2.A.2.3** Apply commutative and identity properties and number sense to find values for unknowns that make number sentences involving addition and subtraction true or false.	**3.A.2 Use number sentences involving multiplication and unknowns to represent and solve real-world and mathematical problems.** **3.A.2.1** Find unknowns represented by symbols in arithmetic problems by solving one-step open sentences (equations) and other problems involving addition, subtraction, and multiplication. Generate real-world situations to represent number sentences. **3.A.2.2** Recognize, represent and apply the number properties (commutative, identity, and associative properties of addition and multiplication) using models and manipulatives to solve problems**.**	**4.A.2 Use multiplication and division with unknowns to create number sentences representing a given problem situation.** **4.A.2.1** Use number sense, properties of multiplication and the relationship between multiplication and division to solve problems and find values for the unknowns represented by letters and symbols that make number sentences true. **4.A.2.2** Solve for unknowns in problems by solving open sentences (equations) and other problems involving addition, subtraction, multiplication, or division with whole numbers. Use real-world situations to represent number sentences and vice versa.

Geometry & Measurement (GM)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Geometry	**2.GM.1 Analyze attributes of two-dimensional figures and develop generalizations about their properties.** **2.GM.1.1** Recognize trapezoids and hexagons. **2.GM.1.2** Describe, compare, and classify two-dimensional figures according to their geometric attributes. **2.GM.1.3** Compose two-dimensional shapes using triangles, squares, hexagons, trapezoids, and rhombi. **2.GM.1.4** Recognize right angles and classify angles as smaller or larger than a right angle.	**3.GM.1 Use geometric attributes to describe and create shapes in various contexts.** **3.GM.1.1** Sort three-dimensional shapes based on attributes. **3.GM.1.2** Build a three-dimensional figure using unit cubes when picture/shape is shown. **3.GM.1.3** Classify angles as acute, right, obtuse, and straight.	**4.GM.1 Name, describe, classify, and construct polygons and three-dimensional figures.** **4.GM.1.1** Identify points, lines, line segments, rays, angles, endpoints, and parallel and perpendicular lines in various contexts. **4.GM.1.2** Describe, classify, and sketch quadrilaterals, including squares, rectangles, trapezoids, rhombuses, parallelograms, and kites. Recognize quadrilaterals in various contexts. **4.GM.1.3** Given two three-dimensional shapes, identify similarities, and differences.
Measurement	**2.GM.2 Understand length as a measurable attribute and explore capacity.** **2.GM.2.1** Explain the relationship between the size of the unit of measurement and the number of units needed to measure the length of an object. **2.GM.2.2** Explain the relationship between length and the numbers on a ruler by using a ruler to measure lengths to the nearest whole unit. **2.GM.2.3** Explore how varying shapes and styles of containers can have the same capacity.	**3.GM.2 Understand measurable attributes of real-world and mathematical objects using various tools.** **3.GM.2.1** Find perimeter of polygon, given whole number lengths of the sides, in real-world and mathematical situations. **3.GM.2.2** Develop and use formulas to determine the area of rectangles. Justify why length and width are multiplied to find the area of a rectangle by breaking the rectangle into one unit by one unit squares and viewing these as grouped into rows and columns. **3.GM.2.3** Choose an appropriate measurement instrument and measure the length of objects to the nearest whole centimeter or meter. **3.GM.2.4** Choose an appropriate measurement instrument and measure the length of objects to the nearest whole yard, whole foot, or half inch. **3.GM.2.5** Using common benchmarks, estimate the lengths (customary and metric) of a variety of objects. **3.GM.2.6** Use an analog thermometer to determine temperature to the nearest degree in Fahrenheit and Celsius. **3.GM.2.7** Count cubes systematically to identify the number of cubes needed to pack the whole or half of a three-dimensional structure. **3.GM.2.8** Find the area of two-dimensional figures by counting total number of same size unit squares that fill the shape without gaps or overlaps.	**4.GM.2 Understand angle, length, and area as measurable attributes of real-world and mathematical objects. Use various tools to measure angles, length, area, and volume.** **4.GM.2.1** Measure angles in geometric figures and real-world objects with a protractor or angle ruler. **4.GM.2.2** Find the area of polygons that can be decomposed into rectangles. **4.GM.2.3** Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with whole-number edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm^3. **4.GM.2.4** Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or quarter-inch. **4.GM.2.5** Solve problems that deal with measurements of length, when to use liquid volumes, when to use mass, temperatures above zero and money using addition, subtraction, multiplication, or division as appropriate (customary and metric).

Geometry & Measurement (GM)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Time	**2.GM.3 Tell time to the quarter hour.** **2.GM.3.1** Read and write time to the quarter-hour on an analog and digital clock. Distinguish between a.m. and p.m.	**3.GM.3 Tell time to the nearest 5-minutes and solve problems.** **3.GM.3.1** Read and write time to the nearest 5-minute (analog and digital). **3.GM.3.2** Determine the solutions to problems involving addition and subtraction of time in intervals of 5 minutes, up to one hour, using pictorial models, number line diagrams, or other tools.	**4.GM.3 Determine elapsed time and convert between units of time.** **4.GM.3.1** Determine elapsed time. **4.GM.3.2** Solve problems involving the conversion of one measure of time to another.

Data & Probability (D)			
Topic	**Second Grade (2)**	**Third Grade (3)**	**Fourth Grade (4)**
Data Analysis	**2.D.1 Collect, organize, and interpret data.** **2.D.1.1** Explain that the length of a bar in a bar graph or the number of objects in a picture graph represents the number of data points for a given category. **2.D.1.2** Organize a collection of data with up to four categories using pictographs and bar graphs with intervals of 1s, 2s, 5s or 10s. **2.D.1.3** Write and solve one-step word problems involving addition or subtraction using data represented within pictographs and bar graphs with intervals of one. **2.D.1.4** Draw conclusions and make predictions from information in a graph.	**3.D.1 Summarize, construct, and analyze data.** **3.D.1.1** Summarize and construct a data set with multiple categories using a frequency table, line plot, pictograph, and/or bar graph with scaled intervals. **3.D.1.2** Solve one- and two-step problems using categorical data represented with a frequency table, pictograph, or bar graph with scaled intervals.	**4.D.1 Collect, organize, and analyze data.** **4.D.1.1** Represent data on a frequency table or line plot marked with whole numbers and fractions using appropriate titles, labels, and units. **4.D.1.2** Use tables, bar graphs, timelines, and Venn diagrams to display data sets. The data may include benchmark fractions or decimals ($\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$, $\frac{2}{3}$, $\frac{3}{4}$, 0.25, 0.50, 0.75). **4.D.1.3** Solve one- and two-step problems using data in whole number, decimal, or fraction form in a frequency table and line plot.

Number & Operations (N)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.N.1 Divide multi-digit numbers and solve real-world and mathematical problems using arithmetic. **5.N.1.1** Estimate solutions to division problems in order to assess the reasonableness of results. **5.N.1.2** Divide multi-digit numbers, by one- and two-digit divisors, using efficient and generalizable procedures, based on knowledge of place value, including standard algorithms. **5.N.1.3** Recognize that quotients can be represented in a variety of ways, including a whole number with a remainder, a fraction or mixed number, or a decimal and consider the context in which a problem is situated to select and interpret the most useful form of the quotient for the solution. **5.N.1.4** Solve real-world and mathematical problems requiring addition, subtraction, multiplication, and division of multi-digit whole numbers. Use various strategies, including the inverse relationships between operations, the use of technology, and the context of the problem to assess the reasonableness of results. **5.N.2 Read, write, represent, and compare fractions and decimals; recognize and write equivalent fractions; convert between fractions and decimals; use fractions and decimals in real-world and mathematical situations.** **5.N.2.1** Represent decimal fractions (e.g., $\frac{1}{10}$, $\frac{1}{100}$) using a variety of models (e.g., 10 by 10 grids, rational number wheel, base-ten blocks, meter stick) and make connections between fractions and decimals.	**6.N.1 Read, write, and represent integers and rational numbers expressed as fractions, decimals, percents, and ratios; write positive integers as products of factors; use these representations in real-world and mathematical situations**. **6.N.1.1** Represent integers with counters and on a number line and rational numbers on a number line, recognizing the concepts of opposites, direction, and magnitude; use integers and rational numbers in real-world and mathematical situations, explaining the meaning of 0 in each situation. **6.N.1.2** Compare and order positive rational numbers, represented in various forms, or integers using the symbols <, >, and =. **6.N.1.3** Explain that a percent represents parts "out of 100" and ratios "to 100." **6.N.1.4** Determine equivalencies among fractions, decimals, and percents. Select among these representations to solve problems. **6.N.1.5** Factor whole numbers and express prime and composite numbers as a product of prime factors with exponents. **6.N.1.6** Determine the greatest common factors and least common multiples. Use common factors and multiples to calculate with fractions, find equivalent fractions, and express the sum of two-digit numbers with a common factor using the distributive property. **6.N.2 Add and subtract integers in order to solve real-world and mathematical problems.** **6.N.2.1** Estimate solutions to addition and subtraction of integers problems in order to assess the reasonableness of results.	**7.N.1 Read, write, represent, and compare rational numbers, expressed as integers, fractions, and decimals.** **7.N.1.1** Know that every rational number can be written as the ratio of two integers or as a terminating or repeating decimal. **7.N.1.2** Compare and order rational numbers expressed in various forms using the symbols <, >, and =. **7.N.1.3** Recognize and generate equivalent representations of rational numbers, including equivalent fractions. **7.N.2 Calculate with integers and rational numbers, with and without positive integer exponents, to solve real-world and mathematical problems; explain the relationship between absolute value of a rational number and the distance of that number from zero.** **7.N.2.1** Estimate solutions to multiplication and division of integers in order to assess the reasonableness of results. **7.N.2.2** Illustrate multiplication and division of integers using a variety of representations. **7.N.2.3** Solve real-world and mathematical problems involving addition, subtraction, multiplication and division of rational; use efficient and generalizable procedures including but not limited to standard algorithms. **7.N.2.4** Raise integers to positive integer exponents. **7.N.2.5** Solve real-world and mathematical problems involving calculations with rational numbers and positive integer exponents. **7.N.2.6** Explain the relationship between the absolute value of a rational number	**PA.N.1 Read, write, compare, classify, and represent real numbers and use them to solve problems in various contexts.** **PA.N.1.1** Develop and apply the properties of integer exponents, including $a^0 = 1$ (with $a \neq 0$), to generate equivalent numerical and algebraic expressions. **PA.N.1.2** Express and compare approximations of very large and very small numbers using scientific notation. **PA.N.1.3** Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation. **PA.N.1.4** Classify real numbers as rational or irrational. Explain why the rational number system is closed under addition and multiplication and why the irrational system is not. Explain why the sum of a rational number and an irrational number is irrational; and the product of a non-zero rational number and an irrational number is irrational. **PA.N.1.5** Compare real numbers; locate real numbers on a number line. Identify the square root of a perfect square to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.

5.N.2.2 Represent, read and write decimals using place value to describe decimal numbers including fractional numbers as small as thousandths and whole numbers as large as millions. **5.N.2.3** Compare and order fractions and decimals, including mixed numbers and fractions less than one, and locate on a number line. **5.N.2.4** Recognize and generate equivalent decimals, fractions, mixed numbers, and fractions less than one in various contexts. **5.N.3 Add and subtract fractions with like and unlike denominators, mixed numbers and decimals to solve real-world and mathematical problems.** **5.N.3.1** Estimate sums and differences of fractions with like and unlike denominators, mixed numbers, and decimals to assess the reasonableness of the results. **5.N.3.2** Illustrate addition and subtraction of fractions with like and unlike denominators, mixed numbers, and decimals using a variety of representations (e.g., fraction strips, area models, number lines, fraction rods). **5.N.3.3** Add and subtract fractions with like and unlike denominators, mixed numbers, and decimals, using efficient and generalizable procedures, including but not limited to standard algorithms in order to solve real-world and mathematical problems including those involving money, measurement, geometry, and data. **5.N.3.4** Find 0.1 more than a number and 0.1 less than a number. Find 0.01 more than a number and 0.01 less than a	**6.N.2.2** Illustrate addition and subtraction integers using a variety of representations. **6.N.2.3** Add and subtract integers; use efficient and generalizable procedures including but not limited to standard algorithms. **6.N.3 Understand the concept of ratio and its relationship to fractions and percents and to the multiplication and division of whole numbers. Use ratios to solve real-world and mathematical problems.** **6.N.3.1** Identify and use ratios to compare quantities. Recognize that multiplicative comparison and additive comparison are different. **6.N.3.2** Determine the unit rate for ratios. **6.N.3.3** Apply the relationship between ratios, equivalent fractions and percents to solve problems in various contexts, including those involving mixture and concentrations. **6.N.3.4** Use multiplicative reasoning and representations to solve ratio and unit rate problems. **6.N.4 Multiply and divide decimals, fractions, and mixed numbers; solve real-world and mathematical problems with rational numbers.** **6.N.4.1** Estimate solutions to problems with whole numbers, decimals, fractions, and mixed numbers and use the estimates to assess the reasonableness of results in the context of the problem. **6.N.4.2** Illustrate multiplication and division of fractions and decimals to show connections to fractions, whole number multiplication, and inverse relationships. **6.N.4.3** Multiply and divide fractions and decimals, using efficient and generalizable	and the distance of that number from zero on a number line. Use the symbol for absolute value.	

number. Find 0.001 more than a number and 0.001 less than a number.	procedures. **6.N.4.4** Solve and interpret real-world and mathematical problems including those involving money, measurement, geometry, and data requiring arithmetic with decimals, fractions and mixed numbers.		
Algebraic Reasoning & Algebra (A)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.A.1 Describe and graph patterns of change created through numerical patterns. **5.A.1.1** Use tables and rules of up to two operations to describe patterns of change and make predictions and generalizations about real-world and mathematical problems. **5.A.1.2** Use a rule or table to represent ordered pairs of whole numbers and graph these ordered pairs on a coordinate plane, identifying the origin and axes in relation to the coordinates. **5.A.2 Understand and interpret expressions, equations, and inequalities involving variables and whole numbers, and use them to represent and evaluate real-world and mathematical problems.** **5.A.2.1** Generate equivalent numerical expressions and solve problems involving whole numbers by applying the commutative, associative, and distributive properties and order of operations (no exponents). **5.A.2.2** Determine whether an equation or inequality involving a variable is true or false for a given value of the variable.	**6.A.1 Recognize and represent relationships between varying quantities; translate from one representation to another; use patterns, tables, graphs and rules to solve real-world and mathematical problems.** **6.A.1.1** Plot integer- and rational-valued (limited to halves and fourths) ordered-pairs as coordinates in all four quadrants and recognize the reflective relationships among coordinates that differ only by their signs. **6.A.1.2** Represent relationships between two varying quantities involving no more than two operations with rules, graphs, and tables; translate between any two of these representations. **6.A.1.3** Use and evaluate variables in expressions, equations, and inequalities that arise from various contexts, including determining when or if, for a given value of the variable, an equation or inequality involving a variable is true or false. **6.A.2 Use properties of arithmetic to generate equivalent numerical expressions and evaluate expressions involving positive rational numbers.** **6.A.2.1** Generate equivalent expressions and evaluate expressions involving	**7.A.1 Understand the concept of proportionality in real-world and mathematical situations, and distinguish between proportional and other relationships.** **7.A.1.1** Describe that the relationship between two variables, x and y, is proportional if it can be expressed in the form $\frac{y}{x} = k$ or $y = kx$; distinguish proportional relationships from other relationships, including inversely proportional relationships ($xy = k$ or $y = \frac{k}{x}$). **7.A.1.2** Recognize that the graph of a proportional relationship is a line through the origin and the coordinate $(1, r)$, where both r and the slope are the unit rate (constant of proportionality, k). **7.A.2 Recognize proportional relationships in real-world and mathematical situations; represent these and other relationships with tables, verbal descriptions, symbols, and graphs; solve problems involving proportional relationships and interpret results in the original context.** **7.A.2.1** Represent proportional relationships with tables, verbal descriptions, symbols, and graphs;	**PA.A.1 Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.** **PA.A.1.1** Recognize that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable. **PA.A.1.2** Use linear functions to represent and explain real-world and mathematical situations. **PA.A.1.3** Identify a function as linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line. **PA.A.2 Recognize linear functions in real-world and mathematical situations; represent linear functions and other function with tables, verbal descriptions, symbols, and graphs; solve problems involving linear functions and interpret results in the original context.** **PA.A.2.1** Represent linear functions with tables, verbal descriptions, symbols, and graphs; translate from one representation to another. **PA.A.2.2** Identify, describe, and analyze linear relationships between two variables.

Algebraic Reasoning & Algebra (A)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.A.2.3 Evaluate expressions involving variables when values for the variables are given.	positive rational numbers by applying the commutative, associative, and distributive properties and order of operations to solve real-world and mathematical problems. **6.A.3 Use equations and inequalities to represent real-world and mathematical problems and use the idea of maintaining equality to solve equations. Interpret solutions in the original context.** **6.A.3.1** Represent real-world or mathematical situations using expressions, equations and inequalities involving variables and rational numbers. **6.A.3.2** Use number sense and properties of operations and equality to solve real-world and mathematical problems involving equations in the form $x + p = q$ and $px = q$, where x, p, and q are nonnegative rational numbers. Graph the solution on a number line, interpret the solution in the original context, and assess the reasonableness of the solution.	translate from one representation to another. Determine and compare the unit rate (constant of proportionality, slope, or rate of change) given any of these representations. **7.A.2.2** Solve multi-step problems involving proportional relationships involving distance-time, percent increase or decrease, discounts, tips, unit pricing, similar figures, and other real-world and mathematical situations. **7.A.2.3** Use proportional reasoning to solve real-world and mathematical problems involving ratios. **7.A.2.4** Use proportional reasoning to assess the reasonableness of solutions. **7.A.3 Represent and solve linear equations and inequalities.** **7.A.3.1** Write and solve problems leading to linear equations with one variable in the form $px + q = r$ and $p(x+q) = r$, where p, q, and r are rational numbers. **7.A.3.2** Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $x+p>q$ and $x+p<q$, where p, and q are nonnegative rational numbers. **7.A.3.3** Represent real-world or mathematical situations using equations and inequalities involving variables and rational numbers. **7.A.4 Use order of operations and properties to generate equivalent numerical and algebraic expressions containing rational numbers and grouping symbols; evaluate such expressions.** **7.A.4.1** Use properties of operations (limited to associative, commutative, and distributive) to generate equivalent	**PA.A.2.3** Identify graphical properties of linear functions including slope and intercepts. Know that the slope equals the rate of change, and that the y-intercept is zero when the function represents a proportional relationship. **PA.A.2.4** Predict the effect on the graph of a linear function when the slope or y-intercept changes. Use appropriate tools to examine these effects. **PA.A.2.5** Solve problems involving linear functions and interpret results in the original context. **PA.A.3 Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions**. **PA.A.3.1** Use substitution to simplify and evaluate algebraic expressions. **PA.A.3.2** Justify steps in generating equivalent expressions by identifying the properties used, including the properties of operations (associative, commutative, and distributive laws) and the order of operations, including grouping symbols. **PA.A.4 Represent real-world and mathematical problems using equations and inequalities involving linear expressions. Solve and graph equations and inequalities symbolically and graphically. Interpret solutions in the original context.** **PA.A.4.1** Illustrate, write, and solve mathematical and real-world problems using linear equations with one variable with one solution, infinitely many solutions, or no solutions. Interpret solutions in the original context. **PA.A.4.2** Represent, write, solve, and graph problems leading to linear

		numerical and algebraic expressions containing rational numbers, grouping symbols and whole number exponents. **7.A.4.2** Apply understanding of order of operations and grouping symbols when using calculators and other technologies.	inequalities with one variable in the form $px + q > r$ and $px + q < r$, where p, q, and r are rational numbers. **PA.A.4.3** Represent real-world situations using equations and inequalities involving one variable.
Geometry & Measurement (GM)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.GM.1 Describe, classify, and draw representations of two- and three-dimensional figures. **5.GM.1.1** Describe, classify and construct triangles, including equilateral, right, scalene, and isosceles triangles. Recognize triangles in various contexts. **5.GM.1.2** Describe and classify three-dimensional figures including cubes, rectangular prisms, and pyramids by the number of edges, faces or vertices as well as the shapes of faces. **5.GM.1.3** Recognize and draw a net for a three-dimensional figure (e.g., cubes, rectangular prisms, pyramids). **5.GM.2 Understand how the volume of rectangular prisms and surface area of shapes with polygonal faces are determined by the dimensions of the object and that shapes with varying dimensions can have equivalent values of surface area or volume.** **5.GM.2.1** Recognize that the volume of rectangular prisms can be determined by the number of cubes (n) and by the product of the dimensions of the prism ($a \times b \times c = n$). Know that rectangular prisms of different dimensions (p, q, and r) can have the same volume if $a \times b \times c = p \times q \times r = n$.	**6.GM.1 Calculate area of squares, parallelograms, and triangles to solve real-world and mathematical problems.** **6.GM.1.1** Develop and use formulas for the area of squares and parallelograms using a variety of methods including but not limited to the standard algorithm. **6.GM.1.2** Develop and use formulas to determine the area of triangles. **6.GM.1.3** Find the area of right triangles, other triangles, special quadrilaterals, and polygons that can be decomposed into triangles and other shapes to solve real-world and mathematical problems. **6.GM.2 Understand and use relationships between angles in geometric figures**. **6.GM.2.1** Solve problems using the relationships between the angles (vertical, complementary, and supplementary) formed by intersecting lines. **6.GM.2.2** Develop and use the fact that the sum of the interior angles of a triangle is 180° to determine missing angle measures in a triangle. **6.GM.3 Choose appropriate units of measurement and use ratios to convert within measurement systems to solve real-world and mathematical problems.** **6.GM.3.1** Estimate weights, capacities	**7.GM.1 Develop and understand the concept of surface area and volume of rectangular prisms.** **7.GM.1.1** Using a variety of tools and strategies, develop the concept that surface area of a rectangular prism with rational-valued edge lengths can be found by wrapping the figure with same-sized square units without gaps or overlap. Use appropriate measurements such as cm^2. **7.GM.1.2** Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with rational-valued edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm^3. **7.GM.2 Determine the area of trapezoids and area and perimeter of composite figures.** **7.GM.2.1** Develop and use the formula to determine the area of a trapezoid to solve problems. **7.GM.2.2** Find the area and perimeter of composite figures to solve real-world and mathematical problems. **7.GM.3 Use reasoning with proportions**	**PA.GM.1 Solve problems involving right triangles using the Pythagorean Theorem**. **PA.GM.1.1** Informally justify the Pythagorean Theorem using measurements, diagrams or dynamic software and use the Pythagorean Theorem to solve problems in two and three dimensions involving right triangles. **PA.GM.1.2** Use the Pythagorean Theorem to find the distance between any two points in a coordinate plane. **PA.GM.2 Calculate surface area and volume of three-dimensional figures.** **PA.GM.2.1** Calculate the surface area of a rectangular prism using decomposition or nets. Use appropriate measurements such as cm^2. **PA.GM.2.2** Calculate the surface area of a cylinder, in terms of π and using approximations for π, using decomposition or nets. Use appropriate measurements such as cm^2. **PA.GM.2.3** Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area (B) and height (h) are multiplied to find the volume of a rectangular prism. Use appropriate measurements such as cm^3. **PA.GM.2.4** Develop and use the formulas

Geometry & Measurement (GM)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.GM.2.2 Recognize that the surface area of a three-dimensional figure with rectangular faces with whole numbered edges can be found by finding the area of each component of the net of that figure. Know that three-dimensional shapes of different dimensions can have the same surface area. **5.GM.2.3** Find the perimeter of polygons and create arguments for reasonable values for the perimeter of shapes that include curves. **5.GM.3 Understand angle and length as measurable attributes of real-world and mathematical objects. Use various tools to measure angles and lengths.** **5.GM.3.1** Measure and compare angles according to size. **5.GM.3.2** Choose an appropriate instrument and measure the length of an object to the nearest whole centimeter or 1/16-inch. **5.GM.3.3** Recognize and use the relationship between inches, feet, and yards to measure and compare objects. **5.GM.3.4** Recognize and use the relationship between millimeters, centimeters, and meters to measure and compare objects.	and geometric measurements using benchmarks in customary and metric measurement systems with appropriate units. **6.GM.3.2** Solve problems in various real-world and mathematical contexts that require the conversion of weights, capacities, geometric measurements, and time within the same measurement systems using appropriate units. **6.GM.4 Use translations, reflections, and rotations to establish congruency and understand symmetries.** **6.GM.4.1** Predict, describe, and apply translations (slides), reflections (flips), and rotations (turns) to a two-dimensional figure. **6.GM.4.2** Recognize that translations, reflections, and rotations preserve congruency and use them to show that two figures are congruent. **6.GM.4.3** Use distances between two points that are either vertical or horizontal to each other (not requiring the distance formula) to solve real-world and mathematical problems about congruent two-dimensional figures. **6.GM.4.4** Identify and describe the line(s) of symmetry in two-dimensional shapes.	**and ratios to determine measurements, justify formulas, and solve real-world and mathematical problems involving circles and related geometric figures.** **7.GM.3.1** Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is π and can be approximated by rational numbers such as $\frac{22}{7}$ and 3.14. **7.GM.3.2** Calculate the circumference and area of circles to solve problems in various contexts, in terms of π and using approximations for π. **7.GM.4 Analyze the effect of dilations, translations, and reflections on the attributes of two-dimensional figures on and off the coordinate plane.** **7.GM.4.1** Describe the properties of similarity, compare geometric figures for similarity, and determine scale factors resulting from dilations. **7.GM.4.2** Apply proportions, ratios, and scale factors to solve problems involving scale drawings and determine side lengths and areas of similar triangles and rectangles. **7.GM.4.3** Graph and describe translations and reflections of figures on a coordinate plane and determine the coordinates of the vertices of the figure after the transformation.	$V = \pi r^2 h$ and $V = Bh$ to determine the volume of right cylinders, in terms of π and using approximations for π. Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate measurements such as cm^3.

Data & Probability (D)			
Fifth Grade (5)	**Sixth Grade (6)**	**Seventh Grade (7)**	**Pre-Algebra (PA)**
5.D.1 Display and analyze data to find the range and measures of central tendency (mean, median, and mode). **5.D.1.1** Find the measures of central tendency (mean, median, or mode) and range of a set of data. Understand that the mean is a "leveling out" or central balance point of the data. **5.D.1.2** Create and analyze line and double-bar graphs with whole numbers, fractions, and decimals increments.	**6.D.1 Display and analyze data.** **6.D.1.1** Calculate the mean, median, and mode for a set of real-world data. **6.D.1.2** Explain and justify which measure of central tendency (mean, median, or mode) would provide the most descriptive information for a given set of data. **6.D.1.3** Create and analyze box and whisker plots observing how each segment contains one quarter of the data. **6.D.2 Use probability to solve real-world and mathematical problems; represent probabilities using fractions and decimals.** **6.D.2.1** Represent possible outcomes using a probability continuum from impossible to certain. **6.D.2.2** Determine the sample space for a given experiment and determine which members of the sample space are related to certain events. Sample space may be determined by the use of tree diagrams, tables or pictorial representations. **6.D.2.3** Demonstrate simple experiments in which the probabilities are known and compare the resulting relative frequencies with the known probabilities, recognizing that there may be differences between the two results.	**7.D.1 Display and analyze data in a variety of ways.** **7.D.1.1** Design simple experiments, collect data and calculate measures of central tendency (mean, median, and mode) and spread (range). Use these quantities to draw conclusions about the data collected and make predictions. **7.D.1.2** Use reasoning with proportions to display and interpret data in circle graphs (pie charts) and histograms. Choose the appropriate data display and know how to create the display using a spreadsheet or other graphing technology. **7.D.2 Calculate probabilities and reason about probabilities using proportions to solve real-world and mathematical problems.** **7.D.2.1** Determine the theoretical probability of an event using the ratio between the size of the event and the size of the sample space; represent probabilities as percents, fractions and decimals between 0 and 1. **7.D.2.2** Calculate probability as a fraction of sample space or as a fraction of area. Express probabilities as percents, decimals and fractions. **7.D.2.3** Use proportional reasoning to draw conclusions about and predict relative frequencies of outcomes based on probabilities.	**PA.D.1 Display and interpret data in a variety of ways, including using scatterplots and approximate lines of best fit. Use line of best fit and average rate of change to make predictions and draw conclusions about data.** **PA.D.1.1** Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet and use a calculator to examine this impact. **PA.D.1.2** Explain how outliers affect measures of central tendency. **PA.D.1.3** Collect, display and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit, make statements about average rate of change, and make predictions about values not in the original data set. Use appropriate titles, labels and units. **PA.D.2 Calculate experimental probabilities and reason about probabilities to solve real-world and mathematical problems.** **PA.D.2.1** Calculate experimental probabilities and represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown. **PA.D.2.2** Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population. **PA.D.2.3** Compare and contrast dependent and independent events.

Number & Operations (N)

Pre-Algebra (PA)

PA.N.1 Read, write, compare, classify, and represent real numbers and use them to solve problems in various contexts.

PA.N.1.1 Develop and apply the properties of integer exponents, including $a^0 = 1$ (with $a \neq 0$), to generate equivalent numerical and algebraic expressions.

PA.N.1.2 Express and compare approximations of very large and very small numbers using scientific notation.

PA.N.1.3 Multiply and divide numbers expressed in scientific notation, express the answer in scientific notation.

PA.N.1.4 Classify real numbers as rational or irrational. Explain why the rational number system is closed under addition and multiplication and why the irrational system is not. Explain why the sum of a rational number and an irrational number is irrational; and the product of a non-zero rational number and an irrational number is irrational.

PA.N.1.5 Compare real numbers; locate real numbers on a number line. Identify the square root of a perfect square to 400 or, if it is not a perfect square root, locate it as an irrational number between two consecutive positive integers.

Algebra 1 (A1)

A1.N.1 Extend the understanding of number and operations to include square roots and cube roots.

A1.N.1.1 Write square roots and cube roots of monomial algebraic expressions in simplest radical form.

A1.N.1.2 Add, subtract, multiply, and simplify square roots of monomial algebraic expressions and divide square roots of whole numbers, rationalizing the denominator when necessary.

Algebra 2 (A2)

A2.N.1 Extend the understanding of number and operations to include complex numbers, matrices, radical expressions, and expressions written with rational exponents.

A2.N.1.1 Find the value of i^n for any whole number n.

A2.N.1.2 Simplify, add, subtract, multiply, and divide complex numbers.

A2.N.1.3 Use matrices to organize and represent data. Identify the order (dimension) of a matrix, add and subtract matrices of appropriate dimensions, and multiply a matrix by a scalar to create a new matrix to solve problems.

A2.N.1.4 Understand and apply the relationship of rational exponents to integer exponents and radicals to solve problems.

Algebraic Reasoning & Algebra (A)

Pre-Algebra (PA)

PA.A.1 Understand the concept of function in real-world and mathematical situations, and distinguish between linear and nonlinear functions.

PA.A.1.1 Recognize that a function is a relationship between an independent variable and a dependent variable in which the value of the independent variable determines the value of the dependent variable.

PA.A.1.2 Use linear functions to represent and explain real-world and mathematical situations.

PA.A.1.3 Identify a function as linear if it can be expressed in the form $y = mx + b$ or if its graph is a straight line.

PA.A.2 Recognize linear functions in real-world and mathematical situations; represent linear functions and other function with tables, verbal descriptions, symbols, and graphs; solve problems involving linear functions and interpret results in the original context.

Algebra 1 (A1)

A1.A.1 Represent and solve mathematical and real-world problems using linear equations, absolute value equations, and systems of equations; interpret solutions in the original context.

A1.A.1.1 Use knowledge of solving equations with rational values to represent and solve mathematical and real-world problems (e.g., angle measures, geometric formulas, science, or statistics) and interpret the solutions in the original context.

A1.A.1.2 Solve absolute value equations and interpret the solutions in the original context.

A1.A.1.3 Analyze and solve real-world and mathematical problems involving systems of linear equations with a maximum of two variables by graphing (may include graphing calculator or other appropriate technology), substitution, and elimination. Interpret the solutions in the original context.

Algebra 2 (A2)

A2.A.1 Represent and solve mathematical and real-world problems using nonlinear equations and systems of linear equations; interpret the solutions in the original context.

A2.A.1.1 Represent real-world or mathematical problems using quadratic equations and solve using various methods (including graphing calculator or other appropriate technology), factoring, completing the square, and the quadratic formula. Find non-real roots when they exist.

A2.A.1.2 Represent real-world or mathematical problems using exponential equations, such as compound interest, depreciation, and population growth, and solve these equations graphically (including graphing calculator or other appropriate technology) or algebraically.

A2.A.1.3 Solve one-variable rational equations and check for extraneous solutions.

A2.A.1.4 Solve polynomial equations with real roots using

Algebraic Reasoning & Algebra (A)

Pre-Algebra (PA)

PA.A.2.1 Represent linear functions with tables, verbal descriptions, symbols, and graphs; translate from one representation to another.
PA.A.2.2 Identify, describe, and analyze linear relationships between two variables.
PA.A.2.3 Identify graphical properties of linear functions including slope and intercepts. Know that the slope equals the rate of change, and that the *y*-intercept is zero when the function represents a proportional relationship.
PA.A.2.4 Predict the effect on the graph of a linear function when the slope or *y*-intercept changes. Use appropriate tools to examine these effects.
PA.A.2.5 Solve problems involving linear functions and interpret results in the original context.

PA.A.3 Generate equivalent numerical and algebraic expressions and use algebraic properties to evaluate expressions.
PA.A.3.1 Use substitution to simplify and evaluate algebraic expressions.
PA.A.3.2 Justify steps in generating equivalent expressions by identifying the properties used, including the properties of operations (associative, commutative, and distributive laws) and the order of operations, including grouping symbols.

PA.A.4 Represent real-world and mathematical problems using equations and inequalities involving linear expressions. Solve and graph equations and inequalities symbolically and graphically. Interpret solutions in the original context.
PA.A.4.1 Illustrate, write, and solve mathematical and real-world problems using linear equations with one variable with one solution, infinitely many solutions, or no solutions. Interpret solutions in the original context.
PA.A.4.2 Represent, write, solve, and graph problems leading to linear inequalities with one variable in the form $px + q > r$ and $px + q < r$, where p, q, and r are rational numbers.
PA.A.4.3 Represent real-world situations using equations and inequalities involving one variable.

Algebra 1 (A1)

A1.A.2 Represent and solve real-world and mathematical problems using linear inequalities, compound inequalities and systems of linear inequalities; interpret solutions in the original context.
A1.A.2.1 Represent relationships in various contexts with linear inequalities; solve the resulting inequalities, graph on a coordinate plane, and interpret the solutions.
A1.A.2.2 Represent relationships in various contexts with compound and absolute value inequalities and solve the resulting inequalities by graphing, and interpreting the solutions on a number line.
A1.A.2.3 Solve systems of linear inequalities with a maximum of two variables; graph and interpret the solutions on a coordinate plane.

A1.A.3 Generate equivalent algebraic expressions and use algebraic properties to evaluate expressions and arithmetic and geometric sequences.
A1.A.3.1 Solve equations involving several variables for one variable in terms of the others.
A1.A.3.2 Simplify polynomial expressions by adding, subtracting, or multiplying.
A1.A.3.3 Factor common monomial factors from polynomial expressions and factor quadratic expressions with a leading coefficient of 1.
A1.A.3.4 Evaluate linear, absolute value, rational, and radical expressions. Include applying a nonstandard operation such as $a \odot b = 2a + b$.
A1.A.3.5 Recognize that arithmetic sequences are linear using equations, tables, graphs, and verbal descriptions. Using the pattern, find the next term.
A1.A.3.6 Recognize that geometric sequences are exponential using equations, tables, graphs and verbal descriptions. Given the formula $f(x) = a(r)^x$, find the next term and define the meaning of a and r within the context of the problem.

A1.A.4 Analyze mathematical change involving linear equations in real-world and mathematical problems.
A1.A.4.1 Calculate and interpret slope and the *x*- and *y*-intercepts of a line using a graph, an equation, two points, or a set of data points to solve real-world and mathematical

Algebra 2 (A2)

various methods and tools that may include factoring, polynomial division, synthetic division, graphing calculators or other appropriate technology.
A2.A.1.5 Solve square root equations with one variable and check for extraneous solutions.
A2.A.1.6 Solve common and natural logarithmic equations using the properties of logarithms.
A2.A.1.7 Solve real-world and mathematical problems that can be modeled using arithmetic or finite geometric sequences or series given the n^{th} terms and sum formulas. Graphing calculators or other appropriate technology may be used.
A2.A.1.8 Represent real-world or mathematical problems using systems of linear equations with a maximum of three variables and solve using various methods that may include substitution, elimination, and graphing (may include graphing calculators or other appropriate technology).
A2.A.1.9 Solve systems of equations containing one linear equation and one quadratic equation using tools that may include graphing calculators or other appropriate technology.

A2.A.2 Represent and analyze mathematical situations and structures using algebraic symbols using various strategies to write equivalent forms of expressions.
A2.A.2.1 Factor polynomial expressions including but not limited to trinomials, differences of squares, sum and difference of cubes, and factoring by grouping using a variety of tools and strategies.
A2.A.2.2 Add, subtract, multiply, divide, and simplify polynomial and rational expressions.
A2.A.2.3 Recognize that a quadratic function has different equivalent representations [$f(x) = ax^2 + bx + c$, $f(x) = a(x - h)^2 + k$, and $f(x) = (x - h)(x - k)$]. Identify and use the representation that is most appropriate to solve real-world and mathematical problems.
A2.A.2.4 Rewrite expressions involving radicals and rational exponents using the properties of exponents.

	problems. **A1.A.4.2** Solve mathematical and real-world problems involving lines that are parallel, perpendicular, horizontal, or vertical. **A1.A.4.3** Express linear equations in slope-intercept, point-slope, and standard forms and convert between these forms. Given sufficient information (slope and *y*-intercept, slope and one-point on the line, two points on the line, *x*- and *y*-intercept, or a set of data points), write the equation of a line. **A1.A.4.4** Translate between a graph and a situation described qualitatively.	
Functions (F)		
Pre-Algebra (PA)	**Algebra 1 (A1)**	**Algebra 2 (A2)**
Strand addressed at other grade levels.	**A1.F.1 Understand functions as descriptions of covariation (how related quantities vary together) in real-world and mathematical problems.** **A1.F.1.1** Distinguish between relations and functions. **A1.F.1.2** Identify the dependent and independent variables as well as the domain and range given a function, equation, or graph. Identify restrictions on the domain and range in real-world contexts. **A1.F.1.3** Write linear functions, using function notation, to model real-world and mathematical situations. **A1.F.1.4** Given a graph modeling a real-world situation, read and interpret the linear piecewise function (excluding step functions). **A1.F.2 Recognize functions and understand that families of functions are characterized by their rate of change.** **A1.F.2.1** Distinguish between linear and nonlinear (including exponential) functions arising from real-world and mathematical situations that are represented in tables, graphs, and equations. Understand that linear functions grow by equal intervals and that exponential functions grow by equal factors over equal intervals. **A1.F.2.2** Recognize the graph of the functions $f(x) = x$ and $f(x) = \|x\|$ and predict the effects of transformations [$f(x + c)$ and $f(x) + c$, where c is a positive or negative constant] algebraically and graphically using various	**A2.F.1 Understand functions as descriptions of covariation (how related quantities vary together).** **A2.F.1.1** Use algebraic, interval, and set notations to specify the domain and range of functions of various types and evaluate a function at a given point in its domain. **A2.F.1.2** Recognize the graphs of exponential, radical (square root and cube root only), quadratic, and logarithmic functions. Predict the effects of transformations [$f(x + c)$, $f(x) + c$, $f(cx)$, and $cf(x)$, where c is a positive or negative real-valued constant] algebraically and graphically, using various methods and tools that may include graphing calculators or other appropriate technology. **A2.F.1.3** Graph a quadratic function. Identify the *x*- and *y*-intercepts, maximum or minimum value, axis of symmetry, and vertex using various methods and tools that may include a graphing calculator o appropriate technology. **A2.F.1.4** Graph exponential and logarithmic functions. Identify asymptotes and *x*- and *y*-intercepts using various methods and tools that may include graphing calculators or other appropriate technology. Recognize exponential decay and growth graphically and algebraically. **A2.F.1.5** Analyze the graph of a polynomial function by identifying the domain, range, intercepts, zeros, relative maxima, relative minima, and intervals of increase and

	methods and tools that may include graphing calculators. **A1.F.3 Represent functions in multiple ways and use the representation to interpret real-world and mathematical problems.** **A1.F.3.1** Identify and generate equivalent representations of linear equations, graphs, tables, and real-world situations. **A1.F.3.2** Use function notation; evaluate a function, including nonlinear, at a given point in its domain algebraically and graphically. Interpret the results in terms of real-world and mathematical problems. **A1.F.3.3** Add, subtract, and multiply functions using function notation.	decrease. **A2.F.1.6** Graph a rational function and identify the *x*- and *y*-intercepts, vertical and horizontal asymptotes, using various methods and tools that may include a graphing calculator or other appropriate technology. (Excluding slant or oblique asymptotes and holes.) **A2.F.1.7** Graph a radical function (square root and cube root only) and identify the *x*- and *y*-intercepts using various methods and tools that may include a graphing calculator or other appropriate technology. **A2.F.1.8** Graph piecewise functions with no more than three branches (including linear, quadratic, or exponential branches) and analyze the function by identifying the domain, range, intercepts, and intervals for which it is increasing, decreasing, and constant. **A2.F.2 Analyze functions through algebraic combinations, compositions, and inverses, if they exist.** **A2.F.2.1** Add, subtract, multiply, and divide functions using function notation and recognize domain restrictions. **A2.F.2.2** Combine functions by composition and recognize that $g(x) = f^{-1}(x)$, the inverse function of $f(x)$, if and only if $f(g(x)) = g(f(x)) = x$. **A2.F.2.3** Find and graph the inverse of a function, if it exists, in real-world and mathematical situations. Know that the domain of a function f is the range of the inverse function f^{-1}, and the range of the function f is the domain of the inverse function f^{-1}. **A2.F.2.4** Apply the inverse relationship between exponential and logarithmic functions to convert from one form to another.
Data & Probability (D)		
Pre-Algebra (PA)	**Algebra 1 (A1)**	**Algebra 2 (A2)**
PA.D.1 Display and interpret data in a variety of ways, including using scatterplots and approximate lines of best fit. Use line of best fit and average rate of change to make predictions and draw conclusions about data. **PA.D.1.1** Describe the impact that inserting or deleting a data point has on the mean and the median of a data set. Know how to create data displays using a spreadsheet and	**A1.D.1 Display, describe, and compare data. For linear relationships, make predictions and assess the reliability of those predictions.** **A1.D.1.1** Describe a data set using data displays, describe and compare data sets using summary statistics, including measures of central tendency, location, and spread. Know how to use calculators, spreadsheets, or other appropriate	**A2.D.1 Display, describe, and compare data. For linear and nonlinear relationships, make predictions and assess the reliability of those predictions.** **A2.D.1.1** Use the mean and standard deviation of a data set to fit it to a normal distribution (bell-shaped curve). **A2.D.1.2** Collect data and use scatterplots to analyze patterns and describe linear, exponential or quadratic

Data & Probability (D)		
Pre-Algebra (PA)	**Algebra 1 (A1)**	**Algebra 2 (A2)**
use a calculator to examine this impact. **PA.D.1.2** Explain how outliers affect measures of central tendency. **PA.D.1.3** Collect, display and interpret data using scatterplots. Use the shape of the scatterplot to informally estimate a line of best fit, make statements about average rate of change, and make predictions about values not in the original data set. Use appropriate titles, labels and units. **PA.D.2 Calculate experimental probabilities and reason about probabilities to solve real-world and mathematical problems.** **PA.D.2.1** Calculate experimental probabilities and represent them as percents, fractions and decimals between 0 and 1 inclusive. Use experimental probabilities to make predictions when actual probabilities are unknown. **PA.D.2.2** Determine how samples are chosen (random, limited, biased) to draw and support conclusions about generalizing a sample to a population. **PA.D.2.3** Compare and contrast dependent and independent events.	technology to display data and calculate summary statistics. **A1.D.1.2** Collect data and use scatterplots to analyze patterns and describe linear relationships between two variables. Using graphing technology, determine regression lines and correlation coefficients; use regression lines to make predictions and correlation coefficients to assess the reliability of those predictions. **A1.D.1.3** Interpret graphs as being discrete or continuous. **A1.D.2 Calculate probabilities and apply probability concepts.** **A1.D.2.1** Select and apply counting procedures, such as the multiplication and addition principles and tree diagrams, to determine the size of a sample space (the number of possible outcomes) and to calculate probabilities. **A1.D.2.2** Describe the concepts of intersections, unions, and complements using Venn diagrams to evaluate probabilities. Understand the relationships between these concepts and the words AND, OR, and NOT. **A1.D.2.3** Calculate experimental probabilities by performing simulations or experiments involving a probability model and using relative frequencies of outcomes. **A1.D.2.4** Apply probability concepts to real-world situations to make informed decisions.	relationships between two variables. Using graphing calculators or other appropriate technology, determine regression equation and correlation coefficients; use regression equations to make predictions and correlation coefficients to assess the reliability of those predictions. **A2.D.1.3** Based upon a real-world context, recognize whether a discrete or continuous graphical representation is appropriate and then create the graph. **A2.D.2 Analyze statistical thinking to draw inferences, make predictions, and justify conclusions.** **A2.D.2.1** Evaluate reports based on data published in the media by identifying the source of the data, the design of the study, and the way the data are analyzed and displayed. Given spreadsheets, tables, or graphs, recognize and analyze distortions in data displays. Show how graphs and data can be distorted to support different points of view. **A2.D.2.2** Identify and explain misleading uses of data. Recognize when arguments based on data confuse correlation and causation.

Reasoning & Logic (G.RL)		
Seventh Grade (7)	**Pre-Algebra (PA)**	**Geometry (G)**
Topic addressed at other grade levels.	Topic addressed at other grade levels.	**G.RL.1 Use appropriate tools and logic to evaluate mathematical arguments.** **G.RL.1.1** Understand the use of undefined terms, definitions, postulates, and theorems in logical arguments/proofs. **G.RL.1.2** Analyze and draw conclusions based on a set of conditions using inductive and deductive reasoning. Recognize the logical relationships between a conditional statement and its inverse, converse, and contrapositive. **G.RL.1.3** Assess the validity of a logical argument and give counterexamples to disprove a statement.
Two Dimensional Shapes (G.2D)		
Seventh Grade (7)	**Pre-Algebra (PA)**	**Geometry (G)**
7.GM.2 Determine the area of trapezoids and area and perimeter of composite figures. **7.GM.2.1** Develop and use the formula to determine the area of a trapezoid to solve problems. **7.GM.2.2** Find the area and perimeter of composite figures to solve real-world and mathematical problems. **7.GM.4 Analyze the effect of dilations, translations, and reflections on the attributes of two-dimensional figures on and off the coordinate plane**. **7.GM.4.1** Describe the properties of similarity, compare geometric figures for similarity, and determine scale factors resulting from dilations. **7.GM.4.2** Apply proportions, ratios, and scale factors to solve problems involving scale drawings and determine side lengths and areas of similar triangles and rectangles. **7.GM.4.3** Graph and describe translations and reflections of figures on a coordinate plane and determine the coordinates of the vertices of the figure after the transformation.	Topic addressed at other grade levels.	**G.2D.1 Discover, evaluate, and analyze the relationships between lines, angles, and polygons to solve real-world and mathematical problems; express proofs in a form that clearly justifies the reasoning, such as two-column proofs, paragraph proofs, flow charts, or illustrations.** **G.2D.1.1** Apply the properties of parallel and perpendicular lines, including properties of angles formed by a transversal, to solve real-world and mathematical problems and determine if two lines are parallel, using algebraic reasoning and proofs. **G.2D.1.2** Apply the properties of angles, including corresponding, exterior, interior, vertical, complementary, and supplementary angles to solve real-world and mathematical problems using algebraic reasoning and proofs. **G.2D.1.3** Apply theorems involving the interior and exterior angle sums of polygons and use them to solve real-world and mathematical problems using algebraic reasoning and proofs. **G.2D.1.4** Apply the properties of special quadrilaterals (square, rectangle, trapezoid, isosceles trapezoid, rhombus, kite, parallelogram) and use them to solve real-world and mathematical problems involving angle measures and segment lengths using algebraic reasoning and proofs. **G.2D.1.5** Use coordinate geometry to represent and

		analyze line segments and polygons, including determining lengths, midpoints, and slopes of line segments. **G.2D.1.6** Apply the properties of polygons to solve real-world and mathematical problems involving perimeter and area (e.g., triangles, special quadrilaterals, regular polygons up to 12 sides, composite figures). **G.2D.1.7** Apply the properties of congruent or similar polygons to solve real-world and mathematical problems using algebraic and logical reasoning. **G.2D.1.8** Construct logical arguments to prove triangle congruence (SSS, SAS, ASA, AAS and HL) and triangle similarity (AA, SSS, SAS). **G.2D.1.9** Use numeric, graphic and algebraic representations of transformations in two dimensions, such as reflections, translations, dilations, and rotations about the origin by multiples of 90˚, to solve problems involving figures on a coordinate plane and identify types of symmetry.
Three Dimensional Shapes (G.3D)		
Seventh Grade (7)	**Pre-Algebra (PA)**	**Geometry (G)**
7.GM.1 Develop and understand the concept of surface area and volume of rectangular prisms. **7.GM.1.1** Using a variety of tools and strategies, develop the concept that surface area of a rectangular prism with rational-valued edge lengths can be found by wrapping the figure with same-sized square units without gaps or overlap. Use appropriate measurements such as cm^2. **7.GM.1.2** Using a variety of tools and strategies, develop the concept that the volume of rectangular prisms with rational-valued edge lengths can be found by counting the total number of same-sized unit cubes that fill a shape without gaps or overlaps. Use appropriate measurements such as cm^3.	**PA.GM.2 Calculate surface area and volume of three-dimensional figures.** **PA.GM.2.1** Calculate the surface area of a rectangular prism using decomposition or nets. Use appropriate measurements such as cm^2. **PA.GM.2.2** Calculate the surface area of a cylinder, in terms of π and using approximations for π, using decomposition or nets. Use appropriate measurements such as cm^2. **PA.GM.2.3** Develop and use the formulas $V = lwh$ and $V = Bh$ to determine the volume of rectangular prisms. Justify why base area (B) and height (h) are multiplied to find the volume of a rectangular prism. Use appropriate measurements such as cm^3. **PA.GM.2.4** Develop and use the formulas $V = \pi r^2 h$ and $V = Bh$ to determine the volume of right cylinders, in terms of π and using approximations for π. Justify why base area (B) and height (h) are multiplied to find the volume of a right cylinder. Use appropriate measurements such as cm^3.	**G.3D.1 Solve real-world and mathematical problems involving three-dimensional figures.** **G.3D.1.1** Solve real-world and mathematical problems using the surface area and volume of prisms, cylinders, pyramids, cones, spheres, and composites of these figures. Use nets, measuring devices, or formulas as appropriate. **G.3D.1.2** Use ratios derived from similar three-dimensional figures to make conjectures, generalize, and to solve for unknown values such as angles, side lengths, perimeter or circumference of a face, area of a face, and volume.

Circles (G.C)

Seventh Grade (7)	Pre-Algebra (PA)	Geometry (G)
7.GM.3 Use reasoning with proportions and ratios to determine measurements, justify formulas, and solve real-world and mathematical problems involving circles and related geometric figures. **7.GM.3.1** Demonstrate an understanding of the proportional relationship between the diameter and circumference of a circle and that the unit rate (constant of proportionality) is π and can be approximated by rational numbers such as $\frac{22}{7}$ and 3.14. **7.GM.3.2** Calculate the circumference and area of circles to solve problems in various contexts, in terms of π and using approximations for π.	Topic addressed at other grade levels.	**G.C.1 Solve real-world and mathematical problems using the properties of circles.** **G.C.1.1** Apply the properties of circles to solve problems involving circumference and area, approximate values and in terms of π, using algebraic and logical reasoning. **G.C.1.2** Apply the properties of circles and relationships among angles; arcs; and distances in a circle among radii, chords, secants and tangents to solve problems using algebraic and logical reasoning. **G.C.1.3** Recognize and write the radius r, center (h, k), and standard form of the equation of a circle $(x-h)^2 + (y-k)^2 = r^2$ with and without graphs. **G.C.1.4** Apply the distance and midpoint formula, where appropriate, to develop the equation of a circle in standard form.

Right Triangle Trigonometry (G.RT)

Seventh Grade (7)	Pre-Algebra (PA)	Geometry (G)
Topic addressed at other grade levels.	**PA.GM.1 Solve problems involving right triangles using the Pythagorean Theorem.** **PA.GM.1.1** Informally justify the Pythagorean Theorem using measurements, diagrams, or dynamic software and use the Pythagorean Theorem to solve problems in two and three dimensions involving right triangles. **PA.GM.1.2** Use the Pythagorean Theorem to find the distance between any two points in a coordinate plane.	**G.RT.1 Develop and verify mathematical relationships of right triangles and trigonometric ratios to solve real-world and mathematical problems.** **G.RT.1.1** Apply the distance formula and the Pythagorean Theorem and its converse to solve real-world and mathematical problems, as approximate and exact values, using algebraic and logical reasoning (include Pythagorean Triples). **G.RT.1.2** Verify and apply properties of right triangles, including properties of 45-45-90 and 30-60-90 triangles, to solve problems using algebraic and logical reasoning. **G.RT.1.3** Use the definition of the trigonometric functions to determine the sine, cosine, and tangent ratio of an acute angle in a right triangle. Apply the inverse trigonometric functions to find the measure of an acute angle in right triangles. **G.RT.1.4** Apply the trigonometric functions as ratios (sine, cosine, and tangent) to find side lengths in right triangles in real-world and mathematical problems.

SCIENCE

OKLAHOMA STATE DEPARTMENT OF EDUCATION

OKLAHOMA ACADEMIC STANDARDS

5-PS1-1 Matter and Its Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models Modeling in 3–5 builds on K–2 experiences and progresses to building and revising simple models and using models to represent events and design solutions. Develop a model to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Structure and Properties of Matter:** • Matter of any type can be subdivided into particles that are too small to see, but even then the matter still exists and can be detected by other means. • A model showing that gases are made from matter particles that are too small to see and are moving freely around in space can explain many observations, including the inflation and shape of a balloon; the effects of air on larger particles or objects.	**5-PS1-1** *Students who demonstrate understanding can:* **Develop a model to describe that matter is made of particles too small to be seen.** **Clarification Statement:** Examples of evidence that could be utilized in building models include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water. **Assessment Boundary:** Assessment does not include atomic-scale mechanism of evaporation and condensation or defining the unseen particles.

Crosscutting Concepts: Scale, Proportion, and Quantity
• Natural objects exist from the very small to the immensely large.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-PS1-2 Matter and Its Interactions

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ Developing and using models
❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ **Using mathematics and computational thinking**
Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.
- **Measure and graph quantities such as weight to address scientific and engineering questions and problems.**

❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Structure and Properties of Matter:
- The amount (weight) of matter is conserved when it changes form, even in transitions in which it seems to vanish.

Chemical Reactions:
- No matter what reaction or change in properties occurs, the total weight of the substances does not change. (Boundary: Mass and weight are not distinguished at this grade level.)

Performance Expectations

5-PS1-2
Students who demonstrate understanding can:

Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.

Clarification Statement:
Examples of reactions or changes could include phase changes, dissolving, and mixing that forms new substances.

Assessment Boundary:
Assessment does not include distinguishing mass and weight.

Crosscutting Concepts: Scale, Proportion, and Quantity

- Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-PS1-3 Matter and Its Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ **Planning and carrying out investigations** **Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.** • **Make observations and measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon.** ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Structure and Properties of Matter:** • Measurements of a variety of properties can be used to identify materials. (Boundary: At this grade level, mass and weight are not distinguished, and no attempt is made to define the unseen particles or explain the atomic-scale mechanism of evaporation and condensation.)	**5-PS1-3** *Students who demonstrate understanding can:* **Make observations and measurements to identify materials based on their properties.** **Clarification Statement:** Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property. **Assessment Boundary:** Assessment does not include density or distinguishing mass and weight.

Crosscutting Concepts: Scale, Proportion, and Quantity

• Standard units are used to measure and describe physical quantities such as weight, time, temperature, and volume.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-PS1-4 Matter and Its Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ **Planning and carrying out investigations** **Planning and carrying out investigations to answer questions or test solutions to problems in 3–5 builds on K–2 experiences and progresses to include investigations that control variables and provide evidence to support explanations or design solutions.** • **Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered.** ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Chemical Reactions:** • When two or more different substances are mixed, a new substance with different properties may be formed.	**5-PS1-4** *Students who demonstrate understanding can:* **Conduct an investigation to determine whether the mixing of two or more substances results in new substances.** **Clarification Statement:** Examples of interactions forming new substances can include mixing baking soda and vinegar. Examples of interactions not forming new substances can include mixing baking soda and water.

Crosscutting Concepts: Cause and Effect
• Cause and effect relationships are routinely identified, tested, and used to explain change.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-PS2-1 Motion and Stability: Forces and Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ **Engaging in argument from evidence** **Engaging in argument from evidence in 3-5 builds on K-2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).** ❽ Obtaining, evaluating, and communicating information	**Types of Interactions:** • The gravitational force of Earth acting on an object near Earth's surface pulls that object toward the planet's center.	**5-PS2-1** *Students who demonstrate understanding can:* **Support an argument that the gravitational force exerted by the Earth is directed down.** **Clarification Statement:** "Down" is a local description of the direction that points toward the center of the spherical earth. Earth causes objects to have a force on them that point toward the center of the Earth, "down". Support for arguments can be drawn from diagrams, evidence, and data that are provided. **Assessment Boundary:** Mathematical representation of gravitational force is not assessed.

Crosscutting Concepts: Cause and Effect

• Cause and effect relationships are routinely identified, tested, and used to explain change.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-PS3-1 Energy

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models** **Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.** **• Use models to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Energy in Chemical Processes and Everyday Life:** • The energy released [from] food was once energy from the sun that was captured by plants in the chemical process that forms plant matter (from air and water). **Organization of Matter and Energy Flow in Organisms:** • Food provides animals with the materials they need for body repair and growth and the energy they need to maintain body warmth and for motion.	**5-PS3-1** *Students who demonstrate understanding can:* **Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.** **Clarification Statement:** Examples of models could include diagrams, and flow charts. **Assessment Boundary:** Assessment does not include cellular mechanisms of digestive absorption.

Crosscutting Concepts: Energy and Matter
• Energy can be transferred in various ways and between objects.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-LS1-1 From Molecules to Organisms: Structure and Processes

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ **Engaging in argument from evidence** **Engaging in argument from evidence in 3-5 builds on K-2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world.** • **Support an argument with evidence, data, or a model.** ❽ Obtaining, evaluating, and communicating information	**Organization for Matter and Energy Flow in Organisms:** • Plants acquire their material for growth chiefly from air and water.	**5-LS1-1** *Students who demonstrate understanding can:* **Support an argument that plants get the materials they need for growth chiefly from air and water.** **Clarification Statement:** Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.

Crosscutting Concepts: Energy and Matter
• Matter is transported into, out of, and within systems.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-LS2-1 Ecosystems: Interactions, Energy, and Dynamics

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ **Developing and using models**
Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.
- **Develop a model to describe phenomena.**

❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Interdependent Relationships in Ecosystems:
- The food of almost any kind of animal can be traced back to plants.
- Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants.
- Some organisms, such as fungi and bacteria, break down dead organisms (both plants or plants parts and animals) and therefore operate as "decomposers."
- Decomposition eventually restores (recycles) some materials back to the soil.
- Organisms can survive only in environments in which their particular needs are met.
- A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life.
- Newly introduced species can damage the balance of an ecosystem.

Cycles of Matter and Energy Transfer in Ecosystems:
- Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die.
- Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment.

Performance Expectations

5-LS2-1

Students who demonstrate understanding can:

Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.

Clarification Statement:
Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.

Assessment Boundaries:
Assessment does not include molecular explanations.

Crosscutting Concepts: Systems and System Models

- A system can be described in terms of its components and their interactions.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-LS2-2 Ecosystems: Interactions, Energy, and Dynamics

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models** **Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.** **• Use models to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Interdependent Relationships in Ecosystems:** • Organisms can survive only in environments in which their particular needs are met. • A healthy ecosystem is one in which multiple species of different types are each able to meet their needs in a relatively stable web of life. • Newly introduced species can damage the balance of an ecosystem.	**5-LS2-2** *Students who demonstrate understanding can:* **Use models to explain factors that upset the stability of local ecosystems.** **Clarification Statement:** Factors that upset an ecosystem's stability includes: invasive species, drought, human development, and removal of predators. Models could include simulations, and representations, etc. **Assessment Boundaries:** Assessment does not include molecular explanations.

Crosscutting Concepts: Systems and System Models
• A system can be described in terms of its components and their interactions.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-ESS1-1 Earth's Place in the Universe

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ **Engaging in argument from evidence** **Engaging in argument from evidence in 3–5 builds on K–2 experiences and progresses to critiquing the scientific explanations or solutions proposed by peers by citing relevant evidence about the natural and designed world(s).** • **Support an argument with evidence, data, or a model.** ❽ Obtaining, evaluating, and communicating information	**The Universe and Its Stars:** • The sun is a star that appears larger and brighter than other stars because it is closer. Stars range greatly in their distance from Earth.	**5-ESS1-1** *Students who demonstrate understanding can:* **Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.** **Assessment Boundary:** Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).

Crosscutting Concepts: Scale, Proportion and Quantity
• Natural objects exist from the very small to the immensely large.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-ESS1-2 Earth's Place in the Universe

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ **Analyzing and interpreting data** **Analyzing data in 3–5 builds on K–2 experiences and progresses to introducing quantitative approaches to collecting data and conducting multiple trials of qualitative observations. When possible and feasible, digital tools should be used.** • **Represent data in graphical displays (bar graphs, pictographs and/or pie charts) to reveal patterns that indicate relationships.** ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Earth and the Solar System:** • The orbits of Earth around the sun and of the moon around Earth, together with the rotation of Earth about an axis between its North and South poles, cause observable patterns. These include day and night; daily changes in the length and direction of shadows; and different positions of the sun, moon, and stars at different times of the day, month, and year.	**5-ESS1-2** *Students who demonstrate understanding can:* **Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.** **Clarification Statement:** Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months. **Assessment Boundary:** Assessment does not include causes of seasons.

Crosscutting Concepts: Patterns

• Similarities and differences in patterns can be used to sort, classify, communicate and analyze simple rates of change for natural phenomena.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-ESS2-1 Earth's Systems

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models** **Modeling in 3-5 builds on K-2 experiences and progresses to building and revising simple models and using models to represent events and design solutions.** **• Develop a model using an example to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Earth Materials and System:** • Earth's major systems are the geosphere (solid and molten rock, soil, and sediments), the hydrosphere (water and ice), the atmosphere (air), and the biosphere (living things, including humans). These systems interact in multiple ways to affect Earth's surface materials and processes. • The ocean supports a variety of ecosystems and organisms, shapes landforms, and influences climate. • Winds and clouds in the atmosphere interact with the landforms to determine patterns of weather.	**5-ESS2-1** *Students who demonstrate understanding can:* **Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.** **Clarification Statement:** Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system. **Assessment Boundary:** Assessment is limited to the interactions of two systems at a time.

Crosscutting Concepts: System and System Models
• A system can be described in terms of its components and their interactions.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5-ESS2-2 Earth's Systems

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ **Using mathematics and computational thinking** **Mathematical and computational thinking in 3–5 builds on K–2 experiences and progresses to extending quantitative measurements to a variety of physical properties and using computation and mathematics to analyze data and compare alternative design solutions.** • **Describe and graph quantities such as area and volume to address scientific questions.** ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**The Roles of Water in Earth's Surface Processes:** • Nearly all of Earth's available water is in the ocean. • Most fresh water is in glaciers or underground; only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.	**5-ESS2-2** *Students who demonstrate understanding can:* **Describe and graph the amounts and percentages of water and fresh water in various reservoirs to provide evidence about the distribution of water on Earth.** **Assessment Boundary:** Assessment is limited to oceans, lakes, rivers, glaciers, ground water, and polar ice caps, and does not include the atmosphere. Only a tiny fraction is in streams, lakes, wetlands, and the atmosphere.

Crosscutting Concepts: Scale, Proportion, and Quantity

• Standard units are used to measure and describe physical quantities such as weight and volume.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

5TH GRADE

5-ESS3-1 Earth and Human Activity

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ **Obtaining, evaluating, and communicating information** **Obtaining, evaluating, and communicating information in 3– 5 builds on K–2 experiences and progresses to evaluating the merit and accuracy of ideas and methods.** • **Obtain and combine information from books and/or other reliable media to explain phenomena or solutions to a design problem.**	**Human Impacts on Earth Systems:** • Human activities in agriculture, industry, and everyday life have had major effects on the land, vegetation, streams, ocean, air, and even outer space. But individuals and communities are doing things to help protect Earth's resources and environments.	**5-ESS3-1** *Students who demonstrate understanding can:* **Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.** **Clarification Statement:** Examples of information might include the use of natural fertilizers or biological pest control by farmers, replanting trees after cutting them by the logging industry, and the institution of recycling programs in cities. **Assessment Boundary:** N/A

Crosscutting Concepts: System and System Models
• A system can be described in terms of its components and their interactions.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-PS1-3 Matter and Its Interactions

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ Developing and using models
❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ **Obtaining, evaluating, and communicating information**
Obtaining, evaluating, and communicating information in 6–8 builds on K–5 and progresses to evaluating the merit and validity of ideas and methods.
- **Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.**

Disciplinary Core Ideas

Structure and Properties of Matter:
- Each pure substance has characteristic physical and chemical properties (for any bulk quantity under given conditions) that can be used to identify it.

Chemical Reactions:
- Substances react chemically in characteristic ways.
- In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.

** Connections to Engineering, Technology, and Application of Science*

Interdependence of Science, Engineering, and Technology:
- Engineering advances have led to important discoveries in virtually every field of science, and scientific discoveries have led to the development of entire industries and engineered systems.

Interdependence of Science, Engineering, and Technology on Society and the Natural World:
- The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.

Performance Expectations

MS-PS1-3

Students who demonstrate understanding can:

Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.*

Clarification Statement:
Emphasis is on natural resources that undergo a chemical process to form the synthetic material. Examples of new materials could include new medicine, foods, and alternative fuels.

Assessment Boundary:
Not assessed at state level*.

Crosscutting Concepts: Structure and Function

- Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-PS1-5 Matter and Its Interactions

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ **Developing and using models**
Modeling in 6–8 builds on K–5 and progresses to developing, using and revising models to describe, test, and predict more abstract phenomena and design systems.
- **Develop a model to describe unobservable mechanisms.**

❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Chemical Reactions:
- Substances react chemically in characteristic ways.
- In a chemical process, the atoms that make up the original substances are regrouped into different molecules, and these new substances have different properties from those of the reactants.
- The total number of each type of atom is conserved, and thus the mass does not change.

** Connections to Engineering, Technology, and Application of Science*

Science Models, Laws, Mechanisms, and Theories Explain Natural Phenomena:
- Laws are regularities or mathematical descriptions of natural phenomena.

Performance Expectations

MS-PS1-5

Students who demonstrate understanding can:

Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved.

Clarification Statement:
Emphasis is on law of conservation of matter and on physical models or drawings, including digital forms, that represent atoms.

Assessment Boundary:
Assessment does not include the use of atomic masses or intermolecular forces.

Crosscutting Concepts: Energy and Matter

- Matter is conserved because atoms are conserved in physical and chemical processes.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-PS1-6 Matter and Its Interactions

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ Developing and using models
❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ **Constructing explanations (for science) and designing solutions (for engineering)**
Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific knowledge, principles, and theories.
- **Undertake a design project, engaging in the design cycle, to construct and/or implement a solution that meets specific design criteria and constraints.**

❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Chemical Reactions:
- Some chemical reactions release energy, others store energy.

Developing Possible Solutions:
(secondary to MS-PS1-6)
- A solution needs to be tested, and then modified on the basis of the test results, in order to improve it.

Optimizing the Design Solution:
(secondary to MS-PS1-6)
- Although one design may not perform the best across all tests, identifying the characteristics of the design that performed the best in each test can provide useful information for the redesign process—that is, some of the characteristics may be incorporated into the new design.
- The iterative process of testing the most promising solutions and modifying what is proposed on the basis of the test results leads to greater refinement and ultimately to an optimal solution.

Performance Expectations

MS-PS1-6
Students who demonstrate understanding can:

Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.*

Clarification Statement:
Emphasis is on the design, controlling the transfer of energy to the environment, and modification of a device using factors such as type and concentration of a substance. Examples of designs could involve chemical reactions such as dissolving ammonium chloride or calcium chloride.

Assessment Boundary:
Assessment is limited to the criteria of amount, time, and temperature of substance in testing the device.

Crosscutting Concepts: Energy and Matter

- The transfer of energy can be tracked as energy flows through a designed or natural system.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-PS2-1 Motion and Stability: Forces and Interactions

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ **Constructing explanations (for science) and designing solutions (for engineering) Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.** • **Apply scientific ideas or principles to design an object, tool, process or system.** ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Forces and Motion:** • For any pair of interacting objects, the force exerted by the first object on the second object is equal in strength to the force that the second object exerts on the first, but in the opposite direction (Newton's third law). ** Connections to Engineering, Technology, and Application of Science* **Interdependence of Science, Engineering, and Technology on Society and the Natural World:** • The uses of technologies and any limitations on their use are driven by individual or societal needs, desires, and values; by the findings of scientific research; and by differences in such factors as climate, natural resources, and economic conditions.	**MS-PS2-1** *Students who demonstrate understanding can:* **Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.*** **Clarification Statement:** Examples of practical problems could include the impact of collisions between two cars, between a car and stationary objects, and between a meteor and a space vehicle. **Assessment Boundary:** Assessment is limited to vertical or horizontal interactions in one dimension.

Crosscutting Concepts: Systems and System Models

• Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy and matter flows within systems.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-PS2-2 Motion and Stability: Forces and Interactions

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ Developing and using models
❸ **Planning and carrying out investigations**
Planning and carrying out investigations to answer questions or test solutions to problems in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or design solutions.
- **Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.**

❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Forces and Motion:
- The motion of an object is determined by the sum of the forces acting on it; if the total force on the object is not zero, its motion will change.
- The greater the mass of the object, the greater the force needed to achieve the same change in motion.
- For any given object, a larger force causes a larger change in motion.

Performance Expectations

MS-PS2-2
Students who demonstrate understanding can:

Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object.

Clarification Statement:
Emphasis is on balanced (Newton's First Law) and unbalanced forces in a system, qualitative comparisons of forces, mass and changes in motion (Newton's Second Law), frame of reference, and specification of units.

Assessment Boundary:
Assessment is limited to forces and changes in motion in one-dimension in an inertial reference frame and to change in one variable at a time. Assessment does not include the use of trigonometry.

Crosscutting Concepts: Stability and Change

- Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and forces at different scales.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-PS4-1 Waves and Their Applications in Technologies for Information Transfer

Science & Engineering Practices

1. Asking questions (for science) and defining problems (for engineering)
2. Developing and using models
3. Planning and carrying out investigations
4. Analyzing and interpreting data
5. **Using mathematics and computational thinking**
   Mathematical and computational thinking at the 6–8 level builds on K–5 and progresses to identifying patterns in large data sets and using mathematical concepts to support explanations and arguments.
   - **Use mathematical representations to describe and/or support scientific conclusions and design solutions.**
6. Constructing explanations (for science) and designing solutions (for engineering)
7. Engaging in argument from evidence
8. Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Waves Properties:
- A simple wave has a repeating pattern with a specific wavelength, frequency, and amplitude.

Performance Expectations

MS-PS4-1

Students who demonstrate understanding can:

Use mathematical representations to describe a simple model for waves that includes how the amplitude of a wave is related to the energy in a wave.

Clarification Statement:
Emphasis is on describing waves with both qualitative and quantitative thinking.

Assessment Boundary:
Assessment does not include electromagnetic waves and is limited to standard repeating waves.

Crosscutting Concepts: Patterns

- Graphs and charts can be used to identify patterns in data.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-PS4-2 Waves and Their Applications in Technologies for Information Transfer

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models** **Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.** **• Develop and use a model to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Waves Properties:** • A sound wave needs a medium through which it is transmitted. **Electromagnetic Radiation:** • When light shines on an object, it is reflected, absorbed, or transmitted through the object, depending on the object's material and the frequency (color) of the light. • The path that light travels can be traced as straight lines, except at surfaces between different transparent materials (e.g., air and water, air and glass) where the light path bends. • A wave model of light is useful for explaining brightness, color, and the frequency-dependent bending of light at a surface between media. However, because light can travel through space, it cannot be a matter wave, like sound or water waves.	**MS-PS4-2** *Students who demonstrate understanding can:* **Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.** **Clarification Statement:** Emphasis is on both light and mechanical waves. Examples of models could include drawings, simulations, and written descriptions. **Assessment Boundary:** Assessment is limited to qualitative applications pertaining to light and mechanical waves.

Crosscutting Concepts: Structure and Function

• Structures can be designed to serve particular functions by taking into account properties of different materials, and how materials can be shaped and used.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics
SL.8.5 Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.	**N/A**

Connection to *PASS* Coming Soon

*The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

MS-PS4-3 Waves and Their Applications in Technologies for Information Transfer

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ **Obtaining, evaluating, and communicating information** **Obtaining, evaluating, and communicating information in 6-8 builds on K-5 and progresses to evaluating the merit and validity of ideas and methods.** • **Integrate qualitative scientific and technical information in written text with that contained in media and visual displays to clarify claims and findings.**	**Information Technologies and Instrumentation:** • Digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information.	**MS-PS4-3** *Students who demonstrate understanding can:* **Integrate qualitative scientific and technical information to support the claim that digitized signals (sent as wave pulses) are a more reliable way to encode and transmit information.*** **Clarification Statement:** Emphasis is on a basic understanding that waves can be used for communication purposes. Examples could include using fiber optic cable to transmit light pulses, radio wave pulses in wifi devices, and conversion of stored binary patterns to make sound or text on a computer screen. **Assessment Boundary:** Assessment does not include binary counting. Assessment does not include the specific mechanism of any given device.

Crosscutting Concepts: Structure and Function
• Structures can be designed to serve particular functions.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-LS1-7 From Molecules to Organisms: Structure and Processes

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ **Developing and using models**
Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.
• Develop a model to describe unobservable mechanisms.
❸ Planning and carrying out investigations
❹ Analyzing and interpreting data
❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Organization for Matter and Energy Flow in Organisms:
• Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy.

Energy in Chemical Processes and Everyday Life:
(secondary to MS-LS1-7)
• Cellular respiration in plants and animals involve chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials.

Performance Expectations

MS-LS1-7
Students who demonstrate understanding can:

Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.

Clarification Statement:
Emphasis is on describing that molecules are broken apart and put back together and that in this process, energy is released.

Assessment Boundary:
Assessment does not include details of the chemical reactions for photosynthesis or respiration.

Crosscutting Concepts: Energy and Matter
• Matter is conserved because atoms are conserved in physical and chemical processes.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-LS4-1 Biological Unity and Diversity

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ **Analyzing and interpreting data** **Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.** • **Analyze and interpret data to determine similarities and differences in findings.** ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Evidence of Common Ancestry and Diversity:** • The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**MS-LS4-1** *Students who demonstrate understanding can:* **Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.** **Clarification Statement:** Emphasis is on finding patterns of changes in the level of complexity of anatomical structures in organisms and the chronological order of fossil appearance in the rock layers. **Assessment Boundary:** Assessment does not include the names of individual species or geological eras in the fossil record.

Crosscutting Concepts: Patterns

• Graphs, charts, and images can be used to identify patterns in data.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-LS4-2 Biological Unity and Diversity

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ **Constructing explanations (for science) and designing solutions (for engineering) Constructing explanations and designing solutions in 6–8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.** • **Apply scientific ideas to construct an explanation for real- world phenomena, examples, or events.** ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Evidence of Common Ancestry and Diversity:** • The collection of fossils and their placement in chronological order (e.g., through the location of the sedimentary layers in which they are found) is known as the fossil record. It documents the existence, diversity, extinction, and change of many life forms throughout the history of life on Earth.	**MS-LS4-2** *Students who demonstrate understanding can:* **Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer ancestral relationships.** **Clarification Statement:** Emphasis is on explanations of the ancestral relationships among organisms in terms of similarity or differences of the gross appearance of anatomical structures. **Assessment Boundary:** N/A

Crosscutting Concepts: Patterns
• Patterns can be used to identify cause and effect relationships.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-ESS1-4 Earth's Place in the Universe

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ **Constructing explanations (for science) and designing solutions (for engineering) Constructing explanations and designing solutions in 6– 8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.** **• Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.** ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**The History of Planet Earth:** • The geologic time scale interpreted from rock strata provides a way to organize Earth's history. • Analyses of rock strata and the fossil record provide only relative dates, not an absolute scale.	**MS-ESS1-4** *Students who demonstrate understanding can:* **Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's geologic history.** **Clarification Statement:** Emphasis is on analyses of rock formations and fossils they contain to establish relative ages of major events in Earth's history. Major events could include the formation of mountain chains and ocean basins, adaptation and extinction of particular living organisms, volcanic eruptions, periods of massive glaciation, and the development of watersheds and rivers through glaciation and water erosion. The events in Earth's history happened in the past continue today. Scientific explanations can include models. **Assessment Boundary:** Assessment does not include recalling the names of specific periods or epochs and events within them.

Crosscutting Concepts: Scale, Proportion, and Quantity

• Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-ESS2-1 Earth's Systems

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ **Developing and using models** **Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.** **• Develop and use a model to describe phenomena.** ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Earth's Materials and Systems:** • All Earth processes are the result of energy flowing and matter cycling within and among the planet's systems. This energy is derived from the sun and Earth's hot interior. The energy that flows and matter that cycles produce chemical and physical changes in Earth's materials and living organisms.	**MS-ESS2-1** *Students who demonstrate understanding can:* **Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.** **Clarification Statement:** Emphasis is on the processes of melting, crystallization, weathering, deformation, and sedimentation, which act together to form minerals and rocks through the cycling of Earth's materials. **Assessment Boundary:** Assessment does not include the identification and naming of minerals.

Crosscutting Concepts: Stability and Change

• Explanations of stability and change in natural or designed systems can be constructed by examining the changes over time and processes at different scales, including the atomic scale.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics
Connection to *PASS* Coming Soon	

MS-ESS2-2 Earth's Systems

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ **Constructing explanations (for science) and designing solutions (for engineering) Constructing explanations and designing solutions in 6– 8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.** • **Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.** ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Earth's Materials and Systems:** • The planet's systems interact over scales that range from microscopic to global in size. These interactions have shaped Earth's history and will determine its future. **The Roles of Water in Earth's Surface Processes:** • Water's movements—both on the land and underground—cause weathering and erosion, which change the land's surface features and create underground formations.	**MS-ESS2-2** *Students who demonstrate understanding can:* **Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.** **Clarification Statement:** Emphasis is on how processes change Earth's surface at time and spatial scales that can be large (such as slow plate motions or the uplift of a large mountain ranges) or small (such as rapid landslides on microscopic geochemical reactions), and how many geoscience processes usually behave gradually but are punctuated by catastrophic events (such as earthquakes, volcanoes, and meteor impacts). Examples of geoscience processes include surface weathering and deposition by the movements of water, ice, and wind. Emphasis is on geoscience processes that shape local geographic features, where appropriate.

Crosscutting Concepts: Scale, Proportion, and Quantity

• Time, space, and energy phenomena can be observed at various scales using models to study systems that are too large or too small.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-ESS2-3 Earth's Systems

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ **Analyzing and interpreting data** **Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.** **• Analyze and interpret data to provide evidence for phenomena.** ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**The History of Planet Earth:** (Secondary to 8-ESS2-3) • Tectonic processes continually generate new ocean sea floor at ridges and destroy old sea floor at trenches. **Plate Tectonics and Large-Scale System Interactions:** • Maps of ancient land and water patterns, based on investigations of rocks and fossils, make clear how Earth's plates have moved great distances, collided, and spread apart.	**MS-ESS2-3** *Students who demonstrate understanding can:* **Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.** **Clarification Statement:** Examples of data include similarities of rock and fossil types on different continents, the shapes of the continents (including continental shelves), and the locations of ocean structures (such as ridges, fracture zones, and trenches). **Assessment Boundary:** Paleomagnetic anomalies in oceanic and continental crust are not assessed.

Crosscutting Concepts: Patterns

• Patterns in rates of change and other numerical relationships can provide information about natural systems.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-ESS3-1 Earth and Human Activity

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ **Constructing explanations (for science) and designing solutions (for engineering) Constructing explanations and designing solutions in 6– 8 builds on K–5 experiences and progresses to include constructing explanations and designing solutions supported by multiple sources of evidence consistent with scientific ideas, principles, and theories.** • **Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe the natural world operate today as they did in the past and will continue to do so in the future.** ❼ Engaging in argument from evidence ❽ Obtaining, evaluating, and communicating information	**Natural Resources:** • Humans depend on Earth's land, ocean, atmosphere, and biosphere for many different resources. • Minerals, fresh water, and biosphere resources are limited, and many are not renewable or replaceable over human lifetimes. • These resources are distributed unevenly around the planet as a result of past geologic processes.	**MS-ESS3-1** *Students who demonstrate understanding can:* **Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.** **Clarification Statement:** Emphasis is on how these resources are limited and typically non-renewable, and how their distributions are significantly changing as a result of removal by humans. Examples of uneven distributions of resources as a result of past processes include but are not limited to petroleum (locations of the burial of organic marine sediments and subsequent geologic traps), metal ores (locations of past volcanic and hydrothermal activity associated with subduction zones), and soil (locations of active weathering and/or deposition of rock).

Crosscutting Concepts: Cause and Effect

• Cause and effect relationships may be used to predict phenomena in natural or designed systems.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

8TH GRADE

MS-ESS3-2 Earth and Human Activity

Science & Engineering Practices

❶ Asking questions (for science) and defining problems (for engineering)
❷ Developing and using models
❸ Planning and carrying out investigations
❹ **Analyzing and interpreting data**
Analyzing data in 6–8 builds on K–5 experiences and progresses to extending quantitative analysis to investigations, distinguishing between correlation and causation, and basic statistical techniques of data and error analysis.
- **Analyze and interpret data to provide evidence for phenomena.**

❺ Using mathematics and computational thinking
❻ Constructing explanations (for science) and designing solutions (for engineering)
❼ Engaging in argument from evidence
❽ Obtaining, evaluating, and communicating information

Disciplinary Core Ideas

Natural Hazards:
- Mapping the history of natural hazards in a region, combined with an understanding of related geologic forces can help forecast the locations and likelihoods of future events.

Performance Expectations

MS-ESS3-2

Students who demonstrate understanding can:

Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.

Clarification Statement:
Emphasis is on how some natural hazards, such as volcanic eruptions and severe weather, are preceded by phenomena that allow for reliable predictions, but others, such as earthquakes, occur suddenly and with no notice, and thus are not yet predictable. Examples of natural hazards can be taken from interior processes (such as earthquakes and volcanic eruptions), surface processes (such as mass wasting and tsunamis), or severe weather events (such as hurricanes, tornadoes, and floods). Examples of data can include the locations, magnitudes, and frequencies of the natural hazards. Examples of technologies can be global (such as satellite systems to monitor hurricanes or forest fires) or local (such as building basements in tornado-prone regions or reservoirs to mitigate droughts).

Crosscutting Concepts: Patterns

- Graphs, charts, and images can be used to identify patterns in data.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

MS-ESS3-4 Earth and Human Activity

Science & Engineering Practices	Disciplinary Core Ideas	Performance Expectations
❶ Asking questions (for science) and defining problems (for engineering) ❷ Developing and using models ❸ Planning and carrying out investigations ❹ Analyzing and interpreting data ❺ Using mathematics and computational thinking ❻ Constructing explanations (for science) and designing solutions (for engineering) ❼ **Engaging in argument from evidence** **Engaging in argument form evidence in 6-8 builds on K-5 experiences and progresses to constructing a convincing argument that supports or refutes claims for either explanations or solutions about the natural and designed world(s).** • **Construct an oral and written argument supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or solution to a problem.** ❽ Obtaining, evaluating, and communicating information	**Human Impacts on Earth Systems:** • Typically as human populations and per-capita consumption of natural resources increase, so do the negative impacts on Earth unless the activities and technologies involved are engineered otherwise.	**MS-ESS3-4** *Students who demonstrate understanding can:* **Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.** **Clarification Statement:** Examples of evidence include grade-appropriate databases on human populations and the rates of consumption of food and natural resources (such as freshwater, mineral, and energy). Examples of impacts can include changes to the appearance, composition, and structure of Earth's systems as well as the rates at which they change. The consequences of increases in human populations and consumption of natural resources are described by science, but science does not make the decisions for the actions society takes.

Crosscutting Concepts: Cause and Effect

• Cause and effect relationships may be used to predict phenomena in natural or designed systems.

Oklahoma Academic Standards Connections

ELA/Literacy	Mathematics

Connection to *PASS* Coming Soon

OKLAHOMA ACADEMIC STANDARDS

SOCIAL STUDIES

OKLAHOMA STATE DEPARTMENT OF EDUCATION

CHAMPION EXCELLENCE

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Introduction

The Oklahoma Academic Standards for Social Studies is the result of the contributions of hundreds of social studies educators, representatives of higher education, tribal representatives, and community members. This document reflects a balanced synthesis of the work of all members of the Oklahoma Academic Standards for Social Studies Writing and Draft Committees.

The standards specify what students should know and be able to do as learners of social studies at the end of each grade level or social studies course. The order of the standards at any grade level is not meant to imply a sequence of topics and should be considered flexible for the organization of any course.

The Oklahoma Academic Standards for Social Studies were informed by the National Council of the Social Studies (NCSS) Skills Framework , the Center for Civic Education Civics Standards, the National Council for Geographic Education (NCGE) Geography for Life Standards, the Council for Economic Education Voluntary National Content Standards in Economics, the National Council for History Education (NCHE) Habits of Mind, the National Center for History in the Schools Standards for Historical Thinking, the Oklahoma Academic Standards for English Language Arts and Social Studies, and other states' standards documents.

Standards Overview

Having a literate citizenry rests on a commitment to democratic values and the practice of them. It requires the ability to use knowledge about one's community, nation and world, apply inquiry processes, and employ skills of data collection and analysis, collaboration, decision-making; and problem-solving. Young people who are knowledgeable, skillful, and committed to democracy are necessary to sustaining and improving the democratic way of life. This will also enable our students to become participating members of a global community. A well-rounded, vigorous social studies education encourages and enables each student to acquire a core of basic knowledge, an arsenal of useful skills, and a way of thinking drawn from many academic disciplines. Thus equipped, students are prepared to become informed, contributing, and participating citizens in this democratic republic – the United States of America.

The standards are comprised of two primary components, content standards and social studies practices. The content standards designate specific learning targets at each grade level or course. These content standards are derived from the major disciplines of the social sciences: history, geography, civics and economics. The social studies practices define basic skills and disciplinary tools to prepare students for college, career, and civic life. These practices are meant to be integrated with the instruction of content standards.

Social Studies Content Strands Overview

Social Studies is a systematic and coordinated discipline designed to promote civic competence by drawing upon four content strands: history, geography, civics, and economics. These strands draw from all fields of study related to the social sciences to provide a framework used in the development of the content standards for social studies. They are to be threaded through an integrated program, from grades pre-K through 12, as appropriate at each level. While at some grades and for some courses, specific strands will be more dominant than others, all strands are represented and interrelated in the standards for each grade and course.

Strand 1: History
History focuses on the written record of human experience revealing how individuals and societies developed institutions, philosophies, ideals, and cultural values, and resolved their problems. A balanced study of history helps students understand the how and why of the challenges and successes of past societies. By studying the choices and decisions of the past, students can confront today's problems with a deeper awareness of their alternatives and likely consequences.

Strand 2: Geography
Geography has more to do with asking questions and solving problems than with rote memorization of isolated facts. It is the study of the earth's surface and the processes that shape it, the relationships between people and environments, and the connections between people and places. As a discipline, geography provides the skills to help students answer questions about where things are, how they got there, and how they interact with other things - in the past, now, and in the future.

Strand 3: Civics
Civics is defined to mean the study of the rights and duties of Oklahoma and United States citizens and of how their governments work. This strand helps students understand the essential principles and workings of their political system and that of others, as well as the relationship of American politics and government to world affairs. The goal of civics is to develop literate, informed, competent, and responsible citizens who are politically aware, active, and committed to the fundamental values and principles of American constitutional democracy.

Strand 4: Economics
Economics provides students with an understanding of how individuals, communities, states, and nations allocate both scarce and abundant resources. A clear understanding of economics enables students to comprehend the various competing economic philosophies, ideas, and forces that affect them every day, measure the effectiveness of each, and identify and evaluate the consequences of personal decisions and public policies. Students then will understand how a market economy effectively functions preparing them to be producers, consumers, and citizens.

Social Studies Practices Overview

The Social Studies Practices reflect the key skills and disciplinary tools to prepare students for college, career, and civic life. The practices are meant to be integrated with the instruction of content standards. The five practices are defined broadly below and are further delineated on pg. 6. The social studies practices are designed to support student mastery of the content through a progression of skills PK-12.

Engage in Democratic Processes

Understanding civic virtues and the role of civic institutions. Students will gain knowledge of the history, principles, and foundations of American democracy to participate in civic and democratic processes. Students will identify the institutions of American government to analyze their role as responsible citizens.

Analyze and Address Authentic Civic Issues

Understanding the importance of critical questioning to solve real world problems. Students will develop essential questions to frame independent inquiry related to the past and present. Students will identify and address public problems individually and collaboratively to improve communities and society.

Acquire, Apply, and Evaluate Evidence

Understanding and using strategies to analyze evidence in the social studies. Students will evaluate historical, geographic, and economic information. Students will draw conclusions from primary and secondary sources to formulate informed decisions.

Read Critically and Interpret Information Sources

Understanding the purpose of engaging with text.
Students will evaluate factual information and points of view as presented in text. Students will read historical and contemporary texts to engage in collaborative discussion.

Engage in Evidence-Based Writing

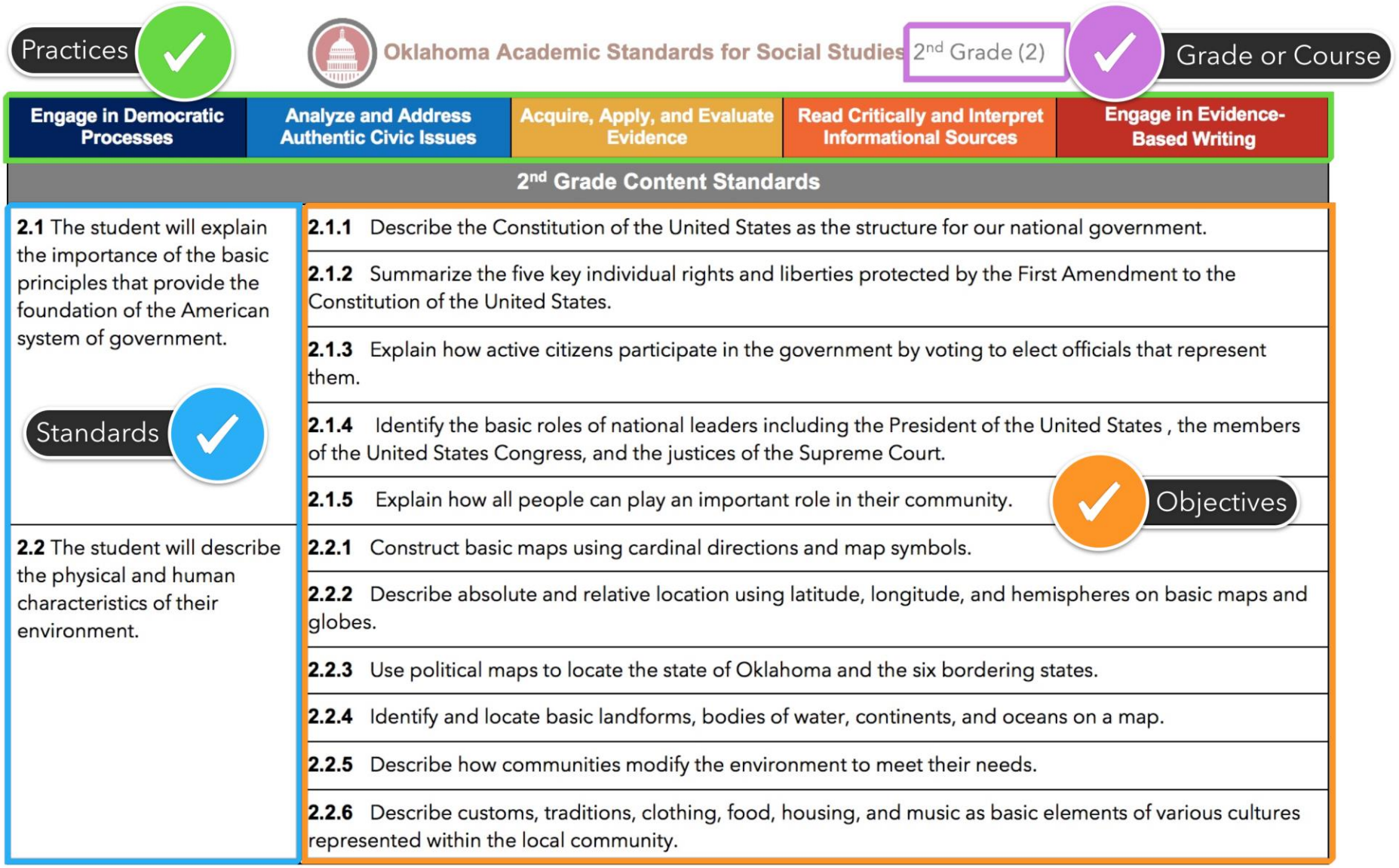
Understanding the multiple purposes of the writing process.
Students will develop written products designed for a variety of social studies related investigations. Students will use and integrate evidence to present knowledge and support opinion.

Social Studies Practices PK-12

The Social Studies Practices describe the experience all students should have as they explore and reason about social studies content PK-12. Additional guidance for what the Social Studies Practices look like across grade levels is provided in **Appendix A: Social Studies Practices PK-12 Progression**.

1. **Engage in Democratic Processes** - Students will understand the principles of government, the benefits of democratic systems, and their responsibilities as citizens.
   - 1.A. Students will demonstrate an understanding of the virtues that citizens should use when interacting with each other and the virtues that guide official government institutions.
   - 1.B. Students will demonstrate an understanding of the important institutions of their society and the principles that these institutions are intended to reflect.
   - 1.C. Students will demonstrate understanding of the processes and rules by which groups of people make decisions, govern themselves, and address public problems.
2. **Analyze and Address Authentic Civic Issues** - Students will determine the kinds of sources that will be helpful in answering essential, compelling, and supporting questions addressing authentic civic issues.
   - 2.A. Students will demonstrate the capability for developing essential, compelling, and supporting questions that address authentic civic issues.
   - 2.B. Students will demonstrate the ability to investigate problems taking into consideration multiple points of view represented in arguments, structure of an explanation, and other sources.
3. **Acquire, Apply, and Evaluate Evidence** - Students will utilize interdisciplinary tools and master the basic concepts of the social studies in order to acquire and apply content understanding in all related fields of study.
   - 3.A. Students will develop skills and practices which demonstrate an understanding that historical inquiry is based on the analysis and evaluation of evidence and its credibility.
   - 3.B. Students will demonstrate an understanding of geographic concepts and develop mastery of geographic tools and ways of thinking in order to become geographically informed.
   - 3.C. Students will analyze the principles of economic systems and develop an understanding of the benefits of a market system in local, national, and global settings.
4. **Read Critically and Interpret Informational Sources** - Students will engage in critical, active reading of grade-level appropriate primary and secondary sources related to key social studies concepts, including frequent analysis and interpretation of informational sources.
   - 4.A. Students will comprehend, evaluate, and synthesize textual sources to acquire and refine knowledge in the social studies.
   - 4.B. Students will apply critical reading and thinking skills to interpret, evaluate, and respond to a variety of complex texts from historical, ethnic, and global perspectives.
5. **Engage in Evidence-Based Writing** - Students will apply effective communication skills by developing a variety of evidence-based written products designed for multiple purposes and tasks, in order to demonstrate their understandings of social studies concepts, ideas, and content.
   - 5.A. Students will summarize and paraphrase, integrate evidence, and cite sources to create written products, research projects, and presentations for multiple purposes related to social studies content.
   - 5.B. Students will engage in authentic inquiry to acquire, refine, and share knowledge through written presentations related to social studies.

Reading the Oklahoma Academic Standards for Social Studies



Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Pre Kindergarten Content Standards	
PK.1 The student will exhibit traits of good citizenship.	**PK.1.1** Describe the importance of rules and personal responsibilities including working together to make decisions as a member of a family and classroom community.
	PK.1.2 Explain the need to respect the uniqueness of individuals in our class and community.
	PK.1.3 Describe the concept of being a citizen.
	PK.1.4 Identify the United States Flag as a symbol of the country.
PK.2 The student will demonstrate knowledge of basic physical and human geographic concepts.	**PK.2.1** Explain that a map is a drawing of a place.
	PK.2.2 Use basic directional terms in relation to the student's relative location.
	PK.2.3 Describe a classroom as a community.
	PK.2.4 Identify family customs and traditions as basic elements of culture.
PK.3 The student will understand that history relates to events and people of other times and places.	**PK.3.1** Explain history as things that happened in the past.
	PK.3.2 Describe how we honor people and events of the past.
	PK.3.3 Use words and phrases, such as before and after, as they relate to chronology and time in order to explain how things change.
	PK.3.4 Explain that lessons can be learned from the past.
PK.4 The student will identify basic economic concepts.	**PK.4.1** Identify basic needs all people share.
	PK.4.2 Explain that people work to earn money to buy things they need and want.
	PK.4.3 Explain how resources are used by people to meet their needs.
	PK.4.4 Describe how various school personnel provide needed services.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Kindergarten Content Standards	
K.1 The student will exhibit traits of good citizenship.	**K.1.1** Describe the importance of rules, personal responsibilities, and natural consequences as a member of a family, class, and school.
	K.1.2 Identify ways to be an active member of the community.
	K.1.3 Identify the United States Flag as a symbol of the country, explaining the stripes as symbols for the first states and the stars as symbols for the current states in our country.
	K.1.4 Identify the purpose of the Pledge of Allegiance and explain appropriate flag etiquette.
	K.1.5 Identify other important United States symbols including the Statue of Liberty located in New York Harbor.
K.2 The student will demonstrate knowledge of basic physical and human geographic concepts.	**K.2.1** Explain that a globe is a model of the Earth and that a map is a drawing of a place; construct basic maps.
	K.2.2 Identify basic cardinal directions and relative location terms.
	K.2.3 Identify the shape of the state of Oklahoma on a map.
	K.2.4 Explain that the school is part of a larger community and one's community is within the state of Oklahoma.
	K.2.5 Describe what makes one's community alike or different than other communities.
	K.2.6 Describe family and community customs and traditions as basic elements of culture.

K.3 The student will understand that history relates to events and people of other times and places.	**K.3.1** Explain how events of the past may have affected our community and the way we live today.
	K.3.2 Explain how we honor people and events of the past.
	K.3.3 Use words and phrases related to chronology and time to explain how things change including before/after and yesterday/today/tomorrow.
	K.3.4 Explain that different types of sources can be used to learn about the past.
K.4 The student will identify basic economic concepts.	**K.4.1** Describe the basic needs of all people: food, clothing, and shelter; differentiate between these needs and a want.
	K.4.2 Explain the relationship between work and earning money.
	K.4.3 Identify ways that people use their money, including spending and saving.
	K.4.4 Explain how various community members including police officers, firefighters, soldiers, school personnel, business professionals, and medical personnel impact the student's life.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

1st Grade Content Standards	
1.1 The student will analyze their role as a citizen in a community.	**1.1.1** Describe the need for written laws and the main purpose of government, including the concept of consequences for one's actions when a law or rule is violated.
	1.1.2 Describe how citizens within communities work together to accomplish common tasks and fulfill roles of authority.
	1.1.3 Explain patriotic traditions including *The Pledge of Allegiance*, describe appropriate flag etiquette and proper behavior during the playing of *The Star-Spangled Banner*.
	1.1.4 Identify important symbols of the United States including the Bald Eagle and the Liberty Bell, and explain their meanings.
1.2 The student will demonstrate knowledge of basic geographic concepts.	**1.2.1** Describe the difference between physical and political maps; construct basic maps of specific places.
	1.2.2 Identify cardinal directions and use them to identify specific locations on a map.
	1.2.3 Identify the difference between continents and oceans.
	1.2.4 Compare the features of urban and rural communities.
	1.2.5 Describe community customs and traditions as basic elements of culture.
1.3 The student will examine important events and historical figures in the nation's past.	**1.3.1** Explain why people may see events from different points of view.
	1.3.2 Describe the contributions of people and groups who have shaped our history and ways we commemorate important places and events of the past.
	1.3.3 Read and construct basic timelines to understand the chronology of events in history.
	1.3.4 Identify primary sources and how they help us to learn about the past.

1.4 The student will describe the characteristics of the American economic system.	**1.4.1** Explain the costs and benefits of spending and saving in order to meet needs and wants.
	1.4.2 Describe ways people are paid for their labor and how goods and services are purchased using money and credit.
	1.4.3 Identify and explain the roles of consumers and producers in the American economy.
	1.4.4 Describe the role of banks in the community.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

2nd Grade Content Standards	
2.1 The student will explain the importance of the basic principles that provide the foundation of the American system of government.	**2.1.1** Describe the Constitution of the United States as the structure for our national government.
	2.1.2 Summarize the five key individual rights and liberties protected by the First Amendment to the Constitution of the United States.
	2.1.3 Explain how active citizens participate in the government by voting to elect officials that represent them.
	2.1.4 Identify the basic roles of national leaders including the President of the United States , the members of the United States Congress, and the justices of the Supreme Court.
	2.1.5 Explain how all people can play an important role in their community.
2.2 The student will describe the physical and human characteristics of their environment.	**2.2.1** Construct basic maps using cardinal directions and map symbols.
	2.2.2 Describe absolute and relative location using latitude, longitude, and hemispheres on basic maps and globes.
	2.2.3 Use political maps to locate the state of Oklahoma and the six bordering states.
	2.2.4 Identify and locate basic landforms, bodies of water, continents, and oceans on a map.
	2.2.5 Describe how communities modify the environment to meet their needs.
	2.2.6 Describe customs, traditions, clothing, food, housing, and music as basic elements of various cultures represented within the local community.

2.3 The student will examine the lives of notable Americans who expanded peoples' rights and freedoms through our history.	**2.3.1** Analyze the contributions of people and groups who have shaped our history and who are honored by holidays and commemorative months.
	2.3.2 Compare perspectives of people in the past to people in the present.
	2.3.3 Compare different accounts of the same historical event using primary and secondary sources.
	2.3.4 Explain possible reasons for events in the past.
2.4 The student will understand basic economic concepts in the American economy.	**2.4.1** Explain the importance of supply and demand in the consumer and producer relationship.
	2.4.2 Explain how barter and trade can lead to interdependence among communities.
	2.4.3 Describe the connection between taxes and community services, including schools, sanitation and water, fire and police protection, parks and recreation, libraries, and roads.
	2.4.4 Describe how setting goals and creating a budget helps people pay for things they need and want.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

3rd Grade Content Standards	
3.1 The student will analyze the traits of good citizens.	**3.1.1** Examine and determine the main purposes of Oklahoma's state government and identify elected leaders of the state of Oklahoma and the three branches of government.
	3.1.2 Explain that tribal governments in Oklahoma have a right to self-government known as sovereignty.
	3.1.3 Describe the historical significance of the symbols of Oklahoma including the Oklahoma State Seal and the Oklahoma Flag; explain how the name of Oklahoma is derived from the Choctaw language.
	3.1.4 Describe relationships between people and events of the past, including those commemorated on national, state, and community holidays.
	3.1.5 Define the concept of civic virtue and responsibilities of the citizen at the local, state, and tribal levels, including respect for diversity.
3.2 The student will examine Oklahoma's geography and how people of Oklahoma interact with their environment.	**3.2.1** Examine Oklahoma's political and physical features. **A.** Identify the state of Oklahoma using relative location, absolute location (latitude and longitude), direction, scale, size, and shape using physical and political maps. **B.** Interpret thematic maps of Oklahoma with the essential map elements of title, legend, scale, and directional indicators. **C.** Identify Oklahoma's major landforms and bodies of water on a physical map. **D.** Identify Oklahoma's major metropolitan centers and cities on a political map. **E.** Describe the climate and various natural vegetation zones found in Oklahoma. **F.** Identify the six states bordering Oklahoma on a map.

	3.2.2 Examine the interaction of the environment and the peoples of Oklahoma. **A.** Describe how early American Indians used Oklahoma's natural resources, such as bison hunting, fur trading, and farming. **B.** Describe how pioneers to Oklahoma adapted to and modified their environment, such as sod houses, windmills, and crops. **C.** Summarize how the weather and the environment have impacted the economy of Oklahoma in events such as the Dust Bowl, floods, and tornadoes. **D.** Summarize how Oklahomans affect and change their environments such as the construction of the McClellan-Kerr Arkansas River Navigation System, creation of recreational lakes by the building of dams, irrigation of croplands, and the establishment of wildlife refuges.
	3.2.3 Identify the characteristics of renewable and non-renewable resources and evaluate the role of citizens in conserving natural resources.
3.3 The student will analyze the significant events and historic personalities contributing to the development of the state of Oklahoma.	**3.3.1** Understand and describe the relationship between historic events and chronology through the creation of basic timelines.
	3.3.2 Read and interpret primary sources related to key events in Oklahoma's past.
	3.3.3 Describe American Indian pre-contact cultures that have inhabited what is now Oklahoma, such as the Spiro Mound Builders.
	3.3.4 Identify cultural similarities and differences of the existing sovereign tribal nations in Oklahoma, especially those near the local community.
	3.3.5 Describe early expeditions into Oklahoma such as those of Coronado, Washington Irving, and George Catlin.
	3.3.6 Describe the migrations, settlements, relocations and forced removals of American Indians.
	3.3.7 Describe cowboy life and cattle drives as typified by experiences along such routes as the Chisholm Trail and the impact of Mexican ranching traditions on the cattle industry and cowboy culture.
	3.3.8 Distinguish between the points of view of both American Indians and settlers regarding the opening of territories in Oklahoma for settlement.
	3.3.9 Commemorate Statehood Day, November 16, as the joining of Indian and Oklahoma Territories.

	3.3.10 Describe the contributions of Oklahoma's military personnel, including the Buffalo Soldiers, the code talkers, and the 45th Infantry.
	3.3.11 Explain how Oklahomans come together to help one another during difficult times, such as recovering from the bombing of the Oklahoma City Murrah Building, exhibiting what has become the "Oklahoma Standard".
	3.3.12 Examine notable historic and present-day Oklahomans utilizing biographies and information texts such as Jim Thorpe, Sequoyah, Will Rogers, Wiley Post, Mickey Mantle, Shannon Lucid, Bill Pickett, Clara Luper, and Maria Tallchief.
3.4 The student will identify and describe basic economic activities creating prosperity in the state of Oklahoma.	**3.4.1** Compare differences among human, natural, and capital resources used to produce goods and services.
	3.4.2 Summarize how the factors of scarcity and surplus and the laws of supply and demand of natural and human resources require people to make choices about producing and consuming goods and services.
	3.4.3 Examine how the development of Oklahoma's major economic activities have contributed to the growth of the state, including, mining and energy industry, agriculture, aviation, tourism, tribal enterprises, and military installations.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

4th Grade Content Standards

4.1 The student will describe the features of self-government and the role of citizens of the United States.	**4.1.1** Describe the concepts of democracy and representative government, including the rule of law, equality, the common good, and individual rights. **A.** Explain the concept of civic responsibilities, including respect for the law, the necessity for compromise, civic participation, and public service. **B.** Understand the necessity of respect for diversity of the individual and diversity of groups comprising American society.
	4.1.2 Compare powers exercised by the local, state, and national levels of governments, recognizing tribal sovereignty as a tribal nation's inherent right to self-govern.
	4.1.3 Summarize the role of citizens as responsible stewards of natural resources and the environment. **A.** Describe the benefits of participation in recycling and anti-littering activities. **B.** Identify present-day examples to conserve natural resources and the development of alternative, sustainable energy sources.
4.2 The student will examine the physical geography and environments of the United States.	**4.2.1** Use maps and other geographic representations (such as globes and graphs), tools, and technologies to acquire, process, and report information from a spatial perspective. **A.** Use and describe various elements of maps, including keys/legends, scale, cardinal, and intermediate directions. **B.** Interpret aerial photographs, satellite images and thematic maps to locate and identify physical and human features of the United States and North America. **C.** Use latitude and longitude to identify the location of physical and human features of the United States.
	4.2.2 Identify major physical features in the United States and analyze how physical processes shape places. **A.** Identify and describe the physical characteristics of places, including the major landforms, bodies of water, vegetation and climates in the United States. **B.** Describe the location and characteristics of the major ecosystems in the United States.

	4.2.3 Explain how people create regions using common geographic characteristics. **A.** Identify and describe the major physical, cultural, and economic regions of the United States, comparing one's own region to the other regions. **B.** Explain how and why regions change over time by comparing regions in the past with life in the same regions in the present.
	4.2.4 Describe how physical processes of the Earth's surface impact humans and their environment. **A.** Identify and describe the different climates in the United States using maps, globes, and graphs. **B.** Explain how climate and natural processes including floods, wind, and storms impact how we live.
	4.2.5 Identify and locate on a political map the fifty states and the United States capital.
4.3 The student will analyze the human characteristics of the United States and how geography impacts historic events.	**4.3.1** Identify and describe early settlement patterns of regions in the United States. **A.** Draw conclusions from maps to show how climate, vegetation, natural resources, and historic events affect the location and growth of settlements. **B.** Identify major American Indian groups and their ways of life in each region, including economic activities, customs, and viewpoints on land usage and ownership. **C.** Summarize the reasons for key expeditions of North America by Spain, France, and England and their impact on the development of each region. **D.** Identify push and pull factors of human migration. **E.** Evaluate the impact of the Columbian Exchange on American Indian groups, African slaves and European settlers, including agriculture, trade, culture, military alliances, control of territory, and the sudden and significant decline of indigenous peoples.
	4.3.2 Examine the characteristics of culture, including the distribution and complexity of the regions of the United States. **A.** Identify the characteristics of culture (language, customs, beliefs, food, clothing, shelter) and compare the cultural characteristics of different regions of the United States. **B.** Explain how the characteristics of culture affect the ways in which people live.
4.4 The student will identify basic economic activities of the United States.	**4.4.1** Analyze how humans adapt to and modify their environments in order to survive and grow. **A.** Explain how humans depend upon the physical environment for food, shelter, and economic activities. **B.** Distinguish between renewable and nonrenewable resources. **C.** Explain how physical environments can provide both opportunities and limitations for human activity.

	4.4.2 Describe the patterns and networks of economic interdependence among regions of the United States. **A.** Identify and locate on a map the major cities of the United States, including their relative location to natural resources and transportation routes. **B.** Identify the major economic activities of each region of the United States by comparing how people satisfy their basic needs through the production of goods and services. **C.** Describe the relative location of natural resources, such as fossil fuels, minerals and soils, and their relationship to each region's major economic activities, including agriculture, manufacturing, transportation, energy, and services.
	4.4.3 Explain how economic activities can threaten the physical environment. **A.** Identify ways in which humans can change ecosystems, such as clearing forests, draining wetlands, and diverting waterways, by examining present-day issues related to the use of resources. **B.** Identify examples of changes in land use in local communities and how the physical environment can be stressed by human activities.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

5th Grade Content Standards	
5.1 The student will examine and compare the Jamestown and Plymouth settlements as the foundations of American culture and society.	**5.1.1** Summarize reasons for European colonization of North America and the impact on the development of the American colonies.
	5.1.2 Examine the economic and political motivations for English settlements at Roanoke and Jamestown .
	5.1.3 Explain the economic and political motivations of immigrants and indentured servants who came to Virginia.
	5.1.4 Explain the early successes and challenges of the Jamestown settlement including the leadership of John Smith, interrelationships with American Indians, challenges of the Starving Times, and the export of natural resources for profit.
	5.1.5 Explain the English commitment to the permanent settlement at Jamestown as evidenced through the events of 1619 including: **A.** representative government established through the House of Burgesses **B.** private ownership of land **C.** introduction of Africans as slave labor **D.** arrival of women and families
	5.1.6 Analyze the religious, economic, and political motivations of immigrants and indentured servants who migrated to Plymouth.
	5.1.7 Explain the early successes and challenges of the Plymouth settlement including: **A.** practice of self-government established by the Mayflower Compact **B.** contributions of American Indians including Chief Massasoit and Squanto **C.** leadership of William Bradford
	5.1.8 Explain how American Indian agricultural practices, such as the Three Sisters, contributed to the early survival of the colonists.
5.2 The student will compare the developments of the New	**5.2.1** Explain the contributions of important citizens and groups to the foundation of the colonies including the Puritans and Quakers, Roger Williams, Anne Hutchinson, William Penn, Lord Baltimore, and James Oglethorpe.

England Colonies, the Middle Colonies, and the Southern Colonies.	**5.2.2** Compare the economic development of the three colonial regions including: **A.** agriculture and exports as affected by climate and natural resources **B.** a labor system utilizing indentured servants **C.** slave labor central to the growth of the economy
	5.2.3 Explain the international economic and cultural interactions resulting from the triangular trade routes, including the forced migration of Africans through the Transatlantic slave trade and experiences of the Middle Passage.
	5.2.4 Analyze the forms of self-government in the three colonial regions including the role of religion in the establishment of some colonial governments, the Virginia House of Burgesses, and New England town hall meetings.
	5.2.5 Explain the evolving relationships between American Indians and the British colonists involving territorial claims.
	5.2.6 Explain that tribal sovereignty is a tribal nation's inherent right to self-govern.
	5.2.7 Compare daily life in the colonies as experienced by different social classes, plantation owners, farmers, merchants, craftsmen, artisans, and women and children.
	5.2.8 Compare the experiences of both free and enslaved Africans in the British colonies, including resistance efforts by enslaved peoples and attempts to maintain aspects of African culture.
5.3 The student will examine the foundations of the American nation established during the Revolutionary Era.	**5.3.1** Examine the causes and effects of significant events leading to armed conflict between the thirteen American colonies and Great Britain including: **A** French and Indian War **B.** Proclamation of 1763 **C.** Sugar and Stamp Acts **D.** Townshend Act **E.** colonial arguments regarding taxation and rightful representation in Parliament **F.** boycotts of British goods and the efforts of the Committees of Correspondence **G.** Quartering Act **H.** Boston Massacre **I.** Tea Act and The Boston Tea Party **J.** Coercive Acts (Intolerable Acts) **K.** British raids on Lexington and Concord **L.** publication of *Common Sense,* by Thomas Paine

	5.3.2 Analyze the ideals stated in the Declaration of Independence, drafted by Thomas Jefferson and adopted July 4, 1776, used to: **A.** identify natural, unalienable rights, such as life, liberty, and the pursuit of happiness **B.** declare the equality of all individuals **C.** define the purpose of government **D.** establish the principle of self-government and consent of the governed **E.** explain specific colonial grievances
	5.3.3 Explain the importance of the Articles of Confederation as the first American national system of government under which the colonies waged a war in order to gain independence.
	5.3.4 Compare the Iroquois Confederacy's representative government to the early attempts of the colonies to unite as one nation.
	5.3.5 Compare the advantages and disadvantages of the British and the American colonies at the eve and during the Revolutionary War, including political and military leadership, military strength, population, resources, foreign alliances, and motivations for fighting.
	5.3.6 Analyze the relationships of significant military and diplomatic events of the Revolutionary War including the leadership of General George Washington, experiences of Valley Forge, impact of the battles of Bunker Hill, Trenton, Saratoga, Yorktown, and the Treaty of Paris in 1783.
	5.3.7 Identify the points of view of major groups that remained loyal to Britain, joined the patriot cause, or remained neutral.
	5.3.8 Identify the contributions of key individuals involved in the American Revolution including Patrick Henry, Samuel Adams, John Adams, Abigail Adams, Paul Revere, Nathan Hale, John Paul Jones, Thayendanegea (Joseph Brant), Nancy Ward the Beloved Woman of the Cherokee, Marquis de Lafayette, Benjamin Franklin, Mercy Otis Warren, and Phillis Wheatley.
5.4 The student will examine the formation of the American	**5.4.1** Evaluate issues and events that led to the Constitutional Convention, including a weak national government and Shays' Rebellion.

system of government following the American Revolution.	**5.4.2** Identify key leaders and explain the debates and compromises of the Constitutional Convention, including: **A.** Virginia and New Jersey Plans **B.** Great Compromise **C.** Three-fifths Compromise and its maintenance of the institution of slavery **D.** Father of the Constitution, James Madison **E.** President of the Convention, George Washington
	5.4.3 Examine the purposes and basic responsibilities of government as described in the Preamble of the Constitution of the United States, which established the supreme law of the land.
	5.4.4 Describe the relationship between the federal government and sovereign American Indian nations, as established under the Constitution of the United States.
	5.4.5 Compare the viewpoints of the Federalists, led by James Madison, and Anti-Federalists, such as George Mason, over the addition of a bill of rights.
	5.4.6 Explain how the Constitution of the United States was amended to include the Bill of Rights and summarize the liberties protected in each of the ten amendments.
5.5 The student will describe the structure and responsibilities of the American system of government and the role of the individual citizen.	**5.5.1** Examine the key principles of government established in the Constitution of the United States including: **A.** separation of powers among three branches of government **B.** the system of checks and balances **C.** shared powers between the federal and state governments.
	5.5.2 Describe the roles of Congress, the President, and the Supreme Court in the legislative process.
	5.5.3 Describe the responsibilities of United States citizens including: **A.** registration and voting in public elections **B.** becoming informed voters **C.** engagement in civil discourse **D.** service on trial juries **E.** payment of taxes **F.** obedience to laws **G.** registration for military service

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

6th Grade Content Standards	
6.1 The student will analyze data from a geographic perspective using the skills and tools of geography.	**6.1.1** Apply geographic information to support analysis from primary and secondary sources located in a variety of texts.
	6.1.2 Describe how various map projections distort the surface of the earth; apply the concepts of scale, distance, direction, relative location, absolute location, and latitude and longitude.
	6.1.3 Integrate visual information, draw conclusions, and make predictions from geographic data and analyze spatial distribution and patterns by interpreting that data as displayed on geographic tools.
	6.1.4 Integrate visual information and develop the skill of mental mapping of the political and physical features of Earth's surface in order to organize information about people, places, and environments.
	6.1.5 Describe and analyze the role of geographic factors on current events and issues.
6.2 The student will analyze the physical systems of the major regions of the Western Hemisphere.	**6.2.1** Use visual information to identify and describe on a physical map the landforms, bodies of water, climate, and vegetation zones that are important to each region.
	6.2.2 Explain how the processes and factors of latitude, elevation, Earth-Sun relationships, prevailing winds, and proximity to bodies of water influence climate.
	6.2.3 Describe the predominant natural resources found in each region.
	6.2.4 Describe the relationship and summarize the impact of the distribution of major renewable and nonrenewable resources on each region.

6.3 The student will identify the characteristics, distribution, and demographic patterns of human populations and systems of the Western Hemisphere.	**6.3.1** Identify on a political map the major countries and population centers of each region.
	6.3.2 Identify and describe cultural traits of language, ethnic heritage, religion, and traditions practiced among peoples.
	6.3.3 Analyze the impact of geography on population distribution, growth, and change, applying geographic concepts of population density, the availability of resources.
	6.3.4 Describe how the push and pull factors of migration have affected settlement patterns and the human characteristics of places over time.
	6.3.5 Compare the systems of government, including representative governments (democracy, republic, constitutional monarchy) and authoritarian systems (dictatorship, absolute monarchy).
	6.3.6 Identify the role of the citizen in the selection of government officials and lawmaking; compare individual liberties under different forms of government.
	6.3.7 Identify and explain topics related to indigenous sovereignty.
	6.3.8 Evaluate how the three levels of economic activities (primary, secondary, tertiary) contribute to the development of a nation and region.
	6.3.9 Describe benefits and limitations of the traditional, market, and command economic systems, including how government policies affect economic activities and trade relationships.
	6.3.10 Identify the common characteristics of developed and developing countries, including the impact of education and technology; analyze data used by geographers such as literacy rate, life expectancy, per capita income, and infant mortality.

6.4 The student will analyze the interactions of humans and their environment in the Western Hemisphere.	**6.4.1** Describe the commercial agriculture and industrial regions that support human development.
	6.4.2 Evaluate the effects of human modification on the natural environment through transformation caused by subsistence and commercial agriculture, industry, demand for energy, and urbanization.
	6.4.3 Analyze the impact of climate and natural disasters on human populations, including forced migration, scarcity of consumer goods, economic activities, and loss of life.
	6.4.4 Analyze environmental challenges of each region.
	6.4.5 Evaluate the role of ecotourism in creating environmental awareness of resources, climate, cultures, and wildlife.
	6.4.6 Describe the role of citizens as responsible stewards of natural resources and the environment.
6.5 The student will compare common physical and human characteristics of regions which create identity or uniqueness and influence people's perceptions of the Western Hemisphere.	**6.5.1** Define the concept of region and identify the major political, physical, cultural, and economic regions.
	6.5.2 Explain how cultural diffusion, both voluntary and forced, impacts societies of a region.
	6.5.3 Describe patterns of global economic interdependence and trade, including the concepts of balance of trade and supply and demand; compare measures of economic growth including Gross Domestic Product (GDP) and Gross National Product (GNP).
	6.5.4 Analyze global interdependence which explains the outsourcing of technological and manufacturing jobs to developing regions.
	6.5.5 Analyze reasons for conflict and cooperation among and between groups, societies, nations, and regions.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

7th Grade Content Standards	
7.1 The student will analyze data from a geographic perspective using the skills and tools of geography.	**7.1.1** Integrate specific geographic information to support analysis from primary and secondary sources located in texts, documents, newspapers, magazines, journals, political cartoons, and online news sources.
	7.1.2 Apply the concepts of scale, distance, direction, relative location, absolute location, and latitude and longitude.
	7.1.3 Explain the relationship between the continents, world oceans, and major cultural regions.
	7.1.4 Integrate visual information and apply the skill of mental mapping of the political and physical features of the Earth's surface in order to organize information about people, places, and environments.
	7.1.5 Integrate visual information, draw conclusions, and make predictions from geographic data; analyze spatial distribution and patterns by interpreting that data as displayed on geographic tools.
	7.1.6 Describe and analyze the role of geographic factors on current events and issues.
7.2 The student will analyze the physical systems of the major regions of the Eastern Hemisphere.	**7.2.1** Identify on a physical map the major landforms and bodies of water of each region.
	7.2.2 Describe the distribution of major renewable and nonrenewable resources of each region.
	7.2.3 Explain how the competition for scarce resources can cause economic and political conflict and cooperation.
7.3 The student will identify the characteristics, distribution and demographic patterns of human populations and systems of the Eastern Hemisphere.	**7.3.1** Identify on a political map the major countries and population centers of each region.
	7.3.2 Compare common cultural traits, including language, ethnic heritage, social systems, and traditions.
	7.3.3 Evaluate the impact of a region's major religions, including geographic hearths, major beliefs, customs, and the significance of religion in contemporary societies; explain how religion can both unify or divide people.
	7.3.4 Evaluate and summarize the impact of geography on population distribution, density, growth, change, settlement patterns, the availability of resources, and migration, including push and pull factors.
	7.3.5 Describe reasons for and analyze from multiple perspectives the challenges and benefits of migration on inigenous and immigrant populations.

	7.3.6 Describe the distribution of resources and evaluate how the three levels of economic activities (primary, secondary, tertiary) contribute to the development of a country or region.
	7.3.7 Compare the structures of representative governments and authoritarian systems.
	7.3.8 Identify the role of the citizen in the selection of government officials and lawmaking; compare individual liberties under different forms of government.
	7.3.9 Identify and explain the advantages and disadvantages of traditional, market, and command economic systems.
	7.3.10 Explain the role of government policies in utilizing wealth from natural resources to finance development.
	7.3.11 Assess the influence of economic development and distribution of wealth on society.
	7.3.12 Distinguish between developed and developing regions using the Human Development Index; analyze data used by geographers, including literacy rate, life expectancy, infant mortality, and per capita income.
7.4 The student will analyze the interactions of humans and their environment in the Eastern Hemisphere.	**7.4.1** Analyze the impact of climate events, weather patterns and natural disasters on human populations and the environment, resulting in forced migrations, scarcity of consumer goods, economic activities, and loss of life.
	7.4.2 Explain how climate change is affecting environments and human populations.
	7.4.3 Explain the differences among subsistence, cash crop and commercial agriculture, including the impact on economic development.
	7.4.4 Evaluate the effects of human modification of and adaptation to the natural environment through transformation caused by agriculture, the use of modern irrigation methods, industry, demand for energy, and urbanization.
	7.4.5 Summarize the role of ecotourism in creating environmental awareness of resources, climate, cultures and wildlife.
	7.4.6 Describe the role of citizens as responsible stewards of natural resources and the environment.
7.5 The student will compare common physical and human characteristics of regions which create identity or uniqueness and influence people's	**7.5.1** Define the concept of region and explain how and why regions change over time through physical and human processes which operate to modify the Earth's surface.
	7.5.2 Describe how cultural diffusion, both voluntary and forced, impacts society.
	7.5.3 Explain patterns of global interdependence and world trade, including the impact of changing technology on trade routes.

perceptions of the Eastern Hemisphere.	**7.5.4** Explain patterns of global economic interdependence and world trade, focusing on the concepts of balance of trade, supply and demand; compare the economic measurements of productivity, Gross Domestic Product (GDP) and Gross National Product (GNP).
	7.5.5 Analyze global interdependence which explains the outsourcing of technological and manufacturing jobs to developing regions.
	7.5.6 Analyze reasons for conflict and cooperation among groups, societies, and countries, including the creation and involvement of supranational organizations.
	7.5.7 Describe how political, economic, and cultural forces challenge contemporary political arrangements leading to the devolution of states (civil wars, terrorism, genocide, and ethnic separatism).

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

8th Grade Content Standards

8.1 The student will analyze the foundations of the United States by examining the causes, events, and ideologies which led to the American Revolution	**8.1.1** Describe the political climate in the British colonies prior to the French and Indian War including the policy of salutary neglect, mercantilism through the Navigation Acts and colonial reaction through the Albany Plan of Union; compare the Iroquois Confederacy to early attempts to unite the colonies.
	8.1.2 Summarize the political and economic consequences of the French and Indian War including imperial policies of taxation, the Proclamation of 1763, and the migration of colonists into American Indian sovereign territories.
	8.1.3 Summarize British attempts to regulate the colonies and colonial responses including: **A.** Sugar Act **B.** Stamp Act Congress Resolves **C.** Committees of Correspondence **D.** legal principle of taxation and political representation **E.** Townshend Act and boycotts of British goods **F.** Quartering Act **G.** Boston Massacre **H.** Tea Act and Boston Tea Party **I.** Coercive Acts (Intolerable Acts) **J.** First Continental Congress **K.** British raids on Lexington and Concord
	8.1.4 Analyze the significance of the Second Continental Congress including: **A.** formation of the Continental Army **B.** establishment of currency **C.** Olive Branch Petition **D.** French alliance negotiated by Benjamin Franklin **E.** committee to draft a declaration of independence

	8.1.5 Analyze the ideological and propaganda war between Great Britain and the colonies including: **A.** points of views of the Patriots and the Loyalists **B.** writings of Mercy Otis Warren and Phillis Wheatley **C.** use of Paul Revere's engraving of the Boston Massacre **D.** rejection of the Olive Branch Petition **E.** *Give Me Liberty or Give Me Death,* speech attributed to Patrick Henry **F.** *Common Sense* pamphlet by Thomas Paine
	8.1.6 Examine the central ideas expressed in the Declaration of Independence, drafted by Thomas Jefferson and adopted July 4, 1776, and their intellectual origins including: **A.** John Locke's theory on natural and unalienable rights, including life, liberty and the pursuit of happiness **B.** the ideals of equality for all individuals, including the impact of the First Great Awakening. **C.** the purpose of government as a social contract requiring the consent of the governed **D.** economic and political grievances against British policies.
8.2 The student will examine key military and diplomatic events of the Revolutionary War that resulted in an independent nation.	**8.2.1** Explain the purpose of the Articles of Confederation which established the first American national system of government to support and conduct a war against Britain.
	8.2.2 Evaluate the motivations and points of view of various populations to remain loyal to Britain, join the patriot cause, or choose neutrality, including: **A.** Patriots and Loyalists and their political, economic, and family interests **B.** American Indians and the preservation of their homelands, cultures, and trade **C.** women and their political status **D.** free and enslaved blacks and their petitions to colonial governments for a ban on slavery.
	8.2.3 Identify and evaluate the contributions of individuals and significant groups toward winning independence from British rule.
	8.2.4 Compare the advantages and disadvantages of the British and the American colonists including political and military leadership, military strength, population and resources, motivation, foreign alliances, financial and military support, and the British recruitment of enslaved black men in exchange for freedom.

	8.2.5 Summarize the impact of key military and diplomatic events of the Revolutionary War including: **A.** military leadership of General George Washington **B.** victories at Boston, Trenton, and Saratoga **B.** publication of Thomas Paine's *The Crisis* **D.** Valley Forge encampment **E.** French alliance, negotiated by Benjamin Franklin **F.** victory at Yorktown **G.** Treaty of Paris, 1783
8.3 The student will examine the formation of the American system of government following the Revolutionary War and the creation of the Constitution of the United States as the supreme law of the land.	**8.3.1** Examine the strengths and weaknesses of the Articles of Confederation that led to the Constitutional Convention in Philadelphia in 1787, including: **A.** resolution of disputes over the western territories as resolved by the Northwest Ordinance **B.** organization and leadership necessary to win the war **C.** lack of a common national currency **D.** lack of a common defense **E.** lack of a national judiciary **F.** mismanagement of war debts due to an inability to tax **G.** unanimous vote required to amend the Articles of Confederation **H.** civil unrest as typified in Shays' Rebellion.
	8.3.2 Analyze the significance of the Constitutional Convention, contributions of the Framers, major debates and compromises including the Virginia and New Jersey Plans, Great Compromise, the leadership of James Madison, Father of the Constitution, and George Washington, President of the Convention.
	8.3.3 Describe how the framers of the Constitution addressed the issue of slavery including the Three-Fifth Compromise which maintained the institution of slavery in both northern and southern states, the Fugitive Slave Clause, and the delayed ban on the slave trade.
	8.3.4 Explain the significance of the Commerce Clause in establishing a constitutional relationship between Indian tribes and the United States government.
	8.3.5 Examine the concept of self-government, the purpose, and the responsibilities of government as expressed in the Preamble to the Constitution of the United States.

	8.3.6 Analyze the key principles of government established by the Constitution of the United States including: **A.** federalism (reserved and concurrent powers) **B.** separation of powers among three branches of government (legislative, executive, judicial) **C.** a system of checks and balances among the three branches **D.** popular sovereignty and consent of the governed **E.** judicial review **F.** rule of law
	8.3.7 Examine the Federalist and Anti-Federalist arguments for and against the ratification of the Constitution as expressed in the *Federalist Papers* authored by James Madison, Alexander Hamilton, and John Jay and the writings of Anti-Federalists, such as George Mason, including concerns over a strong central government and the omission of a bill of rights.
	8.3.8 Explain how the Constitution of the United States was amended to include the Bill of Rights; identify and analyze the guarantees of individual rights and liberties as expressed in each of the ten amendments.
	8.3.9 Identify the structure and responsibilities of the elected and appointed officials of the three branches of government in relationship to the legislative process, including the role of Congress and the President, as well as the Supreme Court's power of judicial review.
	8.3.10 Describe the responsibilities of United States citizens such as: **A.** registering and voting in public elections **B.** engaging in informed civil discourse **C.** serving on a jury **D.** paying taxes **E.** obeying laws **F.** registering for military service

8.4 The student will examine the political and economic changes that occurred during the Early Federal Period.	**8.4.1** Analyze the impact of the Whiskey Rebellion and enforcement of the government's right to tax.
	8.4.2 Describe President Washington's attempt to develop a cohesive Indian policy, which included respectful interactions with American Indian leaders, treaties to delineate tribal lands, and precedent-setting practices of assimilation.
	8.4.3 Describe the advice in *President Washington's Farewell Address* and its impact.
	8.4.4 Evaluate the impact of the Alien and Sedition Acts on individual rights during the Adams Administration, including the responses of the Democratic-Republicans in the *Virginia and Kentucky Resolutions*.
8.5 The student will analyze the political and geographic changes that occurred during the Jeffersonian Era.	**8.5.1** Explain the impact of the peaceful transfer of power from one political party to another, as exhibited by the presidential election of 1800.
	8.5.2 Analyze the impact of the Supreme Court under the leadership of Chief John Marshall and the *Marbury v. Madison* decision which confirmed the principle of judicial review.
	8.5.3 Analyze the acquisition of the Louisiana territory, the contributions of the Lewis and Clark Corps of Discovery Expedition, and the eventual establishment of the Indian Territory.
8.6 The student will examine the political, economic and social transformations during the "Era of Good Feelings".	**8.6.1** Explain how the War of 1812 confirmed American independence and fueled a spirit of nationalism, reflected in the lyrics of our national anthem, the *Star-Spangled Banner*, by Francis Scott Key.
	8.6.2 Examine the Monroe Doctrine as a policy of isolationism which was designed to protect American interests in the Western Hemisphere.
	8.6.3 Analyze the impact of *McCulloch v. Maryland* which established federal supremacy concerning taxation.
	8.6.4 Examine the increased tension between Southern sectionalist and Northern nationalist perspectives.
	8.6.5 Summarize the impact of the Missouri Compromise on the expansion of slavery into new western territories.
8.7 The student will examine the political, economic and social transformations of the Jacksonian Era.	**8.7.1** Describe the factors that led to the election of Andrew Jackson including the "Corrupt Bargain" election of 1824, the expansion of voting rights, and Jackson's political success by identifying with the "common man".
	8.7.2 Analyze the impact of the Nullification Crisis on the development of the states' rights debate.

	8.7.3 Analyze the impact of Jackson's policies and decisions concerning American Indian nations and their tribal sovereignty as a nation's inherent right to self-govern, including: **A.** non-adherence to federal treaties **B.** disregard for the *Worcester v. Georgia* decision **C.** forced removals of American Indians
8.8 The student will examine the political, economic, social, and geographic changes that occurred during the period of westward expansion.	**8.8.1** Examine the concept and opposing perspectives toward Manifest Destiny as a motivation and justification for westward expansion.
	8.8.2 Explain the territorial growth of the United States including the annexation of Texas, Mexican Cession, and the Gadsden Purchase; describe the need to maintain a balance of "free" and "slave" states.
	8.8.3 Identify push and pull factors of mass migration and the settlement of western territories including the California Gold Rush, settlement of Oregon, and the Mormon migration.
	8.8.4 Analyze the consequences of westward expansion, including the impact on the culture of American Indians and their homelands, and the growing sectional tensions regarding the expansion of slavery.
8.9 The student will analyze the social and economic transformations of the early nineteenth century.	**8.9.1** Explain the impact of the Industrial Revolution in the North including the concentration of population, manufacturing, and transportation.
	8.9.2 Describe the plantation system and its reliance on a slave labor system in the South, including how Eli Whitney's invention of the cotton gin increased the profitability of the crop and led to the expansion of slavery.
	8.9.3 Compare perspectives and experiences of both free and enslaved blacks including the **A.** everyday life of free African Americans **B.** everyday acts of resistance to slavery **C.** efforts of Harriet Tubman and the Underground Railroad **D.** Nat Turner's Rebellion **E.** legal restrictions and Slave Codes
	8.9.4 Summarize the impact of the Abolitionist Movement including the writings and work of Frederick Douglass and William Lloyd Garrison.
	8.9.5 Identify the ideals, significance, and key leaders of the Second Great Awakening and the Women's Suffrage Movement, including the *Declaration of Sentiments* and the leadership of Susan B. Anthony, Elizabeth Cady Stanton, and Sojourner Truth.

8.10 The student will analyze major political, economic, and social events that resulted in the Civil War.	**8.10.1** Summarize the importance of slavery as the principal cause of increased sectional polarization leading to the Civil War.
	8.10.2 Evaluate the goals of the Compromise of 1850 regarding the issue of slavery.
	8.10.3 Evaluate the impact of the publication *Uncle Tom's Cabin,* by Harriet Beecher Stowe, on anti-slavery sentiments.
	8.10.4 Analyze the impact of the Kansas-Nebraska Act on the issue of popular sovereignty in new territories regarding the institution of slavery, repeal of the Missouri Compromise, and factional feuds in Bleeding Kansas.
	8.10.5 Summarize the *Dred Scott v. Sandford* case which declared slaves as property and motivated John Brown's Raid on the federal arsenal at Harpers Ferry.
8.11 The student will analyze the course and consequences of the Civil War.	**8.11.1** Analyze the immediate impact of the presidential election of 1860 including **A.** secession of southern states who declared slavery as the central factor for seceding **B.** Lincoln's goal to preserve the Union **C.** formation of the Confederate States of America **D.** Confederate attack on Fort Sumter **E.** tensions over strategic border states.
	8.11.2 Compare the advantages and disadvantages of the Union and the Confederacy including natural resources, population, industrialization, and the military leadership of Ulysses S Grant and Robert E. Lee.
	8.11.3 Evaluate the impact and contributions of specific groups in the Civil War including free and enslaved African Americans, American Indians, women, and immigrants.
	8.11.4 Discuss the key strategies utilized during the war, such as the Anaconda Plan, Total War, and the southern defense strategy.
	8.11.5 Summarize the significance of the key battles of the war, including Antietam, Gettysburg, Vicksburg, and Lee's surrender at Appomattox.
	8.11.6 Analyze the *Emancipation Proclamation*, including its role in expanding the goals of the war and its impact on slavery; identify the significance of Juneteenth in relationship to emancipation.
	8.11.7 Explain how the *Gettysburg Address* clarified the Union's motivation for winning the war.

	8.11.8 Evaluate the impact of Lincoln's assassination, loss of his leadership, and plans for reconciliation as expressed in his *Second Inaugural* Address.
8.12 The student will analyze the political, social, and economic transformations during the Reconstruction Era to 1877.	**8.12.1** Compare the major plans and policies proposed for Reconstruction.
	8.12.2 Analyze the impact of state and federal legislation following the Civil War including **A.** 13th, 14th, and 15th Amendments **B.** Black Codes and Jim Crow laws **C.** establishment of the Freedmen's Bureau
	8.12.3 Compare the emerging social structure of the South including the **A.** influx of carpetbaggers and scalawags **B.** rise of the Ku Klux Klan and its acts of intimidation and violence **C.** election of blacks to government positions **D.** expansion of the tenant and sharecropper systems **E.** migration of former slaves.
	8.12.4 Assess the impact of the presidential election of 1876 as an end to reconstruction in the South, including decline of black leadership, loss of enforcement of the 14th and 15th amendments, and the development of segregated societies.
	8.12.5 Evaluate the impact of federal policies including: **A.** Homestead Act of 1862 and the resulting movement westward to free land **B.** impact of continued displacement of American Indians **C.** President Grant's Peace Policy on Indian affairs **D.** the development of the Transcontinental Railroad.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Economics Content Standards	
E.1 The student will develop and apply economic reasoning and decision-making skills.	**E.1.1** Define and apply basic economic concepts of money supply, scarcity, surplus, choice, opportunity cost, cost/benefit analysis, risk/reward relationship, incentive, disincentive, and trade-off to a variety of economic situations.
	E.1.2 Determine appropriate courses of economic actions using a variety of economic reasoning and decision-making models.
	E.1.3 Examine how the decision-making process is impacted by the scope of the decision and the size of the decision-making entity.
	E.1.4 Explain that people tend to respond to fair treatment with fair treatment and to unfair treatment with retaliation, even when such reactions may not maximize their material wealth.
E.2 The student will evaluate how societies answer the three basic economic questions: what goods and services to produce, how to produce them and for whom are they produced.	**E.2.1** Compare the world's basic economic systems of market (free enterprise), command, and mixed market economies identifying countries that have adopted each and comparing the results such economic systems have produced in those countries as measured by GDP, national prosperity, individual income, and wealth.
	E.2.2 Describe the role of the factors of production, land, labor, capital, entrepreneurship, and technology as well as the place of imports and exports in economic systems.
	E.2.3 Answer how the three basic economic questions affect personal income and in turn impact the economic system.
	E.2.4 Explain the costs and benefits of government fiduciary policy and regulations including the impact both have on competition.
	E.2.5 Describe the impact of comparative and absolute advantage upon the three basic economic questions.
E.3 The student will explain how prices are set in a market economy and will determine how price provides incentives to buyers and sellers.	**E.3.1** Analyze how price and non-price factors affect the demand and supply of goods and services available in the marketplace.
	E.3.2 Explain what causes shortages and surpluses including government-imposed price floors, price ceilings, and other government regulations and the impact they have on prices and people's decisions to buy or sell.

	E.3.3 Evaluate the role of the government within the economy as to defining, establishing, and enforcing property rights.
E.4 The student will evaluate how changes in the level of competition in different markets affect prices.	**E.4.1** Explain how competition impacts the free market production and the allocation of goods and services to consumers.
	E.4.2 Explain how people's own self-interest, incentives, and disincentives influence market decisions.
E.5 The student will describe the role of economic institutions including banks, credit unions, corporations, governments, and not-for-profits in a market economy.	**E.5.1** Evaluate the impact of government ensuring the protection of private property rights and the rule of law in a market economy.
	E.5.2 Describe how banks allow people to pool their incomes and provide future income through investment in stocks.
	E.5.3 Identify how credit unions, corporations, and not-for-profits influence a market economy.
	E.5.4 Explain how successive deposits and loans made by commercial banks can cause the money supply to expand.
E.6 The student will analyze how money makes it easier to trade, borrow, save, invest, and compare the value of goods and services.	**E.6.1** Explain how individuals, businesses, and the overall economy benefit from the various uses of money, such as trading, borrowing, investing, and diversifying, versus saving money.
	E.6.2 Identify the components of the money supply and the different functions of money; give examples of each.
	E.6.3 Explain how the value of money is determined by the goods and services it can buy.

E.7 The student will evaluate how interest rates impact decisions in the market economy.	**E.7.1** Define interest rates and inflation; analyze the relationship between interest rates and inflation rates to both the borrower and the lender.
	E.7.2 Determine how changes in real interest rates impact people's decisions to borrow money and purchase goods in a market economy.
E.8 The student will analyze the role of entrepreneurs and laborers within a market economy.	**E.8.1** Identify both an entrepreneur and a laborer and describe how their decisions affect job opportunities for others, such as profit-maximizing level of output, hiring the optimal number of workers, comparing marginal costs and benefits of producing more or less of a resource.
	E.8.2 Analyze the potential risks and potential gains of entrepreneurs opening new businesses or inventing a new product; determine the financial and nonfinancial incentives that motivate entrepreneurs.
	E.8.3 Evaluate the costs and benefits of incorporation including the expansion of resources and reduction of risks.
E.9 The student will evaluate the economic role of government in a free market and a mixed market economy.	**E.9.1** Explain the aspects of and differences between a free market and a mixed market economy.
	E.9.2 Explain the purpose, costs, and benefits of government assistance programs and government funded services and projects.
	E.9.3 Evaluate the impact of voters' decisions as they relate to governmental economic policy.
E.10 The student will examine current economic conditions in the United States.	**E.10.1** Determine how interest rates, unemployment, Consumer Price Index (CPI), individual savings and debt, government debt, government-enforced price ceilings, labor supply, and inflation impact current economic conditions in the United States.
	E.10.2 Explain how these conditions have an impact on consumers, producers, and government policymakers.
	E.10.3 Explain how changes in supply and demand cause prices to change and in turn, cause buyers and sellers to change, including changes in price of productive resources and technologies used to make the product, profit opportunities available to producers for selling other products, number of sellers in a market, consumer incomes, consumer options, and the number of consumers in a market.
E.11 The student will identify the basic measures of a nation's economic output and income.	**E.11.1** Explain GDP and GNP and how they are used to describe economic output over time; compare the GDP of various countries representing market, command, and mixed economic systems.
	E.11.2 Describe the impact on the economy when GDP and GNP are growing or declining.

	E.11.3 Evaluate the impact of self-interest, competition, collusion, technological advancement, standard of living, the business cycle and fluctuation to the GDP.
	E.11.4 Examine the differences between the nominal and the real GDP.
E.12 The student will explain the role of inflation and unemployment in an economic system.	**E.12.1** Define inflation and determine how it is measured, including the impact inflation has on different sectors of the United States economy.
	E.12.2 Define the causes of unemployment, as well as the different types of unemployment; determine how unemployment is measured and the impact it has on different sectors of the United States economy.
E.13 The student will identify the potential econcomic impact of policy changes by the Federal Reserve and the federal government.	**E.13.1** Compare fiscal and monetary policy and the impact each has on the economy.
	E.13.2 Explain the role of the Federal Reserve System within government economic policy.
	E.13.3 Evaluate the conditions under which the federal government and the Federal Reserve implement expansionary or contractionary policies.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Oklahoma History Content Standards	
OKH.1 The student will describe the state's geography and the historic foundations laid by American Indian, European, and American cultures.	**OKH.1.1** Integrate visual information to identify and describe the significant physical and human features including major trails, railway lines, waterways, cities, ecological regions, natural resources, highways, and landforms.
	OKH.1.2 Summarize the accomplishments of pre-contact cultures including the Spiro Mound Builders.
	OKH.1.3 Compare the goals and significance of early Spanish, French, and American interactions with American Indians, including trade, the impact of disease, the arrival of the horse, and new technologies.
	OKH.1.4 Compare cultural perspectives of American Indians and European Americans regarding land ownership, structure of self-government, religion, and trading practices.
OKH.2 The student will evaluate the major political and economic events that transformed the land and its people from early contact through Indian Removal and its aftermath.	**OKH.2.1** Summarize and analyze the role of river transportation to early trade and mercantile settlements including Chouteau's Trading Post at Three Forks.
	OKH.2.2 Describe the major trading and peacekeeping goals of early military posts including Fort Gibson.
	OKH.2.3 Analyze the motivations for removal of American Indians and the passage of the Indian Removal Act of 1830; trace the forced removal of American Indian nations, including the impact on the tribal nations removed to present-day Oklahoma and tribal resistance to the forced relocations.
	OKH.2.4 Describe the consequences of Indian Removal on intertribal relationships with western nations, such as the Osage, Comanche, Kiowa, Cheyenne and Arapaho.
OKH.3 The student will evaluate the major political and economic events that transformed the land and its people from the outbreak of the Civil War through allotment and land openings.	**OKH.3.1** Summarize the impact of the Civil War and Reconstruction Treaties on American Indian peoples, territories, and tribal sovereignty including: **A.** required enrollment of the Freedmen **B.** Second Indian Removal **C.** significance of the Massacre at the Washita **D.** reasons for the reservation system and the controversy regarding the reservation system as opposed to tribal lands. **E.** establishment of the western military posts including the role of the Buffalo Soldiers **F.** construction of railroads through Indian Territory

	OKH.3.2 Assess the impact of the cattle and coal mining industries on the location of railroad lines, transportation routes, and the development of communities.
	OKH.3.3 Analyze the influence of the idea of Manifest Destiny on the Boomer Movement.
	OKH.3.4 Compare multiple points of view to evaluate the impact of the Dawes Act (General Allotment Act) which resulted in the loss of tribal communal lands through a transfer to individual property and the redistribution of lands, including the Unassigned Lands and the Cherokee Outlet, by various means.
	OKH.3.5 Explain how American Indian nations lost control over tribal identity and citizenship through congressional action, including the Indian Reorganization Act.
OKH.4 The student will analyze the formation of constitutional government in Oklahoma.	**OKH.4.1** Compare the governments among the American Indian nations and the movement for the state of Sequoyah.
	OKH.4.2 Describe the proposal for an all-black state advocated by Edward McCabe.
	OKH.4.3 Explain the impact of the Enabling Act on single statehood.
	OKH.4.4 Describe and summarize attempts to create a state constitution joining Indian and Oklahoma Territories including the impact of the Progressive and Labor Movements resulting in statehood on November 16,1907.
	OKH.4.5 Compare Oklahoma's state government to the United States' national system of government including the branches of government, their functions, and powers.
	OKH.4.6 Describe the division, function, and sharing of powers among levels of government including city, county, state and tribal.
	OKH.4.7 Identify major sources of local and state revenues and the services provided including education, health and human services, transportation, courts, corrections, and public safety.
	OKH.4.8 Describe state constitutional provisions including the direct primary, initiative petition, referendum, and recall.

OKH.5 The student will examine the Oklahoma's political, social, cultural, and economic transformation during the early decades following statehood.	**OKH.5.1** Examine the policies of the United States and their effects on American Indian identity, culture, economy, tribal government and sovereignty including: **A.** passage of the Indian Citizenship Act of 1924 **B.** effects of the federal policy of assimilation including Indian boarding schools (1880s-1940s) **C.** authority to select tribal leaders as opposed to appointment by the federal government **D.** exploitation of American Indian resources, lands, trust accounts, head rights, and guardianship as required by the Bureau of Indian Affairs.
	OKH.5.2 Examine multiple points of view regarding the evolution of race relations in Oklahoma, including: **A.** growth of all-black towns (1865-1920) **B.** passage of Senate Bill 1 establishing Jim Crow Laws **C.** rise of the Ku Klux Klan **D.** emergence of "Black Wall Street" in the Greenwood District **E.** causes of the Tulsa Race Riot and its continued social and economic impact. **F.** the role labels play in understanding historic events, for example "riot" versus "massacre".
	OKH.5.3 Analyze how various segments of Oklahoma society including agriculture, mining, and state politics were influenced by the organized labor and socialist movements.
	OKH.5.4 Examine how the economic cycles of boom and bust of the oil industry affected major sectors of employment, mining, and the subsequent development of communities, as well as the role of entrepreneurs, including J.J. McAlester, Frank Phillips, E.W. Marland and Robert S. Kerr, and the designation of Tulsa as the "Oil Capital of the World".
	OKH.5.5 Evaluate the impact of the boom and bust cycle of Oklahoma's agricultural production due to mechanization and the needs of World War I, including its effect as a precursor of the Great Depression.
	OKH.5.6 Analyze William H. "Alfalfa Bill" Murray's response to the conditions created by the Great Depression.
	OKH.5.7 Describe the impact of environmental conditions and human mismanagement of resources resulting in the Dust Bowl and the migration of the "Okies", the national perceptions of Oklahomans, and the New Deal policies regarding conservation of natural resources.
	OKH.5.8 Describe the contributions of Oklahomans including African-American jazz musicians, the political and social commentaries of Will Rogers and Woody Guthrie's, Wiley Post's aviation milestones, and the artwork of the Kiowa Six.
	OKH.5.9 Summarize and analyze the impact of mobilization for World War II including the establishment of military bases, prisoner of war installations, and the contributions of Oklahomans to the war effort including the American Indian code talkers and the 45th Infantry Division.

OKH.6 The student will investigate how post-war social, political, and economic events continued to transform the state of Oklahoma from the 1950s through the present.	**OKH.6.1** Evaluate the progress of race relations and actions of civil disobedience in the state including: **A.** judicial interpretation of the equal protection clause of the 14th Amendment which ultimately resulted in the desegregation of public facilities and public schools and universities **B.** landmark Supreme Court cases of *Sipuel v. Board of Regents of the University of Oklahoma (1948)* and *McLaurin v. Oklahoma Board of Regents for Higher Education (1950)* **C.** lunch counter sit-ins organized by Clara Luper and the NAACP **D.** leadership of Governor Gary in the peaceful integration of the public common and higher education systems.
	OKH.6.2 Analyze the impact of economic growth in various sectors including: **A.** impact of rural to urban migration **B.** development of wind, water, and timber resources **C.** continuing role of agriculture **D.** emergence of tourism as an industry **E.** development of the aerospace and aviation industry including the FAA and the influence of weather research on national disaster preparedness **F.** oil and gas boom and bust, including the discovery of new fossil fuel resources **G.** improvement of the state's transportation infrastructures, such as the interstate highway system and the McClellan-Kerr Arkansas River Navigation System.
	OKH.6.3 Describe the artistic contributions of Oklahomans in the fields of music, art, literature, theater, and dance such as Ralph Ellison and the Five Indian Ballerinas.
	OKH.6.4 Summarize the impact of individual Oklahomans' leadership on state and national politics including political realignment.
	OKH.6.5 Analyze the evolving relationship between state and tribal governments impacting tribal self-determination and control over American Indian lands and resources including issues of jurisdiction, taxation, and gaming.
	OKH.6.6 Examine the contributions of major cultural and ethnic groups, including Asians, African Americans, American Indians, and Latinos to the state of Oklahoma and their impact on the social and economic transformation of the modern state of Oklahoma.
	OKH.6.7 Analyze the causes and effects of the domestic terrorist attack on the Murrah Federal Building in Oklahoma City including the responses of Oklahomans to the act, concept of the "Oklahoma Standard" and the creation of the Oklahoma City National Memorial and Museum.

	OKH.6.8 Describe the changing perceptions, both internal and external, of the state and its citizens, as reflected in the *Grapes of Wrath*, the musical *Oklahoma!,* Route 66, and the professional basketball team the Oklahoma City Thunder.
	OKH.6.9 Examine ongoing issues including immigration, criminal justice reform, employment, environmental issues, race relations, civic engagement, and education.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Psychology Content Standards	
PS.1 The student will examine the foundations of psychology and its origins as a separate social science discipline.	**PS.1.1** Analyze the definition of psychology in the context of psychology as an empirical science and the major approaches to psychology including cognitive-behavioral, psychoanalytic, cognitive, and humanistic.
	PS.1.2 Evaluate the origins of psychology based on significant historic figures including Wilhelm Wundt, William James, John B. Watson, and Karen Horney.
	PS.1.3 Classify the various subfields in psychology including vocational applications such as counseling, industrial, clinical, experimental, and educational psychology.
PS.2 The student will examine the development of psychology as an empirical science by describing the scientific method, explaining research strategies, and identifying ethical issues.	**PS.2.1** Describe the scientific method as the framework for research and apply the principles of research design to an appropriate experiment.
	PS.2.2 Compare quantitative and qualitative research strategies including experiments, surveys, focus groups, and narratives as the foundation of research in psychology.
	PS.2.3 Identify ethical standards psychologists must address regarding research with human and non-human participants.
	PS.2.4 Explore the various modes of psychological testing including personality, intelligence, and projective while assessing the reliability of each.
PS.3 The student will investigate the structure, biochemistry and circuitry of the brain and the nervous system to understand their roles in affecting behavior.	**PS.3.1** Identify and describe the structure and function of the brain including the hypothalamus, prefrontal lobe, corpus callosum, hemispheres, and amygdala.
	PS.3.2 Examine the structure and function of the nervous and endocrine system and how they affect behavior.
	PS.3.3 Identify the parts of a neuron and explain neurotransmission including the role and impact of various neurotransmitters.
	PS.3.4 Explain the processes of sensation and perception, as well as the capabilities and limitations of sensory processes including the visual, auditory, kinesthetic, olfactory, and gustatory sensory systems.

	PS.3.5 Describe the interaction of a person and the environment in determining perception including Gestalt principles and how one's experiences and expectations influence perception.
	PS.3.6 Identify various states of consciousness including sleep and dreams, hypnosis, meditation, and psychoactive drugs.
moral and cognitive development from conception through the latter stages of adulthood.	**PS.4.1** Explain the interaction of environmental and biological factors in human development including the role of the brain in all aspects of development.
	PS.4.2 Compare the theories of Jean Piaget, Sigmund Freud, Lawrence Kohlberg, Carl Jung, and Erik Erikson regarding human development.
PS.5 The student will understand how organisms adapt to their environment through learning and cognition.	**PS.5.1** Identify and explain the major theories of learning including Ivan Pavlov's classical conditioning, B.F. Skinner's and Albert Bandura's Operant conditioning, and Bandura's observational learning.
	PS.5.2 Describe the process, organization, and factors that influence memory and recall.
	PS.5.3 Analyze strategies and impediments involved in problem solving and decision making and how this knowledge could be applied to daily life.
PS.6 The student will understand the principles of motivation and emotion.	**PS.6.1** Compare the predominant theories of motivation and emotion including the biological, social-cognitive, humanistic, and cultural theories.
	PS.6.2 Analyze the biological and environmental influences on positive and negative emotion.
PS.7 The student will understand how society and culture influence a person's behavior and mental processes.	**PS.7.1** Evaluate the factors that lead to conformity, obedience and nonconformity as demonstrated in experiments including the Stanford Prison Experiment, Milgram Experiment, or Solomon Asch's studies.
	PS.7.2 Explain how bias, discrimination and use of stereotypes influence behavior with regard to gender, race, sexual orientation and ethnicity as demonstrated in the studies of the Brown Eyed/Blue Eyed Experiment and the Clark Doll Experiment.
	PS.7.3 Examine influences on aggression and conflict including the factors associated with the bystander effect as demonstrated in such cases as the Kitty Genovese murder.
	PS.8.1 Analyze the methods of determining abnormal behavior and the tools used to diagnose and classify disorders.

PS.8 The student will examine how psychological disorders are diagnosed, classified, and treated.	**PS.8.2** Describe symptoms and causes of major categories of psychological disorders including schizophrenia mood, anxiety, personality, somatoform, and dissociative disorders.
	PS.8.3 Compare available treatment options and how they evolved through history and among different cultures.
PS.9 The student will evaluate the many factors that promote mental health.	**PS.9.1** Identify and explain potential sources of stress, effects of stress, and various coping strategies for dealing with stress.
	PS.9.2 Describe the characteristics of and factors that promote resilience and optimism.
	PS.9.3 Analyze the relationship between psychological health and physiological health.
	PS.9.4 Identify mental health disorders such as eating disorders and obsessive compulsive disorders.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

United States Government Content Standards	
USG.1 The student will compare the formation of contemporary governments in terms of access, use and justification of power.	**USG.1.1** Compare the essential characteristics of limited versus unlimited governments.
	USG.1.2 Compare historic and contemporary examples of unlimited governments to examples of limited systems.
	USG.1.3 Compare the advantages and disadvantages of the ways governmental power is distributed, shared and structured in unitary, federal and confederal systems in terms of effectiveness, prevention of abuse of power and responsiveness to the popular will.
	USG.1.4 Compare the role of government in market and command economic systems.
USG.2 The student will describe the historical and philosophical foundations of the republican system of government in the United States.	**USG.2.1** Summarize the major documents contributing to the formation of constitutional government in the United States, including the Magna Carta, the Mayflower Compact and the English Bill of Rights.
	USG.2.2 Identify the central ideas and importance of the concept of inalienable rights, including life, liberty and the pursuit of happiness, the social contract, and the grievances stated in the Declaration of Independence and reflected in the Constitution of the United States.
	USG.2.3 Evaluate the necessity of a written constitution to set forth enumerated powers, to organize government, and to distribute powers among the three branches of government, the states, and the people.
	USG.2.4 Compare the points of view toward the structure and powers of government as expressed in the *Federalist Papers,* authored by Madison, Hamilton and Jay, as well as the writings of the Anti-Federalists.
	USG.2.5 Analyze the constitutional amendment process including the 27 amendments to the Constitution of the United States.
USG.3 The student will analyze the fundamental principles of	**USG.3.1** Examine the American system of federalism and evaluate the changes that have occurred in the relationship between the states and the national government over time.

the American system of government resulting in a republic, as established in the Constitution of the United States, the supreme law of the land.	**USG.3.2** Analyze the system of federalism including the **A.** enumerated (express) powers **B.** implied powers **C.** powers denied to the national government **D.** reserved powers to the states **E.** concurrent powers.
	USG.3.3 Summarize and explain the relationships and the responsibilities among national, state, tribal, and local governments.
	USG.3.4 Explain that tribal sovereignty is a tribal nation's inherent power to self-govern, such as challenges made regarding the Major Crimes Act.
	USG.3.5 Analyze how the Commerce Clause established the initial constitutional relationship between the Indian tribes and the United States government.
	USG.3.6 Explain how power is separated as well as shared under the American system including the **A.** system of separation of powers **B.** system of checks and balances **C.** principle of judicial review.
	USG.3.7 Evaluate the importance of the rule of law on the purposes and functions of government; explain how the rule of law provides for the protection of individual liberties, including due process and equality under the law.
	USG.3.8 Analyze the concept of popular sovereignty, including the government's responsibility to legitimize majority rule while protecting minority rights.
	USG.3.9 Analyze the rights and liberties guaranteed to all citizens in the Bill of Rights and how they are protected at the state level through the doctrine of incorporation using the 14th Amendment.
	USG.3.10 Analyze historic and contemporary examples of landmark Supreme Court decisions which have addressed and clarified individual rights under the First Amendment, including **A.** *Gitlow v. New York* (1925) **B.** *West Virginia v. Barnette* (1943) **C.** *Engel v. Vitale* (1962) **D.** *Tinker v. Des Moines* (1969) **E.** *Texas v. Johnson* (1989)

	USG.3.11 Analyze historic and contemporary examples of landmark Supreme Court cases which have specified individual rights of due process under the Constitution, including: **A.** *Mapp v. Ohio* (1961) **B.** *Gideon v. Wainwright* (1963) **C.** *Miranda v. Arizona* (1966) **D.** *Roe v. Wade* (1973) ***E****. Furman v. Georgia* (1972).
USG.4 The student will examine the Constitution of the United States by comparing the legislative, executive, and judicial branches of government as they address the needs of the public.	**USG.4.1** Explain the purposes of government expressed in the Preamble and how the Constitution of the United States preserves the core principles of American society.
	USG.4.2 Examine the structure, functions, and authority exercised by the executive, legislative, and judicial branches of government. **A.** Identify the constitutional qualifications for holding public office and the terms of office, including the composition of Congress, the Supreme Court, and the executive branch. **B.** Explain the steps of the legislative process, including the role of Congress and the president. **C.** Explain the role of the executive branch, including the function of the bureaucracy in implementing public policy. **D.** Identify the issues and describe the significance of landmark Supreme Court decisions including *Marbury v. Madison* (1803), *McCulloch v. Maryland* (1819), *United States v. Nixon* (1974), *Bush v. Gore* (2000), and *Citizens United v. F.E.C.* (2010) **E.** Examine how government exercises its authority in real world situations including current issues and events.
USG.5 The student will be able to evaluate the significance of civic participation in order to ensure the preservation of our constitutional government.	**USG.5.1** Define civic virtue and explain the individual's duty and responsibility to participate in civic life by voting, serving on juries, volunteering within the community, running for office, serving on a political campaign, paying state and federal taxes prior to the April 15th annual deadline, and respecting legitimate authority.
	USG.5.2 Explain the naturalization process under the laws of the United States.
	USG.5.3 Analyze how our system of government provides citizens opportunities to monitor and influence the actions of the government and hold elected officials accountable.
	USG.5.4 Analyze factors affecting the political process and their role in government, including the role of political parties, interest groups, mass media, public opinion, and campaign funding.
	USG.5.5 Explain the steps of the electoral process including the components of local and national campaigns, the nominative process, and the Electoral College.

USG.6 The student will examine the United States public policy formation process.	**USG.6.1** Examine the budget process including significant policy issues and examples of economic trade-offs that occur when addressing competing public needs.
	USG.6.2 Examine how the government influences the economy using fiscal and monetary policy.
	USG.6.3 Explain the role of the national government in formulating and carrying out domestic policy.
	USG.6.4 Evaluate the role of the national government in formulating and carrying out foreign policy, national defense, and participation in international alliances and organizations.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

United States History Content Standards

USH.1 The student will analyze the transformation of the United States through its civil rights struggles, immigrant experiences, and settlement of the American West in the Post-Reconstruction Era, 1865 to the 1920s.	**USH.1.1** Explain the constitutional issues that arise in the post-Civil War era including federalism, separation of powers, and the system of checks and balances.
	USH.1.2 Analyze the post-Reconstruction civil rights struggles. **A.** Identify the significance of Juneteenth in relation to emancipation and modern-day celebrations. **B.** Examine the purposes and effects of the 13th, 14th, and 15th Amendments. **C.** Assess the impact of the Black Codes, Jim Crow laws, and the actions of the Ku Klux Klan.
	USH.1.3 Analyze the impact of westward expansion and immigration on migration, settlement patterns in American society, economic growth, and American Indians. **A.** Summarize the reasons for immigration, shifts in settlement patterns, the immigrant experience at immigrant processing centers such as Ellis Island and Angel Island, and the impact of Nativism and Americanization. **B.** Analyze the creation of federal immigration policies including the Chinese Exclusion Act, the Gentlemen's Agreement, federal court decisions, the Supreme Court's application of the 14th Amendment and the Immigration Act of 1924. **C.** Examine the rationale behind federal policies toward American Indians including the establishment of reservations, attempts at assimilation, the end of the Indian Wars at Wounded Knee, and the impact of the Dawes Act on tribal sovereignty and land ownership. **D.** Compare viewpoints of American Indian resistance to United States Indian policies as evidenced by Red Cloud in his *Cooper Union* speech, Quanah Parker, and Chief Joseph as expressed in his *I Will Fight No More Forever* speech.

USH.2 The student will analyze the social, economic and political changes that occurred during the American Industrial Revolution, the Gilded Age, and significant reform movements from the 1870s to the 1920s.	**USH.2.1** Evaluate the transformation of American society, economy and politics during the American Industrial Revolution. **A.** Analyze the impact of capitalism, laissez-faire policy and the role of leading industrialists as robber barons, captains of industry and philanthropists including John D. Rockefeller and Andrew Carnegie and his *Gospel of Wealth* essay on American society. **B.** Identify the impact of new inventions and industrial production methods including new technologies by Thomas Edison, Alexander G. Bell, Henry Ford, and the Bessemer process. **C.** Evaluate the contributions of muckrakers, including Ida Tarbell, Jacob Riis and Upton Sinclair, in changing government policies regarding child labor, working conditions and regulation of big business. **D.** Analyze major social reform movements including the Women's Suffrage and Temperance Movement and the leadership of Susan B. Anthony, Alice Paul, and Jane Addams. **E.** Evaluate the significance of the Labor Movement on the organization of workers including the impact of the Pullman strikes, the Haymarket Riot, and the leadership of Eugene V. Debs. **F.** Assess and summarize changing race relations as exemplified in the *Plessy v. Ferguson* case. **G.** Compare early civil rights leadership including the viewpoints of Booker T. Washington, and W.E.B. DuBois in response to rising racial tensions, the anti-lynching work of Ida B. Wells, and the use of poll taxes and literacy tests to disenfranchise blacks.
	USH.2.2 Evaluate the rise and reforms of Populism and the Progressive Movement including: **A.** direct primary, initiative petition, referendum, and recall intended to limit the corrupting influence of political machines **B.** impact of William Jennings Bryan and his *Cross of Gold* speech on the political landscape **C.** series of events leading to and the effects of the 16th, 17th, 18th, 19th, and 21st Amendments to the Constitution of the United States.
	USH.2.3 Analyze and summarize the key personalities, actions and policies of Presidents Theodore Roosevelt, William Howard Taft, and Woodrow Wilson by: **A.** comparing the policies of Roosevelt and Taft on environmental conservation and trust busting, **B.** evaluating the 1912 presidential election including the role of Roosevelt's *Bull Moose Party* and Eugene V. Debs Socialist Party. **C.** describing the policies of Wilson on the issue of women's right to vote.

USH.3 The student will analyze the expanding role of the United States in international affairs as America was transformed into a world power in the late 19th and early 20th centuries, 1890 to 1920.	**USH.3.1** Evaluate the impact of American imperialism on international relations and explain its impact on developing nations. **A.** Compare the economic, religious, social, and political rationales for American imperialism including the concept of "white man's burden," the annexation of Hawaii, the impact of Admiral Alfred T. Mahan, and the actions of the Anti-Imperialist League. **B.** Assess the role of yellow journalism and jingoism in inciting the desire of Americans to go to war with Spain. **C.** Examine how the Spanish-American War resulted in the rise of the United States as a world power and led to new territorial acquisitions and national insurrections in Cuba and the Philippines. **D.** Compare the foreign policies of Presidents Roosevelt, Taft, and Wilson including Big Stick Diplomacy, Dollar Diplomacy, Missionary Diplomacy, the Roosevelt Corollary, military interventionism, and the territorial acquisition and construction of the Panama Canal.
	USH.3.2 Evaluate the long-term impact of America's entry into World War I on national politics, the economy, and society. **A.** Summarize the transformation of the United States from a position of neutrality to engagement in World War I including the Zimmermann Telegram and the threats to international trade caused by unrestricted submarine warfare. **B.** Analyze the impact of the war on the home front including the use of propaganda, women's increased role in industry, the marshaling of industrial production, and the Great Migration. **C.** Analyze the institution of a draft and the suppression of individual liberties resulting in the First Red Scare, including the Palmer Raids and the Sacco-Vanzetti trials. **D.** Evaluate Wilson's foreign policy as proposed in his Fourteen Points and the reasons for the nation's return to isolationism highlighted by the Senate's rejection of the League of Nations.
USH.4 The student will analyze the cycles of boom and bust of the 1920s and 1930s on the transformation of American government, the economy and society.	**USH.4.1** Examine the economic, political, and social transformations between the World Wars. **A.** Describe modern forms of cultural expression including the significant impact of people of African descent on American culture as exhibited by the Harlem Renaissance and the Jazz Age. **B.** Describe the rising racial tensions in American society including the resurgence of the Ku Klux Klan, increased lynchings, race riots as typified by the Tulsa Race Riot, the rise of Marcus Garvey and black nationalism, and the use of poll taxes and literacy tests to disenfranchise blacks. **C.** Assess the impact of the Indian Citizenship Act of 1924 on the American Indian nations. **D.** Examine growing labor unrest and industry's reactions, including the use of sit-down strikes and court injunctions, and why socialism and communism appealed to labor. **E.** Describe the booming economy based upon access to easy credit through installment buying of appliances and inventions of modern conveniences including the automobile.

	USH.4.2 Analyze the effects of the destabilization of the American economy. **A.** Identify causes contributing to an unstable economy including the overproduction of agriculture products, greater speculation and buying on margin in the Stock Market, and the government's pro-business and laissez-faire policies. **B.** Examine the role of the Stock Market Crash and bank failures in weakening both the agricultural and manufacturing sectors of the economy leading to the Great Depression. **C.** Analyze how President Herbert Hoover's financial policies and massive unemployment as exemplified by the Bonus Army March and Hoovervilles impacted the presidential election of 1932. **D.** Compare points of view regarding the economic and social impact of the Great Depression on individuals, families, and the nation.
	USH.4.3 Analyze the impact of the New Deal in transforming the federal government's role in domestic economic policies. **A.** Assess changing viewpoints regarding the expanding role of government as expressed in President Franklin Roosevelt's *First Inaugural Address.* **B.** Examine how national policies addressed the economic crisis including John Maynard Keynes' theory of deficit spending, Roosevelt's court packing plan, and the new federal agencies of the Social Security Administration, Federal Deposit Insurance Corporation (FDIC), Works Progress Administration (WPA), Civilian Conservation Corps (CCC), and the Tennessee Valley Authority (TVA). **C.** Summarize the causes and impact of the Dust Bowl including the government's responses.
USH.5 The student will analyze the United States role in international affairs by examining the major causes, events and effects of the nation's involvement in World War II, 1933 to 1946.	**USH.5.1** Describe the transformations in American society and government policy as the nation mobilized for entry into World War II. **A.** Examine the roles of appeasement and isolationism in the United States' reluctance to respond to Fascist military aggression in Europe and Asia including the Neutrality Acts and the Lend-Lease program. **B.** Evaluate the industrial mobilization for war and the psychological preparation for war as reflected in President Franklin Roosevelt's *Four Freedoms* speech. **C.** Examine President Franklin Roosevelt's *Day Which Will Live* in Infamy speech and America's conduct of the war, including the role of women and minorities in the war effort, rationing, the internment of Americans of Japanese descent, and the treatment of Americans of German, and Italian descent, including the *Korematsu v. United States* decision.
	USH.5.2 Analyze the series of events affecting the outcome of World War II including major battles, military turning points, and key strategic decisions in both the European and Pacific Theaters of operation including Pearl Harbor, the D-Day Invasion, development and use of the atomic bomb, the island-hopping strategy, the Allied conferences at Yalta and Potsdam, and the contributions of Generals MacArthur and Eisenhower.

	USH.5.3 Summarize American reactions to the events of the Holocaust resulting in United States participation in the Nuremberg Trials which held Nazi leaders accountable for war crimes.
USH.6 The student will analyze foreign events and policies during the Cold War, 1945-1975.	**USH.6.1** Analyze the origins of international alliances and efforts at containment of Communism following World War II. **A.** Identify the origins of Cold War confrontations between the Soviet Union and the United States including the leadership of President Harry Truman, the postwar division of Berlin, the Berlin Blockade and Airlift, the Iron Curtain, and the Marshall Plan. **B.** Describe the roles and consequences of the spheres of influence created by the formation of the United Nations and NATO by the United States and the formation of the Warsaw Pact by the Soviet Union. **C.** Assess the impact and successes of the Truman Doctrine including the American military response to the invasion of South Korea. **D.** Evaluate the Kennedy administration's international goals as expressed in his *Inaugural Address* in light of the subsequent building of the Berlin Wall, the Bay of Pigs Invasion, the Cuban Missile Crisis, NASA, and the establishment of the Peace Corps.
	USH.6.2 Describe domestic events related to the Cold War and its aftermath. **A.** Summarize the reasons for the public fear of communist influence within the United States and how politicians capitalized on this fear including the leadership of President Dwight D. Eisenhower, the Army-McCarthy hearings, the Second Red Scare, the Alger Hiss controversy, and the Rosenbergs' spy trials. **B.** Examine the impact of the proliferation of nuclear weapons and the resulting nuclear arms race, the concept of brinkmanship, the doctrine of mutually assured destruction (MAD), the launching of Sputnik and the space race. **C.** Evaluate the continuing role of radio, television and other mass media in relationship to the Nixon and Kennedy debates as part of the 1960 and subsequent elections.
	USH.6.3 Analyze the series of events and long term foreign and domestic consequences of the United States' military involvement in Vietnam including the Domino Theory, the Gulf of Tonkin Resolution, the Tet Offensive, the presidential election of 1968, university student protests led by the counterculture movement, expanded television coverage of the war, the War Powers Resolution Act, and the 26th Amendment.
	USH.6.4 Analyze the political and economic impact of President Nixon's foreign policies including détente and the opening of China.

USH.7 The student will analyze the cause and effects of significant domestic events and policies from 1945 to 1975.	**USH.7.1** Analyze the major events, personalities, tactics and effects of the Civil Rights Movement. **A.** Assess the effects of President Truman's decision to desegregate the United States armed forces and the legal attacks on segregation by the NAACP and Thurgood Marshall, the United States Supreme Court decisions in the cases of Oklahomans Ada Lois Sipuel Fisher and George McLaurin, and the differences between *de jure* and *de facto* segregation. **B.** Evaluate the events arising from separate but equal, policies, such as poll taxes and literacy tests, violent responses such as the Birmingham church bombing and the assassination of Dr. Martin Luther King, Jr., and conflicts over segregation including: 1. *Brown v. Board of Education, Topeka, Kansas* decision 2. Montgomery Bus Boycott 3. desegregation of Little Rock Central High School 4. Oklahoma City lunch counter sit-ins led by Clara Luper 5. Freedom Rides 6. Marches on Washington and Selma to Montgomery 7. adoption of the 24th Amendment 8. passage of the Civil Rights Act of 1964 and the Voting Rights Act of 1965. **C.** Compare the viewpoints and the contributions of civil rights leaders and organizations linking them to events of the movement, including Dr. Martin Luther King, Jr. and his *I Have a Dream* speech, the leadership of Malcolm X, the role of organizations such as the Black Panthers; describe the tactics used at different times including civil disobedience, non-violent resistance, sit-ins, boycotts, marches, and voter registration drives.

	USH.7.2 Analyze the ongoing social and political transformations within the United States. **A.** Summarize and examine the United States Supreme Court's use of the 14th Amendment incorporation doctrine in applying the Bill of Rights to the states, thereby securing and further defining individual rights and civil liberties. **B.** Assess the rise of liberalism in the 1960s and the lasting impact of President Lyndon Johnson's civil rights initiatives, the war on poverty, and the Great Society. **C.** Describe the goals and effectiveness of the American Indian movements on tribal identity and sovereignty including the American Indian Movement (AIM) and mismanagement by the federal government causing the occupations at Wounded Knee and Alcatraz. **D.** Describe the goals and effectiveness of the social movement of the United Farm Workers and César Chávez. **E.** Compare the changing roles of women from the post-war era through the 1970s including the goals of the Women's Liberation Movement and the National Organization of Women under the leadership of Betty Friedan, various debates on the Equal Rights Amendment, and the United States Supreme Court's ruling in *Roe v. Wade*. **F.** Evaluate the impact of the Watergate Scandal on executive powers including the role of the media, the Pentagon Papers, the first use of the 25th Amendment, and President Ford's decision to pardon former President Nixon.
USH.8 The student will analyze the impact of foreign and domestic policies from 1977 to 2001.	**USH.8.1** Evaluate President Jimmy Carter's foreign policy in the Middle East including the Camp David Accords, the OPEC oil embargo, and the response to the 1979 Iranian hostage crisis.
	USH.8.2 Analyze the economic and political impact of the rise of conservatism and President Reagan's domestic and foreign policies including Reaganomics, the Iran-Contra Scandal and Reagan's *Tear Down This Wall* speech in West Berlin.
	USH.8.3 Summarize the series of events leading to the emergence of the United States as the sole superpower following the fall of the Berlin Wall and the collapse of the Soviet Empire.
	USH.8.4 Describe the goal of President George H.W. Bush's foreign policy in forming an international coalition to counter Iraqi aggression in the Persian Gulf.
	USH.8.5 Describe and evaluate the influence of William J. Clinton's presidency, including the **A.** continuing global influence of the United States including NAFTA and the NATO interventions to restore stability to the former Yugoslav republics. **B.** political impact of Clinton's impeachment.
	USH.8.6 Evaluate the rise of terrorism and its impact on the United States including the 1995 bombing of the Murrah Federal Building, the first attack on the World Trade Center Towers in 1993, the attacks on September 11, 2001, the USA PATRIOT Act, and the creation of the Department of Homeland Security.

USH.9 The student will examine contemporary challenges and successes in meeting the needs of the American citizen and society, 2002 to the present.	**USH.9.1** Assess George W. Bush's presidency, including the causes, conduct and consequences of the United States led wars in Afghanistan and Iraq, efforts to counter and combat terrorism, and domestic issues such as the FEMA response to Hurricane Katrina and the Great Recession.
	USH.9.2 Assess Barack Obama's presidency, including the significance of his election, the wars in Afghanistan and Iraq, handling of economic conditions, establishment of DACA, and reforms to healthcare.
	USH.9.3 Examine the ongoing issues to be addressed by the Donald Trump and subsequent administrations, including taxation, immigration, employment, climate change, race relations, religious discrimination and bigotry, civic engagement, and perceived biases in the media.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

World Human Geography Content Standards	
WG.1 The student will use maps and other geographic representations, tools and technologies to acquire, research, process, and solve problems from a spatial perspective.	**WG.1.1** Analyze key concepts underlying the geographical perspectives of location, space, place, scale, pattern, regionalization, and globalization.
	WG.1.2 Utilize geographic skills to understand and analyze the spatial organization of people, places, and environments on the Earth's surface.
	WG.1.3 Define regions and evaluate the regionalization process to characterize and analyze changing interconnections among places.
	WG.1.4 Utilize geographic technologies of GIS, remote sensing and GPS sources of geographical data including census data, population pyramids, cartograms, and satellite imagery.
WG.2 The student analyze how human population is organized geographically in order to understand the cultural, political, and economic systems of the world.	**WG.2.1** Analyze geographic data measuring population including density, distribution, patterns of composition (age, sex, race, and ethnicity), and population trends and projections.
	WG.2.2 Describe and summarize the push and pull theory of migration and its impact on human capital and demographic transitions including the research of major voluntary and involuntary migrations.
	WG.2.3 Compare and contrast the impact of population policies on the patterns of fertility, mortality, and health.
WG.3 The student will analyze the components and regional variations of cultural patterns and processes.	**WG.3.1** Assess the spatial dimensions of culture as defined by language, religion, ethnicity, and gender.
	WG.3.2 Analyze and summarize the role the environment plays in determining a region's culture.
	WG.3.3 Explain the processes of cultural diffusion, acculturation, assimilation, and globalization regarding their impact on defining a region.
	WG.3.4 Compare the world's major cultural landscapes to analyze cultural differences, cultural identity, social mores, and sets of beliefs which determine a sense of place.
	WG.3.5 Explain how cultural characteristics, such as language, ethnicity, and religion impact different regions.

WG.4 The student will explain the political organization of space.	**WG.4.1** Describe and summarize the different forces that shape the evolution of the world's contemporary political map including the rise of nation-states.
	WG.4.2 Analyze the concept of territoriality, the nature and meaning of boundaries, and their influence on identity, interaction, and exchange.
	WG.4.3 Compare the world's political patterns of organization including federal and unitary states.
	WG.4.4 Examine changes and challenges to political/territorial arrangements, the changing nature of sovereignty, and evolution of contemporary political patterns.
	WG.4.5 Evaluate how the forces of cooperation and conflict among people influence the division and control of territory and resources.
WG.5 The student will analyze agricultural and commercial land use.	**WG.5.1** Examine the origin and diffusion of agriculture including the Agricultural Revolutions and the Green Revolution.
	WG.5.2 Describe and summarize the characteristics of modern commercial agriculture including major production regions, variations within major zones, and effects of markets.
	WG.5.3 Analyze settlement patterns associated with major agricultural regions and linkages among regions of food production and consumption.
	WG.5.4 Describe the impact of agricultural practices including irrigation, conservation, desertification, deforestation, organic farming, pesticides and herbicides, and genetic modification on the environment and the quality of life.
	WG.5.5 Examine common characteristics of rural communities including the impact of the environment on location, the political, economic and cultural functions of rural communities, the types of transportation, communication and trade linkages among rural areas, and the impact of modern migration to urban centers.
WG.6 The student will analyze the impact of industrialization on economic development.	**WG.6.1** Examine the changing roles of natural resources, energy, and technology that resulted in the Industrial Revolution.
	WG.6.2 Evaluate the impact of industrialization and government policies of both market and command economic systems on the availability and use of natural resources, environmental concerns, and sustainable development.
	WG.6.3 Compare contemporary patterns of industrialization and development in selected regions of the world including the Pacific Rim, Central Asia, and the Arabian Peninsula.

	WG.6.4 Analyze why some economies achieve rapid growth while other economies with similar resources struggle to reach developed status.
	WG.6.5 Summarize common characteristics of developed nations including variations in levels of development, modern patterns of deindustrialization, and economic restructuring, globalization, and international division of labor.
WG.7 The student will evaluate specific textual and visual evidence to analyze cities and urban land use.	**WG.7.1** Examine the origin, development and character of cities including the impact of the environment on location, the political, economic, and cultural functions of cities, historical distribution of cities, and the types of transportation, communication, and trade linkages among cities.
	WG.7.2 Analyze contemporary patterns of rural migration on urban development including the concept of suburbanization, edge cities, megacities, and global cities.
	WG.7.3 Describe the factors that impact cities over time including uneven development, changing economic and demographic structures, transportation and infrastructure, housing and urban planning.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

World History Content Standards	
WH.1 The student will analyze and summarize the impact of the major patterns of political, economic, and cultural change over time to 1450 CE and their long-term influences.	**WH.1.1** Evaluate the impact of geography and trade on the development of culture in Africa, Asia, and Europe including religion, philosophy, and political belief.
	WH.1.2 Describe the origins, major beliefs, spread and lasting impact of the world's major religions and philosophies, including Judaism, Hinduism, Buddhism, Christianity, Islam, Confucianism, and Sikhism.
	WH.1.3 Compare the contributions of Greek and Roman philosophers, including Plato, Aristotle and Cicero including their impact on Western society.
	WH.1.4 Evaluate the economic, political, and cultural impact of interregional trade networks.
	WH.1.5 Describe the institution of slavery around the world prior to the 15th century as a widespread result of warfare and economic practices.
WH.2 The student will analyze patterns of social, economic, political, and cultural changes during the rise of Western civilization and the Global Age (1400-1750 CE).	**WH.2.1** Assess the significance of the Renaissance on politics, economics, and artistic creativity, including the works of Machiavelli, Michelangelo, and daVinci.
	WH.2.2 Summarize the causes of and influence of the theological movements of the Reformation and how those movements subsequently transformed society.
	WH.2.3 Analyze migration, settlement patterns, cultural diffusion, and the transformations caused by the competition for resources among European nations during the Age of Exploration.
	WH.2.4 Explain how slavery and the slave trade was used for the development and growth of colonial economies.
	WH.2.5 Compare the various forms of government established by: **A.** divine right rule, such as the Mandate of Heaven in China and absolutism in England and France **B.** Magna Carta in England, the English Civil War, and the Glorious Revolution **C.** enlightened monarchs such as Catherine the Great and Frederick the Great.
	WH.2.6 Compare how scientific theories and technological discoveries brought about social and cultural changes, including those made by Copernicus, Galileo, and Newton; describe the impact of Islamic learning.

	WH.2.7 Analyze the impact of the Enlightenment on modern government and economic institutions, including the theories of Hobbes, Locke, Voltaire, Rousseau, Montesquieu, and Adam Smith.
WH.3 The student will analyze the political, economic, and social transformations brought about by the events of the age of revolutions and imperialism (1750-1900 CE).	**WH.3.1** Analyze the causes and global impact of **A.** England's Glorious Revolution **B.** the American Revolution **C.** the French Revolution including the Napoleonic Wars **D.** the Congress of Vienna.
	WH.3.2 Summarize the influence and global impact of emerging democratic ideals on the Latin American and Caribbean revolutions including Haiti and Mexico and the leadership of Simon Bolivar.
	WH.3.3 Evaluate the economic and social impact of the Industrial Revolution.
	WH.3.4 Analyze how the Industrial Revolution gave rise to socialism and communism, including ideas and influence of Karl Marx.
	WH.3.5 Explain the rationales for and consequences of imperialism on Asia, Africa, and the Americas, such as colonization and the exploitation of natural resources and peoples; summarize various efforts to resist imperialism.
WH.4 The student will evaluate the global transformation created by the World Wars (1900-1945 CE).	**WH.4.1** Explain the complex and multiple causes of World War I, including militarism, nationalism, imperialism, systems of alliances, and other significant causes.
	WH.4.2 Describe the significant events of World War I, including key strategies, advancements in technology, the war's significant turning points, and its lasting impact.
	WH.4.3 Analyze the immediate and long-term global consequences of the Treaty of Versailles.
	WH.4.4 Analyze socialism, communism, and the Bolshevik Revolution as responses to capitalism.
	WH.4.5 Describe the economic, social, and political conditions that caused WWII including **A.** failure of the Treaty of Versailles **B.** impact of global depression **C.** rise of totalitarian regimes in the Soviet Union, Germany, Italy, and Japan
	WH.4.6 Examine the significant events of World War II from a global perspective, such as campaigns in Africa, Asia, and the Pacific.

	WH.4.7 Evaluate the effects of World War II including military and economic power shifts, purposes of the United Nations and NATO, and the origins and escalation of the Cold War.
	WH.4.8 Examine the causes, series of events and effects of the Holocaust through eyewitnesses such as inmates, survivors, liberators, and perpetrators.
	WH.4.9 Summarize world responses to the Holocaust, resulting in the Nuremberg Trials, the move to establish a Jewish homeland, and the creation of the Universal Declaration of Human Rights and its impact on human rights today.
WH.5 The student will evaluate post World War II regional events leading to the transformations of the modern world (1945-1990 CE).	**WH.5.1** Describe the creation of the modern state of Israel and ongoing territorial disputes, including the impact of significant regional leaders.
	WH.5.2 Evaluate the ongoing regional disputes of the Middle East, including the Iranian Revolution, the Iran-Iraq conflict, and the invasion of Kuwait.
	WH.5.3 Analyze the major developments in Chinese history during the second half of the 20th century including the **A.** Chinese Civil War and the Communist Revolution in China **B.** rise of Mao Zedong and the political, social, and economic upheavals under his leadership **C.** student protests of Tiananmen Square **D.** economic reforms under the leadership of Deng Xiaoping.
	WH.5.4 Examine the origins of India and Pakistan as independent nations, including the **A.** struggle for independence achieved through Mohandas Gandhi's non-violent civil disobedience movement **B.** development of India's industrial economy **C.** ongoing struggles in the region.
	WH.5.5 Evaluate the people, events, and conditions leading to the end of the Cold War including the **A.** effects of Poland's Solidarity Movement **B.** policies of the perestroika and glasnost **C.** fall of the Berlin Wall **D.** breakup of the Soviet Union

	WH.5.6 Assess the impact of African independence movements on human rights and the global expansion of democracy including the **A.** effects of Pan-Africanism on changing political boundaries **B.** struggle for self-government in Ghana, including the influence of Kwame Nkrumah **C.** creation and dismantling of South Africa's apartheid system, including the influence of Nelson Mandela and Desmond Tutu.
	WH.5.7 Compare multiple perspectives to examine the religious, ethnic, and political origins, as well as the lasting impact of modern genocide and conflicts including **A.** actions of the Khmer Rouge in Cambodia **B.** Northern Ireland's Troubles **C.** ethnic-cleansing in the Balkans **D.** Rwanda's mass murders **E.** crisis in Darfur
WH.6 The student will evaluate contemporary global issues and challenges.	**WH.6.1** Describe the ongoing impact of interdependence on the world's economies resulting in the creation and growth of multinational organizations, international trade agreements, and the challenges faced by the global economy.
	WH.6.2 Examine contemporary issues that impact the new global era such as the **A.** changing patterns of population **B.** cycle of disease and poverty **C.** status of women **D.** environmental issues.
	WH.6.3 Describe the impact of trade and interdependence on cultural diffusion.
	WH.6.4 Analyze responses by world governments concerning the rise and impact of international terrorism and their responses to regional disputes such as Syria.

Engage in Democratic Processes	Analyze and Address Authentic Civic Issues	Acquire, Apply, and Evaluate Evidence	Read Critically and Interpret Informational Sources	Engage in Evidence Based Writing

Sociology Content Standards	
S.1 The student will recognize sociology as a social science, identify methods and strategies of research, and examine the contributions of sociology to the understanding of social issues.	**S.1.1** Describe the development of the field of sociology as a social science.
	S.1.2 Identify the contributions of leading theorists within sociology including Auguste Comte, Emile Durkheim, Harriet Martineau, Herbert Spencer, Max Weber, C. Wright Mills, Karl Marx, and W.E.B. Dubois.
	S.1.3 Evaluate different sociological research methods including participant observation, natural observation, library research, questionnaires, experiments, interviews, and case studies.
	S.1.4 Conduct research on an issue using the scientific method of inquiry including developing a hypothesis, gathering and interpreting data, and drawing conclusions.
S.2 The student will examine the influence of culture and the way cultural transmission is accomplished.	**S.2.1** Examine how relationships, structures, patterns and processes influence culture.
	S.2.2 Recognize the key components of a culture including knowledge, language and communication, customs, values, and physical artifacts.
	S.2.3 Explain the differences between a culture and a society.
	S.2.4 Analyze the influences of genetic inheritance and culture on human behavior including the debate over nature versus nurture.
	S.2.5 Compare various subcultures including counter cultures, pop cultures, ethnic cultures, and religious cultures.
	S.2.6 Describe factors that have led to cultural diversity within the United States.
S.3 The student will identify how social status influences individual and group behaviors.	**S.3.1** Describe how social status affects social order including upper class, middle class, lower class, white-collar professionals, blue-collar workers, and the unemployed.
	S.3.2 Recognize how role expectations can lead to conflict including gender, age, racial groups, and ethnic groups within different societies.

S.4 The student will examine how social groups are composed of people who share common characteristics including interests, beliefs, behaviors, and feelings.	**S.4.1** Examine why individuals become members of or associate with different social groups.
	S.4.2 Compare various types of norms including folkways, mores, laws, and taboos; explain why rules of behavior are considered important to society.
	S.4.3 Evaluate the characteristics of primary groups including small size intimate settings and enduring relationships and how members' behaviors are influenced by the primary group.
	S.4.4 Evaluate the characteristics of secondary groups including less permanence, less personal, and having a special purpose; explain how members' behaviors are influenced by the secondary groups.
	S.4.5 Investigate stereotypes of different groups including gangs, generational groups, immigrants, and the homeless.
S.5 The student will identify the effects of social institutions on individual and group behavior and explain how these institutions influence the development of the individual.	**S.5.1** Analyze the impact of social institutions on individuals, groups and organizations within society; explain how these institutions transmit the values of society including familial, religious, educational, economic, and political.
	S.5.2 Examine rites of passage within various social institutions such as religious ceremonies, school proms, quinceañeros, graduation, marriage, and retirement.
	S.5.3 Define ethnocentrism and xenophobia; analyze how they can be beneficial or destructive to a culture.
S.6 The student will examine social change over time and the various factors that lead to these changes.	**S.6.1** Examine environmental, political, economic, scientific, and technological influences upon immediate and long-term social change.
	S.6.2 Describe how collective behavior can influence and change society including sit-ins, organized demonstrations, and the use of social media.
S.7 The student will analyze social problems that affect large numbers of people or result from imbalances within a social system.	**S.7.1** Distinguish between characteristics of a social problem as compared to an individual problem.
	S.7.2 Analyze patterns of behavior found within social problems and their implications for society including juvenile crime, drug addiction, and long-term unemployment.
	S.7.3 Examine individual and group response and potential resolutions to social problems as well as the consequences of such solutions.
	S.8.1 Describe the traditions, roles, and expectations necessary for a society to continue and flourish.
	S.8.2 Examine factors that can lead to the breakdown and disruption of a society.

S.8 The student will explore both individual and collective behavior.	**S.8.3** Differentiate the impact of individual leaders of different social and political movements including Mohandas Gandhi, Dr. Martin Luther King Jr., and Susan B. Anthony.
	S.8.4 Interpret how social behavior is influenced by propaganda, the news media, and advertising.
	S.8.5 Investigate the impact of rumor, gossip, and other inaccurate communications upon group behavior.

Appendix A Social Studies Practices PK-12 Progression

1. Engage in Democratic Processes
Students will understand the principles of government, the benefits of democratic systems, and their responsibilities as citizens.

A. Students will demonstrate an understanding of the virtues that citizens should use when interacting with each other and the virtues that guide official government institutions.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
1.A.PK-1.1 Discuss democratic principles such as equality, fairness, and respect for legitimate authority.	**1.A.2-3.1** Identify civic virtues and democratic principles such as equality, fairness, and respect for legitimate authority.	**1.A.4-5.1** Identify democratic principles in historic documents and describe examples of civic virtues and democratic principles at work in state and national settings.	**1.A.6-8.1** Compare and analyze civic virtues and democratic principles in historic and global settings, explaining how they influence various political systems.	**1.A.9-12.1** Evaluate various significant documents from the United States and other countries to compare civic virtues and principles of political systems.
1.A.PK-1.2 Discuss how people can improve their communities in the present and over time.	**1.A.2-3.2** Describe and offer examples of how people have improved their communities in the past and present.	**1.A.4-5.2** Compare the experiences that form student's and other's points of view about civic issues.	**1.A.6-8.2** Analyze the role that perspectives, civic virtues, and democratic principles play when citizens address issues or problems.	**1.A.9-12.2** Evaluate the impact of perspectives, civic virtues, democratic principles, constitutional rights, and human rights on addressing issues and problems in society.

B. Students will demonstrate an understanding of the important institutions of their society and the principles that these institutions are intended to reflect.				
PreK-Grade 1	**Grades 2-3**	**Grades 4-5**	**Grades 6-8**	**Grades 9-12**
1.B.PK-1.1 Describe roles and responsibilities of people in authority in school and community settings.	**1.B.2-3.1** Describe the basic structure of government at the local, state, and tribal levels.	**1.B.4-5.1** Explain the structure, responsibilities, and powers exercised by national officials of the branches of the United States government.	**1.B.6-8.1** Analyze the powers and responsibilities of the United States government and compare it to other forms of government.	**1.B.9-12.1** Evaluate the impact of the structure and powers exercised by local, state, tribal, national, and international institutions on public policy.
1.B.PK-1.2 Explain how all informed citizens play important roles in the community.	**1.B.2-3.2** Explain why all informed citizens should participate in their community.	**1.B.4-5.2** Explain ways in which informed and responsible citizens can and should participate in state and national government.	**1.B.6-8.2** Explain specific roles played by informed and responsible citizens (e.g. voters, jurors, taxpayers, military service, office holders) in all forms of government.	**1.B.9-12.2** Analyze the role of informed and responsible citizens in their political systems and provide examples of changes in civic participation over time.
1.B.PK-1.3 Explain the need for and purposes of rules in various settings such as the family, classroom, and school.	**1.B.2-3.3** Explain the need for and purposes of laws in the community and state.	**1.B.4-5.3** Examine the purposes of government and laws, as stated in the Constitution of the United States.	**1.B.6-8.3** Examine the origins, purposes and impact of constitutions, laws, treaties, and international agreements.	**1.B.9-12.3** Analyze the impact of constitutions, laws, treaties, and international agreements, including the concept of sovereignty, in order to maintain national and international order.
1.B.PK-1.4 Explain how rules are made and the consequences for violating those rules.	**1.B.2-3.4** Explain and provide examples of the consequences for violating laws in the community or state.	**1.B.4-5.4** Explain how laws are made in a democratic society to protect individual freedoms.	**1.B.6-8.4** Explain the concept of the rule of law and how limits on government authority guarantee individual liberties.	**1.B.9-12.4** Analyze how various governmental powers, responsibilities, and limitations are enacted and have changed over time.

C. Students will demonstrate understanding of the processes and rules by which groups of people make decisions, govern themselves, and address public problems.				
PreK-Grade 1	**Grades 2-3**	**Grades 4-5**	**Grades 6-8**	**Grades 9-12**
1.C.PK-1.1 Describe how people can work together to make decisions in the classroom and school.	**1.C.2-3.1** Explain how people can work together to make decisions in their community and state.	**1.C.4-5.1** Explain how laws have changed society in the past and present.	**1.C.6-8.1** Assess specific laws, both actual and proposed, as means of addressing historic and current national and international problems.	**1.C.9-12.1** Analyze historical, contemporary, and emerging means to promote the common good and protect individual rights.
1.C.PK-1.2 Engage in democratic processes to address authentic, real-world problems in the classroom or school.	**1.C.2-3.2** Use democratic processes to consider and propose actions to address authentic, real-world problems in the community and state.	**1.C.4-5.2** Use a range of democratic procedures to discuss and make decisions about real-world problems in the community, region, and nation.	**1.C.6-8.2** Apply a range of deliberative and democratic procedures to debate, make decisions, and propose action about authentic, real-world problems in out-of-school contexts.	**1.C.9-12.2** Engage in a range of deliberative and democratic processes to develop strategies to address authentic, real-world problems in the community and out-of-school contexts.

2. Analyze and Address Authentic Civic Issues
Students will determine the kinds of sources that will be helpful in answering essential, compelling, and supporting questions addressing authentic civic issues.

A. Students will demonstrate the capability for developing essential, compelling, and supporting questions that address authentic civic issues.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
2.A.PK-1.1 Collaboratively ask and respond to enduring essential questions of common concerns to the student and the community.	**2.A.2-3.1** Ask and respond to enduring essential questions of common concerns to the student, the community and the state.	**2.A.4-5.1** Create and explore essential questions that are important to others, as well as enduring across the social studies disciplines.	**2.A.6-8.1** Investigate and propose answers to essential questions representing enduring issues across the social studies disciplines.	**2.A.9-12.1** Develop, investigate and evaluate plausible answers to essential questions that reflect enduring understandings across time and all disciplines.
2.A.PK-1.2 Recognize connections between compelling and supporting questions which help answer an essential social studies question.	**2.A.2-3.2** Make connections between compelling and supporting questions which help answer an essential social studies question.	**2.A.4-5.2** Identify concepts and ideas from discipline-based compelling and supporting questions that are open to different interpretations.	**2.A.6-8.2** Compare points of agreement from reliable information and interpretations associated with discipline-based compelling and supporting questions.	**2.A.9-12.2** Compare points of agreement and disagreement from reliable information and expert interpretations associated with discipline-based compelling and supporting questions.
2.A.PK-1.3 Practice inquiry skills by responding to various levels of open-ended questions on a regular basis.	**2.A.2-3.3** Reinforce inquiry skills by asking and responding to various levels of open-ended questions on a regular basis.	**2.A.4-5.3** Demonstrate depth of knowledge by developing, exploring, and answering various levels of open-ended questions frequently.	**2.A.6-8.3** Develop deeper levels of understanding by questioning ideas and assumptions and identifying inconsistencies or errors in reasoning.	**2.A.9-12.3** Reinforce critical thinking by evaluating and challenging ideas and assumptions; analyze and explain inconsistencies in reasoning.

B. Students will demonstrate the ability to investigate problems taking into consideration multiple points of view represented in arguments, structure of an explanation and other sources.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12

2.B.PK-1.1 Discuss local problems and ways in which people are trying to address these problems.	**2.B.2-3.1** Identify a range of local and state problems in which people are trying to address these problems.	**2.B.4-5.1** Explain the challenges people have faced and the strategies used to address local, regional, or national historical problems.	**2.B.6-8.1** Draw upon gathered information to analyze how a specific problem can manifest itself in local, regional, and global levels over time, evaluating options for individual and collective solutions.	**2.B.9-12.1** Use interdisciplinary lenses to gather and evaluate information regarding complex local, regional, and global problems; assess individual and collective actions taken to address such problems.
2.B.PK-1.2 With guidance and support, demonstrate understanding of social studies content through completion of authentic tasks and assessments.	**2.B.2-3.2** Demonstrate understanding of social studies content through completion of teacher-led authentic tasks and assessments.	**2.B.4-5.2** Reinforce understanding of social studies content through teacher-led investigations and the completion of authentic tasks and assessments.	**2.B.6-8.2** Demonstrate understanding of social studies content through the development of self-driven investigations and the completion of teacher-led authentic tasks and assessments.	**2.B.9-12.2** Demonstrate understanding of content through the development of self-driven investigations and the completion of multi-staged, authentic tasks and assessments.

3. Acquire, Apply, and Evaluate Evidence
Students will utilize interdisciplinary tools and master the basic concepts of the social studies in order to acquire and apply content understanding in all related fields of study.

A. Students will develop skills and practices which demonstrate an understanding that historical inquiry is based on the analysis and evaluation of evidence and its credibility.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
3.A.PK-1.1 Identify a primary source of information and gather basic information from such sources.	**3.A.2-3.1** Explain the difference between a primary and secondary source of information and gather basic information from such sources.	**3.A.4-5.1** Gather, compare, and analyze information between primary and secondary sources about the past and present.	**3.A.6-8.1** Gather, compare, and analyze evidence from primary and secondary sources on the same topic, identifying possible bias and evaluating credibility.	**3.A.9-12.1** Gather, organize, and analyze various kinds of primary and secondary source evidence on related topics, evaluating the credibility of sources.
3.A.PK-1.2 Identify the author and date of a primary source using information found within the source itself with guidance and support.	**3.A.2-3.2** Identify the author and date of a primary source using information found within the source itself.	**3.A.4-5.2** Identify the intended audience and purpose of an historical primary source from information found within the source itself.	**3.A.6-8.2** Draw conclusions regarding the plausible author, date, origin, audience, and purpose of primary sources when not easily identifiable in the source.	**3.A.9-12.2** Evaluate the usefulness of primary and secondary sources for specific inquiry, based on the author, date, place of origin, intended audience, and purpose.
3.A.PK-1.3 With guidance and support, compare two primary or secondary sources about a particular event in history or contemporary events.	**3.A.2-3.3** Compare two or more primary or secondary sources about a particular event in history or contemporary events.	**3.A.4-5.3** Describe the similarities and differences between multiple historical or contemporary primary sources and their relationships to historical events.	**3.A.6-8.3** Use multiple historical or contemporary primary sources to identify further areas of inquiry and additional relevant sources.	**3.A.9-12.3** Develop questions about multiple historical and/or contemporary sources to pursue further inquiry and investigate additional sources.

3.A.PK-1.4 Make simple timelines from given information with guidance and support.	**3.A.2-3.4** Make simple timelines and identify immediate cause and effect relationships from given information.	**3.A.4-5.4** Create timelines to identify multiple causes and effects from given information.	**3.A.6-8.4** Distinguish multiple causation, immediate and long-term cause-effect relationships by constructing timelines which reflect related events.	**3.A.9-12.4** Analyze multiple causation and change over time by constructing and interpreting parallel timelines.
3.A.PK-1.5 Discuss possible reasons for an event or development in the past.	**3.A.2-3.5** Generate possible reasons for an event or development in the past.	**3.A.4-5.5** Explain multiple causes and effects of events and developments of the past or present.	**3.A.6-8.5** Distinguish between long-term causes and triggering events on historical developments or contemporary events.	**3.A.9-12.5** Evaluate how multiple, complex events are shaped by unique circumstances of time and place, as well as broader historical contexts.
3.A.PK-1.6 Discuss how individuals and groups have shaped significant historical changes.	**3.A.2-3.6** Explain and give examples of how individuals and groups have shaped significant historical changes in the community and state.	**3.A.4-5.6** Describe the specific contributions of individuals and groups who have shaped significant historical changes in regional and national events.	**3.A.6-8.6** Analyze the roles of specific individuals and groups who shaped historically significant events, both nationally, regionally, and on a global scale.	**3.A.9-12.6** Assess the significance and impact of individuals and groups throughout local, national, tribal, and world history, tracing the continuity of past events to the present.
3.A.PK-1.7 Identify point of view and give examples relevant to the student's experiences.	**3.A.2-3.7** Define point of view and give examples relevant to the student's experiences.	**3.A.4-5.7** Compare perspectives of individuals and groups during the same historical period.	**3.A.6-8.7** Describe multiple factors that influence the perspectives of individuals and groups during historical eras or toward contemporary situations.	**3.A.9-12.7** Analyze complex and interacting factors that influence multiple perspectives during different historical eras or contemporary events.
B. Students will demonstrate an understanding of geographic concepts and develop mastery of geographic tools and ways of thinking in order to become geographically informed.				
PreK-Grade 1	**Grades 2-3**	**Grades 4-5**	**Grades 6-8**	**Grades 9-12**

3.B.PK-1.1 Answer geographic questions using geographic information about the student's own community.	**3.B.2-3.1** Ask and answer geographic questions, using geographic information about the student's community and state.	**3.B.4-5.1** Answer geographic questions by organizing geographic information about regions of the United States from historical as well as contemporary perspectives.	**3.B.6-8.1** Answer geographic questions and conduct investigations by acquiring, organizing, and interpreting information about the modern world and historical events.	**3.B.9-12.1** Actively engage in asking and answering geographic questions by acquiring, organizing, and analyzing multiple sources of data and information about the world's past and its present conditions.
3.B.PK-1.2 Create and use basic maps, graphs, and other simple models to identify the physical and human features of the community.	**3.B.2-3.2** Create and use maps, graphs, and other simple geographic models to describe the physical and human features of the community and state.	**3.B.4-5.2** Create and use maps, data graphs and charts, photographs, and other geographic representations to explain spatial relationships of physical and human places.	**3.B.6-8.2** Use multiple mapping techniques and data visuals to create and analyze spatial patterns of environmental and cultural characteristics.	**3.B.9-12.2** Compare and analyze complex maps and mapping technologies to explain relationships between the environment and events, past and present.
3.B.PK-1.3 Describe the community's human and physical environment through the use of simple geographic representations and photographs.	**3.B.2-3.3** Describe the community and state's human and physical environment through the use of geographic representations, including aerial photographs.	**3.B.4-5.3** Analyze the impact of human and physical features of the Earth by drawing conclusions from digital representations, such as aerial photographs and satellite images of our nation and its regions.	**3.B.6-8.3** Make connections between spatial patterns of physical and human features of the Earth's surface by interpreting satellite images and using geographic technology.	**3.B.9-12.3** Analyze spatial patterns of human and physical environments, using geographic technology, from contemporary and historical perspectives.
3.B.PK-1.4 Identify examples of how humans modify and adapt to their physical environment using its natural resources.	**3.B.2-3.4** Identify and describe how humans modify and adapt to their physical environment, using its natural and human resources.	**3.B.4-5.4** Explain how culture, political, and economic actions can influence the ways people modify and adapt to their environment.	**3.B.6-8.4** Explain how cultural patterns, political and economic decisions can affect the physical environment, including how places and regions change over time.	**3.B.9-12.4** Evaluate the extent to which political and economic decisions have had significant historical and global impact on human and physical environments of various places and regions.

3.B.PK-1.5 Discuss how the physical environment impacts our daily lives and affects human activities.	**3.B.2-3.5** Describe how the physical environment impacts our daily lives and affects human activities in the past and present.	**3.B.4-5.5** Explain how environmental factors affected historical events and continue to impact contemporary human activities.	**3.B.6-8.5** Explain the influences of multiple environmental factors on historical events and current situations, which provide both opportunities and limitations on human development.	**3.B.9-12.5** Analyze the connections between historical events and the geographic contexts in which they have occurred, including the causes and processes of environmental changes over time.
3.B.PK-1.6 Discuss why and how people and goods move from place to place.	**3.B.2-3.6** Describe how the movement of resources, people, goods, and ideas move, connecting communities.	**3.B.4-5.6** Describe the spatial patterns of economic activities caused by interactions with other places.	**3.B.6-8.6** Explain how changes in transportation, communication, and technology affect the diffusion of ideas.	**3.B.9-12.6** Evaluate how globalization and the expanding use of scarce resources contribute to conflict and cooperation.

C. Students will analyze the principles of economic systems and develop an understanding of the benefits of a market system in local, national, and global settings.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
3.C.PK-1.1 Collaboratively gather simple economic data from charts and tables.	**3.C.2-3.1** Gather basic economic data from various types of graphs and charts.	**3.C.4-5.1** Interpret and draw conclusions from economic data on charts and graphs.	**3.C.6-8.1** Analyze, interpret, and compare economic data from multiple charts and graphs.	**3.C.9-12.1** Evaluate economic data from charts and graphs, noting trends and making predictions.
3.C.PK-1.2 Describe freedom of choice when determining needs and wants.	**3.C.2-3.2** Describe freedom of choice when determining needs and wants in a free market.	**3.C.4-5.2** Explain how the concepts of supply and demand operate in a market economy, using historic and contemporary examples.	**3.C.6-8.2** Compare the advantages and disadvantages of different types of economic systems.	**3.C.9-12.2** Analyze the ways in which incentives and resource availability influence what is produced and distributed in different types of economic systems.
3.C.PK-1.3 Discuss the concept that personal decisions have costs and benefits.	**3.C.2-3.3** Give examples of costs and benefits resulting from personal economic decisions.	**3.C.4-5.3** Identify positive and negative incentives that influence economic decision making.	**3.C.6-8.3** Describe alternative solutions to current economic issues in terms of benefits and costs for different groups.	**3.C.9-12.3** Construct arguments using a combination of evidence for or against an approach or solution to an economic issue.
3.C.PK-1.4 Identify examples of the goods and services that school and community workers provide.	**3.C.2-3.4** Describe examples of the goods and services that local and state governments provide.	**3.C.4-5.4** Analyze the role of innovation and entrepreneurship in a market economy.	**3.C.6-8.4** Evaluate how the advancements in technology impact economic growth and standard of living.	**3.C.9-12.4** Evaluate the impact of government policies on market outcomes at national and global levels, past and present.
3.C.PK-1.5 Explain why people in the community trade goods and services with people in other communities.	**3.C.2-3.5** Describe why people in one country trade goods and services with people in other countries.	**3.C.4-5.5** Explain how trade influences growth and progress of nations.	**3.C.6-8.5** Explain how trade impacts standard of living and leads to economic interdependence.	**3.C.9-12.5** Analyze the possible consequences, both intended and unintended, of government policies on markets and international trade.

4. Read Critically and Interpret Informational Sources
Students will engage in critical, active reading of grade level appropriate primary and secondary sources related to key social studies concepts, including frequent analysis and interpretation of informational sources.

A. Students will comprehend, evaluate, and synthesize textual sources to acquire and refine knowledge in the social studies.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
4.A.PK-1.1 Locate the main idea and supporting details of a text.	**4.A.2-3.1** Locate and paraphrase the main idea and supporting details of a text (e.g. primary and secondary sources.)	**4.A.4-5.1** Quote accurately from a text when explaining the text explicitly and when drawing inferences from the text.	**4.A.6-8.1** Paraphrase the main idea and cite evidence from primary and secondary sources; provide an accurate summary of a source distinct from prior knowledge or opinion.	**4.A.9-12.1** Cite specific textual evidence to support analysis of primary and secondary sources, evaluating features such as author, date, and origin of information.
4.A.PK-1.2 Use titles and graphic features, including photographs and illustrations, to understand a text.	**4.A.2-3.2** Use graphic features of a text, such as photographs, titles, headings, subheadings, charts, and graphs, to understand content.	**4.A.4-5.2** Use information from multiple print or digital sources (e.g. timelines, maps, graphs, political cartoons, images) to answer a question.	**4.A.6-8.2** Integrate the use of visual information (e.g. maps, charts, photographs, videos, political cartoons) with textual information from primary and secondary sources.	**4.A.9-12.2** Analyze information from visual, oral, digital, and interactive texts (e.g. maps, charts, images, political cartoons, videos) in order to draw conclusions and defend arguments.
4.A.PK-1.3 Acquire new academic vocabulary and relate new words to prior knowledge.	**4.A.2-3.3** Acquire new academic vocabulary; relate new words to prior knowledge, and apply vocabulary in social studies.	**4.A.4-5.3** Acquire and use appropriate academic vocabulary and phrases in a social studies context.	**4.A.6-8.3** Acquire, determine the meaning, and appropriately use academic vocabulary and phrases used in social studies contexts.	**4.A.9-12.3** Appropriately apply and demonstrate understanding of academic vocabulary in a social studies context.

B. Students will apply critical reading and thinking skills to interpret, evaluate, and respond to a variety of complex texts from historical, ethnic, and global perspectives.				
PreK-Grade 1	**Grades 2-3**	**Grades 4-5**	**Grades 6-8**	**Grades 9-12**
4.B.PK-1.1 Explain and discuss the author's purpose, with guidance and support.	**4.B.2-3.1** Identify the author's purpose, including what the author wants to answer, explain, or describe in primary and secondary informational texts.	**4.B.4-5.1** Determine an author's purpose and draw conclusions to evaluate how well the author's purpose was achieved.	**4.B.6-8.1** Analyze works written on the same topic and compare methods the authors use to achieve similar or different purposes.	**4.B.9-12.1** Evaluate the extent to which historical, cultural, and/or global perspectives affect an author's stated or implied purpose.
4.B.PK-1.2 Locate facts that are clearly stated in a text (e.g. who, what, where, when, why, and how).	**4.B.2-3.2** Locate facts (e.g. who, what, where, when, why, and how) to demonstrate an understanding of key details in a text.	**4.B.4-5.2** Distinguish fact from opinion in non-fiction text and investigate facts for accuracy.	**4.B.6-8.2** Evaluate textual evidence to determine whether a claim is substantial or unsubstantial.	**4.B.9-12.2** Evaluate authors' points of view, potential bias, and how authors can reach different conclusions regarding the same issue.
4.B.PK-1.3 Ask and answer basic questions and engage in collaborative discussions about appropriate topics in a social studies text.	**4.B.2-3.3** Ask and answer questions to clarify information and engage in collaborative discussions about appropriate topics in social studies.	**4.B.4-5.3** Engage in collaborative discussions about appropriate topics and texts, expressing ideas clearly to others in diverse groups and whole class settings.	**4.B.6-8.3** Engage in collaborative discussions and debates about information presented in social studies texts, expressing ideas clearly while building on the ideas of others.	**4.B.9-12.3** Actively listen, evaluate, and analyze a speaker's message, asking questions while engaged in collaborative discussions and debates about social studies topics and texts.

5. Engage in Evidence Based Writing

Students will apply effective communication skills by demonstrating a variety of evidence based written products designed for multiple purposes and tasks, in order to demonstrate their understandings of social studies concepts, ideas, and content.

A. Students will summarize and paraphrase, integrate evidence, and cite sources to create written products, research projects, and presentations for multiple purposes related to social studies content.

PreK-Grade 1	Grades 2-3	Grades 4-5	Grades 6-8	Grades 9-12
5.A.PK-1.1 Draw, label, dictate and write a narrative with guidance and support.	**5.A.2-3.1** Compose narratives which introduce a topic, use facts to develop the topic, and provide a concluding statement.	**5.A.4-5.1** Compose narratives to develop and examine a topic in social studies, using information appropriately in a structured format.	**5.A.6-8.1** Compose narratives incorporating point of view, the use of an appropriate structure of ideas, and application of information.	**5.A.9-12.1** Compose narrative writing, when appropriate to a given purpose or task, citing evidence from informational texts.
5.A.PK-1.2 Draw, label, dictate, and write an informative product with guidance and support.	**5.A.2-3.2** Compose informative written products, focusing on the facts about a topic, including a main idea with supporting details.	**5.A.4-5.2** Compose informative essays and written products by introducing and developing a topic, incorporating evidence (e.g. facts, examples, details) and maintaining an organized structure.	**5.A.6-8.2** Compose informative essays and other written products about social studies topics, incorporating evidence (e.g. facts, examples, details) from multiple sources, maintaining an organized, formal structure.	**5.A.9-12.2** Compose informative essays and written products, developing a thesis, citing evidence from multiple sources and maintaining an organized, formal structure.
5.A.PK-1.3 With guidance and support, draw, label, dictate, and write to express an opinion, providing reasons as support.	**5.A.2-3.3** Express an opinion about a topic by composing a written product and providing logical reasons as support.	**5.A.4-5.3** Clearly state an opinion through written products, supported by commentary including examples, details, and reasoning.	**5.A.6-8.3** Compose argumentative written products by introducing a claim, recognizing an opposing viewpoint, and organizing evidence and commentary from credible sources.	**5.A.9-12.3** Compose argumentative written products, including a precise claim as distinguished from opposing claims, organizing logical reasoning, and providing credible evidence to develop a balanced argument.
5.A.PK-1.4 Express ideas independently through a	**5.A.2-3.4** Write independently over extended	**5.A.4-5.4** Write independently over extended	**5.A.6-8.4** Write independently over extended	**5.A.9-12.4** Write independently over extended

combination of drawing and emergent writing.	periods of time (e.g. time for research and reflection) and for shorter time frames (e.g. single sitting).	periods of time and for shorter time frames to communicate with different audiences for a variety of purposes.	periods of time and for shorter time frames, varying modes of expression to suit audience, purpose, and task and/or to analyze different perspectives.	periods of time, varying modes of expression to suit audience, purpose, and task; synthesize information across multiple sources and/or articulate new perspectives.
B. Students will engage in authentic inquiry to acquire, refine, and share knowledge through written presentations related to social studies.				
PreK-Grade 1	**Grades 2-3**	**Grades 4-5**	**Grades 6-8**	**Grades 9-12**
5.B.PK-1.1 With guidance and support, generate a list of topics of interest and questions about social studies.	**5.B.2-3.1** Generate a list of topics of interest and individual questions about a specific topic in social studies.	**5.B.4-5.1** Formulate a viable research question related to expanding knowledge of social studies concepts.	**5.B.6-8.1** Refine and formulate viable research questions related to social studies investigations, using well-developed theses or claims.	**5.B.9-12.1** Develop self-generated theses or claims related to independent research and investigations using credible and relevant sources.
5.B.PK-1.2 Organize information found during group research, using graphic organizers and other aids with guidance and support.	**5.B.2-3.2** Organize information found during group or individual research, using graphic organizers or other aids.	**5.B.4-5.2** Organize information from research, quoting accurately from the source, avoiding plagiarism.	**5.B.6-8.2** Quote, paraphrase, and summarize findings, avoiding plagiarism.	**5.B.9-12.2** Integrate quotes, paraphrase, and summaries of research findings into writing while avoiding plagiarism.
5.B.PK-1.3 With guidance and support, create a simple presentation, using audio, visual, or multimedia tools to communicate ideas and thoughts.	**5.B.2-3.3** Create a simple presentation, using audio, visual, and/or multimedia tools to communicate ideas and thoughts.	**5.B.4-5.3** Create presentations that integrate visual displays and other multimedia to enrich the presentation.	**5.B.6-8.3** Select, organize, and create presentations using multi-modal content (variety of written oral, visual, digital, or interactive texts) encompassing different points of view.	**5.B.9-12.3** Construct visual and/or multimedia presentations, using a variety of media forms to enhance understanding of findings and reasoning, for diverse audiences.

APPENDIX B

GLOSSARY OF ASSESSMENT TERMS

Glossary

This glossary of commonly used assessment terms can be used to help interpret and communicate test results. Note that because assessment terms evolve in terms of meaning and application, the definitions for some words may evolve beyond the sense indicated here.

Accommodation—A general term referring to changes in the setting in which a test is administered, the timing of a test, the scheduling of a test, the ways in which the test is presented, and the ways in which the student responds to the test. The term is used to refer to changes that do not alter in any significant way what the test measures or the comparability of scores.

Achievement Test—An assessment that measures a student's acquired knowledge and skills in a content area in which the student has received instruction.

Alternate Assessment—A substitute way of gathering information on the performance and progress of students who cannot participate, even with accommodations, in the regular state or district assessment programs. Alternate assessments provide a mechanism for all students to be included in the accountability system.

Analytic Scoring—A scoring procedure in which a student's writing is evaluated for selected traits or dimensions, with each trait receiving a separate score. The resulting values are combined for an overall score.

Bias—A systematic error in a test score. Bias occurs when factors irrelevant to the subject matter related to the assessment result in one or more specific groups of students being advantaged or disadvantaged relative to other groups.

Classical Test Theory—A psychometric theory based on the perspective that an individual's observed score on a test is composed of the true score of the examinee and an independent component of measurement error.

College and Career Readiness Assessment (CCRA)— The CCRA testing program is a suite of assessment for grade 11. The SAT and ACT are administered for the ELA and Mathematics assessments. There are separate assessments for Science and U.S. History.

Construct—The underlying concept or the characteristic that a test is designed to measure.

Construct Irrelevance—The extent to which test scores are affected by factors that are not relevant to the construct that the test is designed to measure.

Construct Validity (Content Validity)—Construct validity indicates the extent to which the content of the test samples the subject matter or situation about which conclusions are to be drawn; also described as "evidence based on test content."

Constructed-response Item—An assessment unit with directions, a question, or an idea that elicits a written response from a student.

Content Standard—A statement describing the knowledge and skills in a content area that is expected to be taught in classrooms and should be met at a specified point in time (e.g., at the end of the course).

Conversion Tables—Tables used to convert a student's test scores from raw-score total to scaled score.

Criterion—A standard or judgment used as a basis for quantitative and qualitative comparison; also, a variable to which a test is compared as a measure of the test's validity.

Criterion-referenced Test—An assessment that allows its users to make score interpretations of a student's performance in relation to specified performance standards or criteria, rather than in comparison to the performances of other test takers. See also performance standard/level.

Cut Score—Selected points on the score scale of a test. The points are used to determine whether a particular test score is sufficient for some purpose. For example, student performance on a test maybe classified into one of several categories, such as unsatisfactory, limited knowledge, proficient or advanced on the basis of cut scores.

Differential Item Functioning (DIF)—A situation that occurs in testing when different groups of examinees (e.g., ethnic or gender groups) with the same true achievement levels have different levels of success on a particular item. Test developers reduce DIF by analyzing item data separately for each group. Items identified with DIF are carefully reviewed by content experts and culture and sensitivity committees. Items that appear to be unfair to one or more groups are discarded.

Discrimination Parameter—In the Item Response Theory (IRT) models, it indicates the degree an item distinguishes between examinees of differing abilities on the trait being measured. Low discrimination values indicate an item does not discriminate students of low and high abilities.

Distractor—An incorrect answer choice in a selected-response or multiple-choice test item.

Frequency Distribution—An ordered tabulation of individual scores (or groups of scores) showing the number of students obtaining each score or the number of students that were within each score grouping.

Holistic Scoring—A scoring procedure yielding a single score based on overall student performance rather than on an accumulation of points. Holistic scoring uses rubrics to evaluate student performance.

Item—A statement, exercise, task, question, or problem on a test.

Item Response Theory (IRT)—A set of mathematical models that describes the relationship between performance on test items and the student's level of performance on the same scale as the ability or trait being measured. The one-parameter (Rasch) model is used for calibration and scaling of multiple-choice items; the one- parameter partial credit model (1PPC) is used for the Writing prompt. The various item parameters associated with each model (discrimination, difficulty, and guessing) are used to describe the statistical characteristics of each item. The Rasch and 1PPC only produce item difficulty estimates.

Location (Difficulty) Parameter—In Item Response Theory, this parameter is the point on the ability scale at which an item discriminates, or measures, best.

Mean—The quotient obtained by dividing the sum of a set of scores by the number of scores; also called the “average.” Mathematicians call it the “arithmetic mean.”

Median—The middle score in a set of ranked scores. Equal numbers of ranked scores lie above and below the median. It corresponds to the 50th percentile and the 5th decile.

Mode—The score or value that occurs most frequently in a distribution.

Multiple-choice Item—A question, problem, or statement called a “stem” that appears on a test followed by two or more answer choices, called alternatives or response choices. The incorrect choices, called distractors, usually reflect common errors. The student’s task is to choose the best answer to the question posed in the stem.

Normal Distribution Curve—A bell-shaped curve representing a theoretical distribution of measurements that is often approximated by a wide variety of actual data. It is often used as a basis for scaling and statistical hypothesis testing and estimation in psychology and education because it approximates the frequency distributions of sets of measurements of human characteristics.

Norm-referenced Test—A standardized assessment in which all students perform under the same conditions (e.g., carefully defined directions, time limits, materials, and scoring procedures). This type of test allows for the interpretation of the test score in relation to a specified reference group, usually others of the same grade and level.

Oklahoma Academic Standards—The Oklahoma Academic Standards are Oklahoma’s core curriculum. Each subject/grade has a different set of standards and objectives on which students are tested.

Oklahoma Alternate Assessment Program (OAAP)—The Oklahoma Alternate Assessment Program (OAAP) is a component of the Oklahoma School Testing Program (OSTP) and is designed for students with the most significant cognitive disabilities. The OAAP mirrors the general assessment system regarding grade levels and subjects assessed and utilizes the Dynamic Learning Maps (DLM) Alternate Assessment System to measure academic content knowledge of students with significant cognitive disabilities.

Oklahoma Performance Index (OPI)—The Oklahoma Performance Index (OPI) is a scaled score resulting from the mathematical transformation of the true score, which is associated with each of the raw scores. The OPI score is used to place students in one of four performance levels.

Oklahoma School Testing Program (OSTP)—The Oklahoma School Testing Program (OSTP) assessments are state-mandated, criterion-referenced tests that measure student proficiency in English Language Arts and mathematics in grades 3 through 8 and science for students in Grades 5 and 8. The OSTP also includes the Oklahoma Alternate Assessment Program (OAAP) for students in the same grades and content areas with the most significant cognitive disabilities. Finally, the OSTP includes a College-and-Career-Readiness Assessment (CCRA) in science and U.S. history for grade 11 students.

Open-ended Item—See constructed-response item.

Performance Level—A level of performance on a test, established by education experts, as a goal of student attainment. It may also refer to a description of the knowledge, skills, and abilities typically held by students within a performance level.

Performance-level Score Ranges—The performance-level score range is the range of scale scores that corresponds to one of the four performance levels: Advanced, Proficient/Satisfactory, Limited Knowledge, and Unsatisfactory.

Raw Score—The number of correct answers on a test.

Reliability—The degree to which test scores obtained by a group of individuals are consistent over repeated applications. The reliability coefficient indicates the degree to which scores are free of measurement error. The conditions that the coefficient estimates may involve variations in test forms (alternate form reliability), repeated administration of the same form to the same groups after a time interval (test-retest reliability), or the statistical interrelationship of responses on separate parts of the test (internal consistency).

Rubric—A scoring tool, or set of criteria, used to evaluate a student's test performance.

Scale Scores—Scores on a single scale with intervals. The scale can be applied to all groups taking a given test, regardless of group characteristics or time of year, making it possible to compare scores from different groups of students. Scale scores are appropriate for various statistical purposes. For example, they can be added, subtracted, and averaged across test levels. Such computations permit educators to make direct comparisons among examinees or compare individual scores to groups in a way that is statistically valid. This cannot be done with percentiles or grade equivalents.

Standard—A target toward which instruction is specifically directed. In OSTP tests, standards are used to cluster key skills and/or concepts in an instructional domain.

Standard Deviation—A statistic used to express the extent of the divergence of a set of scores from the average of all the scores in the group. In a normal distribution, approximately two thirds (68.3 percent) of the scores lie within the limits of one standard deviation above and one standard deviation below the mean. The remaining scores are equally distributed more than one standard deviation above and below the mean.

Standard Error of Measurement (SEM)—Measurement error is associated with all test scores. The standard error of measurement (SEM) is an estimate of the amount of error to be expected in a score from a particular test. This statistic provides a range within which a student's true score is likely to fall. The smaller the standard error of measurement, the smaller the range in which the student's true score would likely fall and the more accurate the test score.

Standardized Test—A test that is given in exactly the same way to all children taking the test. The items are the same, the instructions are the same, the timing is the same, the method of determining correctness is the same, and the scoring is the same. No variations are allowed.

Stem—The part of an item that asks a question, provides directions, or presents a statement to be completed.

- **Stimulus—**A passage or graphic display about which questions are asked.

- **Test—**A device or procedure designed to elicit responses that permit an inference about what a student knows or can do.

- **Test Item—**See item.

- **True Score—**In classical test theory, the hypothetical average score that would result if the test could be administered repeatedly without practice or fatigue effects. In Item Response Theory, the "true score" is the error-free value of the test taker's performance.

- **Unscorable—**Writing responses that do not meet certain criteria cannot be scored. A zero composite score is given to responses that fall into the following categories:
N – No Response/Refusal to Answer, I –Illegible/Incomprehensible, L – Language other than English, O – Off Topic.

- **Validity—**The degree to which accumulated evidence and theory support specific interpretations of test scores proposed by users of a test.

- **Writing Prompt—**An assessment topic, situation, or statement to which students are expected to respond in the form of an essay.

APPENDIX C
TEST BLUEPRINTS

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 3

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF ITEMS	STANDARDS
38–42%	**STANDARD 2: READING AND WRITING PROCESS**** Students will use a variety of recursive reading and writing processes.
12–18%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
22–26%	**STANDARD 4: VOCABULARY**** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
12–18%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
	**Reading Comprehension and Vocabulary standards applied to determine RSA Status
100%	**TOTAL: 50 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 4

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF ITEMS	STANDARDS
30–34%	**STANDARD 2: READING AND WRITING PROCESS** Students will use a variety of recursive reading and writing processes.
18–22%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
22–26%	**STANDARD 4: VOCABULARY** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
12–18%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
100%	**TOTAL: 50 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 5

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF MC ITEMS	STANDARDS
30–34%	**STANDARD 2: READING AND WRITING PROCESS** Students will use a variety of recursive reading and writing processes.
22–26%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
18–22%	**STANDARD 4: VOCABULARY** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
12–18%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
90% OF OVERALL SCORE	
10% OF OVERALL SCORE	**WRITING SECTION** Standard 2: Reading and Writing Process Standard 3: Critical Reading and Writing Standard 4: Vocabulary Standard 5: Language Standard 6: Research Standard 8: Independent Reading and Writing
100%	**TOTAL: 51 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 6

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF ITEMS	STANDARDS
34–38%	**STANDARD 2: READING AND WRITING PROCESS** Students will use a variety of recursive reading and writing processes.
18–22%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
18–22%	**STANDARD 4: VOCABULARY** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
12–18%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
100%	**TOTAL: 50 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 7

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF ITEMS	STANDARDS
34–38%	**STANDARD 2: READING AND WRITING PROCESS** Students will use a variety of recursive reading and writing processes.
18–22%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
14–20%	**STANDARD 4: VOCABULARY** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
14–20%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
100%	**TOTAL: 50 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT ENGLISH LANGUAGE ARTS GRADE 8

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by standard of the Oklahoma Academic Standards (OAS).

IDEAL PERCENTAGE OF MC ITEMS	STANDARDS
24–30%	**STANDARD 2: READING AND WRITING PROCESS** Students will use a variety of recursive reading and writing processes.
24–30%	**STANDARD 3: CRITICAL READING AND WRITING** Students will apply critical thinking skills to reading and writing.
14–20%	**STANDARD 4: VOCABULARY** Students will expand their working vocabularies to effectively communicate and understand texts.
12–18%	**STANDARD 5: LANGUAGE** Students will apply knowledge of grammar and rhetorical style to reading and writing.
12–18%	**STANDARD 6: RESEARCH** Students will engage in inquiry to acquire, refine, and share knowledge.
88% OF OVERALL SCORE	
12% OF OVERALL SCORE	**WRITING SECTION** Standard 2: Reading and Writing Process Standard 3: Critical Reading and Writing Standard 4: Vocabulary Standard 5: Language Standard 6: Research Standard 8: Independent Reading and Writing
100%	**TOTAL: 51 ITEMS**

*Standard 8: Independent Reading and Writing is assessed throughout the test and dually aligned to each standard.
Please note this blueprint does not include items that may be field-tested.
A minimum of 6 items is required to report a standard.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 3

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
44–48%	**NUMBER AND OPERATIONS** 3.N.1 Number Sense 3.N.2 Number Operations 3.N.3 Fractions 3.N.4 Money
12–18%	**ALGEBRAIC REASONING AND ALGEBRA** 3.A.1 Numerical and Geometric Patterns 3.A.2 Equations
26–30%	**GEOMETRY AND MEASUREMENT** 3.GM.1 Describe and Create Shapes 3.GM.2 Measurement 3.GM.3 Time
12–18%	**DATA AND PROBABILITY** 3.D.1 Data Analysis
100%	**TOTAL: 50 ITEMS**

(Please note this blueprint does not include items that may be field-tested.)
A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 4

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
42–46%	**NUMBER AND OPERATIONS** 4.N.1 Number Operations 4.N.2 Rational Numbers 4.N.3 Money
14–18%	**ALGEBRAIC REASONING AND ALGEBRA** 4.A.1 Numerical Patterns 4.A.2 Equations
26–30%	**GEOMETRY AND MEASUREMENT** 4.GM.1 Polygons and Polyhedra 4.GM.2 Measurement 4.GM.3 Time
12–18%	**DATA AND PROBABILITY** 4.D.1 Data Analysis
100%	**TOTAL: 50 ITEMS**

(Please note this blueprint does not include items that may be field-tested.)
A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 5

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
44–48%	**NUMBER AND OPERATIONS** 5.N.1 Division of Multi-digit Numbers 5.N.2 Fractions and Decimals 5.N.3 Add and Subtract Rational Numbers
16–20%	**ALGEBRAIC REASONING AND ALGEBRA** 5.A.1 Numerical Patterns and Graphs 5.A.2 Equations and Inequalities
22–26%	**GEOMETRY AND MEASUREMENT** 5.GM.1 Polygons and Polyhedra 5.GM.2 Volume and Surface Area 5.GM.3 Angles
12–18%	**DATA AND PROBABILITY** 5.D.1 Data Analysis
100%	**TOTAL: 50 ITEMS**

(Please note this blueprint does not include items that may be field-tested.)
A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 6

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
38–42%	**NUMBER AND OPERATIONS** 6.N.1 Number Sense of Integers and Rational Numbers 6.N.2 Addition and Subtraction of Integers 6.N.3 Ratios 6.N.4 Multiplication and Division of Rational Numbers
20–24%	**ALGEBRAIC REASONING AND ALGEBRA** 6.A.1 Algebraic Representations 6.A.2 Algebraic Expressions 6.A.3 Equations and Inequalities
22–26%	**GEOMETRY AND MEASUREMENT** 6.GM.1 Area of Parallelograms and Triangles 6.GM.2 Angle Relationships on Intersecting Lines 6.GM.3 Units of Measurement and Unit Conversions 6.GM.4 Congruency and Symmetry of Transformations
12–16%	**DATA AND PROBABILITY** 6.D.1 Data Analysis 6.D.2 Probability
100%	**TOTAL: 50 ITEMS**

(Please note this blueprint does not include items that may be field-tested.)
A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 7

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
18–22%	**NUMBER AND OPERATIONS** 7.N.1 Representation and Comparison of Rational Numbers 7.N.2 Number Operations and Absolute Value
28–32%	**ALGEBRAIC REASONING AND ALGEBRA** 7.A.1 Proportional Relationships 7.A.2 Proportions, Rates and Ratios 7.A.3 Linear Equations and Inequalities 7.A.4 Order of Operations
28–32%	**GEOMETRY AND MEASUREMENT** 7.GM.1 Surface Area and Volume of Rectangular Prisms 7.GM.2 Trapezoids and Composite Figures 7.GM.3 Circles 7.GM.4 Transformations
18–22%	**DATA AND PROBABILITY** 7.D.1 Data Analysis 7.D.2 Probability
100%	**TOTAL: 50 ITEMS**

(Please note this blueprint does not include items that may be field-tested.)
A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT MATHEMATICS GRADE 8

This blueprint describes the content and structure of an assessment and defines the ideal number of test items by strand and standard of the Oklahoma Academic Standards (OAS).

IDEAL % OF ITEMS	STRANDS AND STANDARDS
16–20%	**NUMBER AND OPERATIONS** PA.N.1 Real Number Operations
44–48%	**ALGEBRAIC REASONING AND ALGEBRA** PA.A.1 Linear and Non-Linear Functions PA.A.2 Linear Function Representations and Problem Solving PA.A.3 Algebraic Expressions PA.A.4 Equations and Inequalities
18–22%	**GEOMETRY AND MEASUREMENT** PA.GM.1 Pythagorean Theorem PA.GM.2 Surface Area and Volume
14–18%	**DATA AND PROBABILITY** PA.D.1 Data Analysis and Scatter Plots PA.D.2 Probability
100%	**TOTAL: 50 ITEMS**

Please note this blueprint does not include items that may be field-tested. A minimum of 6 items is required to report a strand.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT SCIENCE GRADE 5

This blueprint describes the content and structure of the operational test and defines the target number of test items by reporting category for the Grade 5 Science assessment.

REPORTING CATEGORIES[1] (OKLAHOMA ACADEMIC STANDARDS FOR SCIENCE)	TARGET PERCENTAGE OF TOTAL ITEMS / SCORE POINTS[2]
PHYSICAL SCIENCES	**27–33%**
5-PS1-1	
5-PS1-2	
5-PS1-3	
5-PS1-4	
LIFE SCIENCES	**27–33%**
5-LS1-1	
5-LS2-1	
5-LS2-2	
5-PS3-1[a]	
EARTH AND SPACE SCIENCES	**33–40%**
5-ESS1-1	
5-ESS1-2	
5-ESS2-1	
5-ESS2-2	
5-PS2-1[a]	
TOTAL OPERATIONAL TEST	**100%** (45 TOTAL SCORE POINTS)

(Please note this blueprint does not include items that may be field-tested.)

[1] Reporting category names are taken from the three content domain names in the OAS-Science.

[a] The physical science standards 5-PS3-1 and 5-PS2-1 are being reported in Life Sciences and Earth and Space Sciences, respectively. Their placement in these reporting categories reflects the way that these standards would typically be incorporated into units in classroom instruction.

[2] A minimum of 10 points is required to report results for a reporting category for Grade 5 Science.

Note: Standards will be assessed using a cluster-based format: a set of three multiple-choice items linked with a common stimulus. Clusters containing two multiple choice items and one technology enhanced item (TEI) will be introduced beginning in Spring 2020, and will become operational in Spring 2021. Each cluster will align to a single standard with its associated Disciplinary Core Idea(s), Science and Engineering Practice, and Cross Cutting Concept. The Grade 5 Science operational test will contain a total of 15 clusters.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT SCIENCE GRADE 8

This blueprint describes the content and structure of the operational test and defines the target number of test items by reporting category for the Grade 8 Science assessment.

REPORTING CATEGORIES[1] (OKLAHOMA ACADEMIC STANDARDS FOR SCIENCE)	TARGET NUMBER OF TE ITEMS[2]	TARGET RANGE OF SCORE POINTS[3] (PERCENTAGE OF TOTAL)
PHYSICAL SCIENCES MS-PS1-5, MS-PS1-6, MS-PS2-1, MS-PS2-2, MS-PS4-1, MS-PS4-2	1	16–19 (33–40%)
LIFE SCIENCES MS-LS1-7, MS-LS4-1, MS-LS4-2	1	10–13 (21–27%)
EARTH AND SPACE SCIENCES MS-ESS1-4, MS-ESS2-1, MS-ESS2-2, MS-ESS2-3, MS-ESS3-1, MS-ESS3-2, MS-ESS3-4	1	19–22 (40–46%)
TOTAL OPERATIONAL TEST	3	100% (48 TOTAL SCORE POINTS)

(Please note this blueprint does not include items that may be field-tested.)

[1] Reporting category names are taken from the three content domain names in the OAS-Science.

[2] Technology-enhanced items (TE items/TEIs) may be used to more authentically address some aspects of the standards. Each TEI will have a value of two score points. At this time, it is expected that each reporting category will include one TEI. More TEIs may possibly be introduced in future operational cycles. For a paper accommodation, the TEIs will be replaced by paired MC items (two linked multiple-choice questions), also worth two score points.

[3] A minimum of 10 points is required to report results for a reporting category for Grade 8 Science.

Note: Standards will be assessed using a cluster-based format: a set of three multiple-choice items linked with a common stimulus or a set of two multiple-choice items and a technology-enhanced item linked with a common stimulus. Each cluster will align to a single standard with its associated Disciplinary Core Idea(s), Science and Engineering Practice, and Cross Cutting Concept. The Grade 8 Science operational test will contain a total of 15 clusters.

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT CCRA: SCIENCE CONTENT

The blueprint describes the content and structure of the operational test and defines the target number of test items by reporting category for the CCRA: Science Content.

REPORTING CATEGORIES[1] (OKLAHOMA ACADEMIC STANDARDS FOR SCIENCE)		TARGET RANGE OF SCORE POINTS[2] (PERCENTAGE OF TOTAL)
LIFE SCIENCES		45–55%
HS-LS1-1	HS-LS2-5	
HS-LS1-2	HS-LS2-6	
HS-LS1-3	HS-LS2-8	
HS-LS1-4	HS-LS3-1	
HS-LS1-5	HS-LS3-2	
HS-LS1-6	HS-LS3-3	
HS-LS1-7	HS-LS4-1	
HS-LS2-1	HS-LS4-2	
HS-LS2-2	HS-LS4-3	
HS-LS2-3	HS-LS4-4	
HS-LS2-4	HS-LS4-5	
PHYSICAL SCIENCES		45–55%
HS-PS1-1	HS-PS3-2	
HS-PS1-2	HS-PS3-3	
HS-PS1-5	HS-PS3-4	
HS-PS1-7	HS-PS4-1	
HS-PS2-5	HS-PS4-4	
HS-PS3-1		
TOTAL OPERATIONAL TEST		100% (62 TOTAL SCORE POINTS)

(Please note this blueprint does not include items that may be field-tested.)

[1] Reporting category names are taken from the content domain names in the OAS-Science.

[2] A minimum of 12 points is required to report results for a reporting category for the CCRA: Science Content.

Note: Technology-enhanced items (TE items/TEIs) may be used to more authentically address some aspects of the performance expectations (PEs). Each TEI will have a value of two score points. At this time, it is expected that each reporting category will include one TEI. More TEIs may possibly be introduced in future operational cycles. For a paper accommodation, the TEIs will be replaced by paired MC items (two linked multiple-choice questions), also worth two score points.

Note: Standards will be assessed using a cluster-based format: a set of three multiple-choice items linked with a common stimulus or a set of two multiple-choice items and a technology-enhanced item linked with a common stimulus. Each cluster will align to a single performance expectation. **The CCRA: Science Content operational test will contain a total of 20 clusters.**

OKLAHOMA SCHOOL TESTING PROGRAM

TEST BLUEPRINT CCRA: U.S. HISTORY CONTENT

The blueprint describes the content and structure of the operational test and defines the target number of test items by reporting category for CCRA: U.S. History Content.

REPORTING CATEGORIES[1] (OKLAHOMA ACADEMIC STANDARDS)	TARGET RANGE OF SCORE POINTS[2] (PERCENTAGE OF TOTAL)
U.S. HISTORY **Standard 1:** 1.2.A, 1.3.A, 1.3.D **Standard 2:** 2.1.A, 2.1.B, 2.1.D, 2.1.E, 2.1.G, 2.2.B, 2.3.B **Standard 3:** 3.1.A, 3.1.B, 3.1.C, 3.2.A, 3.2.B **Standard 4:** 4.1.A, 4.1.D, 4.1.E, 4.2.A, 4.2.B, 4.2.D, 4.3.C **Standard 5:** 5.1.B, 5.2, 5.3 **Standard 6:** 6.1.A, 6.1.B, 6.1.C, 6.1.D, 6.2.A, 6.2.B, 6.2.C, 6.4 **Standard 7:** 7.2.D **Standard 8:** 8.1, 8.2, 8.3, 8.4, 8.5.A	45–55%
CIVICS **Standard 1:** 1.1, 1.2.B, 1.2.C, 1.3.B, 1.3.C **Standard 2:** 2.1.C, 2.1.F, 2.2.A, 2.2.C, 2.3.A, 2.3.C **Standard 3:** 3.1.D, 3.2.C, 3.2.D **Standard 4:** 4.1.B, 4.1.C, 4.2.C, 4.3.A, 4.3.B **Standard 5:** 5.1.A, 5.1.C **Standard 6:** 6.3 **Standard 7:** 7.1.A, 7.1.B, 7.1.C, 7.2.A, 7.2.B, 7.2.C, 7.2.E, 7.2.F **Standard 8:** 8.5.B, 8.6	45–55%
TOTAL OPERATIONAL TEST	100%

[1] All objectives included in each reporting category are found in OAS-U.S. History.

[2] A minimum of 12 points is required to report results for a reporting category for the CCRA: U.S. History Content.

APPENDIX D
PERFORMANCE LEVEL DESCRIPTORS

Oklahoma ELA

Performance Level Descriptor Tables

Oklahoma School Testing Program: Grade 3 English Language Arts
Performance Level Descriptors

Advanced Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:	
• Consistently choose the best summary of the text and identify the main idea and key details. • Compare and contrast details in literary and nonfiction/informational texts to describe genres. • Frequently identify literary elements, literary devices, and author's purpose and frequently distinguish fact from opinion. • Consistently infer whether a text is written in first or third person point of view. • Consistently engage in a recursive writing process to create organized written works with a purpose that is clearly communicated for an appropriate audience. • Skillfully use details that support the writing task.	• Skillfully use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. • Consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing. • Consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication. • Generate a question on a specific topic and consistently locate and use information, including graphic features, to understand the text. • Determine the relevance and reliability of information. • Clearly summarize and present information in an organized and cohesive way.

Oklahoma School Testing Program: Grade 3 English Language Arts
Performance Level Descriptors

Proficient

Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the **Proficient** level typically:

- Choose the best summary of the text and identify the main idea and key details.
- Compare and contrast details to classify genres.
- Identify literary elements, literary devices, and author's purpose and distinguish fact from opinion.
- Infer whether a text is written in first or third person point of view.
- Engage in a recursive writing process to create organized written works.
- Create written works for specific purposes and audiences using details that support the writing task.
- Use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues.
- Use appropriate vocabulary to write clearly and effectively.
- Frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.
- Generate a question on a specific topic, and locate and use information, including graphic features, to understand the text.
- Summarize and present information in an organized way.

Basic

Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the **Basic** level typically:

- Inconsistently choose the best summary of the text and have difficulty identifying main ideas and key details.
- Compare and contrast but inconsistently classify genres.
- Inconsistently identify literary elements, literary devices, author's purpose, or points of view or inconsistently distinguish fact from opinion.
- Inconsistently engage in a recursive writing process to create written works that lack organization.
- Write for a specific purpose but seldom consider the audience.
- Inconsistently support their ideas with details.
- Inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues.
- Inconsistently use appropriate vocabulary in written works.
- Inconsistently identify and apply appropriate use of grammar and mechanics.
- Generate a question on a topic but ineffectively locate and use information, or imprecisely use graphic features, to understand the text.
- Provide an incomplete summary and present information with lack of clarity.

Below Basic

Students have not performed at least at the **Basic** level.

OKLAHOMA Education

Oklahoma School Testing Program: Grade 4 English Language Arts
Performance Level Descriptors

Advanced Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:	
• Consistently choose the best summary of the text and explain how the details support the main idea. • Compare and contrast details in literary and nonfiction/informational texts to describe and analyze genres. • Consistently recognize the paraphrase of original text. • Consistently identify and describe literary elements, literary devices, author's purpose, accuracy of facts, and text structure in various texts. • Consistently infer meaning from increasingly complex text, including author's purpose and points of view. • Consistently engage in a recursive writing process to create purposeful and organized written works. • Create fully developed and engaging written works for specific purposes and audiences using details that support the writing task.	• Efficiently use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. • Consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing. • Consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication. • Generate a viable research question on a specific topic and consistently locate and use information, including graphic features, to interpret the text. • Organize and synthesize relevant and reliable information in order to present findings.

Oklahoma School Testing Program: Grade 4 English Language Arts
Performance Level Descriptors

Proficient Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Choose the best summary of the text and identify the details that support the main idea. • Compare and contrast details in literary and nonfiction/informational texts to classify genres. • Recognize the paraphrase of original text most of the time. • Identify and describe literary elements, literary devices, author's purpose, accuracy of facts, and text structure in various texts. • Infer meaning from a text including author's purpose and points of view. • Engage in a recursive writing process to create purposeful written works.	• Select and apply the organizational structure that best fits the mode, purpose, and audience. • Use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues. • Use appropriate vocabulary to write clearly and effectively. • Frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication. • Generate a viable research question on a specific topic and adequately locate and use information, including graphic features, to interpret the text. • Organize relevant and reliable information in order to present findings.

Oklahoma School Testing Program: Grade 4 English Language Arts
Performance Level Descriptors

<table>
<tr><th colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</th></tr>
<tr><td>Inconsistently choose the best summary of the text and have difficulty differentiating main ideas from details.
Compare and contrast details in literary and nonfiction/informational texts but inconsistently classify genres.
Seldom identify the paraphrase of original text.
Inconsistently identify and describe literary elements, literary devices, author’s purpose, points of view, or accuracy of facts.
Inconsistently engage in a recursive writing process to create written works.
Produce writing that lacks organizational structure.</td><td>Create underdeveloped written works for specific purposes and audiences with inconsistent use of details.
Inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues.
Inconsistently use appropriate vocabulary in written works.
Inconsistently identify and apply appropriate use of grammar and mechanics.
Generate a research question on a topic but ineffectively locate and use information, or imprecisely use graphic features, to interpret the text.</td></tr>
<tr><th colspan="2">Below Basic
Students have not performed at least at the Basic level.</th></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 5 English Language Arts
Performance Level Descriptors

Advanced Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:	
• Analyze how summaries reflect a meaningful, text-based sequence of the main idea and supporting details. • Compare and contrast details in literary and nonfiction/informational texts to describe and analyze genres. • Consistently recognize the paraphrase of original text. • Evaluate and analyze literary devices, author's purpose, point of view, and accuracy of facts to interpret the meaning of the text as a whole. • Consistently compare and contrast texts, and ideas within and between texts, to support inferences. • Consistently engage in a recursive writing process to create purposeful and organized written works.	• Create thoroughly organized and engaging written works by selecting and applying the organizational structure that best fits the mode, purpose, and audience. • Skillfully use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. • Consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing. • Consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication. • Consistently locate, record, and organize relevant and reliable information on a topic in order to synthesize and clearly present findings.

Oklahoma School Testing Program: Grade 5 English Language Arts
Performance Level Descriptors

Proficient Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Identify objective text-based summaries that include main idea, supporting details, and a logical sequence of events. • Compare and contrast details in literary and nonfiction/informational texts to classify genres. • Recognize the paraphrase of original text most of the time. • Explain how literary elements, literary devices, author's purpose, point of view, accuracy of facts, and text structure contribute to the meaning of the text. • Compare and contrast texts and ideas within and between texts. • Engage in a recursive writing process to create purposeful written works.	• Select and apply the organizational structure that best fits the mode, purpose, and audience. • Use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues. • Use appropriate vocabulary to write clearly and effectively. • Frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication. • Adequately locate, record, and organize relevant and reliable information on a topic in order to present findings.

Oklahoma School Testing Program: Grade 5 English Language Arts
Performance Level Descriptors

<table>
<tr><th colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</th></tr>
<tr><td>Inconsistently choose the best summary of the text and have difficulty differentiating main ideas from details.
Compare and contrast details in literary and nonfiction/informational texts but inconsistently classify genres.
Seldom identify the paraphrase of original text.
Identify literary elements, literary devices, author’s purpose, point of view, or accuracy of facts.
Inconsistently compare and contrast texts and ideas within or between texts.
Inconsistently engage in a recursive writing process to create written works.</td><td>Create written works for various purposes and audiences but inconsistently select and apply an organizational structure that fits the writing task.
Inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues.
Inconsistently use appropriate vocabulary in written works.
Inconsistently identify and apply appropriate use of grammar and mechanics.
Ineffectively locate, record, and organize information on a topic in order to present findings.</td></tr>
<tr><th colspan="2">Below Basic
Students have not performed at least at the Basic level.</th></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 6 English Language Arts
Performance Level Descriptors

Advanced

Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:

- Thoroughly comprehend, interpret, evaluate, and respond to a variety of increasingly complex texts of all literary and informational genres.
- Skillfully create an objective summary including main idea and supporting details.
- Effectively paraphrase main ideas with supporting details in a text.
- Thoroughly compare and contrast stated or implied purposes of authors' writing.
- Thoroughly evaluate literary devices, points of view, and perspectives.
- Explicitly analyze how authors use key literary elements to contribute to the meaning of the text.
- Consistently categorize facts included in an argument.
- Analyze and evaluate complex textual evidence to support inferences and understanding within and between varied texts.
- Effectively engage in a recursive writing process to compose narrative, informative, and opinion responses for varied purposes and audiences.
- In opinion writing, strategically state an opinion supported with facts and details.
- Use fully developed, complex ideas, thorough organization, purposeful word choice, a variety of fluent sentences, and appropriate voice.
- Skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words.
- Infer complex relationships among words with multiple meanings.
- Select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.
- Intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing.
- Demonstrate a strong command of Standard English grammar, mechanics, and usage.
- Recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic.
- Thoroughly comprehend, evaluate, and synthesize resources.
- Skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Oklahoma School Testing Program: Grade 6 English Language Arts
Performance Level Descriptors

Proficient Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres. • Create an objective summary including main idea and supporting details. • Paraphrase main ideas with supporting details in a text. • Compare and contrast stated or implied purposes of authors' writing. • Evaluate literary devices, points of view, and perspectives. • Analyze how authors use key literary elements to contribute to the meaning of the text. • Categorize facts included in an argument. • Analyze textual evidence to support inferences and understanding within and between texts. • Engage in a recursive writing process to compose narrative, informative, and opinion responses for varied purposes and audiences. • In opinion writing, introduce a claim and organize reasons and evidence. • Use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	• Use context clues, word parts, and reference tools to determine or clarify the meaning of words. • Infer the relationships among words with multiple meanings. • Select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose. • Apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. • Demonstrate a command of Standard English grammar, mechanics, and usage. • Recognize viable research questions and well-developed thesis statements and use them to find information on a topic. • Record and organize information from various sources. • Comprehend, evaluate, and synthesize resources. • Summarize and integrate information following a citation style with guidance and support. • Summarize and present information in a report.

OKLAHOMA Education

Oklahoma School Testing Program: Grade 6 English Language Arts
Performance Level Descriptors

Basic

Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the **Basic** level typically:

- Partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills.
- Create a summary including main idea and limited supporting details.
- Inconsistently paraphrase main ideas with limited supporting details in a text.
- Inconsistently compare and contrast stated or implied purposes of authors' writing.
- Inconsistently identify literary devices, points of view, and perspectives.
- Describe how authors use key literary elements.
- Inconsistently categorize facts included in an argument.
- Inconsistently identify limited textual evidence to support inferences between texts.
- Inconsistently engage in a writing process to compose narrative, informative, and opinion responses for varied purposes and audiences.
- In opinion writing, inconsistently state an opinion supported with limited facts and details.
- Use partially developed ideas, weak organization, and ineffective word choice, sentences, and voice.
- Ineffectively use context clues, word parts, and reference tools to determine the meaning of words.
- Sometimes infer the relationships among words with multiple meanings.
- Use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.
- Inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing.
- Demonstrate a limited command of Standard English grammar, mechanics, and usage.
- Sometimes recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic.
- Partially comprehend, evaluate, and synthesize resources.
- Ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Below Basic

Students have not performed at least at the **Basic** level.

Oklahoma School Testing Program: Grade 7 English Language Arts
Performance Level Descriptors

Advanced Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:	
• Thoroughly comprehend, interpret, evaluate, and respond to a variety of increasingly complex texts of all literary and informational genres. • Skillfully create an objective summary including main idea and supporting details. • Effectively paraphrase main ideas with supporting details in a text. • Thoroughly compare and contrast stated or implied purposes of authors' writing. • Thoroughly evaluate literary devices, points of view, and perspectives. • Explicitly analyze how authors use key literary elements to contribute to the meaning of the text. • Consistently distinguish factual claims from opinions. • Analyze and evaluate complex textual evidence to support inferences and understanding within and between varied texts. • Effectively engage in a recursive writing process to compose narrative, informative, and opinion responses for varied purposes and audiences. • In argumentative writing, strategically introduce a claim and organize well-developed reasons and evidence.	• Use fully developed, complex ideas, thorough organization, purposeful word choice, a variety of fluent sentences, and appropriate voice. • Skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words. • Infer complex relationships among words with multiple meanings. • Select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose. • Intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. • Demonstrate a strong command of Standard English grammar, mechanics, and usage. • Recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic. • Thoroughly comprehend, evaluate, and synthesize resources. • Skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Oklahoma School Testing Program: Grade 7 English Language Arts
Performance Level Descriptors

Proficient Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Read and comprehend increasingly complex literary and informational texts. • Create an objective summary including main idea and supporting details. • Paraphrase main ideas with supporting details in a text. • Compare and contrast stated or implied purposes of authors' writing. • Evaluate literary devices, points of view, and perspectives. • Analyze how authors use key literary elements to contribute to the meaning of the text. • Distinguish factual claims from opinions. • Analyze and evaluate textual evidence to support inferences and draw simple, logical conclusions between and across multiple texts. • Engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. • In argumentative writing, introduce a claim and organize reasons and evidence.	• Use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice. • Use context clues, word parts, and reference tools to determine or clarify the meaning of words. • Infer the relationships among words with multiple meanings. • Select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose. • Apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. • Demonstrate a command of Standard English grammar, mechanics, and usage. • Recognize viable research questions and well-developed thesis statements and use them to find information on a topic. • Comprehend, evaluate, and synthesize resources. • Summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Oklahoma School Testing Program: Grade 7 English Language Arts
Performance Level Descriptors

Basic

Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the **Basic** level typically:

- Partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills.
- Create a summary including main idea and limited supporting details.
- Inconsistently paraphrase main ideas with limited supporting details in a text.
- Inconsistently compare and contrast stated or implied purposes of authors' writing.
- Inconsistently identify literary devices, points of view, and perspectives.
- Describe how authors use key literary elements.
- Inconsistently distinguish factual claims from opinions.
- Inconsistently identify limited textual evidence to support inferences and draw weak conclusions between texts.
- Inconsistently engage in a writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences.
- In argumentative writing, introduce a claim, reasons, and evidence.
- Use partially developed ideas, weak organization, and ineffective word choice, sentences, and voice.
- Ineffectively use context clues, word parts, and reference tools to determine the meaning of words.
- Sometimes infer the relationships among words with multiple meanings.
- Use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.
- Inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing.
- Demonstrate a limited command of Standard English grammar, mechanics, and usage.
- Sometimes recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic.
- Partially comprehend, evaluate, and synthesize resources.
- Ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Below Basic

Students have not performed at least at the **Basic** level.

Oklahoma School Testing Program: Grade 8 English Language Arts
Performance Level Descriptors

Advanced

Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:

- Thoroughly comprehend, interpret, evaluate, and respond to literary and informational texts, applying critical thinking skills.
- Skillfully evaluate literary devices, points of view, and perspectives.
- Skillfully analyze how authors use key literary elements to contribute to the meaning of the text.
- Explicitly analyze and evaluate textual evidence to support inferences and conclusions between and across multiple texts.
- Effectively engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences.
- In argumentative writing, introduce a claim, counterclaim, and support with logical reasons and evidence.
- Synthesize fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.
- Skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words.
- Infer complex relationships among words with multiple meanings.
- Select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.
- Intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing.
- Demonstrate a strong command of Standard English grammar, mechanics, and usage.
- Recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic.
- Thoroughly comprehend, evaluate, and synthesize resources.
- Skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Oklahoma School Testing Program: Grade 8 English Language Arts
Performance Level Descriptors

Proficient Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Read, comprehend, interpret, evaluate, and respond to literary and informational texts, applying critical thinking skills. • Evaluate literary devices, points of view, and perspectives. • Analyze how authors use key literary elements to contribute to the meaning of the text. • Analyze and evaluate textual evidence to support inferences and conclusions between and across multiple texts. • Engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. • In argumentative writing, introduce a claim, recognize a claim from an opposing viewpoint, and organize reasons and evidence. • Use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.	• Use context clues, word parts, and reference tools to determine or clarify the meaning of words. • Infer the relationships among words with multiple meanings. • Select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose. • Apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. • Demonstrate a command of Standard English grammar, mechanics, and usage. • Recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic. • Comprehend, evaluate, and synthesize resources. • Summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Oklahoma School Testing Program: Grade 8 English Language Arts
Performance Level Descriptors

Basic

Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the **Basic** level typically:

- Partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills.
- Inconsistently evaluate literary devices, points of view, and perspectives.
- Inconsistently analyze how authors use key literary elements to contribute to the meaning of the text.
- Inconsistently analyze and evaluate textual evidence to support inferences and conclusions between or across multiple texts.
- Inconsistently engage in a writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences.
- In argumentative writing, introduce a claim and provide reasons and evidence.
- Use partially developed ideas, weak organization, ineffective word choice, basic sentences, or inconsistent voice.
- Ineffectively use context clues, word parts, and reference tools to determine the meaning of words.
- Sometimes infer the relationships among words with multiple meanings.
- Use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.
- Inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing.
- Demonstrate a limited command of Standard English grammar, mechanics, and usage.
- Sometimes recognize viable research questions and well-developed thesis statements and use them to find information on a specific topic.
- Partially comprehend, evaluate, and synthesize resources.
- Ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

Below Basic

Students have not performed at least at the **Basic** level.

College- and Career-Readiness Assessment: English Language Arts
Performance Level Descriptors

Advanced

Students at this level have a 94% probability of earning a C or higher and a 75% probability of earning a B or higher in credit bearing history, literature, social sciences, or writing courses at 4 year institutions. The average first year college GPA at this level is a 3.3 or above (low B or higher). Students at this level are highly likely to be on track for success in college or career.

Students demonstrate superior performance with challenging subject matter and clearly exhibit readiness for college and career.
In addition to demonstrating broad and in depth understanding and application of all skills in the **Proficient** Level, students scoring at the **Advanced** Level typically:

- Thoroughly comprehend, analyze, and synthesize information from literary and informational texts, applying a wide range of close reading skills across a range of subject areas and complexity levels.
- Skillfully locate and paraphrase details, make logical inferences to support generalizations, grasp the central idea of texts, and understand complex thoughts and comparative relationships involving abstract concepts.
- Use knowledge about the author's craft and the text structure to interpret important features of the whole text, such as an author's rhetorical purpose; also analyze character point of view in texts.
- Skillfully integrate knowledge and ideas from across multiple related texts, analyzing the texts to find evidence in support of a claim.
- Blend multiple modes of writing to produce complex argumentative essays on substantive topics.
- Produce writing that productively and critically engages with multiple perspectives, establishes a thesis claim, and examines implications and complexities.
- Develop ideas and support claims with persuasive evidence, using reasoning and illustration to enhance the central claim.
- Purposefully engage in a recursive writing process to create a skillful organization with logical sequencing and transitions that establish and clarify relationships among ideas.
- Use language to convey subtle shades of meaning with a style that enhances the writing purpose.
- Use sentence structures that are consistently varied and clear.
- Skillfully interpret vocabulary, including figurative language, inferring the meaning of words and phrases by using context.
- Demonstrate sophisticated understanding of general academic and domain-specific vocabulary.
- Maintain a consistent and appropriate tone in their writing through subtle and effective word choices.
- Skillfully apply knowledge of the English language and rhetorical style to make meaning when analyzing, evaluating, producing, and revising texts.
- Recognize subtle disturbances in sentence structure.
- Demonstrate a thorough command of the conventions of English grammar, usage, and mechanics.

OKLAHOMA Education

College- and Career-Readiness Assessment: English Language Arts
Performance Level Descriptors

Proficient

Students at this level have approximately an 80% or higher probability of earning a C or higher in credit bearing history, literature, social sciences, or writing courses at all levels of higher education. The average first year college GPA at this level is between a 2.8 and 3.3 (high C to low B). Students at this level are likely to be on track for success in college or career.

Students demonstrate mastery with subject matter and exhibit readiness for college and career.
In addition to demonstrating understanding and application of all skills in the **Basic** Level, students scoring at the **Proficient** Level typically:

- Comprehend, analyze, and synthesize information from literary and informational texts, applying various close reading skills across a range of subject areas and complexity levels.
- Recognize accurate summaries, locate and paraphrase key details, make logical inferences, determine central ideas, and understand relationships between characters and important concepts.
- Use knowledge about the author's craft and the text structure to determine the main purpose of parts of the text and analyze the effect on the meaning produced by a specific detail.
- Integrate knowledge and ideas from across multiple related texts, analyzing elements that are similar in two passages.
- Blend multiple modes of writing to produce effective argumentative essays on substantive topics.
- Produce writing that engages with multiple perspectives, establishes a thesis claim, and provides analysis that recognizes implications and complexities.
- Develop ideas and support claims with relevant evidence, using reasoning and illustration to clarify the argument.
- Engage in a recursive writing process to create a clear organization with logical grouping and transitions that establish relationships among ideas.
- Use language to convey meaning with a style appropriate to the writing purpose.
- Use sentence structures that are clear and show some variety.
- Interpret vocabulary, including figurative language, inferring the meaning of words and phrases by using context.
- Demonstrate understanding of general academic and some domain-specific vocabulary.
- Maintain a consistent and appropriate tone in their writing through word choice.
- Apply knowledge of the English language and rhetorical style to make meaning when analyzing, evaluating, producing, and revising texts.
- Recognize disturbances in sentence structure.
- Demonstrate a command of the conventions of English grammar, usage, and mechanics.

College- and Career-Readiness Assessment: English Language Arts
Performance Level Descriptors

Basic

Students at this level have a 60% or higher probability of earning a C or higher in credit bearing history, literature, social sciences, or writing courses across all levels of higher education. The average first year college GPA at this level is between a 2.4 and 2.7 (mid to high C). Students at this level likely require additional coursework and/or support to be on track for success in college or career.

Students demonstrate partial mastery with subject matter but may not exhibit readiness for college and career.
In addition to demonstrating understanding and application of all skills in the **Below Basic** Level, students scoring at the **Basic** Level typically:

- Comprehend, analyze, and synthesize information from literary and informational texts, applying limited close reading skills across a range of subject levels and complexity levels.
- Inconsistently locate explicitly stated details, make inferences about characters and actions, and identify central ideas when they are clearly stated
- Sometimes use knowledge about the author's craft and the text structure to determine the text's primary purpose and the function of key textual elements.
- Identify knowledge and ideas from across multiple related texts, comparing details that texts have in common.
- Attempt to blend multiple modes of writing to produce argumentative essays on substantive topics.
- Produce writing that responds to multiple perspectives, establishes a thesis claim that shows some clarity in thought, and provides limited analysis of the issue.
- Develop ideas and support claims with some relevant evidence that is often overly general, sometimes using basic reasoning and illustration that may be repetitious.
- Attempt to use a recursive writing process and create a simple organization with some transitions that establish relationships among ideas.
- Use language that is sometimes imprecise to convey meaning.
- Use sentence structures that are usually clear but show little variety.
- Interpret vocabulary, including basic figurative language, sometimes inferring the meaning of key words and phrases by using the context.
- Demonstrate understanding of familiar and some general academic vocabulary.
- Make inconsistent word choices and may use inappropriate tone in their writing.
- Inconsistently apply knowledge of the English language and rhetorical style to make meaning when analyzing, evaluating, producing, and revising texts.
- May recognize obvious disturbances in sentence structure.
- Demonstrate an inconsistent command of the conventions of English grammar, usage, and mechanics.

Below Basic

Students have not performed at least at the **Basic** level.

OKLAHOMA Education

Oklahoma Mathematics

Performance Level Descriptor Tables

Oklahoma School Testing Program: Grade 3 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Complete complex addition, subtraction, and multiplication problems and model division facts.
Order fractions using models and compose and decompose fractions related to the same whole.
Extend patterns and generate real-world situations to represent number sentences.</td><td>Determine volume and elapsed time.
Summarize complex data sets and analyze the data to solve problems.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Compare and order whole numbers.
Complete addition, subtraction, and multiplication problems and recognize the relationship between multiplication and division.
Construct and compare fractions using models.
Select the fewest number of coins for a given amount of money.
Determine rules to describe basic patterns.
Determine unknowns in equations and apply number properties.</td><td>Classify angles.
Sort three-dimensional figures and determine the perimeter of polygons.
Determine the area of two-dimensional figures.
Read and analyze length, temperature, and time. Students summarize a data set and analyze the data to solve problems.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 3 Mathematics
Performance Level Descriptors

<table>
<tr><th colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</th></tr>
<tr><td>Represent whole numbers.
Complete simple addition, subtraction, and multiplication problems.
Read and write fractions.
Determine the value of a set of coins or bills.</td><td>Determine rules to describe simple patterns. Students determine unknowns in simple equations.
Identify right angles.
Choose an appropriate instrument to measure an object.
Read and write time from a digital clock.</td></tr>
<tr><th colspan="2">Below Basic
Students have not performed at least at the Basic level.</th></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 4 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Estimate and solve complex mathematical problems and determine the unknown in non-equivalent expressions.
Compare decimals and fractions.
Solve complex money problems.
Determine a rule and extend a complex pattern.
Determine and represent unknown values in complex problems.</td><td>Determine volume.
Solve complex measurement problems.
Represent complex data sets and solve problems involving the data.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Estimate and solve mathematical problems.
Use models to determine equivalent fractions, compare and order fractions, and add and subtract fractions.
Read and write decimals and make connections between decimals and fractions.
Determine change using coins.
Determine rules and extend patterns.
Determine unknown values in mathematical problems.</td><td>Describe parts of geometrical figures and identify similarities in three-dimensional figures.
Decompose and determine the area of polygons.
Solve measurement problems.
Represent data sets and solve problems involving the data.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

Oklahoma School Testing Program: Grade 4 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</td></tr>
<tr><td>Demonstrate the ability to estimate and solve simple mathematical problems.
Use models to determine simple equivalent fractions, compare and order whole numbers and simple fractions, and decompose fractions.
Read and write simple decimals and compare and order whole numbers and decimals.</td><td>Determine change using whole dollars.
Determine a rule and extend a simple pattern.
Determine unknown values in simple mathematical problems.
Identify quadrilaterals and determine the area of simple polygons.
Identify appropriate units and tools to measure.</td></tr>
<tr><td colspan="2">Below Basic
Students have not performed at least at the Basic level.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 5 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Interpret the remainder of division problems within the context of the problem.
Order decimals, fractions, and whole numbers.
Evaluate complex expressions, equations, and inequalities.
Construct geometric figures and identify them in various contexts.</td><td>Compare the volume, perimeter, or surface area of geometric figures.
Analyze complex graphs.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Estimate and solve division problems with the remainder represented as a fraction or decimal.
Generate equivalent decimals and fractions, represent whole numbers or decimals, and compare fractions and decimals, including mixed numbers.
Estimate, add, and subtract decimals and fractions.
Describe patterns of change and graph these patterns as ordered pairs on a coordinate plane.
Evaluate expressions, equations, and inequalities.</td><td>Solve volume and perimeter problems and simple surface area problems.
Determine reasonable values for the perimeter of shapes with curves.
Compare angles.
Recognize relationships within a measurement system.
Determine the mean, median, mode, and range of a data set and analyze simple graphs.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 5 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</td></tr>
<tr><td>Estimate and solve division problems with remainders and solve addition and subtraction real-world problems.
Recognize basic equivalent decimals and fractions, represent whole numbers, and compare and order fractions or decimals.
Add and subtract decimals and fractions with like denominators.
Describe simple patterns of change and identify ordered pairs on a coordinate plane.</td><td>Evaluate simple equivalent numerical expressions or equations.
Describe and classify geometric figures.
Solve simple volume and perimeter problems.
Choose an appropriate instrument to measure objects and read and analyze the length of objects.
Read and analyze the measure of angles.
Read simple graphs.</td></tr>
<tr><td colspan="2">Below Basic
Students have not performed at least at the Basic level.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 6 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Estimate and solve complex problems requiring unit conversions.
Use the distance between points and transformations to solve complex problems involving congruent figures.</td><td>Analyze the differences between two outcomes of simple experiments.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Estimate, illustrate, and simplify the addition and subtraction of integers and assess the reasonableness of an answer.
Solve ratio and unit rate problems.
Estimate and illustrate the multiplication and division of non-negative rational numbers.
Evaluate the validity of the value of a variable.
Generate expressions, equations, and inequalities.
Interpret the solution of an equation and assess the reasonableness of the solution.
Determine the area of polygons and composite figures.
Use relationships between angles and the triangle sum theorem to solve problems.</td><td>Estimate and solve problems requiring unit conversion.
Predict transformations, analyze lines of symmetry, and use the distance between points and transformations to solve problems involving congruent figures.
Explain and justify which measure of central tendency provides the most descriptive information for a data set.
Create and analyze box-and-whisker plots and explain and compare possible outcomes of simple experiments.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

Oklahoma School Testing Program: Grade 6 Mathematics
Performance Level Descriptors

<table>
<tr><th colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</th></tr>
<tr><td>Read, order, represent, and explain rational numbers expressed as fractions, decimals, percents, and ratios.
Write positive integers as products of factors.
Illustrate or simplify the addition and subtraction of integers.
Identify and compare quantities, determine unit rates, and find equivalent fractions and percents.
Multiply and divide non-negative rational numbers. Students graph ordered pairs in all quadrants.
Represent reflective relationships between varying quantities.</td><td>Evaluate the value of a variable in expressions, equations, and inequalities.
Use number sense and properties of operations to solve equations and graph the solution.
Determine the area of parallelograms and triangles.
Identify angle relationships by name.
Identify and display the effect of transformations.
Identify lines of symmetry.
Calculate measures of central tendency, determine the sample space of simple experiments, and identify possible outcomes.</td></tr>
<tr><th colspan="2">Below Basic
Students have not performed at least at the Basic level.</th></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 7 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Interpret equations and inequalities involving variables and rational numbers.
Make connections between circumference and area to solve problems involving circles.
Analyze, apply, and display the effect of dilations and multiple transformations.</td><td>Use central tendencies and range, predict data and select an appropriate data display, and predict theoretical probability.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Estimate solutions of problems involving rational numbers and assess the reasonableness of the solutions.
Differentiate between proportional and inversely proportional relationships and identify the constant of proportionality.
Represent proportional relationships in a variety of ways.
Use representations to identify and compare unit rates.
Solve problems involving proportional relationships and assess the reasonableness of solutions.</td><td>Represent, solve, and write equations.
Solve simple inequalities.
Generate and evaluate equivalent expressions with justification of steps.
Interpret theoretical probability and draw conclusions. Students apply the effect of dilations and transformations.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 7 Mathematics
Performance Level Descriptors

<table>
<tr><th colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</th></tr>
<tr><td>Recognize, compare, and order rational numbers.
Create equivalent representations of rational numbers.
Calculate and model mathematical problems involving rational numbers and exponents.
Calculate the absolute value of a rational number.
Describe and identify a proportional relationship.
Identify and solve problems involving ratios and unit rates.
Represent, solve, and write simple equations.
Represent, write, and graph simple inequalities.</td><td>Evaluate expressions using the order of operations.
Determine the surface area and volume of rectangular prisms and calculate the area and perimeter of trapezoids.
Calculate the circumference and area of circles.
Describe the effect of dilations and transformations.
Calculate the measures of central tendencies and range and determine appropriate data displays.
Calculate theoretical probability.</td></tr>
<tr><th colspan="2">Below Basic
Students have not performed at least at the Basic level.</th></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 8 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</td></tr>
<tr><td>Generate, simplify, and evaluate complex equivalent expressions.
Make connections between volume and surface area to solve problems involving solids.
Compare the volume and surface area of different solids.</td><td>Describe the impact on central tendencies of a data set with multiple outliers and when inserting or deleting multiple data points.
Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.</td></tr>
<tr><td colspan="2">Proficient
Students demonstrate mastery over appropriate grade level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</td></tr>
<tr><td>Solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.
Generate, simplify, and evaluate equivalent expressions.
Classify and explain operational closure of rational and irrational numbers.
Distinguish between a linear and nonlinear function.
Identify independent and dependent variables.
Describe, analyze, and represent linear functions with two variables and translate between representations.</td><td>Use and apply the Pythagorean Theorem.
Describe the impact on central tendencies of a data set with an outlier and when inserting or deleting a data point.
Interpret a scatterplot, determine the rate of change, and use a line of best fit to make predictions.
Calculate, interpret, and predict experimental probability and generalize samples to populations.
Solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.</td></tr>
</table>

Oklahoma School Testing Program: Grade 8 Mathematics
Performance Level Descriptors

<table>
<tr><td colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</td></tr>
<tr><td>Simplify and generate simple equivalent expressions, including expressions in scientific notation.
Translate between standard form and scientific notation.
Identify and compare real numbers.
Recognize if a graph represents a linear function.
Identify intercepts and slope from the graph of a line.
Identify the effect on the graph of a linear function when characteristics are changed.
Solve and graph equations and inequalities.</td><td>Use the Pythagorean Theorem to identify right triangles and to find the length of the hypotenuse.
Calculate the surface area and volume of solids.
Identify the outliers of a data set.
Identify the line of best fit from a given scatterplot and determine if the rate of change is positive or negative.
Calculate the experimental probability of single events, identify sample spaces, and classify events as independent or dependent.</td></tr>
<tr><td colspan="2">Below Basic
Students have not performed at least at the Basic level.</td></tr>
</table>

OKLAHOMA Education

College- and Career-Readiness Assessment: Mathematics
Performance Level Descriptors

Advanced

Students at the Advanced level have a 90% probability of earning a C or higher and a 66% probability of earning a B or higher in credit bearing math courses at 4 year institutions. Their average first year college GPA at this level is a 3.3 or above (low B or higher). Students at this level are highly likely to be on track to be successful at the next level.

Students demonstrate superior performance with challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating broad and in depth understanding and application of all skills in the Proficient Level, students scoring at the Advanced Level typically:

- Rewrite rational, radical, and exponential expressions.
- Find the value of i^n for any whole number n.
- Perform operations on complex numbers.
- Add, subtract, and perform scalar multiplication on matrices.
- Interpret a term in a linear function of a challenging context.
- Make connections between different representations of, linear functions, systems of two linear equations, and systems of two linear inequalities in two variables.
- Determine the conditions under which a system of two linear equations in two has no solution, one solution, or infinitely many solutions.
- Create and use a linear equation in two variables that represents a challenging context.
- Create and solve a 3-variable linear system.
- Create and use an inequality in one or two variables that represents a challenging context.
- Make connections between the graph and solution to a quadratic and linear system of equations.
- Given a graph of a quadratic or exponential function representing a context, interpret a value, variable, point, or input-output pair in terms of the context.
- Solve absolute value, logarithmic, polynomial, rational, radical, and exponential equations in real-world and mathematical problems.
- Solve quadratic equations with complex solutions.
- Analyze graphs relationships between two quantities, including relationships that are not represented by a linear, quadratic, or exponential equation.
- Identify characteristics of graphs of functions.
- Identify the effect of multiple transformations of functions.
- Find inverse functions.
- Divide polynomials.
- Solve challenging radical and rational equations.
- Solve problems involving arithmetic and geometric sequences and series.
- Identify an appropriate inference or conclusion based on information from a graph, table, or scatterplot.
- Identify the equation of a line or curve that best fits the data in a scatterplot.
- Identify the appropriate conclusion to draw from a description of a study's design and the study results.
- Compare measures of center and spread of two data distributions represented visually.

Advanced (cont.)	
• Find the probability of a compound event. • Recognize the effect of standard deviation. • Count using the Fundamental Counting Principle, combinations, and permutations, including when cases overlap. • Identify the most appropriate sample or sampling method to best answer the question of interest. • Identify the population to which the results of a survey can be generalized. • Understand sampling variability when the population proportion is estimated using sample data. • Use similarity as well as theorems related to lines, angles, and triangles to solve problems. • Find the diameter, radius, center, or points on a circle in coordinate plane.	• Solve problems using properties of special right triangles, the Pythagorean Theorem or its converse, and trigonometric ratios. • Solve problems using properties and theorems relating to circles and parts of circles, such as radii, diameters, tangents, angles, arcs, arc length, and sector area. • Apply the triangle inequality theorem. • Recognize congruencies that appear through the use of auxiliary lines. • Determine an expression for the area of a regular polygon in terms of side length or apothem/altitude. • Find area and volume of composite shapes. • Convert area and volume to different units.

College- and Career-Readiness Assessment: Mathematics
Performance Level Descriptors

Proficient

Students at the Proficient level have approximately a 75% or higher probability of earning a C or higher in credit bearing math courses at all levels of higher education. Their average first year college GPA at this level is between a 2.9 and 3.3 (high C to low B). Students at this level are likely to be on track to be successful at the next level.

Students demonstrate mastery with subject matter and exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Basic Level, students scoring at the Proficient Level typically:

- Rationalize numeric expressions.
- Convert numbers with rational exponents to radical form.
- Simplify cube roots.
- Use properties of radicals and exponents to rewrite expressions.
- Evaluate slope in given contexts.
- Interpret terms in linear functions and make connections between different representations.
- Determine the number of solutions linear systems of two equations have.
- Create and solve linear equations within context.
- Create and use inequalities within context.
- Graph compound linear inequalities.
- Interpret the constant, variable, term, solution, or input-output pair in quadratic or exponential functions in context.
- Add, subtract, and multiply polynomials.
- Solve multistep quadratic equations.
- Solve radical equations.
- Solve rational equations.
- Solve systems of equations with one linear and one quadratic equation.
- Solve literal equations for a given variable.
- Use Venn diagrams to make conclusions.
- Make connections between the various representations of quadratic or exponential functions.
- Factor polynomial expressions.
- Determine the number of solutions quadratic equations have.
- Create and/or use quadratic or exponential functions to represent real-world contexts.
- Graph polynomial functions.
- Evaluate the effects of single function transformations.
- Evaluate logarithmic, polynomial, rational, radical, and exponential functions, including where they are undefined.
- Find near terms in geometric sequences.
- Compose 2 functions.
- Evaluate conclusions of population proportions based on sample data and margins of error.
- Identify bias in sampling methods.
- Interpret scatterplots and use lines of best fit to make predictions.
- Calculate, compare, and interpret measures of central tendency in context.
- Determine probabilities of compound events.
- Find probabilities where the sample space must be determined from the context.
- Solve problems using properties of right triangles.

Proficient (cont.)	
• Make connections between the equation of a circle in a coordinate plane and the center and radius of the circle. • Solve simple problems using properties and theorems relating to circles and parts of circles. • Solve problems using properties of similar triangles. • Find the measure of interior angles of polygons. • Solve problems using the midpoint formula. • Solve problems using multiple theorems related to lines, angles, or triangles.	• Solve problems involving circumference, area, surface area, perimeter and volume. • Solve problems involving translations, rotations, and reflections. • Solve problems using the Pythagorean Theorem. • Solve problems using the distance formula. • Solve problems involving right triangles using trigonometric functions.

College- and Career-Readiness Assessment: Mathematics
Performance Level Descriptors

Basic

Students at this level have a 50% or higher probability of earning a C or higher in credit bearing math courses across all levels of higher education. Their average first year college GPA at this level is between a 2.4 to 2.8 (mid to high C student). Students at this level likely require additional coursework and/or support to be on track for college and/or career success.

Students demonstrate partial mastery with subject matter but may not exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Below Basic Level, students scoring at the Basic Level typically:

- Add complex numbers and add matrices.
- Simplify square roots.
- Rewrite monomials with integer exponents to have positive exponents.
- Create linear expressions, equations or inequalities to model contexts.
- Create systems of two linear equations to model contexts.
- Solve systems of two linear equations with integer coefficients.
- Make connections between different representations of linear relationships between two variables.
- Create and use linear relationships to solve a problem.
- Multiply polynomials by monomials.
- Multiply binomials.
- Factor monomials from polynomial expressions.
- Factor trinomials.
- Add and subtract polynomials.
- Solve quadratic equations in the form $ax^2 = b$.
- Solve simple radical equations.
- Use function notation to represent functions.
- Evaluate absolute value functions.
- Evaluate simple algebraic expressions.
- Identify the shape of graphs from some of their points.
- Identify graphs of nonlinear relationships between two variables based on descriptions of characteristics.
- Read and interpret information presented in graphs, scatterplots, or tables.
- Find the median or mean of data sets.
- Find probabilities of simple events.
- Estimate expected population counts or proportions from sample counts or proportions.
- Find probabilities of simple compound events.
- Calculate simple conditional probabilities.
- Solve simple problems about geometric figures using the vertical angle theorem, the triangle angle sum theorem, or theorems about a transversal crossing parallel lines.
- Solve real-world problems using the Pythagorean Theorem.
- Solve simple problems involving perimeter, area and volume.
- Identify corresponding parts of congruent triangles.
- Translate points horizontally and vertically on a coordinate plane.

Below Basic

Students have not performed at least at the **Basic** level.

Oklahoma Grade 5 Science

Performance Level Descriptor Tables

5PS1-1 **5PS3-1** **5LS2-1** **5LS2-2** **5ESS2-1**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Develop and Use Models **DCI** • PS1.A Structure and Properties of Matter • PS3.D Energy in Chemical Processes • LS1.C Organization of Matter and Energy Flow in Organisms • LS2.A Interdependent Relationships in Ecosystems • LS2.B Cycles of Matter and Energy Transfer in Ecosystems • ESS2.A: Earth Materials and Systems **CCC** • Scale, Proportion and Quantity • Energy and Matter • Systems and System Models		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will Identify basic models to represent common features of matter and/or energy, ecosystems and/or Earth's systems.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will describe, use and/or develop basic models at various scales to explain the movement of matter and energy between organisms, ecosystems and Earth's systems and the outcomes of these interactions.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically predict, modify, and extend complex models at various scales to analyze the movement of matter and energy between organisms, ecosystems and Earth's systems and the outcomes of these interactions.**

PS1-2 **ESS 1-2** **ESS2-2**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Using Mathematics and Computational Thinking, Analyzing and Interpreting Data **DCI** • PS1.A Structure and Properties of Matter • PS1.B Chemical Reactions • ESS1.B Earth and the Solar System • ESS2.C The Roles of Water in Earth's Surface Processes **CCC** • Scale, Proportion, and Quantity • Patterns		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will recognize scale, proportion, quantity or patterns when performing basic computations with data as it pertains to distribution of water on Earth, conservation of matter, and/or Earth's relationship with the sun, moon and stars.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will apply scale, proportion, quantity and/or patterns when performing computational thinking to data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon and stars.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically analyze scale, proportion, quantity and patterns when performing computational thinking to complex data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon and stars.**

PS2-1 **LS 1-1** **ESS 1-1**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Engaging in Argument from Evidence **DCI** • PS2.B: Types of Interactions • LS1.C Organization for Matter and Energy Flow in Organisms • ESS1.A: The Universe and Its Stars **CCC** • Cause and Effect • Energy and Matter • Scale, Proportion, and Quantity		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will identify evidence, data or models to distinguish relationships between an object and Earth's gravity, or how basic scale and proportion affect the brightness of the sun and other stars, or how plants use air and water.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will use evidence, data and/or models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity, or how scale and proportion affect the apparent brightness of the sun and other stars, or how plants use matter (chiefly air and water) to grow.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically analyze and compare evidence, data and models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity; how scale and proportion affect the apparent brightness of the sun and other stars; and/or how plants use matter (chiefly air and water) to grow.**

PS1-3 **PS1-4**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Planning and Carrying Out Investigations **DCI** • PS1.A: Structure and Properties of Matter • PS1.B: Chemical Reactions **CCC** • Patterns • Cause and Effect		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will observe or measure phenomenon to recognize patterns of materials. Identify basic relationships when mixing substances within an investigation framework.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will observe and measure phenomenon to identify patterns that classify materials based on properties. Describe cause and effect relationships when mixing substances within an investigation framework.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically observe and measure phenomenon to interpret and evaluate patterns that classify materials based on properties. Describe complex cause and effect relationships when mixing substances within an investigation framework.**

Oklahoma Grade 8 Science

Performance Level Descriptor Tables

PS1-5 **PS4-1** **PS4-2** **LS1-7** **ESS2-1**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Develop and Use Models, Using Mathematics and Computational Thinking **DCI** • PS1.B Chemical Reactions • PS4.A Wave Properties • PS4.B Electromagnetic Radiation • LS1.C Organization for Matter and Energy Flow in Organisms • PS3.D Energy in Chemical Processes and Everyday Life • ESS2.A Earth's Materials and Systems **CCC** • Energy and matter • Patterns • Structure function • Stability and change		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will identify or describe basic components or concept(s) of a model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will make predictions about, describe, develop, or use a given model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically evaluate, revise, or develop a model from evidence, or apply models to complex concepts involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems.**

LS4-1 **ESS2-3** **ESS3-2** **PS2-2**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Planning and Carrying Out Investigations, Analyzing and Interpreting Data **DCI** • LS4.A Evidence of Common Ancestry and Diversity • ESS1.C The History of Planet Earth • ESS2.B Plate tectonics and Large Scale System Interactions • ESS3.B Natural Hazards • PS2.A Forces and Motion **CCC** • Patterns • Stability and change		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will identify or describe basic steps or processes within investigations about stability and change of forces and motion, or identify and define patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will identify, describe, or explain how to plan or perform investigations about stability and change of forces and motion, or identify and apply patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically design, evaluate, or modify investigations about stability and change of forces and motion, or analyze and draw conclusions from patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.**

PS1-6 **PS2-1**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Designing Solutions **DCI** • PS1.B Chemical Reactions • PS2.A Forces and Motion **CCC** • Energy and matter • System and system models		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will identify components of a design solution or describe simple relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will use, describe, or explain a design solution, or identify evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically modify, synthesize, or apply a design solution, or evaluate evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.**

LS4-2 **ESS1-4** **ESS2-2** **ESS3-1** **ESS3-4**	**Unsatisfactory:** Students have not performed at least at the Limited Knowledge level.	**Limited Knowledge:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.	**Proficient:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Engaging in Argument from Evidence, Constructing Explanations **DCI** • LS4.A Evidence of Common Ancestry and Diversity • ESS1.C The History of Planet Earth • ESS2.A Earth's Materials and Systems • ESS2.C The Roles of Water in Earth's Surface Processes • ESS3.A Natural Resources • ESS3.C Human Impacts on Earth Systems **CCC** • Structure-function • Scale, proportion and quantity • Cause and effect		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the Limited Knowledge level will identify or describe basic relationships shown in evidence of anatomy and common ancestry of organisms, or aspects of Earth systems, including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.**	**Students demonstrate mastery over appropriate grade-level subject matter, and students are ready for the next grade level. Students scoring at the Proficient level typically will construct explanations by identifying, describing, or comparing evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.**	**Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically will analyze, infer, relate, or identify complex relationships within a system to construct or evaluate explanations for evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.**

Oklahoma Grade 11 Physical Science

Performance Level Descriptor Tables

Name: _____

Advanced

Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:

- evaluate multiple patterns to develop and use models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use complex mathematical models and plan and conduct investigations to produce and refine reliable data considering the types, amounts, accuracy, and limitations of data needed; analyze and interpret complex data sets to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and reliability of complex claims about the effects of electromagnetic radiation on matter from a variety of published sources, including complex texts.
- construct, evaluate, make inferences, and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design, refine, and evaluate solutions, taking into account unanticipated effects around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Proficient

Students demonstrate mastery with subject matter and exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Basic Level, students scoring at the Proficient Level typically:

- use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use mathematical models and plan and conduct investigations to produce and use reliable data to serve as a basis for evidence to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and reliability of claims about the effects of electromagnetic radiation on matter from a variety of published sources.
- construct and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design and refine solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Basic

Students demonstrate partial mastery with subject matter and may not exhibit readiness for college and career. Students scoring at the Basic level typically:

- use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Below Basic

Students scoring **Below Basic** have not demonstrated they can perform at the Basic level. Students scoring at the Basic Level**:**

- use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

PS1-1 **PS3-2**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Develop and Use Models **DCI** • PS1.A Structure and Properties of Matter • PS3.A Definitions of Energy **CCC** • Patterns • Energy and Matter		**Students scoring at the Basic level typically use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**	**Students scoring at the Proficient level typically use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**	**Students scoring at the Advanced level typically evaluate multiple patterns to develop and use models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**

PS1-7 **PS2-5** **PS3-1** **PS3-4** **PS4-1**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Planning and Carrying Out Investigations, Using Mathematics and Computational Thinking **DCI** • PS1.B Chemical Reactions • PS2.B Types of Interactions • PS3.A Definitions of Energy • PS3.B Conservation of Energy and Energy Transfer • PS4.A Wave Properties **CCC** • Energy and Matter • Cause and Effect • Systems and System Models		**Students scoring at the Basic level typically use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**	**Students scoring at the Proficient level typically use mathematical models and plan and conduct investigations to produce and use reliable data to serve as a basis for evidence to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**	**Students scoring at the Advanced level typically use complex mathematical models and plan and conduct investigations to produce and refine reliable data considering the types, amounts, accuracy and limitations of data needed; analyze and interpret complex data sets to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**

PS4-4	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Obtaining, Evaluating, and Communicating Information **DCI** • PS4.B Electromagnetic Radiation **CCC** • Cause and Effect		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to college and career readiness. Students scoring at the Basic level typically evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.**	**Students demonstrate mastery with subject matter and exhibit readiness for college and career. Students scoring at the Proficient level typically evaluate the validity and reliability of claims about the effects of electromagnetic radiation on matter from a variety of published sources.**	**Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically evaluate the validity and reliability of complex claims about the effects of electromagnetic radiation on matter from a variety of published sources, including complex texts.**

PS1-2 PS1-5 PS3-3	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Constructing Explanations and Designing Solutions **DCI** • PS1.A Structure and Properties of Matter • PS1.B: Chemical Reactions • PS3.A Definitions of Energy • ETS1.A Defining and Delimiting Engineering Problems • ETS2.B Interdependence of Science, Engineering, and Technology **CCC** • Patterns • Energy and Matter		**Students scoring at the Basic level typically identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**	**Students scoring at the Proficient level typically construct and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design and refine solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**	**Students scoring at the Advanced level typically construct, evaluate, make inferences, and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design, refine, and evaluate solutions taking into account unanticipated effects around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**

Oklahoma School Testing Program: Grade 5 Science
Performance Level Descriptors

Advanced Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the **Proficient** level, students scoring at the **Advanced** level typically:	
• Analyze scale, proportion, quantity and patterns when performing computational thinking to complex data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon and stars. • Predict, modify, and extend complex models at various scales to analyze the movement of matter and energy between organisms, ecosystems, and Earth's systems, and analyze the outcomes of these interactions. • Describe complex cause and effect relationships when mixing substances within an investigation framework.	• Analyze and compare evidence, data, and models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity, how scale and proportion affect the apparent brightness of the sun and other stars, and/or how plants use matter (chiefly air and water) to grow. • Observe and measure phenomenon to interpret and evaluate patterns that classify materials based on properties.
Proficient Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically:	
• Describe, use and/or develop basic models at various scales to explain the movement of matter and energy between organisms, ecosystems, and Earth's systems and explain the outcomes of these interactions. • Apply scale, proportion, quantity, and/or patterns when performing computational thinking to data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon, and stars.	• Use evidence, data, and/or models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity, how scale and proportion affect the apparent brightness of the sun and other stars, or how plants use matter (chiefly air and water) to grow. • Observe and measure phenomenon to identify patterns that classify materials based on properties. • Describe cause and effect relationships when mixing substances within an investigation framework.

Oklahoma School Testing Program: Grade 5 Science
Performance Level Descriptors

<table>
<tr><td colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</td></tr>
<tr><td>Identify basic models to represent common features of matter and/or energy, ecosystems, and/or Earth’s systems.
Recognize scale, proportion, quantity, or patterns when performing basic computations with data as it pertains to distribution of water on Earth, conservation of matter, and/or Earth’s relationship with the sun, moon, and stars.</td><td>Identify evidence, data, or models to distinguish relationships between an object and Earth’s gravity, how basic scale and proportion affect the brightness of the sun and other stars, or how plants use air and water.
Observe or measure phenomenon to recognize patterns of materials. Students can identify basic relationships when mixing substances within an investigation framework.</td></tr>
<tr><td colspan="2">Below Basic
Students have not performed at least at the Basic level.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 8 Science
Performance Level Descriptors

<table>
<tr><th colspan="2">Advanced
Students demonstrate superior performance on challenging subject matter.
In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:</th></tr>
<tr><td>Evaluate, revise, or develop a model from evidence, or apply models to complex concepts involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth’s systems.
Design, evaluate, or modify investigations about stability and change of forces and motion, or analyze and draw conclusions from patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.</td><td>Modify, synthesize, or apply a design solution, or evaluate evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.
Analyze, infer, relate, or identify complex relationships within a system to construct or evaluate explanations for evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.</td></tr>
<tr><th colspan="2">Proficient
Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level.
Students scoring at the Proficient level typically:</th></tr>
<tr><td>Make predictions about, describe, develop, or use a given model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth’s systems.
Identify, describe, or explain how to plan or perform investigations about stability and change of forces and motion, or identify and apply patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.</td><td>Use, describe, or explain a design solution, or identify evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.
Construct explanations by identifying, describing, or comparing evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.</td></tr>
</table>

OKLAHOMA Education

Oklahoma School Testing Program: Grade 8 Science
Performance Level Descriptors

<table>
<tr><td colspan="2">Basic
Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level.
Students scoring at the Basic level typically:</td></tr>
<tr><td>• Identify or describe basic components or concept(s) of a model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth’s systems.
• Identify or describe basic steps or processes within investigations about stability and change of forces and motion, or identify and define patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards.</td><td>• Identify components of a design solution or describe simple relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions.
• Identify or describe basic relationships shown in evidence of anatomy and common ancestry of organisms, or aspects of Earth systems, including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.</td></tr>
<tr><td colspan="2">Below Basic
Students have not performed at least at the Basic level.</td></tr>
</table>

OKLAHOMA Education

College- and Career-Readiness Assessment (CCRA): High School Science Performance Level Descriptors

The CCRA High School Science Performance Level Descriptors (PLDs) represent the knowledge, skills, and abilities that students scoring within a given range possess and can perform. The PLD ranges are Below Basic, Basic, Proficient, and Advanced, with the last level representing students with the highest probability of success after high school. The College- and Career-Readiness Assessment (CCRA): Science Content PLDs are divided into two areas of study, Life Science and Physical Science, as the CCRA Science is comprised of 50% Life Science and 50% Physical Science content. The knowledge, skills, and abilities represented across the range of the PLDs are important attributes for students to possess in order to be on track for success in college and careers in the major industries in Oklahoma, such as Aerospace & Defense, Agriculture & Bioscience, and Energy.

Physical Science

Advanced

Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:

• Evaluate multiple patterns to develop and use models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter. • Use complex mathematical models and plan and conduct investigations to produce and refine reliable data considering the types, amounts, accuracy, and limitations of data needed; analyze and interpret complex data sets to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties. • Evaluate the validity and reliability of complex claims about the effects of electromagnetic radiation on matter from a variety of published sources, including complex texts.	• Construct, evaluate, make inferences, and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design, refine, and evaluate solutions, taking into account unanticipated effects around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Physical Science

Proficient Students demonstrate mastery with subject matter and exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Basic Level, students scoring at the Proficient Level typically:	
• Use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter. • Use mathematical models and plan and conduct investigations to produce and use reliable data to serve as a basis for evidence to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties. • Evaluate the validity and reliability of claims about the effects of electromagnetic radiation on matter from a variety of published sources.	• Construct and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design and refine solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Physical Science

Basic

Students demonstrate partial mastery with subject matter and may not exhibit readiness for college and career. Students scoring at the Basic level typically:

- Use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- Use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- Evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- Identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Below Basic

Student has not performed at least at the Basic Level.

Life Science

Advanced Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:	
• Develop and use models to interpret and evaluate components and relationships among components within and between complex systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems and/or energy in chemistry processes. • Plan and conduct investigations to produce reliable data considering the types, amounts, and accuracy of data needed; analyze and interpret complex data sets to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.	• Ask questions to analyze relationships about the effect of structure and function on inheritance of traits; or support and/or evaluate the merits of arguments to synthesize and communicate understanding and defend them based on empirical evidence about stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits. • Construct, evaluate, make inferences and revise an explanation based on valid and reliable evidence from a variety of sources regarding the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or evaluate or refine explanations derived from evidence from a variety of sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Life Science

Proficient Students demonstrate mastery with subject matter and exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Basic Level, students scoring at the Proficient Level typically:	
• Develop and use models to describe components and relationships among the components of a system, related to structure and function, growth and development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer In ecosystems, and energy in chemistry processes, including hierarchical structures and inputs and outputs of a system. Use the models to represent basic aspects of phenomena that result from changes in energy and matter. • Plan and conduct investigations to produce reliable data; analyze and interpret provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation. • Ask questions to clarify relationships about the effect of structure and function on inheritance of traits; or evaluate arguments based on evidence as students synthesize and communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.	• Construct an explanation based on valid and reliable evidence from sources of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or construct and revise explanations derived from evidence from a variety of sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Life Science

Basic:

Students demonstrate partial mastery with subject matter and may not exhibit readiness for college and career.
Students scoring at the Basic level typically:

- Identify or describe basic components or relationships among components within systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, or energy in chemistry processes.
- Conduct investigations to produce data; use provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- Ask questions to identify relationships about the effect of structure and function on inheritance of traits; or describe arguments based on evidence as students communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.
- Identify and describe basic relationships based on evidence of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or identify and describe explanations from evidence for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Below Basic

Student has not performed at least at the Basic Level

APPENDIX E
CBT DEVICE AND ACCOMMODATION TOOL ANALYSIS

Device and Accommodation Tool Comparability

Differential item functioning (DIF) between subgroups using different approved CBT device-types and accommodation tools was analyzed in the 2018-19 test administrations to provide validity evidence of comparability between those groups. These analyses included:

- Chrome OS versus Windows OS
- Chrome OS versus Mac OS
- Chrome OS versus iOS
- Aspect wide (16:9) versus aspect full (4:3)
- Resolution high versus resolution low
- Guide tool versus no guide tool
- Sketch tool versus no sketch tool
- Answer masking versus no answer masking
- Reference tool versus no reference tool
- Calculator tool versus no calculator tool

In these analyses, the standardization DIF procedure (Dorans & Kulick, 1986) was employed to evaluate subgroup differences. The standardization DIF procedure is designed to identify items for which subgroups of interest perform differently, beyond the impact of differences in overall achievement. The DIF procedure calculates the difference in item performance for two groups of students (at a time) matched for achievement on the total test. Specifically, average item performance is calculated for students at every total score. Then an overall average is calculated, weighting the total score distribution so that it is the same for the two groups.

When differential performance between two groups occurs on an item (i.e., a DIF index in the “low” or “high” categories, explained below), it may or may not be indicative of item bias. Course-taking patterns or differences in school curricula can lead to DIF, but for construct-relevant reasons. On the other hand, if subgroup differences in performance could be traced to differential experience (such as geographical living conditions or access to technology), the inclusion of such items should be reconsidered.

Computed DIF indices have a theoretical range from –1.0 to 1.0 for multiple-choice items. Dorans and Holland (1993) suggested that index values between –0.05 and 0.05 should be considered negligible. Dorans and Holland further stated that items with values between –0.10 and -0.05 or between 0.05 and 0.10 (i.e., “low” DIF) should be inspected to ensure that no possible effect is overlooked and that items with values outside the [–0.10, 0.10] range (i.e., “high” DIF) are more unusual and should be examined very carefully. DIF procedures were limited to the subgroups listed above, which have sufficiently large sample sizes, in order to avoid inflation of type I error rates.

Results

Study results are summarized in the tables below. No items were flagged for high device type or accommodation type DIF for most tests. High DIF was only found in grade 5 mathematics in one multiple choice item favoring Chrome users over iOS and Mac users. Careful analysis of the item by content experts revealed no apparent reason for the differences; given the very small number of flagged items in all grades and subjects, it is likely that this difference is simply a result of chance. The small number of flagged items provides strong evidence that the test taking experiences of students using different CBT device types and using (or not using) different CBT accommodation tools are comparable, even when considered at the item level.

Table E-1. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—ELA: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring Reference*	*Focal*	*Total*	*Favoring Reference*	*Focal*
4	No Answermask	Answermask	MC	50	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	50	0	0	0	0	0	0
	No Guide	Guide	MC	50	0	0	0	0	0	0
	Chrome	iOS	MC	50	0	0	0	0	0	0
		Mac	MC	50	1	1	0	0	0	0
		Windows	MC	50	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	50	0	0	0	0	0	0
	No Sketch	Sketch	MC	50	0	0	0	0	0	0
5	No Answermask	Answermask	MC	50	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	50	0	0	0	0	0	0
	No Guide	Guide	MC	50	0	0	0	0	0	0
	Chrome	iOS	MC	50	0	0	0	0	0	0
		Mac	MC	50	1	1	0	0	0	0
		Windows	MC	50	0	0	0	0	0	0
	No References	References	MC	50	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	50	0	0	0	0	0	0
	No Sketch	Sketch	MC	50	0	0	0	0	0	0
6	No Answermask	Answermask	MC	57	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	57	0	0	0	0	0	0
	No Guide	Guide	MC	57	0	0	0	0	0	0
	Chrome	iOS	MC	57	1	0	1	0	0	0
		Mac	MC	57	0	0	0	0	0	0
		Windows	MC	57	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	57	0	0	0	0	0	0
	No Sketch	Sketch	MC	57	0	0	0	0	0	0
7	No Answermask	Answermask	MC	57	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	57	0	0	0	0	0	0
	No Guide	Guide	MC	57	0	0	0	0	0	0
	Chrome	iOS	MC	57	2	0	2	0	0	0
		Mac	MC	57	1	0	1	0	0	0
		Windows	MC	57	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	57	0	0	0	0	0	0
	No Sketch	Sketch	MC	57	0	0	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring Reference*	*Focal*	*Total*	*Favoring Reference*	*Focal*
8	No Answermask	Answermask	MC	58	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	58	0	0	0	0	0	0
	No Guide	Guide	MC	58	0	0	0	0	0	0
	Chrome	iOS	MC	58	3	2	1	0	0	0
		Mac	MC	58	1	0	1	0	0	0
		Windows	MC	58	0	0	0	0	0	0
	No References	References	MC	58	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	58	0	0	0	0	0	0
	No Sketch	Sketch	MC	58	0	0	0	0	0	0

Table E-2. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Mathematics: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring Reference*	*Focal*	*Total*	*Favoring Reference*	*Focal*
4	No Answermask	Answermask	MC	50	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	50	0	0	0	0	0	0
	No Guide	Guide	MC	50	0	0	0	0	0	0
	Chrome	iOS	MC	50	1	0	1	0	0	0
		Mac	MC	50	1	0	1	0	0	0
		Windows	MC	50	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	50	0	0	0	0	0	0
	No Sketch	Sketch	MC	50	0	0	0	0	0	0
5	No Answermask	Answermask	MC	50	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	50	1	1	0	0	0	0
	No Guide	Guide	MC	50	0	0	0	0	0	0
	Chrome	iOS	MC	50	2	0	2	1	1	0
		Mac	MC	50	1	1	0	1	1	0
		Windows	MC	50	1	0	1	0	0	0
	Low Resolution	High Resolution	MC	50	1	0	1	0	0	0
	No Sketch	Sketch	MC	50	0	0	0	0	0	0
6	No Answermask	Answermask	MC	47	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	47	0	0	0	0	0	0
	No Calculator	Calculator	MC	47	0	0	0	0	0	0
	No Guide	Guide	MC	47	0	0	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring Reference*	*Focal*	*Total*	*Favoring Reference*	*Focal*
6	Chrome	iOS	MC	47	3	1	2	0	0	0
		Mac	MC	47	3	3	0	0	0	0
		Windows	MC	47	0	0	0	0	0	0
	No References	References	MC	47	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	47	0	0	0	0	0	0
	No Sketch	Sketch	MC	47	0	0	0	0	0	0
7	No Answermask	Answermask	MC	47	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	47	0	0	0	0	0	0
	No Calculator	Calculator	MC	47	0	0	0	0	0	0
	No Guide	Guide	MC	47	0	0	0	0	0	0
	Chrome	iOS	MC	47	3	0	3	0	0	0
		Mac	MC	47	1	1	0	0	0	0
		Windows	MC	47	0	0	0	0	0	0
	No References	References	MC	47	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	47	0	0	0	0	0	0
	No Sketch	Sketch	MC	47	0	0	0	0	0	0
8	No Answermask	Answermask	MC	47	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	47	0	0	0	0	0	0
	No Calculator	Calculator	MC	47	0	0	0	0	0	0
	No Guide	Guide	MC	47	1	1	0	0	0	0
	Chrome	iOS	MC	47	3	0	3	0	0	0
		Mac	MC	47	6	3	3	0	0	0
		Windows	MC	47	0	0	0	0	0	0
	No References	References	MC	47	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	47	0	0	0	0	0	0
	No Sketch	Sketch	MC	47	0	0	0	0	0	0

Table E-3. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Mathematics: TEI Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring*		*Total*	*Favoring*	
						Reference	*Focal*		*Reference*	*Focal*
6	No Answermask	Answermask	TE	3	0	0	0	0	0	0
	Full Aspect	Wide Aspect	TE	3	0	0	0	0	0	0
	No Calculator	Calculator	TE	3	0	0	0	0	0	0
	No Guide	Guide	TE	3	0	0	0	0	0	0
	Chrome	iOS	TE	3	0	0	0	0	0	0
		Mac	TE	3	0	0	0	0	0	0
		Windows	TE	3	0	0	0	0	0	0
	No References	References	TE	3	0	0	0	0	0	0
	Low Resolution	High Resolution	TE	3	0	0	0	0	0	0
	No Sketch	Sketch	TE	3	0	0	0	0	0	0
7	No Answermask	Answermask	TE	3	0	0	0	0	0	0
	Full Aspect	Wide Aspect	TE	3	0	0	0	0	0	0
	No Calculator	Calculator	TE	3	0	0	0	0	0	0
	No Guide	Guide	TE	3	0	0	0	0	0	0
	Chrome	iOS	TE	3	0	0	0	0	0	0
		Mac	TE	3	0	0	0	0	0	0
		Windows	TE	3	0	0	0	0	0	0
	No References	References	TE	3	0	0	0	0	0	0
	Low Resolution	High Resolution	TE	3	0	0	0	0	0	0
	No Sketch	Sketch	TE	3	0	0	0	0	0	0
8	No Answermask	Answermask	TE	3	0	0	0	0	0	0
	Full Aspect	Wide Aspect	TE	3	0	0	0	0	0	0
	No Calculator	Calculator	TE	3	0	0	0	0	0	0
	No Guide	Guide	TE	3	0	0	0	0	0	0
	Chrome	iOS	TE	3	0	0	0	0	0	0
		Mac	TE	3	0	0	0	0	0	0
		Windows	TE	3	0	0	0	0	0	0
	No References	References	TE	3	0	0	0	0	0	0
	Low Resolution	High Resolution	TE	3	0	0	0	0	0	0
	No Sketch	Sketch	TE	3	0	0	0	0	0	0

Table E-4. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Science: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring*		*Total*	*Favoring*	
						Reference	*Focal*		*Reference*	*Focal*
5	No Answermask	Answermask	MC	45	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	45	0	0	0	0	0	0
	No Guide	Guide	MC	45	0	0	0	0	0	0
	Chrome	iOS	MC	45	0	0	0	0	0	0
		Mac	MC	45	1	1	0	0	0	0
		Windows	MC	45	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	45	0	0	0	0	0	0
	No Sketch	Sketch	MC	45	0	0	0	0	0	0
8	No Answermask	Answermask	MC	42	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	42	0	0	0	0	0	0
	No Calculator	Calculator	MC	42	0	0	0	0	0	0
	No Guide	Guide	MC	42	0	0	0	0	0	0
	Chrome	iOS	MC	42	3	2	1	0	0	0
		Mac	MC	42	1	0	1	0	0	0
		Windows	MC	42	0	0	0	0	0	0
	Low Resolution	High Resolution	MC	42	0	0	0	0	0	0
	No Sketch	Sketch	MC	42	0	0	0	0	0	0
11	No Answermask	Answermask	MC	58	0	0	0	0	0	0
	Full Aspect	Wide Aspect	MC	58	0	0	0	0	0	0
	No Calculator	Calculator	MC	58	0	0	0	0	0	0
	No Guide	Guide	MC	58	6	1	5	0	0	0
	Chrome	iOS	MC	58	4	2	2	0	0	0
		Mac	MC	58	0	0	0	0	0	0
		Windows	MC	58	0	0	0	0	0	0
	No References	References	MC	58	1	0	1	0	0	0
	Low Resolution	High Resolution	MC	58	0	0	0	0	0	0
	No Sketch	Sketch	MC	58	0	0	0	0	0	0

Table E-5. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Science: TEI Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	*Focal*			*Total*	*Favoring*		*Total*	*Favoring*	
						Reference	*Focal*		*Reference*	*Focal*
8	No Answermask	Answermask	TE	3	0	0	0	0	0	0
	Full Aspect	Wide Aspect	TE	3	0	0	0	0	0	0
	No Calculator	Calculator	TE	3	0	0	0	0	0	0
	No Guide	Guide	TE	3	0	0	0	0	0	0
		iOS	TE	3	0	0	0	0	0	0
	Chrome	Mac	TE	3	0	0	0	0	0	0
		Windows	TE	3	0	0	0	0	0	0
	Low Resolution	High Resolution	TE	3	0	0	0	0	0	0
	No Sketch	Sketch	TE	3	0	0	0	0	0	0
11	No Answermask	Answermask	TE	2	0	0	0	0	0	0
	Full Aspect	Wide Aspect	TE	2	0	0	0	0	0	0
	No Calculator	Calculator	TE	2	0	0	0	0	0	0
	No Guide	Guide	TE	2	0	0	0	0	0	0
		iOS	TE	2	0	0	0	0	0	0
	Chrome	Mac	TE	2	0	0	0	0	0	0
		Windows	TE	2	0	0	0	0	0	0
	Low Resolution	High Resolution	TE	2	0	0	0	0	0	0
	No Sketch	Sketch	TE	2	0	0	0	0	0	0

APPENDIX F
TEST ACCOMMODATIONS

OKLAHOMA SCHOOL TESTING PROGRAM (OSTP)

ACCOMMODATIONS *for* STUDENTS *with an* INDIVIDUALIZED EDUCATION PROGRAM (IEP) *or* SECTION 504 PLAN

OKLAHOMA Education

2021-2022

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Definition & Purpose of Oklahoma School Testing Program (OSTP) Accommodations

A test accommodation is a change in the way a test is administered or in the way a student responds to test questions. Similar to instructional accommodations, test accommodations are intended to offset the effects of a student's disability and to provide him/her with the opportunity to demonstrate knowledge and skills on statewide assessments.

Eligibility for Accommodations

OSTP Grades 3-8 & Grade 11 CCRA: Science & U.S. History Content Accommodations

The right of a student with a disability to receive allowable accommodations on statewide assessments is protected by both federal and state laws. The student's current Individualized Education Program/Section 504 Plan must specify precisely which test accommodation(s) they will receive. In cases where an IEP/504 Plan is under development, the school personnel responsible for writing the plan must have already met and agreed upon the necessary accommodation(s) before a student may be provided the accommodation(s).

A student who does not have a documented disability or is not served by a current IEP/504 Plan is not eligible to receive accommodations on statewide assessments, **except** for Emergency Accommodation situations. Scribes may be provided for any student (with or without an IEP or Section 504 Plan) who has a short-term medical condition that affects his/her physical dexterity which impedes his/her ability to respond to the assessment format.

OSTP Accommodations for Students with an IEP or 504 Plan

Snapshot of Accommodation Class/Activity Category for Math listed in the Statewide IEP system EDPlan

Include	Participation Area	Participation Level		
☐	OSTP - Grade 3-8 ELA	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	OSTP - Grade 3-8 Math	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	OSTP - Grade 5 or 8 Science	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	High School ELA	☐ Not Applicable	☐ With Accommodations	☐ Without Accommodations
☐	High School Math	☐ Not Applicable	☐ With Accommodations	☐ Without Accommodations
☐	Grade 11 Science	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	U.S. History	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	ACT/SAT - Grade 11	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	Oklahoma Alternate Assessment Program (OAAP)	☐ Participating	☐ Not-Applicable	
☐	Alternate ACCESS	☐ Participating	☐ Not-Applicable	
☐	WIDA ACCESS 2.0	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable
☐	Workkeys	☐ With Accommodations	☐ Without Accommodations	☐ Not-Applicable

SAT/ACT Accommodations

All students enrolled in the 11th grade will participate in the College- and Career-Readiness Assessment (CCRA), which includes either the SAT or ACT plus writing, **except** students participating in the Oklahoma Alternate Assessment Program (OAAP).

Both SAT and ACT require an approval process for accommodations. SAT and ACT consider accommodation requests for examinees who have a valid, current IEP or Section 504 plan. Accommodation needs and requests must be based off documented student characteristics, classroom/instructional supports, and accessibility needs. Accommodation needs should be addressed during the development of the student's IEP/504 Plan or through an amendment process as necessary.

Accommodation requests must be submitted to SAT or ACT during the designated window and approved before a student can be provided their SAT or ACT specific accommodations. Assessment accommodations requested on behalf of the student must be regularly used in classroom instruction and documented in the student's IEP/504 Plan. Accommodations not approved by SAT/ACT will result in an invalid attempt with no score.

For more information visit:

- SAT Accommodations (list of SAT accommodations)
- ACT Accommodations
- OSTP Accommodations, Section IV
- The District Test Coordinator at your local school district

Assessment accommodations must correspond to the instructional accommodations described and provided to the student per the student's IEP/504 Plan and be in accordance with best practices for student testing.

SAT/ACT Accommodation(s) Request Process

IEP/504 Team determines accommodations.

Conduct detailed conversations during the IEP/504 Team meeting concerning the SAT/ACT accommodations approval process and utilize the SAT/ACT accommodation guidance to direct discussions.

Be very thorough and detailed when completing the SAT/ACT Request.

SAT/ACT will only approve accommodations that are regularly used in a classroom setting.

District/School submits accommodation request to SAT/ACT.

SAT Accommodations Request

ACT Accommodations Request

If approved:

Student takes SAT/ACT with approved accommodations.

Scores ARE valid and college-reportable.

If NOT approved:

Student takes the SAT/ACT with **NO** accommodations.

Scores ARE valid and college-reportable.

Assessment accommodations must correspond to the instructional accommodations provided to the student per the student's IEP/504 Plan and be in accordance with best practice for student testing. Accommodations not approved by SAT/ACT will result in an invalid attempt with no score.

Definition of Standard and Nonstandard OSTP Accommodations

For the purposes of the OSTP, a **standard accommodation** is defined as a change in the routine conditions under which students take OSTP tests that does not alter what the test is intended to measure. Standard accommodations are grouped into the following four categories:

- Setting: for example, administering the test in a small group or a separate setting
- Timing or scheduling of the test: for example, administering the test in short intervals or at a specific time of day
- Presentation: for example, using a large-print or Braille edition of the test
- Response: for example, dictating responses to a scribe

For the purposes of the OSTP, a **nonstandard accommodation** is defined as an accommodation that is needed for the student to access the assessment but not included on the allowable list of accommodations and requires OSDE approval for use on OSTP assessments.

General Requirements for the Use of Standard and Nonstandard Accommodations

All accommodations require adherence to test security protocols, including the presence of both a Test Administrator and a Test Proctor during periods requiring access to secure testing materials (e.g., human read-aloud). IEP/504 teams determine annually which accommodations will be needed and update the IEP/504 Plan accordingly. If the IEP/504 team believes that an OSTP accommodation listed in the student's IEP/504 Plan should be removed because it is no longer necessary or appropriate for the student, the team must amend the IEP/504 Plan accordingly prior to testing.

If a **nonstandard accommodation** will be provided, the student must meet all of the eligibility criteria for that accommodation, and a Nonstandard Accommodation Application must have been:

1) submitted by the DTC through the Nonstandard Accommodation Application on the Single Sign-On website,
2) approved by the OSDE before the accommodation may be used.

The use of accommodations is based on the individual needs of a student with a disability and may only be provided when **ALL** of the following conditions have been met:

1) The student's IEP/504 Plan accurately reflects accessibility needs related to the student's medical or health diagnosis/diagnoses or, in the case of an IEP, areas of need in specific academic content area(s).
2) The student uses the **accommodation routinely** (with rare exceptions) during classroom instruction and assessment in the subject, both before and after the OSTP assessment is administered.

   However, use of a **nonstandard accommodation** during instruction does not necessarily qualify a student to receive the same nonstandard accommodation during OSTP testing; the student must meet additional eligibility requirements to receive a nonstandard accommodation on an OSTP assessment.
3) The accommodation is documented on both the State/District Accommodation and Class/Activity Accommodation sections of the student's current IEP/504 Plan.
4) The student requires the accommodation in order to participate in OSTP testing.
5) The accommodation is listed as a current accommodation in this appendix (or, prior to testing, the district or school has consulted with the OSDE and received permission to use a unique accommodation not included in this appendix).

Accommodations **may not:**

1) Alter, explain, simplify, paraphrase, or eliminate any test question, reading passage, writing prompt, or multiple-choice answer option;
2) Provide verbal or other clues or suggestions that hint at or give away the correct response to the student;
3) Contradict test administration requirements or result in the violation of test security; for example,
    - Test questions may not be modified, reordered, or reformatted in any way for any student;
    - Tests may not be photocopied, enlarged, altered, or duplicated;
    - English-language dictionaries are not allowed for any student on any test.

If the above five conditions have been met and the IEP/504 team determines an accommodation is necessary, then it must be provided to the student during OSTP testing. If an accommodation is provided that does not meet the conditions stated above, the student's test score may be invalidated. If a student refuses an accommodation listed in his/her plan, the accommodation must be offered and remain available to the student during testing. The school may want to document in writing that the student refused the accommodation and keep this documentation on file at the school. Students should never be asked to sign an agreement waiving their right to receive an accommodation. Accommodations used by the student must be indicated on the student's answer booklet and/or personal information profile (online)

Test Formatting Options	Paper	Online
Grade 3 8, OSTP ELA & Math Grades 5 & 8, OSTP Science Grade 11, CCRA: Science & U.S. History Content		X
Braille Tests		
Large Print tests may be provided in paper format for Online tests.		

*These test formats are **only** available for students with an accommodation that has been appropriately documented in their IEP/504 Plan.

Paper & Pencil Test Formats

IEP/504 teams are encouraged to provide students with disabilities the same test formats provided to their non-disabled peers based on the test formatting options listed above. IEP/504 teams should base their decision upon individualized, objective evidence to determine whether or not a student is able to access a computer-based (online) test. Students unable to access an OSTP computer-based test must also be unable to receive computer-based classroom assessments, benchmark assessments, and districtwide assessments.

Consequently, a student on an IEP/504 Plan does not automatically receive paper & pencil test formats. Blanket policies predetermining specific accommodations for students with disabilities are not in accordance with the Individuals with Disabilities Education Act (IDEA) and Section 504 of the Rehabilitation Act of 1973. The SDE has developed a Paper Testing Checklist to assist IEP/504 teams in determining if paper & pencil testing is appropriate for students.

OSTP Accommodations (See Section IV for SAT/ACT ELA & Math)

I. Setting/Timing/Schedule	Procedures & Guidance
S1. Individual testing	
S2. Small group testing (**8-10 maximum**)	This accommodation is intended to reduce student distractions and may be required for certain accommodations. Students must be actively monitored and may use a testing carrel or test in a special education resource room or other location that maintains test security. **Students should be tested with their non-disabled peers to the greatest extent possible.**
S3. Preferential seating	
S4. Separate location (**No limit on number of students**)	This accommodation is intended to reduce student distractions. Students may use a testing carrel, or test in a special education resource room or other location that maintains test security.
S5. Provide special lighting	Specify type (e.g., 75-Watt incandescent, light box, etc.)
S6. Provide adaptive or special furniture	Students may need accommodations to provide better access (e.g., slant board, stander, etc.)
T1. Flexible schedule same day **Student test book(s) must be secured between sessions.**	Students are scheduled to allow for the best conditions/timing for their performance, and/or may be allowed to take the test during more than one sitting during a single day. Students are not allowed to study for or discuss tests between sessions. This is not intended for lunch or recess breaks. **(S4)** must be selected for this accommodation.
T2. Administer test over several sessions or "chunking" (except writing tasks/sections) **Student test book(s) must be secured between sessions.**	The test may be separated into smaller sections and administered over several days within the state testing window. Student may only work in one separated section at a time and may not go to previous sections or work ahead. **(S4)** must be selected for this accommodation.

T3. Allow frequent breaks during one test session (**maximum 10-15 minute duration**) **Student test book(s) must be secured during the breaks.**	Students must be monitored during breaks and may not study for or discuss the test during these breaks or view/change previously answered questions after a break. **This accommodation is not intended for lunch or recess breaks—students must complete a Section before being dismissed.**
II. Presentation	**Procedures & Guidance**
P1. Alternate Formats a. Large-Print Version (Instructions provided within kit.) b. Contracted Braille Version (Instructions provided within kits) c. Large-print through Online Testing Client (Vector-based Magnification)	Large print documents will be printed in a minimum of 18-point type (14-point minimum for SAT). Check with the assessment vendor for exact specifications. The Test Administrator must transcribe student answers verbatim into the standard answer document/test book that was provided in the large-print (paper/pencil) or Braille kit. Braille test formats will be provided on paper using contracted Braille and Nemeth code for numbers and formulas. Large print formats may be configured in the online testing client for certain assessments.
P2. Reverse Color Contrast	Students who have a visual impairment may require this to access the computer screen. This accommodation option must be selected in the online testing client student profile.
P3. Use of assistive technology (AT) devices or supports (e.g., color overlays, magnifier, pencil grips, auditory amplification devices, noise buffers, wedge for positioning, and multiplication table/chart, hundreds chart)	The specific device or support should be specified in the IEP/504 Plan, be routinely used by the student, and not alter the construct being measured. **(S1, S2, or S4)** may be appropriate for this accommodation as some AT devices may be distracting to other students.
P4. Text-to-Speech, Human Reader, or Sign Language Interpretation ***P4 applies to all Math, Science, and U.S. History test sections and Grades 5 & 8 ELA writing/extended constructed response sections only** a. Text-to-Speech is built into the online testing client, requires the use of earphones, and may be administered in individual, small group, or regular setting. (All Math, Science, U.S. History tests, and Grades 5 & 8 ELA Section 3 only.)	Online tests have built in Text-to-Speech functionality. Earphones are required. Students may test with nondisabled peers. **Please note: The Text-to-Speech functionality must be checked in the online platform before a student logs into the system and starts a test.** For online tests, if a Human Reader is required for a student, then the test must be read from the computer screen verbatim. **(S1 or S2)** is required when utilizing a Human Reader for Online tests. For paper tests, tests **(test forms must be the same)** are read by a Human Reader. Test Administrator uses separate test booklet or reads over a student's

b. Human Reader reads test directions, test items, and answer choices. This is limited to small group or individualized testing. c. Sign Language Interpretation may be accomplished by using a separate test booklet in a separate location. *For additional information, please refer to the Protocol for Human Readers.*	shoulder. Small group testing **(S1 or S2: 8-10 maximum)** is required and test forms must be the same. **Students may request items be read more than once.**
P5. Use of Secure Braille Note-taker (students with a visual impairment)	
P6. Simplification/repetition/signage of directions	Student may ask for clarification, simplification, signage of directions. This does not include test questions or answer choices. Students may have directions reread for each page of questions.
P7. Turn off Universal Tools/Accessibility Features	
P8. Use of an abacus	Students who have a visual impairment/blindness or access mathematical calculations tactilely may use an abacus.
P9. Use of a calculator on Grades 3–5 Mathematics *For additional information, please refer to the OSTP Calculator Policy.*	
P10. Provide cues (arrows, stop signs) on answer form	This applies to Paper Only tests. Cues may not clue a student to a correct or incorrect answer.
P11. Use masking or templates to reduce the amount of visible print	
P12. Secure paper to work area with tape or magnets	This applies to Paper Only tests. Please be cautious when adhering tape to the test booklet or answer document by avoiding the tracking marks (black bars) for the scoring process.
P13. Student may read the test aloud or sign the test to himself or herself.	This requires individual testing (even if student is reading aloud quietly). **(S1)** must be selected for this accommodation.

P14. Placeholders, templates, or markers to maintain place	This applies to Paper Only tests.
P15. Audio Calculator	This requires earphones for group testing. A non-embedded calculator for students needing a special calculator, such as a Braille calculator or a talking calculator, is currently unavailable within the online assessment platform. **(S1, S2, or S4)** may be appropriate for this accommodation.
P16. Paper & Pencil Test *For additional information, please refer to the Paper & Test Formats section of this manual.*	Students unable to access an OSTP computer-based test must also receive classroom assessments, benchmark assessments, and districtwide assessments in this manner. A student on an IEP/504 Plan does not automatically receive a paper & pencil test format.
III. Response	**Procedures & Guidance**
R1. Student marks answers in test book and not on an answer document, for later transfer by a Test Administrator to an answer document.	The Test Administrator, with the Test Proctor present, must transcribe answers verbatim into the standard answer document. **Does not apply to Grade 3 tests.** This accommodation applies to Paper Only tests.
R2. Human Scribe ELA, Mathematics, Science, U.S. History: a. Student dictates response to a scribe who records responses on an answer document or through the Online Testing Client by Test Administrator or Proctor. b. Student signs response to a scribe who records responses on an answer document or through the Online Testing Client by Test Administrator or Proctor. c. Student tapes or records response for a writing portion of the test for verbatim transcription by Test Administrator or Proctor. *For additional information, please refer to the Procedures for Scribing Student Responses section of this manual.*	A scribe is a Test Administrator or Proctor who writes down what a student dictates by speech, or through an assistive technology communication device. Students who have documented significant motor or processing difficulties that make it difficult to produce responses may need to dictate their responses to a human, who then records the students' responses verbatim. The use of this support may result in the student needing additional overall time to complete the assessment. **The guiding principle in scribing is to assist the student in accessing the test and responding to it. (S1)** must be selected for this accommodation.
R3. Use computer or other assistive technology device to respond. a. Student utilizes an electronic input device without the "help" features, such as spell check, an electronic dictionary, a thesaurus, or access to the Internet.	Students may use a computer, typewriter, or other assistive technology device to respond. This may include software dictation or dictation devices the student uses during routine instruction. Extended written responses must be printed off for transcription. Return the original typed student

For additional information, please refer to the Procedures for Scribing Student Responses section of this manual.	response for secure materials submission. The Test Administrator must transcribe words verbatim into an answer document/test book or Online Testing Client. The electronic responses or recordings must be destroyed or erased by District Test Coordinator. **(S1 or S2)** must be selected for this accommodation.
R4. Test Administrator monitors placement of student responses on the answer document or the online testing client.	Test Administrator may redirect students. Students may not be directed to correct or incorrect answers in any way.
R5. Brailler/Secure, Braille Note-taker/Abacus (students with a visual impairment)	The Test Administrator must transcribe answers verbatim into the standard answer document/test book that was provided in the large-print (paper/pencil) or Braille kit. **(S1, S2, or S4)** must be selected for this accommodation.

IV. SAT/ACT ELA & Math

The SAT/ACT accommodations provided below represent typical or common accommodation(s) requests that are appropriate to produce valid, college-reportable scores. Please utilize this list as a starting point as both College Board and ACT consider requests for utilization of accommodations on a case-by-case basis.

For more information, please see the following links: SAT Accommodations | ACT Accommodations

SAT (ELA/Math)	ACT (ELA/Math)
Timing/Setting	
• Extended time • Extra Breaks • Late Start • Limited timed testing • Home/Hospital Setting • Other Modified Setting • Use of concentration aids • Preferential Sating • Small Group • One-to-One • Alternate location	• Extra time • Breaks • Multiple Days • Food or Medication • Special Seating/Grouping • Location for Movement • Individual Administration • Administration at Optimum Time of Day • Administration from Home or Care Facility • Audio Amplification • Special Lighting • Adaptive Equipment or Furniture • Wheelchair Accessible Room • Personalized Auditory/Visual Notification of Remaining Time
Presentation	
• Text-to-Speech (screen reader, text-to-speech on Reading assessment, etc.) • Read Aloud • Auditory amplification devices • Braille • Large Print • Magnification/Color Contrast • Braille writer • Use of four-function calculator • Audio test forms • Abacus	• Text-to-Speech (screen reader, text-to-speech on Reading assessment, etc.) • Read Aloud • Unified English Braille (UEB) • Large Print • Browser Zoom Magnification or Magnification • Line Reader • Talking Calculator • Color Contrast (Online or Overlay) • Abacus
Response	
• Assistive technology (e.g., switches, alternative keyboard, eye-gaze motion sensors, voice recognition, head or mouth pointer, specialized trackballs or mice) • Dictate Responses • Scribe • Speech-to-text	• Respond in Test Booklet or on Separate Paper • Large Block Answer Sheet • Dictate Responses • Computer for Writing Essays and Constructed Responses • Speech-to-Text

Requirements for the Use of Nonstandard Accommodations

IEP and 504 teams may request the use of one or more of the following OSTP nonstandard accommodations (ELA Read-Aloud or Unique Accommodation) only when all of the criteria are met, as described within OSTP Nonstandard Accommodations table. For a **nonstandard accommodation** to be provided, the student must meet all of the eligibility criteria for that accommodation, and a Nonstandard Accommodation Application must have been:

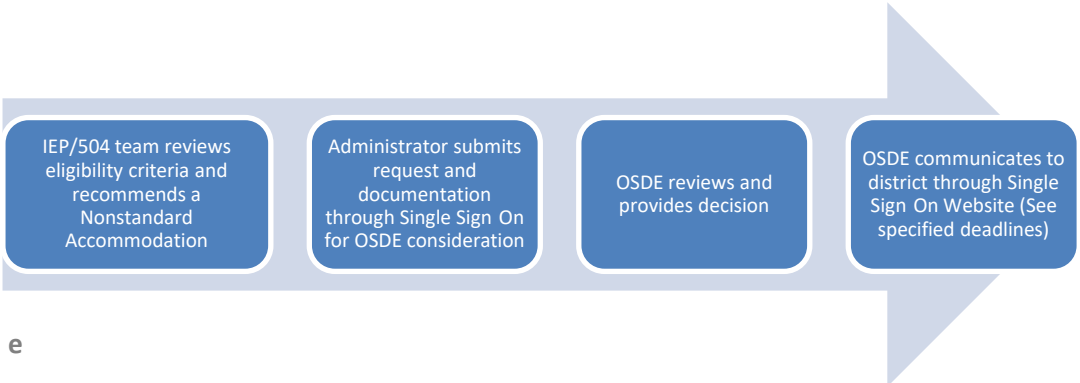
1) submitted by the DTC through the Nonstandard Accommodation Application on the Single Sign-On website,
2) approved by the OSDE before the accommodation may be used.

The decision to use a nonstandard accommodation is recommended by the IEP/504 team based on the nonstandard accommodation eligibility criteria. Nonstandard accommodations for use on OSTP assessments must be approved annually by the OSDE. The nonstandard accommodation can only be provided to a student with a disability on an OSTP assessments when it is documented in student's IEP/504 Plan under both the State/District Accommodations and Class/Activity Accommodation sections. The use of a nonstandard accommodation during instruction does not necessarily qualify a student to receive the same nonstandard accommodation on an OSTP assessment.

The **ELA Test Read-Aloud accommodation (NS1)** request for grades 3-8 may only be submitted when all three prongs of the eligibility requirements are met as described on within the OSTP Nonstandard Accommodations table. The OSTP ELA Test Read-Aloud Protocol will be used by the IEP/504 team to document all three prongs, including submission of any documents or evaluations to the OSDE. The protocol must be submitted through the Nonstandard Accommodation Application on the Single Sign-On website for consideration by the OSDE.

A **Unique Accommodation (NS2)** is an accommodation that requires changes or alterations to the test materials/booklet or media presentation. The unique accommodation must be one that is regularly used by the student for classroom instruction, must be on the student's IEP/504 Plan, and must not alter the underlying content of the assessment. The unique accommodation request must be submitted through the Nonstandard Accommodation Application on the Single Sign-On website for consideration by the OSDE. Please refer to NS2 section of the OSTP Nonstandard Accommodations table, Form U, and the Overview: Non-Standard Accommodations webpage for specific requirements.

IEP and 504 teams are encouraged to make consistent, defensible, and appropriate decisions for each student, and to amend the IEPs and 504 Plans of students who do not meet the nonstandard accommodation eligibility criteria. The OSDE will continue to review the number of students with disabilities who receive nonstandard accommodations in each district. Nonstandard accommodation requests must be approved by the OSDE before a student may use the accommodation on a state assessment. The use of a nonstandard accommodation on the OSTP without OSDE approval may result in a testing invalidation. Please do not submit a request if the student does not meet the specific eligibility criteria listed within the OSTP Nonstandard Accommodations table.



OSTP Nonstandard Accommodations

Nonstandard Accommodation	Eligibility Requirements
NS1. ELA Read-Aloud (Grades 3-8) Text-to-Speech, Human Reader, or Sign Language Interpretation Accommodation for the OSTP English Language Arts Assessments. a. Text-to-Speech is built into the online testing client, requires the use of earphones, and may be administered in individual, small group, or regular setting for Grades 3, 4, 6, & 7. b. Text-to-Speech is available on the Writing Section only of ELA Grades 5 & 8. Students requiring the Read-Aloud Accommodation for all sections of ELA Grades 5 & 8 must have a Human Reader for Sections 1 & 2. c. A Human Reader reads test directions, test items, and answer choices. This is limited to small group or individualized testing d. Sign Language Interpretation may be accomplished by using a separate test booklet. Test directions, test items, and answer choices must be read verbatim. Students may request items be read more than once. **Due Date for Requests:** **Requests must be submitted to the OSDE through the Nonstandard Accommodation Application on the Single Sign-On website by February 1st for the Spring testing window and responses will be provided on a case-by-case basis no later than March 15th.**	This accommodation must be determined by the following 3-pronged approach: 1.The student has a specific disability that severely limits or prevents him/her from decoding printed text at any level of difficulty, even after varied and repeated attempts to teach the student to do so (i.e., the student is a non-reader, not simply reading below grade level); **and** 2.The student can only access printed materials through a screen reader (assistive technology) or Human Reader, and/or is provided with spoken text on audiotape, CD, video, or other electronic format during routine instruction (includes Sign Language Interpretation), except while the student is actually being taught to decode; **and** 3. The IEP/504 team will utilize and provide the required documentation from the OSTP ELA Test Read-Aloud Protocol, which includes the use of the Protocol for Accommodations in Reading (PAR) or the AEM Navigator for deaf or blind students. This documentation must be uploaded into the Nonstandard Accommodation Application in the Single Sign-On website for consideration by the OSDE. Paper tests are read by a Human Reader. **(S1 or S2)** is required, and test forms must be the same. Online tests: If a Human Reader is utilized, they must read the assessment verbatim from the computer screen. **(S1, S2, or S4)** is required. **The request will be submitted annually through the Nonstandard Accommodation Application in the Single Sign-On website.**

NS2. Unique Accommodations (Grades 3-8 ELA/Math/Science and Grade 11 Science & US History) **Students with disabilities who have IEPs/504 plans are eligible for consideration for unique accommodations on state assessments (e.g., allow projection of test for students receiving the Sign Language Interpretation accommodation in small groups, manipulatives, special devices, etc.).** **A unique accommodation is an accommodation that requires changes or alterations to the test materials/ booklet or media presentation.** **The unique accommodation must be one that is regularly used by the student for classroom instruction, must be on the student's IEP, and must not alter the underlying content of the assessment.**	A request may be made (pursuant to the IEP/504 team's determination) for a unique accommodation utilizing **Form U** for a student with a disability on any specified subject area(s) of the OSTP. The **Form U** must be submitted: • Due to the student's need for an accommodation that would enable the student to access the state assessment. • Through the Nonstandard Accommodation Application in the Single Sign-on Website. • With completed student information and any other requested information. **The requested accommodation must not impact the reliability or validity of the test, and the request may not exempt a student from taking any portion of the OSTP test(s).**

Calculator Policy

The items on the Grades 6-8 Math, Grade 8 Science, and Grade 11 CCRA: Science Content assessments are designed so that all tasks can be solved without the use of a calculator. However, certain tasks are more difficult if a calculator is not available. More information regarding calculator use can be found in the OSTP Calculator Policy. For SAT/ACT calculator requirements, please see SAT Calculator Policy or ACT Calculator Policy.

Before the first day of the test, students using a calculator for any Math and Science assessment should be familiar with the use of the specific calculator that can be utilized. Students should be consistently instructed throughout the school year in the use of calculators; otherwise, it may hinder students' performance on the assessment.

Protocol for Human Readers

A Test Administrator (Human Reader) who provides the verbatim reading accommodation to a student must comply with the following procedures when working with a student in a testing situation:

- Human Reader: A state-certified educator who reads orally to a student.
- All Human Readers must receive Test Administrator training by the local district, and the district must retain documentation, which may be requested by the OSDE at any time.
- **A test proctor who is employed by the school district is required**. Small group (8-10 maximum) or individual testing required.
- Human Readers must sign the Test Administrator Test Security Form.
- Human Readers must read from the computer screen for online test formats or from a separate test booklet or over the student's shoulder for paper/pencil formats (log test booklet serial number on NDA)
- Only students receiving the Human Reader accommodation and taking the same grade-level subject area test may be tested together in the same location.
- If students are taking a paper test, the students grouped together must have the **same paper test form.**

Verbatim Read-Aloud Procedures for Human Reader Accommodators

To ensure uniformity in presentation of standardized tests in Oklahoma, **built-in Text-to-Speech software on the secure online testing client** should be used whenever possible.

Human Readers must follow the procedures outlined below:

1. Human Readers must read, verbatim (word-for-word), only the words in the test book or on the computer screen, without changing or adding words, or otherwise assisting the test-taker in any way to influence the test taker's selection of a response.
2. Human Readers must speak in a clear and consistent voice throughout the test administration, using correct pronunciation.
3. Human Readers may not clarify, elaborate, or provide assistance to students.
4. Human Readers must give special emphasis only to words printed in **boldface**, *italics*, or CAPITALS and tell the test-taker that the words are printed in that way. No other emphasis or special vocal inflection is permissible. Readers should use even inflection so that the student does not receive any cues by the way the information is read.
5. Human Readers must be patient and understand that the test-taker may need to have test items repeated several times.
6. Human Readers must not attempt to solve problems or determine the correct answer to an item while reading as this may result in an unconscious pause or change in inflection which could be misleading to the test-taker.
7. Human Readers must maintain a neutral facial expression and must not smile or frown which may be interpreted by the test-taker as approval or disapproval of the student's answers.

8. Human Readers must recognize that test-takers who are blind or who have low vision may also have additional special tools or equipment (e.g., abacus, brailler, slate, stylus) that have been approved for use during the test.
9. Human Readers must be familiar with the student's IEP/504 Plan and know in advance the exact type of verbatim reading accommodation required by the student. The test-taker may require all or portions of the test to be read aloud, depending on his or her particular set of accommodations.
10. If a Human Reader finds an unfamiliar word or one that he or she is not sure how to pronounce, advise the test-taker of the uncertainty about the word and spell the word.
11. When reading a word that is pronounced like another word with a different spelling, if there is any doubt about which word is intended, readers must spell the word after pronouncing it.
12. Human Readers must spell any words requested by the test-taker.
13. When reading passages, readers must be alert to all punctuation marks. Human Readers may read the passage through once so that the test-taker can grasp the content of the passage. Some test-takers may ask for the passage to be read through a second time with punctuation marks indicated. When required or asked to read with punctuation, read the specific lines within a passage and indicate all punctuation found within those lines.
14. When test items refer to particular lines of a passage, reread the lines before reading the question and answer choices. For example, a Human Reader might say, "*Question X* refers to the following lines…" Reading the lines referred to would then be followed by reading *question X* and its response options.
15. When reading selected response items, readers must be particularly careful to give equal stress to each response option and to read all of them before waiting for a response. The test-taker will record the answer or provide the answer to the test scribe, who will record it for the test-taker.
16. If a Human Reader is also serving as a scribe, and if the test-taker designates a response choice by letter only ("D," for example), the Human Reader must ask the test-taker if he/she would like the complete response be reread before the answer is recorded.
17. If the test-taker chooses an answer before the reader has read all the answer choices, the Human Reader must ask if the test-taker wants the other response options to be read.
18. After a Human Reader finishes reading a test item, the Human Reader must allow the test-taker to pause before responding. However, if the test-taker pauses for a considerable time following the reading of the answer choices, say: "Do you want me to read the question again . . . or any part of it?" In rereading questions, readers must be careful to avoid any special emphasis on words not emphasized in the printed copy by italics or capital letters.

NOTE: For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

Special Guidelines for Reading, Mathematics, and Science Content

Mathematical expressions and science vocabulary must be read precisely and carefully to avoid misrepresentation. For mathematics items involving algebraic expressions or other mathematical notation, it may be preferable for the reader to silently read the entire question before reading it aloud to the test-taker. Use technically correct yet simple terms and be consistent in the treatment of similar expressions.

Sign Language Interpreters

Test-takers who are deaf or hard of hearing may require the services of an interpreter. The interpreter typically provides support to the student in understanding test instructions that would otherwise be read aloud to all students.

- Discussions with the interpreter on testing procedures should be conducted with the test-taker present before (and not during) the test session.
- Before the session, the interpreter must become familiar with the test instructions and the terminology used in the test that he or she will be interpreting.
- An interpreter always lags a few words or phrases behind the person who is speaking. Allow short pauses for the test-taker to respond or to ask questions.
- As the test administrator, remember to speak directly to the test-taker even when an interpreter is present.
- Courtesy requires that test examiners not say things to the interpreter that they do not want repeated to the test taker. (For example, do not ask the interpreter's opinion about the test taker or the situation.)
- An interpreter may also provide a verbatim read-aloud accommodation for students who require this accommodation, as listed in the student's IEP/504 Plan.

NOTE: For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

Procedures for Scribing Student Responses

Overview

A scribe is a Test Administrator or Proctor who writes down what a student dictates by speech, or through an assistive technology communication device. The guiding principle in scribing is to assist the student in accessing the test and responding to it. **Alterations or changes to OSTP tests are not allowed and will result in test invalidation.** Any variation in the assessment environment or process that fundamentally alters what the test measures or affects the comparability of scores is considered a modification. For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

A scribe must be a currently employed educator/paraprofessional, must be familiar with scribing, must have been trained as a Test Administrator or Proctor, and must have on file a signed Test Administrator/Proctor Security Form (See Test Preparation Manual). Individuals who serve as scribes need to be carefully prepared to ensure that they know the vocabulary involved and understand the boundaries of the assistance to be provided.

Scribes must be impartial and experienced in transcription. It is preferable for the scribe to be a familiar person, such as the teacher who is typically responsible for scribing during regular instruction. Scribes will review the test security procedures and will sign all statements required of Test Administrators/Proctors.

Scribes must fulfill the following duties:

- Sign a test security form acknowledging that they will ensure that the content of the written responses directly represents the independent work of the student.
- Sign a Test Administrator/Test Proctor Test Security Form.
- List the names and enrollment grades of the students whose responses were transcribed and send the form to the BTC upon completion.

- Demonstrate proficiency in signing (ASL and/or signed English) if serving as both the interpreter and scribe.
- Test in a location where examinees are not able to hear or see other students' responses.
- Remain silent while students are dictating or signing.
- When needed, ask students to repeat a word or phrase for understanding.
- Indicate when they are unable to understand the student's oral or signed response.
- Record the interpreter's response.

Produce legible text so that the written portion of the test can be scored.

- When transcribing from a handwritten or word-processed response, record punctuation, capitalization, and spelling as provided by the student

Refrain from:

- Communicating verbally or nonverbally whether the response is correct or incorrect.
- Prompting the student in any way that would result in a better response or essay.
- Influencing the student's response in any way.
- Editing student work or completing a student's incomplete essay.
- Discussing the student's essay with the student or any other person.

Scribing Multiple-Choice Questions

The scribe should confirm the student's response before recording the student's answer on the answer document or entering the student's response into the secure online testing platform. If the scribe cannot understand a student's pattern of speech, or it is barely audible, large cards, each indicating one of the response options (e.g., A-D), can be used. The student can then choose the card that indicates the student's desired response to the multiple-choice question. For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

Scribing Constructed/Extended-Response Questions (Writing Tasks)

The scribe should determine the preferred mode of recording the student's response ***before*** the date of the test. At testing time, the student may then dictate the constructed/extended response directly to a scribe. A student with disabilities must be given the same opportunity as other students to plan, draft, and revise the constructed/extended response. The scribe's responsibility is to be both accurate and fair, neither diminishing the fluency of the student's response nor helping to improve or alter what the student asks to be recorded. This means that the scribe may write an outline or other plan as directed by the student. For online/computer based tests, transcribing involves the transfer of a student's written response into the secure testing platform. For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

The student does not have to specify repeatedly spelling and language conventions once the student has demonstrated knowledge and skills in the use of these spelling and language conventions. The scribe may apply these conventions automatically. Examples include the following:

- Once a student has demonstrated the knowledge of indicating the beginning of sentences with a capital letter, the student does not need to specify this throughout the remainder of the constructed/extended response. That is, scribes can automatically capitalize the first letter in the beginning of a sentence if the student has indicated punctuation ending the previous sentence. If the student has not indicated

punctuation ending the previous sentence and says, “The dog ran. The dog jumped,” the scribe would write “the dog ran the dog jumped”.

- Homonyms and often-confused words should be spelled by the student each time they are used. For example:
    - "to," "two," and "too,"
    - "there," "their," and, "they're"
    - “than” and “then”

Scribing Procedures

To maintain the student’s fluency of thought and to allow the student to demonstrate the requisite knowledge and skill in English Language Arts conventions, the scribe should adhere to the following process:

1. The student dictates the response without interruption directly to the scribe or electronic recording device.
    a. Students may punctuate as they dictate. For example, when stating the sentence “The cat ran.”, the student may say, “The cat ran period.”
    b. Students may dictate more than one sentence at a time and add punctuation after the fact, when given the scribed sentences to proofread.
    c. The scribe transcribes a draft of the student’s response exactly as dictated without including any conventions other than spelling. Probing or clarifying questions are not allowed except in the case of classifiers for students using American Sign Language (ASL). Scribes may not question or correct student choices. Scribes may draw a diagram or a picture described by the student if the student is unable to draw the diagram or picture. The student may not yet view this written transcription.
2. The scribe reads the draft to the student without vocal inflection that would indicate punctuation or alert the student to possible mistakes.
3. The student then provides letter-by-letter spelling for each word in the response that the scribe has determined must be spelled by the student. The scribe edits the draft of the constructed/extended response as spelled by the student.
4. The student views the draft and/or listens to the scribe as the scribe reads the draft of the constructed/extended response (i.e., written transcription). Students MUST be given the opportunity to review their responses in the way that the student prefers:
    a. Scribes may read back the dictation for proofreading to the student; or
    b. Students may review the written or typed response on paper or on the computer screen after having indicated word-for-word spelling according to these guidelines.
5. The student indicates additional edits to the scribe, including but not limited to paragraph structure, capitalization (for proper nouns, acronyms, and so forth), wording, spelling, and punctuation. The scribe will make those changes exactly as dictated by student, even if incorrect.
6. The scribe records the final written response. Scribes may handwrite (there is no penalty for cross-outs and insertions), type, or use a laptop to record the student’s work. If the scribe types and prints out the student’s responses, the responses need to be transcribed into the response booklet for paper-based

tests or typed directly into the secure testing client for online tests. The transcriber must copy the student's marks or responses exactly as he/she has written—including all errors in grammar, mechanics, spelling, etc.

If necessary, proofread the student essay with another scribe before word processing the student response.

- ✓ If the student is using a tape recorder or videotape for later transcription by a scribe, it is required to have two people listen or view as a reliability check for accuracy.
- ✓ For an accuracy check, scribes may record the session on audio or videotape for playback.
- ✓ Corrections of exclusively Braille errors will be at the discretion of the scribe. Braille errors are those errors that occur specifically to that population due to recording medium. An example could be the result of the physical typing on a Braille machine, such as typing an 'f' as opposed to the intended 'd' due to finger misplacement. The transcriber has the option to verify student response with another examiner trained in Braille.
- ✓ To increase accuracy, it is advisable to have one person reading the student's responses as another transcribes them into the test booklet. The persons then switch roles to check the transcription. Transcriptions must take place in a secure environment and, whenever possible, under the direction of the BTC. Please note that all test material—including the test booklet the student originally used—must be returned to the testing vendor.
- ✓ Collect scratch paper, rough drafts, and login information immediately at the end of the testing session. These items are considered secure material and must be collected and shredded by the BTC at the end of the testing session.

NOTE: For SAT/ACT, please refer to the *SAT/ACT Accommodations section on page 2.*

Oklahoma Alternate Assessment Program (OAAP)

The OAAP is a component of the OSTP and is designed for students with the most significant cognitive disabilities and adaptive behavior deficits. The OAAP mirrors the general assessment system in regard to grade levels and subjects assessed and utilizes the Dynamic Learning Maps (DLM) Alternate Assessment System. The academic achievement of students participating in the OAAP is based on alternate academic achievement standards, which differ in complexity from the Oklahoma Academic Standards (OAS) of the general state assessments.

In order to participate in the OAAP, students must require alternate achievement standards in all content areas and must have an IEP containing rigorous, measurable goals that include short-term benchmarks/objectives. In addition, students must meet the criteria identified in *The Criteria Checklist for Assessing Students with Disabilities on Alternate Assessments,* and the IEP team must determine an alternate assessment is appropriate for the student. The Every Student Succeeds Act (ESSA) mandates that no more than 1% of all tested students may participate in an alternate assessment. IEP teams should discuss the accommodations needed for students to participate in the general assessment prior to considering eligibility in the alternate assessment. For additional information on the OAAP, visit https://sde.ok.gov/assessment or contact the Special Education Office at (405) 521-3351.

Protocol for Emergency Accommodations on State Assessments

If, prior to or during testing, the school principal (or designee) determines that a student requires an emergency accommodation (e.g., broken hand), **Form EA** must be completed and submitted to the District Test Coordinator (DTC) for approval. A copy of this form must be filed in the testing archives, and a copy must be retained by the DTC at the central office.

Supporting Documents

ACT Accommodations Request Form

SAT Accommodations Request Form

Form EA (Emergency Accommodation)

Form U (Unique Accommodation)

OSTP Calculator Policy

OSTP ELA/Reading Test Read-Aloud Protocol

Paper Testing Checklist

APPENDIX G
PARTICIPATION RATES

Table G-1. Summary of Participation by Demographic Category—ELA

Description	Tested	
	Number	Percent
All Students	300,216	100.00
Female	146,578	48.82
Male	153,524	51.14
Black/African American	23,719	7.90
American Indian/Alaskan Native	34,587	11.52
Hispanic/Latino	58,947	19.63
Asian	6,811	2.27
Pacific Islander	1,343	0.45
White/Caucasian	136,664	45.52
Two or More Races	36,898	12.29
Economically Disadvantaged	168,336	56.07
Individual Education Program (IEP)	52,151	17.37
Plan 504	8,277	2.76
English Language Learner (ELL)	33,141	11.04

Table G-2. Summary of Participation by Demographic Category—Mathematics

Description	Tested	
	Number	Percent
All Students	299,799	100.00
Female	146,379	48.83
Male	153,307	51.14
Black/African American	23,653	7.89
American Indian/Alaskan Native	34,560	11.53
Hispanic/Latino	58,846	19.63
Asian	6,809	2.27
Pacific Islander	1,340	0.45
White/Caucasian	136,524	45.54
Two or More Races	36,847	12.29
Economically Disadvantaged	168,030	56.05
Individual Education Program (IEP)	52,050	17.36
Plan 504	8,251	2.75
English Language Learner (ELL)	33,080	11.03

Table G-3. Summary of Participation by Demographic Category—Science OSTP & CCRA

Description	Tested	
	Number	Percent
All Students	144,274	100.00
Female	70,937	49.17
Male	73,270	50.79
Black/African American	10,983	7.61
American Indian/Alaskan Native	16,703	11.58
Hispanic/Latino	27,431	19.01
Asian	3,141	2.18
Pacific Islander	586	0.41
White/Caucasian	66,807	46.31
Two or More Races	16,577	11.49
Economically Disadvantaged	76,141	52.78
Individual Education Program (IEP)	22,869	15.85
Plan 504	4,567	3.17
English Language Learner (ELL)	12,589	8.73

Table G-4. Summary of Participation by Demographic Category—U.S. History CCRA

Description	Tested	
	Number	Percent
All Students	44,434	100.00
Female	22,105	49.75
Male	22,305	50.20
Black/African American	3,230	7.27
American Indian/Alaskan Native	5,105	11.49
Hispanic/Latino	7,745	17.43
Asian	954	2.15
Pacific Islander	141	0.32
White/Caucasian	21,105	47.50
Two or More Races	4,499	10.13
Economically Disadvantaged	20,819	46.85
Individual Education Program (IEP)	5,949	13.39
Plan 504	1,576	3.55
English Language Learner (ELL)	2,346	5.28

APPENDIX H

ONLINE TESTING ACCOMMODATION FREQUENCIES AND STATE-APPROVED ACCOMMODATIONS

Table H-1. Numbers of Students Tested with Accommodations by Accommodation Type and Grade—ELA

Accommodation Code	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
AccomBraille	3	2	1	2	3	2
AccomColorContrast	95	90	85	114	149	136
AccomGeneralMasking	99	104	87	79	96	63
AccomMagnification	95	107	97	118	164	142
AccomReadAloudELA	42	19	5,682	9	5	4,941
AccomTurnoffUniversal	84	118	88	62	28	18
TestELL	3,114	2,724	2,345	1,178	966	1,177
TestIEP	5,469	6,223	6,580	6,309	6,295	6,311
TestPlan504	531	691	783	782	790	749

Table H-2. Numbers of Students Tested with Accommodations by Accommodation Type and Grade—Mathematics

Accommodation Code	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
AccomBraille	2	2	1	2	3	2
AccomColorContrast	97	90	84	114	150	134
AccomGeneralMasking	101	105	86	79	97	62
AccomMagnification	98	107	97	118	165	140
AccomReadAloudMAT	7,728	7,994	7,870	6,665	6,775	6,720
AccomTurnoffUniversal	84	118	88	62	28	18
TestELL	3,283	2,906	2,345	1,280	1,218	1,134
TestIEP	5,565	6,327	6,691	6,530	6,519	6,410
TestPlan504	522	657	765	764	734	661

Table H-3. Numbers of Students Tested with Accommodations by Accommodation Type and Grade—Science

Accommodation Code	Grade 5	Grade 8	Grade 11
AccomBraille	0	2	3
AccomColorContrast	85	136	85
AccomGeneralMasking	87	63	65
AccomMagnification	98	142	91
AccomReadAloudSCI	7,403	6,301	2,039
AccomTurnoffUniversal	88	18	20
TestELL	2,106	1,121	749
TestIEP	5,942	5,772	3,205
TestPlan504	641	607	490

Table H-4. Numbers of Students Tested with Accommodations by Accommodation Type and Grade—U.S. History

Accommodation Code	Grade 11
AccomBraille	2
AccomColorContrast	84
AccomGeneralMasking	64
AccomMagnification	91
AccomReadAloudSCI	2,034
AccomTurnoffUniversal	20
TestELL	702
TestIEP	3,183
TestPlan504	493

Table H-5. State-Approved Standard Accommodations

I. Setting/Timing/Schedule	Procedures & Guidance
S1. Individual testing	This accommodation is required for many presentations or response accommodations. This accommodation is intended to reduce student distractions. Students must be actively monitored and may use a testing carrel or test in a special education resource room or other location that maintains test security.
S2. Small group testing (**8–10 maximum**)	This accommodation is intended to reduce student distractions and may be required for certain accommodations. Students must be actively monitored and may use a testing carrel or test in a special education resource room or other location that maintains test security. **Students should be tested with their non-disabled peers to the greatest extent possible.**
S3. Preferential seating	Students may need to sit close to the front of the room so they can see or hear more easily, increase physical access, or have access to special equipment.
S4. Separate location **(No limit on number of students)**	This accommodation is intended to reduce student distractions. Students may use a testing carrel, or test in a special education resource room or other location that maintains test security.
S5. Provide special lighting	Specify type (e.g., 75 Watt incandescent, light box, etc.)
S6. Provide adaptive or special furniture	Students may need accommodations to provide better access (e.g., slant board, stander, etc.)
T1. Flexible schedule same day **Student test book(s) must be secured between sessions.**	Students are scheduled to allow for the best conditions/timing for their performance, and/or may be allowed to take the test during more than one sitting during a single day. Students are not allowed to study for or discuss tests between sessions. This is not intended for lunch or recess breaks. **(S4)** must be selected for this accommodation.
T2. Administer test over several sessions or "chunking" (except writing tasks/sections). **Student test book(s) must be secured between sessions.**	The test may be separated into smaller sections and administered over several days within the state testing window. Student may only work in one separated section at a time and may not go to previous sections or work ahead. **(S4)** must be selected for this accommodation.
T3. Allow frequent breaks during one test session **(maximum 10–15 minute duration)** **Student test book(s) must be secured during the break(s).**	Students must be monitored during breaks and may not study for or discuss the test during these breaks or view/change previously answered questions after a break. **This accommodation is not intended for lunch or recess breaks—students must complete a Section before being dismissed.**

continued

II. Presentation	Procedures & Guidance
P1. Alternate Formats a. Large-Print Version (Instructions provided within kits.) b. Contracted Braille Version (Instructions provided within kits.) c. Large-print through Online Testing Client (Vector-based Magnification)	The Test Administrator must transcribe student answers verbatim into the standard answer document/test book that was provided in the large-print (paper/pencil) or Braille kit. Braille test formats will be provided on paper using contracted Braille and Nemeth code for numbers and formulas. Large print formats may be configured in the online testing client for certain assessments.
P2. Reverse Color Contrast	Students who have a visual impairment may require this to access the computer screen. This accommodation option must be selected in the online testing client student profile.
P3. Use of assistive technology (AT) devices or supports: e.g., color overlays, magnifier, pencil grips, auditory amplification devices, noise buffers, wedge for positioning, and multiplication table/chart.	The specific device or support should be specified in the IEP/504 Plan, be routinely used by the student, and not alter the construct being measured. **(S1, S2, or S4)** may be appropriate for this accommodation as some AT devices may be distracting to other students.
P4. Text-to-Speech, Human Reader, or Sign Language Interpretation a. Text-to-Speech is built into the online testing client, requires the use of earphones, and may be administered in individual, small group, or regular setting. b. Human Reader reads test directions, test items, and answer choices and must log the test booklet serial number on the Nondisclosure Agreement (NDA). This is limited to small group or individualized testing. c. Sign Language Interpretation may be accomplished by using a separate test booklet in a separate location. Please refer to the Human Reader directions on pages 12–14.	**P4 applies to Math, Science, U.S. History, and Grades 5 & 8 ELA writing/constructed response sections only.** Online tests have built-in Text-to-Speech functionality **(must be selected in online testing client before student starts the test)**. Earphones are required. Students may test with nondisabled peers. However, if a Human Reader is required for the student, then the test must be read from the computer screen verbatim. **(S1 or S2)** is required when utilizing a Human Reader for Online Only tests. Paper tests **(test forms must be the same)** are read by a Human Reader. Test Administrator uses separate test booklet or reads over a student's shoulder and must log the test booklet serial number on the Nondisclosure Agreement (NDA). Small group testing (**S1 or S2: 8–10 maximum**) is required and test forms must be the same. **Students may request items be read more than once.**
P5. Use of Secure Braille Note-taker (students with a visual impairment)	An electronic note-taker, which may have a Braille or QWERTY-type keyboard, is an adaptive device similar to a PDA. This device may have built-in speech output and/or a refreshable Braille display. **(S1 or S2)** must be selected for this accommodation.
P6. Simplification/repetition/signage of directions	Student may ask for clarification, simplification, signage of directions. This does not include test questions or answer choices. Students may have directions reread for each page of questions.

continued

II. Presentation	Procedures & Guidance
P7. Turn off Universal Tools/Accessibility Features	Disable any tools that may be distracting to a student, tools a student does not need to use, or tools a student may be unable to use.
P8. Use of an abacus.	Students who have a visual impairment/blindness or access mathematical calculations tactilely may use an abacus.
P9. Use of a calculator on Grades 3–5 Mathematics. See Calculator Requirements on page 12.	A basic calculator may be used. Calculators with Computer Algebra Systems are prohibited.
P10. Provide cues (arrows, stop signs) on answer form	This applies to Paper Only tests. Cues may not clue a student to a correct or incorrect answer.
P11. Use masking or templates to reduce the amount of visible print.	Masking involves blocking off content that is distracting to the student. Students are able to focus their attention on a specific part of a test item by masking. This feature is built into the online testing client.
P12. Secure paper to work area with tape or magnets.	This applies to Paper Only tests. Please be cautious when adhering tape to the test booklet or answer document by avoiding the tracking marks (black bars) for the scoring process.
P13. Student may read the test aloud or sign the test to himself or herself.	This requires individual testing (even if student is reading aloud quietly) and non-disclosure forms signed by Test Administrator/Test Proctor. **(S1)** must be selected for this accommodation.
P14. Placeholders, templates, or markers to maintain place	This applies to Paper Only tests.
P15. Audio Calculator	This requires earphones for group testing. A non-embedded calculator for students needing a special calculator, such as a Braille calculator or a talking calculator, is currently unavailable within the online assessment platform. **(S1, S2, or S4)** may be appropriate for this accommodation.
P16. Paper & Pencil Test Please see Paper & Pencil Test Format guidelines on page 4.	Students unable to access an OSTP computer-based test must also receive classroom assessments, benchmark assessments, and districtwide assessments in this manner. Consequently, a student on an IEP/504 Plan does not automatically receive a paper & pencil test format.

continued

III. Response	Procedures & Guidance
R1. Student marks answers in test book and not on an answer document, for later transfer by a Test Administrator to an answer document.	The Test Administrator with the Test Proctor present must transcribe answers verbatim into the standard answer document. **Does not apply to Grade 3 tests.** This accommodation applies to Paper Only tests.
R2. Human Scribe ELA, Mathematics, Science, Social Studies: a. Student dictates response to a scribe who records responses on an answer document or through the Online Testing Client by Test Administrator or Proctor. b. Student signs response to a scribe who records responses on an answer document or through the Online Testing Client by Test Administrator or Proctor. c. Student tapes or records response for a writing portion of the test for verbatim transcription by Test Administrator or Proctor. Please see Scribe Instructions and Guidelines on pages 15–18.	A scribe is a Test Administrator or Proctor who writes down what a student dictates by speech, or through an assistive technology communication device. Signed Nondisclosure Agreements (NDAs) are required for both Test Administrator and Proctor. Students who have documented significant motor or processing difficulties that make it difficult to produce responses may need to dictate their responses to a human, who then records the students' responses verbatim. The use of this support may result in the student needing additional overall time to complete the assessment. **The guiding principle in scribing is to assist the student in accessing the test and responding to it.** **(S1)** must be selected for this accommodation.
R3. Use computer or other assistive technology device to respond. a. Student utilizes an electronic input device without the "help" features, such as spell check, an electronic dictionary, a thesaurus, or access to the Internet. Please see Scribe Instructions and Guidelines on pages 15–18.	Students may use a computer, typewriter, or other assistive technology device to respond. This may include software dictation or dictation devices the student uses during routine instruction. Extended written responses must be printed off for transcription. Return the original typed student response for secure materials submission. The Test Administrator must transcribe words verbatim into an answer document/test book or Online Testing Client. The electronic responses or recordings must be destroyed or erased by District Test Coordinator. **(S1 or S2)** must be selected for this accommodation.
R4. Test Administrator monitors placement of student responses on the answer document or the online testing client.	Test Administrator may redirect students. Students may not be directed to correct or incorrect answers in any way.
R5. Brailler/Secure, Braille Note-taker/Abacus (students with a visual impairment)	The Test Administrator must transcribe answers verbatim into the standard answer document/test book that was provided in the large-print (paper/pencil) or Braille kit. **(S1, S2, or S4)** must be selected for

Table H-6. 2017–18 OSTP: State-Approved Nonstandard Accommodations

IV. ELA Read-Aloud (Grades 3–8)	Eligibility Requirements
NS1. Human Reader or Sign Language Interpretation Accommodations for the English Language Arts Assessments. a. Human Reader reads test directions, test items, and answer choices from separate test booklet and must log the test booklet serial number on the Nondisclosure agreement (NDA). This is limited to small group or individualized testing b. Sign Language Interpretation may be accomplished by using a separate test booklet. Test directions, test items, and answer choices may be read verbatim. Refer to test formatting options. Students may request items be read more than once. **Due Date for Requests:** Requests must be submitted to the OSDE through the Nonstandard Accommodations on the SDE Single Sign-on by February 1st for the Spring testing window and responses will be provided on a case-by-case basis no later than March 15th.	This accommodation must be determined by the following 3-pronged approach: 1.The student has a specific disability that severely limits or prevents him/her from decoding printed text at any level of difficulty, even after varied and repeated attempts to teach the student to do so (i.e., the student is a non-reader, not simply reading below grade level); **and** 2.The student can only access printed materials through a screen reader (assistive technology) or human reader, and/or is provided with spoken text on audiotape, CD, video, or other electronic format during routine instruction (includes Sign Language Interpretation), except while the student is actually being taught to decode; **and** 3. The IEP/504 team will utilize and provide the required documentation from the **OSTP ELA Test Read-Aloud Protocol**, which includes the use of the Protocol for Accommodations in Reading (PAR) or the AEM Navigator for deaf or blind students. This documentation must be uploaded into the Nonstandard Accommodation Tool in the Single Sign-on application for consideration by the OSDE. Paper tests are read by a Human Reader. (**S1 or S2)** is required and test forms must be the same. Online tests A human reader reads verbatim from the computer screen. **(S1, S2, or S4)** is required. **The request will be submitted annually through the Nonstandard Accommodation Tool in the Single Sign-on application.**
NS2. Unique Accommodations Students with disabilities who have IEPs/504 plans are eligible for consideration for unique accommodations on state assessments (e.g., allow projection of test for students receiving the Sign Language Interpretation accommodation in small groups, manipulatives, etc.). A unique accommodation is an accommodation that requires changes or alterations to the test materials/ booklet or media presentation. The unique accommodation must be one that is regularly used by the student for classroom instruction, must be on the student's IEP, and must not alter the underlying content of the assessment.	A request may be made (pursuant to the IEP/504 team's determination) for a unique accommodation utilizing **Form U** for a student with a disability on any specified subject area(s) of the OSTP. The **Form U** must be submitted: • Due to the student's need for an accommodation that would enable the student to access the state assessment. • Through the Nonstandard Accommodation Tool in the Single Sign-on application. • With completed student information and any other requested information. **The requested accommodation must not impact the reliability or validity of the test, and the request may not exempt a student from taking any portion of the OSTP test(s).**

APPENDIX I

STATISTICAL DETECTION REPORT FOR THE SPRING 2022 ADMINISTRATION

Oklahoma School Testing Program
Test Security Analysis

Statistical Detection Report for the Spring 2022 Administration

Prepared by Dr. Frank Padellaro and Dr. Sandra Sweeney
September 2022

cognia™

OKLAHOMA

STATE DEPARTMENT *of* EDUCATION

JOY HOFMEISTER

STATE SUPERINTENDENT *of* PUBLIC INSTRUCTION

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Introduction

Cognia's test security policies and practices are designed to protect examinee data privacy, test data security, and the security of test content. We organize our planning and execution of test security measures around a framework for comprehensive test security systems: *Prevention, Detection, Investigation, and Resolution* (PDIR; Ferrara, 2017). We rely on collaboration with our clients to protect test security and data integrity, working together with them to encourage and support rigorous, professional investigations if security issues should arise and to resolve any issues to the degree possible following such investigations.

In this report, we provide statistical detection findings from two techniques for detecting possible test security violations: inordinate response similarity analyses and inordinate score gain analyses. **Statistical detection findings** provide initial indication of whether additional follow-up may be required to determine if a test security violation may have occurred. **Inordinate response similarity analyses** enable us to detect evidence, in the form of inordinately similar item response patterns, of possible security threats from prior exposure of test items to educators and examinees, educators supplying answers to test items to examinees during administration, educators changing examinee answers after test administration, or examinees copying answers to test items from one another. **Response change analyses** enable us to detect evidence of inordinate numbers of response changes in an examinee group's test performance.

The highest probability threats to the security of OSTP and CCRA are the exposure of test items and stimulus material (e.g., reading passages) before test administration, helping students respond to test items during test administration, and changing student responses after test administration.

We use the statistical results to flag possible evidence of a test security violation or other testing irregularity that may require follow-up. Statistical evidence by itself does not indicate that a test security violation has occurred; however, it signals the need for additional consideration to determine if a violation is likely and whether additional investigation is necessary. When one of the two statistical flags indicate the need for additional follow-up, this process could include examining results from the other statistical analysis, examining reports of test administration irregularities, and conducting informal conversations with people who may have firsthand knowledge of a situation. When initial evidence indicates the need for more formal follow-up investigations, these may include professional investigative interviews, requests for relevant documents, the examination of examinee online log files, and scannable answer documents. Cognia can provide advice and other support of investigations after delivery of the statistical detection report.

Statistical Detection Methods

Data Sources

The inordinate response similarity analysis required the examinee's response option selections (i.e., a, b, c, or d—not 0 or 1), along with the correct answer key for each item. Those response options were accompanied with the examinee's school ID to identify all possible pairs of examinees in a grade and content area, and to assign examinees to examinee groups for group-level analysis after the individual-level analysis. Similarly, inordinate response change analysis required the response option selections for examinees accompanied with the examinee's school ID to identify school and district assignment for group-level analysis. We planned all the data handling in advance with clear specifications and dealt with small data issues when they arose.

Procedures

Both the inordinate response similarity analysis that produced the ω-index and the inordinate response change analysis using independent two-samples t-test were done on the corresponding individual level data first. It's important to note that by the nature of the analysis and the structure of the data, the analysis units of the inordinate response similarity on the individual level are all possible pairs of examinees in an examinee group (i.e., grade and content area in a school), while the analysis units of the inordinate response change analysis on the individual level are all the individual examinees in an examinee group. The output result of the first analysis is the list of flagged pairs of examinees or the list of examinees. Those flagged individuals were used to calculate the proportions of flagged pairs or examinees in a grade and content area within a school in the group-level analysis. In the case of inordinate response change, students were grouped by school and then all individuals in each group were used to compare to the entire state (excluding the group in question). The result of the group-level analysis illustrates the list of all examined schools with details on whether such groups with inordinately high proportions of flagged examinee pairs or groups were marked for further investigation.

Inordinate Response Similarity Analysis: Examinee Pairs

Inordinate response similarity analysis focuses on the agreement between two examinees' response patterns by taking their ability into account. Inordinately high response similarity suggests a violation of independent test-taking behavior. Non-independent test-taking could be caused by many factors, such as the prior exposure of test items, examinees copying answers from each other, test administrators supplying answers during test administration, or test administrators changing answers after test administration.

Inordinate response similarity analysis is implemented by calculating the ω-index (Wollack, 1997) for every pair of examinees within an examinee group on their responses to multiple-choice items. The ω-index is a commonly used statistic in the literature of inordinate response similarity detection. Previous research (Wollack, 1997, 2003; Wollack & Cohen, 1998; Sotaridona, & Meijer, 2002) suggests that it performs just as well as or better than other statistics and the statistical properties of ω are not much affected by examinee sample size or error in item parameter estimates. The ω-index is based on the total number of matched responses, M_{CS}, between a pair of examinees, *C* (potential copier) and *S* (potential source). To determine whether M_{CS} is large enough to be considered suspicious, the expected value of M_{CS} is calculated under the null hypothesis that examinees *C* and *S* worked independently. With examinee *S*'s responses treated as fixed, the expected value of M_{CS} is equal to

$$E(M_{CS}|\theta_C, U_S) = \sum_i P(U_{iC} = u_{is}|\theta_C, U_S)$$

where θ_C is the latent ability of examinee *C*, U_S is the response pattern of examinee *S*, *i* is the index for item *i*, U_{iC} and u_{is} are the response on items *i* by examinee *C* and *S* respectively. $P(U_{iC} = u_{is}|\theta_C, U_S)$ represents the probability that examinee *C* chooses the same response as examinee *S,* given *C's* ability. The variance of M_{CS} is equal to

$$Var(M_{CS}|\theta_C, U_S) = \sum_i P(U_{iC} = u_{is}|\theta_C, U_S)(1 - P(U_{iC} = u_{is}|\theta_C, U_S))$$

The ω-index is calculated by taking the standardized form of M_{CS}:

$$\omega = \frac{M_{CS} - E(M_{CS}|\theta_C, U_S)}{\sqrt{Var(M_{CS}|\theta_C, U_S)}}$$

The ω-index follows a standard, normal distribution as the number of items becomes infinitely large (Wollack, 1997), and large positive values lead to the rejection of independent test-taking behavior.

Calculation of the ω-index requires estimating the probability that *C* chooses a particular response option. This probability is usually estimated by fitting a nominal response model to the data. However, based on our experience, the estimation of the nominal response model is sometimes unstable; the estimation either does not reach a converged solution after a large number of iterations or gives unreasonably large parameter estimates for low-discriminating items. Even if stable estimation is obtained, the fit of a nominal response model to some datasets may be unsatisfactory. To overcome these problems, we used nonparametric item response models to calculate the response probabilities. Nonparametric estimation provides a more flexible modeling tool, as it does not assume a parametric form for the item characteristic curves (ICC). Douglas (1997) has demonstrated that, under mild assumptions, the curved smoothed "ICC estimates and ordinal ability estimates simultaneously converge to their true values" (p. 19). Specifically, kernel smoothing is used as the nonparametric estimation technique, due to its computational simplicity and wide use in nonparametric regression, and examinee ability *θ* is estimated using the same procedure as described in Douglas (1997).

The ω-index was initially developed to identify potential copiers given a known source. However, the source is unknown in our analysis, as in most situations, and the calculation typically yields different results depending on which examinee in a pair is treated as a source. In our analysis, the examinee with a higher raw score is treated as the source in each examinee pair, so that there is only one value of ω for each pair of examinees.

A pair of examinees is flagged if the right tailed *p*-value of the ω statistic is smaller than the nominal level for these analyses, 0.01. The nominal level is the *p*-value threshold for rejecting the null hypothesis. The use of 0.01 in a right-tailed test ensures that we flag only largely positive and statistically significant ω values, which is part of our effort to minimize false positive flagging errors.

Inordinate response change analysis is only conducted at the group and state levels.

Group Level (School) Response Similarity and Response Change Analyses

The focus of these statistical detection analyses is to identify grade-level examinee groups within a school with inordinately high numbers of examinees with inordinately (a) similar response patterns, and (b)

inordinately great numbers of WTR response changes.[1] To evaluate whether a grade-level examinee group within a school should be flagged for additional consideration, the response similarity individual pair-level results are aggregated to the school level. As hypothesis testing is conducted for each examinee pair or each examinee, the Type I error at the school level may be inflated due to the multiple comparisons in a school. To control for the inflated Type I error rate (or false positive error rate) at the school level in the response similarity analysis, a three-step procedure is used for school-level detection:

a. Calculate each statistic for all pairs of examinees or all individual examinees in each school and flag a pair or an examinee if the statistic falls into the rejection region, which is done in the individual level analyses.
b. Calculate the total number of flagged pairs or examinees (n_F) in each grade within a school.
c. Compare n_F to the Binomial distribution, *Binom*(*N,* α), where *N* is total number of pairs or examinees in a grade within a school and α is the nominal level used in step.
d. If the right tailed *p*-value associated with the $\mathrm{n_F}$ under the Binomial distribution is smaller than 0.01, a school is flagged.

Inordinate response change analysis focuses on the number of items where a respondent erased or deleted an incorrect response and replaced that response with one which was scored as correct. The proportion of wrong-to-right answer changes [WTR] is calculated at the school level and then each school is compared to the entire state (excluding the school in question) using independent two-sample hypothesis testing. This approach is commonly used in erasure and response change analysis (e.g., Wollack & Fremer, 2013), testing the null hypothesis that the population means related to two independent, random samples from an approximately normal distribution are equal.

The formula for pooled variance s^2 and statistic t for detecting inordinate response change are calculated as:

$$t = \frac{\bar{x}_1 - \bar{x}_2}{\sqrt{s^2\left(\frac{1}{n_1} + \frac{1}{n_2}\right)}}$$

$$s^2 = \frac{\sum_{i=1}^{n_1}(x_i - \bar{x}_1)^2 + \sum_{j=1}^{n_2}\left(x_j - \bar{x}_2\right)^2}{n_1 + n_2 - 2}$$

where $\bar{x}_1$ and $\bar{x}_2$ are the sample means, s^2 is the pooled sample variance, n_1 and n_2 are the sample sizes.

Schools are considered for flagging if the right tailed p-value of the t statistic is smaller than the nominal level for these analyses, 0.01. The nominal level is the p-value threshold for rejecting the null hypothesis. Any schools meeting those criteria would be ranked using Cohen's d as an indicator of effect size, and those schools with $d \geq .3$ flagged for potential further investigation.

[1] *The preferred level of analysis is testing group rather than all students within a grade level with a school. Testing group assignment is not available in these data.*

Results

In this section of the report, we summarize the numbers of schools flagged in the inordinate response similarity and response change analyses. The summary tables list numbers and percentages of schools flagged in each analysis and count flagged schools according to numbers of examinees in different-size grade level examinee groups.

Full results from pair and individual analyses and school analyses are provided in a separate excel file. Descriptions of the tables provided in the excel file are appended at the end of this report.

Inordinate Response Similarity

Table 1 lists the numbers of schools within grade levels that are flagged for inordinately similar responses to the 2022 OSTP and CCRA test items and the percentage of the total number of schools within a grade level.

Table 1. Inordinate Response Similarity Analysis Results For 2022: Numbers of Flagged Schools by Examinee Group Size

Grade	No. of Schools Flagged (% of Total Schools)	No. of Examinees in the School				
		1–5	6–10	11–20	21–30	Greater Than 30
		English Language Arts				
3	21(2.5)	0	2	1	2	16
4	10(1.2)	0	1	1	0	8
5	9(1.1)	0	0	3	0	6
6	14(2.2)	0	1	1	1	11
7	21(3.6)	0	1	1	2	17
8	8(1.4)	0	0	0	1	7
		Mathematics				
3	55(6.5)	0	0	4	5	46
4	47(5.6)	0	3	1	7	36
5	119(14.9)	0	2	6	11	100
6	88(13.9)	0	2	8	5	73
7	282(47.7)	1	2	35	26	218
8	149(25.2)	1	2	13	14	119
		Science				
5	28(3.5)	0	1	4	4	19
8	38(6.4)	0	2	7	6	23
11	123(26.6)	0	1	6	11	105
		US History				
11	51(11)	0	1	2	7	41

As Table 1 indicates, in the inordinate response similarity analyses:

- Higher percentages of schools are flagged in Mathematics than in ELA, Science or US History.
- In ELA, as few as 1.1% of schools (grade 5) and as many as 3.6% of schools (grade 7) were flagged. These data represent a slight decrease in flagging percentages when compared to the previous year. In Mathematics, there were similar decreases in group flagging percentages. The range of percentages is 5.6% (grade 4) to 47.7% (grade 7), and in science the range is 3.5% (grade 5) to 26.6% (grade 11). The findings within science show a slight decrease for grade 5,

and a slight increase for grades 8 and 11 when compared to the previous year. In US History, 11% of schools were flagged. This is the first year that inordinate response similarity data have been analyzed for CCRA (grade 11) US History.

- Higher numbers of schools are flagged in testing groups with more than 30 examinees.
- Few schools are flagged for smaller examinee group sizes.

Inordinate Response Change

Table 2 lists the numbers and percentages of schools within grade levels that are flagged for inordinately high response changes in 2022 and the percentage of the total number of schools within a grade level.

Table 2. Inordinate Response Change Analysis Results For 2022: Numbers of Flagged Schools by Examinee Group Size

Grade	No. of Schools Flagged (% of Total Schools)	No. of Examinees in the School				
		12-20 *	21-30	31–40	41–50	Greater Than 50
			English Language Arts			
3	19(2.2)	4	6	0	5	4
4	15(1.8)	4	3	2	3	3
5	19(2.4)	5	4	3	3	4
6	9(1.4)	1	3	2	0	3
7	4(0.7)	2	0	1	0	1
8	14(2.4)	3	5	3	2	1
			Mathematics			
3	10(1.2)	1	1	1	3	4
4	20(2.4)	2	1	4	2	11
5	13(1.6)	4	2	0	3	4
6	11(1.7)	2	3	2	0	4
7	13(2.2)	6	5	1	1	0
8	13(2.2)	5	1	2	3	2
			Science			
5	22(2.7)	5	1	5	2	9
8	15(2.5)	7	1	2	1	4
11	7(1.5)	0	3	0	2	2
			US History			
11	6(1.3)	1	0	2	0	3

** Schools with examinees <12 are not subject to flagging for inordinate response change*

As Table 2 indicates, in the inordinate response change analyses:

- Slightly greater percentages of schools are flagged in Mathematics and Science than in ELA and US History.
- Most flagged schools are in testing groups with fewer than 51 examinees.
- Slightly more schools are flagged among those with smaller examinee group sizes.

- In ELA the flagging percentages range from 0.7% in grade 7 to a maximum of 2.4% in grades 5 and 8. In Mathematics, the flagging percentages range from 1.2% in grade 3 to 2.4% in grade 4. In Science, the flagging percentages range from 1.5% in grade 11 to 2.7% in grade 5. In US History, 1.3% of schools were flagged.

Discussion and Recommendations

In this report, we have summarized statistical detection findings from analyses of inordinate response similarities and inordinate answer changes. We selected these analyses from a range of other statistical detection techniques because they focus on the highest probability threats to the security of OSTP and CCRA: exposure of test items and stimulus material (e.g., reading passages) before test administration, helping students respond to test items during test administration, and changing student responses after test administration.

We use the statistical results to flag possible evidence of a test security violation or other testing irregularity that may require follow-up. We emphasize that statistical evidence by itself does not indicate that a test security violation has occurred. It signals the need for additional consideration to determine if a violation is likely and whether additional investigation is necessary.

When one of the two statistical flags indicate the potential need for further analyses, initial follow-up investigations could include examining results from another statistical analysis, examining reports of test administration irregularities, and conducting informal conversations with people who may have firsthand knowledge of the administration. When initial evidence indicates the need for more formal follow-up investigations, these may include professional investigative interviews, requests for relevant documents, and examination of examinee online log files and scannable answer documents. Cognia can provide advice and other support of investigations after delivery of the statistical detection report.

The results show slight decreases in all grades of Math and ELA for group flagging percentages due to inordinate response similarity over 2021. Cognia would continue to urge caution in interpretation of these decreases given the confounding effects of changes to instruction and learning since 2019. In grades where flagging percentages are exceptionally high (Math 07, nearly 50%), the actual proportion of flagged to unflagged pairs was still quite low. In Math 07 the average proportion of flagged to unflagged pairs was less than 3%, for example. Cognia recommends, in cases where other evidence suggests violations of test security, that investigators do not solely rely on group (school) detection flagging for additional evidence. In these cases, examining clusters of flagged examinee pairs where an overlap of respondents is indicated, within a school, may be a more powerful indicator of testing issues. These raw data details are provided along with this report. Additionally, Cognia would be able to provide more granular analysis if particular clusters or groups require additional investigation.

The 2022 administration represents only the third time inordinate response change has been analyzed. Because of the gap in testing between 2019 and 2021, the above-mentioned confounding effects of changes to instruction and learning, the differences in 2019 test mode for some grades (paper vs. computer), and the relative lack of longitudinal data, year over year comparison of this analysis may not be appropriate or interpretable.

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Appendix A—Description of the Tables in the Output Files

A-1. Inordinate Response Similarity Analysis Output

Response Similarity – Student

- All possible pairs were constructed within the school unit for the purpose of the analysis.
- Only the flagged pairs of examinees are listed in the output.

Subject.Grade

- Specific subject and grade combination associated with the current examine pair (e.g., ELA03)

ID.District

- Identification number of the district where the school and the pair of examinees belong

ID.School

- Identification number of the school where the pair of examinees belongs

DistrictName

- Name of the district where the school and the pair of examinees belong

SchoolName

- Name of the school where the pair of examinees belongs

ID.Examinee.1

- Identification number of the first examinee

ID.Examinee.2

- Identification number of the second examinee

Score.Examinee.1

- Raw score of the first examinee

Score.Examinee.2

- Raw score of the second examinee

Observed.Matching

- Number of matching response options between two examinees (missing responses were not included in the analysis.)

Omega

- Answer similarity index

p.value

- Probability of getting the omega index at or above the observed value under the null hypothesis

Flag.at.0.01

- Whether a pair is flagged at the nominal level of 0.01: 1 indicates flagged, and 0 indicates not flagged.

School.Flag.at.0.01

- Whether the school where the pair of examinees belongs is flagged at the nominal level of 0.01: 1 indicates flagged, and 0 indicates not flagged.

Response Similarity – School

- All available districts and schools are listed.

Subject.Grade

- Specific subject and grade combination associated with the current examinees pair (e.g., ELA03)

ID.District

- Identification number of the district where the school belongs

ID.School

- Identification number of the school

DistrictName

- Name of the district where the school belongs

SchoolName

- Name of the school

Number.Examinees

- Number of examinees in the school

Proportion.Flag.at.0.01

- Proportion of examinees flagged in the school at the nominal level of 0.01

p.value.0.01

- Probability of getting the proportion at or above the observed value under the null hypothesis

Flag.at.0.01

- Whether the school is flagged at the nominal level of 0.01: 1 indicates flagged, and 0 indicates not flagged.

A-2. Inordinate Response Change Analysis Output

Response Change – Glossary of Terms

Wrong-to-Right [WTR], Right-to-Wrong [RTW] and Wrong-to-Wrong [WTW]

- There is an indication that the examinee changed their response from an incorrect answer to the correct answer [WTR], from the correct answer to an incorrect answer [RTW] or from an incorrect answer to a different incorrect answer [WTW]

Response Change – Student

- Examinees are not flagged for inordinate response changes at the student level. All analyzed examinees are listed for each flagged school, and descriptive information provided regarding examinee response changes. For computer-based administrations, process data has been collected indicating an answer was changed prior to the final recorded entry.

Subject.Grade

- Grade and subject for the listed examinee analysis.

ID.District

- Identification number of the district where the examinee belongs

ID.School

- Identification number of the school where the examinee belongs

DistrictName

- Name of the district where the school is located.

SchoolName

- Name of the school identified by ID. School.

Booklet.Number

- Identification number of the booklet taken by the examinee

ID.Examinee

- Identification number of the examinee

N.Answered

- Number of multiple-choice item where the examinee indicated a scored response.

N.Erasure

- Number of answered items indicating a response change has been made.

Avg. Erasures

- The ratio (in decimal form) of erasures made to items answered.

SD. Erasures

- The standard deviation of N. Erasure.

N. Erasure Type (WTR, RTW, WTW)

- Number of answered items indicating a response change of the type detailed above.

Avg. Erasure Type (WTR, RTW, WTW)

- The ratio (in decimal form) of the indicated erasure type to items answered.

Erasure Type Ratio

- The ratio (in decimal form) of the indicated erasure type to response changes.

Response Change – School

- All available districts and schools are listed. Schools with analyzed examinees < 12 are not examined for aberrative response change using statistical methods, however all other descriptive statistics are still shown.

Subject.Grade

- Specific subject and grade combination associated with the listed analysis (e.g., ELA03)

ID.School

- Identification number of the school

DistrictName

- Name of the district where the listed school is located.

SchoolName

- Name of the school analyzed.

N

- Number of current year examinees analyzed for the listed school.

Descriptive Statistics

- Averages of examinee-level statistics aggregated at school-level (Answered, Erasures, WTR, RTW, WTW)

Cohen's D

- A measure of effect size. Significant comparisons between WTW response changes at the school and state level are flagged based on effect size.

p.value

- Probability of getting the proportion at or above the observed value under the null hypothesis

Flag

- Whether the school is flagged for inordinate response change behavior: 1 indicates flagged and 0 indicates not flagged.

APPENDIX J
SCORE REPORTS

Table J-1. Double Blind Report—Grade 3 Reading CRs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	2559	654	25.6	547	83.6	107	16.4	0	0
22105	2854	1067	37.4	911	85.4	152	14.2	4	0.4
21572	951	162	17	132	81.5	30	18.5	0	0
21948	1349	518	38.4	423	81.7	95	18.3	0	0
22391	2776	951	34.3	802	84.3	139	14.6	10	1.1
22037	1264	311	24.6	270	86.8	41	13.2	0	0
21771	2250	447	19.9	360	80.5	87	19.5	0	0
22040	2401	823	34.3	670	81.4	153	18.6	0	0
67411	653	367	56.2	318	86.6	48	13.1	1	0.3
21585	2277	478	21	381	79.7	97	20.3	0	0
21750	1050	314	29.9	249	79.3	65	20.7	0	0
21814	3861	507	13.1	417	82.2	90	17.8	0	0
22041	3023	646	21.4	487	75.4	159	24.6	0	0
22062	2792	828	29.7	675	81.5	153	18.5	0	0
21927	1135	278	24.5	236	84.9	42	15.1	0	0
22063	1603	541	33.7	459	84.8	82	15.2	0	0
21774	3053	450	14.7	359	79.8	91	20.2	0	0
16814	1824	256	14	208	81.3	48	18.8	0	0
16004	1657	693	41.8	605	87.3	88	12.7	0	0
66395	2391	718	30	593	82.6	125	17.4	0	0
22064	544	119	21.9	96	80.7	23	19.3	0	0
22168	2249	378	16.8	303	80.2	75	19.8	0	0
21952	1800	604	33.6	509	84.3	95	15.7	0	0
22169	3679	93	2.5	75	80.6	18	19.4	0	0
22108	4208	808	19.2	622	77	186	23	0	0
21930	3110	944	30.4	717	76	227	24	0	0
22274	1126	435	38.6	354	81.4	78	17.9	3	0.7
22170	3603	178	4.9	148	83.1	30	16.9	0	0
63977	468	96	20.5	77	80.2	19	19.8	0	0
21581	7831	1423	18.2	1171	82.3	252	17.7	0	0
21629	2130	534	25.1	404	75.7	130	24.3	0	0
22171	7053	1124	15.9	910	81	214	19	0	0
21752	1577	273	17.3	234	85.7	39	14.3	0	0
21820	9959	1880	18.9	1561	83	319	17	0	0
22109	2831	468	16.5	352	75.2	116	24.8	0	0
21639	229	42	18.3	35	83.3	7	16.7	0	0
22110	2326	370	15.9	303	81.9	67	18.1	0	0
21938	3613	1200	33.2	992	82.7	208	17.3	0	0
22111	3728	809	21.7	651	80.5	158	19.5	0	0
21787	2856	805	28.2	646	80.2	159	19.8	0	0
22050	1653	501	30.3	391	78	110	22	0	0
22069	890	227	25.5	188	82.8	39	17.2	0	0
22175	2206	169	7.7	126	74.6	43	25.4	0	0
21887	800	417	52.1	363	87.1	53	12.7	1	0.2
21521	1660	166	10	129	77.7	37	22.3	0	0
21573	1797	798	44.4	660	82.7	133	16.7	5	0.6
22054	3316	822	24.8	681	82.8	141	17.2	0	0
21802	4150	1699	40.9	1417	83.4	275	16.2	7	0.4
15904	1597	334	20.9	282	84.4	52	15.6	0	0
21843	5676	555	9.8	439	79.1	116	20.9	0	0
66232	5547	1068	19.3	830	77.7	238	22.3	0	0
21931	650	129	19.8	104	80.6	25	19.4	0	0
21578	458	73	15.9	58	79.5	15	20.5	0	0
22058	4461	806	18.1	668	82.9	138	17.1	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21988	376	61	16.2	43	70.5	18	29.5	0	0
20851	2169	557	25.7	462	82.9	95	17.1	0	0
22345	731	367	50.2	270	73.6	92	25.1	5	1.4
71694	2203	510	23.2	417	81.8	93	18.2	0	0
Total	**146983***	**32851**	**22.4**	**26790**	**81.6**	**6025**	**18.3**	**36**	**0.1**

**Does not include responses that received a condition code.*

Table J-2. Read Behind Report—Grade 3 Reading CRs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	2559	2559	274	10.7	229	83.6	34	12.4	11
22105	2854	2854	387	13.6	338	87.3	35	9	14
21572	951	951	175	18.4	149	85.1	21	12	5
21948	1349	200	14.8	164	82	26	13	10	5
22391	2776	340	12.2	289	85	37	10.9	14	4.1
22037	1264	139	11	118	84.9	16	11.5	5	3.6
21771	2342	386	17.2	325	84.2	51	13.2	10	2.6
22040	2401	412	17.2	349	84.7	51	12.4	12	2.9
67411	921	123	18.8	109	88.6	11	8.9	3	2.4
21585	2277	230	10.1	191	83	30	13	9	3.9
21750	1050	125	11.9	108	86.4	14	11.2	3	2.4
21814	3861	509	13.2	425	83.5	74	14.5	10	2
22041	3023	448	14.8	364	81.3	63	14.1	21	4.7
22062	2792	343	12.3	284	82.8	48	14	11	3.2
21927	1135	237	20.9	198	83.5	32	13.5	7	3
22063	1903	350	21.8	288	82.3	46	13.1	16	4.6
21774	3053	614	20.1	499	81.3	97	15.8	18	2.9
16814	1824	117	6.4	116	99.1	1	0.9	0	0
16004	1657	72	4.3	70	97.2	2	2.8	0	0
66395	2391	396	16.6	328	82.8	50	12.6	18	4.5
22064	544	62	11.4	54	87.1	6	9.7	2	3.2
22168	2249	260	11.6	236	90.8	23	8.8	1	0.4
21601	112	12	10.7	10	83.3	2	16.7	0	0
21952	1800	189	10.5	161	85.2	20	10.6	8	4.2
22169	3679	400	10.9	337	84.3	60	15	3	0.8
21305	1730	201	11.6	198	98.5	3	1.5	0	0
22108	4208	462	11	386	83.5	64	13.9	12	2.6
21930	3110	343	11	285	83.1	43	12.5	15	4.4
22274	1126	257	22.8	219	85.2	32	12.5	6	2.3
22170	3603	397	11	345	86.9	51	12.8	1	0.3
63977	468	70	15	58	82.9	12	17.1	0	0
21581	7831	831	10.6	706	85	112	13.5	13	1.6
21629	2130	243	11.4	208	85.6	31	12.8	4	1.6
22171	7053	857	12.2	703	82	126	14.7	28	3.3
21752	1577	208	13.2	180	86.5	24	11.5	4	1.9
15262	1200	123	10.3	121	98.4	1	0.8	1	0.8
21820	9959	1103	11.1	929	84.2	144	13.1	30	2.7
22109	2831	330	11.7	275	83.3	45	13.6	10	3
21639	229	35	15.3	28	80	6	17.1	1	2.9
22110	2326	345	14.8	297	86.1	38	11	10	2.9
21938	3613	458	12.7	398	86.9	53	11.6	7	1.5
22111	3728	439	11.8	380	86.6	50	11.4	9	2.1
21787	2856	382	13.4	320	83.8	54	14.1	8	2.1
22050	1653	276	16.7	229	83	41	14.9	6	2.2

continued

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22069	890	150	16.9	125	83.3	22	14.7	3	2
22175	2206	432	19.6	352	81.5	67	15.5	13	3
21887	800	142	17.8	126	88.7	15	10.6	1	0.7
21521	1660	207	12.5	176	85	23	11.1	8	3.9
21573	1797	282	15.7	246	87.2	29	10.3	7	2.5
22054	3316	365	11	309	84.7	43	11.8	13	3.6
21802	4150	578	13.9	495	85.6	70	12.1	13	2.2
15904	1597	120	7.5	115	95.8	5	4.2	0	0
21843	5676	682	12	587	86.1	80	11.7	15	2.2
66232	5547	591	10.7	499	84.4	83	14	9	1.5
21931	650	198	30.5	171	86.4	25	12.6	2	1
21578	458	85	18.6	68	80	15	17.6	2	2.4
22058	4461	450	10.1	379	84.2	58	12.9	13	2.9
21988	376	44	11.7	38	86.4	5	11.4	1	2.3
20851	2169	266	12.3	228	85.7	30	11.3	8	3
22345	731	195	26.7	158	81	24	12.3	13	6.7
71694	2203	368	16.7	305	82.9	59	16	4	1.1
Total	**150685***	**19315**	**12.9**	**16381**	**84.8**	**2433**	**12.6**	**501**	**2.6**

**Does not include responses that received a condition code.*

Table J-3. Double Blind Report—Grade 4 Reading CRs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	3670	751	20.5	714	95.1	37	4.9	0	0
22105	10306	1116	10.8	841	75.4	267	23.9	8	0.7
21572	4609	188	4.1	186	98.9	2	1.1	0	0
21948	1434	143	10	133	93	10	7	0	0
22513	989	362	36.6	241	66.6	116	32	5	1.4
22391	1912	876	45.8	642	73.3	231	26.4	3	0.3
22037	1562	147	9.4	146	99.3	1	0.7	0	0
21771	1386	167	12	158	94.6	9	5.4	0	0
22040	3538	956	27	731	76.5	220	23	5	0.5
67411	994	535	53.8	407	76.1	126	23.6	2	0.4
21585	6042	406	6.7	380	93.6	26	6.4	0	0
21814	3010	277	9.2	267	96.4	10	3.6	0	0
22062	4264	591	13.9	559	94.6	32	5.4	0	0
21927	1898	262	13.8	252	96.2	10	3.8	0	0
22063	5072	692	13.6	567	81.9	122	17.6	3	0.4
21774	1141	146	12.8	133	91.1	13	8.9	0	0
16814	20	20	100	20	100	0	0	0	0
66395	3835	465	12.1	425	91.4	40	8.6	0	0
22449	348	99	28.4	63	63.6	35	35.4	1	1
21952	1968	264	13.4	249	94.3	15	5.7	0	0
22108	3337	482	14.4	460	95.4	22	4.6	0	0
21930	2411	274	11.4	267	97.4	7	2.6	0	0
22274	1592	627	39.4	467	74.5	158	25.2	2	0.3
63977	976	115	11.8	112	97.4	3	2.6	0	0
21752	3895	559	14.4	538	96.2	21	3.8	0	0
15262	1053	15	1.4	15	100	0	0	0	0
21820	3979	341	8.6	326	95.6	15	4.4	0	0
22109	1312	226	17.2	209	92.5	17	7.5	0	0
21639	997	181	18.2	171	94.5	10	5.5	0	0
21938	2432	609	25	513	84.2	91	14.9	5	0.8
22111	4386	485	11.1	448	92.4	37	7.6	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21787	3237	285	8.8	267	93.7	18	6.3	0	0
22050	1571	324	20.6	305	94.1	19	5.9	0	0
22069	1044	104	10	102	98.1	2	1.9	0	0
21887	1328	853	64.2	644	75.5	204	23.9	5	0.6
21573	1138	598	52.5	438	73.2	156	26.1	4	0.7
22054	3140	375	11.9	362	96.5	13	3.5	0	0
21802	8074	1408	17.4	1143	81.2	257	18.3	8	0.6
15904	839	111	13.2	109	98.2	2	1.8	0	0
21843	2912	633	21.7	606	95.7	27	4.3	0	0
66232	3291	764	23.2	721	94.4	43	5.6	0	0
21931	1196	131	11	124	94.7	7	5.3	0	0
21578	2500	21	0.8	21	100	0	0	0	0
22058	2731	491	18	450	91.6	41	8.4	0	0
21988	546	113	20.7	109	96.5	4	3.5	0	0
20851	3767	398	10.6	386	97	12	3	0	0
22345	152	83	54.6	56	67.5	27	32.5	0	0
71694	2405	226	9.4	217	96	9	4	0	0
21835	280	104	37.1	71	68.3	30	28.8	3	2.9
Total	**124519***	**19399**	**15.6**	**16771**	**86.5**	**2574**	**13.3**	**54**	**0.3**

**Does not include responses that received a condition code.*

Table J-4. Read Behind Report—Grade 4 Reading CRs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	3670	409	11.1	373	91.2	30	7.3	6	1.5
22105	10306	1221	11.8	1062	87	137	11.2	22	1.8
21572	4609	604	13.1	549	90.9	45	7.5	10	1.7
21948	1434	188	13.1	163	86.7	19	10.1	6	3.2
22513	989	155	15.7	132	85.2	21	13.5	2	1.3
22391	1912	247	12.9	204	82.6	42	17	1	0.4
22037	1562	233	14.9	215	92.3	15	6.4	3	1.3
21771	1386	322	23.2	280	87	38	11.8	4	1.2
22040	3544	537	15.2	443	82.5	84	15.6	10	1.9
67411	994	360	36.2	292	81.1	64	17.8	4	1.1
21585	6042	780	12.9	669	85.8	95	12.2	16	2.1
21814	3010	430	14.3	370	86	48	11.2	12	2.8
22107	1215	162	13.3	138	85.2	21	13	3	1.9
22062	4264	515	12.1	465	90.3	41	8	9	1.7
21927	1898	207	10.9	187	90.3	14	6.8	6	2.9
22063	5496	653	12.9	561	85.9	77	11.8	15	2.3
21774	1425	376	33	303	80.6	62	16.5	11	2.9
66395	3835	478	12.5	429	89.7	44	9.2	5	1
22449	348	37	10.6	32	86.5	5	13.5	0	0
21952	1968	256	13	233	91	19	7.4	4	1.6
21305	1089	114	10.5	114	100	0	0	0	0
22108	3337	406	12.2	365	89.9	34	8.4	7	1.7
21930	2412	317	13.1	283	89.3	28	8.8	6	1.9
22274	1592	241	15.1	200	83	37	15.4	4	1.7
63977	976	137	14	119	86.9	14	10.2	4	2.9
22171	285	66	23.2	53	80.3	13	19.7	0	0
21752	3895	477	12.2	428	89.7	45	9.4	4	0.8
15262	1053	105	10	101	96.2	4	3.8	0	0
21820	3979	420	10.6	371	88.3	37	8.8	12	2.9
22109	1312	124	9.5	110	88.7	11	8.9	3	2.4

continued

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21639	997	114	11.4	98	86	13	11.4	3	2.6
21938	2432	360	14.8	317	88.1	40	11.1	3	0.8
22111	4386	540	12.3	472	87.4	55	10.2	13	2.4
21787	3237	418	12.9	381	91.1	34	8.1	3	0.7
22050	1571	289	18.4	255	88.2	28	9.7	6	2.1
22069	1044	243	23.3	216	88.9	25	10.3	2	0.8
21887	1328	193	14.5	167	86.5	25	13	1	0.5
21573	1138	175	15.4	161	92	13	7.4	1	0.6
22054	3140	347	11.1	312	89.9	30	8.6	5	1.4
21802	8074	1034	12.8	878	84.9	135	13.1	21	2
15904	839	58	6.9	54	93.1	4	6.9	0	0
21843	2912	345	11.8	314	91	24	7	7	2
66232	3291	327	9.9	293	89.6	27	8.3	7	2.1
21931	1196	239	20	214	89.5	22	9.2	3	1.3
21578	2500	367	14.7	312	85	46	12.5	9	2.5
22058	2731	288	10.5	246	85.4	31	10.8	11	3.8
21988	546	72	13.2	64	88.9	7	9.7	1	1.4
20851	3767	480	12.7	438	91.3	41	8.5	1	0.2
22345	152	15	9.9	13	86.7	2	13.3	0	0
71694	2405	310	12.9	291	93.9	17	5.5	2	0.6
21835	280	30	10.7	24	80	6	20	0	0
21558	4	3	75	3	100	0	0	0	0
Total	**127807***	**16824**	**13.2**	**14767**	**87.8**	**1769**	**10.5**	**288**	**1.7**

**Does not include responses that received a condition code.*

Table J-5. Double Blind Report—Grade 5 Writing ERs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21865	2591	23	0.9	21	91.3	2	8.7	0	0
21591	2175	9	0.4	9	100	0	0	0	0
17112	2938	12	0.4	11	91.7	1	8.3	0	0
21615	2406	21	0.9	19	90.5	2	9.5	0	0
53986	1602	8	0.5	7	87.5	1	12.5	0	0
22157	2025	10	0.5	8	80	2	20	0	0
54745	37	37	100	37	100	0	0	0	0
22338	415	6	1.4	5	83.3	1	16.7	0	0
22339	127	1	0.8	1	100	0	0	0	0
22158	947	12	1.3	11	91.7	1	8.3	0	0
21953	2191	23	1	20	87	3	13	0	0
22159	2375	14	0.6	9	64.3	5	35.7	0	0
21954	1363	10	0.7	8	80	2	20	0	0
22044	1709	22	1.3	19	86.4	3	13.6	0	0
66290	1245	6	0.5	5	83.3	1	16.7	0	0
64133	1378	21	1.5	15	71.4	6	28.6	0	0
60965	1848	10	0.5	9	90	1	10	0	0
21822	2492	21	0.8	16	76.2	5	23.8	0	0
55182	1652	13	0.8	11	84.6	2	15.4	0	0
21999	3708	18	0.5	15	83.3	3	16.7	0	0
19314	3520	35	1	30	85.7	4	11.4	1	2.9
21588	2371	9	0.4	9	100	0	0	0	0
22056	588	4	0.7	4	100	0	0	0	0
22344	537	3	0.6	3	100	0	0	0	0
67353	2662	7	0.3	6	85.7	1	14.3	0	0
22125	1998	6	0.3	5	83.3	1	16.7	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22345	834	4	0.5	4	100	0	0	0	0
22346	1287	7	0.5	6	85.7	1	14.3	0	0
Total	**49021***	**372**	**0.8**	**323**	**86.8**	**48**	**12.9**	**1**	**0.3**

**Does not include responses that received a condition code.*

Table J-6. Read Behind Report—Grade 5 Writing ERs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21865	2591	269	10.4	251	93.3	18	6.7	0	0
21591	2175	205	9.4	179	87.3	24	11.7	2	1
17112	2938	281	9.6	236	84	45	16	0	0
21615	2406	315	13.1	276	87.6	38	12.1	1	0.3
53986	1602	244	15.2	187	76.6	53	21.7	4	1.6
22157	2025	282	13.9	230	81.6	49	17.4	3	1.1
55111	426	67	15.7	61	91	6	9	0	0
22338	415	65	15.7	49	75.4	16	24.6	0	0
22339	127	31	24.4	24	77.4	7	22.6	0	0
22158	947	132	13.9	118	89.4	13	9.8	1	0.8
21953	2191	222	10.1	187	84.2	32	14.4	3	1.4
22159	2375	319	13.4	272	85.3	46	14.4	1	0.3
21954	1363	150	11	132	88	16	10.7	2	1.3
22044	1709	314	18.4	242	77.1	71	22.6	1	0.3
66290	1245	201	16.1	173	86.1	25	12.4	3	1.5
64133	1378	262	19	212	80.9	48	18.3	2	0.8
60965	1848	285	15.4	215	75.4	67	23.5	3	1.1
21822	2492	343	13.8	276	80.5	65	19	2	0.6
55182	1652	246	14.9	215	87.4	31	12.6	0	0
21999	3708	447	12.1	375	83.9	71	15.9	1	0.2
19314	3520	451	12.8	392	86.9	56	12.4	3	0.7
21588	2371	211	8.9	190	90	20	9.5	1	0.5
22056	588	89	15.1	65	73	23	25.8	1	1.1
22344	537	118	22	91	77.1	26	22	1	0.8
67353	2662	364	13.7	274	75.3	87	23.9	3	0.8
22125	1998	218	10.9	187	85.8	31	14.2	0	0
22345	834	170	20.4	123	72.4	45	26.5	2	1.2
22346	1287	213	16.6	160	75.1	52	24.4	1	0.5
Total	**49410***	**6514**	**13.2**	**5392**	**82.8**	**1081**	**16.6**	**41**	**0.6**

**Includes responses that received a condition code.*

Table J-7. Double Blind Report—Grade 6 Reading CRs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	2931	291	9.9	278	95.5	13	4.5	0	0
22675	374	223	59.6	161	72.2	60	26.9	2	0.9
22105	955	444	46.5	401	90.3	41	9.2	2	0.5
21865	1053	90	8.5	88	97.8	2	2.2	0	0
22676	673	313	46.5	268	85.6	45	14.4	0	0
21572	674	53	7.9	46	86.8	7	13.2	0	0
21948	1658	157	9.5	139	88.5	18	11.5	0	0
21566	662	456	68.9	349	76.5	107	23.5	0	0
17112	698	27	3.9	26	96.3	1	3.7	0	0
22513	818	455	55.6	371	81.5	83	18.2	1	0.2
22391	2741	673	24.6	599	89	73	10.8	1	0.1

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22037	1369	154	11.2	144	93.5	10	6.5	0	0
22392	3302	456	13.8	400	87.7	56	12.3	0	0
22393	386	40	10.4	32	80	8	20	0	0
22177	269	12	4.5	12	100	0	0	0	0
21771	490	31	6.3	27	87.1	4	12.9	0	0
22394	94	9	9.6	9	100	0	0	0	0
53986	636	34	5.3	34	100	0	0	0	0
22040	1763	403	22.9	346	85.9	56	13.9	1	0.2
67411	614	257	41.9	209	81.3	44	17.1	4	1.6
21585	2410	215	8.9	198	92.1	17	7.9	0	0
22396	1420	74	5.2	74	100	0	0	0	0
22397	2195	124	5.6	122	98.4	2	1.6	0	0
22398	1947	284	14.6	280	98.6	4	1.4	0	0
21814	3894	261	6.7	229	87.7	32	12.3	0	0
22399	1969	225	11.4	224	99.6	1	0.4	0	0
22400	3085	323	10.5	321	99.4	2	0.6	0	0
22336	3562	296	8.3	291	98.3	5	1.7	0	0
22337	1489	90	6	88	97.8	2	2.2	0	0
21780	633	124	19.6	122	98.4	2	1.6	0	0
22062	3788	300	7.9	270	90	29	9.7	1	0.3
55111	320	19	5.9	19	100	0	0	0	0
21927	533	45	8.4	41	91.1	4	8.9	0	0
22063	2317	483	20.8	422	87.4	60	12.4	1	0.2
22688	335	179	53.4	150	83.8	29	16.2	0	0
22678	1342	654	48.7	527	80.6	126	19.3	1	0.2
21774	1695	187	11	159	85	28	15	0	0
22491	261	148	56.7	113	76.4	33	22.3	2	1.4
16814	282	239	84.8	237	99.2	2	0.8	0	0
66395	3201	262	8.2	241	92	20	7.6	1	0.4
22158	266	22	8.3	21	95.5	1	4.5	0	0
21952	3486	570	16.4	526	92.3	44	7.7	0	0
22108	2737	309	11.3	280	90.6	29	9.4	0	0
21930	3018	310	10.3	285	91.9	25	8.1	0	0
22274	1342	551	41.1	461	83.7	88	16	2	0.4
62329	2471	303	12.3	300	99	3	1	0	0
21953	480	5	1	5	100	0	0	0	0
22159	959	179	18.7	178	99.4	1	0.6	0	0
22171	2939	218	7.4	211	96.8	7	3.2	0	0
21752	2818	208	7.4	196	94.2	12	5.8	0	0
22116	526	44	8.4	43	97.7	1	2.3	0	0
22044	514	41	8	40	97.6	1	2.4	0	0
15262	214	157	73.4	157	100	0	0	0	0
66290	57	3	5.3	3	100	0	0	0	0
22117	2428	158	6.5	157	99.4	1	0.6	0	0
64133	477	42	8.8	42	100	0	0	0	0
21639	547	24	4.4	21	87.5	3	12.5	0	0
22118	700	104	14.9	103	99	1	1	0	0
21822	566	41	7.2	41	100	0	0	0	0
21938	353	92	26.1	77	83.7	15	16.3	0	0
22111	3124	237	7.6	219	92.4	18	7.6	0	0
16742	196	146	74.5	145	99.3	1	0.7	0	0
55182	281	11	3.9	11	100	0	0	0	0
21787	4092	373	9.1	346	92.8	27	7.2	0	0
22050	1242	140	11.3	129	92.1	11	7.9	0	0
22069	1961	133	6.8	125	94	8	6	0	0
21999	531	36	6.8	35	97.2	1	2.8	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
19314	613	19	3.1	17	89.5	2	10.5	0	0
21887	1494	375	25.1	319	85.1	56	14.9	0	0
22229	956	370	38.7	304	82.2	63	17	3	0.8
21573	405	268	66.2	219	81.7	49	18.3	0	0
21588	726	21	2.9	21	100	0	0	0	0
22120	1629	115	7.1	114	99.1	1	0.9	0	0
21880	125	4	3.2	4	100	0	0	0	0
22054	2636	128	4.9	117	91.4	11	8.6	0	0
21802	2244	583	26	463	79.4	116	19.9	4	0.7
15904	116	76	65.5	76	100	0	0	0	0
22121	677	38	5.6	36	94.7	2	5.3	0	0
22683	1025	420	41	351	83.6	67	16	2	0.5
21636	1203	74	6.2	72	97.3	2	2.7	0	0
66232	4007	538	13.4	504	93.7	34	6.3	0	0
22070	633	76	12	73	96.1	3	3.9	0	0
21931	1659	116	7	110	94.8	6	5.2	0	0
22071	229	173	75.5	168	97.1	5	2.9	0	0
21167	106	7	6.6	7	100	0	0	0	0
22125	270	18	6.7	18	100	0	0	0	0
22058	2345	277	11.8	256	92.4	21	7.6	0	0
21556	154	123	79.9	122	99.2	1	0.8	0	0
21988	865	95	11	92	96.8	3	3.2	0	0
20851	992	123	12.4	108	87.8	15	12.2	0	0
22305	1040	97	9.3	87	89.7	10	10.3	0	0
71694	2639	256	9.7	236	92.2	20	7.8	0	0
21835	904	400	44.2	364	91	36	9	0	0
22346	760	81	10.7	81	100	0	0	0	0
21920	1071	511	47.7	439	85.9	70	13.7	2	0.4
Total	**128686***	**18949**	**14.7**	**17002**	**89.7**	**1917**	**10.1**	**30**	**0.2**

**Does not include responses that received a condition code.*

Table J-8. Read Behind Report—Grade 6 Reading CRs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	2931	327	11.2	272	83.2	53	16.2	2	0.6
22675	374	78	20.9	65	83.3	13	16.7	0	0
22105	1195	117	12.3	108	92.3	7	6	2	1.7
21865	1053	123	11.7	111	90.2	10	8.1	2	1.6
22676	673	90	13.4	75	83.3	14	15.6	1	1.1
21572	674	72	10.7	62	86.1	9	12.5	1	1.4
21948	1658	222	13.4	185	83.3	37	16.7	0	0
21566	662	84	12.7	72	85.7	11	13.1	1	1.2
17112	698	77	11	65	84.4	12	15.6	0	0
22513	818	95	11.6	82	86.3	13	13.7	0	0
22391	2741	312	11.4	276	88.5	33	10.6	3	1
22037	1371	192	14	169	88	22	11.5	1	0.5
22392	3302	347	10.5	285	82.1	57	16.4	5	1.4
22393	386	42	10.9	35	83.3	7	16.7	0	0
22177	269	36	13.4	32	88.9	2	5.6	2	5.6
21771	490	175	35.7	141	80.6	27	15.4	7	4
22394	94	5	5.3	4	80	1	20	0	0
53986	636	91	14.3	78	85.7	13	14.3	0	0
22040	1763	216	12.3	183	84.7	28	13	5	2.3
67411	614	96	15.6	81	84.4	12	12.5	3	3.1

continued

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21585	2410	280	11.6	235	83.9	42	15	3	1.1
22396	1420	161	11.3	139	86.3	21	13	1	0.6
22397	2195	229	10.4	205	89.5	22	9.6	2	0.9
22398	1947	330	16.9	268	81.2	58	17.6	4	1.2
21814	3894	478	12.3	401	83.9	72	15.1	5	1
22399	1969	197	10	173	87.8	23	11.7	1	0.5
22400	3085	340	11	283	83.2	54	15.9	3	0.9
22336	3562	399	11.2	350	87.7	47	11.8	2	0.5
22337	1489	174	11.7	152	87.4	19	10.9	3	1.7
21780	633	77	12.2	70	90.9	7	9.1	0	0
22062	3788	472	12.5	411	87.1	53	11.2	8	1.7
55111	320	39	12.2	34	87.2	5	12.8	0	0
21927	533	71	13.3	61	85.9	10	14.1	0	0
22063	2317	318	13.7	270	84.9	45	14.2	3	0.9
22688	335	52	15.5	45	86.5	7	13.5	0	0
22678	1342	161	12	135	83.9	25	15.5	1	0.6
21774	1695	266	15.7	219	82.3	45	16.9	2	0.8
22491	261	47	18	41	87.2	5	10.6	1	2.1
66395	3242	338	10.6	280	82.8	56	16.6	2	0.6
22158	266	37	13.9	36	97.3	1	2.7	0	0
21952	3486	402	11.5	346	86.1	49	12.2	7	1.7
22108	2737	336	12.3	277	82.4	59	17.6	0	0
21930	3018	321	10.6	269	83.8	47	14.6	5	1.6
22274	1342	154	11.5	138	89.6	12	7.8	4	2.6
62329	2471	291	11.8	249	85.6	40	13.7	2	0.7
21953	480	57	11.9	52	91.2	4	7	1	1.8
22159	959	107	11.2	94	87.9	13	12.1	0	0
22171	2939	280	9.5	233	83.2	45	16.1	2	0.7
21752	2818	302	10.7	253	83.8	47	15.6	2	0.7
22116	526	73	13.9	64	87.7	8	11	1	1.4
22044	514	63	12.3	53	84.1	10	15.9	0	0
66290	57	9	15.8	8	88.9	1	11.1	0	0
22109	133	17	12.8	15	88.2	2	11.8	0	0
22117	2428	273	11.2	238	87.2	32	11.7	3	1.1
64133	477	56	11.7	48	85.7	7	12.5	1	1.8
21639	547	74	13.5	60	81.1	13	17.6	1	1.4
22118	700	101	14.4	83	82.2	18	17.8	0	0
21822	566	67	11.8	60	89.6	7	10.4	0	0
21938	353	50	14.2	42	84	8	16	0	0
22111	3124	498	15.9	411	82.5	80	16.1	7	1.4
55182	281	52	18.5	47	90.4	4	7.7	1	1.9
21787	4092	475	11.6	391	82.3	79	16.6	5	1.1
22050	1242	206	16.6	170	82.5	34	16.5	2	1
22069	1961	239	12.2	205	85.8	33	13.8	1	0.4
21999	531	81	15.3	71	87.7	10	12.3	0	0
19314	613	87	14.2	80	92	5	5.7	2	2.3
21887	1494	169	11.3	152	89.9	17	10.1	0	0
22229	956	106	11.1	91	85.8	13	12.3	2	1.9
21573	405	71	17.5	59	83.1	12	16.9	0	0
21588	726	78	10.7	70	89.7	6	7.7	2	2.6
22120	1629	172	10.6	147	85.5	24	14	1	0.6
21880	125	14	11.2	13	92.9	1	7.1	0	0
22054	2636	250	9.5	213	85.2	34	13.6	3	1.2
21802	2244	262	11.7	223	85.1	38	14.5	1	0.4
22121	677	73	10.8	62	84.9	11	15.1	0	0
22683	1025	235	22.9	194	82.6	35	14.9	6	2.6

continued

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21636	1203	125	10.4	106	84.8	18	14.4	1	0.8
66232	4007	388	9.7	332	85.6	50	12.9	6	1.5
22070	633	120	19	96	80	24	20	0	0
21931	1659	210	12.7	173	82.4	33	15.7	4	1.9
21977	121	20	16.5	16	80	2	10	2	10
21167	106	11	10.4	9	81.8	2	18.2	0	0
22125	270	42	15.6	36	85.7	5	11.9	1	2.4
22058	2345	258	11	224	86.8	32	12.4	2	0.8
21988	865	86	9.9	79	91.9	7	8.1	0	0
20851	992	118	11.9	98	83.1	20	16.9	0	0
22345	238	35	14.7	29	82.9	4	11.4	2	5.7
22305	1040	113	10.9	95	84.1	16	14.2	2	1.8
71694	2639	263	10	232	88.2	28	10.6	3	1.1
21835	1701	99	11	95	96	2	2	2	2
22346	760	67	8.8	59	88.1	7	10.4	1	1.5
21920	1360	119	11.1	106	89.1	12	10.1	1	0.8
Total	**129356***	**15438**	**12.1**	**13155**	**85.2**	**2118**	**13.7**	**165**	**1.1**

**Includes responses that received a condition code.*

Table J-9. Double Blind Report—Grade 7 Reading CRs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	4460	581	13	541	93.1	40	6.9	0	0
22105	875	219	25	186	84.9	33	15.1	0	0
22676	1782	764	42.9	640	83.8	120	15.7	4	0.5
21572	1857	45	2.4	40	88.9	5	11.1	0	0
21948	1850	131	7.1	114	87	17	13	0	0
21566	1270	619	48.7	521	84.2	97	15.7	1	0.2
22513	1445	638	44.2	542	85	92	14.4	4	0.6
22391	626	296	47.3	257	86.8	37	12.5	2	0.7
22037	1587	73	4.6	72	98.6	1	1.4	0	0
22392	596	44	7.4	43	97.7	1	2.3	0	0
21771	3180	286	9	268	93.7	18	6.3	0	0
22040	1294	52	4	45	86.5	7	13.5	0	0
21585	3137	200	6.4	171	85.5	29	14.5	0	0
21814	5177	213	4.1	202	94.8	11	5.2	0	0
22062	7313	452	6.2	429	94.9	23	5.1	0	0
21927	5650	444	7.9	418	94.1	26	5.9	0	0
22063	2078	449	21.6	385	85.7	59	13.1	5	1.1
22688	444	232	52.3	193	83.2	38	16.4	1	0.4
22678	118	49	41.5	39	79.6	10	20.4	0	0
21774	2668	149	5.6	123	82.6	26	17.4	0	0
22491	600	289	48.2	247	85.5	42	14.5	0	0
16814	45	37	82.2	34	91.9	3	8.1	0	0
66395	4026	317	7.9	291	91.8	26	8.2	0	0
21952	3175	142	4.5	135	95.1	7	4.9	0	0
22108	4237	245	5.8	229	93.5	16	6.5	0	0
21930	3510	191	5.4	181	94.8	10	5.2	0	0
22274	1515	648	42.8	517	79.8	125	19.3	6	0.9
63977	660	42	6.4	39	92.9	3	7.1	0	0
22171	5163	257	5	234	91.1	23	8.9	0	0
21752	3095	186	6	179	96.2	7	3.8	0	0
22109	1231	109	8.9	98	89.9	11	10.1	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21639	1436	165	11.5	154	93.3	11	6.7	0	0
21938	1127	174	15.4	155	89.1	19	10.9	0	0
22111	3399	220	6.5	213	96.8	7	3.2	0	0
21787	4032	217	5.4	208	95.9	9	4.1	0	0
22050	2961	184	6.2	172	93.5	12	6.5	0	0
22069	1997	83	4.2	77	92.8	6	7.2	0	0
21887	647	306	47.3	253	82.7	52	17	1	0.3
22229	1168	528	45.2	450	85.2	76	14.4	2	0.4
21573	654	317	48.5	272	85.8	43	13.6	2	0.6
22054	4608	355	7.7	312	87.9	43	12.1	0	0
21802	5590	927	16.6	783	84.5	140	15.1	4	0.4
22683	433	203	46.9	176	86.7	25	12.3	2	1
21843	1761	152	8.6	138	90.8	14	9.2	0	0
66232	5637	966	17.1	900	93.2	66	6.8	0	0
21931	3153	223	7.1	198	88.8	25	11.2	0	0
22058	4135	511	12.4	456	89.2	55	10.8	0	0
21988	866	102	11.8	98	96.1	4	3.9	0	0
20851	4088	364	8.9	347	95.3	17	4.7	0	0
22305	1041	64	6.1	62	96.9	2	3.1	0	0
71694	3043	136	4.5	125	91.9	11	8.1	0	0
21835	1179	532	45.1	459	86.3	66	12.4	7	1.3
21920	1442	672	46.6	565	84.1	107	15.9	0	0
Total	**129061***	**15800**	**12.2**	**13986**	**88.5**	**1773**	**11.2**	**41**	**0.3**

**Does not include responses that received a condition code.*

Table J-10. Read Behind Report—Grade 7 Reading CRs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
21912	4460	439	9.8	389	88.6	45	10.3	5	1.1
22105	875	223	25.5	186	83.4	36	16.1	1	0.4
22676	1782	212	11.9	179	84.4	30	14.2	3	1.4
21572	1857	265	14.3	225	84.9	40	15.1	0	0
21948	1850	269	14.5	224	83.3	43	16	2	0.7
21566	1270	171	13.5	154	90.1	16	9.4	1	0.6
22513	1445	189	13.1	165	87.3	19	10.1	5	2.6
22391	626	108	17.3	96	88.9	11	10.2	1	0.9
22037	1587	227	14.3	208	91.6	19	8.4	0	0
22392	596	71	11.9	61	85.9	10	14.1	0	0
21771	3180	610	19.2	497	81.5	103	16.9	10	1.6
22040	1294	193	14.9	163	84.5	28	14.5	2	1
21585	3137	402	12.8	341	84.8	54	13.4	7	1.7
21814	5177	654	12.6	551	84.3	100	15.3	3	0.5
22062	7313	946	12.9	800	84.6	131	13.8	15	1.6
21927	5650	659	11.7	567	86	85	12.9	7	1.1
22063	2172	308	14.8	271	88	35	11.4	2	0.6
22688	444	63	14.2	55	87.3	7	11.1	1	1.6
22678	118	12	10.2	10	83.3	2	16.7	0	0
21774	2668	597	22.4	486	81.4	110	18.4	1	0.2
22491	600	84	14	78	92.9	5	6	1	1.2
66395	4026	439	10.9	367	83.6	69	15.7	3	0.7
21952	3175	410	12.9	363	88.5	46	11.2	1	0.2
22108	4237	502	11.8	435	86.7	62	12.4	5	1
21930	3510	423	12.1	367	86.8	56	13.2	0	0

continued

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22274	1515	210	13.9	176	83.8	31	14.8	3	1.4
63977	660	110	16.7	91	82.7	18	16.4	1	0.9
22171	5163	599	11.6	513	85.6	81	13.5	5	0.8
21752	3095	426	13.8	372	87.3	53	12.4	1	0.2
22109	1231	134	10.9	112	83.6	21	15.7	1	0.7
21639	1436	165	11.5	150	90.9	12	7.3	3	1.8
21938	1127	174	15.4	149	85.6	24	13.8	1	0.6
22111	3399	413	12.2	352	85.2	57	13.8	4	1
21787	4032	456	11.3	396	86.8	59	12.9	1	0.2
22050	2961	411	13.9	347	84.4	61	14.8	3	0.7
22069	1997	344	17.2	293	85.2	50	14.5	1	0.3
21887	647	96	14.8	82	85.4	13	13.5	1	1
22229	1168	141	12.1	122	86.5	18	12.8	1	0.7
21573	654	108	16.5	100	92.6	8	7.4	0	0
22054	4608	517	11.2	434	83.9	81	15.7	2	0.4
21802	5590	733	13.1	614	83.8	113	15.4	6	0.8
22683	433	44	10.2	38	86.4	6	13.6	0	0
21843	1761	213	12.1	178	83.6	34	16	1	0.5
66232	5637	523	9.3	472	90.2	48	9.2	3	0.6
21931	3153	421	13.4	364	86.5	55	13.1	2	0.5
22058	4135	409	9.9	361	88.3	45	11	3	0.7
21988	866	94	10.9	82	87.2	11	11.7	1	1.1
20851	4088	469	11.5	413	88.1	56	11.9	0	0
22305	1041	136	13.1	120	88.2	16	11.8	0	0
71694	3043	380	12.5	343	90.3	36	9.5	1	0.3
21835	1179	161	13.7	136	84.5	17	10.6	8	5
21920	1442	211	14.6	179	84.8	31	14.7	1	0.5
Total	**129110***	**16574**	**12.8**	**14227**	**85.8**	**2217**	**13.4**	**130**	**0.8**

**Includes responses that received a condition code.*

Table J-11. Double Blind Report—Grade 8 Writing ERs

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22393	376	2	0.5	1	50	1	50	0	0
22177	2126	2	0.1	1	50	1	50	0	0
22394	959	2	0.2	2	100	0	0	0	0
22178	1481	5	0.3	4	80	0	0	1	20
22396	995	2	0.2	2	100	0	0	0	0
22397	739	4	0.5	4	100	0	0	0	0
22398	1475	9	0.6	8	88.9	1	11.1	0	0
20835	507	3	0.6	3	100	0	0	0	0
22399	569	3	0.5	3	100	0	0	0	0
22400	593	9	1.5	9	100	0	0	0	0
22336	758	1	0.1	1	100	0	0	0	0
54745	29	28	96.6	26	92.9	2	7.1	0	0
22337	332	2	0.6	2	100	0	0	0	0
21780	1069	2	0.2	1	50	1	50	0	0
62329	2090	8	0.4	6	75	1	12.5	1	12.5
22116	1527	5	0.3	5	100	0	0	0	0
22117	7131	21	0.3	17	81	4	19	0	0
22118	3274	8	0.2	5	62.5	3	37.5	0	0
21887	1872	3	0.2	3	100	0	0	0	0
22120	2062	7	0.3	7	100	0	0	0	0
21880	873	2	0.2	2	100	0	0	0	0

continued

Scorer ID	Total Scored	Total # of DB	% DB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
66609	3975	5	0.1	4	80	1	20	0	0
80027	3517	12	0.3	10	83.3	2	16.7	0	0
21958	580	2	0.3	2	100	0	0	0	0
22121	3220	9	0.3	9	100	0	0	0	0
21636	2073	12	0.6	9	75	3	25	0	0
22070	1185	8	0.7	5	62.5	3	37.5	0	0
80491	1965	1	0.1	1	100	0	0	0	0
21977	1263	1	0.1	1	100	0	0	0	0
21167	1621	9	0.6	8	88.9	1	11.1	0	0
80569	1103	5	0.5	5	100	0	0	0	0
Total	**51339***	**192**	**0.4**	**166**	**86.5**	**24**	**12.5**	**2**	**1**

**Does not include responses that received a condition code.*

Table J-12. Read Behind Report—Grade 8 Writing ERs

Scorer ID	Total Scored	Total # of RB	% RB	# Exact	% Exact	# Adjacent	% Adjacent	# Discrepant	% Discrepant
22391	299	63	21.1	50	79.4	12	19	1	1.6
22393	376	73	19.4	57	78.1	16	21.9	0	0
22177	2126	228	10.7	170	74.6	56	24.6	2	0.9
22394	959	122	12.7	103	84.4	19	15.6	0	0
22178	1481	192	13	148	77.1	42	21.9	2	1
22396	995	113	11.4	97	85.8	16	14.2	0	0
22397	739	102	13.8	83	81.4	19	18.6	0	0
22398	1475	192	13	159	82.8	33	17.2	0	0
20835	507	73	14.4	70	95.9	3	4.1	0	0
22399	569	90	15.8	64	71.1	22	24.4	4	4.4
22400	593	92	15.5	79	85.9	13	14.1	0	0
22336	758	94	12.4	82	87.2	11	11.7	1	1.1
22337	332	48	14.5	42	87.5	6	12.5	0	0
21780	1069	119	11.1	99	83.2	15	12.6	5	4.2
62329	2090	258	12.3	211	81.8	44	17.1	3	1.2
22116	1527	224	14.7	185	82.6	38	17	1	0.4
22117	7131	823	11.5	622	75.6	194	23.6	7	0.9
22118	3274	443	13.5	348	78.6	93	21	2	0.5
21887	1872	200	10.7	165	82.5	35	17.5	0	0
22120	2062	240	11.6	212	88.3	28	11.7	0	0
21880	873	102	11.7	92	90.2	10	9.8	0	0
66609	3975	429	10.8	335	78.1	88	20.5	6	1.4
80027	3517	369	10.5	308	83.5	60	16.3	1	0.3
21958	580	65	11.2	48	73.8	17	26.2	0	0
22121	3220	352	10.9	291	82.7	61	17.3	0	0
21636	2073	230	11.1	184	80	46	20	0	0
22070	1185	188	15.9	143	76.1	44	23.4	1	0.5
80491	1965	240	12.2	200	83.3	39	16.3	1	0.4
21977	1263	178	14.1	146	82	31	17.4	1	0.6
21167	1621	181	11.2	158	87.3	23	12.7	0	0
80569	1103	124	11.2	100	80.6	23	18.5	1	0.8
Total	**51609***	**6247**	**12.1**	**5051**	**80.9**	**1157**	**18.5**	**39**	**0.6**

**Includes responses that received a condition code.*

APPENDIX K

ITEM-LEVEL CLASSICAL STATISTICS

Table K-1. Item-Level Classical Test Theory Statistics—ELA Grade 3

Item Number	Type	Difficulty	Discrimination	Percent Omitted
146971A	MC	0.57	0.44	0.10
147007A	MC	0.61	0.48	0.08
147008A	MC	0.57	0.35	0.08
147012A	MC	0.65	0.43	0.08
147348A	MC	0.57	0.44	0.09
147433A	MC	0.51	0.37	0.11
147436A	MC	0.73	0.61	0.10
147456A	MC	0.44	0.44	0.12
155253A	MC	0.59	0.44	0.08
155254A	MC	0.51	0.42	0.07
155255A	MC	0.48	0.41	0.08
155274A	MC	0.76	0.56	0.09
155277A	MC	0.49	0.37	0.06
155279A	MC	0.62	0.50	0.07
155282A	MC	0.58	0.31	0.10
155283A	MC	0.67	0.43	0.04
156120A	MC	0.67	0.57	0.09
156121A	MC	0.62	0.50	0.09
156123A	MC	0.49	0.43	0.09
156124A	MC	0.74	0.46	0.08
156126A	MC	0.46	0.46	0.11
156355A	MC	0.64	0.38	0.10
156356A	MC	0.61	0.50	0.12
156362A	MC	0.51	0.28	0.13

Item Number	Type	Difficulty	Discrimination	Percent Omitted
482318	MC	0.49	0.40	0.10
482320	MC	0.76	0.39	0.05
482971	MC	0.77	0.38	0.09
484569	MC	0.58	0.42	0.09
484571	MC	0.29	0.13	0.12
484575	MC	0.59	0.41	0.09
484577	MC	0.44	0.35	0.12
484579	MC	0.46	0.46	0.10
484581	MC	0.39	0.22	0.11
628643	MC	0.43	0.27	0.10
628734	MC	0.59	0.44	0.10
628961	MC	0.49	0.48	0.10
630590	MC	0.46	0.42	0.06
701185	MC	0.59	0.43	0.15
701219	MC	0.26	0.09	0.17
701289	MC	0.37	0.24	0.15
705924	MC	0.71	0.55	0.17
715595	MC	0.61	0.48	0.17
758779	MC	0.62	0.50	0.14
759133	MC	0.54	0.40	0.12
759149	MC	0.51	0.41	0.19
759159	MC	0.60	0.33	0.11
759170	MC	0.83	0.45	0.10
765883	MC	0.58	0.48	0.11

Table K-2. Item-Level Classical Test Theory Statistics—ELA Grade 4

Item Number	Type	Difficulty	Discrimination	Percent Omitted
146887A	MC	0.58	0.46	0.07
148938A	MC	0.81	0.54	0.05
149114A	MC	0.76	0.52	0.06
149115A	MC	0.44	0.38	0.09
149116A	MC	0.71	0.54	0.07
149136A	MC	0.46	0.49	0.06
155490A	MC	0.51	0.46	0.07
155569A	MC	0.61	0.45	0.08
155571A	MC	0.73	0.49	0.08
155572A	MC	0.74	0.46	0.09
155580A	MC	0.68	0.57	0.07
158587A	MC	0.57	0.54	0.07
158589A	MC	0.69	0.59	0.11
158602A	MC	0.51	0.35	0.04
158604A	MC	0.73	0.38	0.02
158611A	MC	0.63	0.39	0.03
158691A	MC	0.84	0.48	0.02
158692A	MC	0.48	0.38	0.04
184821A	MC	0.51	0.54	0.05
184822A	MC	0.31	0.15	0.06
184824A	MC	0.80	0.53	0.05
185806A	MC	0.42	0.32	0.06
186065A	MC	0.41	0.36	0.05
483086	MC	0.56	0.36	0.09
483094	MC	0.63	0.48	0.03
483115	MC	0.46	0.38	0.10
484626	MC	0.68	0.41	0.06
484628	MC	0.75	0.51	0.05
484632	MC	0.62	0.52	0.06
484636	MC	0.58	0.24	0.06
484652	MC	0.40	0.33	0.07
484654	MC	0.47	0.40	0.07
484658	MC	0.62	0.51	0.07
632843	MC	0.33	0.32	0.07
632853	MC	0.71	0.54	0.08
632863	MC	0.47	0.41	0.08
632877	MC	0.65	0.37	0.07
635527	MC	0.65	0.39	0.02
635530	MC	0.65	0.37	0.03
759364	MC	0.45	0.39	0.06
759367	MC	0.71	0.50	0.06
759400	MC	0.52	0.33	0.06
759440	MC	0.73	0.57	0.06
759873	MC	0.70	0.54	0.04
759877	MC	0.55	0.46	0.03
759944	MC	0.56	0.38	0.04
765830	MC	0.49	0.39	0.04
765847	MC	0.55	0.41	0.07

Table K-3. Item-Level Classical Test Theory Statistics—ELA Grade 5

Item Number	Type	Difficulty	Discrimination	Percent Omitted
147920A	MC	0.83	0.43	0.03
147921A	MC	0.66	0.49	0.02
147923A	MC	0.67	0.46	0.02
147924A	MC	0.70	0.44	0.03
147926A	MC	0.57	0.38	0.03
147969A	MC	0.80	0.51	0.02
148003A	MC	0.60	0.34	0.05
148007A	MC	0.65	0.28	0.04
148008A	MC	0.45	0.22	0.04
148961A	MC	0.71	0.47	0.07
148963A	MC	0.80	0.52	0.04
148967A	MC	0.79	0.61	0.05
148971A	MC	0.64	0.43	0.06
149152A	MC	0.86	0.47	0.04
149158A	MC	0.54	0.35	0.05
149196A	MC	0.72	0.42	0.06
149318A	MC	0.64	0.49	0.05
149321A	MC	0.67	0.33	0.05
149330A	MC	0.78	0.46	0.06
149334A	MC	0.56	0.45	0.06
149338A	MC	0.64	0.55	0.06
158749A	MC	0.55	0.46	0.04
159592A	MC	0.66	0.43	0.03
159600A	MC	0.87	0.46	0.02
160718A	MC	0.84	0.48	0.04
186107A	MC	0.77	0.50	0.06
186115A	MC	0.44	0.36	0.05
186121A	MC	0.60	0.46	0.04
186469A	MC	0.37	0.43	0.08
186471A	MC	0.88	0.48	0.06
186476A	MC	0.57	0.43	0.07
186505A	MC	0.38	0.28	0.10
186777A	MC	0.84	0.48	0.05
483126	MC	0.73	0.43	0.03
483138	MC	0.64	0.42	0.06
483140	MC	0.89	0.44	0.05
483162	MC	0.95	0.37	0.02
483172	MC	0.75	0.45	0.02
483179	MC	0.72	0.34	0.05
630737	MC	0.71	0.49	0.07
631575	MC	0.51	0.38	0.06
631601	MC	0.60	0.45	0.05
631654	MC	0.60	0.40	0.06
631918	MC	0.51	0.41	0.05
631922	MC	0.81	0.40	0.05
631955	MC	0.83	0.50	0.03
631981	MC	0.57	0.52	0.04
632263	MC	0.86	0.44	0.03
632269	MC	0.50	0.33	0.03
632323	MC	0.57	0.44	0.03

Table K-4. Item-Level Classical Test Theory Statistics—ELA Grade 6

Item Number	Type	Difficulty	Discrimination	Percent Omitted
147283A	MC	0.71	0.49	0.06
147289A	MC	0.66	0.31	0.06
147290A	MC	0.67	0.44	0.05
149570A	MC	0.59	0.47	0.15
149571A	MC	0.59	0.60	0.13
149737A	MC	0.60	0.39	0.10
158702A	MC	0.48	0.58	0.15
158705A	MC	0.82	0.57	0.14
158723A	MC	0.80	0.50	0.12
158739A	MC	0.75	0.48	0.08
158740A	MC	0.63	0.33	0.10
158747A	MC	0.69	0.47	0.13
158756A	MC	0.36	0.16	0.12
158774A	MC	0.64	0.53	0.08
158777A	MC	0.69	0.50	0.16
158786A	MC	0.75	0.52	0.15
158886A	MC	0.84	0.45	0.12
158897A	MC	0.63	0.46	0.14
158935A	MC	0.59	0.41	0.04
158943A	MC	0.40	0.24	0.07
158947A	MC	0.60	0.42	0.05
159451A	MC	0.74	0.40	0.10
159453A	MC	0.69	0.37	0.11
159454A	MC	0.36	0.34	0.11
159457A	MC	0.75	0.39	0.11
159458A	MC	0.64	0.37	0.11
485443	MC	0.37	0.39	0.12
485688	MC	0.73	0.51	0.23
485702	MC	0.76	0.50	0.09
486350	MC	0.49	0.33	0.08
486369	MC	0.64	0.52	0.08
486371	MC	0.64	0.44	0.08
486376	MC	0.66	0.52	0.07
629854	MC	0.30	0.27	0.07
629856	MC	0.59	0.47	0.07
629867	MC	0.75	0.52	0.02
629869	MC	0.54	0.40	0.02
629871	MC	0.44	0.32	0.03
629885	MC	0.53	0.40	0.13
629889	MC	0.33	0.24	0.13
629891	MC	0.45	0.36	0.13
629895	MC	0.62	0.39	0.13
629898	MC	0.35	0.35	0.14
708956	MC	0.61	0.34	0.05
709888	MC	0.65	0.40	0.07
709904	MC	0.68	0.46	0.06
709910	MC	0.51	0.37	0.06
710081	MC	0.52	0.42	0.06

Table K-5. Item-Level Classical Test Theory Statistics—ELA Grade 7

Item Number	Type	Difficulty	Discrimination	Percent Omitted
148104A	MC	0.58	0.55	0.19
148117A	MC	0.52	0.40	0.18
148759A	MC	0.56	0.44	0.17
148760A	MC	0.62	0.49	0.16
148762A	MC	0.70	0.38	0.18
148785A	MC	0.32	0.26	0.26
148823A	MC	0.70	0.45	0.02
148850A	MC	0.74	0.42	0.14
148859A	MC	0.83	0.47	0.14
148861A	MC	0.45	0.45	0.17
148866A	MC	0.66	0.41	0.15
154639A	MC	0.42	0.34	0.16
158719A	MC	0.47	0.41	0.15
158724A	MC	0.57	0.46	0.15
158765A	MC	0.61	0.46	0.12
158766A	MC	0.64	0.41	0.13
158769A	MC	0.56	0.17	0.14
159120A	MC	0.65	0.56	0.18
159133A	MC	0.47	0.29	0.20
159393A	MC	0.31	0.17	0.07
159394A	MC	0.50	0.29	0.10
159646A	MC	0.50	0.46	0.08
160457A	MC	0.47	0.31	0.02
160508A	MC	0.58	0.46	0.04
160511A	MC	0.52	0.34	0.02
160937A	MC	0.71	0.54	0.07
160940A	MC	0.80	0.51	0.09
182584A	MC	0.44	0.37	0.05
182596A	MC	0.67	0.54	0.06
182597A	MC	0.63	0.37	0.05
485453	MC	0.50	0.48	0.05
486286	MC	0.30	0.20	0.06
486294	MC	0.34	0.30	0.07
486317	MC	0.49	0.25	0.08
486333	MC	0.66	0.50	0.08
633929	MC	0.25	0.28	0.06
634354	MC	0.45	0.24	0.15
634364	MC	0.53	0.39	0.14
634366	MC	0.52	0.27	0.14
634374	MC	0.41	0.27	0.15
634379	MC	0.55	0.49	0.16
634389	MC	0.58	0.37	0.14
711110	MC	0.61	0.47	0.02
711120	MC	0.71	0.38	0.03
711137	MC	0.59	0.42	0.02
711145	MC	0.70	0.50	0.01
711168	MC	0.63	0.45	0.02
711173	MC	0.54	0.40	0.03

Table K-6. Item-Level Classical Test Theory Statistics—ELA Grade 8

Item Number	Type	Difficulty	Discrimination	Percent Omitted
148177A	MC	0.75	0.48	0.07
148187A	MC	0.76	0.36	0.06
148189A	MC	0.54	0.33	0.07
148191A	MC	0.65	0.38	0.08
149619A	MC	0.53	0.41	0.10
149653A	MC	0.58	0.46	0.09
149654A	MC	0.37	0.26	0.10
149721A	MC	0.85	0.43	0.09
149731A	MC	0.28	0.25	0.10
149744A	MC	0.50	0.47	0.11
160467A	MC	0.70	0.31	0.08
160472A	MC	0.72	0.37	0.09
160477A	MC	0.34	0.25	0.09
160742A	MC	0.68	0.46	0.06
160745A	MC	0.80	0.44	0.05
160747A	MC	0.66	0.39	0.05
160784A	MC	0.92	0.43	0.03
160785A	MC	0.87	0.42	0.03
160787A	MC	0.58	0.42	0.04
160788A	MC	0.65	0.32	0.03
160789A	MC	0.43	0.35	0.03
160790A	MC	0.66	0.26	0.03
160946A	MC	0.47	0.45	0.11
160947A	MC	0.74	0.35	0.08
160956A	MC	0.58	0.31	0.09
160989A	MC	0.50	0.25	0.05
160992A	MC	0.73	0.33	0.07
485471	MC	0.59	0.30	0.09
485506	MC	0.21	0.11	0.08
486744	MC	0.55	0.35	0.04
486757	MC	0.40	0.29	0.04
486763	MC	0.82	0.28	0.03
487006	MC	0.81	0.41	0.05
626597	MC	0.55	0.26	0.05
626602	MC	0.54	0.39	0.04
626606	MC	0.35	0.19	0.05
626623	MC	0.57	0.21	0.04
626626	MC	0.42	0.46	0.14
626777	MC	0.42	0.34	0.11
626785	MC	0.74	0.52	0.11
626800	MC	0.40	0.34	0.17
626814	MC	0.45	0.24	0.10
627061	MC	0.81	0.50	0.10
760819	MC	0.50	0.33	0.02
760826	MC	0.44	0.28	0.03
760830	MC	0.29	0.37	0.02
760834	MC	0.53	0.42	0.02
760837	MC	0.91	0.40	0.02
760844	MC	0.64	0.38	0.02
760851	MC	0.89	0.33	0.01

Table K-7. Item-Level Classical Test Theory Statistics—Mathematics Grade 3

Item Number	Item Type	Difficulty	Discrimination	Percent Omitted
146917A	MC	0.77	0.52	0.02
146955A	MC	0.68	0.45	0.08
147044A	MC	0.64	0.46	0.11
147064A	MC	0.90	0.40	0.03
147330A	MC	0.80	0.59	0.11
147503A	MC	0.68	0.68	0.04
147542A	MC	0.71	0.50	0.03
147712A	MC	0.75	0.57	0.08
147718A	MC	0.69	0.52	0.11
147966A	MC	0.41	0.17	0.07
151560A	MC	0.73	0.49	0.11
152325A	MC	0.67	0.46	0.12
152546A	MC	0.76	0.49	0.04
152598A	MC	0.42	0.48	0.14
152739A	MC	0.77	0.47	0.05
152842A	MC	0.28	0.39	0.06
152864A	MC	0.56	0.40	0.12
153168A	MC	0.65	0.64	0.19
154329A	MC	0.80	0.48	0.17
154533A	MC	0.59	0.53	0.14
154758A	MC	0.63	0.61	0.02
154760A	MC	0.59	0.60	0.11
155260A	MC	0.77	0.63	0.09
155455A	MC	0.33	0.32	0.11
155501A	MC	0.39	0.41	0.12
155525A	MC	0.70	0.67	0.05
155594A	MC	0.60	0.48	0.12
155999A	MC	0.51	0.36	0.03
184065A	MC	0.71	0.49	0.12
479107	MC	0.81	0.49	0.06
479111	MC	0.66	0.55	0.10
479113	MC	0.85	0.51	0.02
479117	MC	0.62	0.41	0.04
479125	MC	0.94	0.37	0.11
479138	MC	0.47	0.49	0.15
479140	MC	0.59	0.51	0.08
488998	MC	0.48	0.27	0.14
636391	MC	0.74	0.56	0.06
636402	MC	0.65	0.46	0.15
636410	MC	0.83	0.44	0.09
636412	MC	0.48	0.33	0.11
636429	MC	0.69	0.34	0.09
636437	MC	0.53	0.47	0.04
636439	MC	0.63	0.31	0.12
636443	MC	0.49	0.34	0.10
674356	MC	0.71	0.49	0.06
674370	MC	0.33	0.45	0.12
674378	MC	0.48	0.35	0.04
733123	MC	0.68	0.53	0.14
733127	MC	0.83	0.47	0.06

Table K-8. Item-Level Classical Test Theory Statistics—Mathematics Grade 4

Item Number	Type	Difficulty	Discrimination	Percent Omitted
147319A	MC	0.80	0.43	0.02
147525A	MC	0.65	0.52	0.01
148069A	MC	0.78	0.46	0.08
148301A	MC	0.38	0.38	0.06
148654A	MC	0.36	0.48	0.03
148675A	MC	0.36	0.30	0.05
149723A	MC	0.46	0.46	0.07
150227A	MC	0.43	0.26	0.07
150722A	MC	0.39	0.21	0.03
151506A	MC	0.48	0.49	0.08
151519A	MC	0.81	0.55	0.08
151549A	MC	0.70	0.42	0.13
151556A	MC	0.65	0.57	0.09
151997A	MC	0.50	0.51	0.14
152343A	MC	0.47	0.54	0.01
152353A	MC	0.64	0.52	0.08
152355A	MC	0.79	0.47	0.07
152518A	MC	0.73	0.51	0.08
152776A	MC	0.67	0.30	0.06
152789A	MC	0.41	0.47	0.02
152874A	MC	0.36	0.41	0.03
152988A	MC	0.64	0.52	0.08
153171A	MC	0.53	0.49	0.07
153185A	MC	0.47	0.45	0.07
153189A	MC	0.47	0.54	0.05
153206A	MC	0.63	0.53	0.03
153325A	MC	0.41	0.44	0.09
153346A	MC	0.89	0.35	0.01
154024A	MC	0.51	0.56	0.01
155167A	MC	0.88	0.43	0.02
155192A	MC	0.43	0.23	0.10
155220A	MC	0.72	0.41	0.08
156019A	MC	0.55	0.51	0.08
184241A	MC	0.69	0.52	0.01
479500	MC	0.82	0.42	0.05
479507	MC	0.79	0.31	0.01
479930	MC	0.68	0.33	0.07
636619	MC	0.72	0.52	0.07
636627	MC	0.29	0.34	0.06
636641	MC	0.51	0.58	0.04
636649	MC	0.77	0.50	0.07
636657	MC	0.45	0.34	0.07
636659	MC	0.41	0.43	0.04
636666	MC	0.69	0.57	0.03
636668	MC	0.61	0.50	0.08
733078	MC	0.58	0.58	0.08
733086	MC	0.79	0.43	0.02
733092	MC	0.80	0.53	0.04
733100	MC	0.56	0.38	0.11

Table K-9. Item-Level Classical Test Theory Statistics—Mathematics Grade 5

Item Number	Type	Difficulty	Discrimination	Percent Omitted
146915A	MC	0.65	0.57	0.02
146959A	MC	0.55	0.44	0.14
147747A	MC	0.59	0.45	0.18
147990A	MC	0.40	0.53	0.03
148011A	MC	0.63	0.55	0.02
148659A	MC	0.54	0.58	0.13
149230A	MC	0.51	0.55	0.03
149246A	MC	0.59	0.48	0.02
149261A	MC	0.39	0.50	0.13
149289A	MC	0.45	0.33	0.02
149640A	MC	0.30	0.30	0.13
150267A	MC	0.46	0.37	0.02
150631A	MC	0.63	0.59	0.05
150689A	MC	0.53	0.45	0.04
150703A	MC	0.26	0.28	0.12
150711A	MC	0.47	0.47	0.04
152807A	MC	0.43	0.48	0.13
152946A	MC	0.65	0.52	0.13
153107A	MC	0.55	0.45	0.13
153162A	MC	0.85	0.35	0.12
153165A	MC	0.51	0.50	0.04
153950A	MC	0.74	0.40	0.03
153972A	MC	0.64	0.44	0.13
155145A	MC	0.65	0.48	0.05
155234A	MC	0.18	0.40	0.12
155426A	MC	0.84	0.39	0.01
155434A	MC	0.51	0.45	0.12
155474A	MC	0.61	0.54	0.13
155479A	MC	0.31	0.40	0.17
155489A	MC	0.46	0.45	0.04
155523A	MC	0.78	0.44	0.05
161469A	MC	0.64	0.52	0.12
184261A	MC	0.54	0.38	0.06
187144A	MC	0.47	0.39	0.04
187147A	MC	0.56	0.48	0.18
484706	MC	0.62	0.42	0.02
489954	MC	0.85	0.40	0.02
636681	MC	0.33	0.52	0.05
636693	MC	0.84	0.40	0.09
636705	MC	0.88	0.31	0.03
636726	MC	0.51	0.56	0.15
636730	MC	0.27	0.44	0.01
636735	MC	0.71	0.37	0.04
636740	MC	0.45	0.42	0.14
636748	MC	0.47	0.35	0.14
674572	MC	0.75	0.48	0.05
674574	MC	0.78	0.47	0.13
733184	MC	0.75	0.51	0.13
733196	MC	0.51	0.38	0.12

Table K-10. Item-Level Classical Test Theory Statistics—Mathematics Grade 6

Item Number	Type	Difficulty	Discrimination	Percent Omitted
147578A	MC	0.33	0.40	0.05
148231A	MC	0.68	0.46	0.15
148926A	MC	0.73	0.40	0.05
149231A	MC	0.55	0.54	0.07
149234A	MC	0.70	0.54	0.12
149245A	MC	0.42	0.27	0.16
150604A	MC	0.52	0.40	0.05
150723A	MC	0.72	0.51	0.14
150972A	MC	0.39	0.47	0.04
150989A	MC	0.55	0.46	0.16
151145A	MC	0.60	0.37	0.23
151316A	MC	0.68	0.51	0.05
151782A	MC	0.22	0.18	0.06
151835A	MC	0.33	0.27	0.15
152379A	MC	0.44	0.59	0.09
152754A	MC	0.33	0.32	0.14
152840A	MC	0.66	0.50	0.05
153512A	MC	0.55	0.49	0.15
153601A	MC	0.66	0.46	0.14
153952A	MC	0.75	0.41	0.05
154011A	MC	0.64	0.39	0.16
155174A	MC	0.61	0.47	0.06
155184A	MC	0.60	0.43	0.12
155298A	MC	0.61	0.55	0.21
155300A	MC	0.86	0.42	0.12
181455A	MC	0.44	0.46	0.19
479039	MC	0.45	0.32	0.06
479041	MC	0.73	0.45	0.04
479043	MC	0.29	0.27	0.05
479047	MC	0.37	0.29	0.10
479049	MC	0.33	0.18	0.10
479057	MC	0.72	0.42	0.18
479067	MC	0.38	0.22	0.15
479069	MC	0.78	0.44	0.06
479073	MC	0.68	0.54	0.16
479077	MC	0.36	0.26	0.19
479083	MC	0.53	0.37	0.11
479087	MC	0.44	0.28	0.03
636459	MC	0.63	0.49	0.10
636463	MC	0.41	0.37	0.19
636465	MC	0.63	0.53	0.13
636479	MC	0.48	0.40	0.05
636493	MC	0.69	0.43	0.03
636499	MC	0.63	0.41	0.04
674628	MC	0.25	0.27	0.08
674630	MC	0.37	0.27	0.14
733232	MC	0.19	0.41	0.15

Table K-11. Item-Level Classical Test Theory Statistics—Mathematics Grade 7

Item Number	Type	Difficulty	Discrimination	Percent Omitted
147541A	MC	0.69	0.44	0.15
148154A	MC	0.75	0.38	0.04
148193A	MC	0.28	0.30	0.06
148330A	MC	0.30	0.50	0.03
148478A	MC	0.28	0.32	0.16
148530A	MC	0.49	0.35	0.15
148739A	MC	0.65	0.49	0.13
148912A	MC	0.50	0.40	0.13
149064A	MC	0.57	0.43	0.05
149204A	MC	0.48	0.48	0.04
149295A	MC	0.44	0.58	0.04
149759A	MC	0.55	0.46	0.18
150199A	MC	0.47	0.56	0.13
150232A	MC	0.20	0.41	0.05
150629A	MC	0.72	0.43	0.13
150891A	MC	0.32	0.24	0.16
152009A	MC	0.35	0.40	0.13
152051A	MC	0.26	0.43	0.07
152288A	MC	0.32	0.41	0.12
152819A	MC	0.35	0.25	0.14
152915A	MC	0.49	0.37	0.15
153291A	MC	0.44	0.42	0.15
153299A	MC	0.29	0.42	0.06
153504A	MC	0.32	0.50	0.17
155126A	MC	0.22	0.33	0.07
155443A	MC	0.42	0.47	0.03
182015A	MC	0.32	0.37	0.14
182026A	MC	0.60	0.22	0.03
182027A	MC	0.45	0.31	0.05
480287	MC	0.41	0.41	0.07
480295	MC	0.33	0.30	0.14
480307	MC	0.26	0.15	0.07
480350	MC	0.40	0.45	0.15
489119	MC	0.27	0.34	0.14
489176	MC	0.48	0.35	0.06
490454	MC	0.29	0.18	0.18
636508	MC	0.47	0.44	0.09
636512	MC	0.28	0.41	0.19
636537	MC	0.42	0.38	0.14
636543	MC	0.49	0.54	0.05
636547	MC	0.42	0.52	0.07
636551	MC	0.53	0.37	0.04
636555	MC	0.29	0.29	0.06
674695	MC	0.59	0.50	0.02
674704	MC	0.45	0.49	0.03
674723	MC	0.54	0.40	0.07
733277	MC	0.62	0.50	0.14

Table K-12. Item-Level Classical Test Theory Statistics—Mathematics Grade 8

Item Number	Type	Difficulty	Discrimination	Percent Omitted
148061A	MC	0.31	0.51	0.04
148303A	MC	0.37	0.47	0.04
148327A	MC	0.40	0.55	0.11
148379A	MC	0.59	0.49	0.12
148689A	MC	0.33	0.51	0.12
150198A	MC	0.32	0.54	0.13
150215A	MC	0.43	0.33	0.13
150218A	MC	0.44	0.44	0.12
150223A	MC	0.53	0.58	0.13
151253A	MC	0.39	0.46	0.05
151283A	MC	0.45	0.48	0.03
152296A	MC	0.67	0.37	0.02
153423A	MC	0.70	0.37	0.04
154159A	MC	0.60	0.42	0.03
154320A	MC	0.50	0.36	0.04
161462A	MC	0.43	0.54	0.06
164493A	MC	0.41	0.46	0.07
183795A	MC	0.31	0.35	0.10
183885A	MC	0.57	0.35	0.06
484772	MC	0.48	0.38	0.05
484815	MC	0.32	0.29	0.03
484821	MC	0.55	0.47	0.08
484823	MC	0.65	0.46	0.03
484828	MC	0.67	0.36	0.04
484841	MC	0.22	0.18	0.18
484853	MC	0.43	0.55	0.18
484860	MC	0.34	0.25	0.09
484866	MC	0.29	0.39	0.03
484873	MC	0.32	0.28	0.12
484877	MC	0.64	0.40	0.13
484881	MC	0.64	0.29	0.02
484977	MC	0.40	0.34	0.11
484984	MC	0.24	0.38	0.10
490067	MC	0.41	0.57	0.13
490116	MC	0.54	0.35	0.12
490178	MC	0.27	0.20	0.13
636559	MC	0.44	0.42	0.07
636567	MC	0.47	0.31	0.13
636578	MC	0.40	0.54	0.13
636590	MC	0.24	0.39	0.02
636594	MC	0.53	0.32	0.04
636602	MC	0.21	0.24	0.13
636610	MC	0.67	0.40	0.04
674875	MC	0.33	0.30	0.13
674877	MC	0.47	0.62	0.12
733318	MC	0.29	0.26	0.12
733322	MC	0.52	0.42	0.04

Table K-13. Item-Level Classical Test Theory Statistics—Science Grade 5

Item Number	Type	Difficulty	Discrimination	Percent Omitted
184387A	MC	0.53	0.50	0.05
184423A	MC	0.46	0.33	0.05
185413A	MC	0.31	0.33	0.05
186483A	MC	0.51	0.22	0.02
186489A	MC	0.53	0.42	0.02
186490A	MC	0.44	0.31	0.03
186754A	MC	0.73	0.48	0.08
186756A	MC	0.78	0.42	0.08
186759A	MC	0.79	0.51	0.08
187503A	MC	0.49	0.33	0.06
187505A	MC	0.77	0.45	0.09
187510A	MC	0.83	0.48	0.08
188698A	MC	0.32	0.44	0.10
188699A	MC	0.48	0.35	0.09
188700A	MC	0.36	0.41	0.09
188717A	MC	0.69	0.53	0.13
188718A	MC	0.83	0.50	0.12
188720A	MC	0.74	0.47	0.13
189235A	MC	0.71	0.45	0.03
189237A	MC	0.51	0.50	0.03
189238A	MC	0.43	0.26	0.03
189340A	MC	0.62	0.56	0.05
189341A	MC	0.52	0.38	0.07
189345A	MC	0.34	0.26	0.04
189356A	MC	0.40	0.41	0.10
189358A	MC	0.45	0.29	0.11
189361A	MC	0.73	0.53	0.09
437241	MC	0.45	0.45	0.07
437243	MC	0.39	0.33	0.09
437245	MC	0.37	0.36	0.06
638751	MC	0.41	0.27	0.02
638753	MC	0.45	0.34	0.03
638755	MC	0.46	0.30	0.04
638783	MC	0.52	0.43	0.08
638791	MC	0.63	0.55	0.09
638793	MC	0.62	0.49	0.08
638808	MC	0.40	0.37	0.10
638810	MC	0.42	0.48	0.11
638812	MC	0.38	0.35	0.11
701950	MC	0.54	0.39	0.03
701956	MC	0.54	0.49	0.02
701960	MC	0.44	0.29	0.03
760514	MC	0.71	0.37	0.03
760544	MC	0.60	0.39	0.02
760546	MC	0.82	0.44	0.02

Table K-14. Item-Level Classical Test Theory Statistics—Science Grade 8

Item Number	Type	Difficulty	Discrimination	Percent Omitted
185899A	MC	0.58	0.47	0.12
185901A	MC	0.28	0.19	0.13
185916A	MC	0.54	0.44	0.12
186321A	MC	0.53	0.40	0.04
186325A	MC	0.74	0.39	0.04
186364A	MC	0.44	0.42	0.04
188149A	MC	0.45	0.26	0.03
188150A	MC	0.48	0.41	0.04
188153A	MC	0.23	0.21	0.04
188312A	MC	0.32	0.27	0.14
188317A	MC	0.66	0.42	0.14
188328A	MC	0.50	0.58	0.16
188332A	MC	0.54	0.47	0.16
189061A	MC	0.37	0.43	0.04
189076A	MC	0.55	0.39	0.03
189080A	MC	0.54	0.36	0.04
189438A	MC	0.56	0.32	0.13
189440A	MC	0.62	0.32	0.11
189442A	MC	0.68	0.49	0.12
300093A	MC	0.59	0.50	0.04
300095A	MC	0.39	0.34	0.04
300097A	MC	0.61	0.52	0.04
437757	MC	0.41	0.42	0.02
437771	MC	0.45	0.35	0.03
437788	MC	0.37	0.27	0.03
437995	MC	0.41	0.34	0.06
437999	MC	0.56	0.49	0.07
638857	MC	0.52	0.24	0.02
638862	MC	0.45	0.37	0.03
638866	MC	0.41	0.34	0.03
638873	MC	0.43	0.47	0.09
638875	MC	0.45	0.26	0.10
638883	MC	0.59	0.47	0.09
638918	MC	0.31	0.18	0.06
638920	MC	0.66	0.43	0.05
638928	MC	0.60	0.44	0.04
701179	MC	0.59	0.30	0.10
701187	MC	0.34	0.19	0.09
701189	MC	0.34	0.30	0.10
701389	MC	0.42	0.36	0.11
701392	MC	0.48	0.44	0.11
701395	MC	0.19	0.35	0.13

Table K-15. Item-Level Classical Test Theory Statistics—Science Grade 11

Item Number	Item Type	Difficulty	Discrimination	Percent Omitted	Item Number	Item Type	Difficulty	Discrimination	Percent Omitted
186972A	MC	0.35	0.35	0.26	586218	MC	0.56	0.51	0.17
186989A	MC	0.54	0.46	0.28	586649	MC	0.43	0.42	0.23
186992A	MC	0.63	0.43	0.26	586655	MC	0.39	0.31	0.23
187933A	MC	0.72	0.47	0.16	586691	MC	0.44	0.26	0.27
187935A	MC	0.58	0.45	0.16	586693	MC	0.42	0.40	0.27
187938A	MC	0.64	0.38	0.17	586701	MC	0.45	0.39	0.28
187996A	MC	0.61	0.49	0.26	586709	MC	0.37	0.51	0.28
187999A	MC	0.35	0.36	0.27	586711	MC	0.38	0.32	0.28
188008A	MC	0.49	0.28	0.28	591949	MC	0.37	0.33	0.28
188657A	MC	0.48	0.26	0.19	592069	MC	0.56	0.55	0.17
188658A	MC	0.38	0.20	0.18	592071	MC	0.69	0.47	0.17
188659A	MC	0.42	0.30	0.18	592073	MC	0.29	0.33	0.16
188833A	MC	0.34	0.26	0.17	593424	MC	0.42	0.33	0.20
188834A	MC	0.46	0.41	0.18	593426	MC	0.50	0.47	0.18
188835A	MC	0.51	0.47	0.17	603684	MC	0.45	0.41	0.28
188947A	MC	0.33	0.28	0.16	656455	MC	0.30	0.21	0.27
188949A	MC	0.28	0.26	0.15	656457	MC	0.44	0.31	0.27
188952A	MC	0.43	0.36	0.16	656465	MC	0.33	0.36	0.26
189421A	MC	0.22	0.12	0.31	701417	MC	0.33	0.43	0.45
189423A	MC	0.34	0.16	0.28	701425	MC	0.32	0.35	0.31
189425A	MC	0.32	0.22	0.28	701601	MC	0.25	0.29	0.17
300046A	MC	0.32	0.31	0.18	701612	MC	0.46	0.58	0.17
300048A	MC	0.75	0.41	0.17	701624	MC	0.23	0.24	0.17
300049A	MC	0.47	0.45	0.16	701635	MC	0.57	0.30	0.26
586027	MC	0.34	0.39	0.18	701641	MC	0.52	0.36	0.27
586029	MC	0.41	0.45	0.18	701654	MC	0.67	0.42	0.26
586031	MC	0.50	0.49	0.19	754205	MC	0.40	0.30	0.26
586051	MC	0.45	0.34	0.27	754209	MC	0.52	0.35	0.26
586069	MC	0.39	0.24	0.27	754213	MC	0.37	0.25	0.26

Table K-16. Item-Level Classical Test Theory Statistics—U.S. History Grade 11

Item Number	Item Type	Difficulty	Discrimination	Percent Omitted	Item Number	Item Type	Difficulty	Discrimination	Percent Omitted
140941A	MC	0.26	0.22	0.19	648568	MC	0.46	0.50	0.12
141113A	MC	0.44	0.42	0.14	648570	MC	0.55	0.32	0.13
143252A	MC	0.70	0.53	0.18	648572	MC	0.51	0.29	0.13
143254A	MC	0.43	0.33	0.17	648643	MC	0.52	0.57	0.19
143257A	MC	0.38	0.48	0.17	648645	MC	0.37	0.17	0.18
143262A	MC	0.30	0.37	0.18	648647	MC	0.55	0.54	0.19
143278A	MC	0.62	0.48	0.16	648649	MC	0.38	0.45	0.19
143286A	MC	0.45	0.48	0.19	652293	MC	0.43	0.39	0.16
143291A	MC	0.59	0.40	0.18	652304	MC	0.69	0.38	0.16
143295A	MC	0.54	0.26	0.12	652307	MC	0.51	0.52	0.17
143301A	MC	0.39	0.39	0.13	652328	MC	0.64	0.29	0.13
143307A	MC	0.38	0.30	0.12	658018	MC	0.43	0.49	0.17
143309A	MC	0.46	0.43	0.12	658020	MC	0.38	0.34	0.13
143326A	MC	0.29	0.31	0.24	658029	MC	0.28	0.32	0.14
143333A	MC	0.45	0.30	0.22	658051	MC	0.51	0.43	0.13
143337A	MC	0.76	0.50	0.13	658053	MC	0.65	0.55	0.16
143340A	MC	0.64	0.22	0.13	658058	MC	0.44	0.32	0.12
143361A	MC	0.41	0.43	0.13	658060	MC	0.66	0.38	0.17
143364A	MC	0.57	0.39	0.13	658074	MC	0.30	0.32	0.16
143365A	MC	0.46	0.49	0.19	658076	MC	0.48	0.50	0.18
143371A	MC	0.52	0.49	0.13	658082	MC	0.46	0.51	0.15
143377A	MC	0.66	0.38	0.17	700082	MC	0.84	0.44	0.12
143416A	MC	0.64	0.44	0.15	700300	MC	0.51	0.39	0.19
143447A	MC	0.58	0.42	0.17	700377	MC	0.78	0.44	0.16
648566	MC	0.49	0.39	0.13	700938	MC	0.66	0.45	0.12

Table K-17. Item-Level Non-MC Items—Across Grades & Content Areas

Content Area	Grade	PvMax	Item	Type	P0	P1	P2	P3	P4	P5	P6	P7
ELA	3	2	627921	CR	39.83	58.46	4.53	NULL	NULL	NULL	NULL	NULL
		2	628835	CR	39.25	59.80	4.12	NULL	NULL	NULL	NULL	NULL
	4	2	629160	CR	35.47	52.43	12.10	NULL	NULL	NULL	NULL	NULL
		2	629614	CR	64.54	35.85	2.93	NULL	NULL	NULL	NULL	NULL
	5	5	761899	WP	1.76	46.15	NULL	39.99	11.64	0.46	NULL	NULL
	6	2	630290	CR	48.70	44.02	7.28	NULL	NULL	NULL	NULL	NULL
		2	630430	CR	71.49	28.29	3.23	NULL	NULL	NULL	NULL	NULL
	7	2	630545	CR	48.11	48.20	3.69	NULL	NULL	NULL	NULL	NULL
		2	630649	CR	40.05	47.16	13.07	NULL	NULL	NULL	NULL	NULL
	8	7	761992	WP	1.10	NULL	21.03	NULL	39.82	33.18	NULL	4.87
Mathematics	4	1	733102	TE	53.07	46.93	NULL	NULL	NULL	NULL	NULL	NULL
	5	1	674588	TE	80.11	19.89	NULL	NULL	NULL	NULL	NULL	NULL
	6	1	479095	TE	85.16	18.79	NULL	NULL	NULL	NULL	NULL	NULL
		1	479095	TEI	85.16	18.79	NULL	NULL	NULL	NULL	NULL	NULL
		1	479097	TE	70.37	35.24	NULL	NULL	NULL	NULL	NULL	NULL
		1	479097	TEI	70.37	35.24	NULL	NULL	NULL	NULL	NULL	NULL
		1	479148	TE	81.95	22.30	NULL	NULL	NULL	NULL	NULL	NULL
		1	479148	TEI	81.95	22.30	NULL	NULL	NULL	NULL	NULL	NULL
	7	1	480360	TE	86.48	16.09	NULL	NULL	NULL	NULL	NULL	NULL
		1	480360	TEI	86.48	16.09	NULL	NULL	NULL	NULL	NULL	NULL
		1	480373	TE	82.15	23.21	NULL	NULL	NULL	NULL	NULL	NULL
		1	480373	TEI	82.15	23.21	NULL	NULL	NULL	NULL	NULL	NULL
		1	480380	TE	88.09	14.30	NULL	NULL	NULL	NULL	NULL	NULL
		1	480380	TEI	88.09	14.30	NULL	NULL	NULL	NULL	NULL	NULL
	8	1	484750	TE	80.13	22.17	NULL	NULL	NULL	NULL	NULL	NULL
		1	484750	TEI	80.13	22.17	NULL	NULL	NULL	NULL	NULL	NULL
		1	484766	TE	44.98	55.02	NULL	NULL	NULL	NULL	NULL	NULL
		1	484766	TEI	44.98	55.02	NULL	NULL	NULL	NULL	NULL	NULL
		1	733332	TE	76.41	23.59	NULL	NULL	NULL	NULL	NULL	NULL
Science	8	2	438018	TE	42.57	31.06	27.85	NULL	NULL	NULL	NULL	NULL
		2	494074	TE	23.06	14.87	67.08	NULL	NULL	NULL	NULL	NULL
		2	494074	TEI	23.06	14.87	67.08	NULL	NULL	NULL	NULL	NULL
		2	494991	TE	18.88	26.39	55.35	NULL	NULL	NULL	NULL	NULL
		2	494991	TEI	18.88	26.39	55.35	NULL	NULL	NULL	NULL	NULL
	11	2	586659	TE	21.96	42.71	36.12	NULL	NULL	NULL	NULL	NULL
		2	701400	TE	51.76	31.52	16.71	NULL	NULL	NULL	NULL	NULL

APPENDIX L

DIFFERENTIAL ITEM FUNCTIONING RESULTS

Table L-1. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall & by Grade & Group Favored—ELA: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
3	Male	Female	MC	48	2	1	1	0	0	0
	White/Caucasian	Black/African American	MC	48	0	0	0	0	0	0
		Hispanic or Latino	MC	48	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	48	0	0	0	0	0	0
		Asian	MC	48	4	2	2	3	2	1
		Pacific Islander	MC	48	17	8	9	2	1	1
		Two or More Races	MC	48	0	0	0	0	0	0
	Non-IEP	IEP	MC	48	0	0	0	0	0	0
	Non-EconDis	EconDis	MC	48	0	0	0	0	0	0
	Non-ELL	ELL	MC	48	4	4	0	0	0	0
4	Male	Female	MC	48	1	1	0	0	0	0
	White/Caucasian	Black/African American	MC	48	2	2	0	0	0	0
		Hispanic or Latino	MC	48	1	1	0	0	0	0
		American Indian/Alaskan Native	MC	48	0	0	0	0	0	0
		Asian	MC	48	6	3	3	0	0	0
		Pacific Islander	MC	48	6	3	3	0	0	0
		Two or More Races	MC	48	0	0	0	0	0	0
	Non-IEP	IEP	MC	48	0	0	0	0	0	0
	Non-EconDis	EconDis	MC	48	0	0	0	0	0	0
	Non-ELL	ELL	MC	48	2	2	0	0	0	0
5	Male	Female	MC	50	5	3	2	1	1	0
	White/Caucasian	Black/African American	MC	50	4	2	2	1	1	0
		Hispanic or Latino	MC	50	1	1	0	1	1	0
		American Indian/Alaskan Native	MC	50	1	1	0	0	0	0
		Asian	MC	50	9	5	4	2	2	0
		Pacific Islander	MC	50	8	3	5	4	4	0
		Two or More Races	MC	50	0	0	0	0	0	0
	Non-IEP	IEP	MC	50	1	1	0	0	0	0
	Non-EconDis	EconDis	MC	50	0	0	0	0	0	0
	Non-ELL	ELL	MC	50	3	3	0	1	1	0
6	Male	Female	MC	48	5	5	0	0	0	0
	White/Caucasian	Black/African American	MC	48	1	0	1	0	0	0
		Hispanic or Latino	MC	48	1	1	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
6	White/Caucasian	American Indian/Alaskan Native	MC	48	0	0	0	0	0	0
		Asian	MC	48	6	4	2	0	0	0
		Pacific Islander	MC	48	10	5	5	4	2	2
		Two or More Races	MC	48	0	0	0	0	0	0
	Non-IEP	IEP	MC	48	0	0	0	0	0	0
	Non-EconDis	EconDis	MC	48	0	0	0	0	0	0
	Non-ELL	ELL	MC	48	2	2	0	0	0	0
7	Male	Female	MC	48	11	9	2	0	0	0
	White/Caucasian	Black/African American	MC	48	6	4	2	0	0	0
		Hispanic or Latino	MC	48	2	2	0	0	0	0
		American Indian/Alaskan Native	MC	48	0	0	0	0	0	0
		Asian	MC	48	7	4	3	1	1	0
		Pacific Islander	MC	48	7	4	3	3	2	1
		Two or More Races	MC	48	0	0	0	0	0	0
	Non-IEP	IEP	MC	48	1	1	0	0	0	0
	Non-EconDis	EconDis	MC	48	0	0	0	0	0	0
	Non-ELL	ELL	MC	48	3	2	1	0	0	0
8	Male	Female	MC	50	6	3	3	0	0	0
	White/Caucasian	Black/African American	MC	50	6	3	3	0	0	0
		Hispanic or Latino	MC	50	4	3	1	0	0	0
		American Indian/Alaskan Native	MC	50	0	0	0	0	0	0
		Asian	MC	50	6	2	4	2	2	0
		Pacific Islander	MC	50	9	4	5	2	0	2
		Two or More Races	MC	50	0	0	0	0	0	0
	Non-IEP	IEP	MC	50	3	2	1	0	0	0
	Non-EconDis	EconDis	MC	50	1	1	0	0	0	0
	Non-ELL	ELL	MC	50	6	4	2	0	0	0

Table L-2. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—ELA: CR Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
3	Male	Female	CR	2	0	0	0	0	0	0
	White/Caucasian	Black/African American	CR	2	0	0	0	0	0	0
		Hispanic or Latino	CR	2	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	2	0	0	0	0	0	0
		Asian	CR	2	0	0	0	0	0	0
		Pacific Islander	CR	2	1	0	1	0	0	0
		Two or More Races	CR	2	0	0	0	0	0	0
	Non-IEP	IEP	CR	2	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	2	0	0	0	0	0	0
	Non-ELL	ELL	CR	2	0	0	0	0	0	0
4	Male	Female	CR	2	1	0	1	0	0	0
	White/Caucasian	Black/African American	CR	2	0	0	0	0	0	0
		Hispanic or Latino	CR	2	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	2	0	0	0	0	0	0
		Asian	CR	2	1	0	1	0	0	0
		Pacific Islander	CR	2	0	0	0	0	0	0
		Two or More Races	CR	2	0	0	0	0	0	0
	Non-IEP	IEP	CR	2	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	2	0	0	0	0	0	0
	Non-ELL	ELL	CR	2	0	0	0	0	0	0
5	Male	Female	CR	0	0	0	0	0	0	0
	White/Caucasian	Black/African American	CR	0	0	0	0	0	0	0
		Hispanic or Latino	CR	0	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	0	0	0	0	0	0	0
		Asian	CR	0	0	0	0	0	0	0
		Pacific Islander	CR	0	0	0	0	0	0	0
		Two or More Races	CR	0	0	0	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
5	Non-IEP	IEP	CR	0	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	0	0	0	0	0	0	0
	Non-ELL	ELL	CR	0	0	0	0	0	0	0
6	Male	Female	CR	2	2	0	2	0	0	0
	White/Caucasian	Black/African American	CR	2	0	0	0	0	0	0
		Hispanic or Latino	CR	2	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	2	0	0	0	0	0	0
		Asian	CR	2	0	0	0	0	0	0
		Pacific Islander	CR	2	0	0	0	0	0	0
		Two or More Races	CR	2	0	0	0	0	0	0
	Non-IEP	IEP	CR	2	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	2	0	0	0	0	0	0
	Non-ELL	ELL	CR	2	0	0	0	0	0	0
7	Male	Female	CR	2	2	0	2	0	0	0
	White/Caucasian	Black/African American	CR	2	0	0	0	0	0	0
		Hispanic or Latino	CR	2	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	2	0	0	0	0	0	0
		Asian	CR	2	1	0	1	0	0	0
		Pacific Islander	CR	2	1	0	1	0	0	0
		Two or More Races	CR	2	0	0	0	0	0	0
	Non-IEP	IEP	CR	2	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	2	0	0	0	0	0	0
	Non-ELL	ELL	CR	2	0	0	0	0	0	0
8	Male	Female	CR	0	0	0	0	0	0	0
	White	Black/African American	CR	0	0	0	0	0	0	0
		Hispanic or Latino	CR	0	0	0	0	0	0	0
		American Indian/Alaskan Native	CR	0	0	0	0	0	0	0
		Asian	CR	0	0	0	0	0	0	0
		Pacific Islander	CR	0	0	0	0	0	0	0
		Two or More Races	CR	0	0	0	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
8	Non-IEP	IEP	CR	0	0	0	0	0	0	0
	Non-EconDis	EconDis	CR	0	0	0	0	0	0	0
	Non-ELL	ELL	CR	0	0	0	0	0	0	0

Table L-3. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—ELA: WP Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
5	Male	Female	WP	1	0	0	0	0	0	0
	White/Caucasian	Black/African American	WP	1	0	0	0	0	0	0
		Hispanic or Latino	WP	1	0	0	0	0	0	0
		American Indian/Alaskan Native	WP	1	0	0	0	0	0	0
		Asian	WP	1	0	0	0	0	0	0
		Pacific Islander	WP	1	1	0	1	0	0	0
		Two or More Races	WP	1	0	0	0	0	0	0
	Non-IEP	IEP	WP	1	0	0	0	0	0	0
	Non-EconDis	EconDis	WP	1	0	0	0	0	0	0
	Non-ELL	ELL	WP	1	0	0	0	0	0	0
8	Male	Female	WP	1	0	0	0	0	0	0
	White/Caucasian	Black/African American	WP	1	0	0	0	0	0	0
		Hispanic or Latino	WP	1	0	0	0	0	0	0
		American Indian/Alaskan Native	WP	1	0	0	0	0	0	0
		Asian	WP	1	0	0	0	0	0	0
		Pacific Islander	WP	1	0	0	0	0	0	0
		Two or More Races	WP	1	0	0	0	0	0	0
	Non-IEP	IEP	WP	1	0	0	0	0	0	0
	Non-EconDis	EconDis	WP	1	0	0	0	0	0	0
	Non-ELL	ELL	WP	1	0	0	0	0	0	0

Table L-4. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall & by Grade & Group Favored—Mathematics: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
3	Male	Female	MC	50	6	2	4	0	0	0
	White/Caucasian	Black/African American	MC	50	1	1	0	0	0	0
		Hispanic or Latino	MC	50	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	50	0	0	0	0	0	0
		Asian	MC	50	9	4	5	0	0	0
		Pacific Islander	MC	50	12	6	6	1	0	1
		Two or More Races	MC	50	0	0	0	0	0	0
	Non-IEP	IEP	MC	50	3	1	2	0	0	0
	Non-EconDis	EconDis	MC	50	0	0	0	0	0	0
	Non-ELL	ELL	MC	50	0	0	0	0	0	0
4	Male	Female	MC	49	9	6	3	0	0	0
	White/Caucasian	Black/African American	MC	49	3	2	1	0	0	0
		Hispanic or Latino	MC	49	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	49	0	0	0	0	0	0
		Asian	MC	49	4	0	4	1	1	0
		Pacific Islander	MC	49	9	6	3	2	1	1
		Two or More Races	MC	49	0	0	0	0	0	0
	Non-IEP	IEP	MC	49	6	4	2	1	0	1
	Non-EconDis	EconDis	MC	49	0	0	0	0	0	0
	Non-ELL	ELL	MC	49	1	1	0	0	0	0
5	Male	Female	MC	49	5	4	1	1	1	0
	White/Caucasian	Black/African American	MC	49	5	5	0	0	0	0
		Hispanic or Latino	MC	49	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	49	0	0	0	0	0	0
		Asian	MC	49	6	4	2	0	0	0
		Pacific Islander	MC	49	12	5	7	3	2	1
		Two or More Races	MC	49	0	0	0	0	0	0
	Non-IEP	IEP	MC	49	9	5	4	1	0	1
	Non-EconDis	EconDis	MC	49	0	0	0	0	0	0
	Non-ELL	ELL	MC	49	0	0	0	0	0	0
6	Male	Female	MC	47	3	2	1	1	1	0
	White/Caucasian	Black/African American	MC	47	3	2	1	0	0	0
		Hispanic or Latino	MC	47	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	47	0	0	0	0	0	0
		Asian	MC	47	4	3	1	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
6	White/Caucasian	Pacific Islander	MC	47	12	5	7	3	3	0
		Two or More Races	MC	47	0	0	0	0	0	0
	Non-IEP	IEP	MC	47	2	2	0	0	0	0
	Non-EconDis	EconDis	MC	47	0	0	0	0	0	0
	Non-ELL	ELL	MC	47	0	0	0	0	0	0
7	Male	Female	MC	47	8	3	5	1	1	0
	White/Caucasian	Black/African American	MC	47	1	0	1	0	0	0
		Hispanic or Latino	MC	47	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	47	0	0	0	0	0	0
		Asian	MC	47	6	3	3	0	0	0
		Pacific Islander	MC	47	8	2	6	1	1	0
		Two or More Races	MC	47	0	0	0	0	0	0
	Non-IEP	IEP	MC	47	4	4	0	0	0	0
	Non-EconDis	EconDis	MC	47	0	0	0	0	0	0
	Non-ELL	ELL	MC	47	5	3	2	0	0	0
8	Male	Female	MC	47	3	3	0	0	0	0
	White/Caucasian	Black/African American	MC	47	3	2	1	0	0	0
		Hispanic or Latino	MC	47	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	47	0	0	0	0	0	0
		Asian	MC	47	10	6	4	0	0	0
		Pacific Islander	MC	47	7	5	2	3	2	1
		Two or More Races	MC	47	0	0	0	0	0	0
	Non-IEP	IEP	MC	47	4	4	0	0	0	0
	Non-EconDis	EconDis	MC	47	0	0	0	0	0	0
	Non-ELL	ELL	MC	47	4	3	1	0	0	0

Table L-5. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Mathematics: TEI Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
4	Male	Female	TE	1	0	0	0	0	0	0
	White/Caucasian	Black/African American	TE	1	0	0	0	0	0	0
		Hispanic or Latino	TE	1	0	0	0	0	0	0
		American Indian/Alaskan Native	TE	1	0	0	0	0	0	0
		Asian	TE	1	0	0	0	0	0	0
		Pacific Islander	TE	1	0	0	0	0	0	0
		Two or More Races	TE	1	0	0	0	0	0	0
	Non-IEP	IEP	TE	1	0	0	0	0	0	0
	Non-EconDis	EconDis	TE	1	0	0	0	0	0	0
	Non-ELL	ELL	TE	1	0	0	0	0	0	0
5	Male	Female	TE	1	0	0	0	0	0	0
	White/Caucasian	Black/African American	TE	1	0	0	0	0	0	0
		Hispanic or Latino	TE	1	0	0	0	0	0	0
		American Indian/Alaskan Native	TE	1	0	0	0	0	0	0
		Asian	TE	1	0	0	0	0	0	0
		Pacific Islander	TE	1	0	0	0	0	0	0
		Two or More Races	TE	1	0	0	0	0	0	0
	Non-IEP	IEP	TE	1	0	0	0	0	0	0
	Non-EconDis	EconDis	TE	1	0	0	0	0	0	0
	Non-ELL	ELL	TE	1	0	0	0	0	0	0
6	Male	Female	TE	3	0	0	0	0	0	0
	White/Caucasian	Black/African American	TE	3	0	0	0	0	0	0
		Hispanic or Latino	TE	3	0	0	0	0	0	0
		American Indian/Alaskan Native	TE	3	0	0	0	0	0	0
		Asian	TE	3	1	0	1	0	0	0
		Pacific Islander	TE	3	1	0	1	0	0	0
		Two or More Races	TE	3	0	0	0	0	0	0
	Non-IEP	IEP	TE	3	0	0	0	0	0	0
	Non-EconDis	EconDis	TE	3	0	0	0	0	0	0
	Non-ELL	ELL	TE	3	0	0	0	0	0	0

continued

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
7	Male	Female	3	0	0	0	0	0	0	3
	White/Caucasian	Black/African American	3	0	0	0	0	0	0	3
		Hispanic or Latino	3	0	0	0	0	0	0	3
		American Indian/Alaskan Native	3	0	0	0	0	0	0	3
		Asian	3	1	0	1	0	0	0	3
		Pacific Islander	3	0	0	0	0	0	0	3
		Two or More Races	3	0	0	0	0	0	0	3
	Non-IEP	IEP	3	0	0	0	0	0	0	3
	Non-EconDis	EconDis	3	0	0	0	0	0	0	3
	Non-ELL	ELL	3	0	0	0	0	0	0	3
8	Male	Female	3	0	0	0	0	0	0	3
	White/Caucasian	Black/African American	3	1	1	0	0	0	0	3
		Hispanic or Latino	3	0	0	0	0	0	0	3
		American Indian/Alaskan Native	3	0	0	0	0	0	0	3
		Asian	3	1	0	1	0	0	0	3
		Pacific Islander	3	2	1	1	0	0	0	3
		Two or More Races	3	0	0	0	0	0	0	3
	Non-IEP	IEP	3	0	0	0	0	0	0	3
	Non-EconDis	EconDis	3	0	0	0	0	0	0	3
	Non-ELL	ELL	3	0	0	0	0	0	0	3

Table L-6. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall & by Grade & Group Favored—Science: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
5	Male	Female	MC	45	3	2	1	0	0	0
	White/Caucasian	Black/African American	MC	45	1	1	0	0	0	0
		Hispanic or Latino	MC	45	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	45	0	0	0	0	0	0
		Asian	MC	45	5	3	2	0	0	0
		Pacific Islander	MC	45	8	3	5	0	0	0
		Two or More Races	MC	45	0	0	0	0	0	0
	Non-IEP	IEP	MC	45	1	1	0	0	0	0
	Non-EconDis	EconDis	MC	45	0	0	0	0	0	0
	Non-ELL	ELL	MC	45	1	1	0	0	0	0
8	Male	Female	MC	42	3	2	1	0	0	0
	White/Caucasian	Black/African American	MC	42	3	3	0	0	0	0
		Hispanic or Latino	MC	42	2	2	0	0	0	0
		American Indian/Alaskan Native	MC	42	0	0	0	0	0	0
		Asian	MC	42	6	3	3	0	0	0
		Pacific Islander	MC	42	4	4	0	0	0	0
		Two or More Races	MC	42	0	0	0	0	0	0
	Non-IEP	IEP	MC	42	1	1	0	0	0	0
	Non-EconDis	EconDis	MC	42	0	0	0	0	0	0
	Non-ELL	ELL	MC	42	2	2	0	1	1	0
11	Male	Female	MC	58	3	1	2	0	0	0
	White/Caucasian	Black/African American	MC	58	1	1	0	0	0	0
		Hispanic or Latino	MC	58	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	58	0	0	0	0	0	0
		Asian	MC	58	2	0	2	0	0	0
		Pacific Islander	MC	58	0	0	0	0	0	0
		Two or More Races	MC	58	0	0	0	0	0	0
	Non-IEP	IEP	MC	58	1	1	0	1	1	0
	Non-EconDis	EconDis	MC	58	0	0	0	0	0	0
	Non-ELL	ELL	MC	58	3	2	1	0	0	0

Table L-7. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—Science: TEI Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
8	Male	Female	TE	3	1	0	1	0	0	0
	White/Caucasian	Black/African American	TE	3	0	0	0	0	0	0
		Hispanic or Latino	TE	3	0	0	0	0	0	0
		American Indian/Alaskan Native	TE	3	0	0	0	0	0	0
		Asian	TE	3	0	0	0	0	0	0
		Pacific Islander	TE	3	2	0	2	0	0	0
		Two or More Races	TE	3	0	0	0	0	0	0
	Non-IEP	IEP	TE	3	0	0	0	0	0	0
	Non-EconDis	EconDis	TE	3	0	0	0	0	0	0
	Non-ELL	ELL	TE	3	0	0	0	0	0	0
11	Male	Female	TE	2	0	0	0	0	0	0
	White/Caucasian	Black/African American	TE	2	0	0	0	0	0	0
		Hispanic or Latino	TE	2	0	0	0	0	0	0
		American Indian/Alaskan Native	TE	2	0	0	0	0	0	0
		Asian	TE	2	0	0	0	0	0	0
		Pacific Islander	TE	2	0	0	0	0	0	0
		Two or More Races	TE	2	0	0	0	0	0	0
	Non-IEP	IEP	TE	2	0	0	0	0	0	0
	Non-EconDis	EconDis	TE	2	0	0	0	0	0	0
	Non-ELL	ELL	TE	2	0	0	0	0	0	0

Table L-8. Number of Items Classified as "Low Resolution" or "High Resolution" DIF Overall and by Grade and Group Favored—U.S. History: MC Items

Grade	Group		Item Type	Number of Items	Number "Low Resolution"			Number "High Resolution"		
	Reference	Focal			Total	Favoring		Total	Favoring	
						Reference	Focal		Reference	Focal
11	Male	Female	MC	50	11	6	5	0	0	0
	White/Caucasian	Black/African American	MC	50	4	2	2	1	0	1
		Hispanic or Latino	MC	50	0	0	0	0	0	0
		American Indian/Alaskan Native	MC	50	0	0	0	0	0	0
		Asian	MC	50	4	3	1	0	0	0
		Pacific Islander	MC	50	0	0	0	0	0	0
		Two or More Races	MC	50	0	0	0	0	0	0
	Non-IEP	IEP	MC	50	2	2	0	0	0	0
	Non-EconDis	EconDis	MC	50	0	0	0	0	0	0
	Non-ELL	ELL	MC	50	2	2	0	0	0	0

APPENDIX M
OSTP 21-22 EQUATING REPORT

Oklahoma School Testing Program

2021–2022: EQUATING REPORT

REV. 8-4-22

2021–2022 Oklahoma School Testing Program

Equating Report

The purpose of this document is to summarize the equating results obtained from Cognia for OSTP. Presented in this report are various program summary statistics and specific results related to the equating study.

The results of this report are organized as follows:

1. Aggregate Results
    1. Percentage of Students by Performance Level Categories
    2. Calibration Report
    3. Equating Item Summary Statistics
2. Grade Subject Results
    1. A/A, B/B, Delta, Test Characteristic Curve, Test Information Function, and Cumulative Scale Score Distribution Plots
    2. Lookup Tables
    3. Cumulative Scale Score Distribution Tables
    4. Tabled Delta Analysis Results
    5. Tabled B/B Analysis Results
    6. Final Item Parameters
    7. Decision Accuracy and Consistency (DAC)
    8. Fit Plots of Watchlist Items

The final results of this equating will be included as part of the 2021–2022 OSTP Technical Manual.

Section 1.1

Percentage of Students by Performance Level Categories

Table 1.1.1

Percentage of Students by Performance Level Categories

English Language Arts

Grade	Year	Count	BB	B	P	A	P+A	Delta	Ave. SS
3	2022	49563	40	32	23	6	29	4.1	281.8
	2021	46090	44	32	21	4	25	-14.1	278.9
	2019	50832	31	30	29	10	39	5.7	289.2
	2018	52382	34	33	27	6	33	-5.6	286.6
	2017	52060	30	32	31	8	39		290.7
4	2022	48326	43	33	21	2	24	1.3	276.5
	2021	45579	45	33	20	2	22	-8.0	276.1
	2019	51321	36	33	24	6	30	-5.5	284.0
	2018	50985	30	34	28	7	36	-1.3	287.9
	2017	50512	29	34	30	7	37		289.3
5	2022	42835	26	43	23	8	31	3.6	287.0
	2021	45840	31	41	21	6	28	-7.7	281.6
	2019	51488	25	40	27	8	35	0.3	287.7
	2018	33277	23	42	22	13	35	-5.0	290.3
	2017	48449	21	39	28	12	40		291.4
6	2022	49567	31	43	22	4	26	0.3	281.2
	2021	47197	31	44	21	4	26	-10.5	281.6
	2019	51337	22	42	28	8	36	-1.7	289.7
	2018	49226	22	40	29	9	38	-2.4	290.3
	2017	46499	18	41	31	9	40		292.7
7	2022	50993	44	34	16	5	22	2.4	274.9
	2021	47139	46	34	15	4	19	-9.7	273.0
	2019	49406	35	36	21	8	29	1.7	283.2
	2018	46675	32	41	20	8	27	0.9	284.7
	2017	48035	34	40	20	6	26		282.1
8	2022	46257	30	42	22	6	27	3.4	281.5
	2021	46743	33	43	18	6	24	-8.8	279.0
	2019	46983	25	43	24	9	33	0.2	285.1
	2018	48052	24	43	24	9	33	-2.0	286.3
	2017	47914	23	42	23	11	35		287.6

Table 1.1.2

Percentage of Students by Performance Level Categories

Mathematics

Grade	Year	Count	BB	B	P	A	P+A	Delta	Ave. SS
3	2022	49530	33	33	22	11	34	4.2	285.6
	2021	46033	35	35	20	9	29	-13.6	283.2
	2019	50739	24	33	26	17	43	1.4	294.4
	2018	51842	24	35	26	15	42	-2.6	292.9
	2017	52518	21	35	27	17	44		295.3
4	2022	48282	35	32	20	13	33	5.1	284.7
	2021	45530	37	35	18	10	28	-10.1	281.1
	2019	51224	26	36	26	12	38	1.6	289.1
	2018	50856	27	37	25	11	37	-4.1	289.4
	2017	50677	23	36	27	14	41		292.8
5	2022	48340	32	41	18	8	26	4.2	279.0
	2021	46348	37	41	15	8	22	-8.7	276.0
	2019	51478	24	45	19	11	31	1.0	285.4
	2018	33251	25	46	20	10	30	-5.4	285.1
	2017	48460	22	43	23	12	35		287.9
6	2022	49431	38	40	18	5	22	1.3	276.3
	2021	47153	37	42	16	5	21	-9.2	275.2
	2019	51213	27	43	25	6	30	2.4	284.5
	2018	49140	29	43	23	5	28	-7.5	282.3
	2017	46542	22	42	29	6	35		287.4
7	2022	50842	48	28	20	4	24	4.3	279.0
	2021	47077	55	25	17	3	20	-13.1	274.7
	2019	49215	38	29	26	7	33	-1.1	285.9
	2018	46445	34	32	26	8	34	0.4	286.9
	2017	48149	35	31	27	7	34		286.6
8	2022	50941	61	23	10	6	16	2.2	265.5
	2021	46900	65	21	9	5	14	-7.0	262.8
	2019	46819	50	30	11	10	21	0.7	276.1
	2018	47903	52	28	10	10	20	-3.2	274.9
	2017	47768	49	28	12	11	23		276.3

Table 1.1.3

Percentage of Students by Performance Level Categories

Science

Grade	Year	Count	BB	B	P	A	P+A	Delta	Ave. SS
5	2022	48261	28	34	31	7	38	5.6	288.0
	2021	46250	28	40	27	5	32	-6.4	285.9
	2019	51476	22	40	30	8	39	-2.2	291.4
	2018	33201	20	39	32	9	41	-2.2	293.7
	2017	48450	22	35	34	9	43		295.0
8	2022	50769	48	21	24	6	30	-2.7	283.6
	2021	46787	45	22	26	6	33	-7.2	285.4
	2019	46755	39	21	31	9	40	0.6	291.4
	2018	47754	40	21	29	10	39	-1.3	290.7
	2017	47904	38	21	30	11	41		291.8
11	2022	44157	54	21	18	8	25	1.5	272.4
	2021	42566	52	24	17	6	24	-0.2	271.5
	2019	43638	57	20	17	7	24		271.2

Section 1.2

Calibration Report

PARSCALE 4.1 was used for all analyses. All command files were set up in a way that all general settings were identical to last year. For example, the calibration statement reads:

CAL GRADED,LOGISTIC,CYCLE=(150,1,1,1,1),TPRIOR,SPRIOR,GPRIOR;

Thus, a 3PLM was used for all MC items, and a Graded Response Model was specified for the polytomous items. The logistic version of the IRT models was used, and default priors were used for all parameter estimates. Each item occupied its own unique block in the command file, and for most items initial guessing parameters were set to 0.22.

The resulting parameters demonstrated excellent model fit. In particular, the largest change in parameter values (from one iteration to the next) was monotonically decreasing and tended to flatten out towards the end of the calibration process. The number of Newton cycles to conversion for each grade/content for the initial calibrations are listed in the following table:

Table 1.2.1
Number of Cycles to Convergence

Subject	Grade	Initial Cycles
English Language Arts	Grade 3	58
English Language Arts	Grade 4	48
English Language Arts	Grade 5	30
English Language Arts	Grade 6	85
English Language Arts	Grade 7	41
English Language Arts	Grade 8	39
Mathematics	Grade 3	47
Mathematics	Grade 4	52
Mathematics	Grade 5	56
Mathematics	Grade 6	58
Mathematics	Grade 7	68
Mathematics	Grade 8	68
Science	Grade 5	42
Science	Grade 8	43
Science	Grade 11	64

For some items the guessing parameter was poorly estimated. This is not at all unusual as difficulty in estimating the c-parameter has been well documented in the psychometric literature. This often happens when item discrimination is low (e.g., less than 0.50). After carefully studying these items, we found that fixing the lower asymptote (for example to a value of 0.00) resulted in stable and reasonable estimates for both the a and b parameters (relative to CTT statistics). This technique also produced item parameters that resulted in excellent model fit (comparing theoretical ICCs to observed ICCs).

Three methods of evaluating the suitability of the equating items were used: the delta analysis, the b/b analysis and the rescore analysis. As a result of all three analyses very few items were removed from the equating analysis. Results such as this are very common particularly, given the number of grade/content combinations, and the number and types of items in the program. Results from these analyses are included in Section II of this report.

Items flagged by the delta, b/b, or rescore analyses, or any item that required intervention during the calibration process, were compiled and placed in our item watch list, which includes the final actions taken on these items. The final watch list is presented in the following table:

Table 1.2.2

Final Items Watch List

Subject	Grade	ItemID	Reason	Action
English Language Arts	3	147008A	c-parameter	set c = 0
English Language Arts	3	147008A	c-parameter	set c = 0
English Language Arts	3	147012A	c-parameter	set c = 0
English Language Arts	3	147012A	c-parameter	set c = 0
English Language Arts	3	147433A	b/b analysis	removed from equating
English Language Arts	3	147436A	delta analysis	removed from equating
English Language Arts	3	155283A	c-parameter	set c = 0
English Language Arts	3	156124A	c-parameter	set c = 0
English Language Arts	3	156355A	c-parameter	set c = 0
English Language Arts	3	156362A	c-parameter	set c = 0
English Language Arts	3	482318	delta analysis	removed from equating
English Language Arts	3	482320	c-parameter	set c = 0
English Language Arts	3	482971	c-parameter	set c = 0
English Language Arts	3	482971	c-parameter	set c = 0
English Language Arts	3	484569	c-parameter	set c = 0
English Language Arts	3	484569	c-parameter	set c = 0
English Language Arts	3	484571	a-parameter	a set to initial
English Language Arts	3	484571	c-parameter	set c = 0
English Language Arts	3	484571	a-parameter	a set to initial
English Language Arts	3	484571	c-parameter	set c = 0
English Language Arts	3	484571	b/b analysis	removed from equating
English Language Arts	3	484575	c-parameter	set c = 0
English Language Arts	3	484581	c-parameter	set c = 0
English Language Arts	3	484581	c-parameter	set c = 0
English Language Arts	3	701219	a-parameter	a set to initial
English Language Arts	3	701219	c-parameter	set c = 0.25
English Language Arts	3	701219	a-parameter	a set to initial
English Language Arts	3	701219	c-parameter	set c = 0
English Language Arts	3	759159	c-parameter	set c = 0
English Language Arts	3	759159	c-parameter	set c = 0
English Language Arts	4	158604A	c-parameter	set c = 0
English Language Arts	4	158691A	c-parameter	set c = 0
English Language Arts	4	184822A	delta analysis	removed from equating
English Language Arts	4	765830	delta analysis	removed from equating
English Language Arts	5	147920A	b/b analysis	removed from equating
English Language Arts	5	148007A	c-parameter	set c = 0
English Language Arts	5	148961A	b/b analysis	removed from equating

Table 1.2.2 (continued)
Final Items Watch List

Subject	Grade	ItemID	Reason	Action
English Language Arts	5	148971A	delta analysis	removed from equating
English Language Arts	5	149321A	c-parameter	set c = 0
English Language Arts	5	149330A	delta analysis	removed from equating
English Language Arts	5	483140	c-parameter	set c = 0
English Language Arts	5	631922	c-parameter	set c = 0
English Language Arts	6	158740A	c-parameter	set c = 0
English Language Arts	6	158756A	b/b analysis	removed from equating
English Language Arts	6	630290	delta analysis	removed from equating
English Language Arts	6	709910	delta analysis	removed from equating
English Language Arts	7	158769A	c-parameter	set c = 0
English Language Arts	7	159393A	b/b analysis	removed from equating
English Language Arts	7	486317	c-parameter	set c = 0
English Language Arts	7	711137	delta analysis	removed from equating
English Language Arts	8	148187A	c-parameter	set c = 0
English Language Arts	8	149744A	delta analysis	removed from equating
English Language Arts	8	160467A	c-parameter	set c = 0
English Language Arts	8	160788A	c-parameter	set c = 0
English Language Arts	8	160790A	c-parameter	set c = 0
English Language Arts	8	160790A	b/b analysis	removed from equating
English Language Arts	8	160947A	c-parameter	set c = 0
English Language Arts	8	160989A	c-parameter	set c = 0
English Language Arts	8	160992A	c-parameter	set c = 0
English Language Arts	8	626602	c-parameter	set c = 0
English Language Arts	8	760851	c-parameter	set c = 0
Mathematics	3	155525A	delta analysis	removed from equating
Mathematics	3	636410	b/b analysis	removed from equating
Mathematics	4	152776A	c-parameter	set c = 0
Mathematics	4	153346A	c-parameter	set c = 0
Mathematics	4	155192A	b/b analysis	removed from equating
Mathematics	4	155192A	delta analysis	removed from equating
Mathematics	4	479500	b/b analysis	removed from equating
Mathematics	5	153950A	delta analysis	removed from equating
Mathematics	5	636705	c-parameter	set c = 0
Mathematics	5	636705	b/b analysis	removed from equating
Mathematics	5	636735	c-parameter	set c = 0
Mathematics	6	151835A	b/b analysis	removed from equating
Mathematics	6	479073	delta analysis	removed from equating

Table 1.2.2 (continued)

Final Items Watch List

Subject	Grade	ItemID	Reason	Action
Mathematics	7	149295A	delta analysis	removed from equating
Mathematics	7	150629A	b/b analysis	removed from equating
Mathematics	7	636547	delta analysis	removed from equating
Mathematics	8	484853	b/b analysis	removed from equating
Mathematics	8	484881	c-parameter	set c = 0
Mathematics	8	636578	delta analysis	removed from equating
Science	5	186483A	b/b analysis	removed from equating
Science	5	638751	c-parameter	set c = 0
Science	8	188153A	b/b analysis	removed from equating
Science	8	189440A	c-parameter	set c = 0
Science	8	638873	b/b analysis	removed from equating
Science	8	638873	delta analysis	removed from equating
Science	8	701395	delta analysis	removed from equating
Science	11	186992A	c-parameter	set c = 0
Science	11	187938A	c-parameter	set c = 0
Science	11	603684	c-parameter	set c = 0
Science	11	701612	delta analysis	removed from equating
Science	11	701635	c-parameter	set c = 0
Science	11	701635	b/b analysis	removed from equating
Science	11	701641	b/b analysis	removed from equating

Stocking and Lord procedure was used to transform parameter estimates onto the operational scale. This procedure results in constants which were applied to the resulting IRT parameters for each grade/content. These transformation constants were found using the STUIRT program which can be found at the CASMA website: http://www.education.uiowa.edu/casma/. The Stocking & Lord transformation constants that were used in the equating process are listed in the following table:

Table 1.2.3
Stocking and Lord Constants

Subject	Grade	Slope	Intercept
English Language Arts	3	1.08	-0.38
English Language Arts	4	1.07	-0.46
English Language Arts	5	0.92	-0.16
English Language Arts	6	1.05	-0.41
English Language Arts	7	1.07	-0.41
English Language Arts	8	0.93	-0.21
Mathematics	3	1.09	-0.37
Mathematics	4	1.16	-0.29
Mathematics	5	1.11	-0.32
Mathematics	6	1.11	-0.40
Mathematics	7	1.03	-0.30
Mathematics	8	1.06	-0.36
Science	5	1.06	-0.27
Science	8	1.02	-0.30
Science	11	1.01	0.05

Section 1.3

Equating Item Summary Statistics

Table 1.3.1

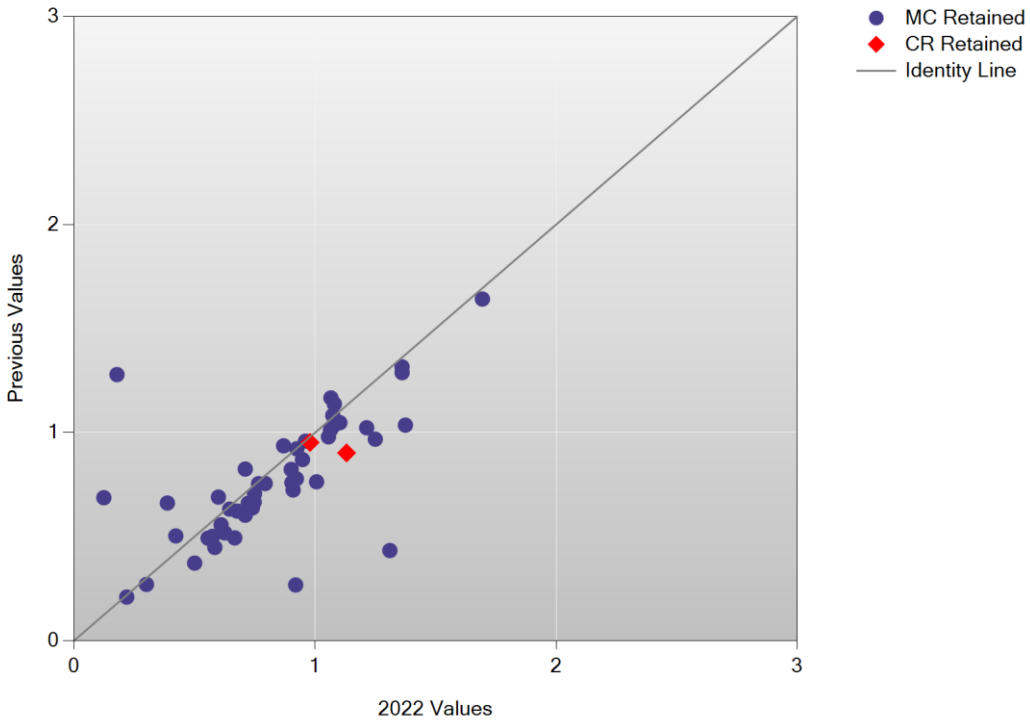
Equating Item Summary Statistics

			P-Value		Point Biserial		a		b	
Subject	Grade	Year	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev	Mean	Std Dev
English Language Arts	03	2022	0.55	0.13	0.42	0.11	0.84	0.33	0.39	1.51
		Previous	0.55	0.14	0.40	0.10	0.79	0.30	-0.18	1.01
English Language Arts	04	2022	0.58	0.14	0.44	0.09	0.91	0.32	0.03	0.76
		Previous	0.58	0.14	0.42	0.09	0.82	0.28	-0.42	0.81
English Language Arts	05	2022	0.67	0.14	0.43	0.07	0.86	0.27	-0.46	0.80
		Previous	0.64	0.14	0.45	0.08	0.94	0.26	-0.58	0.73
English Language Arts	06	2022	0.59	0.15	0.42	0.09	0.89	0.34	0.08	0.93
		Previous	0.60	0.16	0.41	0.10	0.84	0.29	-0.35	0.86
English Language Arts	07	2022	0.54	0.14	0.40	0.10	0.79	0.26	0.33	0.88
		Previous	0.54	0.13	0.39	0.09	0.77	0.29	-0.10	0.91
English Language Arts	08	2022	0.59	0.18	0.36	0.09	0.72	0.31	-0.17	1.17
		Previous	0.59	0.17	0.37	0.11	0.76	0.33	-0.44	1.10
Mathematics	03	2022	0.64	0.15	0.47	0.10	1.06	0.33	-0.21	0.82
		Previous	0.64	0.15	0.45	0.10	0.92	0.25	-0.60	0.84
Mathematics	04	2022	0.59	0.16	0.45	0.10	1.11	0.33	0.04	0.83
		Previous	0.59	0.17	0.43	0.10	0.97	0.31	-0.32	1.03
Mathematics	05	2022	0.56	0.17	0.44	0.08	1.09	0.35	0.13	0.89
		Previous	0.55	0.18	0.42	0.08	0.96	0.25	-0.20	0.97
Mathematics	06	2022	0.51	0.18	0.41	0.10	1.07	0.35	0.45	0.91
		Previous	0.52	0.19	0.39	0.10	0.96	0.28	0.08	1.14
Mathematics	07	2022	0.41	0.15	0.40	0.10	1.25	0.35	0.95	0.63
		Previous	0.41	0.15	0.39	0.09	1.19	0.43	0.68	0.68
Mathematics	08	2022	0.43	0.14	0.40	0.11	1.18	0.45	0.77	0.77
		Previous	0.44	0.14	0.39	0.10	1.09	0.40	0.48	0.75
Science	05	2022	0.54	0.15	0.40	0.09	0.93	0.31	0.35	0.81
		Previous	0.54	0.15	0.38	0.09	0.84	0.24	0.13	0.79
Science	08	2022	0.49	0.13	0.38	0.10	0.92	0.32	0.64	0.83
		Previous	0.51	0.13	0.37	0.11	0.90	0.29	0.36	0.82
Science	11	2022	0.44	0.12	0.36	0.11	1.01	0.35	0.92	0.88
		Previous	0.44	0.12	0.35	0.11	1.07	0.41	1.00	0.78

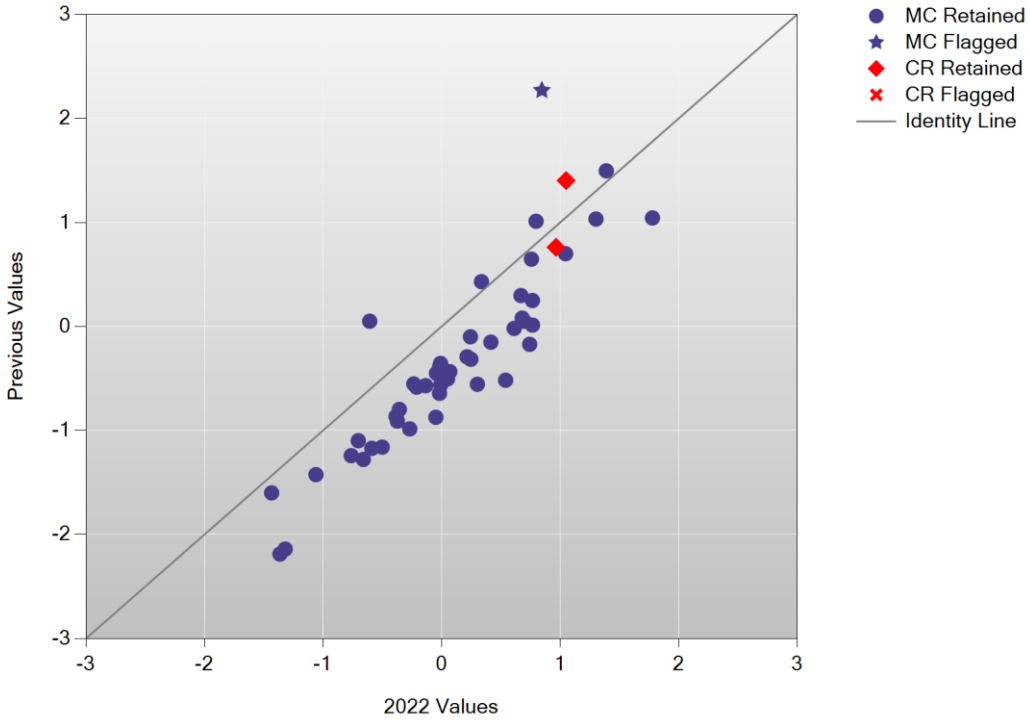
Section 2.1

A/A, B/B, Delta, Test Characteristic Curve, Test Information Function, and Cumulative Scale Score Distribution Plots

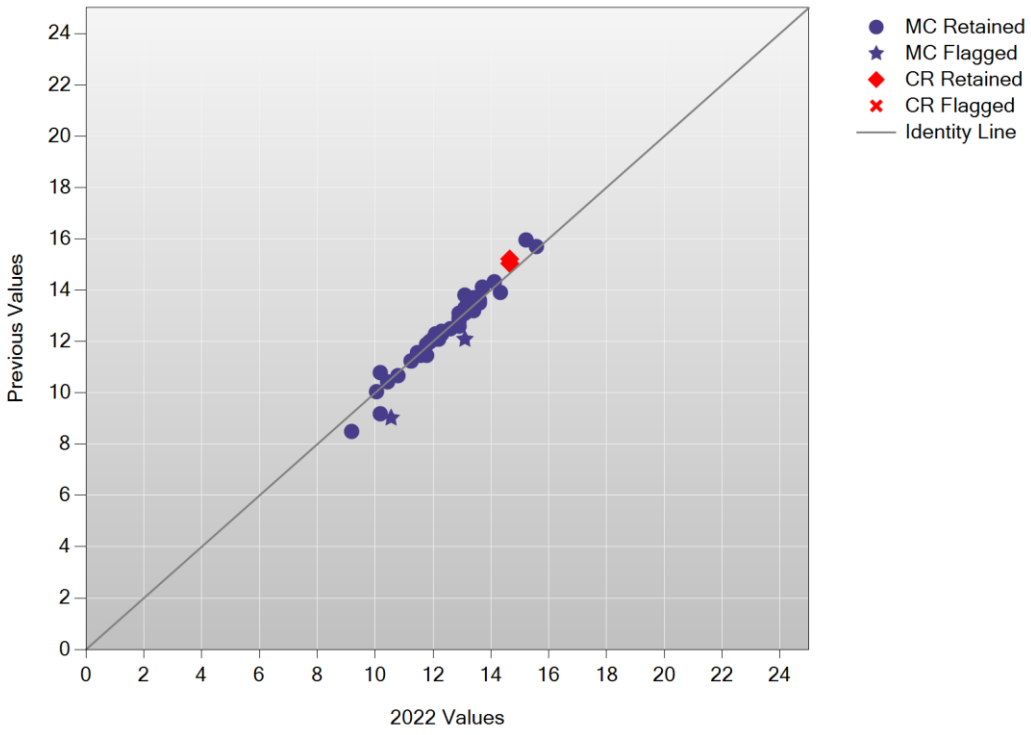
A/A Plot: English Language Arts Grade 3



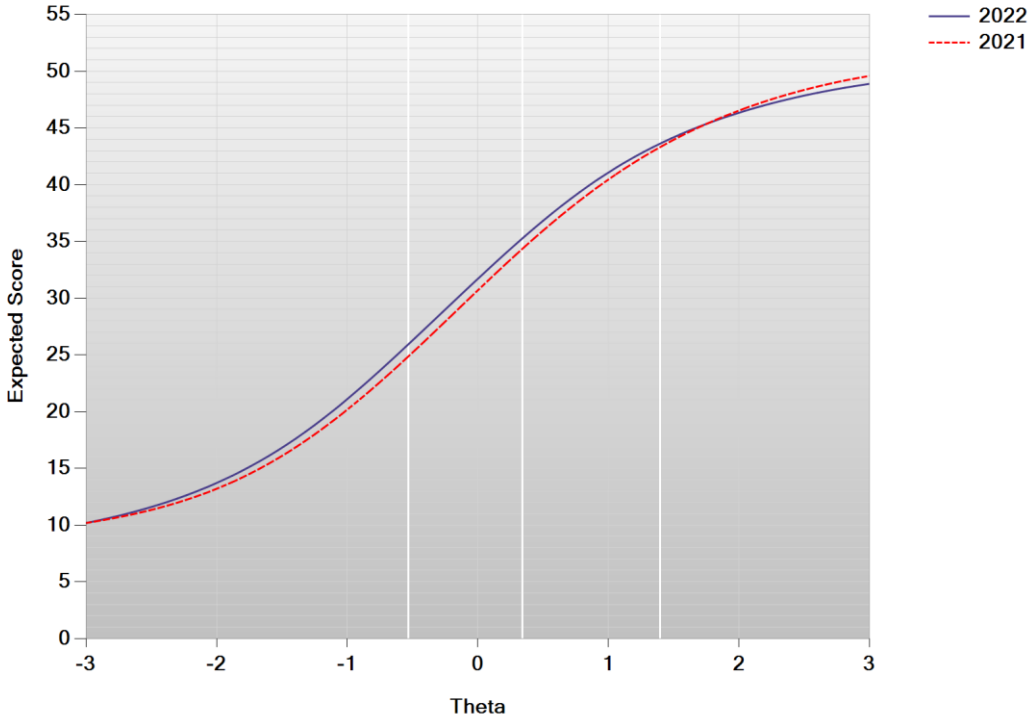
B/B Plot: English Language Arts Grade 3



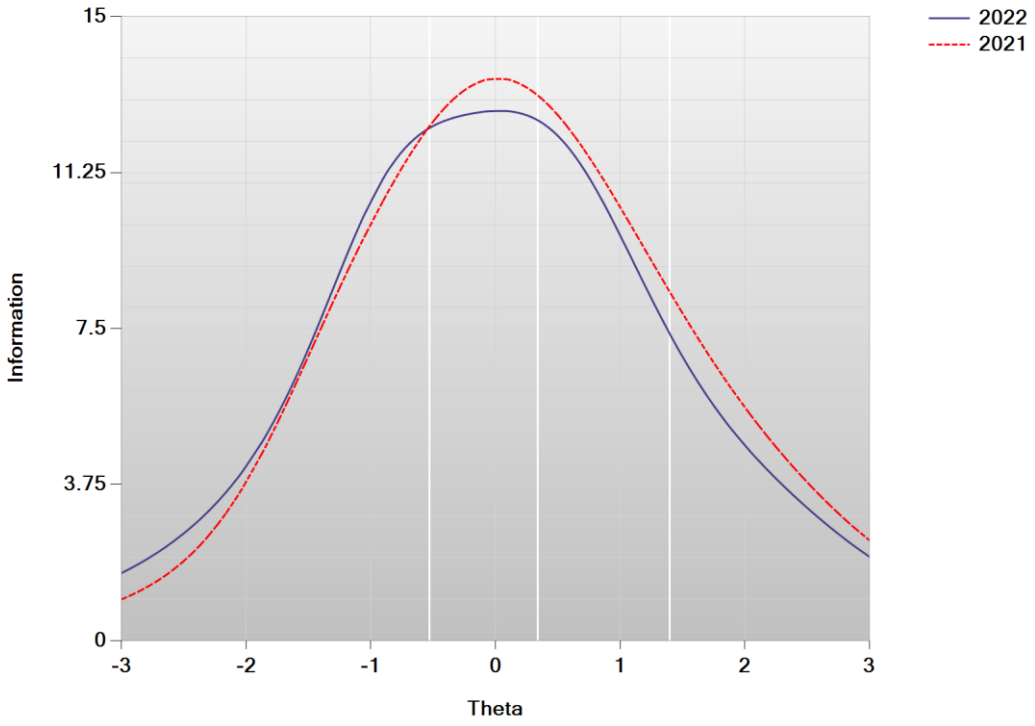
Delta Plot: English Language Arts Grade 3



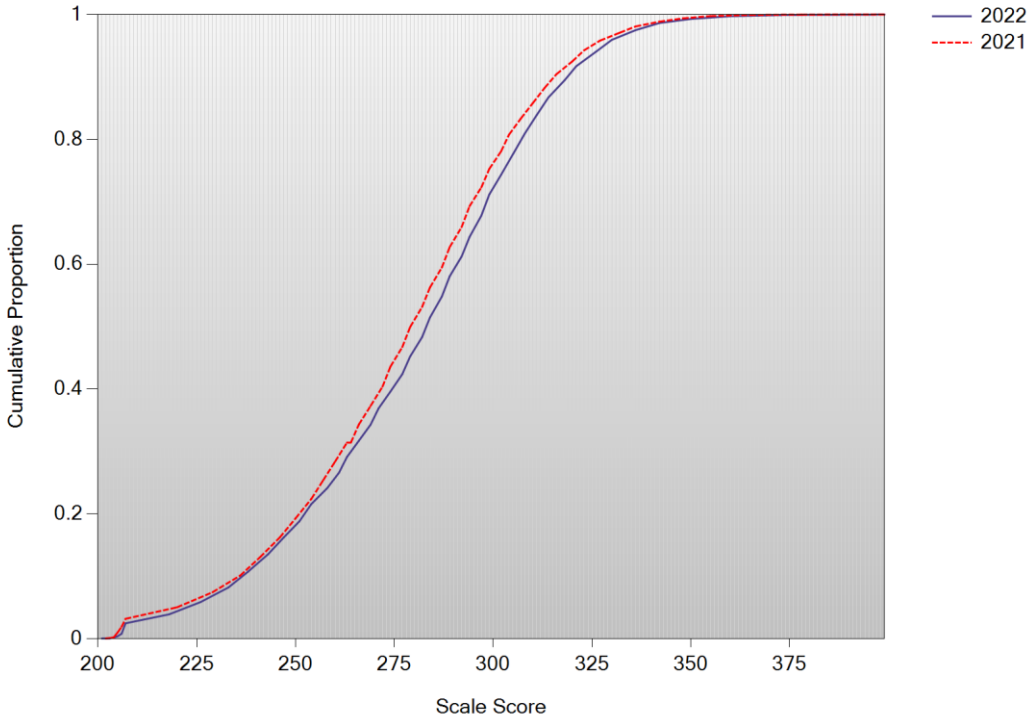
Test Characteristic Curve:English Language Arts Grade 3



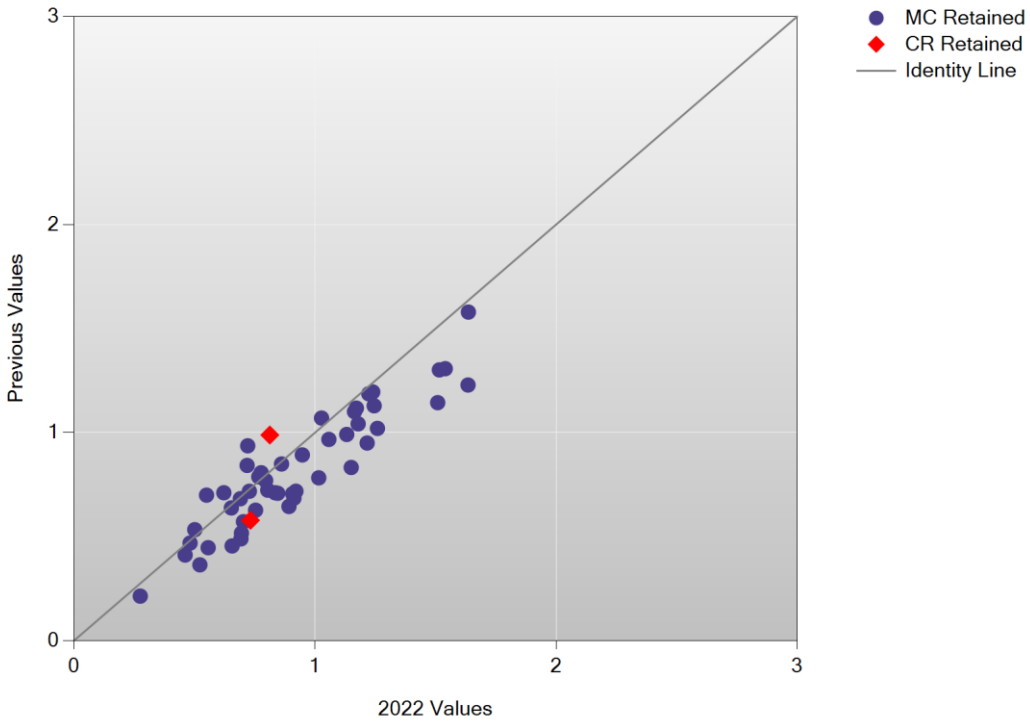
Test Information Function: English Language Arts Grade 3



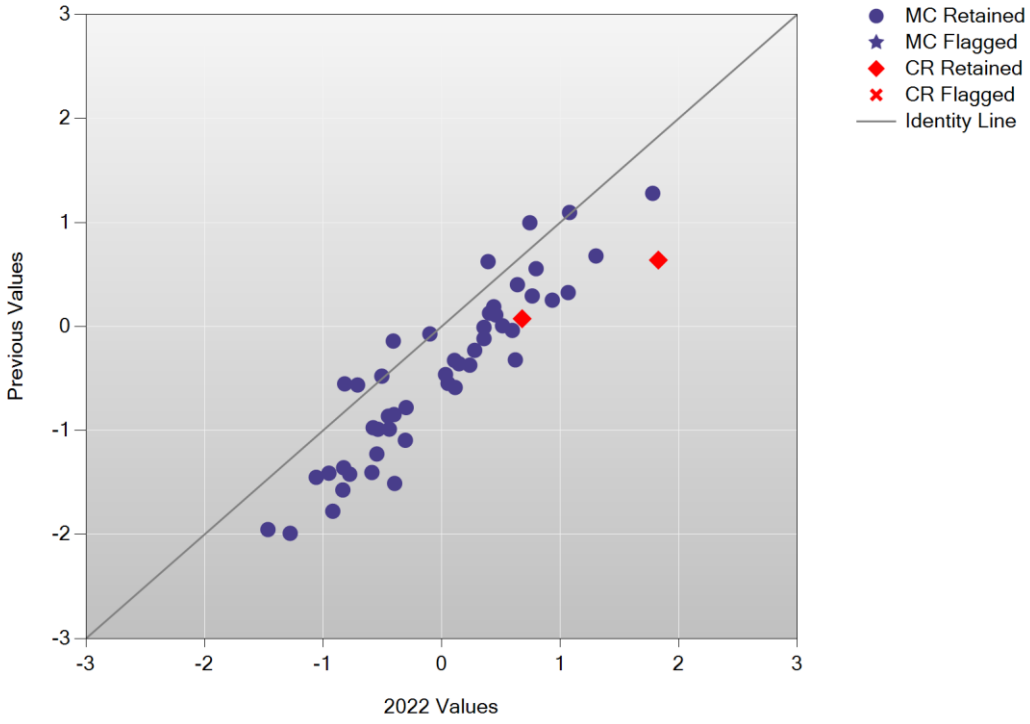
Cumulative Scale Score Distributions: English Language Arts Grade 3



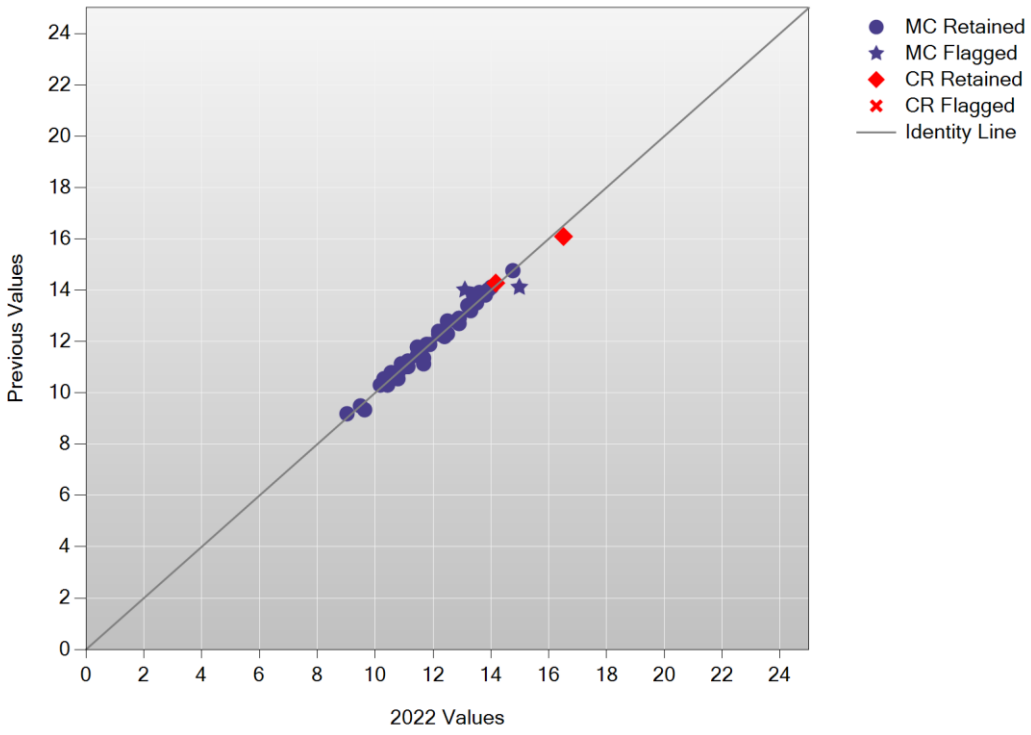
A/A Plot: English Language Arts Grade 4



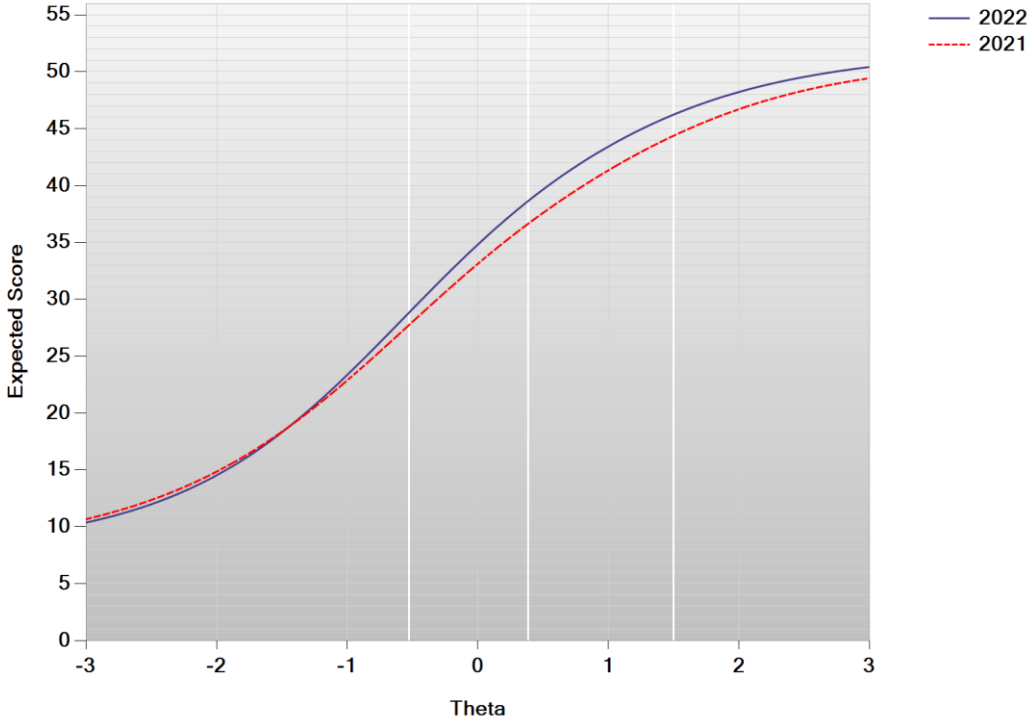
B/B Plot: English Language Arts Grade 4



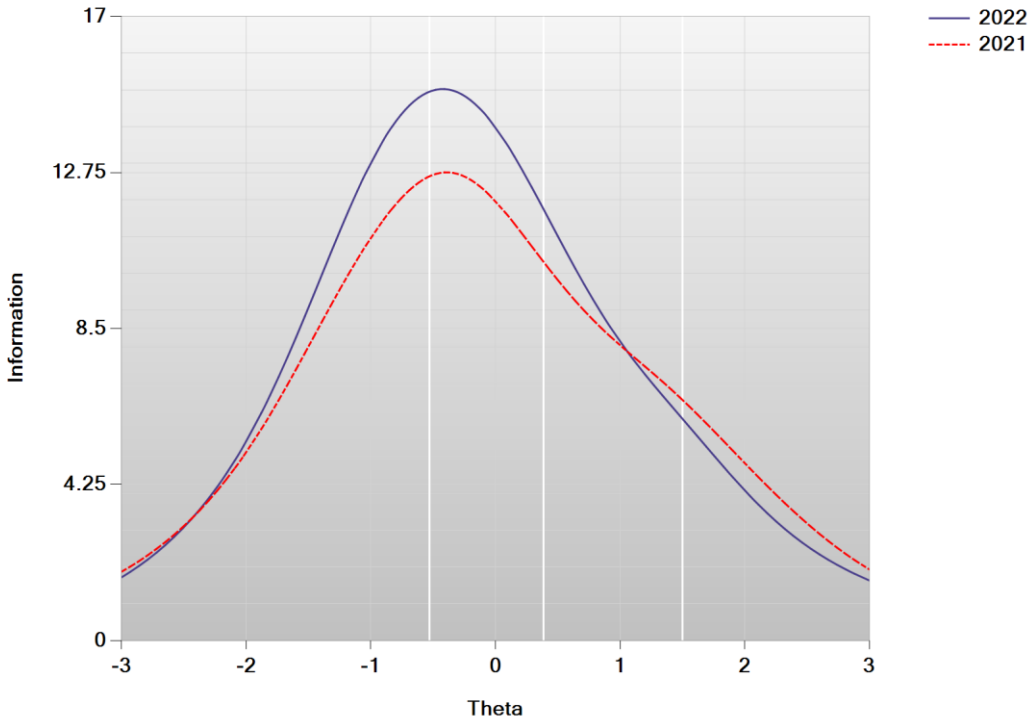
Delta Plot: English Language Arts Grade 4



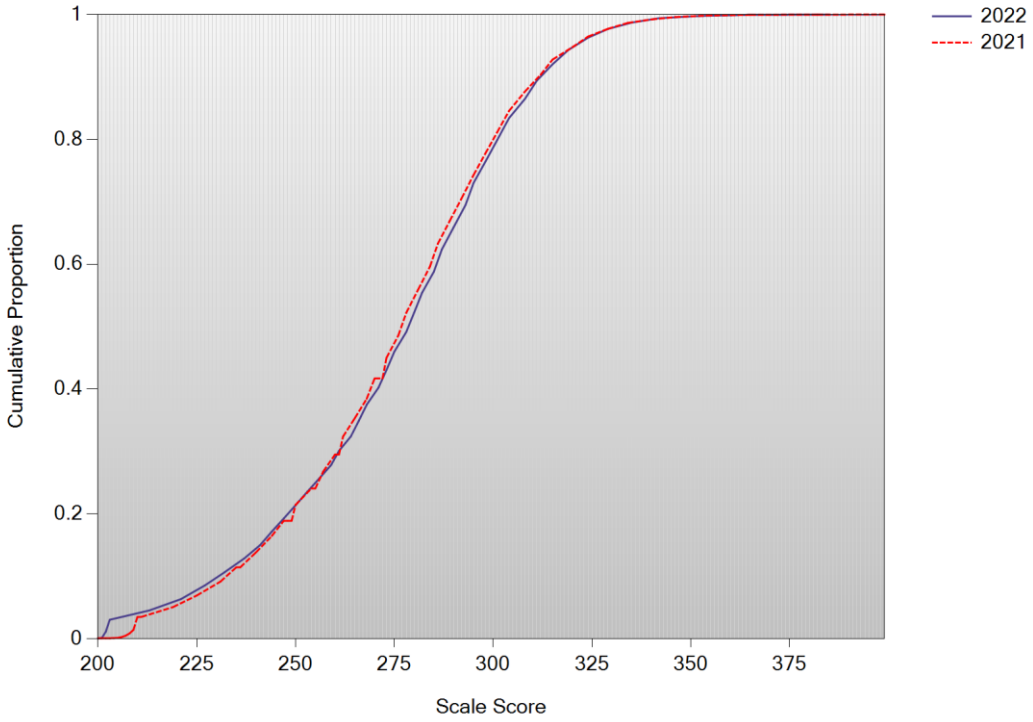
Test Characteristic Curve:English Language Arts Grade 4



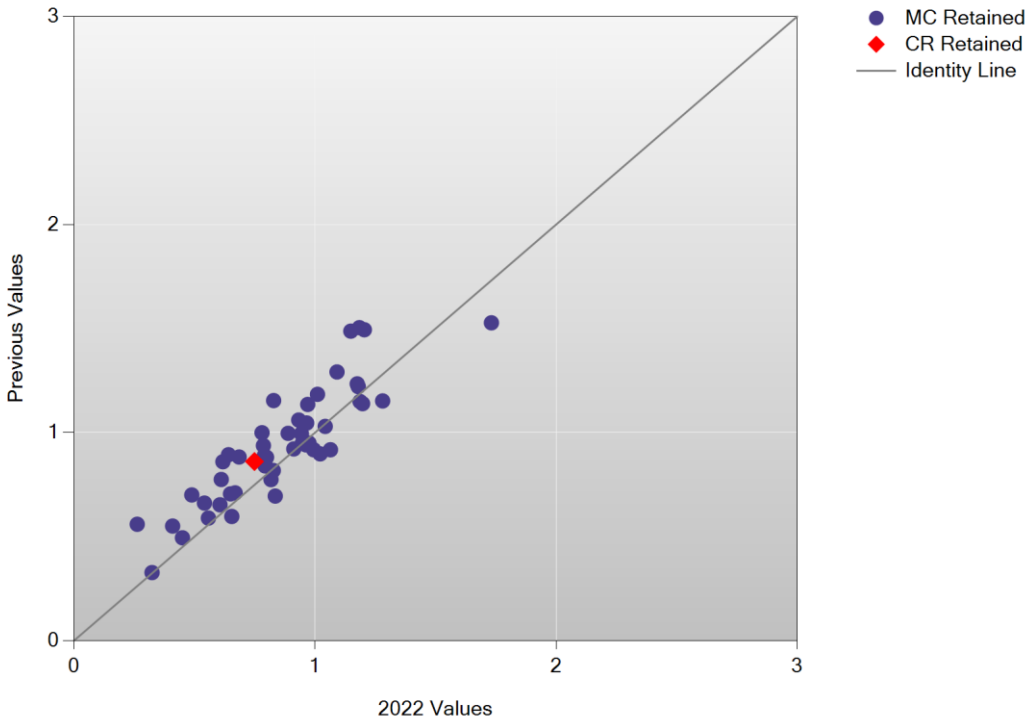
Test Information Function: English Language Arts Grade 4



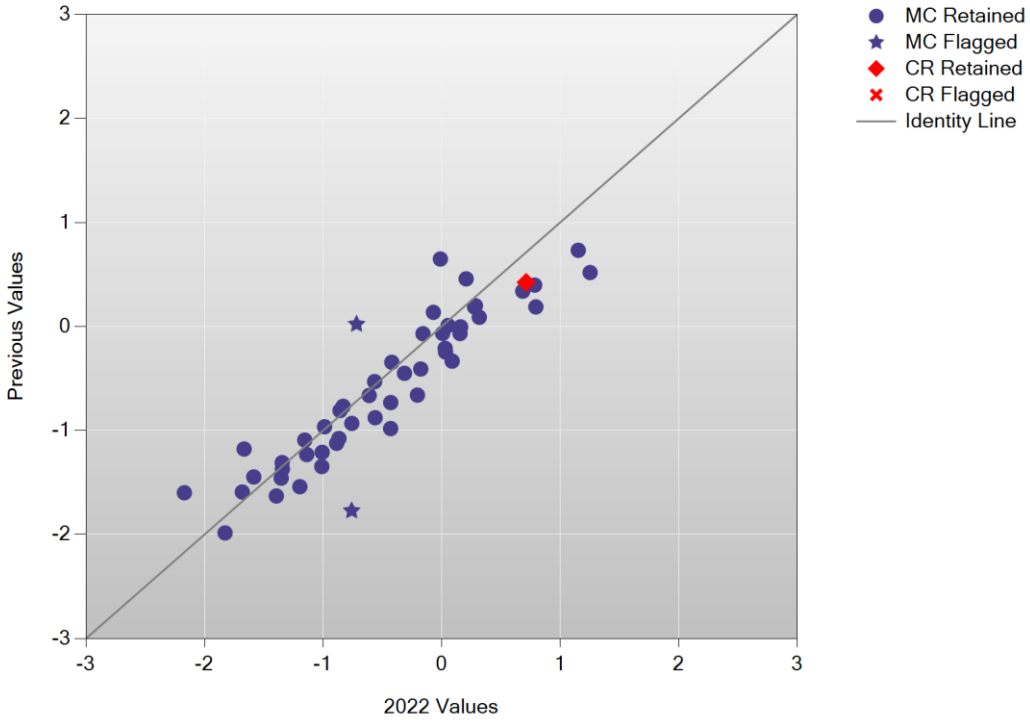
Cumulative Scale Score Distributions: English Language Arts Grade 4



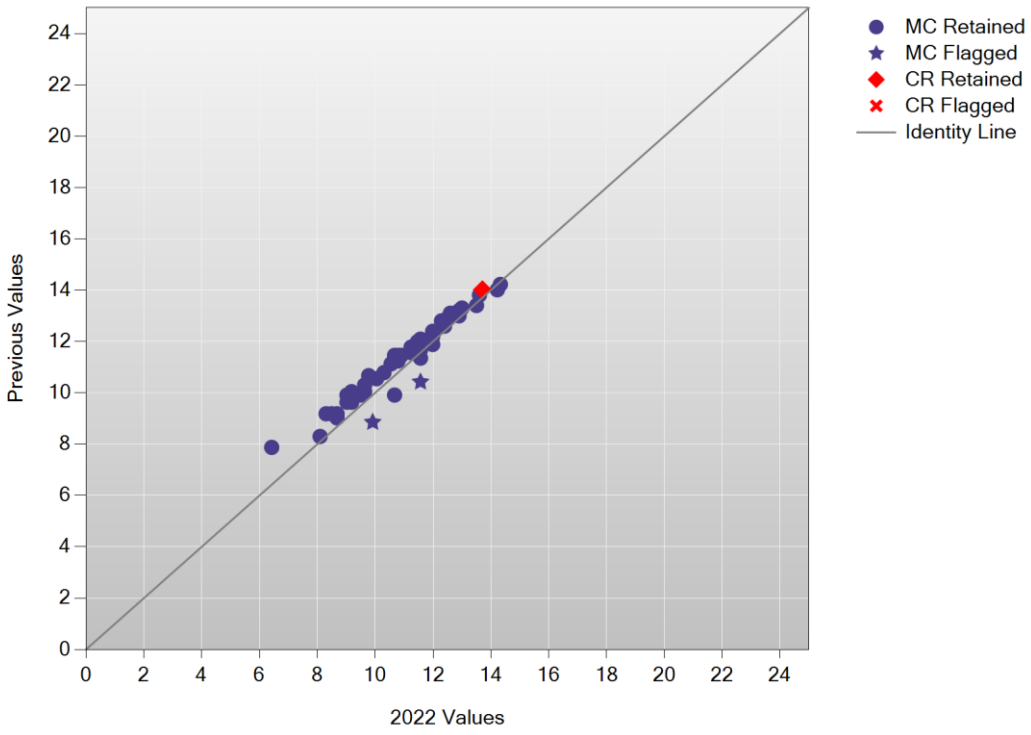
A/A Plot: English Language Arts Grade 5



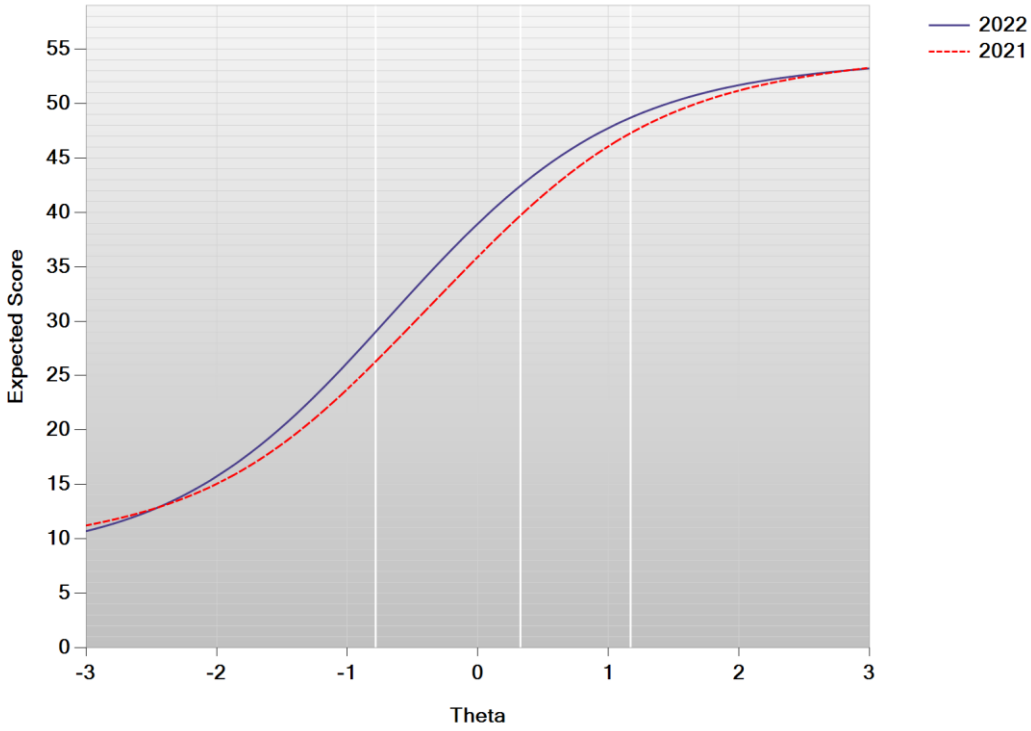
B/B Plot: English Language Arts Grade 5



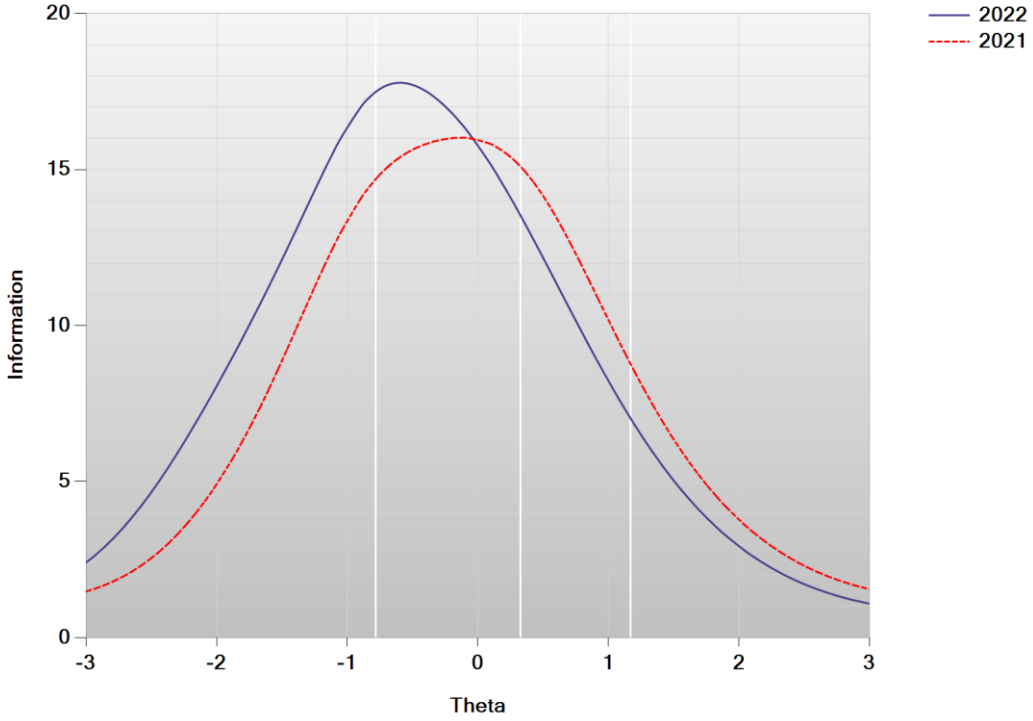
Delta Plot: English Language Arts Grade 5



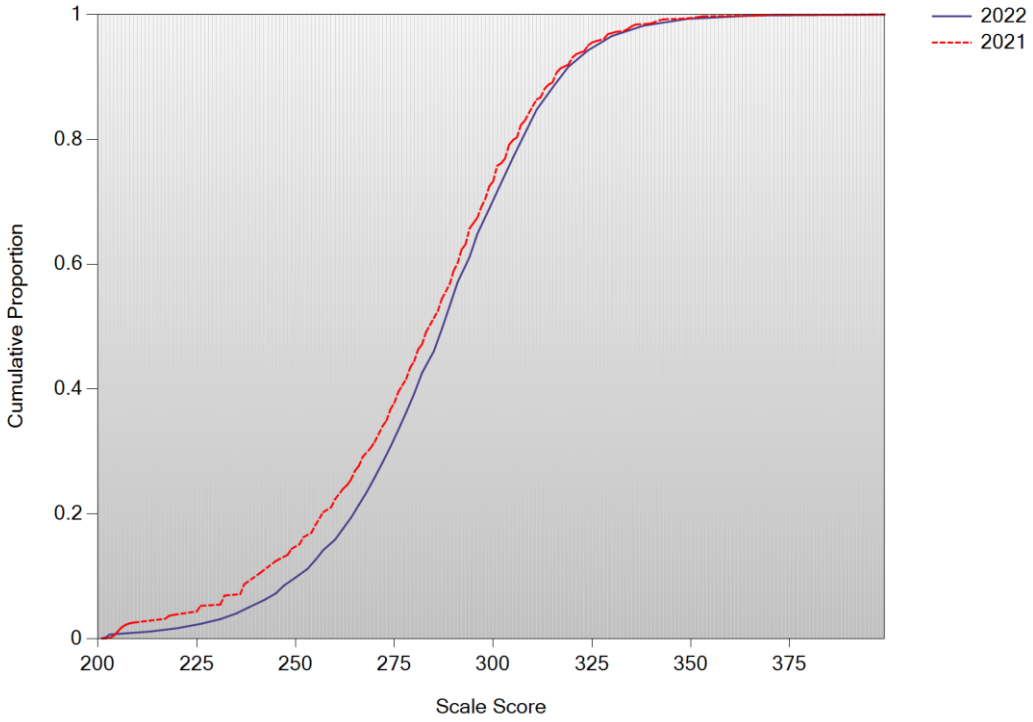
Test Characteristic Curve:English Language Arts Grade 5



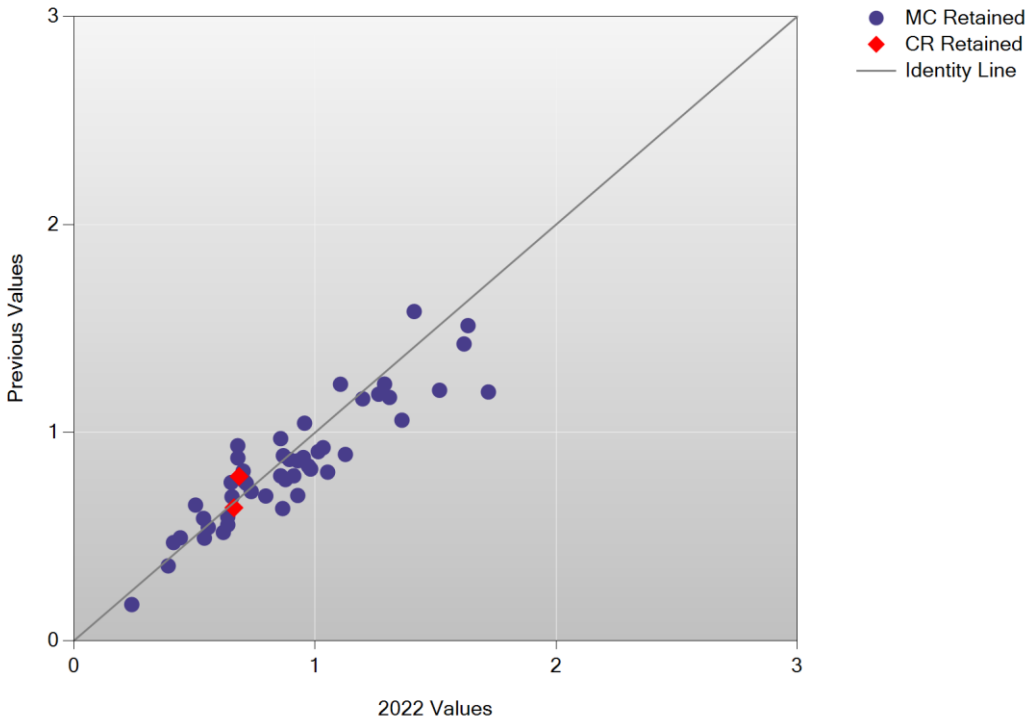
Test Information Function: English Language Arts Grade 5



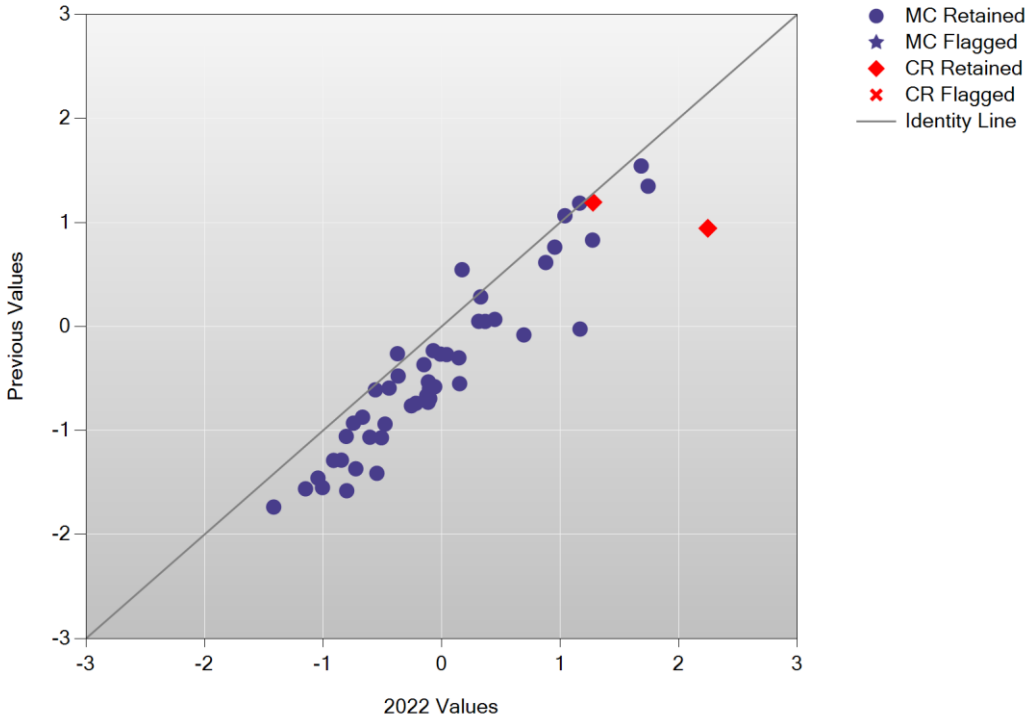
Cumulative Scale Score Distributions: English Language Arts Grade 5



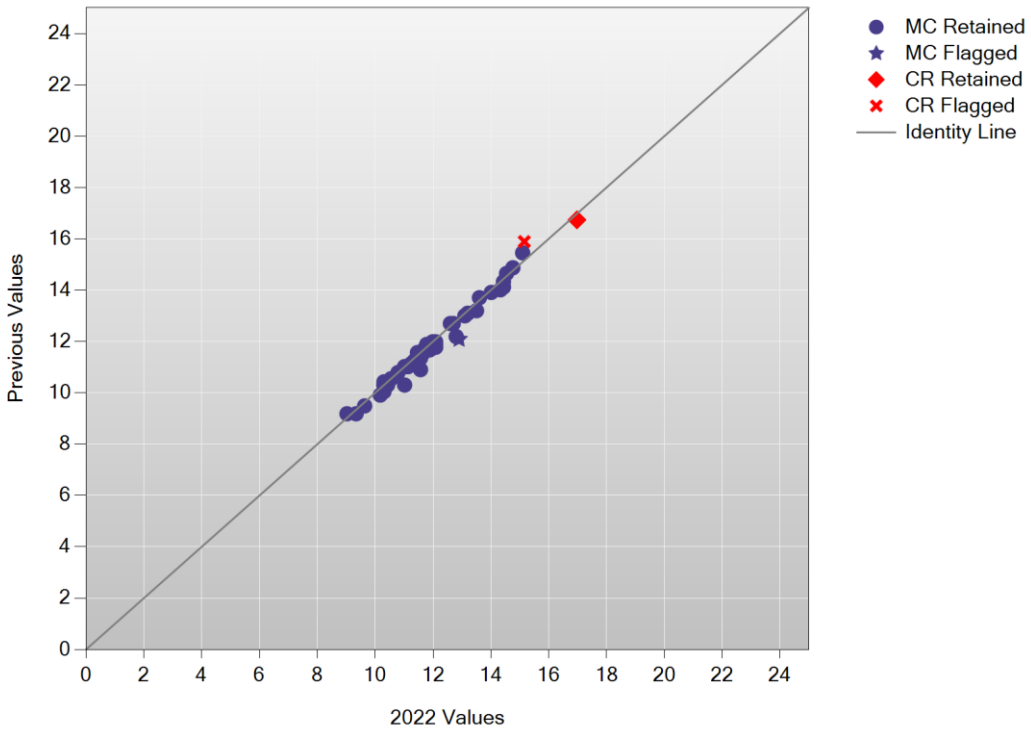
A/A Plot: English Language Arts Grade 6



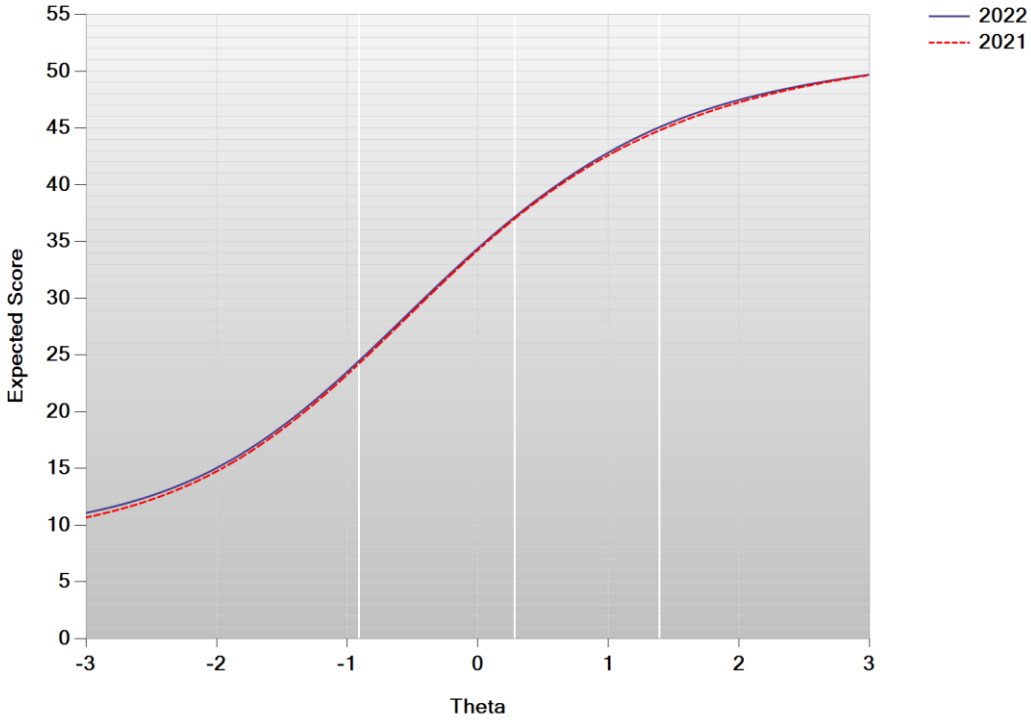
B/B Plot: English Language Arts Grade 6



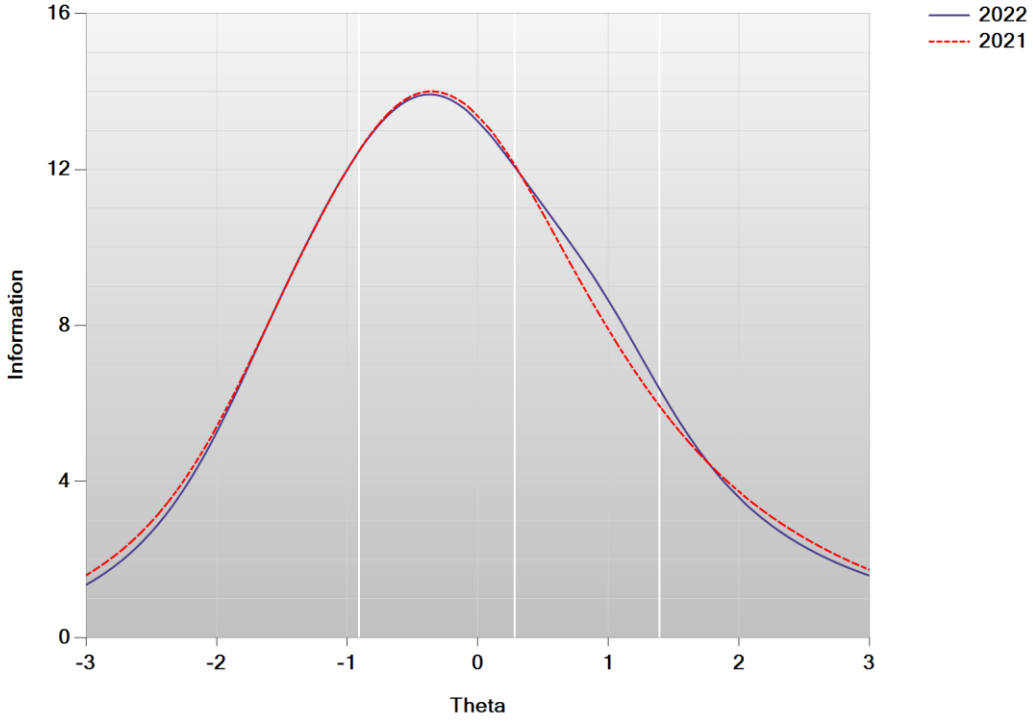
Delta Plot: English Language Arts Grade 6



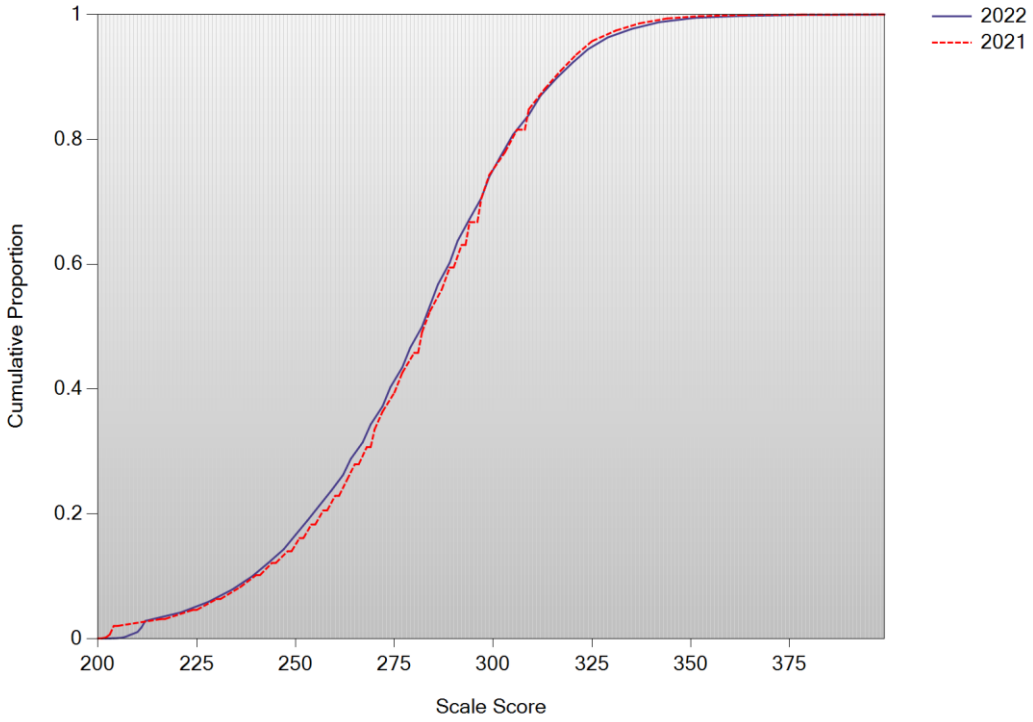
Test Characteristic Curve:English Language Arts Grade 6



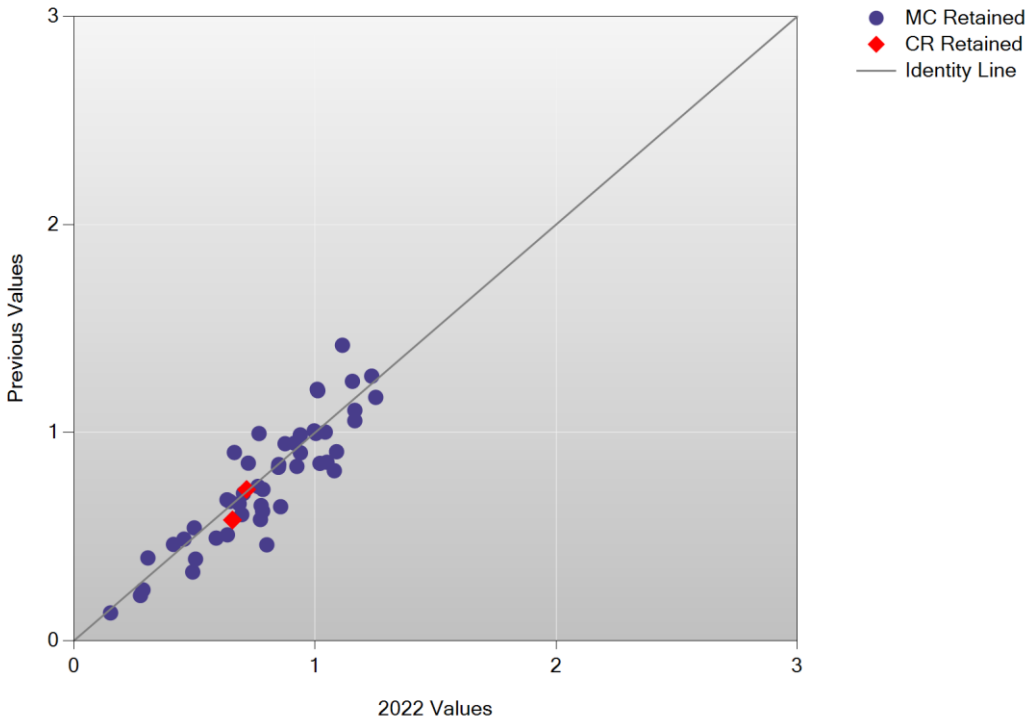
Test Information Function: English Language Arts Grade 6



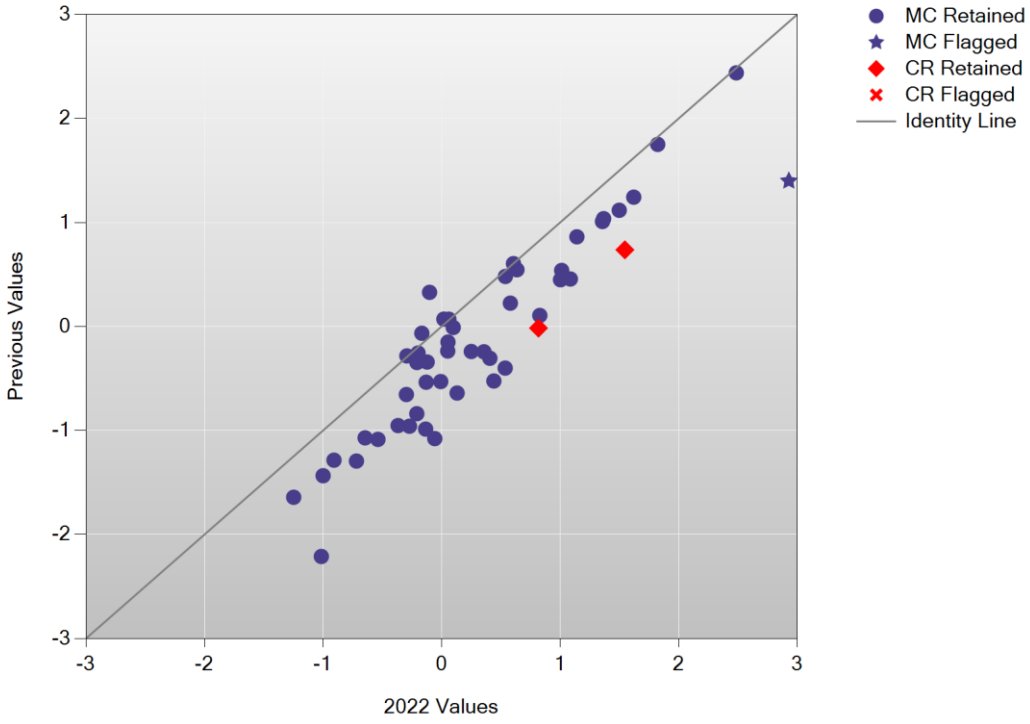
Cumulative Scale Score Distributions: English Language Arts Grade 6



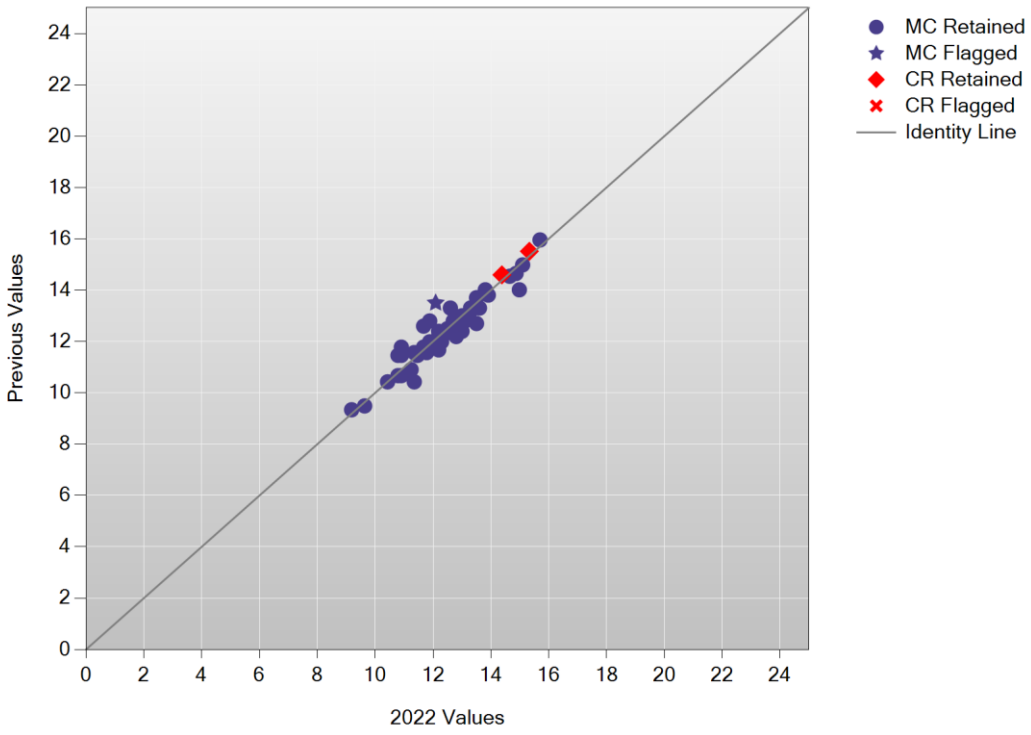
A/A Plot: English Language Arts Grade 7



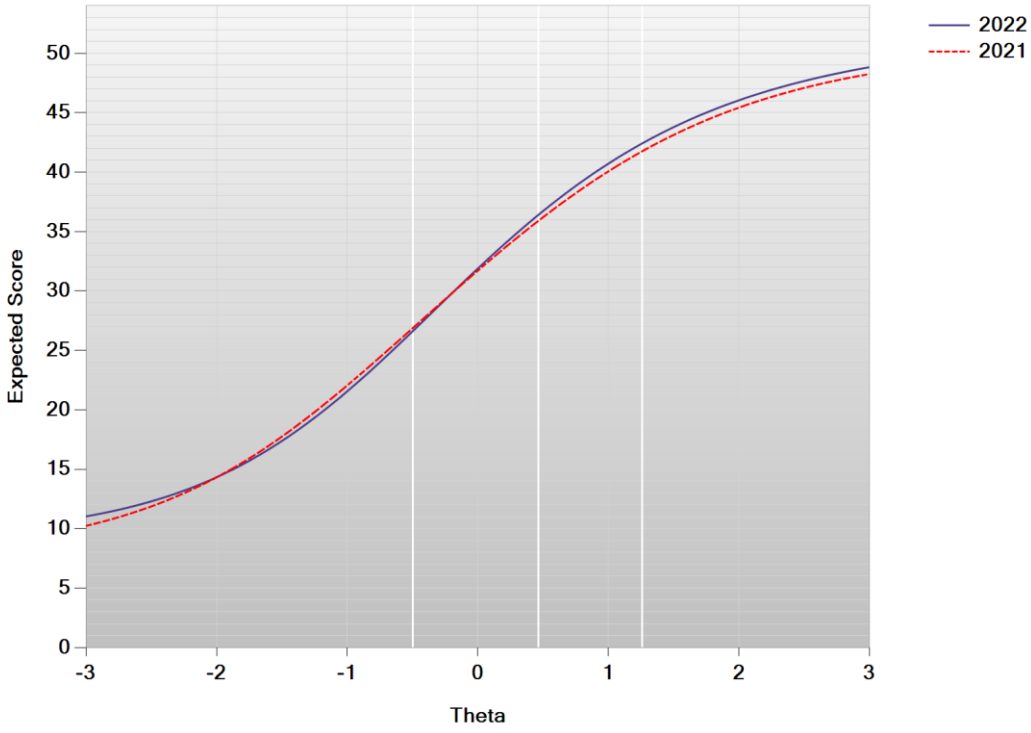
B/B Plot: English Language Arts Grade 7



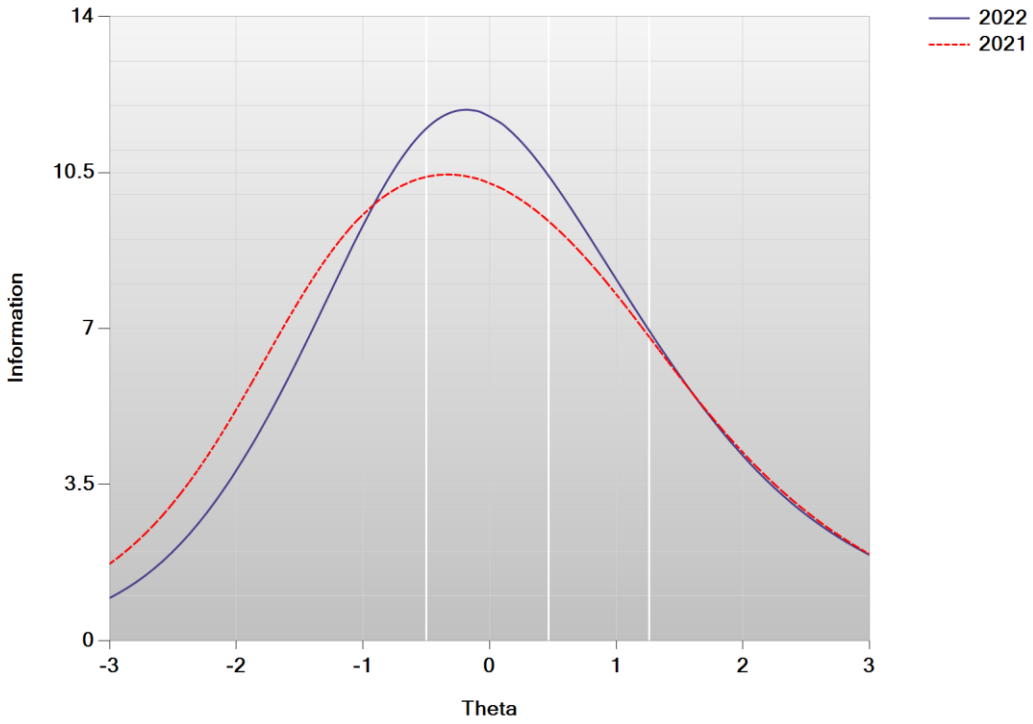
Delta Plot: English Language Arts Grade 7



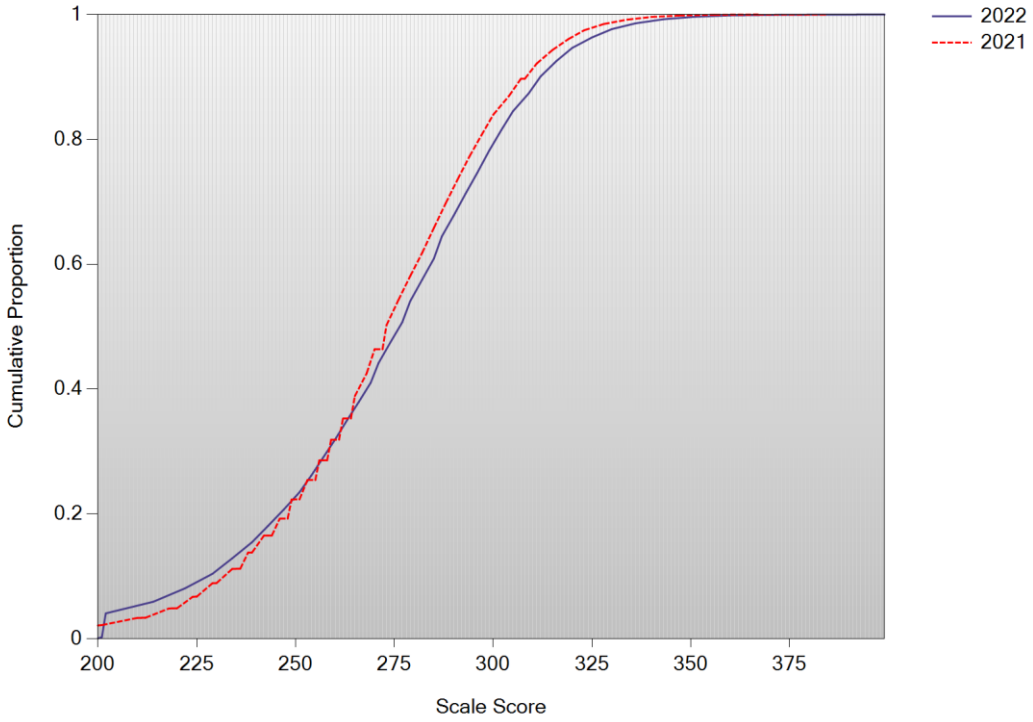
Test Characteristic Curve:English Language Arts Grade 7



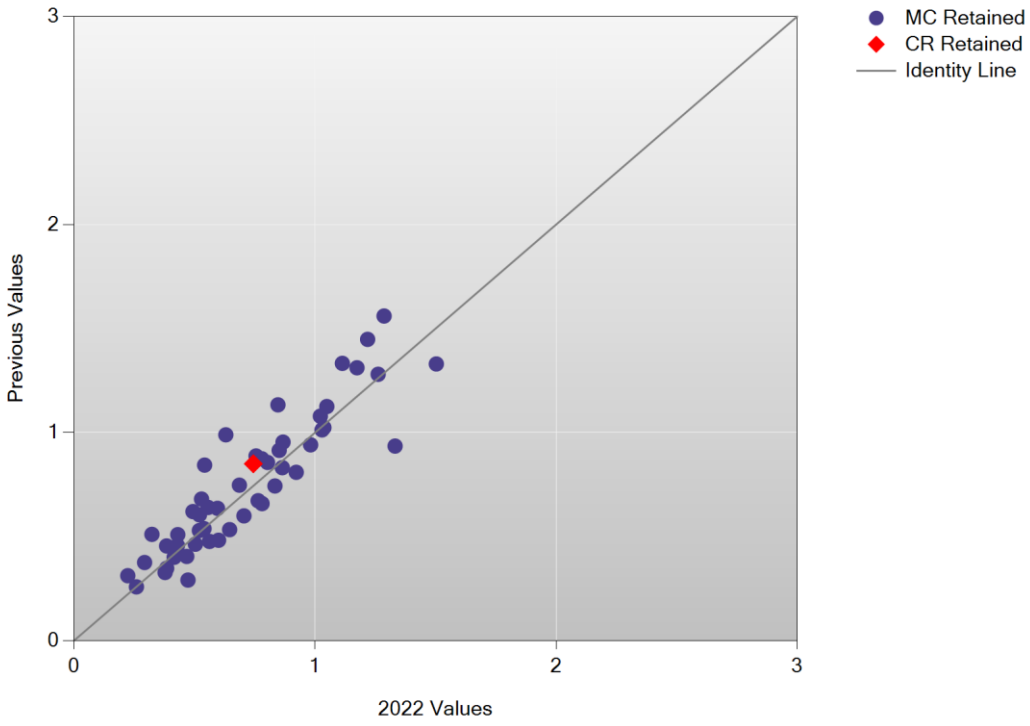
Test Information Function: English Language Arts Grade 7



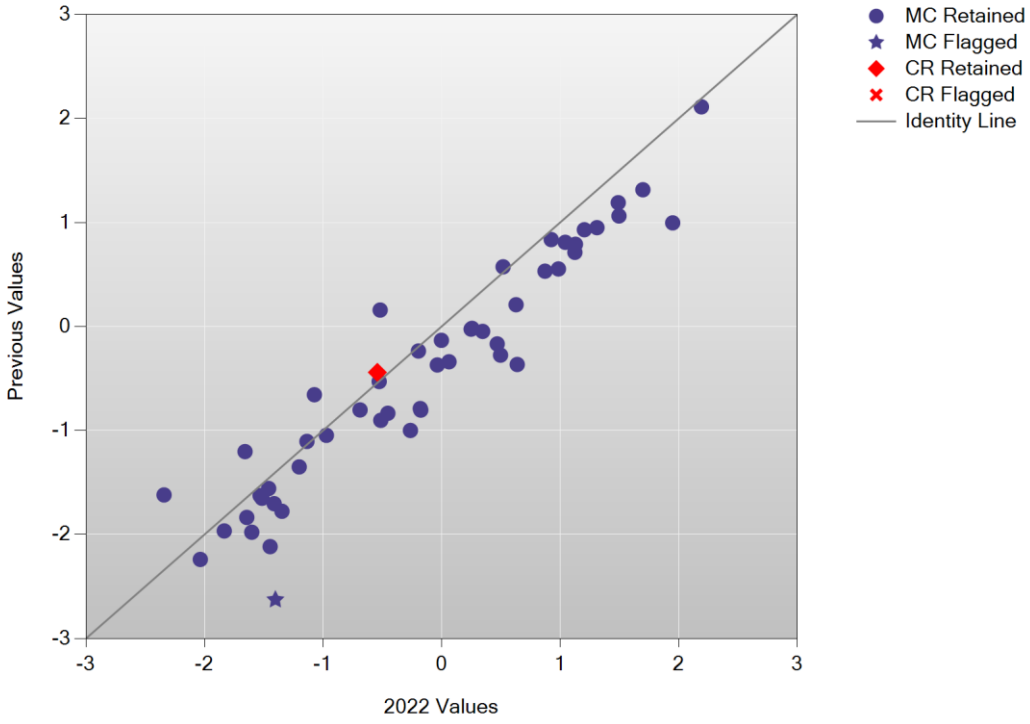
Cumulative Scale Score Distributions: English Language Arts Grade 7



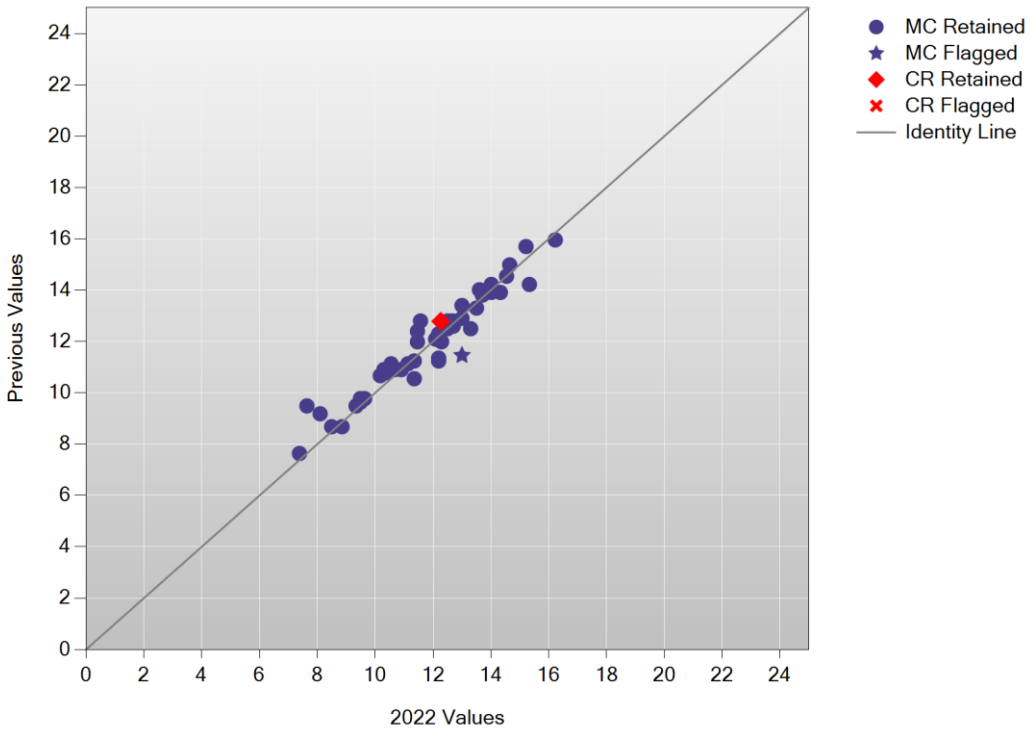
A/A Plot: English Language Arts Grade 8



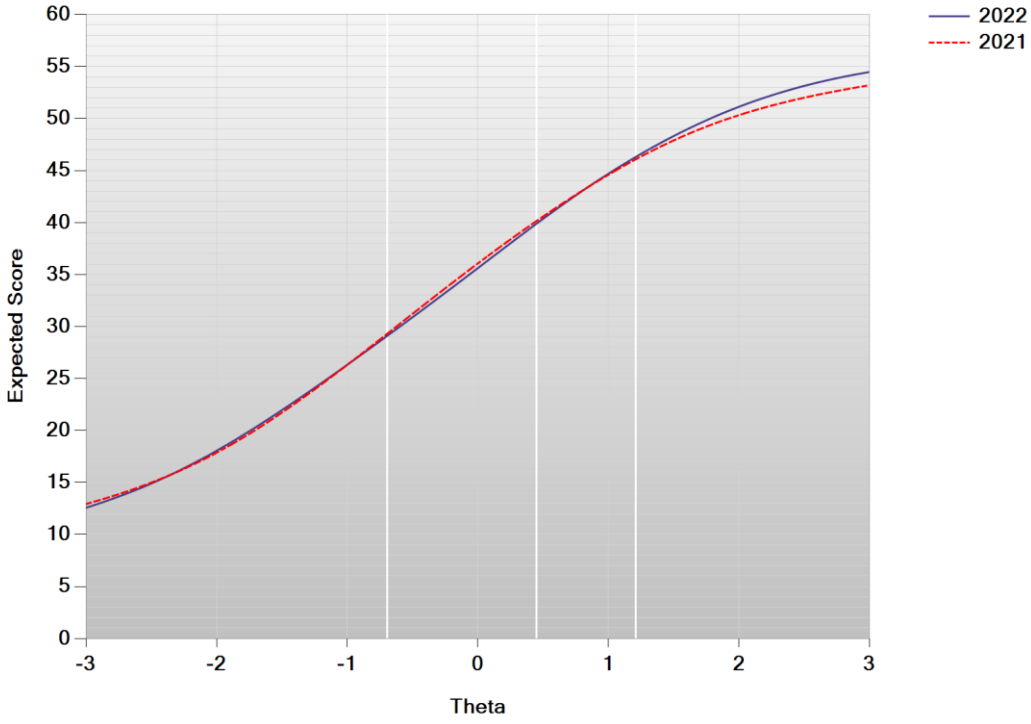
B/B Plot: English Language Arts Grade 8



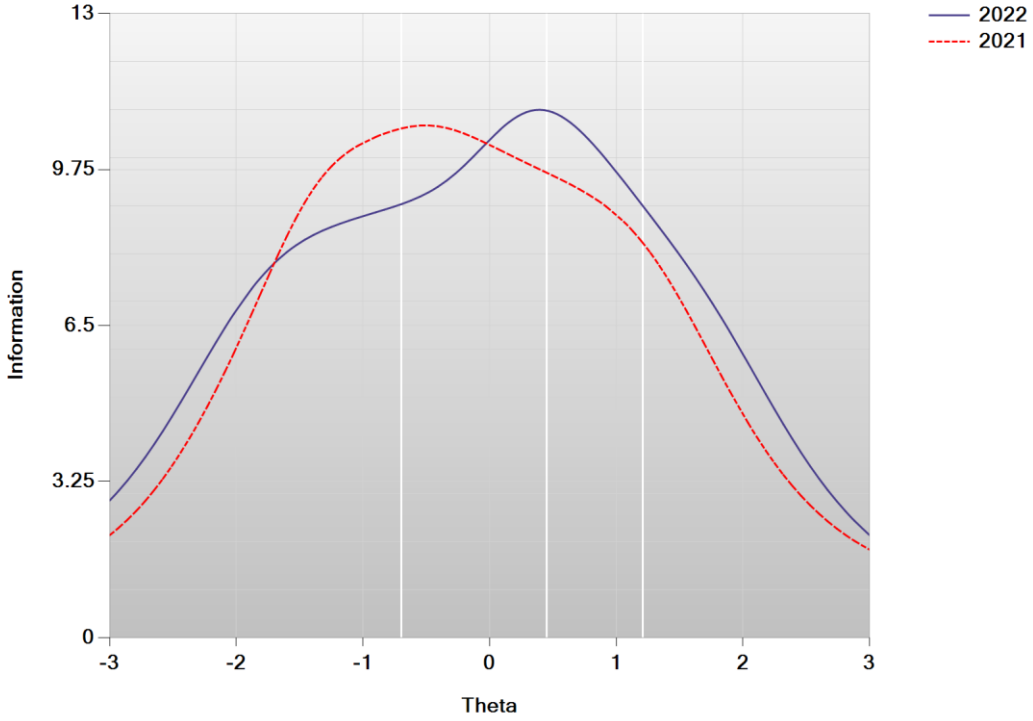
Delta Plot: English Language Arts Grade 8



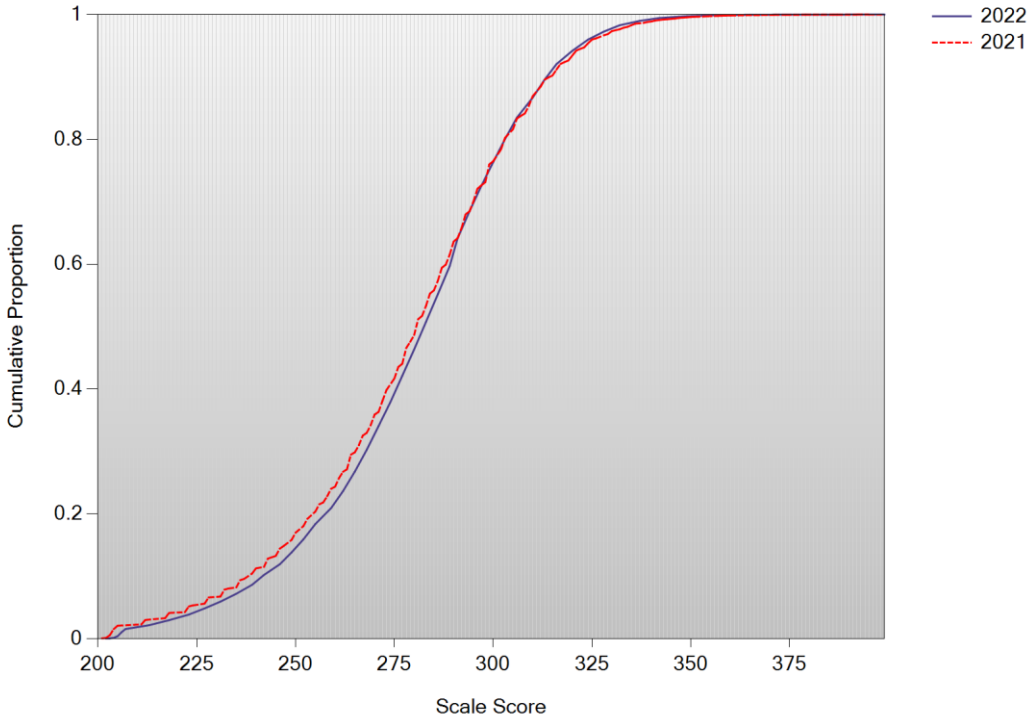
Test Characteristic Curve:English Language Arts Grade 8



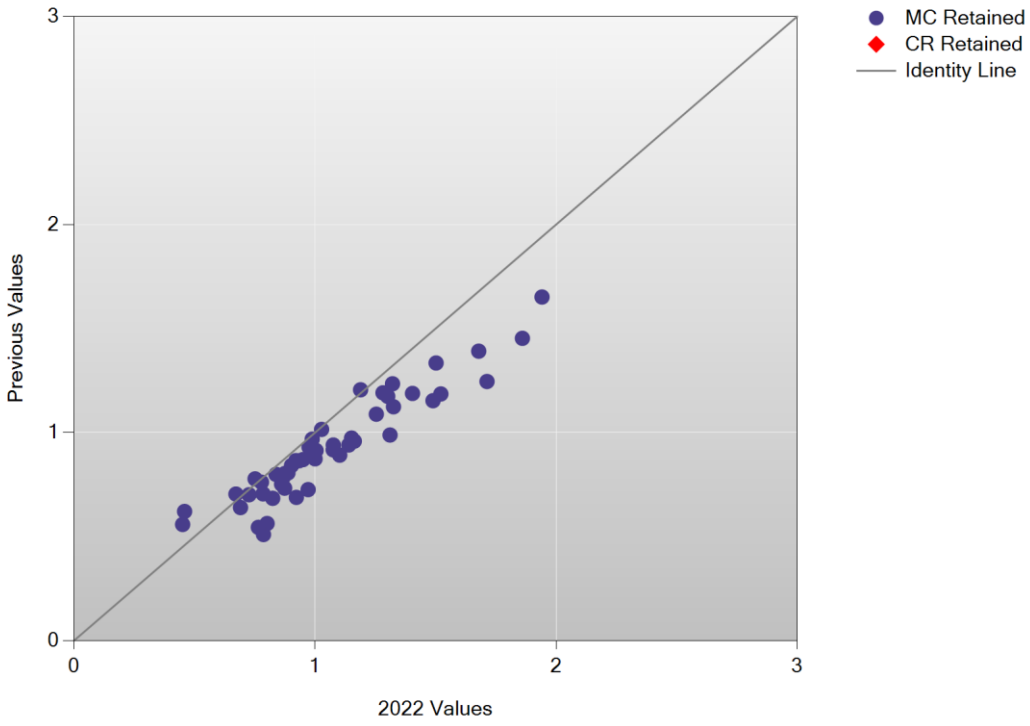
Test Information Function: English Language Arts Grade 8



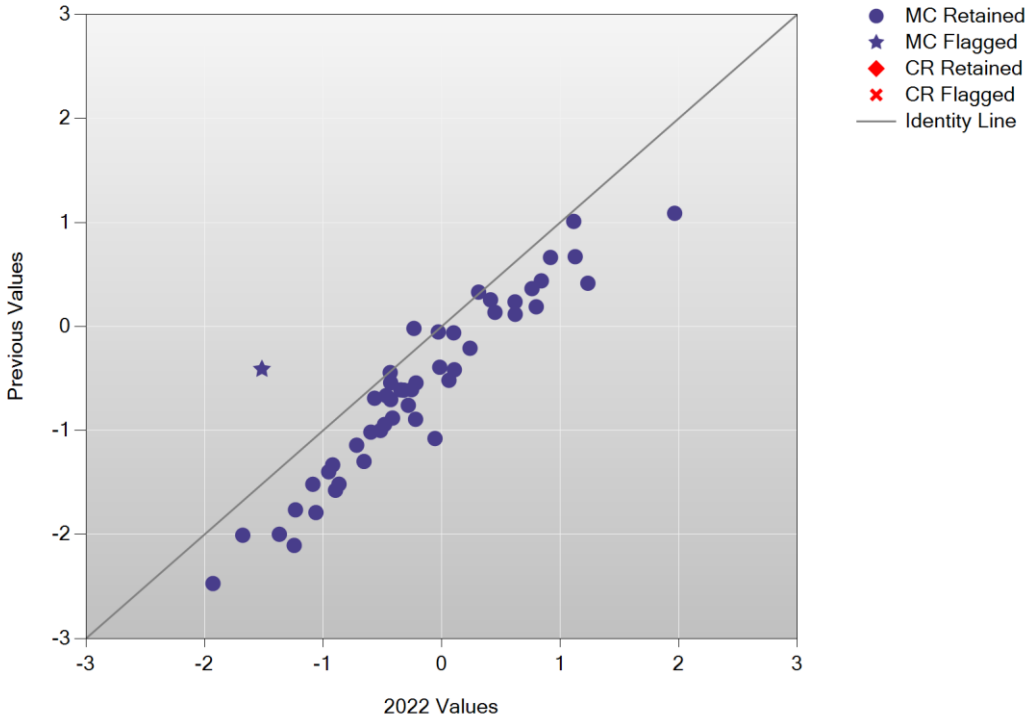
Cumulative Scale Score Distributions: English Language Arts Grade 8



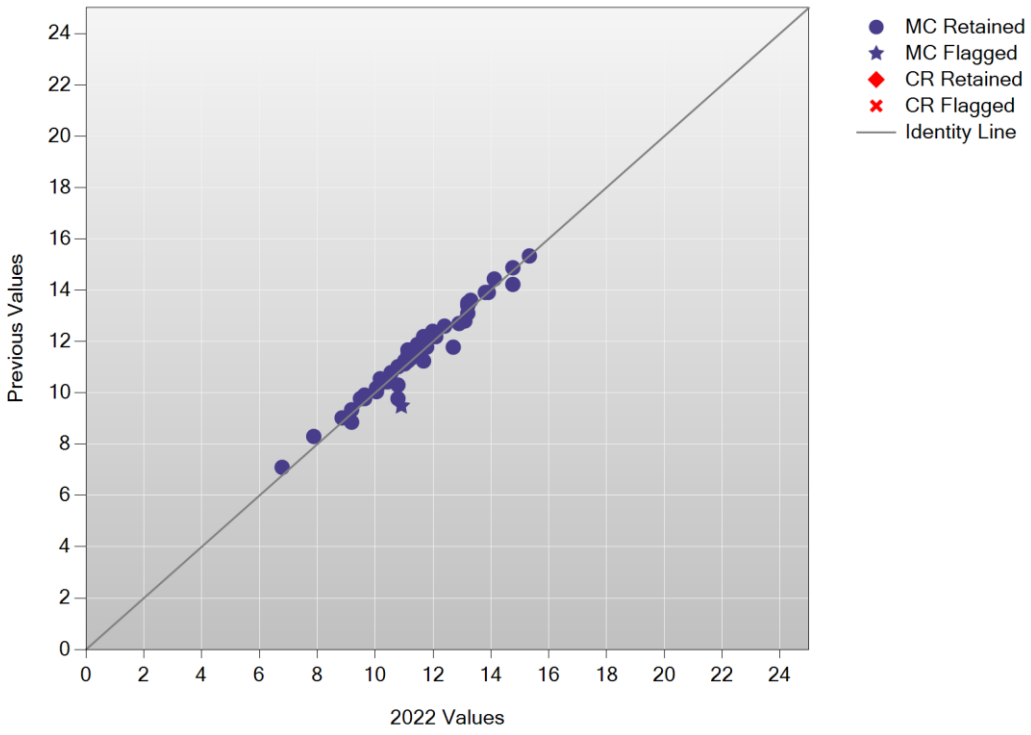
A/A Plot: Mathematics Grade 3



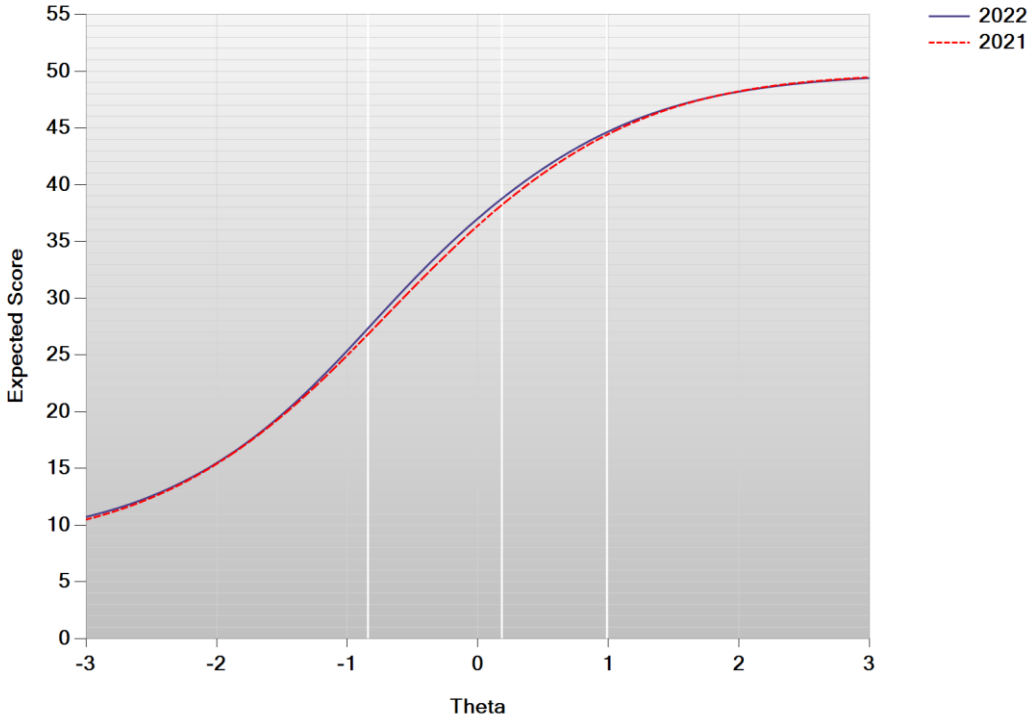
B/B Plot: Mathematics Grade 3

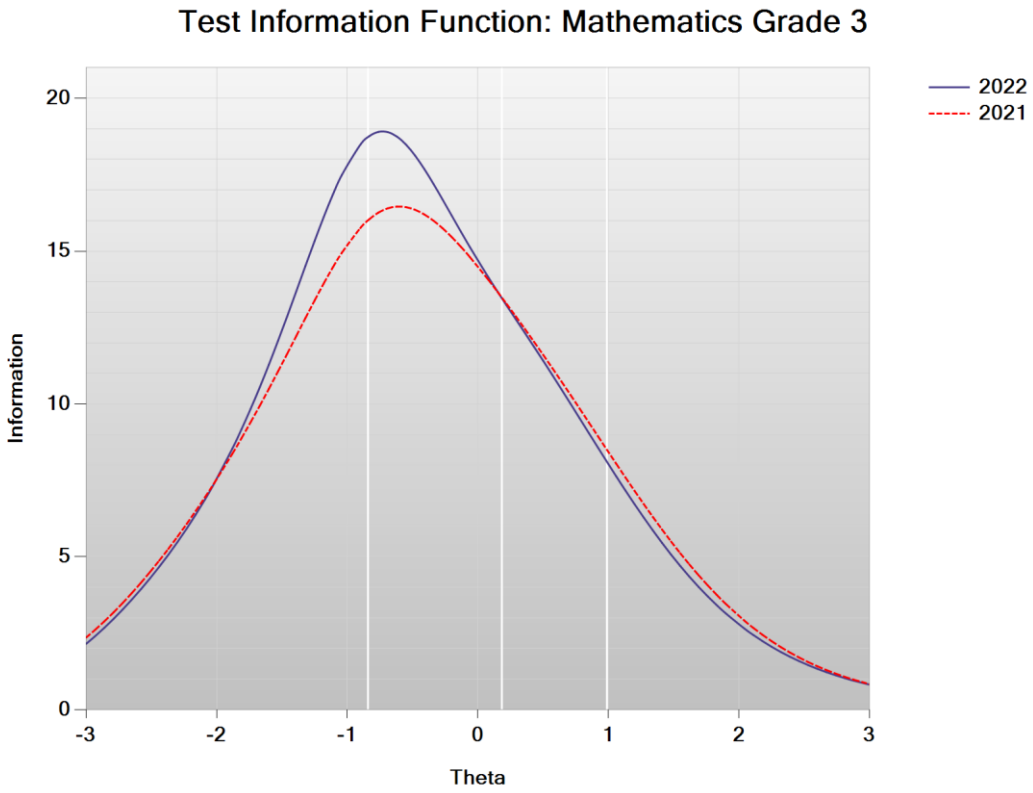


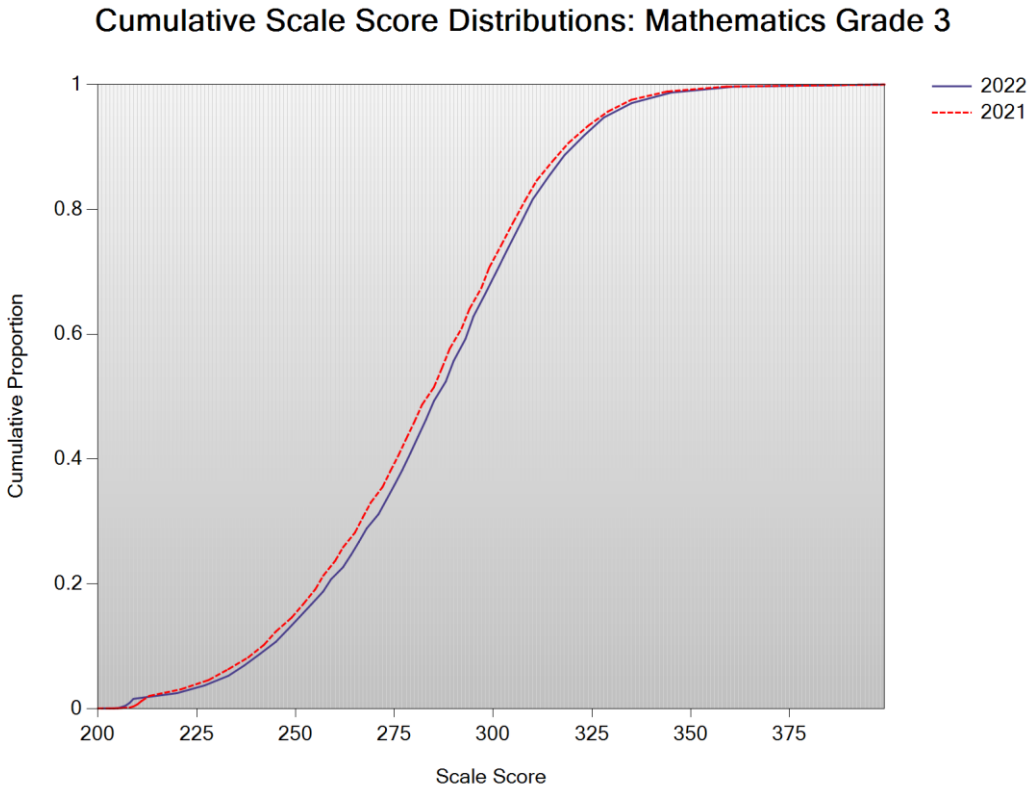
Delta Plot: Mathematics Grade 3



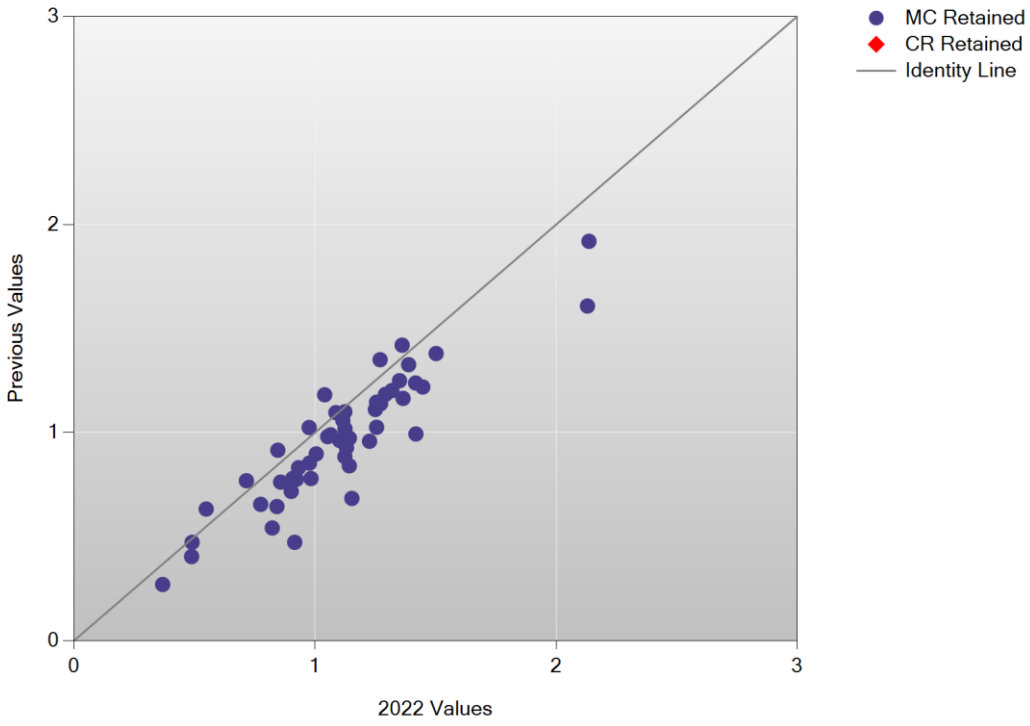
Test Characteristic Curve:Mathematics Grade 3



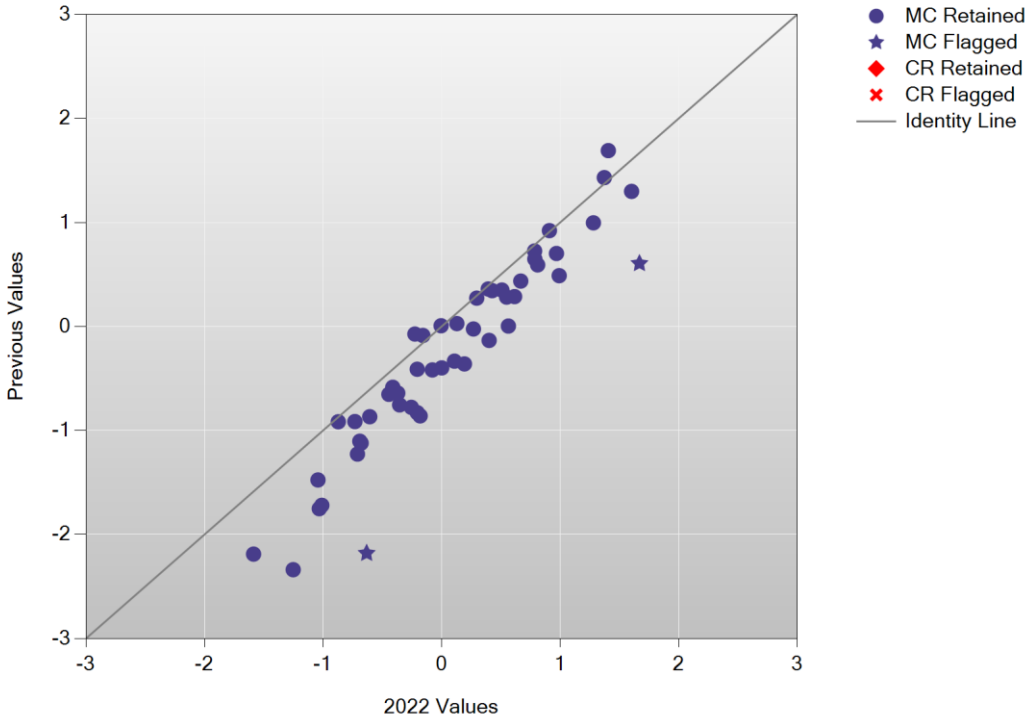

Test Information Function: Mathematics Grade 3
2022
2021
Information
20
15
10
5
0
-3
-2
-1
0
1
2
3
Theta

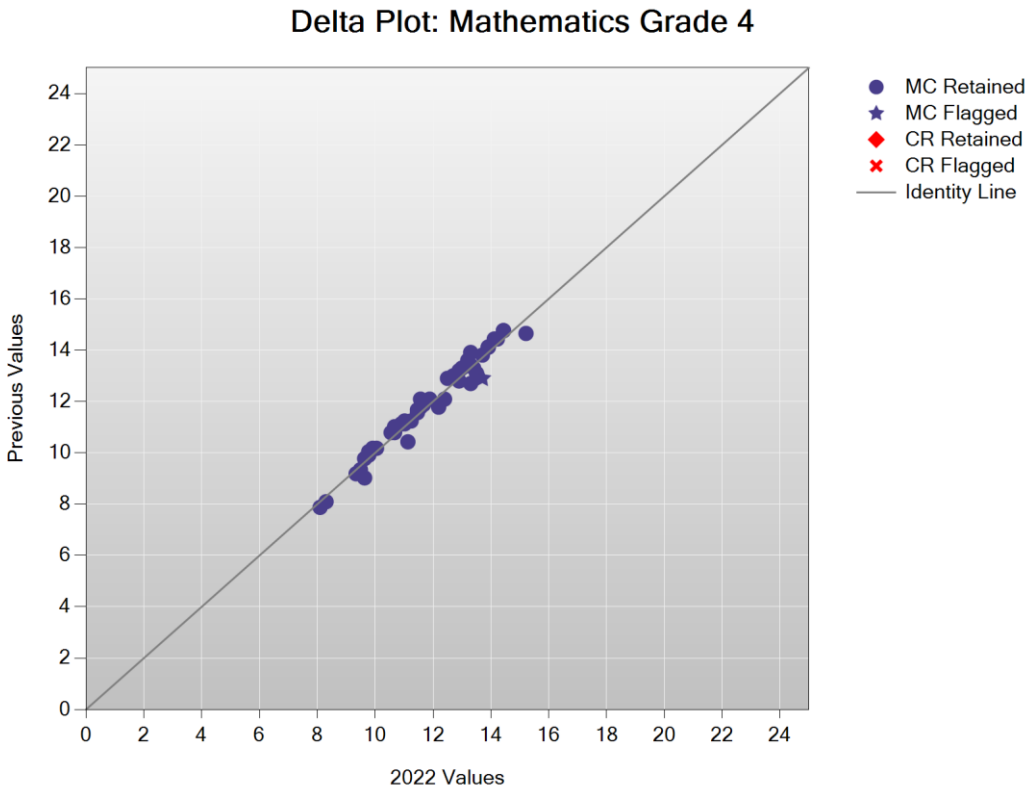

Cumulative Scale Score Distributions: Mathematics Grade 3
2022
2021
Cumulative Proportion
1
0.8
0.6
0.4
0.2
0
200
225
250
275
300
325
350
375
Scale Score

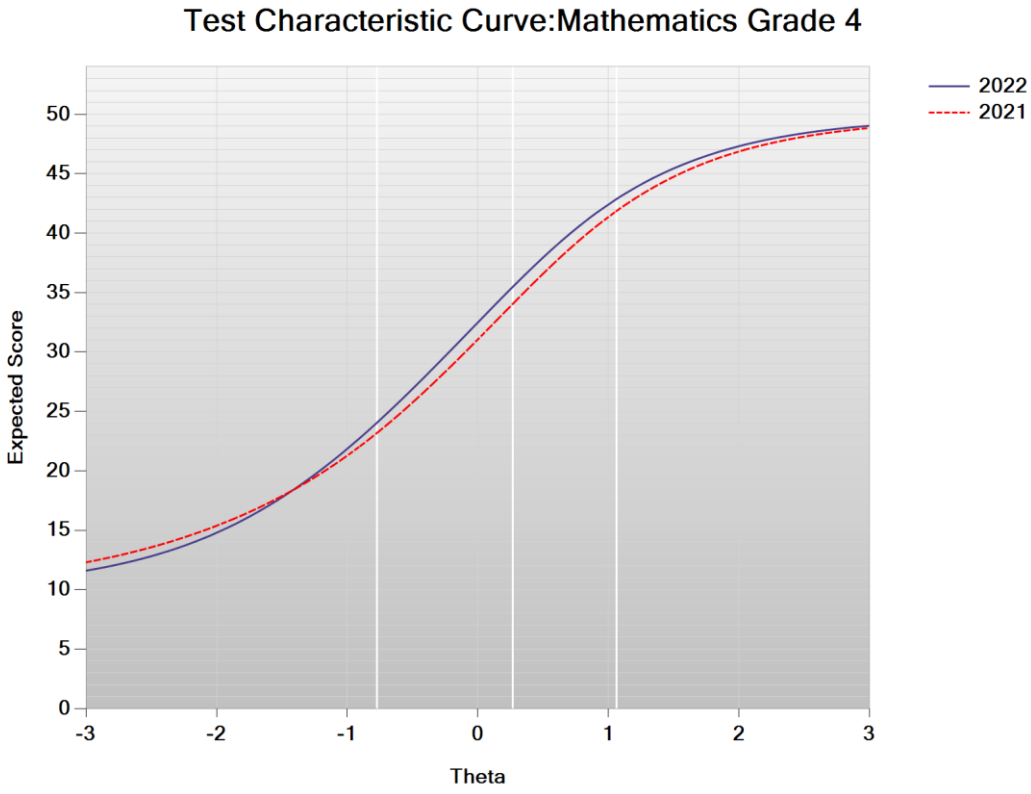
A/A Plot: Mathematics Grade 4



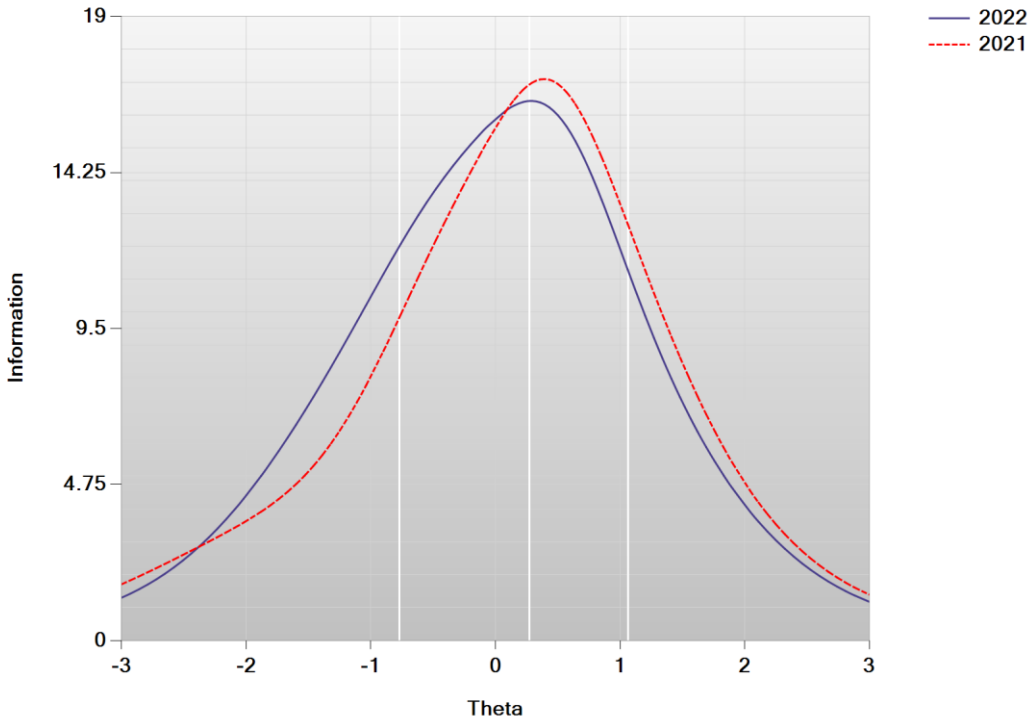
B/B Plot: Mathematics Grade 4



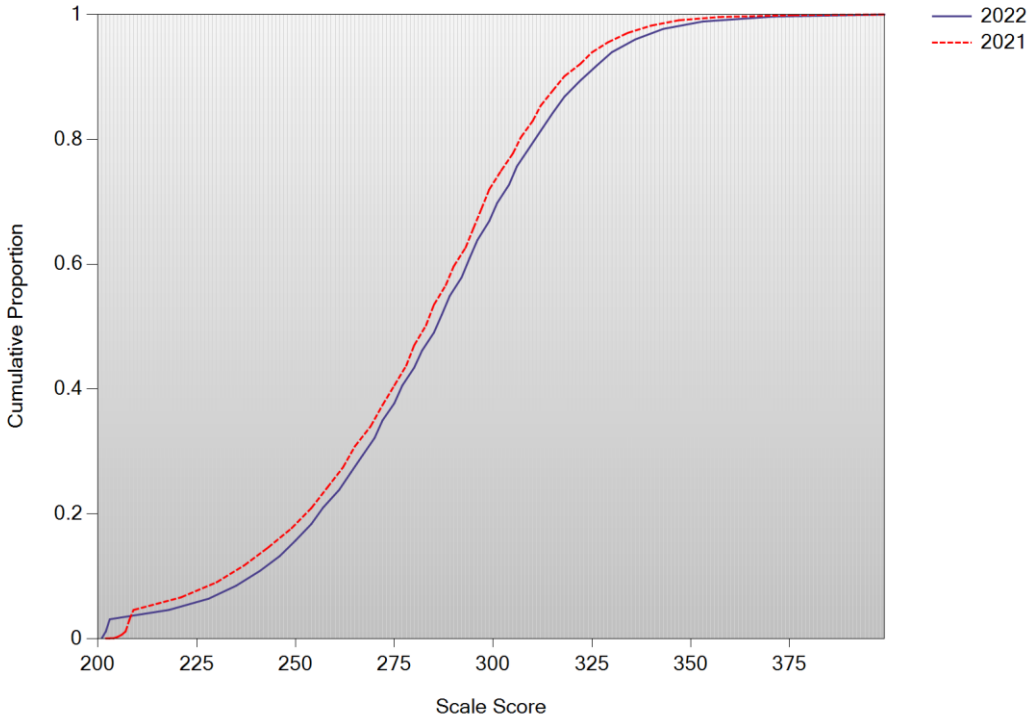

Delta Plot: Mathematics Grade 4
MC Retained
MC Flagged
CR Retained
CR Flagged
Identity Line
Previous Values
2022 Values
0
2
4
6
8
10
12
14
16
18
20
22
24


Test Characteristic Curve:Mathematics Grade 4
2022
2021
Expected Score
Theta
0
5
10
15
20
25
30
35
40
45
50
-3
-2
-1
0
1
2
3

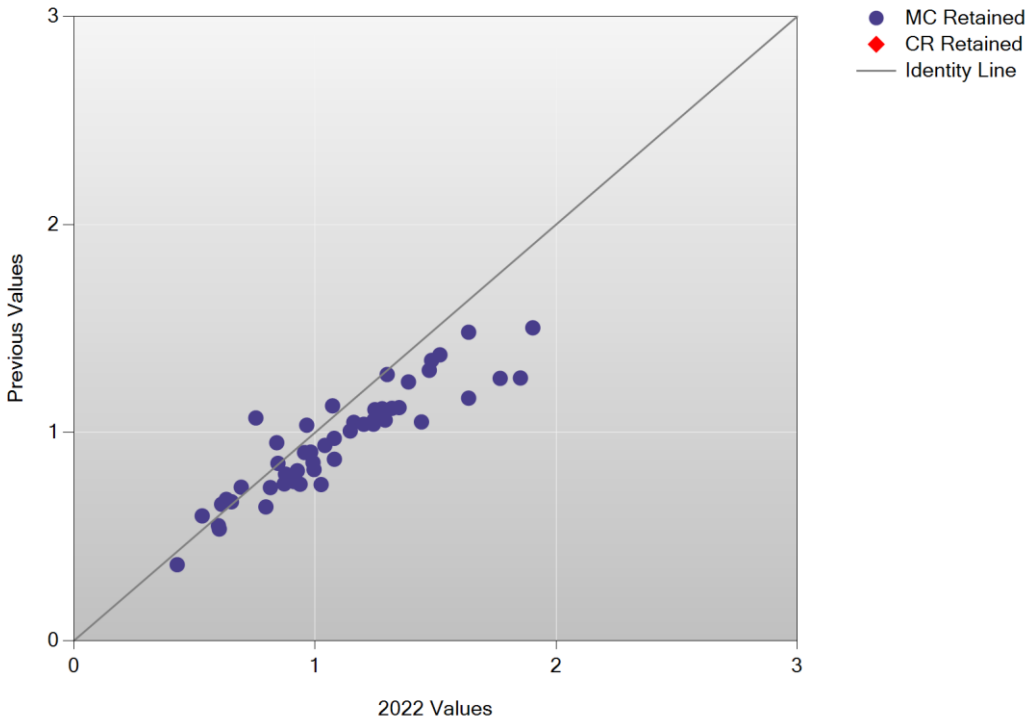
Test Information Function: Mathematics Grade 4



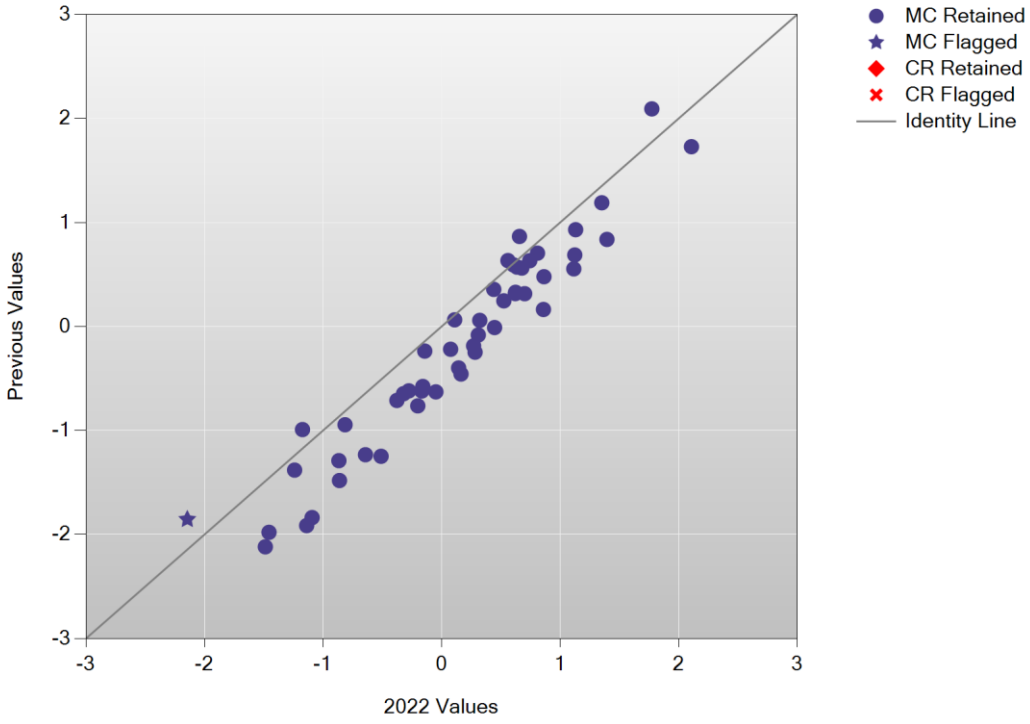
Cumulative Scale Score Distributions: Mathematics Grade 4



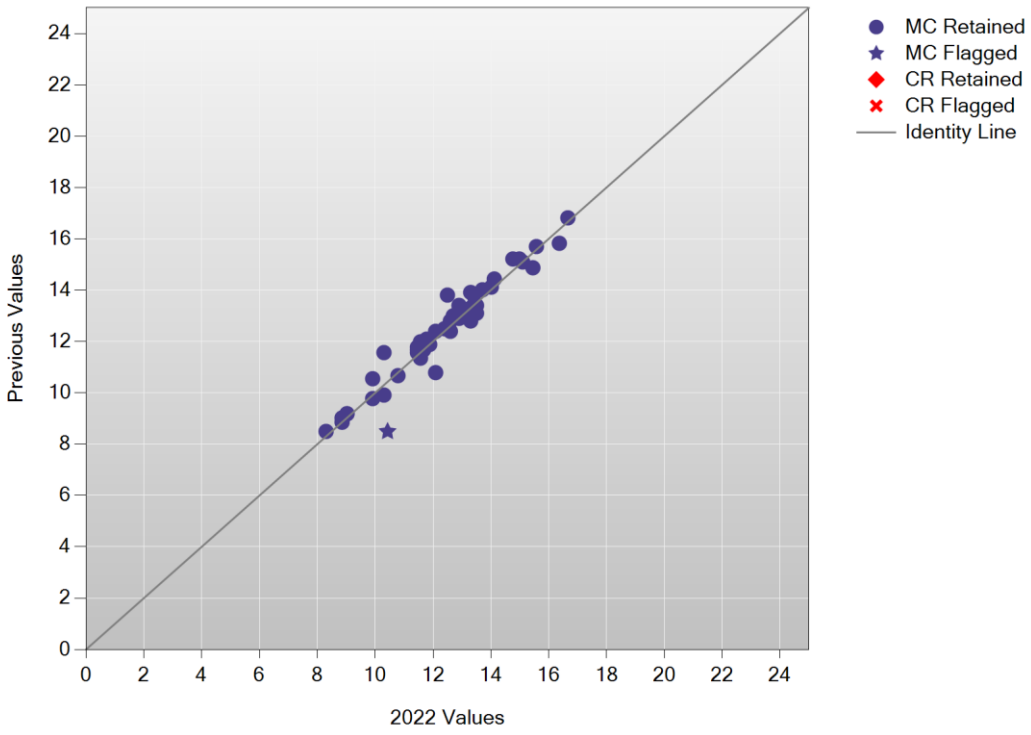
A/A Plot: Mathematics Grade 5



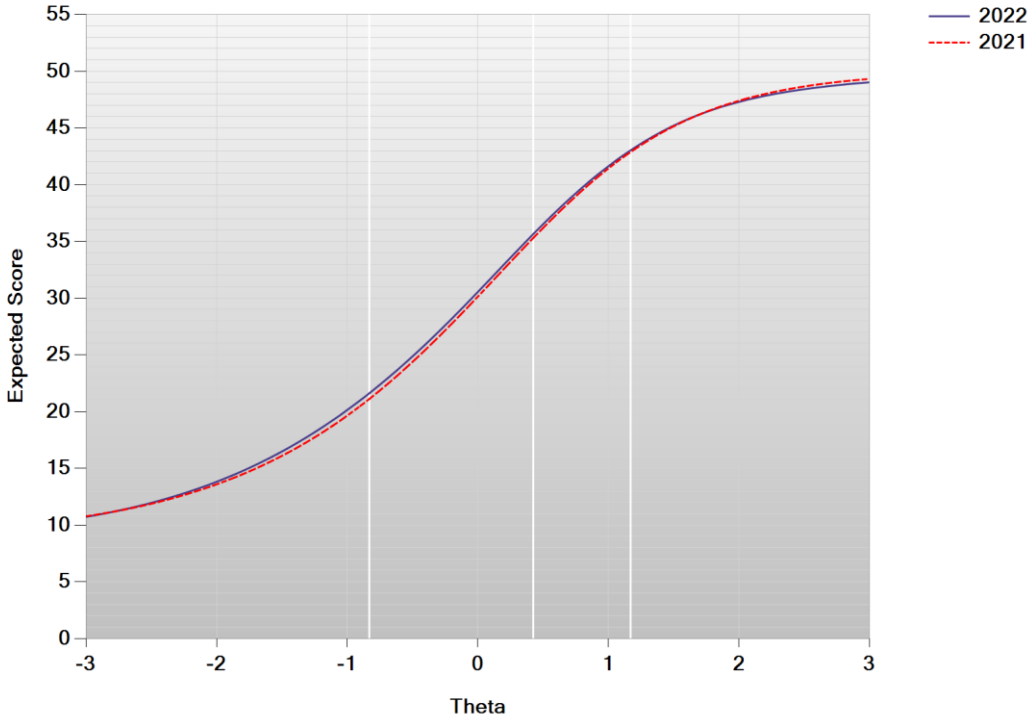
B/B Plot: Mathematics Grade 5

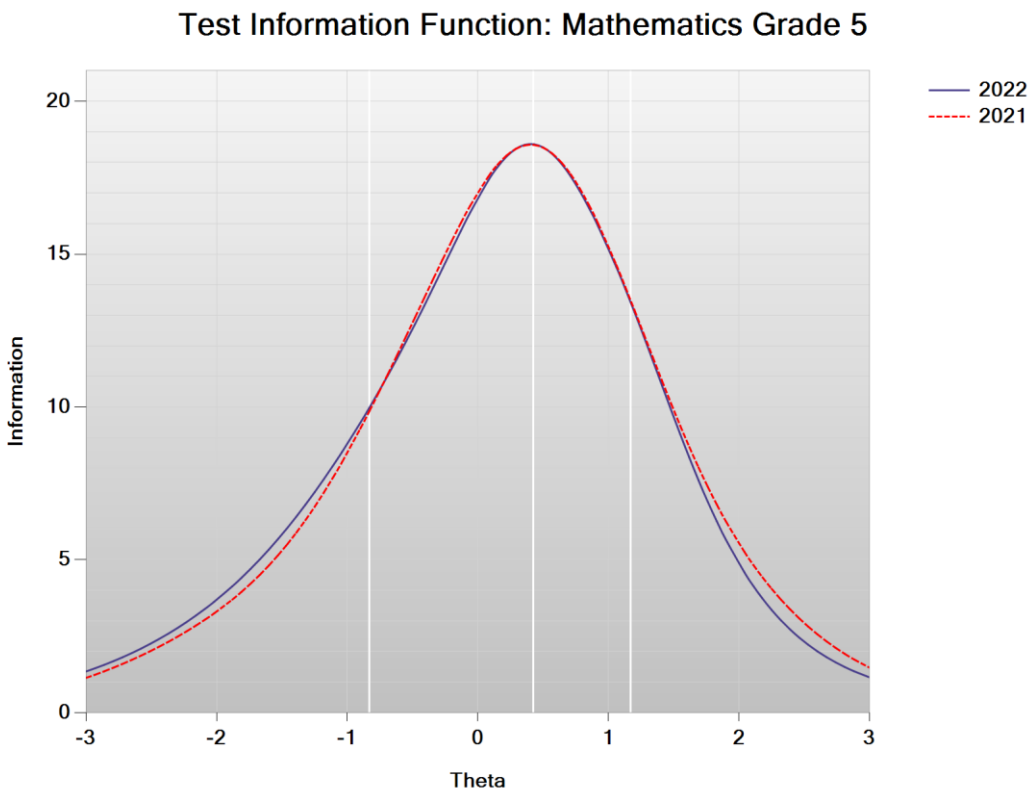


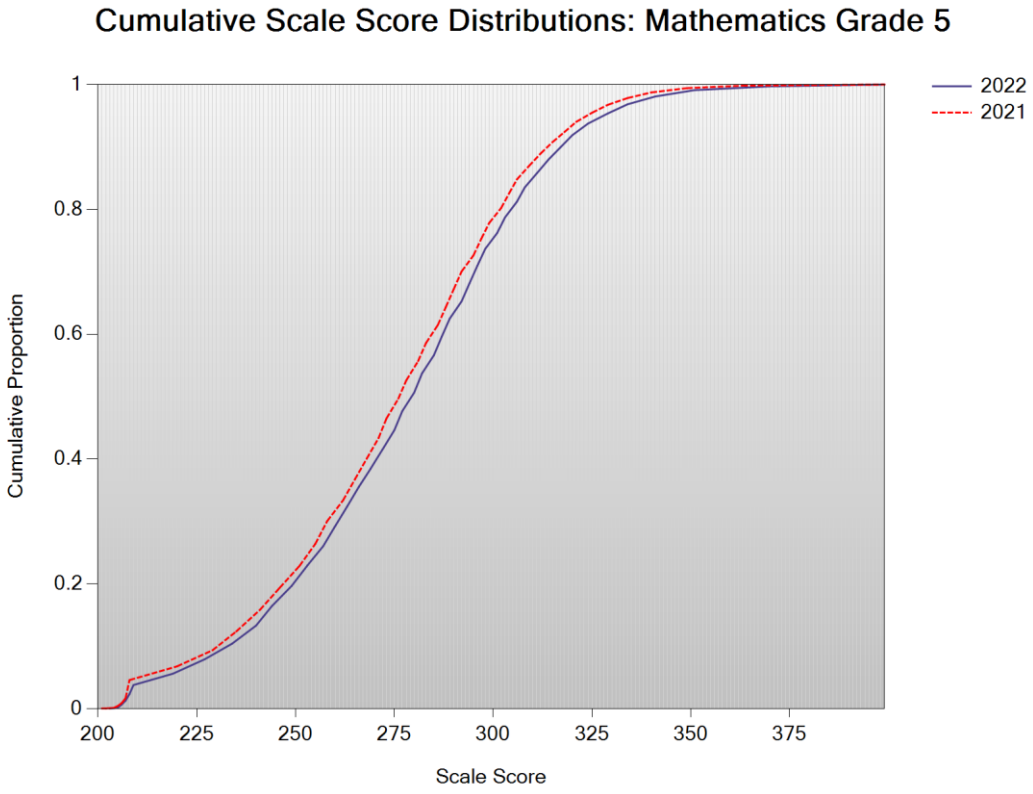
Delta Plot: Mathematics Grade 5



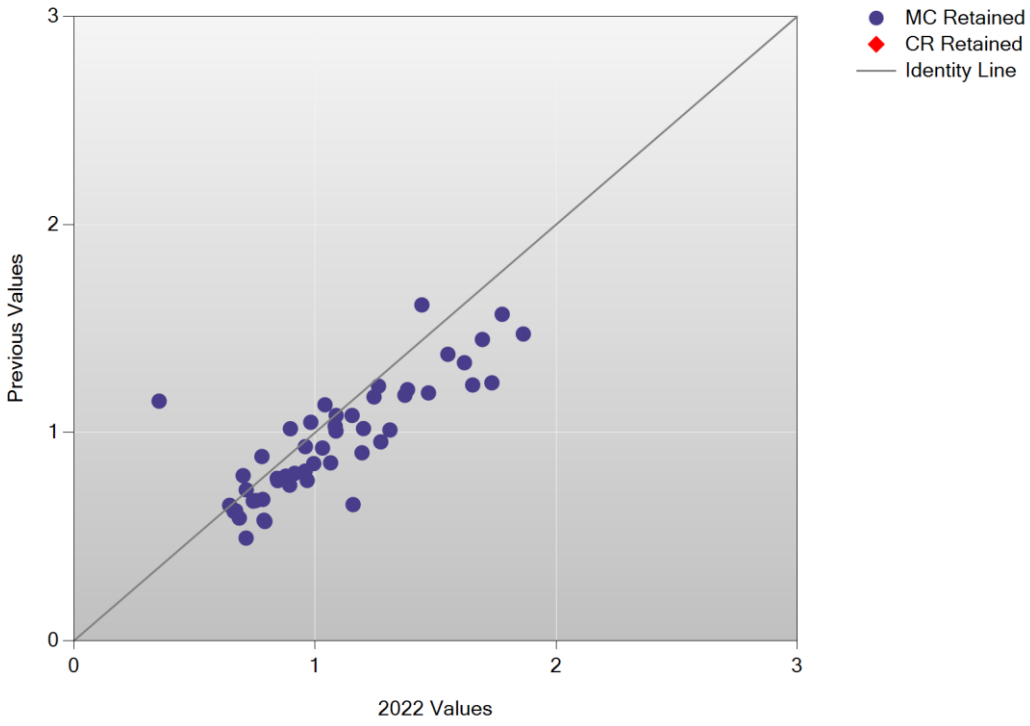
Test Characteristic Curve:Mathematics Grade 5



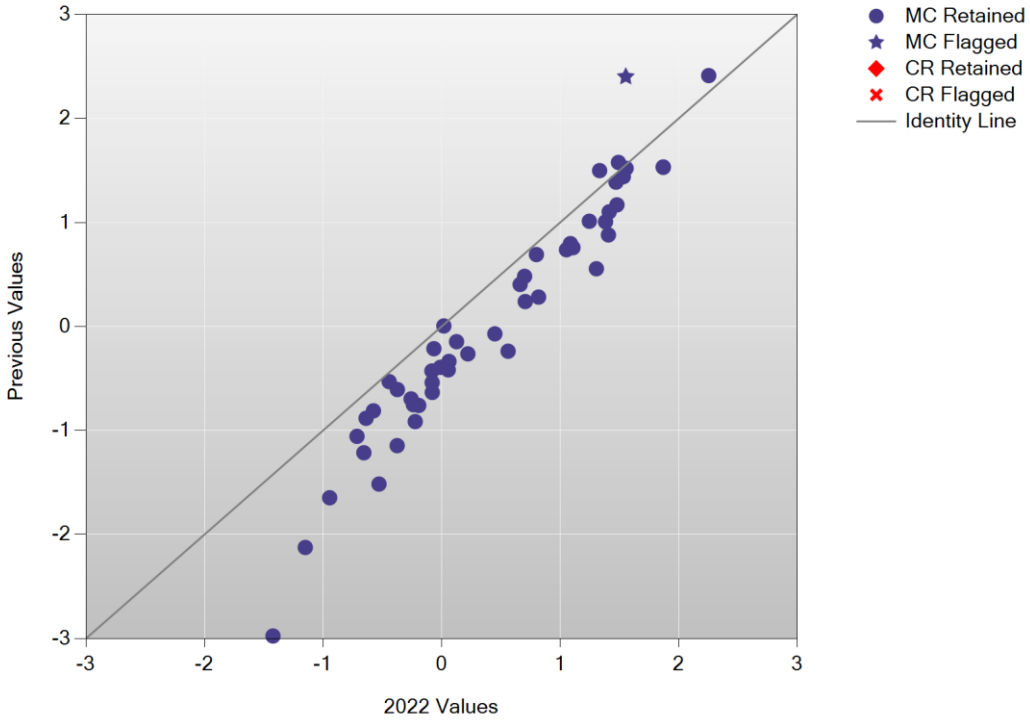

Test Information Function: Mathematics Grade 5
2022
2021
Information
20
15
10
5
0
-3
-2
-1
0
1
2
3
Theta

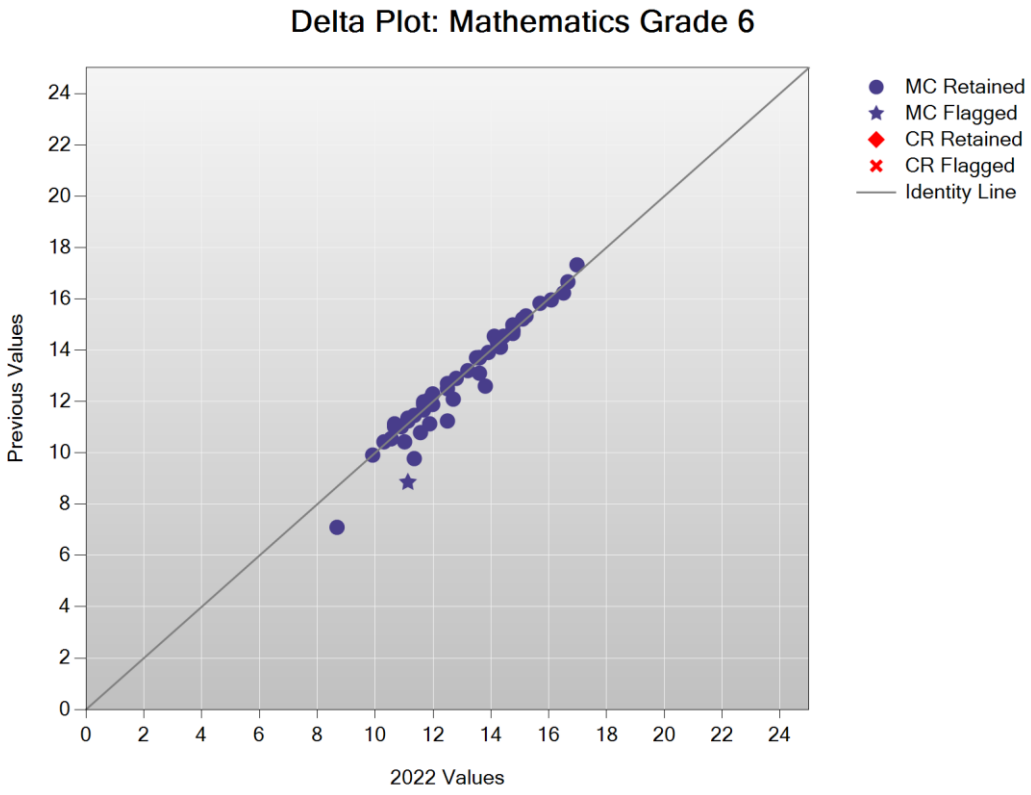

Cumulative Scale Score Distributions: Mathematics Grade 5
2022
2021
Cumulative Proportion
1
0.8
0.6
0.4
0.2
0
200
225
250
275
300
325
350
375
Scale Score

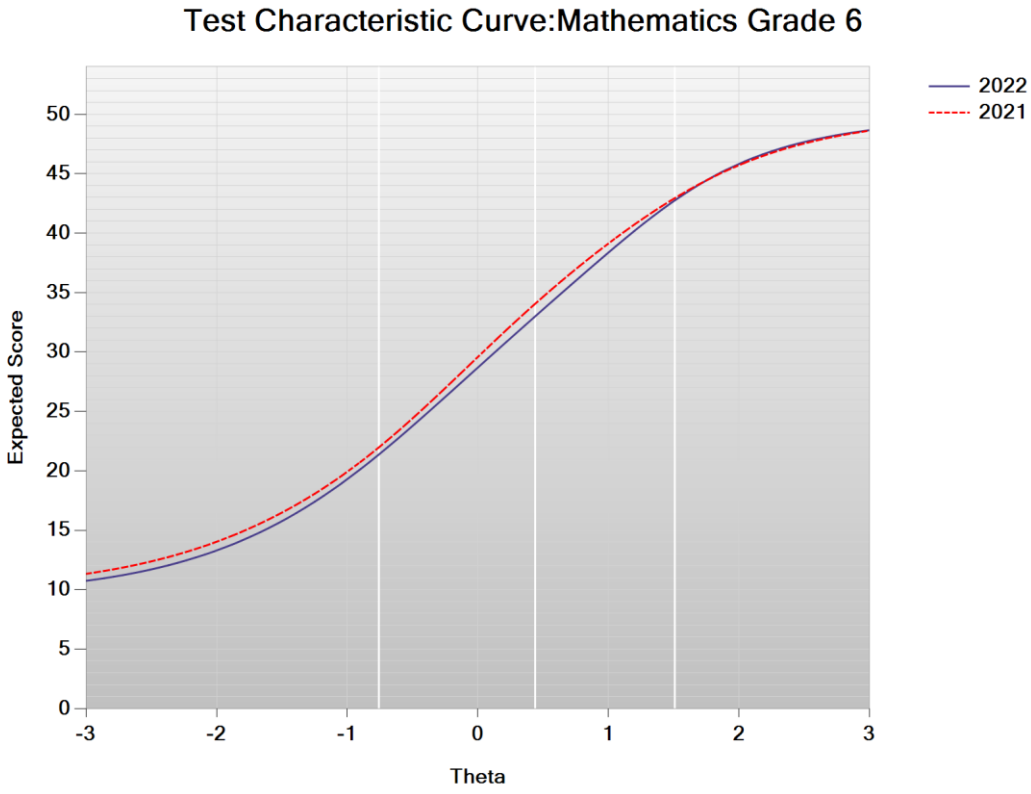
A/A Plot: Mathematics Grade 6



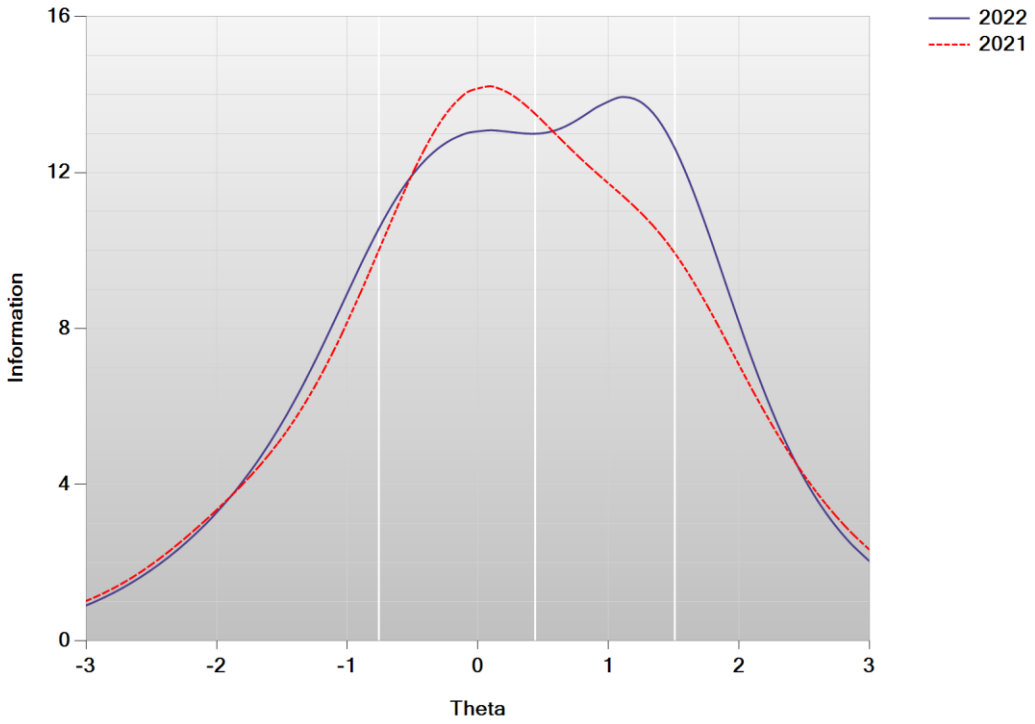
B/B Plot: Mathematics Grade 6



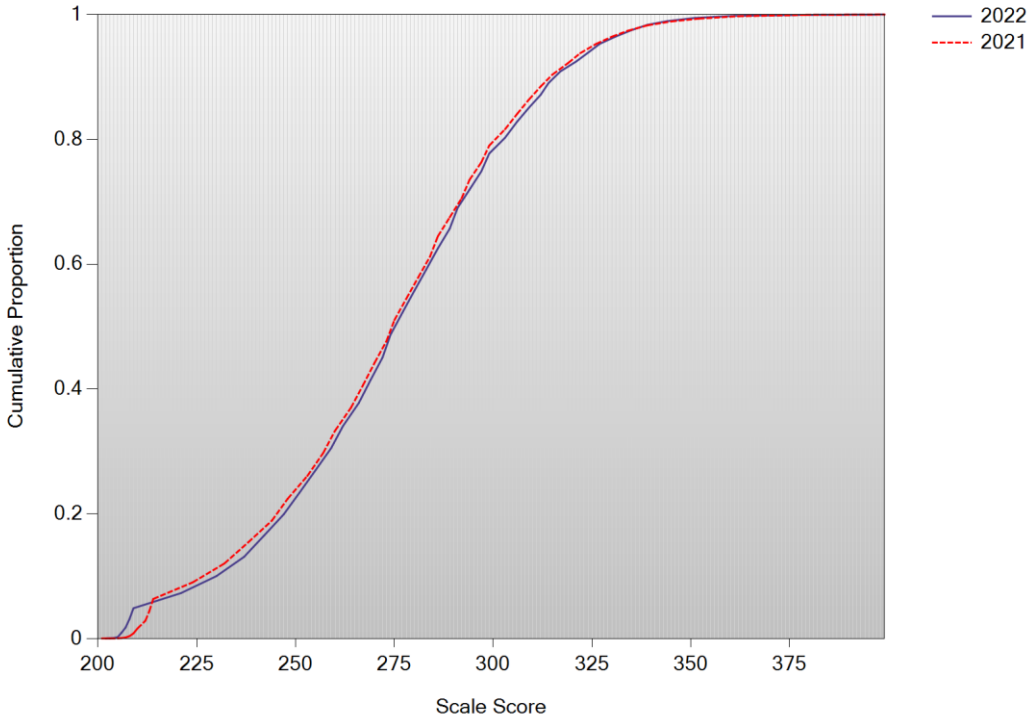

Delta Plot: Mathematics Grade 6
Previous Values
2022 Values
MC Retained
MC Flagged
CR Retained
CR Flagged
Identity Line


Test Characteristic Curve:Mathematics Grade 6
Expected Score
Theta
2022
2021

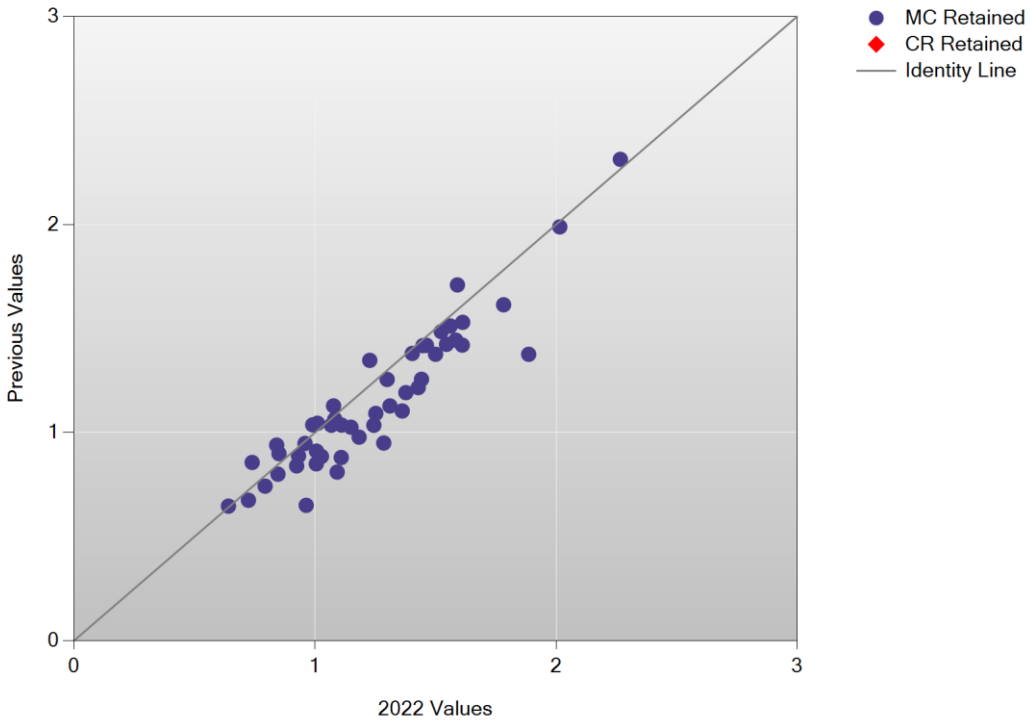
Test Information Function: Mathematics Grade 6



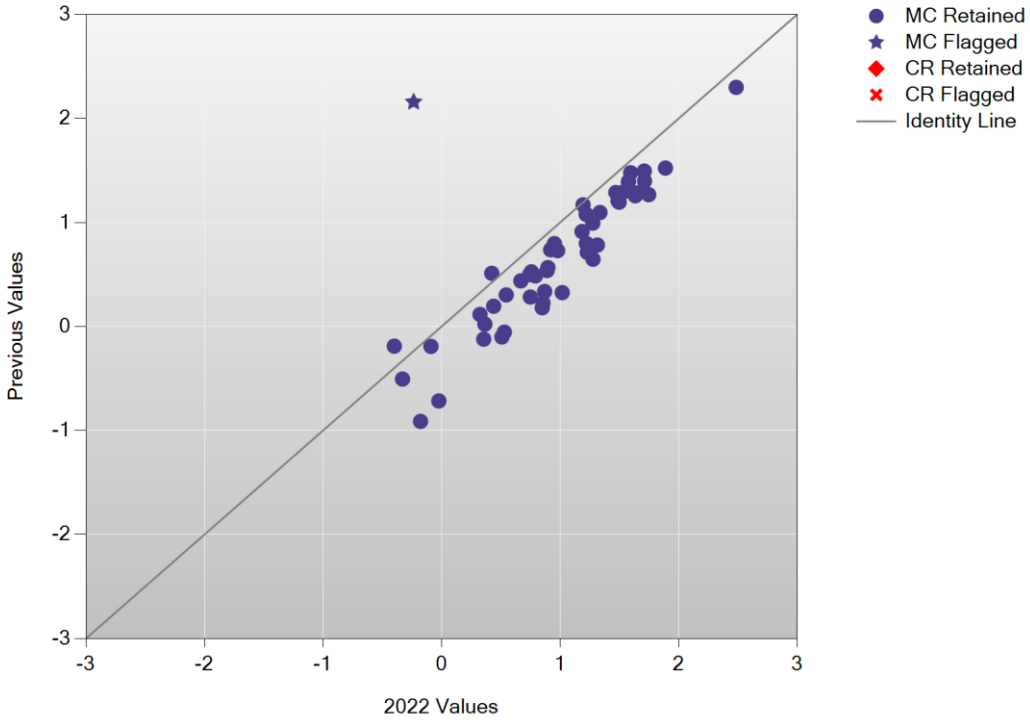
Cumulative Scale Score Distributions: Mathematics Grade 6

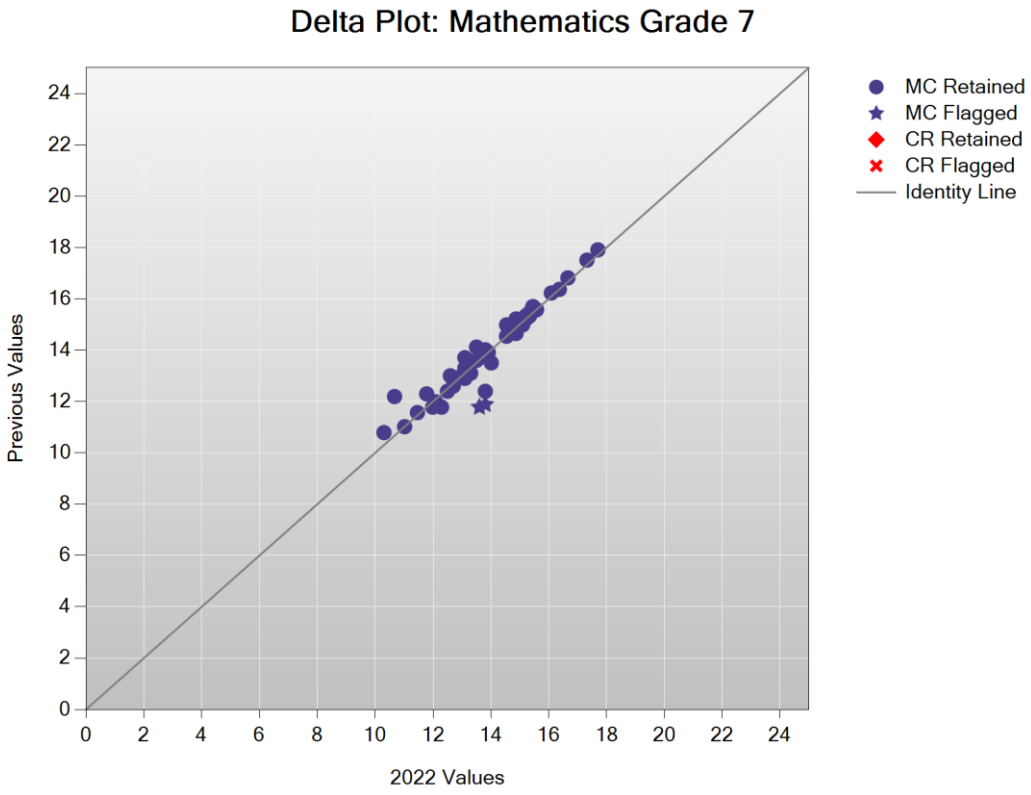


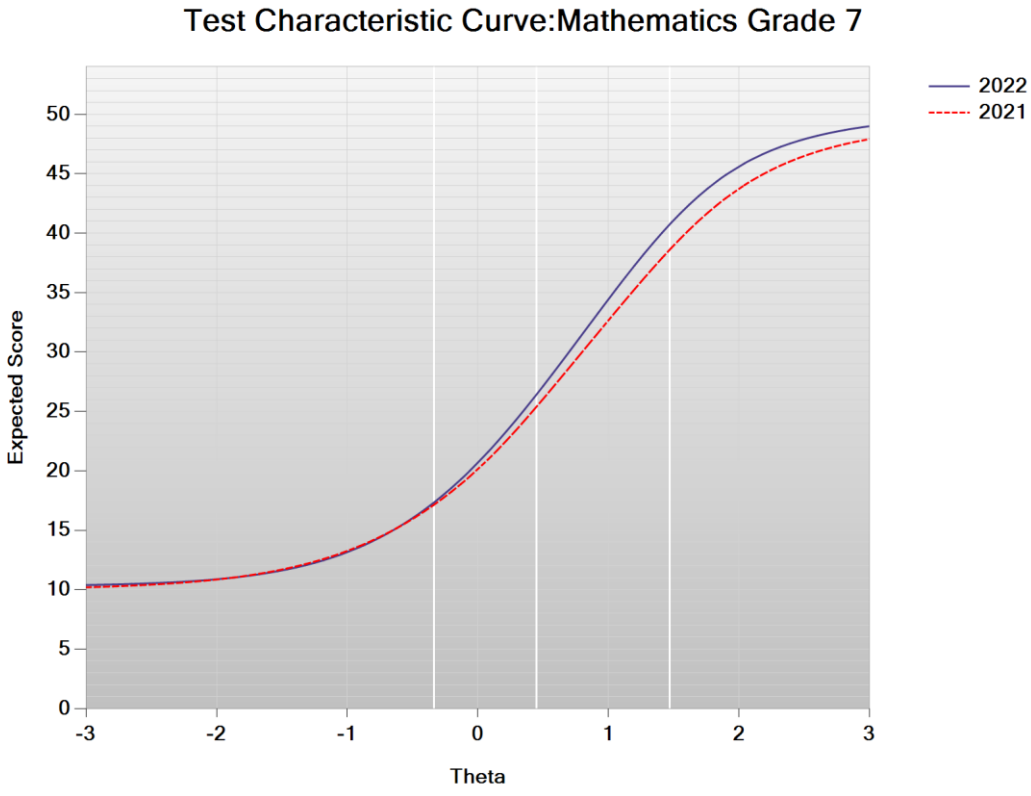
A/A Plot: Mathematics Grade 7



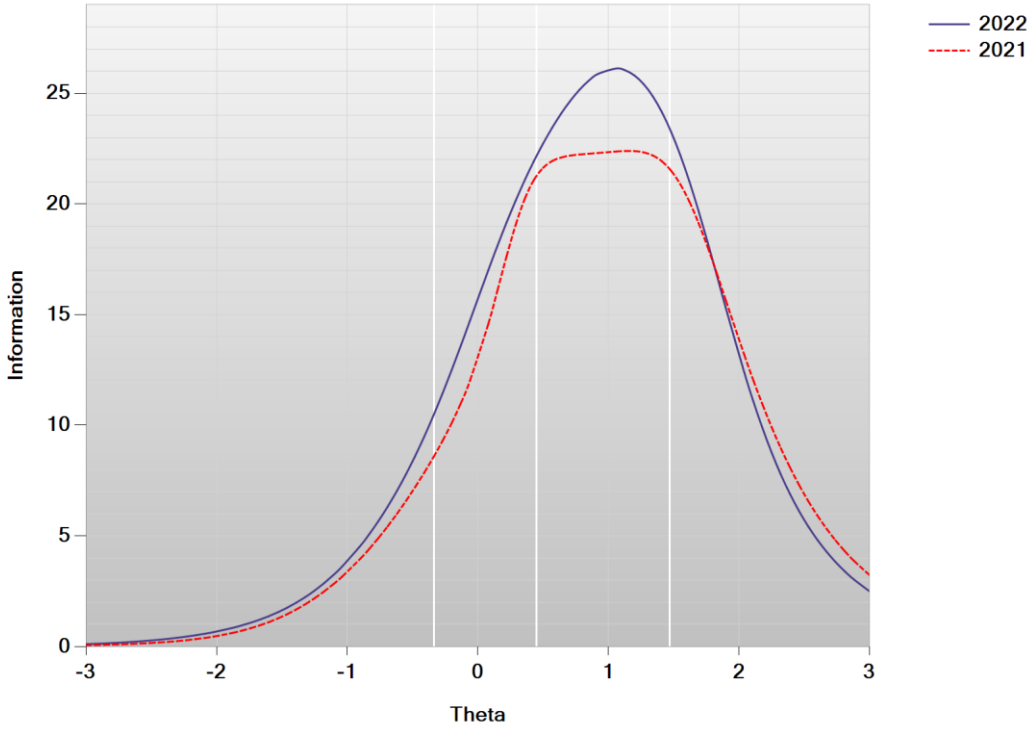
B/B Plot: Mathematics Grade 7



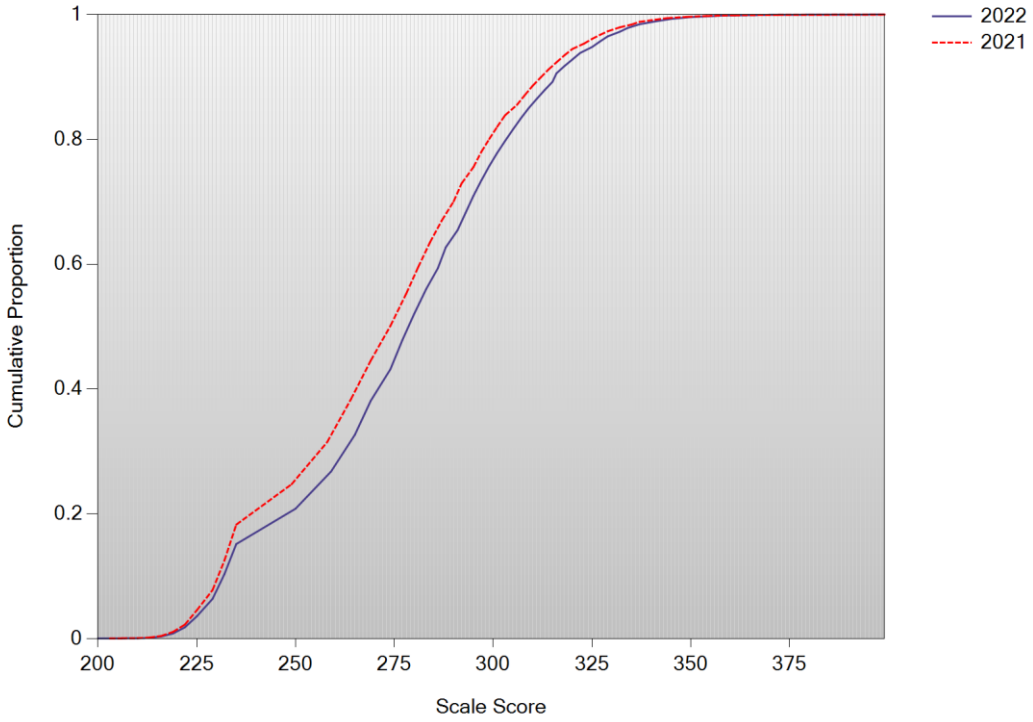

Delta Plot: Mathematics Grade 7
MC Retained
MC Flagged
CR Retained
CR Flagged
Identity Line
Previous Values
2022 Values
0
2
4
6
8
10
12
14
16
18
20
22
24


Test Characteristic Curve:Mathematics Grade 7
2022
2021
Expected Score
Theta
0
5
10
15
20
25
30
35
40
45
50
-3
-2
-1
0
1
2
3

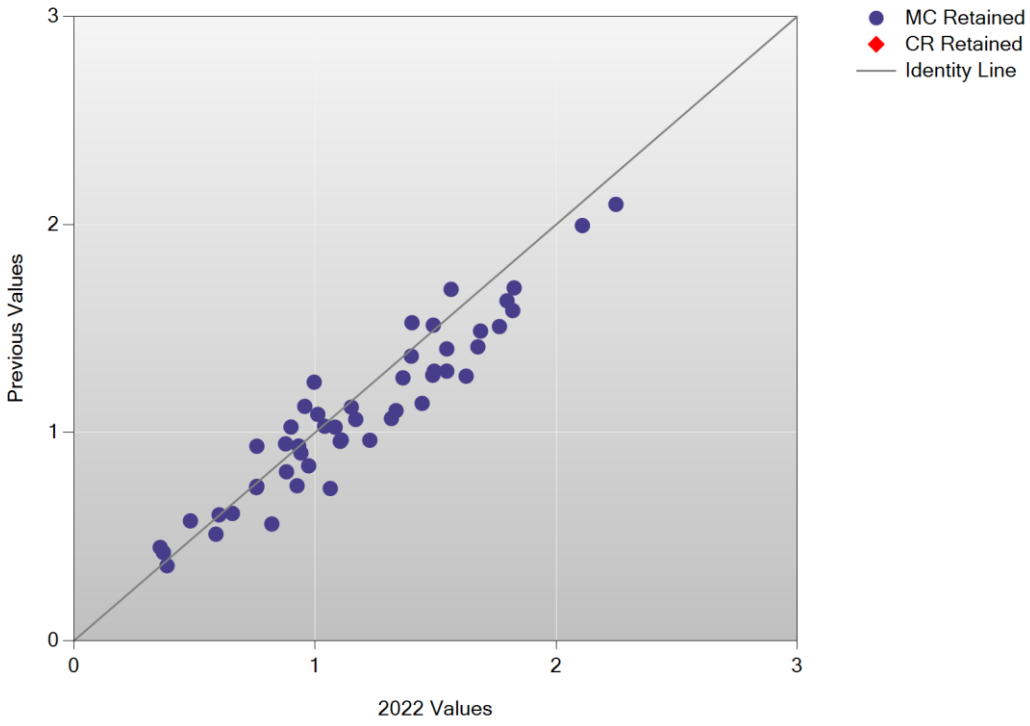
Test Information Function: Mathematics Grade 7



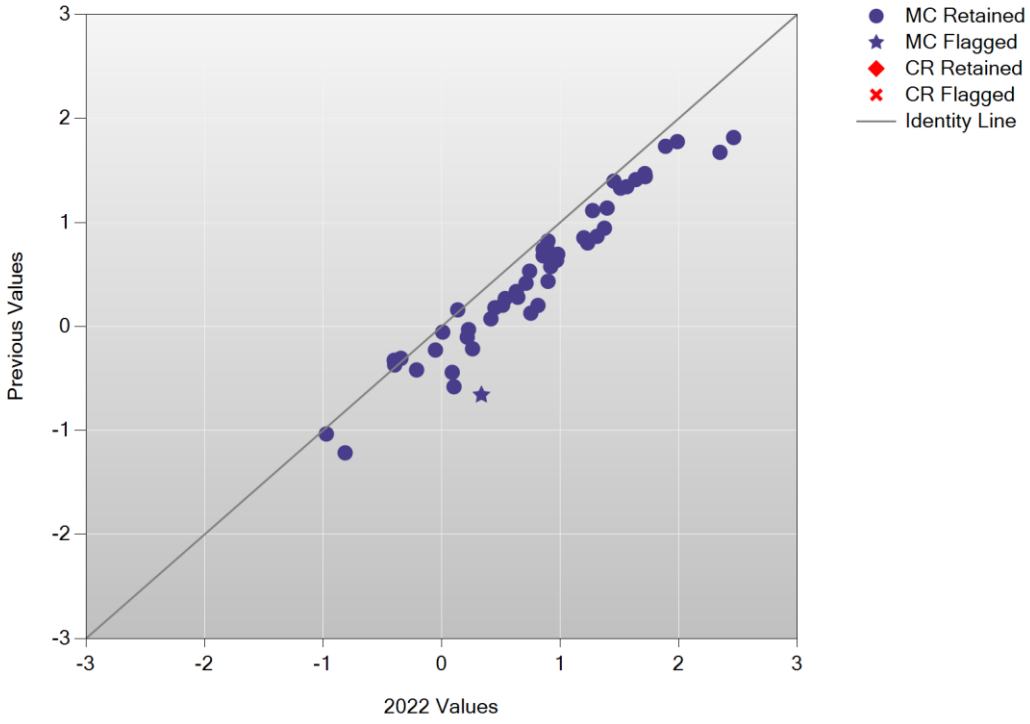
Cumulative Scale Score Distributions: Mathematics Grade 7

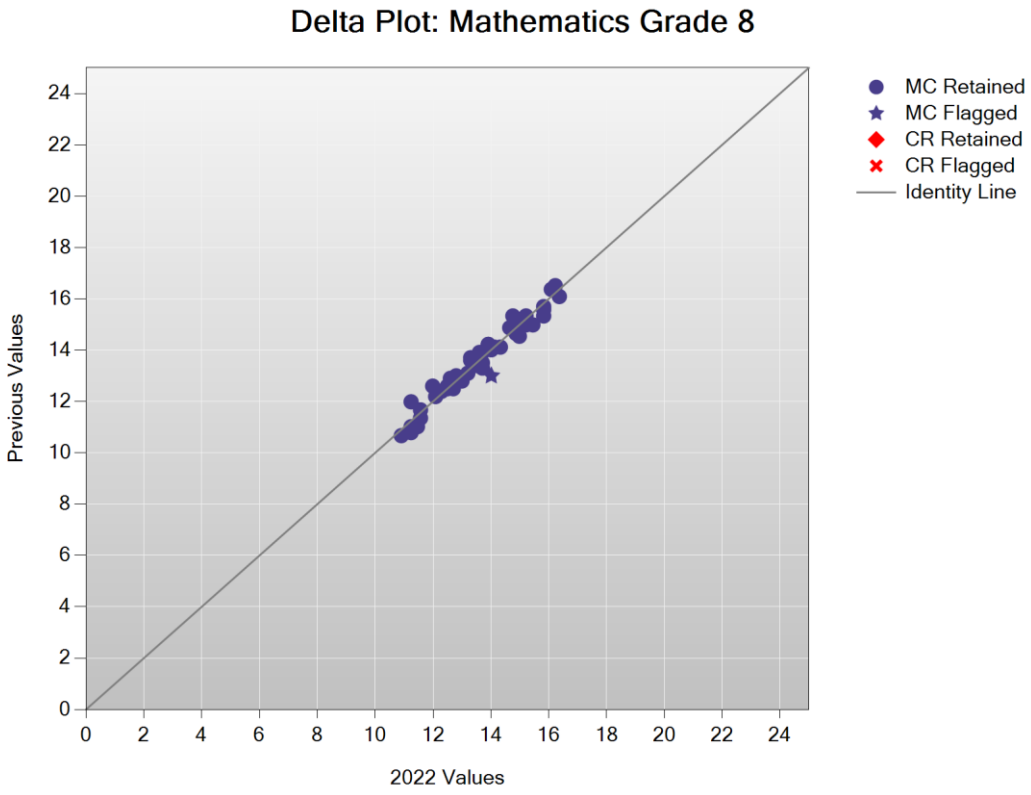


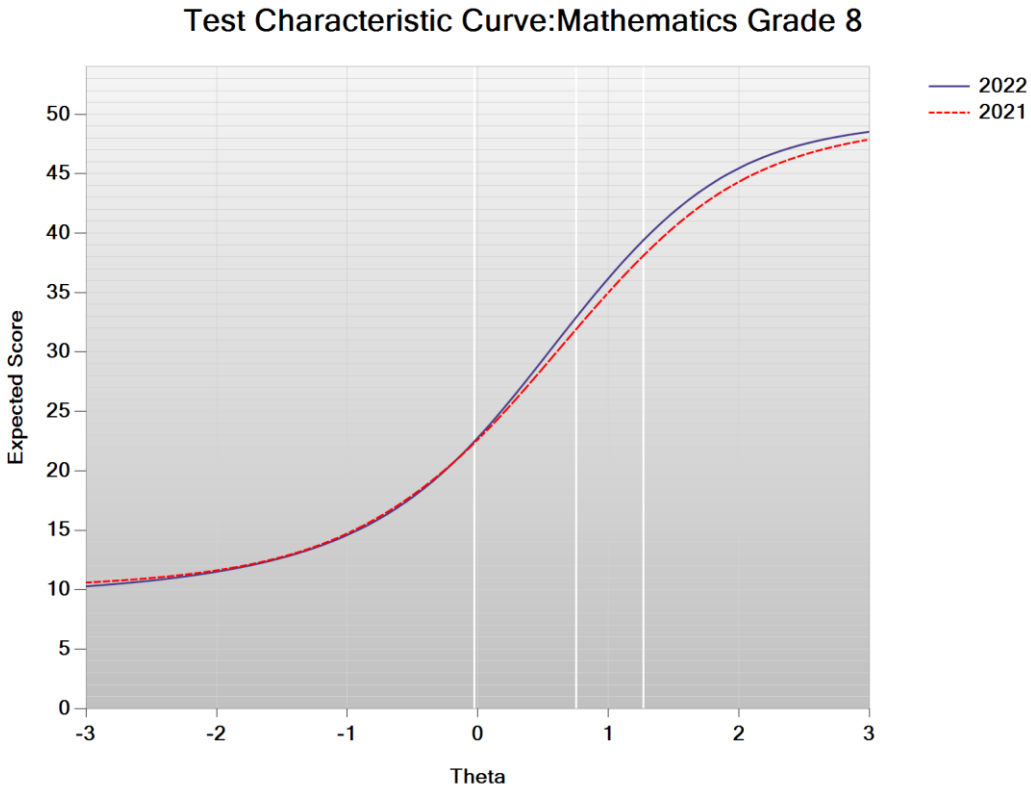
A/A Plot: Mathematics Grade 8



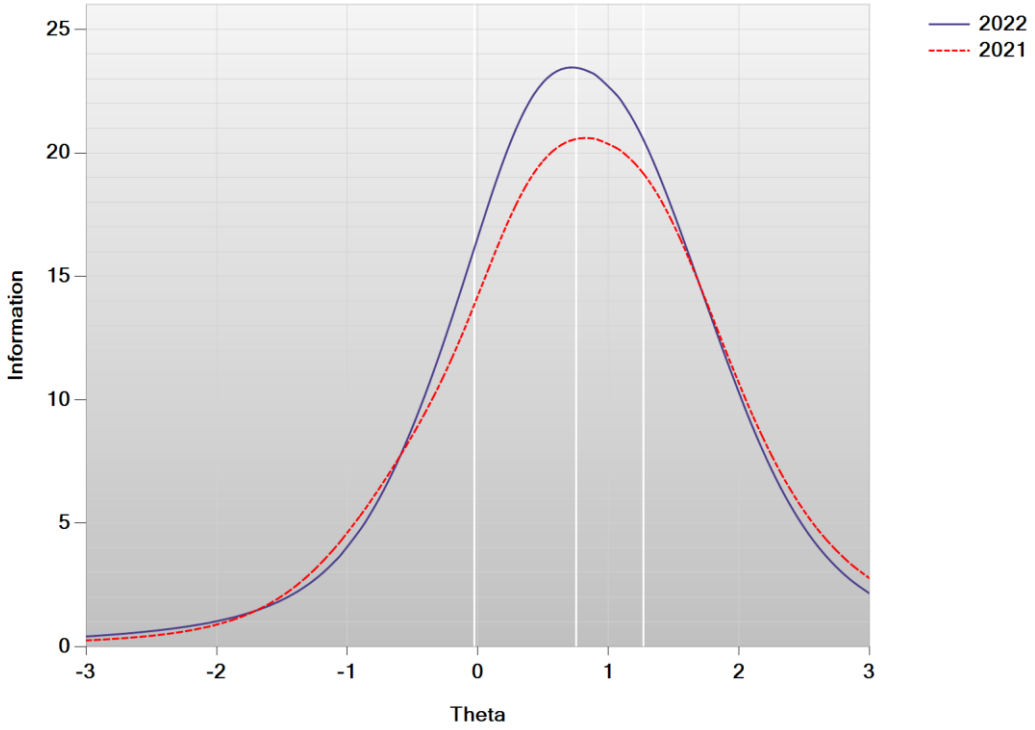
B/B Plot: Mathematics Grade 8



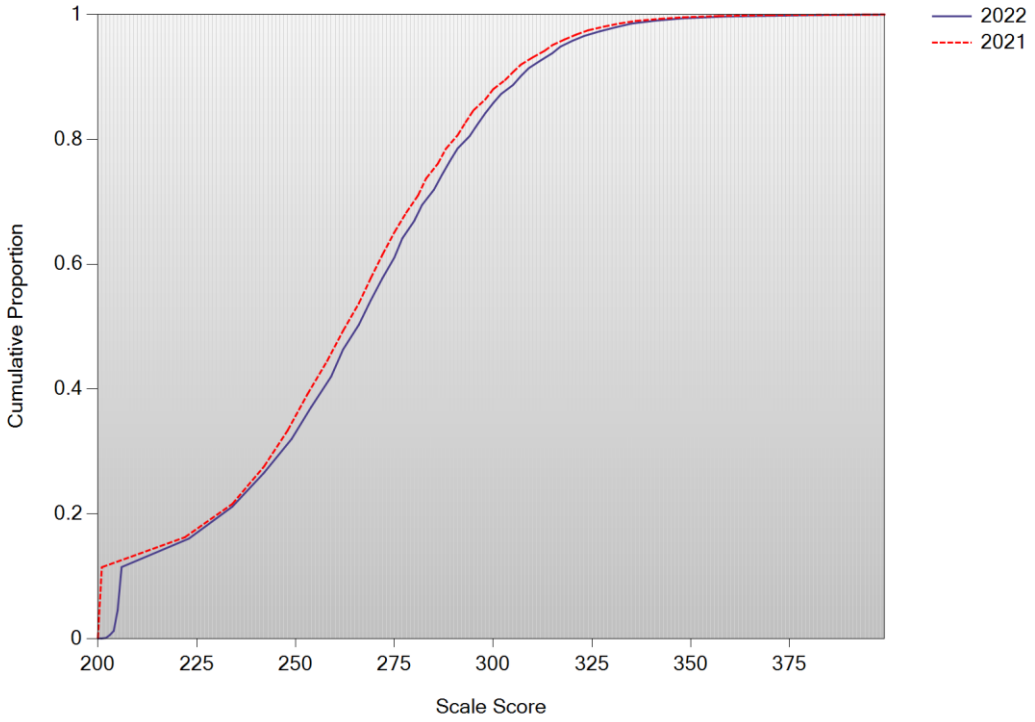

Delta Plot: Mathematics Grade 8
MC Retained
MC Flagged
CR Retained
CR Flagged
Identity Line
Previous Values
2022 Values
0
2
4
6
8
10
12
14
16
18
20
22
24


Test Characteristic Curve:Mathematics Grade 8
2022
2021
Expected Score
Theta
0
5
10
15
20
25
30
35
40
45
50
-3
-2
-1
0
1
2
3

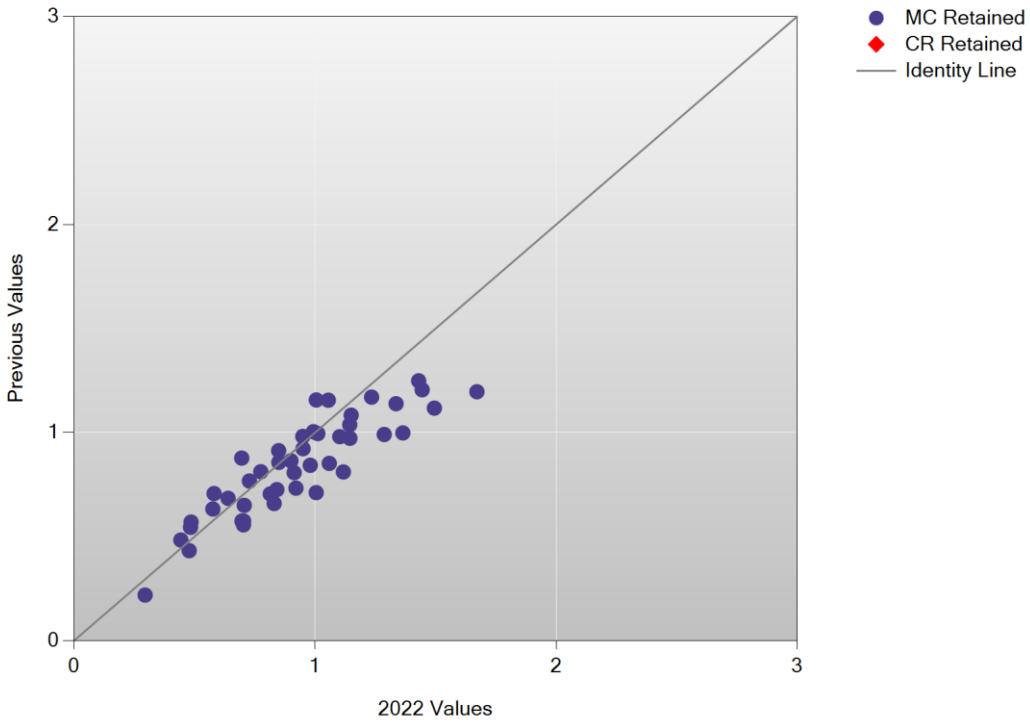
Test Information Function: Mathematics Grade 8



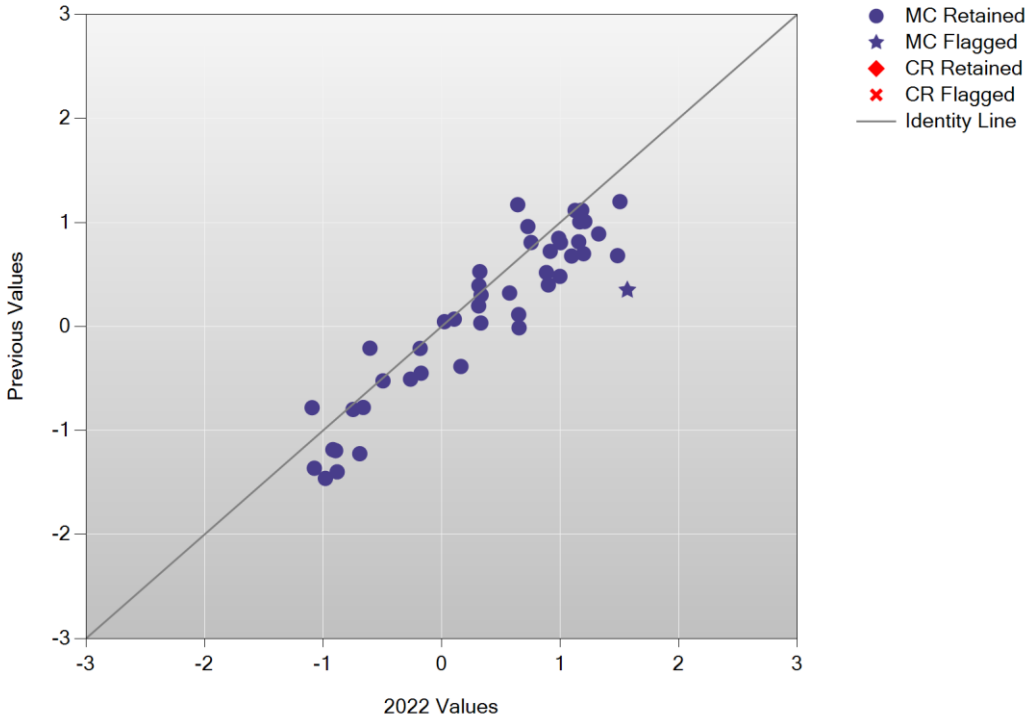
Cumulative Scale Score Distributions: Mathematics Grade 8



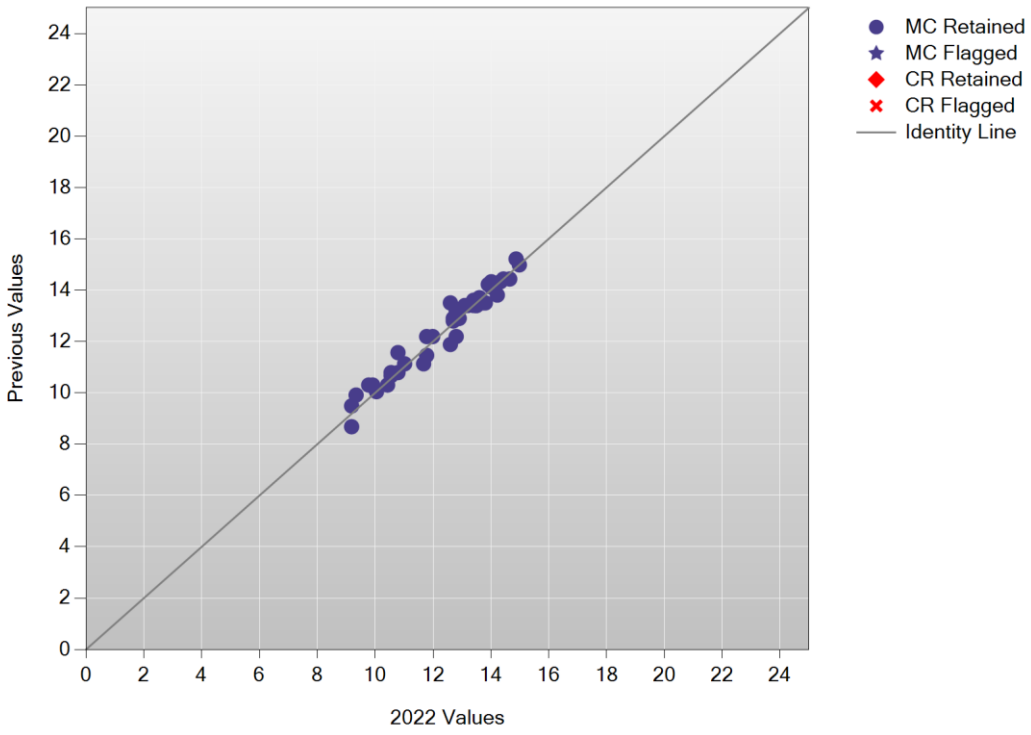
A/A Plot: Science Grade 5



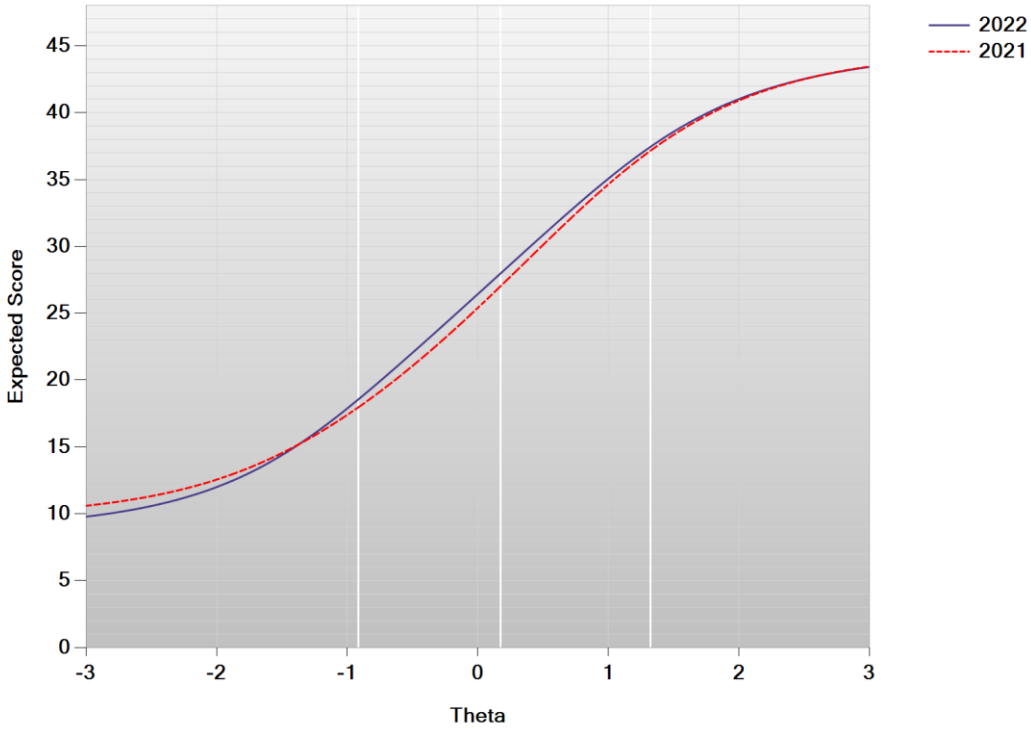
B/B Plot: Science Grade 5



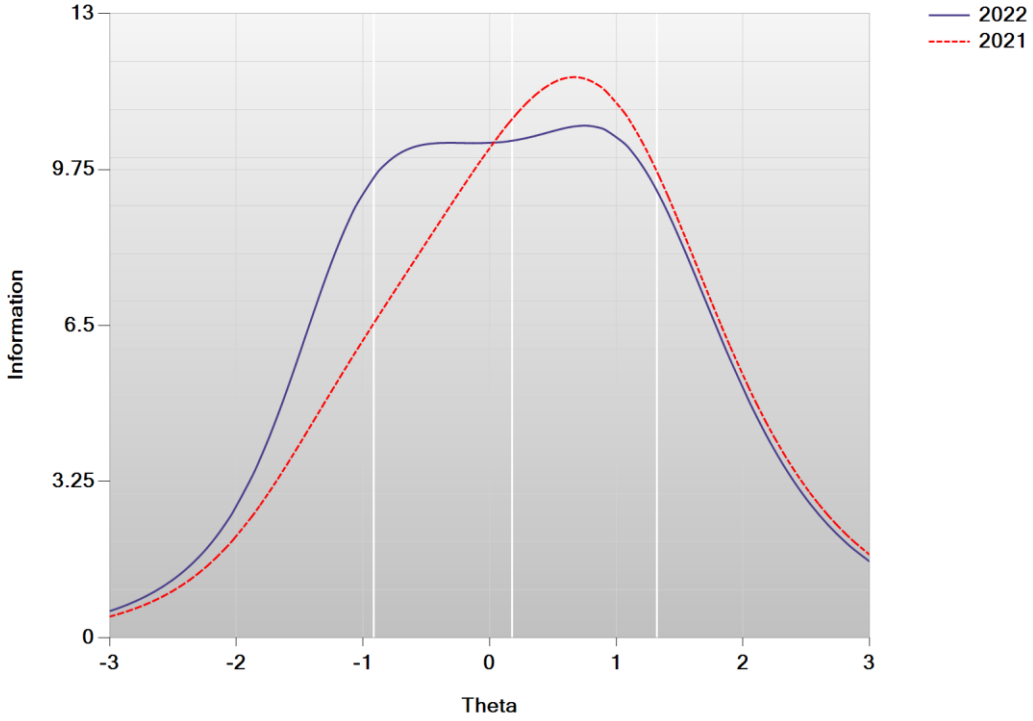
Delta Plot: Science Grade 5



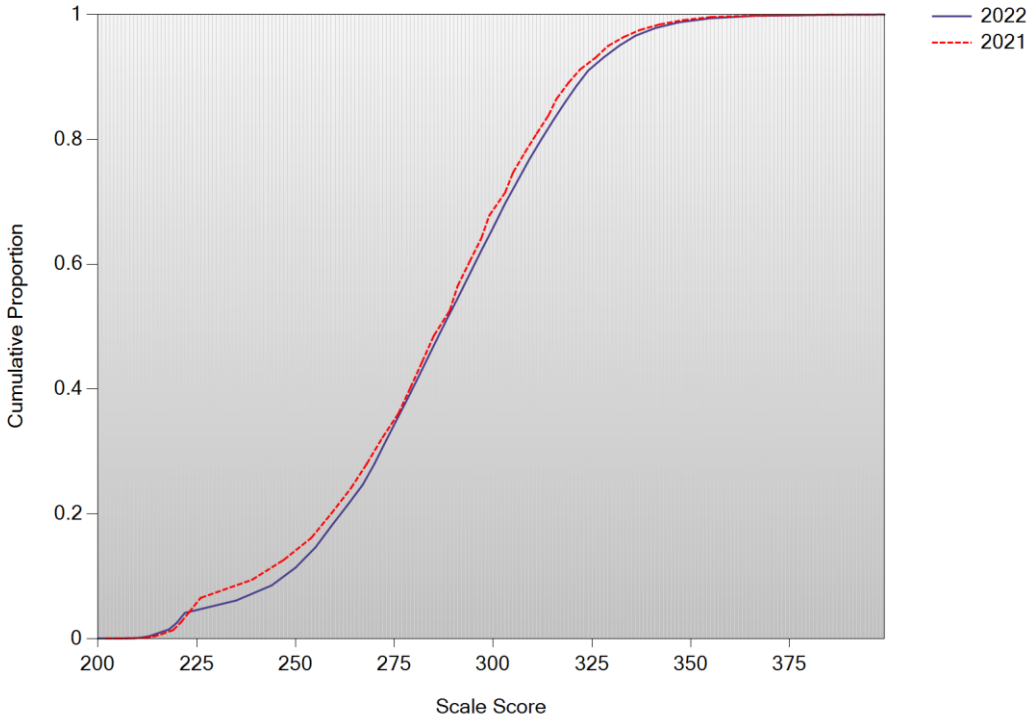
Test Characteristic Curve:Science Grade 5



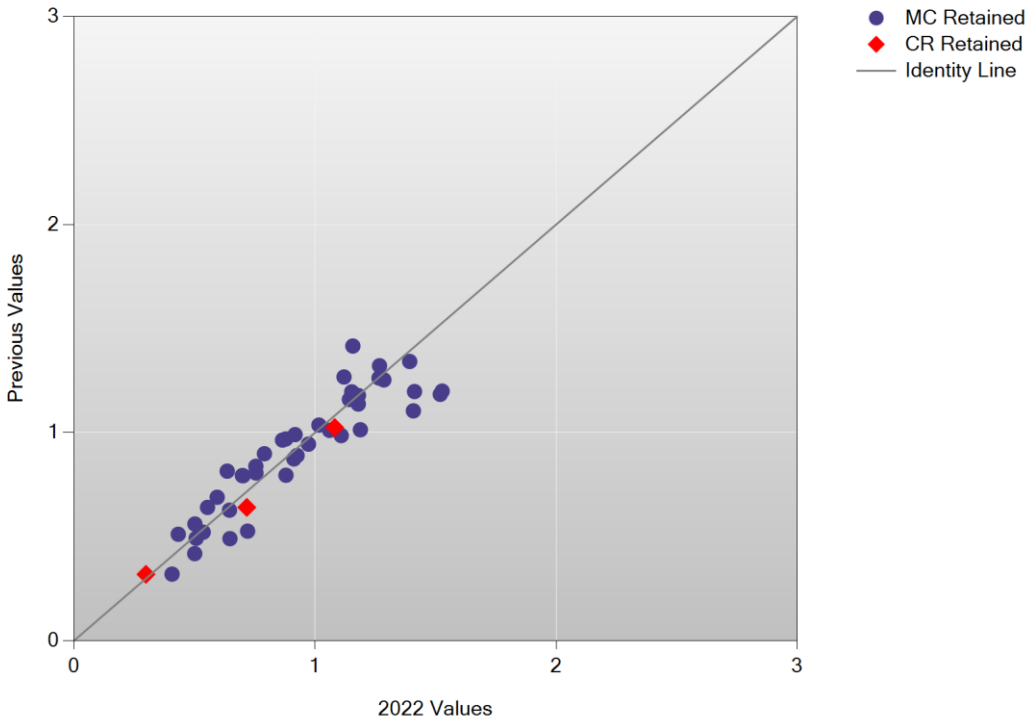
Test Information Function: Science Grade 5



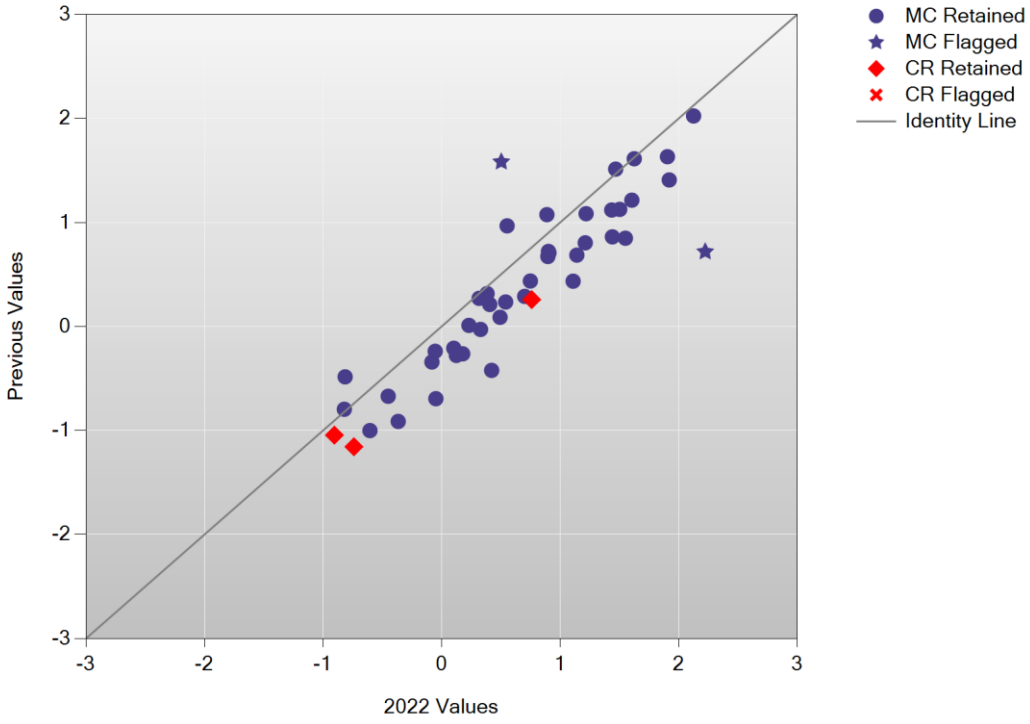
Cumulative Scale Score Distributions: Science Grade 5



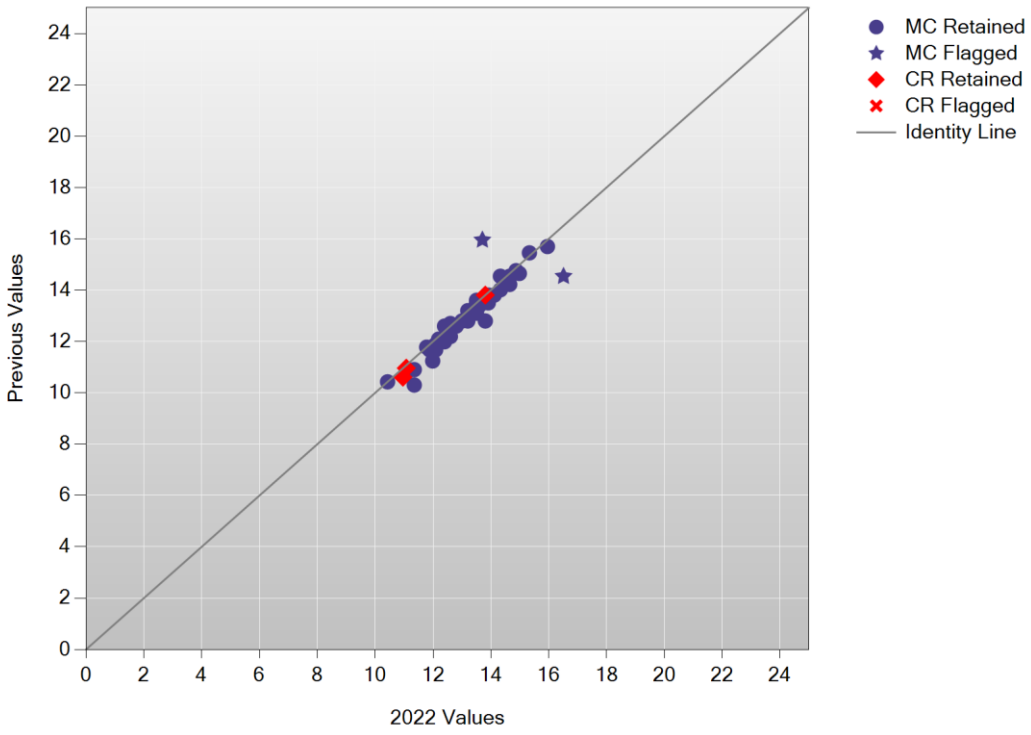
A/A Plot: Science Grade 8



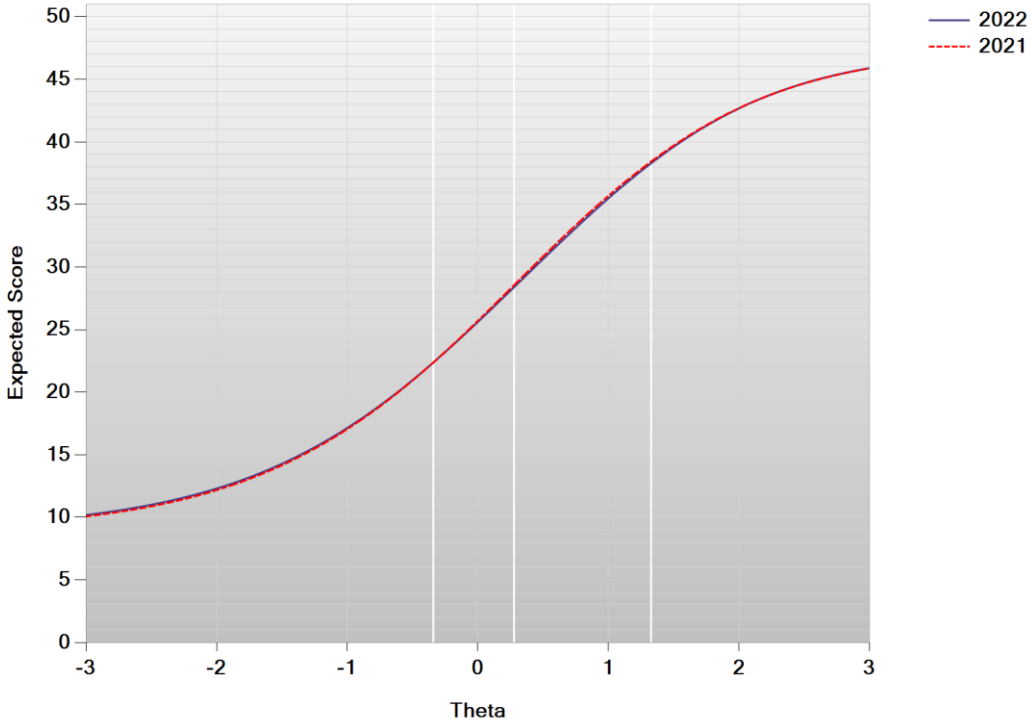
B/B Plot: Science Grade 8



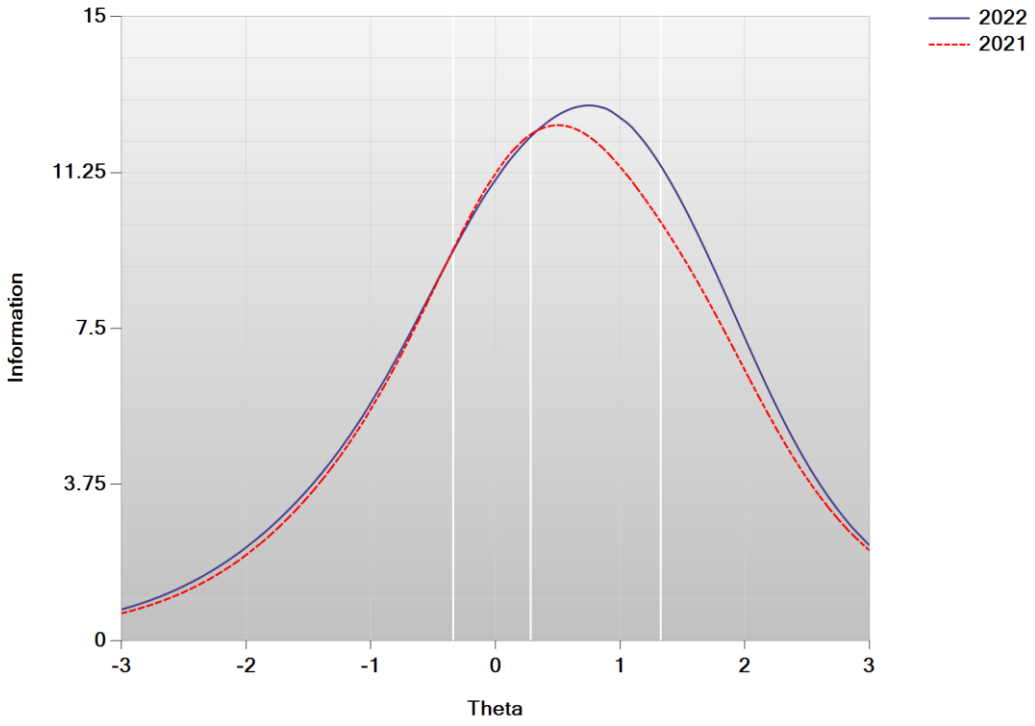
Delta Plot: Science Grade 8



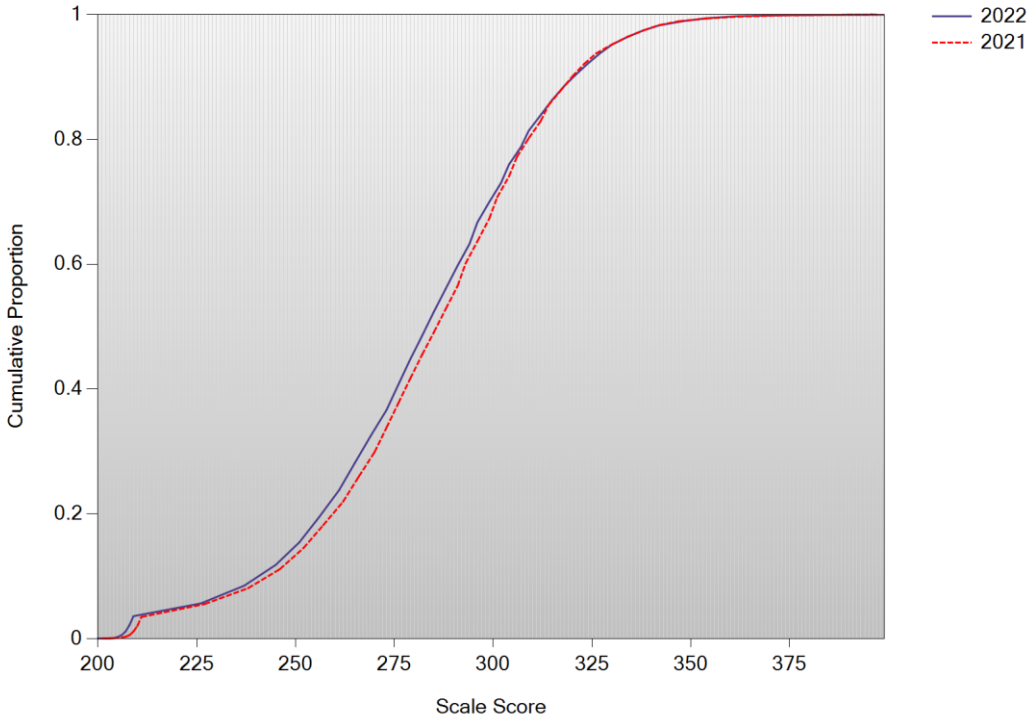
Test Characteristic Curve:Science Grade 8



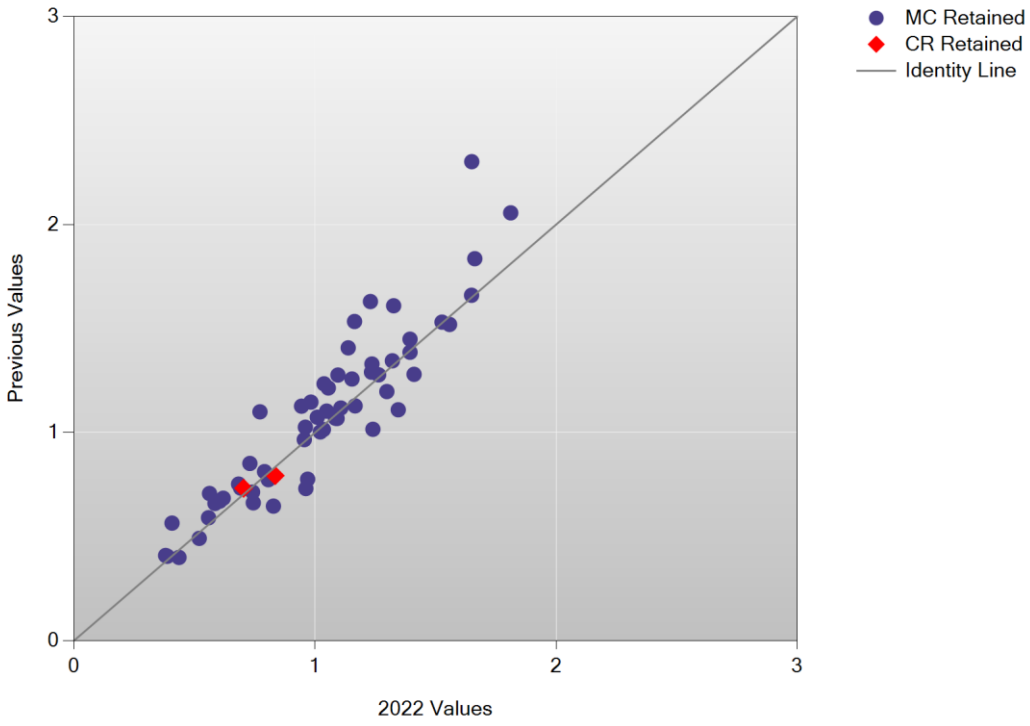
Test Information Function: Science Grade 8



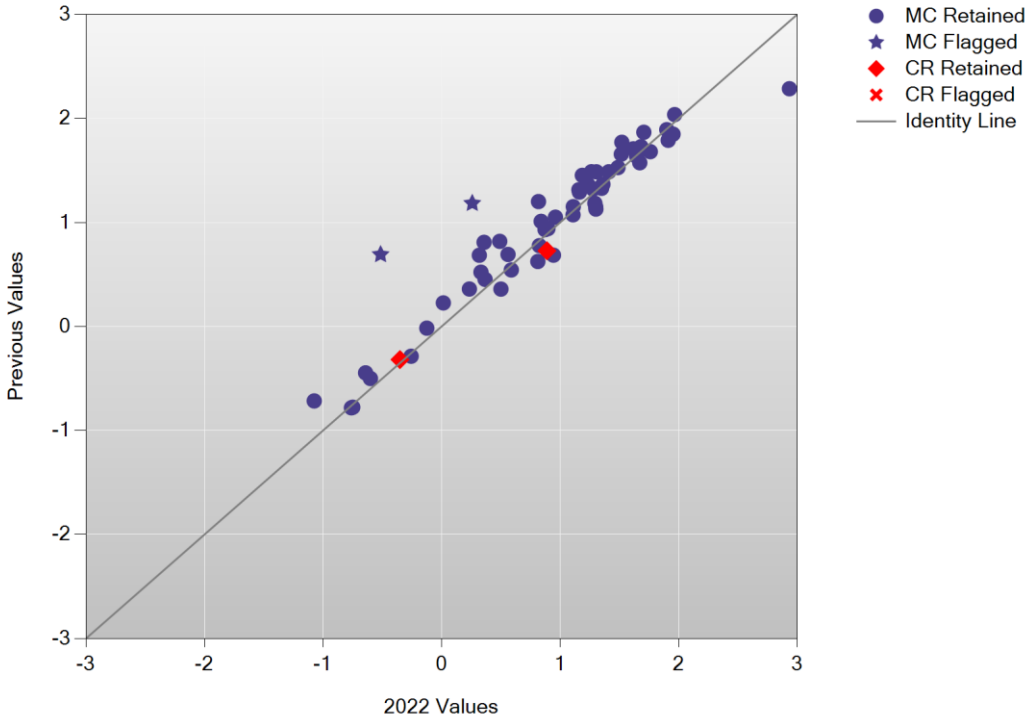
Cumulative Scale Score Distributions: Science Grade 8



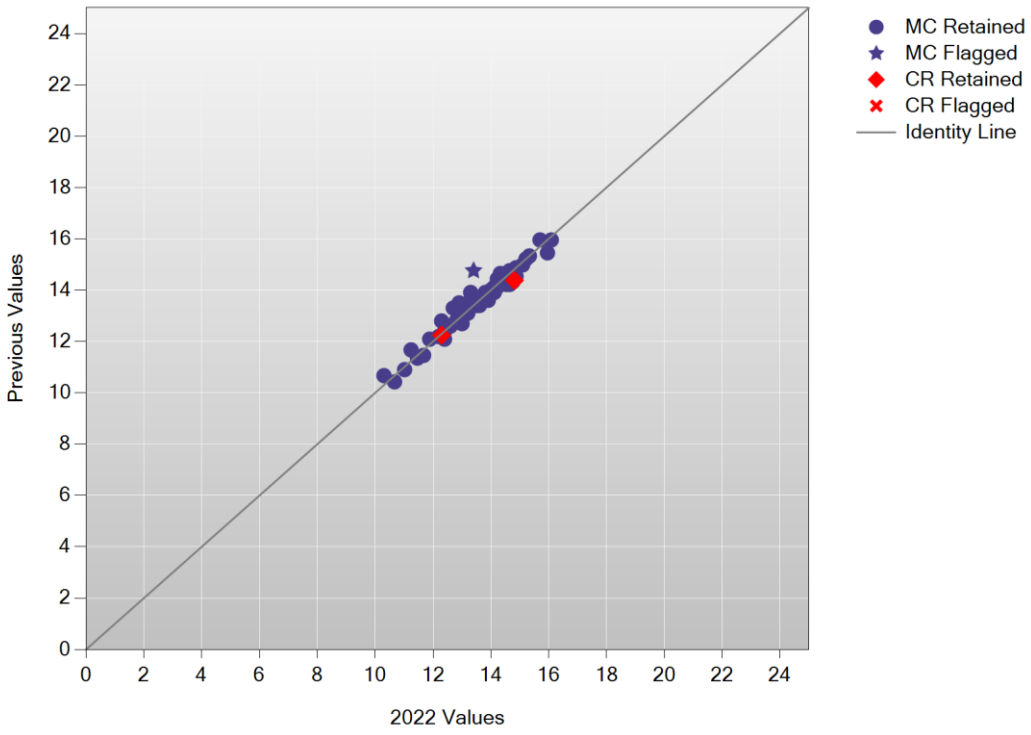
A/A Plot: Science Grade 11



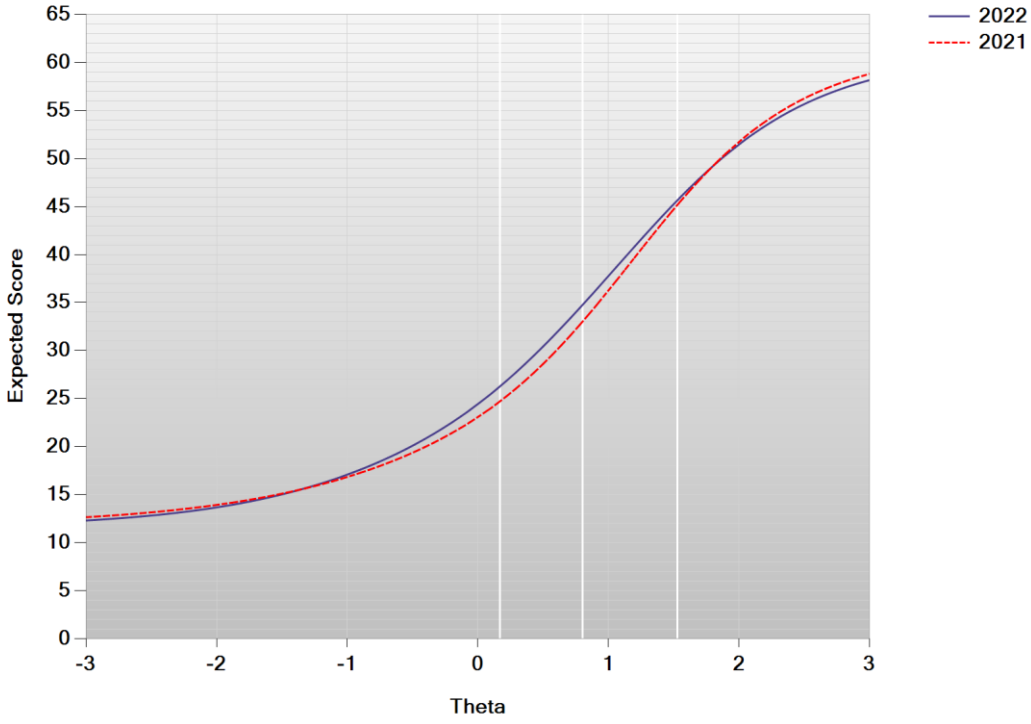
B/B Plot: Science Grade 11



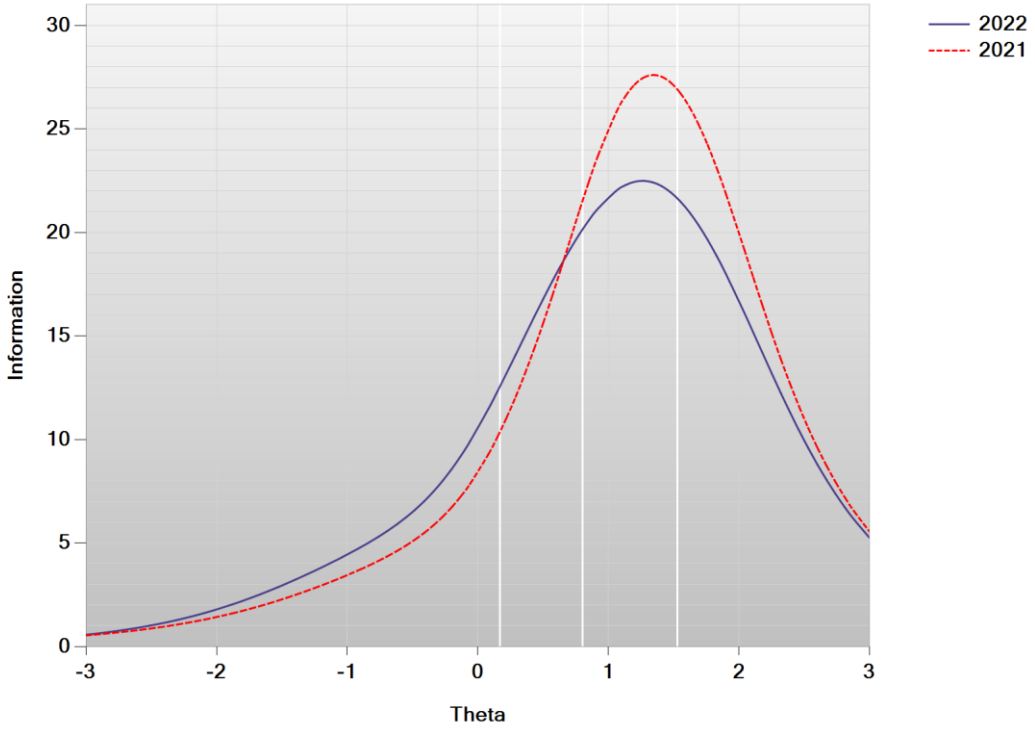
Delta Plot: Science Grade 11



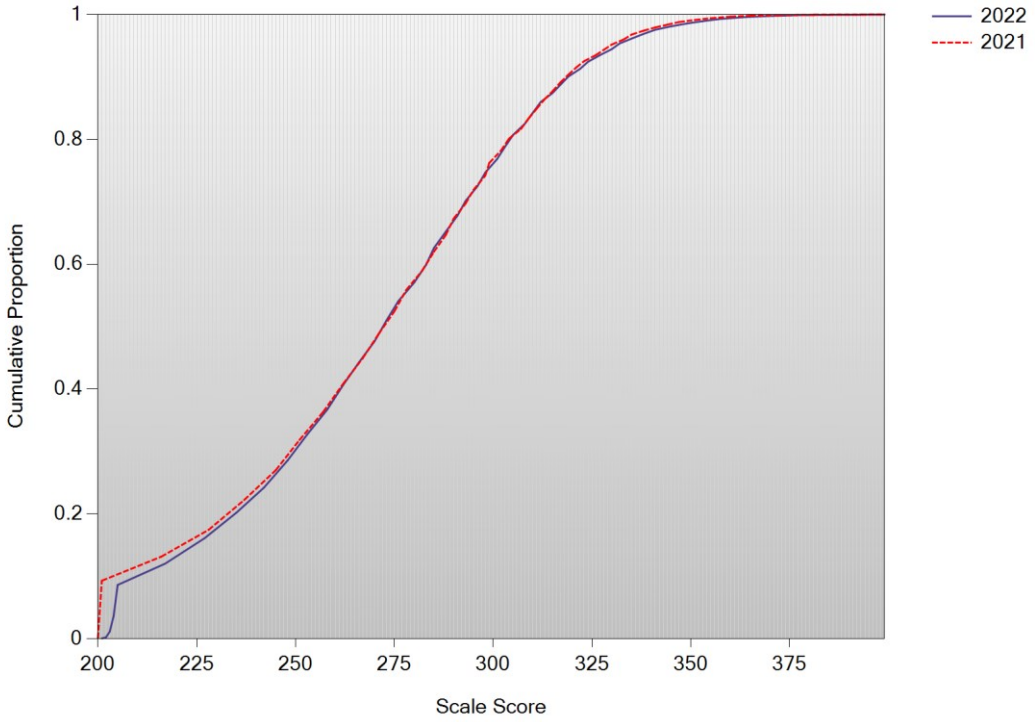
Test Characteristic Curve:Science Grade 11



Test Information Function: Science Grade 11



Cumulative Scale Score Distributions: Science Grade 11



Section 2.2

Lookup Tables

Table 2.2.1
Raw Score to Scale Score Lookup Table
English Language Arts Grade 3

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.355	1.17	10.0	200	1	200	1
1	-3.328	1.20	10.0	201	1	201	1
2	-3.301	1.23	10.0	201	1	201	1
3	-3.273	1.26	10.0	202	1	202	1
4	-3.246	1.29	10.0	203	1	203	1
5	-3.219	1.33	10.0	204	1	203	1
6	-3.191	1.36	10.0	204	1	204	1
7	-3.164	1.39	10.0	205	1	205	1
8	-3.137	1.43	10.0	206	1	205	1
9	-3.110	1.47	10.0	207	1	206	1
10	-3.082	1.50	10.0	207	1	207	1
11	-2.686	2.17	10.0	218	1	220	1
12	-2.387	2.87	10.0	226	1	229	1
13	-2.147	3.62	10.0	233	1	236	1
14	-1.944	4.44	10.0	238	1	241	1
15	-1.769	5.32	10.0	243	1	246	1
16	-1.614	6.25	10.0	247	1	250	1
17	-1.475	7.20	10.0	251	1	254	1
18	-1.347	8.13	9.5	254	1	257	1
19	-1.228	9.01	9.0	258	1	260	1
20	-1.116	9.81	8.6	261	1	263	1
21	-1.010	10.50	8.4	263	1	266	1
22	-0.908	11.07	8.1	266	1	269	1
23	-0.810	11.53	8.0	269	1	272	1
24	-0.713	11.88	7.9	271	1	274	1
25	-0.619	12.14	7.8	274	1	277	2
26	-0.526	12.33	7.7	277	2	279	2
27	-0.433	12.47	7.7	279	2	282	2
28	-0.341	12.56	7.6	282	2	284	2
29	-0.250	12.63	7.6	284	2	287	2
30	-0.158	12.69	7.6	287	2	289	2
31	-0.065	12.72	7.6	289	2	292	2
32	0.028	12.73	7.6	292	2	294	2
33	0.122	12.72	7.6	294	2	297	2
34	0.217	12.66	7.6	297	2	299	2
35	0.315	12.54	7.6	299	2	302	3
36	0.415	12.36	7.7	302	3	304	3
37	0.518	12.07	7.8	305	3	307	3

Table 2.2.1 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 3

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.626	11.69	7.9	308	3	310	3
39	0.740	11.18	8.1	311	3	313	3
40	0.860	10.55	8.3	314	3	316	3
41	0.990	9.80	8.6	318	3	320	3
42	1.131	8.94	9.0	321	3	323	3
43	1.288	8.00	9.6	326	3	327	3
44	1.465	7.00	10.0	330	4	332	4
45	1.669	6.00	10.0	336	4	336	4
46	1.907	5.02	10.0	342	4	342	4
47	2.195	4.06	10.0	350	4	348	4
48	2.557	3.04	10.0	360	4	355	4
49	3.068	1.88	10.0	374	4	365	4
50	4.000	0.66	10.0	399	4	378	4
51	4.000	0.66	10.0	399	4	399	4
52	4.000	0.66	10.0	399	4	399	4

Table 2.2.2
Raw Score to Scale Score Lookup Table
English Language Arts Grade 4

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.264	1.25	10.0	200	1	200	1
1	-3.254	1.27	10.0	200	1	201	1
2	-3.243	1.28	10.0	201	1	202	1
3	-3.233	1.30	10.0	201	1	203	1
4	-3.222	1.32	10.0	201	1	204	1
5	-3.211	1.33	10.0	201	1	205	1
6	-3.201	1.35	10.0	202	1	206	1
7	-3.190	1.37	10.0	202	1	207	1
8	-3.180	1.39	10.0	202	1	208	1
9	-3.169	1.40	10.0	203	1	209	1
10	-3.158	1.42	10.0	203	1	210	1
11	-2.774	2.25	10.0	213	1	210	1
12	-2.494	3.11	10.0	221	1	219	1
13	-2.272	4.00	10.0	227	1	225	1
14	-2.086	4.93	10.0	232	1	231	1
15	-1.926	5.89	10.0	237	1	235	1
16	-1.783	6.87	10.0	241	1	240	1
17	-1.653	7.84	9.8	244	1	244	1
18	-1.534	8.79	9.2	247	1	247	1
19	-1.423	9.71	8.8	250	1	250	1
20	-1.319	10.58	8.4	253	1	254	1
21	-1.219	11.39	8.1	256	1	257	1
22	-1.124	12.14	7.9	259	1	260	1
23	-1.032	12.80	7.7	261	1	262	1
24	-0.942	13.38	7.5	264	1	265	1
25	-0.854	13.88	7.4	266	1	268	1
26	-0.767	14.29	7.2	268	1	270	1
27	-0.682	14.61	7.2	271	1	273	1
28	-0.597	14.84	7.1	273	1	276	2
29	-0.512	14.98	7.1	275	2	278	2
30	-0.426	15.03	7.1	278	2	281	2
31	-0.341	14.98	7.1	280	2	284	2
32	-0.254	14.85	7.1	282	2	286	2
33	-0.165	14.62	7.2	285	2	289	2
34	-0.075	14.30	7.2	287	2	292	2
35	0.018	13.89	7.4	290	2	295	2
36	0.114	13.39	7.5	293	2	298	2
37	0.213	12.82	7.6	295	2	301	3

Table 2.2.2 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 4

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.317	12.18	7.8	298	2	304	3
39	0.426	11.49	8.1	301	3	308	3
40	0.541	10.75	8.4	304	3	312	3
41	0.663	9.99	8.7	308	3	315	3
42	0.794	9.22	9.0	311	3	320	3
43	0.936	8.46	9.4	315	3	324	3
44	1.090	7.72	9.9	319	3	329	3
45	1.260	6.99	10.0	324	3	334	4
46	1.451	6.23	10.0	329	3	340	4
47	1.671	5.36	10.0	335	4	346	4
48	1.933	4.33	10.0	342	4	354	4
49	2.267	3.19	10.0	352	4	365	4
50	2.733	2.07	10.0	364	4	382	4
51	3.499	1.04	10.0	385	4	399	4
52	4.000	0.65	10.0	399	4	399	4

Table 2.2.3
Raw Score to Scale Score Lookup Table
English Language Arts Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.386	1.50	10.0	200	1	200	1
1	-3.375	1.52	10.0	200	1	201	1
2	-3.363	1.54	10.0	201	1	201	1
3	-3.352	1.56	10.0	201	1	202	1
4	-3.340	1.58	10.0	201	1	203	1
5	-3.329	1.60	10.0	202	1	204	1
6	-3.317	1.62	10.0	202	1	204	1
7	-3.306	1.64	10.0	202	1	205	1
8	-3.294	1.66	10.0	202	1	206	1
9	-3.283	1.69	10.0	203	1	206	1
10	-3.271	1.71	10.0	203	1	207	1
11	-2.902	2.74	10.0	213	1	208	1
12	-2.635	3.91	10.0	220	1	218	1
13	-2.425	5.11	10.0	226	1	226	1
14	-2.250	6.25	10.0	231	1	232	1
15	-2.099	7.32	10.0	235	1	237	1
16	-1.965	8.33	9.3	238	1	241	1
17	-1.842	9.27	8.8	242	1	245	1
18	-1.730	10.17	8.4	245	1	249	1
19	-1.625	11.04	8.1	247	1	252	1
20	-1.526	11.88	7.8	250	1	255	1
21	-1.433	12.70	7.6	253	1	257	1
22	-1.343	13.49	7.3	255	1	260	1
23	-1.257	14.26	7.1	257	1	262	1
24	-1.174	14.99	7.0	260	1	265	1
25	-1.093	15.66	6.8	262	1	267	1
26	-1.014	16.26	6.7	264	1	270	1
27	-0.936	16.77	6.6	266	1	272	2
28	-0.859	17.18	6.5	268	1	274	2
29	-0.784	17.48	6.4	270	1	276	2
30	-0.708	17.68	6.4	272	2	278	2
31	-0.633	17.77	6.4	274	2	280	2
32	-0.557	17.77	6.4	276	2	283	2
33	-0.481	17.69	6.4	278	2	285	2
34	-0.404	17.53	6.4	280	2	287	2
35	-0.326	17.30	6.5	282	2	289	2
36	-0.247	17.01	6.5	285	2	291	2
37	-0.166	16.66	6.6	287	2	294	2

Table 2.2.3 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	-0.082	16.24	6.7	289	2	296	2
39	0.003	15.76	6.8	291	2	298	2
40	0.092	15.20	6.9	294	2	301	3
41	0.184	14.58	7.1	296	2	303	3
42	0.281	13.87	7.2	299	2	306	3
43	0.384	13.09	7.4	302	3	309	3
44	0.493	12.23	7.7	305	3	311	3
45	0.610	11.28	8.0	308	3	315	3
46	0.738	10.25	8.4	311	3	318	3
47	0.880	9.13	8.9	315	3	322	3
48	1.041	7.93	9.6	319	3	326	4
49	1.227	6.65	10.0	324	4	331	4
50	1.451	5.29	10.0	330	4	336	4
51	1.737	3.90	10.0	338	4	343	4
52	2.133	2.53	10.0	349	4	353	4
53	2.774	1.31	10.0	366	4	367	4
54	3.981	0.71	10.0	398	4	389	4
55	4.000	0.70	10.0	399	4	399	4

Table 2.2.4
Raw Score to Scale Score Lookup Table
English Language Arts Grade 6

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.467	0.71	10.0	200	1	200	1
1	-3.428	0.75	10.0	201	1	200	1
2	-3.388	0.79	10.0	202	1	201	1
3	-3.348	0.83	10.0	203	1	201	1
4	-3.309	0.88	10.0	204	1	202	1
5	-3.269	0.93	10.0	205	1	202	1
6	-3.229	0.98	10.0	206	1	202	1
7	-3.190	1.04	10.0	207	1	203	1
8	-3.150	1.10	10.0	208	1	203	1
9	-3.110	1.16	10.0	210	1	204	1
10	-3.071	1.22	10.0	211	1	204	1
11	-3.031	1.29	10.0	212	1	216	1
12	-2.667	2.14	10.0	221	1	224	1
13	-2.398	3.11	10.0	228	1	230	1
14	-2.184	4.15	10.0	234	1	236	1
15	-2.005	5.23	10.0	239	1	240	1
16	-1.848	6.29	10.0	243	1	244	1
17	-1.709	7.29	9.9	247	1	248	1
18	-1.582	8.22	9.3	250	1	251	1
19	-1.464	9.06	8.9	253	1	254	1
20	-1.353	9.83	8.5	256	1	257	1
21	-1.247	10.52	8.2	259	1	260	1
22	-1.146	11.16	8.0	262	1	263	1
23	-1.048	11.73	7.8	264	1	265	1
24	-0.953	12.25	7.6	267	1	268	1
25	-0.860	12.71	7.5	269	2	270	2
26	-0.769	13.10	7.4	272	2	272	2
27	-0.678	13.42	7.3	274	2	275	2
28	-0.589	13.67	7.2	277	2	277	2
29	-0.499	13.84	7.2	279	2	280	2
30	-0.409	13.92	7.1	282	2	282	2
31	-0.318	13.91	7.1	284	2	284	2
32	-0.226	13.82	7.2	286	2	287	2
33	-0.133	13.64	7.2	289	2	289	2
34	-0.038	13.37	7.3	291	2	292	2
35	0.060	13.02	7.4	294	2	294	2
36	0.162	12.61	7.5	297	2	297	2
37	0.266	12.14	7.6	299	2	299	2

Table 2.2.4 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 6

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.376	11.64	7.8	302	3	303	3
39	0.490	11.12	8.0	305	3	306	3
40	0.611	10.57	8.2	309	3	309	3
41	0.739	9.97	8.4	312	3	313	3
42	0.876	9.30	8.7	316	3	317	3
43	1.025	8.50	9.1	320	3	321	3
44	1.190	7.56	9.7	324	3	325	3
45	1.377	6.46	10.0	329	3	331	4
46	1.594	5.27	10.0	335	4	337	4
47	1.856	4.11	10.0	342	4	344	4
48	2.182	3.05	10.0	351	4	352	4
49	2.607	2.14	10.0	362	4	363	4
50	3.206	1.36	10.0	378	4	378	4
51	4.000	0.76	10.0	399	4	399	4
52	4.000	0.76	10.0	399	4	399	4

Table 2.2.5
Raw Score to Scale Score Lookup Table
English Language Arts Grade 7

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.102	0.82	10.0	200	1	200	1
1	-3.095	0.83	10.0	200	1	200	1
2	-3.087	0.84	10.0	200	1	200	1
3	-3.079	0.85	10.0	201	1	200	1
4	-3.071	0.86	10.0	201	1	200	1
5	-3.063	0.87	10.0	201	1	200	1
6	-3.055	0.88	10.0	201	1	200	1
7	-3.048	0.89	10.0	202	1	200	1
8	-3.040	0.90	10.0	202	1	200	1
9	-3.032	0.91	10.0	202	1	200	1
10	-3.024	0.92	10.0	202	1	200	1
11	-3.016	0.93	10.0	202	1	210	1
12	-2.598	1.74	10.0	214	1	218	1
13	-2.300	2.63	10.0	222	1	224	1
14	-2.067	3.53	10.0	229	1	229	1
15	-1.872	4.41	10.0	234	1	234	1
16	-1.704	5.27	10.0	239	1	238	1
17	-1.553	6.09	10.0	243	1	242	1
18	-1.416	6.87	10.0	247	1	246	1
19	-1.290	7.62	10.0	251	1	249	1
20	-1.172	8.32	9.7	254	1	253	1
21	-1.060	8.98	9.4	257	1	256	1
22	-0.953	9.58	9.1	260	1	259	1
23	-0.850	10.11	8.8	263	1	262	1
24	-0.750	10.59	8.6	266	1	265	1
25	-0.653	10.99	8.5	269	1	268	1
26	-0.557	11.33	8.3	271	1	270	1
27	-0.462	11.58	8.2	274	2	273	2
28	-0.368	11.77	8.2	277	2	276	2
29	-0.275	11.88	8.1	279	2	279	2
30	-0.181	11.91	8.1	282	2	282	2
31	-0.086	11.87	8.1	285	2	285	2
32	0.011	11.75	8.2	287	2	288	2
33	0.109	11.57	8.2	290	2	291	2
34	0.209	11.31	8.3	293	2	294	2
35	0.312	10.99	8.5	296	2	297	2
36	0.419	10.61	8.6	299	2	300	3
37	0.531	10.17	8.8	302	3	304	3

Table 2.2.5 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 7

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.647	9.68	9.0	305	3	307	3
39	0.770	9.14	9.3	309	3	311	3
40	0.900	8.55	9.6	312	3	315	3
41	1.040	7.92	10.0	316	3	319	3
42	1.191	7.25	10.0	320	3	323	4
43	1.357	6.54	10.0	325	4	328	4
44	1.540	5.79	10.0	330	4	334	4
45	1.747	5.00	10.0	336	4	340	4
46	1.987	4.19	10.0	343	4	347	4
47	2.272	3.37	10.0	351	4	356	4
48	2.624	2.56	10.0	360	4	367	4
49	3.086	1.80	10.0	373	4	384	4
50	3.753	1.07	10.0	392	4	399	4
51	4.000	0.88	10.0	399	4	399	4
52	4.000	0.88	10.0	399	4	N/A	N/A

Table 2.2.6
Raw Score to Scale Score Lookup Table
English Language Arts Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.134	2.52	10.0	200	1	200	1
1	-3.116	2.56	10.0	201	1	200	1
2	-3.098	2.61	10.0	201	1	201	1
3	-3.079	2.65	10.0	202	1	201	1
4	-3.061	2.70	10.0	202	1	201	1
5	-3.043	2.74	10.0	203	1	202	1
6	-3.024	2.79	10.0	203	1	202	1
7	-3.006	2.84	10.0	204	1	202	1
8	-2.988	2.89	10.0	204	1	203	1
9	-2.969	2.94	10.0	205	1	203	1
10	-2.951	2.99	10.0	205	1	203	1
11	-2.932	3.05	10.0	206	1	204	1
12	-2.914	3.10	10.0	206	1	204	1
13	-2.896	3.16	10.0	207	1	204	1
14	-2.675	3.92	10.0	213	1	212	1
15	-2.482	4.72	10.0	218	1	218	1
16	-2.310	5.48	10.0	223	1	223	1
17	-2.153	6.18	10.0	227	1	228	1
18	-2.008	6.79	10.0	231	1	232	1
19	-1.871	7.29	10.0	235	1	236	1
20	-1.741	7.69	10.0	239	1	240	1
21	-1.616	8.00	9.9	242	1	243	1
22	-1.495	8.23	9.7	246	1	246	1
23	-1.377	8.40	9.6	249	1	250	1
24	-1.262	8.54	9.5	252	1	253	1
25	-1.148	8.65	9.5	255	1	256	1
26	-1.036	8.75	9.4	259	1	259	1
27	-0.924	8.84	9.4	262	1	262	1
28	-0.814	8.93	9.3	265	1	264	1
29	-0.705	9.02	9.3	268	1	267	1
30	-0.596	9.13	9.2	271	2	270	2
31	-0.489	9.27	9.2	274	2	273	2
32	-0.381	9.44	9.1	277	2	276	2
33	-0.275	9.66	9.0	280	2	279	2
34	-0.169	9.91	8.9	283	2	281	2
35	-0.064	10.19	8.7	286	2	284	2
36	0.040	10.47	8.6	289	2	287	2
37	0.145	10.72	8.5	291	2	290	2

Table 2.2.6 (continued)
Raw Score to Scale Score Lookup Table
English Language Arts Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.249	10.90	8.4	294	2	293	2
39	0.355	10.99	8.4	297	2	296	2
40	0.462	10.97	8.4	300	3	299	2
41	0.570	10.85	8.5	303	3	303	3
42	0.681	10.63	8.6	306	3	306	3
43	0.796	10.34	8.7	310	3	310	3
44	0.915	9.98	8.8	313	3	313	3
45	1.038	9.57	9.0	316	3	317	3
46	1.168	9.13	9.2	320	3	321	3
47	1.305	8.66	9.5	324	4	325	4
48	1.451	8.15	9.8	328	4	330	4
49	1.609	7.56	10.0	332	4	335	4
50	1.781	6.87	10.0	337	4	341	4
51	1.972	6.03	10.0	342	4	348	4
52	2.193	5.01	10.0	349	4	357	4
53	2.458	3.86	10.0	356	4	368	4
54	2.796	2.67	10.0	365	4	383	4
55	3.272	1.58	10.0	379	4	399	4
56	4.000	0.73	10.0	399	4	399	4
57	4.000	0.73	10.0	399	4	399	4

Table 2.2.7
Raw Score to Scale Score Lookup Table
Mathematics Grade 3

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.665	0.62	10.0	200	1	200	1
1	-3.630	0.67	10.0	201	1	201	1
2	-3.594	0.72	10.0	202	1	203	1
3	-3.558	0.77	10.0	203	1	204	1
4	-3.523	0.83	10.0	204	1	205	1
5	-3.487	0.89	10.0	205	1	206	1
6	-3.451	0.95	10.0	206	1	208	1
7	-3.416	1.02	10.0	206	1	209	1
8	-3.380	1.09	10.0	207	1	210	1
9	-3.345	1.17	10.0	208	1	211	1
10	-3.309	1.25	10.0	209	1	213	1
11	-2.904	2.50	10.0	220	1	221	1
12	-2.625	3.71	10.0	227	1	228	1
13	-2.407	4.85	10.0	233	1	233	1
14	-2.225	5.95	10.0	237	1	238	1
15	-2.067	7.03	9.8	241	1	242	1
16	-1.927	8.13	9.1	245	1	245	1
17	-1.800	9.26	8.5	248	1	249	1
18	-1.684	10.40	8.1	251	1	252	1
19	-1.576	11.55	7.6	254	1	255	1
20	-1.474	12.70	7.3	257	1	257	1
21	-1.378	13.83	7.0	259	1	260	1
22	-1.286	14.91	6.7	262	1	262	1
23	-1.198	15.91	6.5	264	1	265	1
24	-1.113	16.82	6.3	266	1	267	1
25	-1.030	17.59	6.2	268	1	269	1
26	-0.949	18.20	6.1	271	1	272	1
27	-0.868	18.63	6.0	273	1	274	2
28	-0.788	18.87	6.0	275	2	276	2
29	-0.708	18.91	6.0	277	2	278	2
30	-0.627	18.77	6.0	279	2	280	2
31	-0.545	18.46	6.0	281	2	282	2
32	-0.461	18.01	6.1	283	2	285	2
33	-0.376	17.46	6.2	285	2	287	2
34	-0.287	16.82	6.3	288	2	289	2
35	-0.196	16.13	6.5	290	2	292	2
36	-0.101	15.43	6.6	293	2	294	2
37	-0.002	14.72	6.8	295	2	297	2

Table 2.2.7 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 3

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.101	14.01	6.9	298	2	299	2
39	0.209	13.30	7.1	301	3	302	3
40	0.324	12.56	7.3	304	3	305	3
41	0.446	11.77	7.6	307	3	308	3
42	0.577	10.90	7.9	310	3	311	3
43	0.720	9.94	8.2	314	3	315	3
44	0.878	8.86	8.7	318	3	319	3
45	1.058	7.64	9.4	323	4	324	4
46	1.271	6.28	10.0	328	4	329	4
47	1.536	4.77	10.0	335	4	335	4
48	1.903	3.13	10.0	345	4	344	4
49	2.526	1.46	10.0	361	4	359	4
50	4.000	0.24	10.0	399	4	399	4

Table 2.2.8
Raw Score to Scale Score Lookup Table
Mathematics Grade 4

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.498	0.69	10.0	200	1	200	1
1	-3.488	0.70	10.0	200	1	201	1
2	-3.478	0.71	10.0	201	1	202	1
3	-3.469	0.72	10.0	201	1	202	1
4	-3.459	0.73	10.0	201	1	203	1
5	-3.449	0.74	10.0	201	1	204	1
6	-3.439	0.74	10.0	202	1	205	1
7	-3.429	0.75	10.0	202	1	205	1
8	-3.420	0.76	10.0	202	1	206	1
9	-3.410	0.77	10.0	202	1	207	1
10	-3.400	0.78	10.0	203	1	208	1
11	-3.390	0.79	10.0	203	1	208	1
12	-2.806	1.67	10.0	218	1	209	1
13	-2.442	2.64	10.0	228	1	221	1
14	-2.173	3.64	10.0	235	1	230	1
15	-1.957	4.63	10.0	241	1	237	1
16	-1.773	5.58	10.0	246	1	243	1
17	-1.612	6.50	10.0	250	1	249	1
18	-1.467	7.38	9.8	254	1	254	1
19	-1.334	8.23	9.3	257	1	258	1
20	-1.210	9.05	8.8	261	1	262	1
21	-1.094	9.83	8.5	264	1	265	1
22	-0.984	10.59	8.2	267	1	269	1
23	-0.879	11.30	7.9	270	1	272	1
24	-0.777	11.97	7.7	272	1	275	2
25	-0.679	12.59	7.5	275	2	278	2
26	-0.584	13.16	7.3	277	2	280	2
27	-0.490	13.69	7.2	280	2	283	2
28	-0.399	14.17	7.1	282	2	285	2
29	-0.309	14.61	6.9	285	2	288	2
30	-0.220	15.02	6.8	287	2	290	2
31	-0.131	15.39	6.8	289	2	293	2
32	-0.043	15.73	6.7	292	2	295	2
33	0.046	16.03	6.6	294	2	297	2
34	0.134	16.26	6.6	296	2	299	2
35	0.224	16.40	6.6	299	2	302	3
36	0.315	16.42	6.5	301	3	305	3
37	0.408	16.29	6.6	304	3	307	3

Table 2.2.8 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 4

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.505	15.97	6.6	306	3	310	3
39	0.605	15.44	6.8	309	3	312	3
40	0.710	14.68	6.9	312	3	315	3
41	0.823	13.68	7.2	315	3	318	3
42	0.946	12.47	7.5	318	3	322	4
43	1.081	11.08	8.0	322	4	325	4
44	1.233	9.57	8.6	326	4	329	4
45	1.410	7.98	9.4	330	4	334	4
46	1.623	6.34	10.0	336	4	340	4
47	1.894	4.67	10.0	343	4	347	4
48	2.276	2.95	10.0	353	4	357	4
49	2.956	1.24	10.0	371	4	376	4
50	4.000	0.35	10.0	399	4	399	4

Table 2.2.9
Raw Score to Scale Score Lookup Table
Mathematics Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.182	1.10	10.0	200	1	200	1
1	-3.154	1.14	10.0	201	1	201	1
2	-3.125	1.17	10.0	202	1	202	1
3	-3.096	1.21	10.0	202	1	202	1
4	-3.068	1.25	10.0	203	1	203	1
5	-3.039	1.29	10.0	204	1	204	1
6	-3.010	1.33	10.0	205	1	205	1
7	-2.981	1.37	10.0	206	1	205	1
8	-2.953	1.41	10.0	206	1	206	1
9	-2.924	1.46	10.0	207	1	207	1
10	-2.895	1.50	10.0	208	1	208	1
11	-2.867	1.55	10.0	209	1	208	1
12	-2.486	2.30	10.0	219	1	220	1
13	-2.196	3.06	10.0	227	1	229	1
14	-1.959	3.84	10.0	234	1	235	1
15	-1.757	4.63	10.0	240	1	241	1
16	-1.579	5.43	10.0	244	1	246	1
17	-1.420	6.25	10.0	249	1	251	1
18	-1.275	7.06	10.0	253	1	255	1
19	-1.141	7.87	9.9	257	1	258	1
20	-1.017	8.68	9.4	260	1	262	1
21	-0.900	9.48	9.0	263	1	265	1
22	-0.789	10.27	8.6	266	2	268	2
23	-0.684	11.07	8.3	269	2	271	2
24	-0.584	11.86	8.0	272	2	273	2
25	-0.487	12.66	7.8	275	2	276	2
26	-0.394	13.45	7.6	277	2	278	2
27	-0.304	14.24	7.3	280	2	281	2
28	-0.216	15.01	7.2	282	2	283	2
29	-0.130	15.76	7.0	285	2	286	2
30	-0.045	16.47	6.8	287	2	288	2
31	0.038	17.11	6.7	289	2	290	2
32	0.121	17.67	6.6	292	2	292	2
33	0.203	18.12	6.5	294	2	295	2
34	0.286	18.43	6.5	296	2	297	2
35	0.370	18.59	6.4	298	2	299	2
36	0.455	18.57	6.4	301	3	302	3
37	0.542	18.38	6.5	303	3	304	3

Table 2.2.9 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.632	18.00	6.5	306	3	306	3
39	0.726	17.45	6.6	308	3	309	3
40	0.825	16.73	6.8	311	3	312	3
41	0.930	15.83	7.0	314	3	315	3
42	1.043	14.76	7.2	317	3	318	3
43	1.166	13.47	7.5	320	3	321	4
44	1.304	11.93	8.0	324	4	325	4
45	1.463	10.10	8.7	329	4	329	4
46	1.655	7.97	9.8	334	4	334	4
47	1.905	5.61	10.0	341	4	340	4
48	2.273	3.24	10.0	351	4	349	4
49	2.971	1.20	10.0	370	4	363	4
50	4.000	0.35	10.0	399	4	399	4

Table 2.2.10
Raw Score to Scale Score Lookup Table
Mathematics Grade 6

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.155	0.71	10.0	200	1	200	1
1	-3.126	0.74	10.0	201	1	201	1
2	-3.098	0.77	10.0	202	1	202	1
3	-3.069	0.81	10.0	202	1	203	1
4	-3.040	0.85	10.0	203	1	205	1
5	-3.011	0.88	10.0	204	1	206	1
6	-2.983	0.92	10.0	205	1	207	1
7	-2.954	0.96	10.0	206	1	208	1
8	-2.925	1.00	10.0	206	1	209	1
9	-2.896	1.05	10.0	207	1	210	1
10	-2.868	1.09	10.0	208	1	212	1
11	-2.839	1.14	10.0	209	1	213	1
12	-2.388	2.09	10.0	221	1	214	1
13	-2.078	3.01	10.0	230	1	224	1
14	-1.836	3.92	10.0	237	1	232	1
15	-1.635	4.85	10.0	242	1	238	1
16	-1.461	5.80	10.0	247	1	244	1
17	-1.307	6.76	10.0	251	1	248	1
18	-1.166	7.71	10.0	255	1	253	1
19	-1.037	8.64	9.5	259	1	257	1
20	-0.915	9.50	9.0	262	1	260	1
21	-0.800	10.29	8.7	266	1	264	1
22	-0.689	10.98	8.4	269	2	267	2
23	-0.581	11.56	8.2	272	2	270	2
24	-0.477	12.04	8.0	274	2	273	2
25	-0.374	12.42	7.9	277	2	275	2
26	-0.272	12.70	7.8	280	2	278	2
27	-0.170	12.90	7.7	283	2	281	2
28	-0.069	13.02	7.7	286	2	284	2
29	0.032	13.07	7.7	289	2	286	2
30	0.133	13.08	7.7	291	2	289	2
31	0.235	13.05	7.7	294	2	292	2
32	0.337	13.01	7.7	297	2	294	2
33	0.439	12.99	7.7	299	2	297	2
34	0.543	13.03	7.7	303	3	299	2
35	0.646	13.15	7.7	306	3	303	3
36	0.750	13.33	7.6	309	3	306	3
37	0.855	13.55	7.6	312	3	309	3

Table 2.2.10 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 6

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	0.961	13.77	7.5	314	3	312	3
39	1.068	13.91	7.5	317	3	315	3
40	1.178	13.91	7.5	321	3	319	3
41	1.292	13.70	7.5	324	3	322	3
42	1.412	13.21	7.7	327	3	326	3
43	1.541	12.40	7.9	331	4	330	4
44	1.682	11.23	8.3	335	4	334	4
45	1.843	9.70	8.9	339	4	339	4
46	2.035	7.82	9.9	344	4	345	4
47	2.281	5.66	10.0	351	4	352	4
48	2.633	3.43	10.0	361	4	362	4
49	3.269	1.40	10.0	379	4	379	4
50	4.000	0.54	10.0	399	4	399	4

Table 2.2.11
Raw Score to Scale Score Lookup Table
Mathematics Grade 7

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.141	0.08	10.0	200	1	200	1
1	-3.027	0.10	10.0	203	1	203	1
2	-2.913	0.13	10.0	206	1	206	1
3	-2.798	0.16	10.0	210	1	210	1
4	-2.684	0.19	10.0	213	1	213	1
5	-2.570	0.24	10.0	216	1	216	1
6	-2.455	0.30	10.0	219	1	219	1
7	-2.341	0.37	10.0	222	1	222	1
8	-2.227	0.45	10.0	225	1	225	1
9	-2.113	0.55	10.0	229	1	229	1
10	-1.998	0.68	10.0	232	1	232	1
11	-1.884	0.83	10.0	235	1	235	1
12	-1.339	2.16	10.0	250	1	249	1
13	-1.037	3.63	10.0	259	1	258	1
14	-0.821	5.16	10.0	265	1	264	1
15	-0.648	6.74	10.0	269	1	269	1
16	-0.502	8.34	9.7	274	1	274	1
17	-0.375	9.95	8.8	277	1	278	1
18	-0.261	11.57	8.2	280	2	281	2
19	-0.158	13.16	7.7	283	2	284	2
20	-0.062	14.70	7.3	286	2	287	2
21	0.028	16.16	6.9	288	2	290	2
22	0.113	17.52	6.7	291	2	292	2
23	0.194	18.76	6.4	293	2	295	2
24	0.271	19.89	6.2	295	2	297	2
25	0.346	20.91	6.1	297	2	299	2
26	0.419	21.82	6.0	299	2	301	3
27	0.491	22.63	5.9	301	3	303	3
28	0.561	23.36	5.8	303	3	306	3
29	0.630	24.01	5.7	305	3	308	3
30	0.699	24.59	5.6	307	3	310	3
31	0.767	25.08	5.6	309	3	312	3
32	0.834	25.49	5.5	311	3	314	3
33	0.902	25.81	5.5	313	3	316	3
34	0.970	26.02	5.5	315	3	318	3
35	1.039	26.12	5.5	316	3	320	3
36	1.109	26.08	5.5	318	3	323	3
37	1.180	25.89	5.5	320	3	325	3

Table 2.2.11 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 7

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	1.254	25.52	5.5	322	3	327	3
39	1.329	24.96	5.6	325	3	329	4
40	1.408	24.16	5.7	327	3	332	4
41	1.492	23.10	5.8	329	4	335	4
42	1.581	21.70	6.0	332	4	337	4
43	1.679	19.91	6.2	334	4	341	4
44	1.788	17.69	6.6	337	4	344	4
45	1.913	15.01	7.2	341	4	349	4
46	2.064	11.94	8.1	345	4	354	4
47	2.257	8.67	9.5	350	4	361	4
48	2.529	5.44	10.0	358	4	372	4
49	2.999	2.50	10.0	371	4	398	4
50	4.000	0.52	10.0	399	4	399	4

Table 2.2.12
Raw Score to Scale Score Lookup Table
Mathematics Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-2.521	0.61	10.0	200	1	200	1
1	-2.502	0.62	10.0	201	1	200	1
2	-2.484	0.63	10.0	201	1	200	1
3	-2.466	0.64	10.0	202	1	200	1
4	-2.447	0.65	10.0	202	1	200	1
5	-2.429	0.67	10.0	203	1	201	1
6	-2.410	0.68	10.0	203	1	201	1
7	-2.392	0.69	10.0	204	1	201	1
8	-2.373	0.70	10.0	205	1	201	1
9	-2.355	0.71	10.0	205	1	201	1
10	-2.336	0.73	10.0	206	1	201	1
11	-2.318	0.74	10.0	206	1	201	1
12	-1.761	1.34	10.0	223	1	222	1
13	-1.397	2.18	10.0	234	1	234	1
14	-1.130	3.26	10.0	242	1	242	1
15	-0.921	4.58	10.0	249	1	248	1
16	-0.748	6.06	10.0	254	1	253	1
17	-0.602	7.64	10.0	259	1	258	1
18	-0.473	9.25	10.0	262	1	262	1
19	-0.358	10.85	9.3	266	1	266	1
20	-0.254	12.44	8.7	269	1	269	1
21	-0.157	13.98	8.2	272	1	272	1
22	-0.067	15.47	7.8	275	1	275	1
23	0.019	16.89	7.4	277	2	278	2
24	0.100	18.21	7.2	280	2	281	2
25	0.178	19.42	6.9	282	2	283	2
26	0.254	20.48	6.7	285	2	286	2
27	0.328	21.39	6.6	287	2	288	2
28	0.401	22.12	6.5	289	2	291	2
29	0.473	22.69	6.4	291	2	293	2
30	0.544	23.09	6.4	294	2	295	2
31	0.615	23.34	6.3	296	2	298	2
32	0.687	23.45	6.3	298	2	300	3
33	0.759	23.45	6.3	300	3	303	3
34	0.833	23.34	6.3	302	3	305	3
35	0.908	23.12	6.3	305	3	307	3
36	0.984	22.80	6.4	307	3	310	3
37	1.063	22.34	6.5	309	3	313	3

Table 2.2.12 (continued)
Raw Score to Scale Score Lookup Table
Mathematics Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	1.146	21.73	6.5	312	3	315	3
39	1.231	20.93	6.7	315	3	318	4
40	1.322	19.92	6.8	317	4	321	4
41	1.419	18.69	7.1	320	4	324	4
42	1.524	17.23	7.4	323	4	328	4
43	1.639	15.55	7.7	327	4	332	4
44	1.768	13.61	8.3	331	4	336	4
45	1.919	11.41	9.0	335	4	342	4
46	2.102	8.93	10.0	341	4	348	4
47	2.342	6.21	10.0	348	4	357	4
48	2.701	3.46	10.0	359	4	370	4
49	3.407	1.17	10.0	381	4	394	4
50	4.000	0.53	10.0	399	4	399	4

Table 2.2.13
Raw Score to Scale Score Lookup Table
Science Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.687	0.19	10.0	200	1	200	1
1	-3.602	0.22	10.0	202	1	202	1
2	-3.517	0.25	10.0	204	1	205	1
3	-3.432	0.28	10.0	207	1	207	1
4	-3.346	0.32	10.0	209	1	209	1
5	-3.261	0.37	10.0	211	1	212	1
6	-3.176	0.42	10.0	213	1	214	1
7	-3.091	0.48	10.0	215	1	216	1
8	-3.005	0.54	10.0	218	1	219	1
9	-2.920	0.62	10.0	220	1	221	1
10	-2.835	0.71	10.0	222	1	223	1
11	-2.321	1.61	10.0	235	1	226	1
12	-1.999	2.74	10.0	244	1	239	1
13	-1.761	4.04	10.0	250	1	247	1
14	-1.567	5.41	10.0	255	1	254	1
15	-1.401	6.69	10.0	259	1	259	1
16	-1.252	7.80	9.3	263	1	264	1
17	-1.114	8.67	8.8	267	1	268	1
18	-0.985	9.32	8.5	270	1	272	2
19	-0.860	9.76	8.3	273	2	276	2
20	-0.740	10.04	8.2	276	2	279	2
21	-0.622	10.20	8.1	279	2	282	2
22	-0.505	10.28	8.1	282	2	285	2
23	-0.390	10.30	8.1	285	2	289	2
24	-0.276	10.31	8.1	288	2	291	2
25	-0.162	10.30	8.1	291	2	294	2
26	-0.049	10.30	8.1	294	2	297	2
27	0.064	10.32	8.1	297	2	299	2
28	0.176	10.35	8.0	300	3	303	3
29	0.289	10.41	8.0	303	3	305	3
30	0.402	10.48	8.0	306	3	308	3
31	0.516	10.56	8.0	309	3	311	3
32	0.631	10.63	7.9	312	3	314	3
33	0.748	10.66	7.9	315	3	316	3
34	0.867	10.62	7.9	318	3	319	3
35	0.991	10.46	8.0	321	3	322	3
36	1.120	10.13	8.1	324	3	326	3
37	1.257	9.61	8.4	328	3	329	3

Table 2.2.13 (continued)
Raw Score to Scale Score Lookup Table
Science Grade 5

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	1.405	8.86	8.7	332	4	333	4
39	1.571	7.87	9.2	336	4	337	4
40	1.762	6.65	10.0	341	4	342	4
41	1.993	5.24	10.0	347	4	348	4
42	2.293	3.71	10.0	355	4	355	4
43	2.729	2.19	10.0	366	4	366	4
44	3.530	0.86	10.0	387	4	386	4
45	4.000	0.52	10.0	399	4	399	4

Table 2.2.14
Raw Score to Scale Score Lookup Table
Science Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-3.478	0.44	10.0	200	1	200	1
1	-3.445	0.45	10.0	201	1	201	1
2	-3.413	0.47	10.0	202	1	202	1
3	-3.381	0.49	10.0	203	1	203	1
4	-3.349	0.50	10.0	203	1	204	1
5	-3.316	0.52	10.0	204	1	206	1
6	-3.284	0.54	10.0	205	1	207	1
7	-3.252	0.56	10.0	206	1	208	1
8	-3.220	0.58	10.0	207	1	209	1
9	-3.187	0.60	10.0	208	1	210	1
10	-3.155	0.63	10.0	209	1	211	1
11	-2.504	1.30	10.0	226	1	227	1
12	-2.099	2.02	10.0	237	1	238	1
13	-1.800	2.74	10.0	245	1	246	1
14	-1.560	3.45	10.0	251	1	252	1
15	-1.358	4.16	10.0	256	1	257	1
16	-1.180	4.88	10.0	261	1	262	1
17	-1.021	5.61	10.0	265	1	266	1
18	-0.876	6.35	10.0	269	1	270	1
19	-0.741	7.08	10.0	273	1	273	1
20	-0.615	7.79	9.5	276	1	276	1
21	-0.495	8.48	9.1	279	1	279	1
22	-0.381	9.14	8.8	282	1	282	1
23	-0.272	9.75	8.5	285	2	285	2
24	-0.166	10.30	8.3	288	2	288	2
25	-0.062	10.81	8.1	291	2	291	2
26	0.040	11.25	7.9	294	2	293	2
27	0.140	11.64	7.8	296	2	296	2
28	0.239	11.98	7.7	299	2	299	2
29	0.338	12.27	7.6	302	3	301	3
30	0.437	12.51	7.5	304	3	304	3
31	0.536	12.69	7.5	307	3	306	3
32	0.636	12.81	7.4	309	3	309	3
33	0.737	12.86	7.4	312	3	312	3
34	0.841	12.83	7.4	315	3	314	3
35	0.947	12.69	7.5	318	3	317	3
36	1.057	12.44	7.5	321	3	320	3
37	1.171	12.07	7.7	324	3	323	3

Table 2.2.14 (continued)
Raw Score to Scale Score Lookup Table
Science Grade 8

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	1.291	11.57	7.8	327	3	326	3
39	1.418	10.95	8.0	330	4	330	4
40	1.555	10.18	8.3	334	4	334	4
41	1.704	9.25	8.8	338	4	338	4
42	1.872	8.14	9.3	342	4	342	4
43	2.066	6.83	10.0	348	4	347	4
44	2.300	5.34	10.0	354	4	354	4
45	2.606	3.73	10.0	362	4	362	4
46	3.056	2.13	10.0	374	4	374	4
47	3.907	0.76	10.0	397	4	396	4
48	4.000	0.68	10.0	399	4	399	4

Table 2.2.15
Raw Score to Scale Score Lookup Table
Science Grade 11

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
0	-1.985	1.82	10.0	200	1	200	1
1	-1.975	1.84	10.0	200	1	200	1
2	-1.966	1.86	10.0	201	1	200	1
3	-1.956	1.88	10.0	201	1	200	1
4	-1.946	1.89	10.0	201	1	200	1
5	-1.937	1.91	10.0	202	1	200	1
6	-1.927	1.93	10.0	202	1	200	1
7	-1.917	1.95	10.0	202	1	201	1
8	-1.908	1.97	10.0	203	1	201	1
9	-1.898	1.99	10.0	203	1	201	1
10	-1.888	2.01	10.0	203	1	201	1
11	-1.879	2.03	10.0	204	1	201	1
12	-1.869	2.05	10.0	204	1	201	1
13	-1.859	2.08	10.0	205	1	201	1
14	-1.850	2.10	10.0	205	1	201	1
15	-1.502	2.94	10.0	217	1	216	1
16	-1.235	3.70	10.0	227	1	228	1
17	-1.014	4.40	10.0	235	1	237	1
18	-0.825	5.06	10.0	242	1	245	1
19	-0.659	5.72	10.0	248	1	251	1
20	-0.511	6.44	10.0	253	1	257	1
21	-0.378	7.23	10.0	258	1	262	1
22	-0.256	8.11	10.0	262	1	267	1
23	-0.144	9.07	10.0	266	1	271	1
24	-0.041	10.11	10.0	270	1	275	1
25	0.056	11.18	10.0	273	1	278	2
26	0.147	12.28	10.0	276	1	282	2
27	0.233	13.36	9.8	280	2	285	2
28	0.315	14.42	9.4	283	2	288	2
29	0.393	15.43	9.1	285	2	290	2
30	0.469	16.39	8.9	288	2	293	2
31	0.542	17.30	8.6	291	2	295	2
32	0.614	18.15	8.4	293	2	298	2
33	0.683	18.94	8.2	296	2	299	2
34	0.752	19.66	8.1	298	2	302	3
35	0.819	20.30	8.0	301	3	304	3
36	0.885	20.88	7.9	303	3	307	3
37	0.951	21.37	7.8	305	3	309	3

Table 2.2.15 (continued)
Raw Score to Scale Score Lookup Table
Science Grade 11

				2022		2021	
Raw Score	Theta	Information	SE (Scale Score)	Scale Score	Performance Level	Scale Score	Performance Level
38	1.016	21.78	7.7	308	3	311	3
39	1.081	22.11	7.6	310	3	313	3
40	1.146	22.33	7.6	312	3	315	3
41	1.212	22.47	7.6	315	3	317	3
42	1.278	22.49	7.6	317	3	319	3
43	1.345	22.41	7.6	319	3	321	3
44	1.413	22.22	7.6	322	3	323	3
45	1.482	21.91	7.7	324	3	326	3
46	1.554	21.48	7.7	327	4	328	4
47	1.627	20.92	7.8	330	4	330	4
48	1.704	20.23	8.0	332	4	333	4
49	1.783	19.39	8.1	335	4	335	4
50	1.867	18.40	8.4	338	4	338	4
51	1.957	17.26	8.6	341	4	341	4
52	2.052	15.96	9.0	345	4	344	4
53	2.157	14.51	9.4	349	4	347	4
54	2.272	12.90	10.0	353	4	351	4
55	2.402	11.17	10.0	357	4	355	4
56	2.552	9.34	10.0	363	4	360	4
57	2.732	7.45	10.0	369	4	365	4
58	2.956	5.56	10.0	377	4	372	4
59	3.255	3.76	10.0	388	4	381	4
60	3.699	2.15	10.0	398	4	393	4
61	4.000	1.51	10.0	399	4	399	4
62	4.000	1.51	10.0	399	4	399	4

Section 2.3

Cumulative Scale Score Distribution Tables

Table 2.3.1
Cumulative Scale Score Distribution
English Language Arts Grade 3

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	1	0.00002	0.00002
202	BB	3	0.00006	0.00008
203	BB	9	0.00018	0.00026
204	BB	57	0.00115	0.00141
205	BB	108	0.00218	0.00359
206	BB	197	0.00397	0.00757
207	BB	829	0.01673	0.02429
218	BB	710	0.01433	0.03862
226	BB	981	0.01979	0.05841
233	BB	1153	0.02326	0.08167
238	BB	1262	0.02546	0.10714
243	BB	1365	0.02754	0.13468
247	BB	1346	0.02716	0.16183
251	BB	1294	0.02611	0.18794
254	BB	1366	0.02756	0.21550
258	BB	1257	0.02536	0.24087
261	BB	1233	0.02488	0.26574
263	BB	1245	0.02512	0.29086
266	BB	1281	0.02585	0.31671
269	BB	1293	0.02609	0.34280
271	BB	1287	0.02597	0.36876
274	BB	1337	0.02698	0.39574
277	B	1379	0.02782	0.42356
279	B	1416	0.02857	0.45213
282	B	1523	0.03073	0.48286
284	B	1564	0.03156	0.51442
287	B	1660	0.03349	0.54791
289	B	1618	0.03265	0.58055
292	B	1561	0.03150	0.61205
294	B	1550	0.03127	0.64332
297	B	1702	0.03434	0.67766
299	B	1677	0.03384	0.71150
302	P	1575	0.03178	0.74328
305	P	1633	0.03295	0.77622
308	P	1644	0.03317	0.80939
311	P	1459	0.02944	0.83883
314	P	1415	0.02855	0.86738
318	P	1330	0.02683	0.89422
321	P	1138	0.02296	0.91718
326	P	1153	0.02326	0.94044
330	A	942	0.01901	0.95945
336	A	768	0.01550	0.97494
342	A	566	0.01142	0.98636
350	A	325	0.00656	0.99292
360	A	220	0.00444	0.99736
374	A	97	0.00196	0.99931
399	A	34	0.00069	1.00000

Table 2.3.2
Cumulative Scale Score Distribution
English Language Arts Grade 4

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	1	0.00002	0.00002
201	BB	43	0.00089	0.00091
202	BB	479	0.00991	0.01082
203	BB	924	0.01912	0.02994
213	BB	724	0.01498	0.04492
221	BB	876	0.01813	0.06305
227	BB	1051	0.02175	0.08480
232	BB	1022	0.02115	0.10595
237	BB	1075	0.02224	0.12819
241	BB	1026	0.02123	0.14942
244	BB	1062	0.02198	0.17140
247	BB	1002	0.02073	0.19213
250	BB	1033	0.02138	0.21351
253	BB	1053	0.02179	0.23530
256	BB	1024	0.02119	0.25649
259	BB	1037	0.02146	0.27795
261	BB	1102	0.02280	0.30075
264	BB	1120	0.02318	0.32393
266	BB	1204	0.02491	0.34884
268	BB	1249	0.02585	0.37468
271	BB	1330	0.02752	0.40221
273	BB	1356	0.02806	0.43027
275	B	1426	0.02951	0.45977
278	B	1514	0.03133	0.49110
280	B	1507	0.03118	0.52229
282	B	1533	0.03172	0.55401
285	B	1642	0.03398	0.58799
287	B	1713	0.03545	0.62343
290	B	1728	0.03576	0.65919
293	B	1723	0.03565	0.69484
295	B	1683	0.03483	0.72967
298	B	1653	0.03421	0.76387
301	P	1690	0.03497	0.79885
304	P	1697	0.03512	0.83396
308	P	1479	0.03060	0.86457
311	P	1411	0.02920	0.89376
315	P	1278	0.02645	0.92021
319	P	1112	0.02301	0.94322
324	P	955	0.01976	0.96298
329	P	669	0.01384	0.97682
335	A	495	0.01024	0.98707
342	A	344	0.00712	0.99419
352	A	169	0.00350	0.99768
364	A	86	0.00178	0.99946
385	A	23	0.00048	0.99994
399	A	3	0.00006	1.00000

Table 2.3.3
Cumulative Scale Score Distribution
English Language Arts Grade 5

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	1	0.00002	0.00002
202	BB	74	0.00173	0.00175
203	BB	198	0.00462	0.00637
213	BB	196	0.00458	0.01095
220	BB	231	0.00539	0.01634
226	BB	302	0.00705	0.02339
231	BB	328	0.00766	0.03105
235	BB	384	0.00896	0.04001
238	BB	400	0.00934	0.04935
242	BB	516	0.01205	0.06140
245	BB	465	0.01086	0.07225
247	BB	523	0.01221	0.08446
250	BB	565	0.01319	0.09765
253	BB	589	0.01375	0.11140
255	BB	610	0.01424	0.12564
257	BB	682	0.01592	0.14157
260	BB	721	0.01683	0.15840
262	BB	748	0.01746	0.17586
264	BB	744	0.01737	0.19323
266	BB	890	0.02078	0.21401
268	BB	881	0.02057	0.23457
270	BB	995	0.02323	0.25780
272	B	1035	0.02416	0.28197
274	B	1080	0.02521	0.30718
276	B	1164	0.02717	0.33435
278	B	1206	0.02815	0.36251
280	B	1270	0.02965	0.39216
282	B	1434	0.03348	0.42563
285	B	1499	0.03499	0.46063
287	B	1510	0.03525	0.49588
289	B	1596	0.03726	0.53314
291	B	1624	0.03791	0.57105
294	B	1714	0.04001	0.61107
296	B	1603	0.03742	0.64849
299	B	1728	0.04034	0.68883
302	P	1759	0.04106	0.72989
305	P	1743	0.04069	0.77058
308	P	1652	0.03857	0.80915
311	P	1653	0.03859	0.84774
315	P	1502	0.03506	0.88281
319	P	1431	0.03341	0.91621
324	A	1133	0.02645	0.94266
330	A	980	0.02288	0.96554
338	A	710	0.01658	0.98212
349	A	466	0.01088	0.99300
366	A	237	0.00553	0.99853
398	A	56	0.00131	0.99984
399	A	7	0.00016	1.00000

Table 2.3.4
Cumulative Scale Score Distribution
English Language Arts Grade 6

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	1	0.00002	0.00002
202	BB	2	0.00004	0.00006
203	BB	4	0.00008	0.00014
204	BB	7	0.00014	0.00028
205	BB	13	0.00026	0.00054
206	BB	29	0.00059	0.00113
207	BB	74	0.00149	0.00262
208	BB	133	0.00268	0.00531
210	BB	245	0.00494	0.01025
211	BB	358	0.00722	0.01747
212	BB	531	0.01071	0.02818
221	BB	672	0.01356	0.04174
228	BB	844	0.01703	0.05877
234	BB	976	0.01969	0.07846
239	BB	1040	0.02098	0.09944
243	BB	1048	0.02114	0.12058
247	BB	1108	0.02235	0.14294
250	BB	1145	0.02310	0.16604
253	BB	1136	0.02292	0.18896
256	BB	1182	0.02385	0.21280
259	BB	1178	0.02377	0.23657
262	BB	1257	0.02536	0.26193
264	BB	1296	0.02615	0.28807
267	BB	1308	0.02639	0.31446
269	B	1412	0.02849	0.34295
272	B	1438	0.02901	0.37196
274	B	1531	0.03089	0.40285
277	B	1565	0.03157	0.43442
279	B	1559	0.03145	0.46587
282	B	1674	0.03377	0.49965
284	B	1668	0.03365	0.53330
286	B	1680	0.03389	0.56719
289	B	1740	0.03510	0.60230
291	B	1730	0.03490	0.63720
294	B	1732	0.03494	0.67214
297	B	1672	0.03373	0.70587
299	B	1699	0.03428	0.74015
302	P	1687	0.03403	0.77418
305	P	1649	0.03327	0.80745
309	P	1571	0.03169	0.83915
312	P	1545	0.03117	0.87032
316	P	1369	0.02762	0.89794
320	P	1214	0.02449	0.92243
324	P	1096	0.02211	0.94454
329	P	934	0.01884	0.96338
335	A	670	0.01352	0.97690
342	A	539	0.01087	0.98777
351	A	345	0.00696	0.99473
362	A	148	0.00299	0.99772
378	A	86	0.00174	0.99946
399	A	27	0.00054	1.00000

Table 2.3.5
Cumulative Scale Score Distribution
English Language Arts Grade 7

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	5	0.00010	0.00010
201	BB	101	0.00198	0.00208
202	BB	1946	0.03816	0.04024
214	BB	948	0.01859	0.05883
222	BB	1091	0.02140	0.08023
229	BB	1198	0.02349	0.10372
234	BB	1266	0.02483	0.12855
239	BB	1314	0.02577	0.15432
243	BB	1319	0.02587	0.18018
247	BB	1343	0.02634	0.20652
251	BB	1420	0.02785	0.23437
254	BB	1373	0.02693	0.26129
257	BB	1473	0.02889	0.29018
260	BB	1463	0.02869	0.31887
263	BB	1564	0.03067	0.34954
266	BB	1508	0.02957	0.37911
269	BB	1560	0.03059	0.40970
271	BB	1620	0.03177	0.44147
274	B	1693	0.03320	0.47467
277	B	1639	0.03214	0.50681
279	B	1719	0.03371	0.54053
282	B	1746	0.03424	0.57477
285	B	1741	0.03414	0.60891
287	B	1805	0.03540	0.64430
290	B	1706	0.03346	0.67776
293	B	1792	0.03514	0.71290
296	B	1721	0.03375	0.74665
299	B	1807	0.03544	0.78209
302	P	1643	0.03222	0.81431
305	P	1569	0.03077	0.84508
309	P	1466	0.02875	0.87383
312	P	1379	0.02704	0.90087
316	P	1260	0.02471	0.92558
320	P	1072	0.02102	0.94660
325	A	855	0.01677	0.96337
330	A	675	0.01324	0.97660
336	A	475	0.00932	0.98592
343	A	331	0.00649	0.99241
351	A	208	0.00408	0.99649
360	A	110	0.00216	0.99865
373	A	46	0.00090	0.99955
392	A	20	0.00039	0.99994
399	A	3	0.00006	1.00000

Table 2.3.6
Cumulative Scale Score Distribution
English Language Arts Grade 8

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
202	BB	4	0.00009	0.00009
203	BB	6	0.00013	0.00022
204	BB	34	0.00074	0.00095
205	BB	124	0.00268	0.00363
206	BB	301	0.00651	0.01014
207	BB	232	0.00502	0.01515
213	BB	285	0.00616	0.02132
218	BB	369	0.00798	0.02929
223	BB	415	0.00897	0.03826
227	BB	460	0.00994	0.04821
231	BB	501	0.01083	0.05904
235	BB	582	0.01258	0.07162
239	BB	665	0.01438	0.08600
242	BB	729	0.01576	0.10176
246	BB	789	0.01706	0.11881
249	BB	886	0.01915	0.13797
252	BB	970	0.02097	0.15894
255	BB	1128	0.02439	0.18332
259	BB	1185	0.02562	0.20894
262	BB	1255	0.02713	0.23607
265	BB	1452	0.03139	0.26746
268	BB	1613	0.03487	0.30233
271	B	1762	0.03809	0.34042
274	B	1781	0.03850	0.37893
277	B	1947	0.04209	0.42102
280	B	1955	0.04226	0.46328
283	B	2040	0.04410	0.50738
286	B	2056	0.04445	0.55183
289	B	2085	0.04507	0.59690
291	B	2060	0.04453	0.64144
294	B	1995	0.04313	0.68457
297	B	1884	0.04073	0.72530
300	P	1771	0.03829	0.76358
303	P	1709	0.03695	0.80053
306	P	1590	0.03437	0.83490
310	P	1481	0.03202	0.86692
313	P	1330	0.02875	0.89567
316	P	1150	0.02486	0.92053
320	P	985	0.02129	0.94183
324	A	834	0.01803	0.95985
328	A	594	0.01284	0.97270
332	A	469	0.01014	0.98284
337	A	320	0.00692	0.98975
342	A	219	0.00473	0.99449
349	A	137	0.00296	0.99745
356	A	63	0.00136	0.99881
365	A	34	0.00074	0.99955
379	A	16	0.00035	0.99989
399	A	5	0.00011	1.00000

Table 2.3.7
Cumulative Scale Score Distribution
Mathematics Grade 3

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	1	0.00002	0.00002
203	BB	2	0.00004	0.00006
204	BB	2	0.00004	0.00010
205	BB	14	0.00028	0.00038
206	BB	92	0.00186	0.00224
207	BB	111	0.00224	0.00448
208	BB	213	0.00430	0.00878
209	BB	329	0.00664	0.01542
220	BB	451	0.00911	0.02453
227	BB	613	0.01238	0.03691
233	BB	764	0.01542	0.05233
237	BB	814	0.01643	0.06877
241	BB	924	0.01866	0.08742
245	BB	954	0.01926	0.10668
248	BB	977	0.01973	0.12641
251	BB	997	0.02013	0.14654
254	BB	1009	0.02037	0.16691
257	BB	1025	0.02069	0.18760
259	BB	968	0.01954	0.20715
262	BB	948	0.01914	0.22629
264	BB	967	0.01952	0.24581
266	BB	1034	0.02088	0.26669
268	BB	1088	0.02197	0.28865
271	BB	1131	0.02283	0.31149
273	BB	1151	0.02324	0.33473
275	B	1152	0.02326	0.35799
277	B	1191	0.02405	0.38203
279	B	1307	0.02639	0.40842
281	B	1359	0.02744	0.43586
283	B	1343	0.02711	0.46297
285	B	1472	0.02972	0.49269
288	B	1546	0.03121	0.52390
290	B	1643	0.03317	0.55708
293	B	1758	0.03549	0.59257
295	B	1770	0.03574	0.62831
298	B	1806	0.03646	0.66477
301	P	1872	0.03780	0.70256
304	P	1890	0.03816	0.74072
307	P	1854	0.03743	0.77815
310	P	1880	0.03796	0.81611
314	P	1800	0.03634	0.85245
318	P	1690	0.03412	0.88657
323	A	1576	0.03182	0.91839
328	A	1428	0.02883	0.94722
335	A	1138	0.02298	0.97020
345	A	836	0.01688	0.98708
361	A	478	0.00965	0.99673
399	A	162	0.00327	1.00000

Table 2.3.8
Cumulative Scale Score Distribution
Mathematics Grade 4

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	26	0.00054	0.00054
202	BB	506	0.01048	0.01102
203	BB	952	0.01972	0.03074
218	BB	726	0.01504	0.04577
228	BB	864	0.01789	0.06367
235	BB	1012	0.02096	0.08463
241	BB	1144	0.02369	0.10832
246	BB	1145	0.02371	0.13204
250	BB	1205	0.02496	0.15699
254	BB	1278	0.02647	0.18346
257	BB	1280	0.02651	0.20997
261	BB	1349	0.02794	0.23791
264	BB	1357	0.02811	0.26602
267	BB	1345	0.02786	0.29388
270	BB	1329	0.02753	0.32140
272	BB	1355	0.02806	0.34947
275	B	1334	0.02763	0.37710
277	B	1363	0.02823	0.40533
280	B	1384	0.02866	0.43399
282	B	1322	0.02738	0.46137
285	B	1391	0.02881	0.49018
287	B	1390	0.02879	0.51897
289	B	1448	0.02999	0.54896
292	B	1430	0.02962	0.57858
294	B	1479	0.03063	0.60921
296	B	1410	0.02920	0.63842
299	B	1477	0.03059	0.66901
301	P	1398	0.02895	0.69796
304	P	1409	0.02918	0.72714
306	P	1435	0.02972	0.75687
309	P	1360	0.02817	0.78503
312	P	1377	0.02852	0.81355
315	P	1361	0.02819	0.84174
318	P	1278	0.02647	0.86821
322	A	1242	0.02572	0.89394
326	A	1119	0.02318	0.91711
330	A	1084	0.02245	0.93956
336	A	1002	0.02075	0.96032
343	A	801	0.01659	0.97691
353	A	575	0.01191	0.98882
371	A	384	0.00795	0.99677
399	A	156	0.00323	1.00000

Table 2.3.9
Cumulative Scale Score Distribution
Mathematics Grade 5

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
203	BB	8	0.00017	0.00017
204	BB	16	0.00033	0.00050
205	BB	29	0.00060	0.00110
206	BB	248	0.00513	0.00623
207	BB	305	0.00631	0.01254
208	BB	509	0.01053	0.02307
209	BB	700	0.01448	0.03755
219	BB	883	0.01827	0.05581
227	BB	1110	0.02296	0.07878
234	BB	1222	0.02528	0.10405
240	BB	1389	0.02873	0.13279
244	BB	1507	0.03118	0.16396
249	BB	1566	0.03240	0.19636
253	BB	1587	0.03283	0.22919
257	BB	1496	0.03095	0.26014
260	BB	1542	0.03190	0.29204
263	BB	1504	0.03111	0.32315
266	B	1543	0.03192	0.35507
269	B	1418	0.02933	0.38440
272	B	1484	0.03070	0.41510
275	B	1501	0.03105	0.44615
277	B	1471	0.03043	0.47658
280	B	1429	0.02956	0.50614
282	B	1497	0.03097	0.53711
285	B	1407	0.02911	0.56622
287	B	1450	0.03000	0.59621
289	B	1384	0.02863	0.62484
292	B	1338	0.02768	0.65252
294	B	1396	0.02888	0.68140
296	B	1366	0.02826	0.70966
298	B	1311	0.02712	0.73678
301	P	1223	0.02530	0.76208
303	P	1211	0.02505	0.78713
306	P	1213	0.02509	0.81223
308	P	1114	0.02305	0.83527
311	P	1073	0.02220	0.85747
314	P	1083	0.02240	0.87987
317	P	937	0.01938	0.89926
320	P	945	0.01955	0.91880
324	A	903	0.01868	0.93748
329	A	785	0.01624	0.95372
334	A	707	0.01463	0.96835
341	A	606	0.01254	0.98089
351	A	494	0.01022	0.99110
370	A	292	0.00604	0.99715
399	A	138	0.00285	1.00000

Table 2.3.10
Cumulative Scale Score Distribution
Mathematics Grade 6

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
202	BB	6	0.00012	0.00012
203	BB	10	0.00020	0.00032
204	BB	23	0.00047	0.00079
205	BB	65	0.00131	0.00210
206	BB	360	0.00728	0.00939
207	BB	398	0.00805	0.01744
208	BB	678	0.01372	0.03115
209	BB	857	0.01734	0.04849
221	BB	1194	0.02415	0.07265
230	BB	1351	0.02733	0.09998
237	BB	1529	0.03093	0.13091
242	BB	1670	0.03378	0.16469
247	BB	1689	0.03417	0.19886
251	BB	1723	0.03486	0.23372
255	BB	1754	0.03548	0.26920
259	BB	1768	0.03577	0.30497
262	BB	1757	0.03554	0.34052
266	BB	1821	0.03684	0.37735
269	B	1835	0.03712	0.41448
272	B	1767	0.03575	0.45022
274	B	1795	0.03631	0.48654
277	B	1744	0.03528	0.52182
280	B	1721	0.03482	0.55663
283	B	1682	0.03403	0.59066
286	B	1706	0.03451	0.62517
289	B	1564	0.03164	0.65681
291	B	1649	0.03336	0.69017
294	B	1441	0.02915	0.71933
297	B	1452	0.02937	0.74870
299	B	1415	0.02863	0.77733
303	P	1246	0.02521	0.80253
306	P	1257	0.02543	0.82796
309	P	1109	0.02244	0.85040
312	P	1036	0.02096	0.87136
314	P	934	0.01890	0.89025
317	P	920	0.01861	0.90886
321	P	787	0.01592	0.92478
324	P	699	0.01414	0.93892
327	P	709	0.01434	0.95327
331	A	571	0.01155	0.96482
335	A	505	0.01022	0.97504
339	A	417	0.00844	0.98347
344	A	295	0.00597	0.98944
351	A	252	0.00510	0.99454
361	A	168	0.00340	0.99794
379	A	72	0.00146	0.99939
399	A	30	0.00061	1.00000

Table 2.3.11
Cumulative Scale Score Distribution
Mathematics Grade 7

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	1	0.00002	0.00002
206	BB	5	0.00010	0.00012
210	BB	13	0.00026	0.00037
213	BB	28	0.00055	0.00092
216	BB	114	0.00224	0.00317
219	BB	246	0.00484	0.00801
222	BB	501	0.00985	0.01786
225	BB	887	0.01745	0.03531
229	BB	1430	0.02813	0.06343
232	BB	2012	0.03957	0.10301
235	BB	2455	0.04829	0.15129
250	BB	2883	0.05671	0.20800
259	BB	3034	0.05968	0.26767
265	BB	2985	0.05871	0.32638
269	BB	2761	0.05431	0.38069
274	BB	2589	0.05092	0.43161
277	BB	2353	0.04628	0.47789
280	B	2149	0.04227	0.52016
283	B	1999	0.03932	0.55948
286	B	1728	0.03399	0.59347
288	B	1700	0.03344	0.62690
291	B	1404	0.02761	0.65452
293	B	1402	0.02758	0.68209
295	B	1392	0.02738	0.70947
297	B	1250	0.02459	0.73406
299	B	1177	0.02315	0.75721
301	P	1066	0.02097	0.77818
303	P	976	0.01920	0.79737
305	P	940	0.01849	0.81586
307	P	908	0.01786	0.83372
309	P	837	0.01646	0.85018
311	P	740	0.01455	0.86474
313	P	718	0.01412	0.87886
315	P	674	0.01326	0.89212
316	P	694	0.01365	0.90577
318	P	589	0.01158	0.91735
320	P	533	0.01048	0.92784
322	P	541	0.01064	0.93848
325	P	479	0.00942	0.94790
327	P	453	0.00891	0.95681
329	A	423	0.00832	0.96513
332	A	368	0.00724	0.97237
334	A	310	0.00610	0.97846
337	A	302	0.00594	0.98440
341	A	234	0.00460	0.98901
345	A	203	0.00399	0.99300
350	A	149	0.00293	0.99593
358	A	122	0.00240	0.99833
371	A	61	0.00120	0.99953
399	A	24	0.00047	1.00000

Table 2.3.12
Cumulative Scale Score Distribution
Mathematics Grade 8

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	2	0.00004	0.00004
201	BB	2	0.00004	0.00008
202	BB	32	0.00063	0.00071
203	BB	239	0.00469	0.00540
204	BB	337	0.00662	0.01201
205	BB	1701	0.03339	0.04541
206	BB	3516	0.06902	0.11443
223	BB	2320	0.04554	0.15997
234	BB	2610	0.05124	0.21121
242	BB	2759	0.05416	0.26537
249	BB	2765	0.05428	0.31964
254	BB	2632	0.05167	0.37131
259	BB	2461	0.04831	0.41962
262	BB	2206	0.04330	0.46293
266	BB	2024	0.03973	0.50266
269	BB	1985	0.03897	0.54163
272	BB	1837	0.03606	0.57769
275	BB	1677	0.03292	0.61061
277	B	1555	0.03053	0.64113
280	B	1420	0.02788	0.66901
282	B	1311	0.02574	0.69474
285	B	1248	0.02450	0.71924
287	B	1190	0.02336	0.74260
289	B	1127	0.02212	0.76473
291	B	1053	0.02067	0.78540
294	B	993	0.01949	0.80489
296	B	960	0.01885	0.82374
298	B	924	0.01814	0.84188
300	P	828	0.01625	0.85813
302	P	743	0.01459	0.87272
305	P	729	0.01431	0.88703
307	P	731	0.01435	0.90138
309	P	648	0.01272	0.91410
312	P	627	0.01231	0.92641
315	P	602	0.01182	0.93822
317	A	526	0.01033	0.94855
320	A	472	0.00927	0.95781
323	A	400	0.00785	0.96567
327	A	381	0.00748	0.97315
331	A	328	0.00644	0.97958
335	A	304	0.00597	0.98555
341	A	235	0.00461	0.99017
348	A	195	0.00383	0.99399
359	A	148	0.00291	0.99690
381	A	108	0.00212	0.99902
399	A	50	0.00098	1.00000

Table 2.3.13
Cumulative Scale Score Distribution
Science Grade 5

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	1	0.00002	0.00002
207	BB	5	0.00010	0.00012
209	BB	13	0.00027	0.00039
211	BB	55	0.00114	0.00153
213	BB	101	0.00209	0.00363
215	BB	212	0.00439	0.00802
218	BB	316	0.00655	0.01457
220	BB	522	0.01082	0.02538
222	BB	753	0.01560	0.04099
235	BB	960	0.01989	0.06088
244	BB	1175	0.02435	0.08522
250	BB	1365	0.02828	0.11351
255	BB	1555	0.03222	0.14573
259	BB	1642	0.03402	0.17975
263	BB	1583	0.03280	0.21255
267	BB	1635	0.03388	0.24643
270	BB	1639	0.03396	0.28039
273	B	1834	0.03800	0.31839
276	B	1796	0.03721	0.35561
279	B	1785	0.03699	0.39259
282	B	1853	0.03840	0.43099
285	B	1872	0.03879	0.46978
288	B	1861	0.03856	0.50834
291	B	1776	0.03680	0.54514
294	B	1853	0.03840	0.58354
297	B	1847	0.03827	0.62181
300	P	1776	0.03680	0.65861
303	P	1856	0.03846	0.69706
306	P	1664	0.03448	0.73154
309	P	1677	0.03475	0.76629
312	P	1538	0.03187	0.79816
315	P	1469	0.03044	0.82860
318	P	1401	0.02903	0.85763
321	P	1327	0.02750	0.88512
324	P	1202	0.02491	0.91003
328	P	1040	0.02155	0.93158
332	A	916	0.01898	0.95056
336	A	749	0.01552	0.96608
341	A	591	0.01225	0.97833
347	A	445	0.00922	0.98755
355	A	313	0.00649	0.99403
366	A	186	0.00385	0.99789
387	A	83	0.00172	0.99961
399	A	19	0.00039	1.00000

Table 2.3.14
Cumulative Scale Score Distribution
Science Grade 8

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
200	BB	1	0.00002	0.00002
202	BB	2	0.00004	0.00006
203	BB	10	0.00020	0.00026
204	BB	24	0.00047	0.00073
205	BB	82	0.00162	0.00234
206	BB	152	0.00299	0.00534
207	BB	295	0.00581	0.01115
208	BB	521	0.01026	0.02141
209	BB	728	0.01434	0.03575
226	BB	1034	0.02037	0.05612
237	BB	1444	0.02844	0.08456
245	BB	1698	0.03345	0.11801
251	BB	1846	0.03636	0.15437
256	BB	2053	0.04044	0.19480
261	BB	2174	0.04282	0.23763
265	BB	2220	0.04373	0.28135
269	BB	2195	0.04324	0.32459
273	BB	2103	0.04142	0.36601
276	BB	2069	0.04075	0.40676
279	BB	2056	0.04050	0.44726
282	BB	1913	0.03768	0.48494
285	B	1968	0.03876	0.52371
288	B	1879	0.03701	0.56072
291	B	1875	0.03693	0.59765
294	B	1764	0.03475	0.63239
296	B	1749	0.03445	0.66684
299	B	1659	0.03268	0.69952
302	P	1569	0.03090	0.73043
304	P	1488	0.02931	0.75974
307	P	1416	0.02789	0.78763
309	P	1334	0.02628	0.81390
312	P	1267	0.02496	0.83886
315	P	1262	0.02486	0.86372
318	P	1116	0.02198	0.88570
321	P	948	0.01867	0.90437
324	P	884	0.01741	0.92178
327	P	815	0.01605	0.93784
330	A	701	0.01381	0.95164
334	A	641	0.01263	0.96427
338	A	525	0.01034	0.97461
342	A	413	0.00813	0.98275
348	A	339	0.00668	0.98942
354	A	240	0.00473	0.99415
362	A	166	0.00327	0.99742
374	A	77	0.00152	0.99894
397	A	43	0.00085	0.99978
399	A	11	0.00022	1.00000

Table 2.3.15
Cumulative Scale Score Distribution
Science Grade 11

Scale Score	Performance Level	N	Proportion	Cumulative Proportion
201	BB	7	0.00016	0.00016
202	BB	60	0.00136	0.00152
203	BB	420	0.00951	0.01103
204	BB	1126	0.02550	0.03653
205	BB	2174	0.04923	0.08576
217	BB	1506	0.03411	0.11987
227	BB	1803	0.04083	0.16070
235	BB	1797	0.04070	0.20140
242	BB	1782	0.04036	0.24175
248	BB	1927	0.04364	0.28539
253	BB	1855	0.04201	0.32740
258	BB	1735	0.03929	0.36669
262	BB	1732	0.03922	0.40592
266	BB	1598	0.03619	0.44210
270	BB	1515	0.03431	0.47641
273	BB	1470	0.03329	0.50970
276	BB	1367	0.03096	0.54066
280	B	1311	0.02969	0.57035
283	B	1249	0.02829	0.59864
285	B	1199	0.02715	0.62579
288	B	1156	0.02618	0.65197
291	B	1154	0.02613	0.67810
293	B	1015	0.02299	0.70109
296	B	1047	0.02371	0.72480
298	B	970	0.02197	0.74677
301	P	963	0.02181	0.76858
303	P	869	0.01968	0.78826
305	P	823	0.01864	0.80689
308	P	796	0.01803	0.82492
310	P	770	0.01744	0.84236
312	P	766	0.01735	0.85971
315	P	640	0.01449	0.87420
317	P	585	0.01325	0.88745
319	P	578	0.01309	0.90054
322	P	553	0.01252	0.91306
324	P	500	0.01132	0.92438
327	A	465	0.01053	0.93491
330	A	426	0.00965	0.94456
332	A	405	0.00917	0.95373
335	A	340	0.00770	0.96143
338	A	330	0.00747	0.96891
341	A	297	0.00673	0.97563
345	A	240	0.00544	0.98107
349	A	203	0.00460	0.98566
353	A	164	0.00371	0.98938
357	A	145	0.00328	0.99266
363	A	133	0.00301	0.99567
369	A	82	0.00186	0.99753
377	A	60	0.00136	0.99889
388	A	30	0.00068	0.99957
398	A	11	0.00025	0.99982
399	A	8	0.00018	1.00000

Section 2.4

Tabled Delta Analysis Results

Table 2.4.1 Delta Analysis—English Language Arts Grade 3

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
146971A	0.57000	0.57000	12.29450	12.29450	1	False	-0.93003
147007A	0.60000	0.61000	11.98661	11.88272	1	False	-0.29135
147008A	0.57000	0.57000	12.29450	12.29450	1	False	-0.93003
147012A	0.64000	0.65000	11.56616	11.45872	1	False	-0.02450
147348A	0.56000	0.57000	12.39612	12.29450	1	False	-0.54601
147433A	0.49000	0.51000	13.10028	12.89972	1	False	-0.53386
147436A	0.84000	0.73000	9.02217	10.54875	1	True	3.70900
147456A	0.44000	0.44000	13.60388	13.60388	1	False	-0.23400
155253A	0.58000	0.59000	12.19243	12.08982	1	False	-0.41996
155254A	0.52000	0.51000	12.79939	12.89972	1	False	-0.27565
155255A	0.45000	0.48000	13.50265	13.20061	1	False	-0.33020
155274A	0.71000	0.76000	10.78646	10.17479	1	False	2.64827
155277A	0.42000	0.49000	13.80757	13.10028	1	False	1.26125
155279A	0.61000	0.62000	11.88272	11.77808	1	False	-0.22594
155282A	0.57000	0.58000	12.29450	12.19243	1	False	-0.48328
155283A	0.67000	0.67000	11.24035	11.24035	1	False	-0.30002
156120A	0.67000	0.67000	11.24035	11.24035	1	False	-0.30002
156121A	0.61000	0.62000	11.88272	11.77808	1	False	-0.22594
156123A	0.47000	0.49000	13.30108	13.10028	1	False	-0.65276
156124A	0.74000	0.74000	10.42662	10.42662	1	False	0.18629
156126A	0.44000	0.46000	13.60388	13.40173	1	False	-0.82787
156355A	0.65000	0.64000	11.45872	11.56616	1	False	-0.90078
156356A	0.60000	0.61000	11.98661	11.88272	1	False	-0.29135
156362A	0.51000	0.51000	12.89972	12.89972	1	False	-0.65483
482318	0.59000	0.49000	12.08982	13.10028	1	True	3.28349
482320	0.83000	0.76000	9.18334	10.17479	1	False	1.46328
482971	0.77000	0.77000	10.04461	10.04461	1	False	0.41460
484569	0.59000	0.58000	12.08982	12.19243	1	False	-0.68980
484571	0.23000	0.29000	15.95539	15.21354	1	False	0.12884
484575	0.57000	0.59000	12.29450	12.08982	1	False	-0.03422
484577	0.45000	0.44000	13.50265	13.60388	1	False	0.14855
484579	0.48000	0.46000	13.20061	13.40173	1	False	0.40522
484581	0.37000	0.39000	14.32741	14.11728	1	False	-0.72127
627921	0.29000	0.34000	15.21354	14.64985	2	False	-0.20754
628643	0.39000	0.43000	14.11728	13.70550	1	False	-0.21720
628734	0.57000	0.59000	12.29450	12.08982	1	False	-0.03422
628835	0.30500	0.34000	15.04029	14.64985	2	False	-0.86222
628961	0.49000	0.49000	13.10028	13.10028	1	False	-0.53497
630590	0.43000	0.46000	13.70550	13.40173	1	False	-0.44386
701185	0.59000	0.59000	12.08982	12.08982	1	False	-0.80770

Table 2.4.1 (continued)

Delta Analysis

English Language Arts Grade 3

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
701219	0.25000	0.26000	15.69796	15.57338	1	False	0.47229
701289	0.41000	0.37000	13.91018	14.32741	1	False	1.77512
705924	0.72000	0.71000	10.66863	10.78646	1	False	-0.47403
715595	0.60000	0.61000	11.98661	11.88272	1	False	-0.29135
758779	0.65000	0.62000	11.45872	11.77808	1	False	-0.11833
759133	0.55000	0.54000	12.49735	12.59827	1	False	-0.45366
759149	0.54000	0.51000	12.59827	12.89972	1	False	0.48437
759159	0.59000	0.60000	12.08982	11.98661	1	False	-0.35600
759170	0.87000	0.83000	8.49444	9.18334	1	False	-0.27256
765883	0.57000	0.58000	12.29450	12.19243	1	False	-0.48328

Table 2.4.2 Delta Analysis—English Language Arts Grade 4

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
146887A	0.57000	0.58000	12.29450	12.19243	1	False	-0.52429
148938A	0.81000	0.81000	9.48841	9.48841	1	False	-0.69975
149114A	0.75000	0.76000	10.30204	10.17479	1	False	-0.44655
149115A	0.41000	0.44000	13.91018	13.60388	1	False	0.56863
149116A	0.71000	0.71000	10.78646	10.78646	1	False	-0.73350
149136A	0.44000	0.46000	13.60388	13.40173	1	False	0.02467
155490A	0.51000	0.51000	12.89972	12.89972	1	False	-0.78844
155569A	0.61000	0.61000	11.88272	11.88272	1	False	-0.76200
155571A	0.73000	0.73000	10.54875	10.54875	1	False	-0.72732
155572A	0.75000	0.74000	10.30204	10.42662	1	False	-0.07985
155580A	0.69000	0.68000	11.01660	11.12920	1	False	-0.16003
158587A	0.57000	0.57000	12.29450	12.29450	1	False	-0.77270
158589A	0.69000	0.69000	11.01660	11.01660	1	False	-0.73948
158602A	0.51000	0.51000	12.89972	12.89972	1	False	-0.78844
158604A	0.71000	0.73000	10.78646	10.54875	1	False	0.13446
158611A	0.66000	0.63000	11.35015	11.67259	1	False	0.91106
158691A	0.83000	0.84000	9.18334	9.02217	1	False	-0.30109
158692A	0.46000	0.48000	13.40173	13.20061	1	False	0.01416
184821A	0.53000	0.51000	12.69892	12.89972	1	False	0.25008
184822A	0.39000	0.31000	14.11728	14.98340	1	True	3.63684
184824A	0.82000	0.80000	9.33854	9.63352	1	False	0.82204
185806A	0.42000	0.42000	13.80757	13.80757	1	False	-0.81204
186065A	0.40000	0.41000	14.01339	13.91018	1	False	-0.47378
483086	0.56000	0.56000	12.39612	12.39612	1	False	-0.77535
483094	0.68000	0.63000	11.12920	11.67259	1	False	2.05374
483115	0.42000	0.46000	13.80757	13.40173	1	False	1.07816
484626	0.67000	0.68000	11.24035	11.12920	1	False	-0.50505
484628	0.73000	0.75000	10.54875	10.30204	1	False	0.17457
484632	0.61000	0.62000	11.88272	11.77808	1	False	-0.52177
484636	0.56000	0.58000	12.39612	12.19243	1	False	0.00127
484652	0.39000	0.40000	14.11728	14.01339	1	False	-0.46758
484654	0.48000	0.47000	13.20061	13.30108	1	False	-0.27929
484658	0.61000	0.62000	11.88272	11.77808	1	False	-0.52177
629160	0.37500	0.38500	14.27456	14.16950	2	False	-0.45747
629614	0.22000	0.19000	16.08877	16.51159	2	False	1.30437
632843	0.33000	0.33000	14.75965	14.75965	1	False	-0.83679
632853	0.71000	0.71000	10.78646	10.78646	1	False	-0.73350
632863	0.46000	0.47000	13.40173	13.30108	1	False	-0.50282
632877	0.62000	0.65000	11.77808	11.45872	1	False	0.58038
635527	0.65000	0.65000	11.45872	11.45872	1	False	-0.75097

Table 2.4.2 (continued)

Delta Analysis

English Language Arts Grade 4

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
635530	0.62000	0.65000	11.77808	11.45872	1	False	0.58038
759364	0.45000	0.45000	13.50265	13.50265	1	False	-0.80411
759367	0.73000	0.71000	10.54875	10.78646	1	False	0.49591
759400	0.52000	0.52000	12.79939	12.79939	1	False	-0.78583
759440	0.73000	0.73000	10.54875	10.54875	1	False	-0.72732
759873	0.68000	0.70000	11.12920	10.90240	1	False	0.08725
759877	0.52000	0.55000	12.79939	12.49735	1	False	0.51777
759944	0.58000	0.56000	12.19243	12.39612	1	False	0.27814
765830	0.40000	0.49000	14.01339	13.10028	1	True	3.69385
765847	0.57000	0.55000	12.29450	12.49735	1	False	0.27113

Table 2.4.3 Delta Analysis—English Language Arts Grade 5

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
147920A	0.80000	0.83000	9.63352	9.18334	1	False	-0.69958
147921A	0.63000	0.66000	11.67259	11.35015	1	False	-0.81594
147923A	0.62000	0.67000	11.77808	11.24035	1	False	-0.15747
147924A	0.65000	0.70000	11.45872	10.90240	1	False	-0.18799
147926A	0.54000	0.57000	12.59827	12.29450	1	False	-0.62437
147969A	0.77000	0.80000	10.04461	9.63352	1	False	-0.69452
148003A	0.56000	0.60000	12.39612	11.98661	1	False	-0.36849
148007A	0.60000	0.65000	11.98661	11.45872	1	False	-0.13079
148008A	0.46000	0.45000	13.40173	13.50265	1	False	-0.08839
148961A	0.65000	0.71000	11.45872	10.78646	1	False	0.15149
148963A	0.75000	0.80000	10.30204	9.63352	1	False	-0.16715
148967A	0.72000	0.79000	10.66863	9.77432	1	False	0.59154
148971A	0.74000	0.64000	10.42662	11.56616	1	True	3.74442
149152A	0.83000	0.86000	9.18334	8.67872	1	False	-0.73923
149158A	0.49000	0.54000	13.10028	12.59827	1	False	0.08970
149196A	0.65000	0.72000	11.45872	10.66863	1	False	0.49651
149318A	0.63000	0.64000	11.67259	11.56616	1	False	-0.23548
149321A	0.64000	0.67000	11.56616	11.24035	1	False	-0.83436
149330A	0.85000	0.78000	8.85427	9.91123	1	True	3.92090
149334A	0.54000	0.56000	12.59827	12.39612	1	False	-0.76203
149338A	0.59000	0.64000	12.08982	11.56616	1	False	-0.11574
158749A	0.51000	0.55000	12.89972	12.49735	1	False	-0.25542
159592A	0.62000	0.66000	11.77808	11.35015	1	False	-0.47898
159600A	0.83000	0.87000	9.18334	8.49444	1	False	-0.40510
160718A	0.80000	0.84000	9.63352	9.02217	1	False	-0.51244
186107A	0.73000	0.77000	10.54875	10.04461	1	False	-0.58289
186115A	0.42000	0.44000	13.80757	13.60388	1	False	-0.59565
186121A	0.61000	0.60000	11.88272	11.98661	1	False	0.32444
186469A	0.38000	0.37000	14.22192	14.32741	1	False	-0.29319
186471A	0.83000	0.88000	9.18334	8.30005	1	False	0.16408
186476A	0.54000	0.57000	12.59827	12.29450	1	False	-0.62437
186505A	0.40000	0.38000	14.01339	14.22192	1	False	0.06403
186777A	0.78000	0.84000	9.91123	9.02217	1	False	0.37463
483126	0.68000	0.73000	11.12920	10.54875	1	False	-0.20498
483138	0.66000	0.64000	11.35015	11.56616	1	False	0.79446
483140	0.88000	0.89000	8.30005	8.09389	1	False	0.36968
483162	0.90000	0.95000	7.87379	6.42059	1	False	1.48453
483172	0.71000	0.75000	10.78646	10.30204	1	False	-0.57738
483179	0.78000	0.72000	9.91123	10.66863	1	False	2.76256
630737	0.67000	0.71000	11.24035	10.78646	1	False	-0.54603

Table 2.4.3 (continued)

Delta Analysis

English Language Arts Grade 5

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
631575	0.50000	0.51000	13.00000	12.89972	1	False	-0.57063
631601	0.58000	0.60000	12.19243	11.98661	1	False	-0.66482
631654	0.57000	0.60000	12.29450	11.98661	1	False	-0.69309
631918	0.48000	0.51000	13.20061	12.89972	1	False	-0.47253
631922	0.78000	0.81000	9.91123	9.48841	1	False	-0.69334
631955	0.77000	0.83000	10.04461	9.18334	1	False	0.32876
631981	0.52000	0.57000	12.79939	12.29450	1	False	0.01806
632263	0.84000	0.86000	9.02217	8.67872	1	False	-0.22442
632269	0.47000	0.50000	13.30108	13.00000	1	False	-0.44524
632323	0.52000	0.57000	12.79939	12.29450	1	False	0.01806
761899	0.40000	0.43000	14.01339	13.70550	5	False	-0.23580

Table 2.4.4 Delta Analysis—English Language Arts Grade 6

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
147283A	0.71000	0.71000	10.78646	10.78646	1	False	-0.15890
147289A	0.67000	0.66000	11.24035	11.35015	1	False	-0.86378
147290A	0.68000	0.67000	11.12920	11.24035	1	False	-0.85397
149570A	0.61000	0.59000	11.88272	12.08982	1	False	-0.47175
149571A	0.62000	0.59000	11.77808	12.08982	1	False	0.11519
149737A	0.61000	0.60000	11.88272	11.98661	1	False	-0.93115
158702A	0.49000	0.48000	13.10028	13.20061	1	False	-0.89507
158705A	0.83000	0.82000	9.18334	9.33854	1	False	-0.80068
158723A	0.81000	0.80000	9.48841	9.63352	1	False	-0.79062
158739A	0.77000	0.75000	10.04461	10.30204	1	False	-0.47183
158740A	0.64000	0.63000	11.56616	11.67259	1	False	-0.89576
158747A	0.69000	0.69000	11.01660	11.01660	1	False	-0.19525
158756A	0.37000	0.36000	14.32741	14.43384	1	False	-0.66616
158774A	0.70000	0.64000	10.90240	11.56616	1	False	2.00689
158777A	0.75000	0.69000	10.30204	11.01660	1	False	2.20495
158786A	0.75000	0.75000	10.30204	10.30204	1	False	-0.08239
158886A	0.83000	0.84000	9.18334	9.02217	1	False	1.02373
158897A	0.63000	0.63000	11.67259	11.67259	1	False	-0.29887
158935A	0.60000	0.59000	11.98661	12.08982	1	False	-0.94364
158943A	0.41000	0.40000	13.91018	14.01339	1	False	-0.75060
158947A	0.60000	0.60000	11.98661	11.98661	1	False	-0.34847
159451A	0.75000	0.74000	10.30204	10.42662	1	False	-0.80079
159453A	0.69000	0.69000	11.01660	11.01660	1	False	-0.19525
159454A	0.39000	0.36000	14.11728	14.43384	1	False	0.51244
159457A	0.75000	0.75000	10.30204	10.30204	1	False	-0.08239
159458A	0.66000	0.64000	11.35015	11.56616	1	False	-0.50442
485443	0.40000	0.37000	14.01339	14.32741	1	False	0.48142
485688	0.73000	0.73000	10.54875	10.54875	1	False	-0.12136
485702	0.78000	0.76000	9.91123	10.17479	1	False	-0.45752
486350	0.50000	0.49000	13.00000	13.10028	1	False	-0.91127
486369	0.65000	0.64000	11.45872	11.56616	1	False	-0.88470
486371	0.65000	0.64000	11.45872	11.56616	1	False	-0.88470
486376	0.68000	0.66000	11.12920	11.35015	1	False	-0.51092
629854	0.27000	0.30000	15.45125	15.09760	1	False	1.14367
629856	0.62000	0.59000	11.77808	12.08982	1	False	0.11519
629867	0.74000	0.75000	10.42662	10.30204	1	False	0.61633
629869	0.53000	0.54000	12.69892	12.59827	1	False	0.11947
629871	0.43000	0.44000	13.70550	13.60388	1	False	-0.03396
629885	0.53000	0.53000	12.69892	12.69892	1	False	-0.46098
629889	0.32000	0.33000	14.87080	14.75965	1	False	-0.16311

Table 2.4.4 (continued)

Delta Analysis

English Language Arts Grade 6

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
629891	0.48000	0.45000	13.20061	13.50265	1	False	0.28388
629895	0.61000	0.62000	11.88272	11.77808	1	False	0.27141
629898	0.34000	0.35000	14.64985	14.54128	1	False	-0.14304
630290	0.23500	0.29500	15.88992	15.15534	2	True	3.27105
630430	0.17500	0.16000	16.73836	16.97783	2	False	0.48192
708956	0.63000	0.61000	11.67259	11.88272	1	False	-0.48740
709888	0.64000	0.65000	11.56616	11.45872	1	False	0.33755
709904	0.69000	0.68000	11.01660	11.12920	1	False	-0.84462
709910	0.59000	0.51000	12.08982	12.89972	1	True	3.03717
710081	0.58000	0.52000	12.19243	12.79939	1	False	1.88306

Table 2.4.5
Delta Analysis
English Language Arts Grade 7

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
148104A	0.63000	0.58000	11.67259	12.19243	1	False	0.64930
148117A	0.55000	0.52000	12.49735	12.79939	1	False	-0.06163
148759A	0.57000	0.56000	12.29450	12.39612	1	False	-0.66150
148760A	0.64000	0.62000	11.56616	11.77808	1	False	-0.28397
148762A	0.72000	0.70000	10.66863	10.90240	1	False	-0.16666
148785A	0.34000	0.32000	14.64985	14.87080	1	False	-0.43046
148823A	0.65000	0.70000	11.45872	10.90240	1	False	0.64278
148850A	0.74000	0.74000	10.42662	10.42662	1	False	-0.86606
148859A	0.82000	0.83000	9.33854	9.18334	1	False	-0.70042
148861A	0.53000	0.45000	12.69892	13.50265	1	False	1.45732
148866A	0.74000	0.66000	10.42662	11.35015	1	False	1.95101
154639A	0.40000	0.42000	14.01339	13.80757	1	False	-0.28219
158719A	0.47000	0.47000	13.30108	13.30108	1	False	-0.95020
158724A	0.60000	0.57000	11.98661	12.29450	1	False	-0.01493
158765A	0.60000	0.61000	11.98661	11.88272	1	False	-0.70749
158766A	0.64000	0.64000	11.56616	11.56616	1	False	-0.93037
158769A	0.57000	0.56000	12.29450	12.39612	1	False	-0.66150
159120A	0.65000	0.65000	11.45872	11.45872	1	False	-0.92431
159133A	0.47000	0.47000	13.30108	13.30108	1	False	-0.95020
159393A	0.40000	0.31000	14.01339	14.98340	1	False	1.89037
159394A	0.56000	0.50000	12.39612	13.00000	1	False	0.86481
159646A	0.50000	0.50000	13.00000	13.00000	1	False	-0.96719
160457A	0.48000	0.47000	13.20061	13.30108	1	False	-0.71616
160508A	0.58000	0.58000	12.19243	12.19243	1	False	-0.96572
160511A	0.58000	0.52000	12.19243	12.79939	1	False	0.88571
160937A	0.72000	0.71000	10.66863	10.78646	1	False	-0.52030
160940A	0.81000	0.80000	9.48841	9.63352	1	False	-0.37050
182584A	0.47000	0.44000	13.30108	13.60388	1	False	-0.10465
182596A	0.70000	0.67000	10.90240	11.24035	1	False	0.13795
182597A	0.62000	0.63000	11.77808	11.67259	1	False	-0.71437
485453	0.53000	0.50000	12.69892	13.00000	1	False	-0.07591
486286	0.31000	0.30000	14.98340	15.09760	1	False	-0.77488
486294	0.35000	0.34000	14.54128	14.64985	1	False	-0.76711
486317	0.52000	0.49000	12.79939	13.10028	1	False	-0.08216

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
486333	0.64000	0.66000	11.56616	11.35015	1	False	-0.38919
630545	0.26500	0.28000	15.51202	15.33137	2	False	-0.27435
630649	0.34500	0.36500	14.59542	14.38050	2	False	-0.22158
633929	0.23000	0.25000	15.95539	15.69796	1	False	-0.01515
634354	0.43000	0.45000	13.70550	13.50265	1	False	-0.30861
634364	0.52000	0.53000	12.79939	12.69892	1	False	-0.67206
634366	0.53000	0.52000	12.69892	12.79939	1	False	-0.68785
634374	0.42000	0.41000	13.80757	13.91018	1	False	-0.74389
634379	0.55000	0.55000	12.49735	12.49735	1	False	-0.98293
634389	0.56000	0.58000	12.39612	12.19243	1	False	-0.37993
711110	0.52000	0.61000	12.79939	11.88272	1	False	1.81761
711120	0.65000	0.71000	11.45872	10.78646	1	False	0.99643
711137	0.45000	0.59000	13.50265	12.08982	1	True	3.37076
711145	0.62000	0.70000	11.77808	10.90240	1	False	1.63495
711168	0.54000	0.63000	12.59827	11.67259	1	False	1.83376
711173	0.47000	0.54000	13.30108	12.59827	1	False	1.19362

Table 2.4.6
Delta Analysis
English Language Arts Grade 8

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
148177A	0.70000	0.75000	10.90240	10.30204	1	False	-0.02030
148187A	0.72000	0.76000	10.66863	10.17479	1	False	-0.33962
148189A	0.52000	0.54000	12.79939	12.59827	1	False	-0.58167
148191A	0.60000	0.65000	11.98661	11.45872	1	False	0.04738
149619A	0.52000	0.53000	12.79939	12.69892	1	False	-0.83281
149653A	0.66000	0.58000	11.35015	12.19243	1	False	1.48924
149654A	0.41000	0.37000	13.91018	14.32741	1	False	-0.15797
149721A	0.86000	0.85000	8.67872	8.85427	1	False	0.43792
149731A	0.38000	0.28000	14.22192	15.33137	1	False	1.49769
149744A	0.65000	0.50000	11.45872	13.00000	1	True	3.20842
160467A	0.70000	0.70000	10.90240	10.90240	1	False	-0.50968
160472A	0.70000	0.72000	10.90240	10.66863	1	False	-0.93497
160477A	0.31000	0.34000	14.98340	14.64985	1	False	0.24927
160742A	0.68000	0.68000	11.12920	11.12920	1	False	-0.56166
160745A	0.79000	0.80000	9.77432	9.63352	1	False	-0.60246
160747A	0.67000	0.66000	11.24035	11.35015	1	False	-0.31317
160784A	0.91000	0.92000	7.63698	7.37971	1	False	-0.40322
160785A	0.86000	0.87000	8.67872	8.49444	1	False	-0.45988
160787A	0.67000	0.58000	11.24035	12.19243	1	False	1.78836
160788A	0.56000	0.65000	12.39612	11.45872	1	False	1.16299
160789A	0.42000	0.43000	13.80757	13.70550	1	False	-0.59774
160790A	0.73000	0.66000	10.54875	11.35015	1	False	1.57091
160946A	0.55000	0.47000	12.49735	13.30108	1	False	1.13013
160947A	0.71000	0.74000	10.78646	10.42662	1	False	-0.64696
160956A	0.57000	0.58000	12.29450	12.19243	1	False	-0.94450
160989A	0.51000	0.50000	12.89972	13.00000	1	False	-0.71723
160992A	0.68000	0.73000	11.12920	10.54875	1	False	-0.01797
485471	0.59000	0.59000	12.08982	12.08982	1	False	-0.78181
485506	0.23000	0.21000	15.95539	16.22568	1	False	-0.99330
486744	0.52000	0.55000	12.79939	12.49735	1	False	-0.32989
486757	0.38000	0.40000	14.22192	14.01339	1	False	-0.23716
486763	0.81000	0.82000	9.48841	9.33854	1	False	-0.55958
487006	0.79000	0.81000	9.77432	9.48841	1	False	-0.96449
626597	0.55000	0.55000	12.49735	12.49735	1	False	-0.87521

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
626602	0.53000	0.54000	12.69892	12.59827	1	False	-0.85536
626606	0.35000	0.35000	14.54128	14.54128	1	False	-0.68428
626623	0.60000	0.57000	11.98661	12.29450	1	False	0.01005
626626	0.41000	0.42000	13.91018	13.80757	1	False	-0.57290
626777	0.41000	0.42000	13.91018	13.80757	1	False	-0.57290
626785	0.71000	0.74000	10.78646	10.42662	1	False	-0.64696
626800	0.41000	0.40000	13.91018	14.01339	1	False	-0.94148
626814	0.47000	0.45000	13.30108	13.50265	1	False	-0.55648
627061	0.80000	0.81000	9.63352	9.48841	1	False	-0.58092
760819	0.46000	0.50000	13.40173	13.00000	1	False	0.05692
760826	0.40000	0.44000	14.01339	13.60388	1	False	0.21650
760830	0.25000	0.29000	15.69796	15.21354	1	False	0.78946
760834	0.54000	0.53000	12.59827	12.69892	1	False	-0.64719
760837	0.81000	0.91000	9.48841	7.63698	1	False	2.77717
760844	0.52000	0.64000	12.79939	11.56616	1	False	1.99348
760851	0.83000	0.89000	9.18334	8.09389	1	False	0.80606
761992	0.52143	0.57286	12.78504	12.26539	7	False	0.20980

Table 2.4.7
Delta Analysis
Mathematics Grade 3

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
146917A	0.76000	0.77000	10.17479	10.04461	1	False	-0.67208
146955A	0.65000	0.68000	11.45872	11.12920	1	False	0.07048
147044A	0.63000	0.64000	11.67259	11.56616	1	False	-0.71364
147064A	0.88000	0.90000	8.30005	7.87379	1	False	0.32336
147330A	0.78000	0.80000	9.91123	9.63352	1	False	-0.15700
147503A	0.63000	0.68000	11.67259	11.12920	1	False	0.83410
147542A	0.69000	0.71000	11.01660	10.78646	1	False	-0.29408
147712A	0.74000	0.75000	10.42662	10.30204	1	False	-0.68475
147718A	0.67000	0.69000	11.24035	11.01660	1	False	-0.31035
147966A	0.41000	0.41000	13.91018	13.91018	1	False	-0.80526
151560A	0.71000	0.73000	10.78646	10.54875	1	False	-0.27379
152325A	0.66000	0.67000	11.35015	11.24035	1	False	-0.71084
152546A	0.73000	0.76000	10.54875	10.17479	1	False	0.20204
152598A	0.41000	0.42000	13.91018	13.80757	1	False	-0.66354
152739A	0.76000	0.77000	10.17479	10.04461	1	False	-0.67208
152842A	0.28000	0.28000	15.33137	15.33137	1	False	-0.84567
152864A	0.54000	0.56000	12.59827	12.39612	1	False	-0.34828
153168A	0.62000	0.65000	11.77808	11.45872	1	False	0.04359
154329A	0.79000	0.80000	9.77432	9.63352	1	False	-0.64584
154533A	0.58000	0.59000	12.19243	12.08982	1	False	-0.71238
154758A	0.58000	0.63000	12.19243	11.67259	1	False	0.76549
154760A	0.58000	0.59000	12.19243	12.08982	1	False	-0.71238
155260A	0.77000	0.77000	10.04461	10.04461	1	False	-0.69537
155455A	0.32000	0.33000	14.87080	14.75965	1	False	-0.60599
155501A	0.36000	0.39000	14.43384	14.11728	1	False	0.10918
155525A	0.81000	0.70000	9.48841	10.90240	1	True	4.32886
155594A	0.56000	0.60000	12.39612	11.98661	1	False	0.38049
155999A	0.53000	0.51000	12.69892	12.89972	1	False	-0.05957
184065A	0.79000	0.71000	9.77432	10.78646	1	False	2.89740
479107	0.79000	0.81000	9.77432	9.48841	1	False	-0.13188
479111	0.64000	0.66000	11.56616	11.35015	1	False	-0.32847
479113	0.84000	0.85000	9.02217	8.85427	1	False	-0.57122
479117	0.62000	0.62000	11.77808	11.77808	1	False	-0.74465
479125	0.93000	0.94000	7.09684	6.78091	1	False	-0.10164

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
479138	0.44000	0.47000	13.60388	13.30108	1	False	0.03684
479140	0.58000	0.59000	12.19243	12.08982	1	False	-0.71238
488998	0.46000	0.48000	13.40173	13.20061	1	False	-0.32905
636391	0.74000	0.74000	10.42662	10.42662	1	False	-0.70623
636402	0.61000	0.65000	11.88272	11.45872	1	False	0.41724
636410	0.82000	0.83000	9.33854	9.18334	1	False	-0.60722
636412	0.45000	0.48000	13.50265	13.20061	1	False	0.03125
636429	0.68000	0.69000	11.12920	11.01660	1	False	-0.70718
636437	0.62000	0.53000	11.77808	12.69892	1	False	2.51703
636439	0.67000	0.63000	11.24035	11.67259	1	False	0.80166
636443	0.52000	0.49000	12.79939	13.10028	1	False	0.29208
674356	0.75000	0.71000	10.30204	10.78646	1	False	1.01316
674370	0.38000	0.33000	14.22192	14.75965	1	False	1.09054
674378	0.49000	0.48000	13.10028	13.20061	1	False	-0.42683
733123	0.67000	0.68000	11.24035	11.12920	1	False	-0.70921
733127	0.85000	0.83000	8.85427	9.18334	1	False	0.50407

Table 2.4.8
Delta Analysis
Mathematics Grade 4

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
147319A	0.79000	0.80000	9.77432	9.63352	1	False	-0.45792
147525A	0.64000	0.65000	11.56616	11.45872	1	False	-0.89936
148069A	0.76000	0.78000	10.17479	9.91123	1	False	0.08957
148301A	0.36000	0.38000	14.43384	14.22192	1	False	-0.82261
148654A	0.33000	0.36000	14.75965	14.43384	1	False	-0.30757
148675A	0.33000	0.36000	14.75965	14.43384	1	False	-0.30757
149723A	0.47000	0.46000	13.30108	13.40173	1	False	-0.16936
150227A	0.42000	0.43000	13.80757	13.70550	1	False	-1.09734
150722A	0.36000	0.39000	14.43384	14.11728	1	False	-0.30334
151506A	0.44000	0.48000	13.60388	13.20061	1	False	0.25470
151519A	0.82000	0.81000	9.33854	9.48841	1	False	-0.53535
151549A	0.68000	0.70000	11.12920	10.90240	1	False	-0.23979
151556A	0.63000	0.65000	11.67259	11.45872	1	False	-0.38768
151997A	0.47000	0.50000	13.30108	13.00000	1	False	-0.20571
152343A	0.41000	0.47000	13.91018	13.30108	1	False	1.22892
152353A	0.62000	0.64000	11.77808	11.56616	1	False	-0.41363
152355A	0.77000	0.79000	10.04461	9.77432	1	False	0.14304
152518A	0.71000	0.73000	10.78646	10.54875	1	False	-0.13289
152776A	0.67000	0.67000	11.24035	11.24035	1	False	-0.98617
152789A	0.39000	0.41000	14.11728	13.91018	1	False	-0.79776
152874A	0.33000	0.36000	14.75965	14.43384	1	False	-0.30757
152988A	0.59000	0.64000	12.08982	11.56616	1	False	1.08527
153171A	0.50000	0.53000	13.00000	12.69892	1	False	-0.15934
153185A	0.46000	0.47000	13.40173	13.30108	1	False	-1.15278
153189A	0.46000	0.47000	13.40173	13.30108	1	False	-1.15278
153206A	0.61000	0.63000	11.88272	11.67259	1	False	-0.43855
153325A	0.39000	0.41000	14.11728	13.91018	1	False	-0.79776
153346A	0.90000	0.89000	7.87379	8.09389	1	False	-0.41248
154024A	0.48000	0.51000	13.20061	12.89972	1	False	-0.19118
155167A	0.89000	0.88000	8.09389	8.30005	1	False	-0.44770
155192A	0.51000	0.43000	12.89972	13.70550	1	True	3.26770
155220A	0.69000	0.72000	11.01660	10.66863	1	False	0.37874
156019A	0.51000	0.55000	12.89972	12.49735	1	False	0.35871
184241A	0.68000	0.69000	11.12920	11.01660	1	False	-0.80647

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
479500	0.83000	0.82000	9.18334	9.33854	1	False	-0.53282
479507	0.78000	0.79000	9.91123	9.77432	1	False	-0.49830
479930	0.74000	0.68000	10.42662	11.12920	1	False	2.37483
636619	0.71000	0.72000	10.78646	10.66863	1	False	-0.72778
636627	0.34000	0.29000	14.64985	15.21354	1	False	2.33596
636641	0.52000	0.51000	12.79939	12.89972	1	False	-0.24819
636649	0.76000	0.77000	10.17479	10.04461	1	False	-0.57230
636657	0.49000	0.45000	13.10028	13.50265	1	False	1.29686
636659	0.39000	0.41000	14.11728	13.91018	1	False	-0.79776
636666	0.67000	0.69000	11.24035	11.01660	1	False	-0.27208
636668	0.59000	0.61000	12.08982	11.88272	1	False	-0.48553
733078	0.62000	0.58000	11.77808	12.19243	1	False	1.15268
733086	0.78000	0.79000	9.91123	9.77432	1	False	-0.49830
733092	0.84000	0.80000	9.02217	9.63352	1	False	1.70580
733100	0.59000	0.56000	12.08982	12.39612	1	False	0.66456
733102	0.53000	0.47000	12.69892	13.30108	1	False	2.22642

Table 2.4.9
Delta Analysis
Mathematics Grade 5

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
146915A	0.64000	0.65000	11.56616	11.45872	1	False	-0.71579
146959A	0.42000	0.55000	13.80757	12.49735	1	False	2.30423
147747A	0.71000	0.59000	10.78646	12.08982	1	False	2.69432
147990A	0.39000	0.40000	14.11728	14.01339	1	False	-0.78967
148011A	0.62000	0.63000	11.77808	11.67259	1	False	-0.73575
148659A	0.52000	0.54000	12.79939	12.59827	1	False	-0.55449
149230A	0.51000	0.51000	12.89972	12.89972	1	False	-0.60030
149246A	0.56000	0.59000	12.39612	12.08982	1	False	-0.24855
149261A	0.36000	0.39000	14.43384	14.11728	1	False	-0.36373
149289A	0.46000	0.45000	13.40173	13.50265	1	False	-0.29875
149640A	0.30000	0.30000	15.09760	15.09760	1	False	-0.44686
150267A	0.46000	0.46000	13.40173	13.40173	1	False	-0.56525
150631A	0.63000	0.63000	11.67259	11.67259	1	False	-0.68597
150689A	0.50000	0.53000	13.00000	12.69892	1	False	-0.30451
150703A	0.25000	0.26000	15.69796	15.57338	1	False	-0.73395
150711A	0.41000	0.47000	13.91018	13.30108	1	False	0.44543
152807A	0.40000	0.43000	14.01339	13.70550	1	False	-0.35726
152946A	0.62000	0.65000	11.77808	11.45872	1	False	-0.17093
153107A	0.55000	0.55000	12.49735	12.49735	1	False	-0.62839
153162A	0.84000	0.85000	9.02217	8.85427	1	False	-0.37852
153165A	0.46000	0.51000	13.40173	12.89972	1	False	0.19810
153950A	0.87000	0.74000	8.49444	10.42662	1	True	4.19502
153972A	0.60000	0.64000	11.98661	11.56616	1	False	0.08149
155145A	0.63000	0.65000	11.67259	11.45872	1	False	-0.44216
155234A	0.17000	0.18000	16.81666	16.66146	1	False	-0.73673
155426A	0.83000	0.84000	9.18334	9.02217	1	False	-0.40755
155434A	0.48000	0.51000	13.20061	12.89972	1	False	-0.31901
155474A	0.61000	0.61000	11.88272	11.88272	1	False	-0.67130
155479A	0.29000	0.31000	15.21354	14.98340	1	False	-0.64640
155489A	0.42000	0.46000	13.80757	13.40173	1	False	-0.08422
155523A	0.79000	0.78000	9.77432	9.91123	1	False	-0.45691
161469A	0.66000	0.64000	11.35015	11.56616	1	False	-0.13798
184261A	0.56000	0.54000	12.39612	12.59827	1	False	-0.10160
187144A	0.47000	0.47000	13.30108	13.30108	1	False	-0.57228

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
187147A	0.55000	0.56000	12.49735	12.39612	1	False	-0.79721
484706	0.59000	0.62000	12.08982	11.77808	1	False	-0.21280
489954	0.85000	0.85000	8.85427	8.85427	1	False	-0.81023
636681	0.29000	0.33000	15.21354	14.75965	1	False	-0.05548
636693	0.83000	0.84000	9.18334	9.02217	1	False	-0.40755
636705	0.87000	0.88000	8.49444	8.30005	1	False	-0.27175
636726	0.49000	0.51000	13.10028	12.89972	1	False	-0.57700
636730	0.32000	0.27000	14.87080	15.45125	1	False	1.07028
636735	0.72000	0.71000	10.66863	10.78646	1	False	-0.44488
636740	0.49000	0.45000	13.10028	13.50265	1	False	0.47635
636748	0.52000	0.47000	12.79939	13.30108	1	False	0.71766
674572	0.64000	0.75000	11.56616	10.30204	1	False	2.33898
674574	0.73000	0.78000	10.54875	9.91123	1	False	0.75516
674588	0.24000	0.20000	15.82521	16.36648	1	False	1.03343
733184	0.78000	0.75000	9.91123	10.30204	1	False	0.22320
733196	0.46000	0.51000	13.40173	12.89972	1	False	0.19810

Table 2.4.10
Delta Analysis
Mathematics Grade 6

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
147578A	0.31000	0.33000	14.98340	14.75965	1	False	-0.66273
148231A	0.67000	0.68000	11.24035	11.12920	1	False	0.09364
148926A	0.73000	0.73000	10.54875	10.54875	1	False	-0.03898
149231A	0.55000	0.55000	12.49735	12.49735	1	False	-0.60949
149234A	0.69000	0.70000	11.01660	10.90240	1	False	0.16837
149245A	0.54000	0.42000	12.59827	13.80757	1	False	2.03074
150604A	0.51000	0.52000	12.89972	12.79939	1	False	-0.42477
150723A	0.68000	0.72000	11.12920	10.66863	1	False	1.17974
150972A	0.35000	0.39000	14.54128	14.11728	1	False	0.07051
150989A	0.67000	0.55000	11.24035	12.49735	1	False	1.77699
151145A	0.61000	0.60000	11.88272	11.98661	1	False	-0.74277
151316A	0.66000	0.68000	11.35015	11.12920	1	False	0.39255
151782A	0.23000	0.22000	15.95539	16.08877	1	False	-0.23040
151835A	0.33000	0.33000	14.75965	14.75965	1	False	-0.98265
152379A	0.49000	0.44000	13.10028	13.60388	1	False	0.04993
152754A	0.33000	0.33000	14.75965	14.75965	1	False	-0.98265
152840A	0.79000	0.66000	9.77432	11.35015	1	False	2.30906
153512A	0.53000	0.55000	12.69892	12.49735	1	False	-0.06076
153601A	0.65000	0.66000	11.45872	11.35015	1	False	0.02195
153952A	0.74000	0.75000	10.42662	10.30204	1	False	0.37239
154011A	0.71000	0.64000	10.78646	11.56616	1	False	0.20498
155174A	0.68000	0.61000	11.12920	11.88272	1	False	0.22638
155184A	0.57000	0.60000	12.29450	11.98661	1	False	0.37822
155298A	0.59000	0.61000	12.08982	11.88272	1	False	0.13424
155300A	0.93000	0.86000	7.09684	8.67872	1	False	1.54341
181455A	0.43000	0.44000	13.70550	13.60388	1	False	-0.65681
479039	0.43000	0.45000	13.70550	13.50265	1	False	-0.35159
479041	0.73000	0.73000	10.54875	10.54875	1	False	-0.03898
479043	0.28000	0.29000	15.33137	15.21354	1	False	-1.08397
479047	0.39000	0.37000	14.11728	14.32741	1	False	-0.53714
479049	0.34000	0.33000	14.64985	14.75965	1	False	-0.68374
479057	0.69000	0.72000	11.01660	10.66863	1	False	0.87319
479067	0.37000	0.38000	14.32741	14.22192	1	False	-0.82723
479069	0.78000	0.78000	9.91123	9.91123	1	False	0.14767

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
479073	0.85000	0.68000	8.85427	11.12920	1	True	4.14757
479077	0.35000	0.36000	14.54128	14.43384	1	False	-0.88395
479083	0.59000	0.53000	12.08982	12.69892	1	False	0.07218
479087	0.43000	0.44000	13.70550	13.60388	1	False	-0.65681
479095	0.14000	0.16000	17.32128	16.97783	1	False	-0.98630
479097	0.29000	0.30000	15.21354	15.09760	1	False	-1.05517
479148	0.18000	0.18000	16.66146	16.66146	1	False	-0.42584
636459	0.61000	0.63000	11.88272	11.67259	1	False	0.20404
636463	0.41000	0.41000	13.91018	13.91018	1	False	-1.02314
636465	0.60000	0.63000	11.98661	11.67259	1	False	0.48686
636479	0.48000	0.48000	13.20061	13.20061	1	False	-0.81539
636493	0.74000	0.69000	10.42662	11.01660	1	False	-0.47241
636499	0.63000	0.63000	11.67259	11.67259	1	False	-0.36802
674628	0.24000	0.25000	15.82521	15.69796	1	False	-1.05436
674630	0.39000	0.37000	14.11728	14.32741	1	False	-0.53714
733232	0.21000	0.19000	16.22568	16.51159	1	False	0.30859

Table 2.4.11
Delta Analysis
Mathematics Grade 7

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
147541A	0.69000	0.69000	11.01660	11.01660	1	False	-0.55043
148154A	0.71000	0.75000	10.78646	10.30204	1	False	0.56547
148193A	0.28000	0.28000	15.33137	15.33137	1	False	-0.60934
148330A	0.31000	0.30000	14.98340	15.09760	1	False	-0.36737
148478A	0.27000	0.28000	15.45125	15.33137	1	False	-0.50986
148530A	0.47000	0.49000	13.30108	13.10028	1	False	-0.21270
148739A	0.64000	0.65000	11.56616	11.45872	1	False	-0.33442
148912A	0.50000	0.50000	13.00000	13.00000	1	False	-0.65447
149064A	0.62000	0.57000	11.77808	12.29450	1	False	0.38104
149204A	0.44000	0.48000	13.60388	13.20061	1	False	0.23275
149295A	0.62000	0.44000	11.77808	13.60388	1	True	3.36464
149759A	0.56000	0.55000	12.39612	12.49735	1	False	-0.53263
150199A	0.45000	0.47000	13.50265	13.30108	1	False	-0.22153
150232A	0.20000	0.20000	16.36648	16.36648	1	False	-0.55504
150629A	0.58000	0.72000	12.19243	10.66863	1	False	2.86009
150891A	0.32000	0.32000	14.87080	14.87080	1	False	-0.63350
152009A	0.35000	0.35000	14.54128	14.54128	1	False	-0.65078
152051A	0.26000	0.26000	15.57338	15.57338	1	False	-0.59664
152288A	0.29000	0.32000	15.21354	14.87080	1	False	0.01042
152819A	0.31000	0.35000	14.98340	14.54128	1	False	0.24893
152915A	0.51000	0.49000	12.89972	13.10028	1	False	-0.27990
153291A	0.43000	0.44000	13.70550	13.60388	1	False	-0.45992
153299A	0.28000	0.29000	15.33137	15.21354	1	False	-0.50827
153504A	0.34000	0.32000	14.64985	14.87080	1	False	-0.14163
155126A	0.21000	0.22000	16.22568	16.08877	1	False	-0.51169
155443A	0.40000	0.42000	14.01339	13.80757	1	False	-0.23864
182015A	0.33000	0.32000	14.75965	14.87080	1	False	-0.38607
182026A	0.62000	0.60000	11.77808	11.98661	1	False	-0.32054
182027A	0.44000	0.45000	13.60388	13.50265	1	False	-0.45547
480287	0.41000	0.41000	13.91018	13.91018	1	False	-0.68388
480295	0.33000	0.33000	14.75965	14.75965	1	False	-0.63933
480307	0.26000	0.26000	15.57338	15.57338	1	False	-0.59664
480350	0.45000	0.40000	13.50265	14.01339	1	False	0.45854
480360	0.13000	0.14000	17.50556	17.32128	1	False	-0.47087

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
480373	0.17000	0.18000	16.81666	16.66146	1	False	-0.50101
480380	0.11000	0.12000	17.90611	17.69995	1	False	-0.44203
489119	0.25000	0.27000	15.69796	15.45125	1	False	-0.23382
489176	0.45000	0.48000	13.50265	13.20061	1	False	0.00739
490454	0.29000	0.29000	15.21354	15.21354	1	False	-0.61552
636508	0.49000	0.47000	13.10028	13.30108	1	False	-0.26880
636512	0.28000	0.28000	15.33137	15.33137	1	False	-0.60934
636537	0.56000	0.42000	12.39612	13.80757	1	False	2.45290
636543	0.43000	0.49000	13.70550	13.10028	1	False	0.68762
636547	0.61000	0.42000	11.88272	13.80757	1	True	3.59583
636551	0.54000	0.53000	12.59827	12.69892	1	False	-0.52334
636555	0.28000	0.29000	15.33137	15.21354	1	False	-0.50827
674695	0.60000	0.59000	11.98661	12.08982	1	False	-0.54961
674704	0.39000	0.45000	14.11728	13.50265	1	False	0.68746
674723	0.50000	0.54000	13.00000	12.59827	1	False	0.26095
733277	0.57000	0.62000	12.29450	11.77808	1	False	0.55930

Table 2.4.12
Delta Analysis
Mathematics Grade 8

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
148061A	0.32000	0.31000	14.87080	14.98340	1	False	-0.82178
148303A	0.39000	0.37000	14.11728	14.32741	1	False	-0.31372
148327A	0.39000	0.40000	14.11728	14.01339	1	False	-0.72663
148379A	0.58000	0.59000	12.19243	12.08982	1	False	-0.74971
148689A	0.32000	0.33000	14.87080	14.75965	1	False	-0.68286
150198A	0.34000	0.32000	14.64985	14.87080	1	False	-0.26271
150215A	0.47000	0.43000	13.30108	13.70550	1	False	0.69245
150218A	0.45000	0.44000	13.50265	13.60388	1	False	-0.86856
150223A	0.51000	0.53000	12.89972	12.69892	1	False	-0.23862
151253A	0.39000	0.39000	14.11728	14.11728	1	False	-1.26093
151283A	0.46000	0.45000	13.40173	13.50265	1	False	-0.86935
152296A	0.71000	0.67000	10.78646	11.24035	1	False	0.96842
153423A	0.72000	0.70000	10.66863	10.90240	1	False	-0.16267
154159A	0.54000	0.60000	12.59827	11.98661	1	False	1.87181
154320A	0.52000	0.50000	12.79939	13.00000	1	False	-0.35141
161462A	0.41000	0.43000	13.91018	13.70550	1	False	-0.21001
164493A	0.38000	0.41000	14.22192	13.91018	1	False	0.34327
183795A	0.35000	0.31000	14.54128	14.98340	1	False	0.87573
183885A	0.56000	0.57000	12.39612	12.29450	1	False	-0.75304
484750	0.22000	0.20000	16.08877	16.36648	1	False	0.01692
484766	0.55000	0.55000	12.49735	12.49735	1	False	-1.27480
484772	0.49000	0.48000	13.10028	13.20061	1	False	-0.86971
484815	0.32000	0.32000	14.87080	14.87080	1	False	-1.25447
484821	0.54000	0.55000	12.59827	12.49735	1	False	-0.75495
484823	0.69000	0.65000	11.01660	11.45872	1	False	0.90593
484828	0.60000	0.67000	11.98661	11.24035	1	False	2.55888
484841	0.20000	0.22000	16.36648	16.08877	1	False	0.18662
484853	0.45000	0.43000	13.50265	13.70550	1	False	-0.34593
484860	0.32000	0.34000	14.87080	14.64985	1	False	-0.11816
484866	0.28000	0.29000	15.33137	15.21354	1	False	-0.64454
484873	0.31000	0.32000	14.98340	14.87080	1	False	-0.67437
484877	0.66000	0.64000	11.35015	11.56616	1	False	-0.25978
484881	0.63000	0.64000	11.67259	11.56616	1	False	-0.73454
484977	0.40000	0.40000	14.01339	14.01339	1	False	-1.26182

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
484984	0.26000	0.24000	15.57338	15.82521	1	False	-0.11178
490067	0.38000	0.41000	14.22192	13.91018	1	False	0.34327
490116	0.51000	0.54000	12.89972	12.59827	1	False	0.27906
490178	0.31000	0.27000	14.98340	15.45125	1	False	1.00428
636559	0.41000	0.44000	13.91018	13.60388	1	False	0.31262
636567	0.43000	0.47000	13.70550	13.30108	1	False	0.81547
636578	0.50000	0.40000	13.00000	14.01339	1	True	3.82699
636590	0.28000	0.24000	15.33137	15.82521	1	False	1.13499
636594	0.55000	0.53000	12.49735	12.69892	1	False	-0.34393
636602	0.19000	0.21000	16.51159	16.22568	1	False	0.22998
636610	0.69000	0.67000	11.01660	11.24035	1	False	-0.21716
674875	0.28000	0.33000	15.33137	14.75965	1	False	1.68981
674877	0.44000	0.47000	13.60388	13.30108	1	False	0.29197
733318	0.31000	0.29000	14.98340	15.21354	1	False	-0.21828
733322	0.50000	0.52000	13.00000	12.79939	1	False	-0.23873
733332	0.25000	0.24000	15.69796	15.82521	1	False	-0.75355

Table 2.4.13
Delta Analysis
Science Grade 5

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
184387A	0.52000	0.53000	12.79939	12.69892	1	False	-0.96216
184423A	0.44000	0.46000	13.60388	13.40173	1	False	-0.44990
185413A	0.31000	0.31000	14.98340	14.98340	1	False	-0.97846
186483A	0.51000	0.51000	12.89972	12.89972	1	False	-0.81868
186489A	0.51000	0.53000	12.89972	12.69892	1	False	-0.50983
186490A	0.43000	0.44000	13.70550	13.60388	1	False	-0.88756
186754A	0.71000	0.73000	10.78646	10.54875	1	False	-0.50832
186756A	0.75000	0.78000	10.30204	9.91123	1	False	0.13298
186759A	0.75000	0.79000	10.30204	9.77432	1	False	0.73970
187503A	0.46000	0.49000	13.40173	13.10028	1	False	-0.02529
187505A	0.77000	0.77000	10.04461	10.04461	1	False	-0.59974
187510A	0.86000	0.83000	8.67872	9.18334	1	False	1.74115
188698A	0.29000	0.32000	15.21354	14.87080	1	False	0.29659
188699A	0.46000	0.48000	13.40173	13.20061	1	False	-0.46993
188700A	0.36000	0.36000	14.43384	14.43384	1	False	-0.93632
188717A	0.68000	0.69000	11.12920	11.01660	1	False	-1.03643
188718A	0.81000	0.83000	9.48841	9.18334	1	False	-0.30935
188720A	0.75000	0.74000	10.30204	10.42662	1	False	-0.06743
189235A	0.71000	0.71000	10.78646	10.78646	1	False	-0.65663
189237A	0.51000	0.51000	12.89972	12.89972	1	False	-0.81868
189238A	0.45000	0.43000	13.50265	13.70550	1	False	0.03400
189340A	0.58000	0.62000	12.19243	11.77808	1	False	0.38224
189341A	0.58000	0.52000	12.19243	12.79939	1	False	1.92523
189345A	0.36000	0.34000	14.43384	14.64985	1	False	0.02094
189356A	0.39000	0.40000	14.11728	14.01339	1	False	-0.84594
189358A	0.46000	0.45000	13.40173	13.50265	1	False	-0.41000
189361A	0.72000	0.73000	10.66863	10.54875	1	False	-1.03949
437241	0.46000	0.45000	13.40173	13.50265	1	False	-0.41000
437243	0.38000	0.39000	14.22192	14.11728	1	False	-0.83455
437245	0.37000	0.37000	14.32741	14.32741	1	False	-0.92816
638751	0.38000	0.41000	14.22192	13.91018	1	False	0.08318
638753	0.44000	0.45000	13.60388	13.50265	1	False	-0.89708
638755	0.46000	0.46000	13.40173	13.40173	1	False	-0.85718
638783	0.48000	0.52000	13.20061	12.79939	1	False	0.40141

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
638791	0.68000	0.63000	11.12920	11.67259	1	False	1.72503
638793	0.65000	0.62000	11.45872	11.77808	1	False	0.70702
638808	0.37000	0.40000	14.32741	14.01339	1	False	0.10138
638810	0.45000	0.42000	13.50265	13.80757	1	False	0.48634
638812	0.42000	0.38000	13.80757	14.22192	1	False	0.94785
701950	0.45000	0.54000	13.50265	12.59827	1	False	2.65423
701956	0.61000	0.54000	11.88272	12.59827	1	False	2.43015
701960	0.44000	0.44000	13.60388	13.60388	1	False	-0.87268
760514	0.64000	0.71000	11.56616	10.78646	1	False	1.95324
760544	0.58000	0.60000	12.19243	11.98661	1	False	-0.54186
760546	0.78000	0.82000	9.91123	9.33854	1	False	0.90897

Table 2.4.14
Delta Analysis
Science Grade 8

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
185899A	0.59000	0.58000	12.08982	12.19243	1	False	-0.30578
185901A	0.27000	0.28000	15.45125	15.33137	1	False	-0.11045
185916A	0.58000	0.54000	12.19243	12.59827	1	False	-0.25138
186321A	0.54000	0.53000	12.59827	12.69892	1	False	-0.34989
186325A	0.74000	0.74000	10.42662	10.42662	1	False	0.09175
186364A	0.46000	0.44000	13.40173	13.60388	1	False	-0.60894
188149A	0.49000	0.45000	13.10028	13.50265	1	False	-0.17258
188150A	0.48000	0.48000	13.20061	13.20061	1	False	-0.17366
188153A	0.25000	0.23000	15.69796	15.95539	1	False	-0.26079
188312A	0.33000	0.32000	14.75965	14.87080	1	False	-0.58105
188317A	0.70000	0.66000	10.90240	11.35015	1	False	-0.27743
188328A	0.52000	0.50000	12.79939	13.00000	1	False	-0.60138
188332A	0.55000	0.54000	12.49735	12.59827	1	False	-0.34083
189061A	0.40000	0.37000	14.01339	14.32741	1	False	-0.29047
189076A	0.56000	0.55000	12.39612	12.49735	1	False	-0.33189
189080A	0.53000	0.54000	12.69892	12.59827	1	False	0.10820
189438A	0.54000	0.56000	12.59827	12.39612	1	False	0.35363
189440A	0.62000	0.62000	11.77808	11.77808	1	False	-0.03756
189442A	0.70000	0.68000	10.90240	11.12920	1	False	-0.48074
300093A	0.61000	0.59000	11.88272	12.08982	1	False	-0.52874
300095A	0.42000	0.39000	13.80757	14.11728	1	False	-0.32021
300097A	0.63000	0.61000	11.67259	11.88272	1	False	-0.51570
437757	0.45000	0.41000	13.50265	13.91018	1	False	-0.12208
437771	0.45000	0.45000	13.50265	13.50265	1	False	-0.20256
437788	0.35000	0.37000	14.54128	14.32741	1	False	0.19497
437995	0.42000	0.41000	13.80757	13.91018	1	False	-0.47013
437999	0.60000	0.56000	11.98661	12.39612	1	False	-0.26253
438018	0.42000	0.42000	13.80757	13.80757	2	False	-0.23173
494074	0.72500	0.69500	10.60896	10.95971	2	False	-0.53088
494991	0.69500	0.68500	10.95971	11.07309	2	False	-0.22270
638857	0.54000	0.52000	12.59827	12.79939	1	False	-0.58331
638862	0.47000	0.45000	13.30108	13.50265	1	False	-0.61991
638866	0.44000	0.41000	13.60388	13.91018	1	False	-0.34759
638873	0.23000	0.43000	15.95539	13.70550	1	True	4.79016

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
638875	0.44000	0.45000	13.60388	13.50265	1	False	0.02296
638883	0.61000	0.59000	11.88272	12.08982	1	False	-0.52874
638918	0.34000	0.31000	14.64985	14.98340	1	False	-0.18421
638920	0.75000	0.66000	10.30204	11.35015	1	False	1.06000
638928	0.67000	0.60000	11.24035	11.98661	1	False	0.44848
701179	0.63000	0.59000	11.67259	12.08982	1	False	-0.27464
701187	0.35000	0.34000	14.54128	14.64985	1	False	-0.55419
701189	0.38000	0.34000	14.22192	14.64985	1	False	-0.00587
701389	0.52000	0.42000	12.79939	13.80757	1	False	1.20619
701392	0.52000	0.48000	12.79939	13.20061	1	False	-0.20401
701395	0.35000	0.19000	14.54128	16.51159	1	True	3.60823

Table 2.4.15
Delta Analysis
Science Grade 11

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
186972A	0.38000	0.35000	14.22192	14.54128	1	False	0.34176
186989A	0.54000	0.54000	12.59827	12.59827	1	False	-0.84792
186992A	0.65000	0.63000	11.45872	11.67259	1	False	0.28262
187933A	0.74000	0.72000	10.42662	10.66863	1	False	0.56365
187935A	0.58000	0.58000	12.19243	12.19243	1	False	-0.78708
187938A	0.66000	0.65000	11.35015	11.45872	1	False	-0.17362
187996A	0.59000	0.61000	12.08982	11.88272	1	False	-0.31741
187999A	0.34000	0.35000	14.64985	14.54128	1	False	-0.37575
188008A	0.48000	0.49000	13.20061	13.10028	1	False	-0.62995
188657A	0.49000	0.48000	13.10028	13.20061	1	False	-0.47292
188658A	0.39000	0.38000	14.11728	14.22192	1	False	-0.60604
188659A	0.44000	0.43000	13.60388	13.70550	1	False	-0.54266
188833A	0.33000	0.34000	14.75965	14.64985	1	False	-0.35378
188834A	0.41000	0.47000	13.91018	13.30108	1	False	1.75942
188835A	0.45000	0.51000	13.50265	12.89972	1	False	1.67060
188947A	0.33000	0.33000	14.75965	14.75965	1	False	-0.84649
188949A	0.28000	0.28000	15.33137	15.33137	1	False	-0.76079
188952A	0.44000	0.43000	13.60388	13.70550	1	False	-0.54266
189421A	0.23000	0.22000	15.95539	16.08877	1	False	-0.75263
189423A	0.38000	0.34000	14.22192	14.64985	1	False	0.82896
189425A	0.35000	0.32000	14.54128	14.87080	1	False	0.33945
300046A	0.32000	0.32000	14.87080	14.87080	1	False	-0.82983
300048A	0.72000	0.75000	10.66863	10.30204	1	False	0.18527
300049A	0.44000	0.47000	13.60388	13.30108	1	False	0.33901
586027	0.36000	0.34000	14.43384	14.64985	1	False	-0.15374
586029	0.44000	0.41000	13.60388	13.91018	1	False	0.37583
586031	0.53000	0.50000	12.69892	13.00000	1	False	0.48805
586051	0.46000	0.45000	13.40173	13.50265	1	False	-0.51554
586069	0.41000	0.39000	13.91018	14.11728	1	False	-0.11527
586218	0.59000	0.56000	12.08982	12.39612	1	False	0.60280
586649	0.43000	0.43000	13.70550	13.70550	1	False	-1.00452
586655	0.39000	0.39000	14.11728	14.11728	1	False	-0.94279
586659	0.57500	0.57000	12.24353	12.29450	2	False	-0.56599
586691	0.43000	0.44000	13.70550	13.60388	1	False	-0.54851

continued

Item Id	Old P	New P	Old Delta	New Delta	Max	Discard	Std Dist
586693	0.41000	0.42000	13.91018	13.80757	1	False	-0.51340
586701	0.45000	0.45000	13.50265	13.50265	1	False	-0.98349
586709	0.34000	0.37000	14.64985	14.32741	1	False	0.58395
586711	0.36000	0.38000	14.43384	14.22192	1	False	0.05559
591949	0.37000	0.37000	14.32741	14.32741	1	False	-0.91129
592069	0.56000	0.56000	12.39612	12.39612	1	False	-0.81761
592071	0.70000	0.69000	10.90240	11.01660	1	False	-0.08123
592073	0.29000	0.29000	15.21354	15.21354	1	False	-0.77845
593424	0.44000	0.42000	13.60388	13.80757	1	False	-0.08460
593426	0.53000	0.50000	12.69892	13.00000	1	False	0.48805
656455	0.31000	0.30000	14.98340	15.09760	1	False	-0.69301
656457	0.46000	0.44000	13.40173	13.60388	1	False	-0.06128
656465	0.35000	0.33000	14.54128	14.75965	1	False	-0.15928
701400	0.36500	0.32500	14.38050	14.81505	2	False	0.83488
701417	0.37000	0.33000	14.32741	14.75965	1	False	0.83248
701425	0.34000	0.33000	14.64985	14.75965	1	False	-0.66276
701601	0.23000	0.25000	15.95539	15.69796	1	False	0.48794
701612	0.33000	0.46000	14.75965	13.40173	1	True	5.24699
701624	0.27000	0.23000	15.45125	15.95539	1	False	0.98663
701635	0.52000	0.57000	12.79939	12.29450	1	False	1.12524
701641	0.47000	0.53000	13.30108	12.69892	1	False	1.63696
701654	0.63000	0.67000	11.67259	11.24035	1	False	0.63035
754205	0.40000	0.40000	14.01339	14.01339	1	False	-0.95836
754209	0.52000	0.52000	12.79939	12.79939	1	False	-0.87807
754213	0.36000	0.37000	14.43384	14.32741	1	False	-0.41778

Section 2.5

Tabled B/B Analysis Results

Table 2.5.1

b/b Analysis

English Language Arts Grade 3

Item Id	Old b	New b	Std Dist	Flag
146971A	0.43095	0.33609	0.42120	False
147007A	-0.43364	0.06937	-0.70520	False
147008A	-0.86467	-0.38480	-0.39395	False
147012A	-1.09830	-0.70281	-0.30707	False
147348A	-0.55537	0.30205	-0.20614	False
147433A	2.27109	0.84597	3.37785	True
147436A	-1.16028	-0.50144	0.04146	False
147456A	0.01358	0.76682	-0.77045	False
155253A	-0.09891	0.24347	-0.49189	False
155254A	-0.29111	0.21487	-0.81345	False
155255A	0.25018	0.76623	-0.41629	False
155274A	-1.27827	-0.66031	0.08732	False
155277A	1.01181	0.79712	1.01267	False
155279A	-0.45028	-0.04363	-0.80193	False
155282A	-0.17137	0.74273	-0.44235	False
155283A	-0.98463	-0.26881	-0.03121	False
156120A	-0.55225	-0.23479	-0.81859	False
156121A	-0.56941	-0.13455	-0.67649	False
156123A	0.29724	0.66950	-0.21563	False
156124A	-1.42465	-1.06029	-0.08691	False
156126A	-0.01845	0.61204	-0.75706	False
156355A	-1.24205	-0.76284	-0.09911	False
156356A	-0.50445	0.04962	-0.59157	False
156362A	-0.56083	-0.00786	-0.54866	False
482318	-0.51640	0.54014	-0.00984	False
482320	-2.14009	-1.31959	0.99307	False
482971	-1.59998	-1.43422	-0.17581	False
484569	-0.90974	-0.37307	-0.29394	False
484571	1.75197	8.23257	4.39208	True
484575	-0.35471	-0.00890	-0.69615	False
484577	0.70002	1.04611	0.12966	False
484579	0.08037	0.67960	-0.64405	False
484581	1.03322	1.30250	0.47814	False
627921	0.76157	0.96516	0.34020	False
628643	1.49683	1.38931	1.27050	False
628734	-0.38749	-0.01636	-0.75067	False
628835	1.40345	1.05027	1.47719	False
628961	-0.31478	0.24690	-0.73147	False
630590	0.64766	0.75800	0.35720	False
701185	-0.64303	-0.01747	-0.40159	False
701219	2.41513	5.06746	-0.48822	False
701289	1.04407	1.77927	-0.04410	False
705924	-1.17190	-0.58864	-0.03553	False
715595	-0.79720	-0.35647	-0.49138	False
758779	-0.87303	-0.04814	0.00562	False
759133	-0.15064	0.41586	-0.78771	False
759149	0.04992	0.69718	-0.72261	False
759159	0.05101	-0.60656	0.76460	False
759170	-2.18821	-1.36400	1.03499	False
765883	-0.58322	-0.21079	-0.73678	False

Table 2.5.2

b/b Analysis

English Language Arts Grade 4

Item Id	Old b	New b	Std Dist	Flag
146887A	-0.54726	0.05425	-0.43430	False
148938A	-1.35826	-0.82641	-1.01925	False
149114A	-1.45039	-1.05792	-0.47145	False
149115A	0.55582	0.79720	-0.41126	False
149116A	-0.84663	-0.40123	-0.91191	False
149136A	0.00702	0.51370	-0.69833	False
155490A	0.11102	0.45729	-0.75731	False
155569A	-0.07105	-0.09883	1.04434	False
155571A	-1.41074	-0.95098	-0.79777	False
155572A	-1.57206	-0.83338	-0.12398	False
155580A	-0.86251	-0.44884	-0.75894	False
158587A	-0.32569	0.10867	-1.02767	False
158589A	-0.77948	-0.29927	-1.07414	False
158602A	-0.32091	0.62219	1.23029	False
158604A	-1.98892	-1.27763	-0.38543	False
158611A	-1.50932	-0.39628	1.64082	False
158691A	-1.95261	-1.46527	-0.75238	False
158692A	-0.03775	0.59699	-0.11590	False
184821A	-0.37155	0.23794	-0.34071	False
184822A	1.28057	1.78130	-0.31728	False
184824A	-1.77671	-0.91805	0.36949	False
185806A	0.32641	1.06824	0.50007	False
186065A	0.25296	0.93415	0.19389	False
483086	0.12813	0.40432	-0.43621	False
483094	-0.47780	-0.50418	1.16837	False
483115	0.99763	0.74467	1.75074	False
484626	-1.09391	-0.30560	0.26079	False
484628	-0.98853	-0.53712	-0.89438	False
484632	-0.35834	0.14689	-0.82236	False
484636	-0.13996	-0.40764	2.18448	False
484652	1.09657	1.07947	0.61978	False
484654	0.40218	0.63993	-0.34503	False
484658	-0.46224	0.03302	-0.90218	False
629160	0.07475	0.67950	-0.21955	False
629614	0.63853	1.82927	2.69234	False
632843	0.67823	1.30269	0.06601	False
632853	-1.22616	-0.54649	-0.28796	False
632863	0.19006	0.44004	-0.33394	False
632877	-0.56256	-0.70895	1.75486	False
635527	-1.40409	-0.58808	0.29032	False
635530	-0.55165	-0.81786	2.30977	False
759364	0.29361	0.76477	-0.77188	False
759367	-1.42021	-0.77536	-0.51252	False
759400	-0.22926	0.27900	-0.76681	False
759440	-0.98721	-0.44078	-0.83221	False
759873	-0.97345	-0.57758	-0.64038	False
759877	-0.00800	0.35791	-0.81064	False
759944	-0.11640	0.35773	-0.88964	False
765830	0.62406	0.39233	1.77170	False
765847	-0.58623	0.11452	0.01568	False

Table 2.5.3

b/b Analysis

English Language Arts Grade 5

Item Id	Old b	New b	Std Dist	Flag
147920A	-1.77139	-0.75883	3.37126	True
147921A	-0.45046	-0.31360	-1.01670	False
147923A	-0.34393	-0.42024	-0.05416	False
147924A	-0.76706	-0.83078	-0.29025	False
147926A	0.08863	0.31789	-0.84415	False
147969A	-1.09251	-1.15477	-0.43594	False
148003A	-0.73157	-0.42935	-0.17455	False
148007A	-1.54051	-1.19600	0.35634	False
148008A	0.73318	1.15309	-0.28787	False
148961A	0.02281	-0.71764	3.00185	True
148963A	-1.07669	-0.86627	-0.42752	False
148967A	-0.93182	-0.75746	-0.64694	False
148971A	-0.98132	-0.43002	1.01961	False
149152A	-1.30874	-1.34515	-0.64135	False
149158A	0.64915	-0.01055	2.91750	False
149196A	-1.34680	-1.01082	0.23618	False
149318A	-0.65989	-0.20410	0.46510	False
149321A	-1.23164	-1.13820	-0.87182	False
149330A	-1.20992	-1.00801	-0.40764	False
149334A	-0.33312	0.08920	0.17912	False
149338A	-0.40882	-0.17590	-0.61522	False
158749A	0.45854	0.20706	1.05400	False
159592A	-0.06609	0.00869	-0.59473	False
159600A	-1.44667	-1.58478	-0.25647	False
160718A	-1.45853	-1.35362	-0.72462	False
186107A	-0.66332	-0.61112	-0.75184	False
186115A	0.18858	0.79554	0.76175	False
186121A	-0.24533	0.03329	-0.48572	False
186469A	0.39778	0.78522	-0.28602	False
186471A	-1.62970	-1.39429	-0.08170	False
186476A	-0.06747	0.15544	-0.80504	False
186505A	0.51877	1.25277	1.17494	False
186777A	-0.96416	-0.98771	-0.54997	False
483126	-1.12315	-0.88578	-0.29000	False
483138	0.13637	-0.06933	0.71625	False
483140	-1.98543	-1.82694	-0.26518	False
483162	-1.59878	-2.17022	1.56993	False
483172	-0.80776	-0.85681	-0.37171	False
483179	-0.87692	-0.56078	-0.05157	False
630737	-0.52958	-0.56513	-0.31155	False
631575	-0.00333	0.16041	-0.95618	False
631601	-0.21036	0.03024	-0.66665	False
631654	-0.06915	-0.15706	0.11411	False
631918	0.18764	0.27806	-0.55438	False
631922	-1.17836	-1.66624	1.38516	False
631955	-1.37014	-1.34340	-0.94329	False
631981	0.01022	0.05521	-0.43203	False
632263	-1.59183	-1.68159	-0.52966	False
632269	0.33994	0.68475	-0.44735	False
632323	0.20018	0.28546	-0.52658	False
761899	0.42417	0.71323	-0.72676	False

Table 2.5.4

b/b Analysis

English Language Arts Grade 6

Item Id	Old b	New b	Std Dist	Flag
147283A	-1.41192	-0.54626	0.78156	False
147289A	-0.36708	-0.14903	-0.28416	False
147290A	-0.73859	-0.21619	-0.52104	False
149570A	-0.30118	0.14547	-0.88729	False
149571A	-0.69309	-0.10023	-0.30378	False
149737A	-0.53265	-0.11179	-0.90821	False
158702A	0.04978	0.31302	-0.31775	False
158705A	-1.45758	-1.04304	-0.67649	False
158723A	-1.56087	-1.14803	-0.65385	False
158739A	-1.28487	-0.84535	-0.64218	False
158740A	-1.28781	-0.91125	-0.84660	False
158747A	-1.05703	-0.80465	-0.58429	False
158756A	0.73912	3.13666	5.18818	True
158774A	-0.59729	-0.10281	-0.65060	False
158777A	-1.06466	-0.60514	-0.63706	False
158786A	-1.36829	-0.72385	0.04855	False
158886A	-1.73606	-1.41681	-0.91113	False
158897A	-0.66537	-0.12572	-0.48479	False
158935A	-0.23270	-0.07041	-0.06574	False
158943A	0.83098	1.27339	-0.68867	False
158947A	0.04904	0.36809	-0.49987	False
159451A	-1.54873	-1.00528	-0.23142	False
159453A	-1.57923	-0.80047	0.54394	False
159454A	-0.02468	1.16804	1.46922	False
159457A	-0.92953	-0.74394	-0.33180	False
159458A	-0.57893	-0.05856	-0.57122	False
485443	0.76320	0.95466	0.11086	False
485688	-0.93851	-0.47714	-0.66544	False
485702	-1.06969	-0.50762	-0.30141	False
486350	0.54607	0.17267	1.89289	False
486369	-0.26136	-0.37264	0.81819	False
486371	-0.26996	0.04258	-0.56568	False
486376	-0.72877	-0.11394	-0.22243	False
629854	1.54361	1.68423	0.48948	False
629856	-0.26556	-0.00980	-0.37939	False
629867	-0.59205	-0.44266	-0.12173	False
629869	0.28477	0.32950	0.45863	False
629871	1.06524	1.04050	0.89800	False
629885	0.06834	0.44902	-0.69550	False
629889	1.34954	1.74235	-0.38552	False
Item Id	Old b	New b	Std Dist	Flag
629891	0.61539	0.87873	-0.16377	False
629895	-0.47662	-0.36661	0.03813	False
629898	1.18664	1.16446	0.92277	False
630290	1.19520	1.27728	0.58526	False
630430	0.94445	2.24650	1.56122	False
708956	-0.60882	-0.55883	0.19771	False
709888	-0.87190	-0.66709	-0.37872	False
709904	-0.76233	-0.25460	-0.56239	False
709910	-0.08086	0.69424	0.12324	False
710081	-0.54958	0.15219	0.01208	False

Table 2.5.5

b/b Analysis

English Language Arts Grade 7

Item Id	Old b	New b	Std Dist	Flag
148104A	-0.98645	-0.13478	0.47386	False
148117A	-0.39993	0.53658	0.94921	False
148759A	-0.63973	0.13090	0.18040	False
148760A	-0.95256	-0.36709	-0.68576	False
148762A	-1.08568	-0.53715	-0.87109	False
148785A	1.24395	1.62113	-1.17322	False
148823A	-1.07094	-0.64535	-0.97527	False
148850A	-1.28529	-0.90795	-0.72604	False
148859A	-1.64212	-1.24795	-0.73654	False
148861A	0.22446	0.57995	-0.89771	False
148866A	-0.52912	-0.00739	-0.88988	False
154639A	0.44947	1.00313	-0.57678	False
158719A	0.54589	0.63582	0.20819	False
158724A	-0.24307	0.35751	-0.49396	False
158765A	-0.00913	0.09815	0.23050	False
158766A	-0.06512	-0.16700	1.15627	False
158769A	-2.21133	-1.01463	1.76775	False
159120A	-0.65390	-0.29728	-0.74712	False
159133A	0.86259	1.14154	-0.67556	False
159393A	1.39982	2.92980	3.86657	True
159394A	0.53933	1.01294	-0.91138	False
159646A	-0.24041	0.25036	-0.97432	False
160457A	0.10643	0.82854	0.10008	False
160508A	-0.83860	-0.20944	-0.47427	False
160511A	-1.07793	-0.05765	1.19596	False
160937A	-1.29384	-0.71852	-0.79064	False
160940A	-1.43494	-0.99966	-0.95324	False
182584A	-0.52377	0.44075	1.04993	False
182596A	-0.95857	-0.27101	-0.23980	False
182597A	-0.53569	-0.13004	-0.98274	False
485453	-0.30531	0.40737	-0.01413	False
486286	2.43925	2.48636	0.06041	False
486294	1.00978	1.35725	-1.00166	False
486317	-0.14986	0.05390	-0.16704	False
486333	-0.34153	-0.12196	-0.20233	False
630545	0.73731	1.54631	0.59226	False
630649	-0.01525	0.81760	0.56343	False
633929	1.75123	1.82329	0.07299	False
634354	1.11782	1.49891	-1.16800	False
634364	0.60475	0.60640	0.58432	False
634366	0.45700	1.08627	-0.24437	False
634374	1.03684	1.36713	-0.93122	False
634379	-0.23556	0.05188	-0.51828	False
634389	-0.25541	-0.19846	0.49450	False
711110	0.07085	0.01890	0.91357	False
711120	-0.34619	-0.20806	0.15510	False
711137	0.32850	-0.10160	2.52376	False
711145	-0.28273	-0.29326	0.79481	False
711168	0.07016	0.06114	0.72571	False
711173	0.48103	0.53829	0.36273	False

Table 2.5.6

b/b Analysis

English Language Arts Grade 8

Item Id	Old b	New b	Std Dist	Flag
148177A	-1.04644	-0.97229	-0.36548	False
148187A	-1.65135	-1.51516	-0.73795	False
148189A	-0.36973	-0.03621	-0.73362	False
148191A	-0.80244	-0.68789	-0.45855	False
149619A	-0.01778	0.25673	-0.86958	False
149653A	-0.33909	0.06242	-0.48795	False
149654A	1.06317	1.49633	-0.69881	False
149721A	-1.83603	-1.64368	-0.91506	False
149731A	0.99650	1.94981	1.25124	False
149744A	-0.16753	0.46917	0.34652	False
160467A	-1.70368	-1.41281	-0.57967	False
160472A	-1.10529	-1.13644	0.01234	False
160477A	1.19060	1.49035	-0.68031	False
160742A	-0.90212	-0.51298	-0.40203	False
160745A	-1.77688	-1.34707	-0.04580	False
160747A	-0.83430	-0.45369	-0.44964	False
160784A	-1.96605	-1.83370	-0.79740	False
160785A	-1.97826	-1.60164	-0.19643	False
160787A	-0.78874	-0.17993	0.38836	False
160788A	-0.65607	-1.07362	1.55462	False
160789A	0.83610	0.92490	0.02115	False
160790A	-2.62721	-1.40233	3.11030	True
160946A	-0.27552	0.49740	0.87843	False
160947A	-2.11670	-1.44675	0.92690	False
160956A	-0.99975	-0.26325	0.91268	False
160989A	-0.13291	-0.00182	-0.36318	False
160992A	-1.62642	-1.53100	-0.58048	False
485471	-0.36527	0.63823	1.75698	False
485506	2.11249	2.19225	0.35384	False
486744	-0.02535	0.24884	-0.87017	False
486757	0.95081	1.31093	-0.94412	False
486763	-2.23999	-2.03596	-0.77696	False
487006	-1.55776	-1.45930	-0.57570	False
626597	0.53205	0.87243	-0.91941	False
626602	-0.23580	-0.19544	-0.04987	False
626606	1.31497	1.69830	-0.94313	False
626623	-0.80405	-0.17565	0.46480	False
626626	0.20966	0.62822	-0.55312	False
626777	0.55342	0.98587	-0.58201	False
626785	-0.52912	-0.52657	0.02202	False
626800	0.80982	1.04349	-0.52378	False
626814	0.71288	1.12452	-0.69677	False
627061	-1.35020	-1.20151	-0.71387	False
760819	0.57394	0.51883	0.49492	False
760826	0.79083	1.12922	-0.91768	False
760830	0.93084	1.20473	-0.64500	False
760834	-0.04686	0.34617	-0.58796	False
760837	-1.20307	-1.65860	1.56770	False
760844	0.15826	-0.51857	2.70969	False
760851	-1.61975	-2.34182	2.46132	False
761992	-0.44113	-0.54212	0.42770	False

Table 2.5.7
b/b Analysis
Mathematics Grade 3

Item Id	Old b	New b	Std Dist	Flag
146917A	-1.51745	-1.08618	-0.80522	False
146955A	-0.61222	-0.31941	-0.47054	False
147044A	-0.75801	-0.28117	-0.50668	False
147064A	-2.00737	-1.67791	-0.42173	False
147330A	-1.33082	-0.91909	-0.85944	False
147503A	-0.88037	-0.41416	-0.56843	False
147542A	-0.44284	-0.43360	0.68209	False
147712A	-1.01590	-0.59689	-0.78387	False
147718A	-0.54054	-0.42992	0.27536	False
147966A	1.08856	1.96626	1.42316	False
151560A	-1.14152	-0.71678	-0.77818	False
152325A	-0.89214	-0.21960	0.28630	False
152546A	-1.39699	-0.95273	-0.73395	False
152598A	0.11765	0.62084	-0.27119	False
152739A	-1.78939	-1.06034	0.39163	False
152842A	1.01086	1.11457	0.08059	False
152864A	0.25643	0.41294	-0.02991	False
153168A	-0.60748	-0.25324	-0.72621	False
154329A	-1.76290	-1.23279	-0.43031	False
154533A	-0.51722	0.06188	-0.04755	False
154758A	-0.54262	-0.21611	-0.62045	False
154760A	-0.39180	-0.01547	-0.84896	False
155260A	-1.57486	-0.89495	0.21856	False
155455A	0.41615	1.23420	1.07871	False
155501A	0.43908	0.84135	-0.64379	False
155525A	-0.94230	-0.48131	-0.59902	False
155594A	-0.06065	0.10160	-0.00806	False
155999A	0.23675	0.61952	-0.75387	False
184065A	-0.99944	-0.51554	-0.51215	False
479107	-2.10528	-1.24370	0.89623	False
479111	-0.66443	-0.46767	-0.06434	False
479113	-1.99796	-1.36901	-0.05390	False
479117	-0.20911	0.23993	-0.54302	False
479125	-2.47202	-1.92903	-0.47898	False
479138	0.13648	0.45015	-0.66497	False
479140	-1.07710	-0.05579	1.70733	False
488998	0.67136	1.12722	-0.38789	False
636391	-0.68986	-0.56540	0.23942	False
636402	-0.60930	-0.34468	-0.35395	False
636410	-0.40963	-1.51610	5.30837	True
636412	0.66428	0.91890	-0.49588	False
636429	-0.05254	-0.02779	0.56150	False
636437	-0.41613	0.10758	-0.26290	False
636439	-0.01829	-0.23326	1.55159	False
636443	0.33045	0.31230	0.68441	False
674356	-1.29789	-0.65475	0.10583	False
674370	0.18966	0.79862	0.17821	False
674378	0.36435	0.76270	-0.67082	False
733123	-0.70317	-0.42948	-0.37808	False
733127	-1.51633	-0.86582	0.10496	False

Table 2.5.8
b/b Analysis
Mathematics Grade 4

Item Id	Old b	New b	Std Dist	Flag
147319A	-1.71957	-1.01076	-0.71673	False
147525A	-0.77719	-0.25540	-0.68929	False
148069A	-0.91595	-0.87168	1.38210	False
148301A	0.48905	0.99213	0.66542	False
148654A	0.59257	0.81036	-0.83164	False
148675A	1.43183	1.37290	-0.74153	False
149723A	0.00428	0.56363	0.42503	False
150227A	1.69166	1.40661	0.23995	False
150722A	1.29932	1.60296	0.47010	False
151506A	0.34497	0.42659	-0.28411	False
151519A	-1.75177	-1.03232	-0.69359	False
151549A	-0.82903	-0.20497	-0.16962	False
151556A	-0.41086	-0.20552	-0.11320	False
151997A	-0.13375	0.40103	0.12658	False
152343A	0.35046	0.50878	-0.72504	False
152353A	-0.08597	-0.15794	1.08327	False
152355A	-1.10306	-0.69009	-0.49114	False
152518A	-1.12110	-0.67882	-0.63641	False
152776A	-2.33854	-1.25204	0.70926	False
152789A	0.43689	0.66795	-0.93604	False
152874A	0.70239	0.96908	-0.42788	False
152988A	-0.39781	0.00088	-0.94914	False
153171A	0.27288	0.29633	0.12865	False
153185A	0.28771	0.61589	-0.55784	False
153189A	0.36092	0.39347	-0.02448	False
153206A	-0.07225	-0.22535	1.52714	False
153325A	0.64930	0.78633	-0.94914	False
153346A	-3.30468	-2.00041	0.82864	False
154024A	0.02801	0.12857	-0.02579	False
155167A	-2.18855	-1.58661	-0.30965	False
155192A	0.60677	1.66925	3.97085	True
155220A	-0.58423	-0.41197	0.27423	False
156019A	-0.35967	0.19271	-0.03431	False
184241A	-1.22669	-0.71005	-0.93593	False
479500	-2.18024	-0.63242	3.50576	True
479507	0.00748	-0.00439	0.63494	False
479930	-0.86758	-0.60641	0.09733	False
636619	-0.64047	-0.36977	-0.21866	False
636627	0.99708	1.28080	0.00857	False
636641	-0.02385	0.26849	-1.05261	False
636649	-0.91408	-0.73149	0.59621	False
636657	0.92210	0.90981	-0.41778	False
636659	0.72626	0.78481	-0.59325	False
636666	-0.75385	-0.35437	-0.81755	False
636668	-0.85955	-0.18113	0.10318	False
733078	-0.41771	-0.07785	-0.86751	False
733086	-0.65198	-0.44468	0.15384	False
733092	-1.47576	-1.04301	-0.17327	False
733100	0.28287	0.54866	-0.91694	False
733102	-0.33334	0.10838	-0.63095	False

Table 2.5.9
b/b Analysis
Mathematics Grade 5

Item Id	Old b	New b	Std Dist	Flag
146915A	-0.71093	-0.37733	-1.05923	False
146959A	-0.76314	-0.20104	-0.00513	False
147747A	-0.45679	0.16379	0.54815	False
147990A	0.32883	0.62387	-1.14972	False
148011A	-0.61973	-0.16673	-0.64066	False
148659A	-0.39876	0.14364	0.06792	False
149230A	-0.08181	0.30946	-0.74681	False
149246A	-0.21873	0.07603	-1.07774	False
149261A	0.56212	0.67664	-0.32960	False
149289A	0.55440	1.11536	0.71842	False
149640A	0.83733	1.39509	0.85443	False
150267A	0.57139	0.63653	-0.01108	False
150631A	-0.61877	-0.27671	-1.16581	False
150689A	0.59209	0.60704	0.30640	False
150703A	2.09279	1.77386	1.66218	False
150711A	0.86604	0.65704	1.62229	False
152807A	0.31639	0.62146	-1.09088	False
152946A	-0.64623	-0.32134	-1.03804	False
153107A	0.24704	0.52481	-1.22481	False
153162A	-1.29007	-0.86685	-1.20779	False
153165A	0.35705	0.44007	-0.00935	False
153950A	-1.91437	-1.13870	0.75597	False
153972A	-0.23663	-0.14211	0.24467	False
155145A	-0.57651	-0.15847	-0.84583	False
155234A	1.19007	1.35168	-0.98667	False
155426A	-1.97908	-1.45633	-0.93771	False
155434A	-0.00982	0.44694	-0.27761	False
155474A	-0.62879	-0.04833	0.18975	False
155479A	0.68811	1.12368	-0.02926	False
155489A	0.31560	0.70091	-0.56538	False
155523A	-1.83736	-1.09285	0.59445	False
161469A	-1.24799	-0.51075	0.87381	False
184261A	-0.18609	0.26998	-0.37994	False
187144A	0.47896	0.86379	-0.47789	False
187147A	-0.24721	0.28238	0.06804	False
484706	0.06436	0.11000	0.39805	False
489954	-2.11877	-1.48723	-0.30215	False
636681	0.70522	0.80912	-0.33939	False
636693	-1.38088	-1.24041	0.57837	False
636705	-1.85423	-2.14560	3.67152	True
636726	0.05901	0.32188	-1.02282	False
636730	0.93096	1.13085	-1.09381	False
636735	-0.99116	-1.17378	2.47984	False
636740	0.63286	0.74372	-0.34486	False
636748	0.16384	0.85946	1.38436	False
674572	-0.94486	-0.81455	0.40304	False
674574	-1.48098	-0.86170	-0.02864	False
674588	1.72936	2.10818	0.17650	False
733184	-1.23314	-0.64260	-0.07950	False
733196	0.63425	0.55965	0.86997	False

Table 2.5.10
b/b Analysis
Mathematics Grade 6

Item Id	Old b	New b	Std Dist	Flag
147578A	0.79719	1.08698	-0.67025	False
148231A	-0.75926	-0.19294	-1.00837	False
148926A	-1.64691	-0.94457	-0.93545	False
149231A	-0.33575	0.06211	-0.75535	False
149234A	-1.05627	-0.71388	0.59380	False
149245A	0.55533	1.30577	1.99209	False
150604A	0.40443	0.66258	-0.86281	False
150723A	-0.75178	-0.23798	-0.93813	False
150972A	0.28310	0.81821	0.21895	False
150989A	-0.91436	-0.22269	-0.40641	False
151145A	-0.26306	0.22150	-0.85899	False
151316A	-0.52985	-0.44255	1.52958	False
151782A	1.53062	1.87035	0.66066	False
151835A	2.40238	1.55391	3.58882	True
152379A	-0.07063	0.44922	-0.36558	False
152754A	0.88073	1.40755	0.98504	False
152840A	-0.63369	-0.07862	-0.90920	False
153512A	-0.14580	0.12590	-0.19594	False
153601A	-0.42743	-0.08183	-0.28987	False
153952A	-2.12478	-1.14998	-0.22686	False
154011A	0.00559	0.01882	1.27638	False
155174A	-0.39233	-0.00962	-0.57924	False
155184A	-0.69631	-0.25748	-0.52694	False
155298A	-0.53904	-0.07956	-0.87695	False
155300A	-2.97628	-1.42263	2.36731	False
181455A	0.23990	0.70561	-0.29142	False
479039	0.75850	1.10847	-0.33217	False
479041	-1.51485	-0.52819	0.68709	False
479043	1.44069	1.53314	-1.07003	False
479047	1.38795	1.47155	-1.07770	False
479049	2.41281	2.25373	-0.90647	False
479057	-1.21402	-0.65604	-0.59108	False
479067	1.52114	1.55662	-0.94767	False
479069	-0.88245	-0.63740	0.98801	False
479073	-1.14544	-0.37485	-0.21049	False
479077	1.16990	1.47964	-0.02920	False
479083	-0.23762	0.56114	1.21819	False
479087	1.49931	1.33334	0.39169	False
479095	1.57773	1.49210	-0.23811	False
479097	0.69171	0.79985	-0.28193	False
479148	1.01219	1.24661	-0.73516	False
636459	-0.41683	0.05613	-1.13224	False
636463	0.73822	1.05348	-0.58561	False
636465	-0.60632	-0.37312	0.68617	False
636479	0.48288	0.70029	-0.70564	False
636493	-0.81075	-0.57515	0.95106	False
636499	-0.21349	-0.06491	0.69720	False
674628	1.53448	1.87008	0.63911	False
674630	1.10282	1.41413	-0.11103	False
733232	1.00689	1.38340	0.18114	False

Table 2.5.11
b/b Analysis
Mathematics Grade 7

Item Id	Old b	New b	Std Dist	Flag
147541A	-0.71554	-0.02321	0.27788	False
148154A	-0.91249	-0.17768	0.34884	False
148193A	1.28522	1.65246	-0.14794	False
148330A	0.18022	0.84916	0.42578	False
148478A	1.25693	1.63429	-0.12661	False
148530A	0.73013	0.97886	-0.49982	False
148739A	-0.19130	-0.08975	0.12688	False
148912A	0.48661	0.79185	-0.50941	False
149064A	0.02269	0.36492	-0.51706	False
149204A	-0.12164	0.35543	-0.17765	False
149295A	-0.10046	0.50867	0.19337	False
149759A	0.11579	0.32407	-0.24183	False
150199A	0.19488	0.43909	-0.36019	False
150232A	1.28866	1.47002	-0.44575	False
150629A	2.15917	-0.23611	6.48833	True
150891A	1.49456	1.71024	-0.51825	False
152009A	0.91348	1.18486	-0.50188	False
152051A	0.99437	1.27547	-0.45573	False
152288A	1.07891	1.21950	-0.28295	False
152819A	1.39319	1.57611	-0.47489	False
152915A	0.22736	0.85524	0.32318	False
153291A	0.33669	0.86926	0.08500	False
153299A	0.71296	1.22891	0.12829	False
153504A	0.53848	0.88980	-0.36939	False
155126A	1.26760	1.74756	0.16026	False
155443A	0.49933	0.74306	-0.43115	False
182015A	1.09636	1.33613	-0.54605	False
182026A	0.78331	1.31397	0.18577	False
182027A	0.79889	1.22084	-0.11181	False
480287	0.79699	0.95180	-0.25541	False
480295	1.19531	1.49801	-0.34815	False
480307	2.29992	2.48565	-0.41001	False
480350	0.73811	0.92015	-0.31689	False
480360	1.39863	1.71227	-0.26955	False
480373	1.16991	1.19351	0.01966	False
480380	1.29429	1.53519	-0.49592	False
489119	1.20791	1.48868	-0.40594	False
489176	0.32594	1.01788	0.52412	False
490454	1.52358	1.88873	-0.09713	False
636508	0.30367	0.54516	-0.37848	False
636512	0.64684	1.27759	0.43075	False
636537	0.28360	0.74884	-0.11420	False
636543	0.51150	0.42326	0.48596	False
636547	-0.05482	0.52939	0.13514	False
636551	0.56591	0.89672	-0.41972	False
636555	1.47830	1.59548	-0.31292	False
674695	-0.50534	-0.32976	-0.00371	False
674704	0.43888	0.66856	-0.37786	False
674723	0.52575	0.75772	-0.40484	False
733277	-0.18927	-0.39929	0.98987	False

Table 2.5.12
b/b Analysis
Mathematics Grade 8

Item Id	Old b	New b	Std Dist	Flag
148061A	0.63668	0.97030	-0.88979	False
148303A	0.53217	0.74262	-0.51409	False
148327A	0.20442	0.51473	-0.97418	False
148379A	-0.44119	0.08969	0.73452	False
148689A	0.57645	0.92043	-0.80379	False
150198A	0.20263	0.81313	1.18280	False
150215A	0.85277	1.20003	-0.83333	False
150218A	0.12818	0.75264	1.29740	False
150223A	-0.57932	0.10487	1.86248	False
151253A	0.43410	0.89808	0.08568	False
151283A	0.07368	0.41598	-0.71923	False
152296A	-1.21504	-0.81415	-0.05064	False
153423A	-0.22608	-0.05208	-0.39794	False
154159A	-0.32463	-0.40036	1.37724	False
154320A	0.15987	0.13595	1.09814	False
161462A	0.28176	0.64277	-0.62480	False
164493A	0.67977	0.85717	-0.24828	False
183795A	0.94552	1.37387	-0.26858	False
183885A	-0.02954	0.22690	-0.95244	False
484750	1.81757	2.46377	1.12891	False
484766	-0.30636	-0.34334	1.10236	False
484772	0.74128	0.85658	0.20968	False
484815	1.41248	1.63826	-0.45504	False
484821	0.18013	0.44967	-1.00626	False
484823	-0.41766	-0.21118	-0.66811	False
484828	-0.05399	0.00921	0.43114	False
484841	1.77775	1.98882	-0.27916	False
484853	-0.65776	0.33596	4.10130	True
484860	1.34449	1.56240	-0.41157	False
484866	0.86709	1.31118	-0.14043	False
484873	1.44111	1.71884	-0.82276	False
484877	-0.10257	0.21642	-0.85283	False
484881	-1.03358	-0.97234	0.25696	False
484977	1.11493	1.27464	-0.03756	False
484984	1.33082	1.50992	-0.13537	False
490067	0.26947	0.53716	-0.97580	False
490116	0.74888	0.88945	0.02960	False
490178	1.67491	2.34906	1.35713	False
636559	0.82246	0.89710	0.51739	False
636567	0.80367	1.23219	-0.24010	False
636578	0.33689	0.62989	-1.12400	False
636590	1.39792	1.45404	0.76104	False
636594	0.69486	0.97946	-1.01553	False
636602	1.73315	1.88971	0.10388	False
636610	-0.36991	-0.39590	1.01119	False
674875	1.13908	1.39648	-0.73475	False
674877	-0.21430	0.26130	0.29377	False
733318	1.47025	1.71498	-0.58008	False
733322	0.41664	0.71243	-1.11928	False
733332	0.67984	0.97119	-1.06691	False

Table 2.5.13
b/b Analysis
Science Grade 5

Item Id	Old b	New b	Std Dist	Flag
184387A	0.03340	0.33076	-0.84227	False
184423A	0.67790	1.09718	-0.34477	False
185413A	0.89080	1.32516	-0.30333	False
186483A	0.35127	1.56720	3.59078	True
186489A	0.30305	0.33323	-0.22988	False
186490A	1.11827	1.18242	-0.27258	False
186754A	-0.79776	-0.74667	-0.49799	False
186756A	-0.20859	-0.60474	1.77266	False
186759A	-0.77861	-0.66083	-0.82043	False
187503A	0.72299	0.91640	-0.96279	False
187505A	-1.36266	-1.07367	-0.67245	False
187510A	-1.39798	-0.88112	0.44449	False
188698A	0.80678	1.00282	-0.96298	False
188699A	0.39987	0.90073	0.09515	False
188700A	0.48177	0.99803	0.15792	False
188717A	-0.52254	-0.49445	-0.34426	False
188718A	-1.19357	-0.89416	-0.64713	False
188720A	-1.46077	-0.98066	0.27469	False
189235A	-1.18430	-0.91716	-0.80595	False
189237A	0.19806	0.31262	-0.65735	False
189238A	0.68155	1.48467	1.52715	False
189340A	-0.44897	-0.17298	-0.87374	False
189341A	-0.01229	0.65381	0.96343	False
189345A	1.20128	1.50498	-0.98757	False
189356A	0.51905	0.88433	-0.58423	False
189358A	0.69985	1.19765	0.03496	False
189361A	-1.22359	-0.69031	0.49827	False
437241	0.11484	0.65013	0.30612	False
437243	1.00965	1.20795	-0.94339	False
437245	0.81493	1.15654	-0.74434	False
638751	0.80767	0.75500	0.25043	False
638753	0.96096	0.72770	1.15452	False
638755	1.11587	1.12619	-0.01035	False
638783	0.52727	0.32224	0.95137	False
638791	-0.50616	-0.26215	-1.02111	False
638793	-0.21064	-0.18118	-0.30388	False
638808	1.17160	0.64212	2.63134	False
638810	0.32215	0.57354	-1.11010	False
638812	0.84769	0.98800	-0.68494	False
701950	0.39336	0.31471	0.31465	False
701956	-0.38445	0.16284	0.44000	False
701960	1.00665	1.16583	-0.75301	False
760514	0.04676	0.02397	-0.01015	False
760544	0.07088	0.10683	-0.29306	False
760546	-0.78070	-1.09276	1.27612	False

Table 2.5.14
b/b Analysis
Science Grade 8

Item Id	Old b	New b	Std Dist	Flag
185899A	-0.02827	0.32855	-0.58552	False
185901A	1.63294	1.90565	-0.80544	False
185916A	0.08882	0.49310	-0.42087	False
186321A	0.27074	0.31644	-0.04602	False
186325A	-0.79571	-0.82089	0.16863	False
186364A	0.31625	0.38369	-0.12173	False
188149A	0.86200	1.44118	0.17390	False
188150A	0.43725	0.74891	-0.76240	False
188153A	0.71967	2.22420	3.46904	True
188312A	1.61317	1.62561	0.11927	False
188317A	-0.69426	-0.04813	0.46648	False
188328A	-0.27799	0.12430	-0.41510	False
188332A	0.21208	0.40655	-0.57704	False
189061A	0.70804	0.90562	-0.57072	False
189076A	0.23591	0.54038	-0.78091	False
189080A	-0.26261	0.17790	-0.27974	False
189438A	0.96797	0.55263	1.61767	False
189440A	-0.48402	-0.81416	1.26385	False
189442A	-1.00059	-0.60469	-0.41250	False
300093A	-0.23823	-0.05400	-0.55641	False
300095A	0.80463	1.21207	-0.43472	False
300097A	-0.34120	-0.08176	-0.82743	False
437757	0.67357	0.89636	-0.66156	False
437771	0.72194	0.90158	-0.50645	False
437788	1.21488	1.60525	-0.50979	False
437995	0.68630	1.14112	-0.26211	False
437999	0.01087	0.23047	-0.67344	False
438018	0.25874	0.75992	-0.08229	False
494074	-1.15646	-0.73980	-0.33322	False
494991	-1.04464	-0.90417	-0.42908	False
638857	1.12024	1.43549	-0.77357	False
638862	1.07552	0.88841	0.80995	False
638866	1.08468	1.21907	-0.33285	False
638873	1.58366	0.50377	4.00209	True
638875	1.51351	1.46864	0.31955	False
638883	-0.91293	-0.36628	0.12043	False
638918	2.02474	2.12611	-0.18250	False
638920	-0.67058	-0.45046	-0.69917	False
638928	-0.20911	0.10269	-0.73925	False
701179	-0.42163	0.42240	1.16057	False
701187	1.40945	1.92071	-0.08677	False
701189	1.12649	1.50291	-0.55629	False
701389	0.43561	1.10982	0.52673	False
701392	0.28964	0.70081	-0.40341	False
701395	0.84916	1.55090	0.61012	False

Table 2.5.15 b/b Analysis—Science Grade 11

Item Id	Old b	New b	Std Dist	Flag
186972A	1.31521	1.15835	-0.32524	False
186989A	0.45358	0.36699	-0.60309	False
186992A	-0.50007	-0.60047	-0.05658	False
187933A	-0.77622	-0.74945	0.78413	False
187935A	-0.28563	-0.25707	0.47533	False
187938A	-0.78203	-0.76094	0.75834	False
187996A	0.36049	0.23444	-0.74804	False
187999A	1.35607	1.24094	-0.51586	False
188008A	1.48831	1.26421	0.13684	False
188657A	1.48803	1.41076	-0.62727	False
188658A	1.84966	1.95285	-0.52095	False
188659A	0.68616	0.94365	1.03629	False
188833A	1.72892	1.68220	-0.63002	False
188834A	1.20145	0.81742	0.78292	False
188835A	0.81907	0.49061	0.24586	False
188947A	1.57494	1.67202	-0.37460	False
188949A	2.03761	1.96643	-0.30260	False
188952A	0.54383	0.58811	0.01928	False
189421A	2.96235	3.36649	0.32335	False
189423A	2.28647	2.93476	2.03188	False
189425A	1.79079	1.91198	-0.38912	False
300046A	1.77166	1.52061	0.46079	False
300048A	-0.71557	-1.07493	-0.58846	False
300049A	0.80939	0.35827	0.87776	False
586027	1.29266	1.16286	-0.48065	False
586029	0.62514	0.81219	0.70937	False
586031	0.35964	0.50049	0.64115	False
586051	1.15261	1.11110	-0.82182	False
586069	1.63552	1.64569	-0.86606	False
586218	0.52243	0.33214	-0.66536	False
586649	0.93152	0.87283	-0.76784	False
586655	1.18518	1.29316	-0.06516	False
586659	-0.31800	-0.35130	0.17447	False
586691	1.52837	1.48828	-0.79456	False
586693	1.05134	0.96046	-0.83962	False
586701	0.94130	0.89713	-0.69864	False
586709	1.01130	0.83967	-0.44545	False
586711	1.48778	1.30595	-0.08343	False
591949	1.32218	1.27754	-0.90458	False
592069	-0.01573	-0.12505	-0.41704	False
592071	-0.44555	-0.64146	-0.58885	False
592073	1.65738	1.51587	-0.18323	False
593424	1.45396	1.18723	0.33637	False
593426	0.69318	0.56049	-0.85433	False
656455	1.89312	1.89972	-0.80096	False
656457	1.12891	1.30176	0.30883	False
656465	1.14962	1.30054	0.18130	False
701400	0.72865	0.88908	0.50375	False
701417	1.07394	1.10911	-0.37185	False
701425	1.32919	1.34970	-0.61363	False
701601	1.86797	1.70622	0.05862	False
701612	0.68525	0.31823	0.35971	False
701624	1.68155	1.76091	-0.53592	False
701635	0.69223	-0.51473	4.73430	True
701641	1.18490	0.25866	3.59322	True
701654	0.22681	0.01454	-0.74269	False
754205	1.36793	1.36105	-0.78126	False
754209	0.77753	0.82484	-0.11649	False
754213	1.70883	1.61782	-0.41261	False

Section 2.6

Final Item Parameters

Table 2.6.1
IRT Parameters for Dichotomous Items
English Language Arts Grade 3

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
146971A	0.85008	0.01815	-0.01723	0.02053	0.24279	0.00726
147007A	0.87621	0.01686	-0.30559	0.02081	0.21164	0.00795
147008A	0.39006	0.00567	-0.79661	0.01555	0.00000	0.00000
147012A	0.55343	0.00650	-1.14042	0.01296	0.00000	0.00000
147348A	0.85439	0.01809	-0.05403	0.02071	0.24440	0.00736
147433A	1.21158	0.02787	0.53402	0.01305	0.32177	0.00428
147436A	1.56676	0.02222	-0.92271	0.01080	0.14254	0.00613
147456A	1.27118	0.02420	0.44845	0.01047	0.21369	0.00386
155253A	0.83562	0.01775	-0.11736	0.02198	0.24314	0.00780
155254A	0.57814	0.01308	-0.14828	0.03157	0.07775	0.01089
155255A	0.98397	0.02167	0.44781	0.01469	0.24696	0.00502
155274A	1.25837	0.01926	-1.09448	0.01630	0.17066	0.00882
155277A	0.84011	0.02097	0.48121	0.01862	0.26550	0.00599
155279A	0.88767	0.01608	-0.42776	0.02033	0.18086	0.00815
155282A	0.69072	0.02228	0.42241	0.03046	0.36296	0.00819
155283A	0.69208	0.01559	-0.67121	0.03811	0.21747	0.01337
156120A	1.25845	0.01954	-0.63443	0.01368	0.19465	0.00656
156121A	0.83288	0.01481	-0.52606	0.02194	0.14154	0.00893
156123A	0.99846	0.02076	0.34324	0.01433	0.23264	0.00510
156124A	0.68376	0.00759	-1.52691	0.01292	0.00000	0.00000
156126A	0.98541	0.01868	0.28111	0.01323	0.17396	0.00494
156355A	0.46228	0.00607	-1.20532	0.01561	0.00000	0.00000
156356A	0.97591	0.01741	-0.32694	0.01749	0.20481	0.00707
156362A	0.27730	0.00528	-0.38909	0.01968	0.00000	0.00000
482318	0.61618	0.01583	0.20338	0.02844	0.15637	0.00941
482320	0.53978	0.00690	-1.80725	0.01824	0.00000	0.00000
482971	0.53162	0.00697	-1.93118	0.01972	0.00000	0.00000
484569	0.51379	0.00620	-0.78393	0.01214	0.00000	0.00000
484571	0.16412	0.00000	8.51997	0.79361	0.00000	0.00000
484575	0.59681	0.01451	-0.39021	0.03992	0.15172	0.01333
484577	1.12248	0.02706	0.75040	0.01328	0.27355	0.00407
484579	1.15557	0.02194	0.35415	0.01157	0.21043	0.00431
484581	0.20165	0.00525	1.02760	0.04289	0.00000	0.00000
628643	0.80369	0.02723	1.12145	0.02122	0.29715	0.00515

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
628734	0.65661	0.01448	-0.39828	0.03275	0.14940	0.01158
628961	0.70742	0.01309	-0.11365	0.02003	0.06843	0.00754
630590	0.99243	0.02085	0.43892	0.01384	0.21770	0.00485
701185	0.62555	0.01451	-0.39948	0.03637	0.15209	0.01249
701219	0.11366	0.00000	5.09805	0.39464	0.25000	0.00000
701289	0.56373	0.02564	1.54305	0.03357	0.23322	0.00716
705924	1.01948	0.01511	-1.01699	0.01837	0.10066	0.00914
715595	0.66803	0.01116	-0.76598	0.02667	0.04217	0.01051
758779	0.93026	0.01642	-0.43263	0.01897	0.18354	0.00776
759133	0.73297	0.01729	0.06901	0.02463	0.22224	0.00828
759149	0.99272	0.02216	0.37316	0.01549	0.27736	0.00526
759159	0.35761	0.00558	-1.03636	0.01836	0.00000	0.00000
759170	0.85261	0.01127	-1.85526	0.02269	0.02862	0.01150
765883	0.65643	0.01120	-0.60848	0.02547	0.04062	0.00976

Table 2.6.2

IRT Parameters for Polytomous Items

English Language Arts Grade 3

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
627921	1.04532	0.00650	0.66289	0.00611	1.45750	0.00671	-1.45750	0.01321	0.00000	0.00000
628835	0.90508	0.00554	0.75490	0.00688	1.62763	0.00747	-1.62763	0.01551	0.00000	0.00000

Table 2.6.3
IRT Parameters for Dichotomous Items
English Language Arts Grade 4

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
146887A	0.78877	0.01583	-0.39712	0.02254	0.16783	0.00854
148938A	1.41553	0.02382	-1.33986	0.01715	0.25001	0.00944
149114A	0.85950	0.01008	-1.58769	0.01549	0.01482	0.00623
149115A	0.85171	0.02019	0.39821	0.01630	0.20462	0.00557
149116A	1.15724	0.01947	-0.88471	0.01728	0.22933	0.00798
149136A	1.10065	0.01947	0.09472	0.01124	0.15522	0.00447
155490A	1.14196	0.02143	0.03434	0.01229	0.21845	0.00488
155569A	0.71537	0.01532	-0.56099	0.02930	0.17017	0.01070
155571A	0.75016	0.01075	-1.47321	0.02487	0.03259	0.01101
155572A	0.74195	0.01433	-1.34732	0.03823	0.13825	0.01627
155580A	1.05640	0.01582	-0.93567	0.01611	0.11159	0.00767
158587A	1.17535	0.01921	-0.33886	0.01227	0.17786	0.00538
158589A	1.52657	0.02368	-0.77556	0.01136	0.21478	0.00586
158602A	0.61201	0.01831	0.21086	0.03083	0.22124	0.00960
158604A	0.48720	0.00658	-1.82289	0.01920	0.00000	0.00000
158611A	0.51929	0.01377	-0.87941	0.05924	0.11994	0.01912
158691A	0.94798	0.01067	-2.02376	0.01237	0.00000	0.00000
158692A	0.64405	0.01712	0.18389	0.02581	0.17588	0.00862
184821A	1.07383	0.01725	-0.20048	0.01178	0.12521	0.00496
184822A	1.43831	0.05624	1.45169	0.01968	0.26203	0.00276
184824A	1.13545	0.01851	-1.43796	0.02155	0.17691	0.01150
185806A	0.64822	0.02033	0.68836	0.02326	0.20360	0.00718
186065A	0.84689	0.02072	0.54481	0.01589	0.19209	0.00522
483086	0.64639	0.01825	-0.02237	0.03230	0.25134	0.01000
483094	0.67034	0.01120	-0.99491	0.02729	0.04086	0.01081
483115	0.80361	0.01973	0.34198	0.01820	0.21450	0.00618
484626	0.67901	0.01635	-0.78233	0.04074	0.24047	0.01373
484628	1.08645	0.01920	-1.03018	0.02101	0.25113	0.00947
484632	1.52798	0.02669	-0.29794	0.01073	0.28340	0.00486
484636	0.25611	0.01037	-0.89157	0.16972	0.07719	0.03214
484652	0.72481	0.02094	0.70038	0.01978	0.20185	0.00608
484654	0.83242	0.01904	0.22985	0.01737	0.20295	0.00612
484658	1.16263	0.02053	-0.41984	0.01443	0.24346	0.00612
632843	0.70306	0.02064	0.93934	0.01960	0.14880	0.00541

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
632853	0.98710	0.01604	-1.04021	0.02034	0.14685	0.00948
632863	0.65599	0.01520	0.01587	0.02362	0.11955	0.00837
632877	0.46726	0.01128	-1.21412	0.06639	0.06774	0.02129
635527	0.51295	0.01251	-1.08473	0.05956	0.08635	0.01996
635530	0.44913	0.00788	-1.33071	0.04106	0.02875	0.01257
759364	0.88426	0.02028	0.36349	0.01559	0.20496	0.00541
759367	0.77908	0.01287	-1.28521	0.02826	0.07010	0.01270
759400	0.43002	0.01520	-0.15652	0.06556	0.11885	0.01827
759440	1.40893	0.02279	-0.92704	0.01388	0.23965	0.00701
759873	0.95873	0.01508	-1.07349	0.02014	0.11272	0.00947
759877	1.09383	0.02129	-0.07205	0.01412	0.25152	0.00550
759944	0.67256	0.01786	-0.07224	0.02992	0.23946	0.00959
765830	0.57995	0.01497	-0.03520	0.03103	0.11818	0.01043
765847	0.60920	0.01505	-0.33260	0.03459	0.14792	0.01166

Table 2.6.4

IRT Parameters for Polytomous Items

English Language Arts Grade 4

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
629160	0.68339	0.00393	0.27221	0.00815	1.38466	0.00931	-1.38466	0.01274	0.00000	0.00000
629614	0.75836	0.00559	1.50304	0.00897	1.31962	0.00845	-1.31962	0.02132	0.00000	0.00000

Table 2.6.5
IRT Parameters for Dichotomous Items
English Language Arts Grade 5

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
147920A	1.15023	0.02667	-0.86373	0.03034	0.40088	0.01340
147921A	1.01953	0.01934	-0.45210	0.02032	0.17214	0.01001
147923A	0.86317	0.01799	-0.55069	0.02800	0.15967	0.01288
147924A	0.72234	0.01428	-0.93025	0.03639	0.06488	0.01681
147926A	0.85563	0.02201	0.13174	0.02400	0.25226	0.00929
147969A	1.00762	0.01632	-1.22979	0.02410	0.05805	0.01417
148003A	0.48592	0.01434	-0.55911	0.06837	0.07687	0.02281
148007A	0.34929	0.00698	-1.26791	0.02626	0.00000	0.00000
148008A	0.28286	0.02086	0.90392	0.15899	0.11768	0.03418
148961A	0.84296	0.01699	-0.82565	0.03191	0.12577	0.01547
148963A	1.27030	0.02306	-0.96306	0.02082	0.21056	0.01233
148967A	1.87258	0.03007	-0.86246	0.01103	0.16637	0.00788
148971A	0.70145	0.01606	-0.55973	0.03726	0.10648	0.01575
149152A	1.12658	0.02147	-1.40581	0.03079	0.16203	0.01948
149158A	0.52772	0.01536	-0.17191	0.04985	0.07583	0.01742
149196A	0.65430	0.01315	-1.09671	0.04328	0.05822	0.01912
149318A	1.07466	0.02036	-0.35086	0.01831	0.18975	0.00901
149321A	0.44169	0.00741	-1.21447	0.02052	0.00000	0.00000
149330A	0.89504	0.01838	-1.09411	0.03628	0.16147	0.01865
149334A	0.89355	0.01882	-0.07969	0.02038	0.15626	0.00903
149338A	1.38435	0.02314	-0.32479	0.01226	0.17807	0.00682
158749A	1.04822	0.02119	0.02928	0.01599	0.18991	0.00731
159592A	1.09198	0.02441	-0.15413	0.02014	0.31257	0.00857
159600A	1.04347	0.01754	-1.62736	0.02896	0.06224	0.01888
160718A	1.05373	0.01870	-1.41364	0.02935	0.09624	0.01851
186107A	1.28298	0.02459	-0.72717	0.01982	0.27574	0.01063
186115A	0.85337	0.02271	0.57335	0.01842	0.19313	0.00709
186121A	1.03377	0.02089	-0.13138	0.01796	0.20310	0.00829
186469A	1.27997	0.02482	0.56381	0.00978	0.12984	0.00403
186471A	1.29433	0.02475	-1.45124	0.02722	0.18650	0.01852
186476A	0.88341	0.02006	-0.01845	0.02195	0.19766	0.00928
186505A	1.10398	0.03246	0.99608	0.01521	0.24043	0.00461
186777A	1.24147	0.02515	-1.07534	0.02624	0.29114	0.01456
483126	0.70725	0.01619	-0.98110	0.04739	0.11840	0.02111

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
483138	0.85668	0.02054	-0.22626	0.02793	0.24479	0.01131
483140	1.04040	0.01408	-1.85124	0.01535	0.00000	0.00000
483162	1.30227	0.02764	-2.16862	0.03863	0.11439	0.03292
483172	0.84922	0.01768	-0.95432	0.03578	0.15024	0.01749
483179	0.60233	0.02023	-0.68062	0.07478	0.27899	0.02396
630737	0.98562	0.01904	-0.68465	0.02459	0.17434	0.01232
631575	0.58458	0.01593	-0.01385	0.03775	0.07980	0.01405
631601	0.96027	0.02065	-0.13420	0.02074	0.21473	0.00913
631654	0.65998	0.01710	-0.30737	0.03946	0.13387	0.01533
631918	0.74019	0.01779	0.09492	0.02468	0.12440	0.01009
631922	0.69260	0.00973	-1.70267	0.01876	0.00000	0.00000
631955	1.02380	0.01573	-1.40419	0.02297	0.04242	0.01374
631981	1.27489	0.02204	-0.11112	0.01212	0.16390	0.00627
632263	0.90245	0.01261	-1.71686	0.01972	0.01815	0.00831
632269	0.66745	0.02188	0.47092	0.03087	0.21625	0.01080
632323	1.17947	0.02460	0.10176	0.01464	0.24973	0.00660

Table 2.6.6
IRT Parameters for Polytomous Items
English Language Arts Grade 5

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
761899	0.80893	0.00432	0.49725	0.00716	4.18036	0.02755	0.73293	0.00799	-1.13913	0.01148

Item ID	Parameters and Measures of Standard Error			
	d3	SE(d3)	d4	SE(d4)
761899	-3.77417	0.05203	0.00000	0.00000

Table 2.6.7
IRT Parameters for Dichotomous Items
English Language Arts Grade 6

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
147283A	0.88158	0.01613	-0.98475	0.02658	0.18692	0.01174
147289A	0.47847	0.01776	-0.56674	0.08597	0.28001	0.02170
147290A	0.81419	0.01717	-0.63741	0.02857	0.24966	0.01074
149570A	0.99944	0.01912	-0.25683	0.01712	0.24278	0.00681
149571A	1.29238	0.01838	-0.51538	0.01046	0.11999	0.00515
149737A	0.58800	0.01497	-0.52755	0.04413	0.16371	0.01474
158702A	1.55292	0.02280	-0.08052	0.00779	0.13491	0.00360
158705A	1.53738	0.02164	-1.50751	0.01254	0.07829	0.00833
158723A	0.98146	0.01445	-1.61800	0.02299	0.05894	0.01301
158739A	0.84865	0.01470	-1.29948	0.02963	0.12108	0.01427
158740A	0.37070	0.00587	-1.36883	0.02004	0.00000	0.00000
158747A	0.69797	0.01050	-1.25665	0.02635	0.03332	0.01131
158756A	0.22696	0.02850	2.89083	0.12923	0.16830	0.02897
158774A	1.22390	0.02052	-0.51810	0.01396	0.23201	0.00643
158777A	0.81409	0.01388	-1.04671	0.02629	0.09845	0.01195
158786A	1.06945	0.01740	-1.17163	0.02074	0.16717	0.01071
158886A	0.88194	0.01280	-1.90084	0.02672	0.04307	0.01480
158897A	0.83314	0.01646	-0.54221	0.02426	0.20391	0.00956
158935A	0.62231	0.01491	-0.48400	0.03798	0.15881	0.01317
158943A	1.63335	0.04445	0.93009	0.01135	0.30117	0.00301
158947A	1.05001	0.02282	-0.02256	0.01710	0.33004	0.00607
159451A	0.60563	0.01365	-1.46778	0.06039	0.12698	0.02381
159453A	0.50991	0.01314	-1.25225	0.07326	0.11252	0.02491
159454A	0.82209	0.02137	0.81923	0.01667	0.17978	0.00492
159457A	0.66616	0.01641	-1.19277	0.05547	0.25840	0.01960
159458A	0.61909	0.01722	-0.47153	0.04624	0.26921	0.01411
485443	0.93233	0.02033	0.59469	0.01357	0.16145	0.00448
485688	1.13768	0.01982	-0.91201	0.01912	0.25325	0.00902
485702	1.20060	0.02169	-0.94408	0.01938	0.30059	0.00902
486350	0.39151	0.00979	-0.22821	0.04939	0.03526	0.01364
486369	0.86601	0.01417	-0.80204	0.02066	0.09762	0.00930
486371	0.96226	0.01993	-0.36510	0.02089	0.30236	0.00780
486376	1.24329	0.02151	-0.52981	0.01448	0.26340	0.00656
629854	0.64542	0.02274	1.36243	0.02588	0.15406	0.00553

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
629856	0.82478	0.01611	-0.42022	0.02236	0.18112	0.00881
629867	1.34071	0.02361	-0.87573	0.01628	0.30544	0.00788
629869	0.67074	0.01659	-0.06317	0.02876	0.19575	0.00976
629871	0.64498	0.02020	0.68502	0.02485	0.22057	0.00761
629885	0.75537	0.01810	0.06260	0.02333	0.22972	0.00800
629889	0.67838	0.02631	1.42359	0.02813	0.21143	0.00545
629891	1.44068	0.03154	0.51479	0.01070	0.28558	0.00366
629895	0.52862	0.01331	-0.79570	0.05470	0.10295	0.01840
629898	0.92359	0.02241	0.81547	0.01462	0.17454	0.00425
708956	0.41857	0.01021	-0.99797	0.06746	0.05409	0.02001
709888	0.51335	0.01069	-1.11190	0.05016	0.05326	0.01755
709904	0.90346	0.01800	-0.67783	0.02489	0.26342	0.00984
709910	0.90839	0.02189	0.32065	0.01771	0.28073	0.00589
710081	0.60537	0.01397	-0.24976	0.03163	0.10280	0.01119

Table 2.6.8

IRT Parameters for Polytomous Items

English Language Arts Grade 6

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
630290	0.65058	0.00405	0.93419	0.00876	1.40220	0.00913	-1.40220	0.01626	0.00000	0.00000
630430	0.62969	0.00503	1.95411	0.01211	1.29484	0.01021	-1.29484	0.02409	0.00000	0.00000

Table 2.6.9
IRT Parameters for Dichotomous Items
English Language Arts Grade 7

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
148104A	0.95729	0.01432	-0.55778	0.01479	0.09024	0.00656
148117A	0.80407	0.01881	0.15741	0.02042	0.24505	0.00693
148759A	0.75020	0.01549	-0.27475	0.02385	0.17358	0.00880
148760A	0.73516	0.01222	-0.80526	0.02406	0.06209	0.01001
148762A	0.59529	0.01513	-0.98642	0.05657	0.21565	0.01869
148785A	0.82136	0.02713	1.31277	0.02182	0.20468	0.00424
148823A	0.71599	0.01390	-1.10168	0.03636	0.14054	0.01488
148850A	0.65259	0.01370	-1.38143	0.04995	0.14098	0.02008
148859A	0.97798	0.01508	-1.74363	0.02627	0.08364	0.01512
148861A	0.88118	0.01735	0.20361	0.01482	0.15836	0.00550
148866A	0.79566	0.01843	-0.42207	0.02925	0.31487	0.00969
154639A	0.72546	0.01993	0.65442	0.01989	0.20920	0.00625
158719A	0.85852	0.01857	0.26313	0.01649	0.20073	0.00585
158724A	1.17468	0.02242	-0.03335	0.01347	0.28178	0.00523
158765A	0.93486	0.01846	-0.30964	0.01957	0.26116	0.00740
158766A	0.67830	0.01545	-0.59210	0.03571	0.20894	0.01241
158769A	0.14161	0.00500	-1.49507	0.05245	0.00000	0.00000
159120A	1.09318	0.01617	-0.73089	0.01443	0.12952	0.00690
159133A	0.72810	0.02383	0.80187	0.02285	0.29794	0.00631
159393A	0.26789	0.02647	2.70688	0.09661	0.13640	0.02039
159394A	0.59685	0.02194	0.66487	0.03211	0.30147	0.00883
159646A	0.73386	0.01396	-0.14750	0.01972	0.09801	0.00752
160457A	0.46160	0.01759	0.46843	0.04760	0.17700	0.01354
160508A	0.65919	0.01245	-0.63731	0.02852	0.07369	0.01097
160511A	0.38678	0.00772	-0.47561	0.03887	0.02379	0.01036
160937A	0.98457	0.01343	-1.17963	0.01700	0.05220	0.00855
160940A	1.08365	0.01615	-1.47913	0.02040	0.10319	0.01156
182584A	0.47272	0.01157	0.05532	0.03432	0.03989	0.01086
182596A	1.15880	0.01846	-0.70290	0.01515	0.20256	0.00712
182597A	0.55311	0.01551	-0.55273	0.05345	0.20858	0.01625
485453	1.01328	0.01839	0.01976	0.01353	0.18494	0.00532
486286	0.28706	0.02176	2.23449	0.07092	0.09435	0.01800
486294	1.02196	0.02755	1.03166	0.01518	0.21325	0.00368
486317	0.25813	0.00526	-0.35678	0.02073	0.00000	0.00000

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
486333	1.09309	0.01905	-0.54412	0.01664	0.24803	0.00712
633929	0.60603	0.02111	1.52813	0.02818	0.10376	0.00511
634354	0.42761	0.02319	1.18257	0.04876	0.25020	0.01284
634364	0.94155	0.02158	0.23179	0.01709	0.29003	0.00577
634366	0.64254	0.02428	0.74299	0.03007	0.34939	0.00782
634374	0.86747	0.02763	1.04218	0.01932	0.27916	0.00465
634379	0.79680	0.01418	-0.35893	0.01942	0.11222	0.00776
634389	0.46776	0.01276	-0.62562	0.06067	0.08792	0.01863
711110	0.88087	0.01684	-0.39407	0.02057	0.21529	0.00800
711120	0.71983	0.01846	-0.63584	0.04084	0.35312	0.01240
711137	0.62390	0.01401	-0.52243	0.03559	0.13631	0.01256
711145	1.04493	0.01855	-0.72661	0.01952	0.25720	0.00837
711168	0.94683	0.01875	-0.34907	0.01992	0.27411	0.00751
711173	0.94881	0.02106	0.15923	0.01703	0.28406	0.00588

Table 2.6.10
IRT Parameters for Polytomous Items
English Language Arts Grade 7

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
630545	0.67159	0.00426	1.23306	0.00855	1.72458	0.00882	-1.72458	0.02107	0.00000	0.00000
630649	0.61643	0.00358	0.45678	0.00865	1.32412	0.00959	-1.32412	0.01331	0.00000	0.00000

Table 2.6.11
IRT Parameters for Dichotomous Items
English Language Arts Grade 8

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
148177A	0.86047	0.01421	-1.11556	0.02649	0.05848	0.01362
148187A	0.53938	0.00790	-1.62161	0.02036	0.00000	0.00000
148189A	0.46098	0.01439	-0.24296	0.06192	0.07289	0.01957
148191A	0.55744	0.01144	-0.85044	0.04214	0.04449	0.01589
149619A	0.75558	0.01773	0.03011	0.02416	0.15402	0.00969
149653A	0.98845	0.01911	-0.15102	0.01742	0.18325	0.00791
149654A	0.80950	0.02952	1.18563	0.02169	0.22797	0.00582
149721A	0.89359	0.01249	-1.74141	0.02232	0.02571	0.01108
149731A	0.60226	0.02679	1.60836	0.03319	0.13291	0.00697
149744A	1.61205	0.02933	0.22814	0.00895	0.22712	0.00436
160467A	0.41142	0.00705	-1.52620	0.02442	0.00000	0.00000
160472A	0.55712	0.01244	-1.26857	0.05985	0.06950	0.02348
160477A	1.09566	0.03528	1.18006	0.01677	0.23257	0.00410
160742A	0.83520	0.01609	-0.68740	0.02733	0.12742	0.01264
160745A	0.81882	0.01272	-1.46492	0.02846	0.04076	0.01468
160747A	0.63788	0.01658	-0.63213	0.04869	0.16471	0.01822
160784A	1.25869	0.02118	-1.91854	0.02552	0.06588	0.01868
160785A	0.92957	0.01759	-1.70222	0.04068	0.11834	0.02426
160787A	0.64263	0.01455	-0.37694	0.03383	0.07854	0.01342
160788A	0.41155	0.00689	-1.21001	0.02044	0.00000	0.00000
160789A	1.10315	0.02734	0.65296	0.01351	0.24057	0.00502
160790A	0.31323	0.00657	-1.51643	0.03117	0.00000	0.00000
160946A	1.12461	0.02136	0.25445	0.01190	0.16171	0.00535
160947A	0.50659	0.00762	-1.55784	0.02069	0.00000	0.00000
160956A	0.40449	0.01427	-0.45461	0.09096	0.08334	0.02580
160989A	0.27691	0.00629	-0.21091	0.02020	0.00000	0.00000
160992A	0.44492	0.00731	-1.63637	0.02424	0.00000	0.00000
485471	0.69185	0.02506	0.38573	0.03529	0.35307	0.01052
485506	1.42837	0.06907	1.83435	0.02904	0.18311	0.00251
486744	0.57777	0.01814	0.02275	0.04399	0.17037	0.01485
486757	0.83617	0.02834	1.01281	0.01986	0.24514	0.00602
486763	0.45949	0.01332	-2.10708	0.13726	0.13160	0.04855
487006	0.73531	0.01358	-1.56953	0.04366	0.06909	0.02199
626597	0.50092	0.02508	0.60405	0.05892	0.30516	0.01574

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
626602	0.52856	0.00725	-0.39139	0.01136	0.00000	0.00000
626606	1.30613	0.05039	1.37390	0.01895	0.28901	0.00347
626623	0.23845	0.01471	-0.37295	0.26890	0.11787	0.04622
626626	1.35294	0.02422	0.37640	0.00916	0.14874	0.00411
626777	0.91242	0.02448	0.70979	0.01613	0.21027	0.00586
626785	1.37948	0.02288	-0.70007	0.01477	0.21551	0.00846
626800	1.19372	0.02948	0.76351	0.01233	0.22592	0.00437
626814	0.34587	0.02163	0.83904	0.09831	0.13851	0.02523
627061	1.05246	0.01524	-1.32923	0.01980	0.04152	0.01141
760819	0.56671	0.01890	0.27443	0.04021	0.16695	0.01355
760826	0.59634	0.02355	0.84342	0.03114	0.21848	0.01029
760830	0.90689	0.02118	0.91381	0.01348	0.08669	0.00424
760834	0.92642	0.02014	0.11348	0.01788	0.19994	0.00752
760837	1.11156	0.02316	-1.75532	0.04048	0.23292	0.02506
760844	0.58049	0.01453	-0.69261	0.05086	0.09216	0.01911
760851	0.67493	0.01056	-2.39220	0.02749	0.00000	0.00000

Table 2.6.12
IRT Parameters for Polytomous Items
English Language Arts Grade 8

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
761992	0.79747	0.00375	-0.71456	0.00657	3.44708	0.03369	0.68403	0.00922	-0.99344	0.00789

Item ID	Parameters and Measures of Standard Error			
	d3	SE(d3)	d4	SE(d4)
761992	-3.13769	0.01640	0.00000	0.00000

Table 2.6.13
IRT Parameters for Dichotomous Items
Mathematics Grade 3

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
146917A	0.84682	0.01091	-1.55184	0.01980	0.02538	0.00932
146955A	0.77051	0.01620	-0.71856	0.03172	0.23531	0.01169
147044A	0.72123	0.01474	-0.67701	0.03131	0.16921	0.01178
147064A	0.91990	0.01895	-2.19489	0.05196	0.21859	0.02930
147330A	1.39998	0.02070	-1.37026	0.01473	0.13124	0.00898
147503A	1.78633	0.02325	-0.82153	0.00779	0.09015	0.00434
147542A	0.94465	0.01733	-0.84266	0.02383	0.23662	0.01002
147712A	1.21552	0.01924	-1.02011	0.01671	0.19695	0.00854
147718A	0.92350	0.01586	-0.83866	0.02207	0.17278	0.00968
147966A	0.72283	0.03669	1.76535	0.03979	0.34054	0.00493
151560A	0.80355	0.01464	-1.15040	0.03148	0.15017	0.01377
152325A	0.82984	0.01706	-0.61010	0.02733	0.25535	0.01013
152546A	0.79764	0.01411	-1.40681	0.03425	0.11914	0.01602
152598A	1.57625	0.02635	0.30324	0.00800	0.17033	0.00324
152739A	0.73658	0.01316	-1.52376	0.03902	0.09398	0.01804
152842A	1.01377	0.02012	0.83979	0.01162	0.09966	0.00317
152864A	0.81614	0.01897	0.07730	0.02167	0.26845	0.00725
153168A	1.54459	0.02151	-0.64666	0.00940	0.13794	0.00494
154329A	0.80487	0.01212	-1.71116	0.02955	0.04950	0.01496
154533A	1.15353	0.01929	-0.30420	0.01339	0.20637	0.00577
154758A	1.29176	0.01817	-0.60630	0.01102	0.12236	0.00540
154760A	1.38179	0.02019	-0.38826	0.00997	0.15175	0.00476
155260A	1.37008	0.01716	-1.34402	0.01125	0.03715	0.00624
155455A	0.98899	0.02390	0.96979	0.01415	0.17483	0.00371
155501A	1.09356	0.02154	0.54287	0.01142	0.17059	0.00390
155525A	1.71143	0.02231	-0.89451	0.00835	0.08816	0.00468
155594A	0.98930	0.01881	-0.26104	0.01758	0.24870	0.00682
155999A	0.66756	0.01820	0.30180	0.02669	0.23643	0.00836
184065A	0.85860	0.01587	-0.93171	0.02730	0.19726	0.01147
479107	0.84829	0.01285	-1.72302	0.02880	0.05532	0.01514
479111	0.89669	0.01386	-0.87968	0.01963	0.08790	0.00893
479113	1.04833	0.01471	-1.85920	0.02113	0.04323	0.01252
479117	0.87340	0.02013	-0.11071	0.02288	0.32600	0.00754
479125	1.21913	0.02542	-2.46779	0.04004	0.18274	0.02993

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
479138	1.06946	0.01862	0.11774	0.01192	0.16069	0.00470
479140	0.89320	0.01559	-0.43208	0.01852	0.15345	0.00760
488998	1.20600	0.03390	0.85354	0.01474	0.35720	0.00387
636391	1.19717	0.01933	-0.98589	0.01720	0.21131	0.00857
636402	0.69070	0.01428	-0.74603	0.03415	0.15356	0.01282
636410	0.75789	0.01029	-2.01905	0.02596	0.02844	0.01211
636412	1.17910	0.02878	0.62715	0.01358	0.32015	0.00416
636429	0.61757	0.01900	-0.40165	0.05159	0.36803	0.01351
636437	0.71497	0.01401	-0.25454	0.02297	0.11181	0.00862
636439	0.42143	0.01595	-0.62494	0.10204	0.20496	0.02555
636443	0.41392	0.01322	-0.03206	0.06004	0.07582	0.01691
674356	0.79191	0.01399	-1.08299	0.02941	0.12183	0.01286
674370	0.70326	0.01257	0.49644	0.01343	0.02574	0.00419
674378	0.63505	0.01819	0.45740	0.02667	0.21667	0.00829
733123	0.90879	0.01536	-0.83818	0.02180	0.15280	0.00962
733127	1.05905	0.02077	-1.31237	0.02928	0.33146	0.01300

Table 2.6.15
IRT Parameters for Dichotomous Items
Mathematics Grade 4

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
147319A	0.72382	0.01502	-1.46271	0.04820	0.21992	0.01929
147525A	0.91542	0.01548	-0.58482	0.01987	0.17227	0.00821
148069A	0.83875	0.01528	-1.30107	0.03297	0.19120	0.01451
148301A	0.80104	0.01907	0.86506	0.01676	0.17970	0.00490
148654A	1.19395	0.02133	0.65381	0.01006	0.13651	0.00327
148675A	0.72699	0.02225	1.30760	0.02170	0.21420	0.00497
149723A	0.94803	0.01841	0.36706	0.01438	0.18949	0.00501
150227A	0.41917	0.02006	1.34677	0.04701	0.22379	0.01176
150722A	1.09228	0.03880	1.57497	0.02084	0.31927	0.00338
151506A	0.90508	0.01683	0.20779	0.01514	0.16700	0.00546
151519A	1.22004	0.01653	-1.48776	0.01483	0.05142	0.00830
151549A	0.78738	0.01751	-0.52621	0.03187	0.32047	0.01038
151556A	1.17414	0.01839	-0.52685	0.01404	0.18662	0.00634
151997A	1.16152	0.02032	0.17808	0.01190	0.19990	0.00456
152343A	1.83804	0.03130	0.30331	0.00768	0.20417	0.00323
152353A	0.97211	0.01663	-0.47155	0.01822	0.19862	0.00745
152355A	0.96631	0.01846	-1.09002	0.02828	0.29970	0.01169
152518A	0.84551	0.01421	-1.07692	0.02638	0.13846	0.01165
152776A	0.31579	0.00543	-1.74312	0.02833	0.00000	0.00000
152789A	0.86415	0.01669	0.48830	0.01430	0.13743	0.00483
152874A	1.17083	0.02387	0.83827	0.01134	0.17767	0.00338
152988A	1.21917	0.02151	-0.28697	0.01441	0.27623	0.00590
153171A	0.96692	0.01780	0.05640	0.01547	0.20311	0.00574
153185A	1.07938	0.02138	0.42780	0.01316	0.23060	0.00453
153189A	1.11116	0.01806	0.16930	0.01117	0.13999	0.00430
153206A	0.89429	0.01475	-0.54990	0.01916	0.14353	0.00792
153325A	1.83248	0.03549	0.62588	0.00818	0.22721	0.00299
153346A	0.70716	0.00983	-2.61288	0.02306	0.00000	0.00000
154024A	0.93425	0.01412	-0.13857	0.01316	0.08243	0.00519
155167A	0.98232	0.01369	-2.13196	0.02162	0.02999	0.01146
155192A	0.47127	0.02395	1.65202	0.04279	0.28337	0.00908
155220A	0.66590	0.01601	-0.76679	0.04558	0.29386	0.01427
156019A	0.95936	0.01713	-0.06403	0.01589	0.19227	0.00605
184241A	0.77487	0.00948	-1.11322	0.01622	0.01653	0.00621

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
479500	0.99145	0.02162	-1.02300	0.03182	0.42583	0.01116
479507	0.73703	0.02426	-0.29310	0.04814	0.56835	0.00961
479930	0.42104	0.01416	-0.99277	0.10970	0.19677	0.02819
636619	1.13422	0.01973	-0.71774	0.01827	0.27073	0.00792
636627	1.07966	0.02519	1.20056	0.01356	0.16071	0.00311
636641	1.29218	0.02007	0.02405	0.01003	0.15522	0.00417
636649	0.98249	0.01717	-1.13814	0.02509	0.22527	0.01140
636657	0.61479	0.01817	0.76939	0.02660	0.22468	0.00759
636659	0.84014	0.01791	0.62412	0.01554	0.16847	0.00499
636666	1.24458	0.01951	-0.69985	0.01433	0.20270	0.00682
636668	0.78028	0.01395	-0.49851	0.02331	0.14043	0.00900
733078	1.09398	0.01612	-0.37847	0.01270	0.11970	0.00553
733086	0.96623	0.02130	-0.80480	0.03007	0.42390	0.01001
733092	1.07522	0.01556	-1.50019	0.01929	0.07489	0.01058
733100	0.79322	0.01987	0.34966	0.02286	0.31012	0.00678
733102	1.05448	0.00967	-0.16204	0.00662	0.00000	0.00000

Table 2.6.17
IRT Parameters for Dichotomous Items
Mathematics Grade 5

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
146915A	1.04660	0.01522	-0.73817	0.01499	0.09551	0.00717
146959A	0.54305	0.00942	-0.54272	0.02846	0.02748	0.00965
147747A	0.89781	0.01845	-0.13826	0.02049	0.25785	0.00742
147990A	1.33774	0.02224	0.37181	0.00904	0.14106	0.00340
148011A	1.16396	0.01836	-0.50469	0.01392	0.17518	0.00645
148659A	1.32906	0.02055	-0.16060	0.01030	0.16330	0.00462
149230A	1.25110	0.02064	0.02324	0.01084	0.17784	0.00453
149246A	0.88495	0.01694	-0.23555	0.01986	0.20666	0.00762
149261A	1.08379	0.01904	0.43031	0.01089	0.12851	0.00389
149289A	1.17160	0.03143	0.91669	0.01463	0.32223	0.00387
149640A	1.29981	0.03354	1.22681	0.01317	0.20155	0.00289
150267A	0.55168	0.01542	0.38584	0.03207	0.14010	0.01009
150631A	1.18935	0.01707	-0.62661	0.01253	0.11553	0.00612
150689A	1.59443	0.03294	0.35315	0.01043	0.32628	0.00386
150703A	0.67985	0.02292	1.64673	0.02676	0.14002	0.00452
150711A	1.67023	0.03224	0.40858	0.00909	0.26165	0.00350
152807A	0.97394	0.01823	0.36913	0.01294	0.14949	0.00467
152946A	0.97333	0.01583	-0.67609	0.01839	0.14851	0.00829
153107A	1.47627	0.03035	0.26198	0.01141	0.33531	0.00421
153162A	0.83517	0.02108	-1.28087	0.05068	0.44888	0.01640
153165A	1.21597	0.02243	0.16804	0.01201	0.23301	0.00465
153950A	0.56950	0.00903	-1.58225	0.03731	0.03541	0.01442
153972A	0.75803	0.01597	-0.47739	0.02926	0.21935	0.01061
155145A	0.92431	0.01741	-0.49553	0.02163	0.23438	0.00861
155234A	1.71657	0.03373	1.17869	0.00881	0.06887	0.00166
155426A	0.73423	0.01357	-1.93439	0.04875	0.09896	0.02447
155434A	0.86226	0.01798	0.17565	0.01795	0.20834	0.00638
155474A	1.12544	0.01867	-0.37342	0.01446	0.19742	0.00634
155479A	1.15253	0.02432	0.92592	0.01159	0.15124	0.00318
155489A	1.12175	0.02297	0.45722	0.01274	0.23551	0.00441
155523A	0.76264	0.01351	-1.53142	0.03785	0.09894	0.01807
161469A	0.78631	0.01083	-0.88608	0.01817	0.02677	0.00765
184261A	0.53975	0.01545	-0.02053	0.04384	0.18153	0.01313
187144A	1.14830	0.02662	0.63779	0.01358	0.29054	0.00423

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
187147A	1.03316	0.01996	-0.00678	0.01575	0.24925	0.00596
484706	0.79072	0.01812	-0.19789	0.02708	0.28701	0.00900
489954	0.82283	0.01395	-1.96865	0.03867	0.08000	0.02122
636681	1.36886	0.02270	0.57718	0.00844	0.10630	0.00279
636693	0.84551	0.01625	-1.69501	0.04195	0.18367	0.02081
636705	0.58846	0.00888	-2.69854	0.02853	0.00000	0.00000
636726	1.47632	0.02415	0.03701	0.00937	0.19562	0.00407
636730	0.89392	0.01773	0.93387	0.01277	0.07465	0.00330
636735	0.47905	0.00648	-1.62114	0.01857	0.00000	0.00000
636740	0.96700	0.02096	0.50468	0.01474	0.22336	0.00493
636748	0.71745	0.02006	0.63299	0.02302	0.25541	0.00686
674572	0.87036	0.01507	-1.22289	0.02870	0.14495	0.01359
674574	0.93805	0.01625	-1.27516	0.02748	0.17214	0.01347
733184	1.12018	0.01855	-1.03226	0.01959	0.20509	0.00980
733196	0.62519	0.01707	0.30061	0.03000	0.21286	0.00928
674588	0.38560	0.00695	2.01737	0.03916	0.00000	0.00000

Table 2.6.19
IRT Parameters for Dichotomous Items
Mathematics Grade 6

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
147578A	0.64505	0.01556	0.80615	0.01862	0.08850	0.00567
148231A	0.94110	0.01845	-0.60920	0.02307	0.28742	0.00888
148926A	0.58325	0.01238	-1.44036	0.05647	0.10176	0.02184
149231A	1.04277	0.01651	-0.32716	0.01355	0.14056	0.00583
149234A	0.96218	0.01079	-1.18526	0.01159	0.01228	0.00465
149245A	1.68536	0.04831	1.04809	0.01201	0.33489	0.00292
150604A	0.93175	0.02155	0.33684	0.01756	0.29264	0.00559
150723A	1.49531	0.02639	-0.65900	0.01327	0.32282	0.00628
150972A	1.08554	0.02060	0.50894	0.01159	0.16269	0.00387
150989A	0.60001	0.00773	-0.64209	0.01574	0.01113	0.00481
151145A	0.63402	0.01710	-0.15091	0.03758	0.27377	0.01114
151316A	0.98305	0.01573	-0.88522	0.01901	0.14614	0.00891
151782A	1.56737	0.05448	1.67241	0.01674	0.17946	0.00218
151835A	0.31864	0.01457	1.32249	0.05755	0.05483	0.01505
152379A	1.60606	0.02441	0.10091	0.00765	0.14046	0.00322
152754A	0.76390	0.02200	1.16064	0.01963	0.18184	0.00467
152840A	1.25081	0.02224	-0.48278	0.01476	0.29204	0.00636
153512A	0.86641	0.01546	-0.25662	0.01786	0.15152	0.00705
153601A	0.89875	0.01806	-0.48633	0.02328	0.27897	0.00865
153952A	0.61960	0.00848	-1.66750	0.02582	0.02255	0.00984
154011A	0.70447	0.01735	-0.37503	0.03498	0.29742	0.01093
155174A	0.88781	0.01695	-0.40648	0.02099	0.22514	0.00809
155184A	0.60578	0.01290	-0.68057	0.03786	0.10679	0.01360
155298A	1.24096	0.01926	-0.48382	0.01230	0.17968	0.00575
155300A	1.04654	0.01623	-1.96900	0.02550	0.06933	0.01588
181455A	1.14188	0.02220	0.38443	0.01208	0.21643	0.00421
479039	0.70774	0.02170	0.82991	0.02321	0.27030	0.00633
479041	0.87436	0.01692	-0.97992	0.02904	0.25164	0.01189
479043	1.32942	0.03730	1.29952	0.01412	0.21214	0.00275
479047	0.97931	0.03026	1.23141	0.01844	0.27018	0.00382
479049	0.71562	0.03799	2.09635	0.04826	0.26864	0.00435
479057	0.71219	0.01462	-1.12130	0.04007	0.18476	0.01578
479067	1.53184	0.05067	1.32548	0.01466	0.31347	0.00281
479069	1.08004	0.02046	-1.10068	0.02443	0.31646	0.01080

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
479073	1.18497	0.01802	-0.81035	0.01439	0.16119	0.00717
479077	1.46438	0.04384	1.24036	0.01377	0.28206	0.00286
479083	0.64561	0.01772	0.22467	0.03011	0.25045	0.00904
479087	0.81132	0.02666	1.07858	0.02170	0.31119	0.00503
636459	1.15047	0.02092	-0.33377	0.01529	0.27734	0.00623
636463	1.12512	0.02651	0.76911	0.01347	0.25584	0.00385
636465	0.86729	0.01324	-0.80844	0.01878	0.07433	0.00841
636479	0.82725	0.01942	0.37854	0.01892	0.24506	0.00607
636493	0.67196	0.01402	-1.03185	0.04099	0.16107	0.01568
636499	0.68158	0.01604	-0.46762	0.03556	0.24501	0.01172
674628	0.76186	0.02595	1.67211	0.02671	0.15096	0.00381
674630	1.30469	0.03783	1.16792	0.01444	0.28597	0.00313
733232	1.40232	0.02803	1.13393	0.01028	0.08029	0.00196
479095	0.79406	0.00974	1.25414	0.01507	0.00000	0.00000
479097	0.80856	0.00843	0.48864	0.00966	0.00000	0.00000
479148	0.98218	0.01093	0.98267	0.01078	0.00000	0.00000

Table 2.6.21
IRT Parameters for Dichotomous Items
Mathematics Grade 7

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
147541A	1.39152	0.02674	-0.32468	0.01453	0.37421	0.00615
148154A	1.15239	0.02498	-0.48316	0.02181	0.43565	0.00796
148193A	0.98382	0.02968	1.39443	0.01825	0.18509	0.00345
148330A	0.82410	0.01218	0.57030	0.01048	0.01194	0.00276
148478A	0.93349	0.02741	1.37579	0.01827	0.16636	0.00356
148530A	0.97912	0.02648	0.70337	0.01706	0.32849	0.00505
148739A	1.34168	0.02267	-0.39295	0.01308	0.26381	0.00625
148912A	1.11948	0.02584	0.51151	0.01422	0.30731	0.00472
149064A	0.97992	0.02064	0.07351	0.01770	0.27984	0.00654
149204A	0.89973	0.01591	0.06378	0.01477	0.11921	0.00604
149295A	1.83833	0.02895	0.22099	0.00702	0.16733	0.00315
149759A	1.04895	0.02029	0.03160	0.01539	0.24811	0.00608
150199A	1.56961	0.02504	0.14960	0.00829	0.17948	0.00370
150232A	1.54325	0.03376	1.20726	0.01013	0.10339	0.00204
150629A	1.25210	0.02348	-0.54310	0.01726	0.34333	0.00760
150891A	1.46155	0.04921	1.45371	0.01562	0.25861	0.00271
152009A	1.42475	0.03269	0.91471	0.01067	0.22557	0.00309
152051A	0.77206	0.01677	1.00767	0.01459	0.05763	0.00389
152288A	1.73685	0.03854	0.95025	0.00901	0.19977	0.00261
152819A	1.96400	0.06373	1.31610	0.01168	0.29114	0.00252
152915A	0.93833	0.02347	0.57654	0.01698	0.28806	0.00545
153291A	1.21980	0.02613	0.59093	0.01189	0.25322	0.00406
153299A	1.32671	0.02824	0.95990	0.01041	0.15521	0.00285
153504A	1.06363	0.01841	0.61200	0.01010	0.08545	0.00336
155126A	0.81885	0.02340	1.49199	0.02044	0.10144	0.00348
155443A	1.08133	0.02102	0.46145	0.01204	0.18357	0.00443
182015A	1.26582	0.03122	1.06990	0.01227	0.20625	0.00312
182026A	0.71985	0.03351	1.04716	0.03255	0.49103	0.00657
182027A	0.70479	0.02367	0.95162	0.02379	0.27495	0.00673
480287	1.08003	0.02396	0.67561	0.01293	0.22390	0.00426
480295	1.50577	0.04319	1.23598	0.01266	0.25302	0.00280
480307	0.96473	0.05537	2.24922	0.05052	0.22936	0.00303
480350	1.36730	0.02774	0.64313	0.01020	0.22131	0.00349
489119	1.52118	0.03875	1.22640	0.01141	0.17969	0.00250

continued

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
489176	1.48637	0.03709	0.74340	0.01178	0.35461	0.00354
490454	2.20907	0.09231	1.63682	0.01418	0.26090	0.00222
636508	0.90733	0.01830	0.25842	0.01574	0.18286	0.00597
636512	1.27711	0.02782	1.00984	0.01093	0.15008	0.00286
636537	0.62399	0.01603	0.46738	0.02436	0.12246	0.00848
636543	1.54995	0.02517	0.13336	0.00862	0.19370	0.00385
636547	1.05398	0.01710	0.24224	0.01073	0.10010	0.00429
636551	1.40472	0.03471	0.61910	0.01265	0.38157	0.00389
636555	1.48459	0.04303	1.33597	0.01321	0.21502	0.00261
674695	0.99998	0.00957	-0.63918	0.00712	0.00274	0.00126
674704	1.41067	0.02604	0.38502	0.00981	0.22482	0.00382
674723	1.57130	0.03560	0.47649	0.01118	0.37435	0.00381
733277	1.04026	0.01009	-0.71051	0.00729	0.00378	0.00169
480360	0.82828	0.01075	1.45579	0.01653	0.00000	0.00000
480373	1.21193	0.01297	0.92358	0.00855	0.00000	0.00000
480380	1.19546	0.01447	1.27412	0.01108	0.00000	0.00000

Table 2.6.23
IRT Parameters for Dichotomous Items
Mathematics Grade 8

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
148061A	1.71984	0.03103	0.67101	0.00763	0.14217	0.00250
148303A	0.82889	0.01574	0.43009	0.01378	0.09257	0.00493
148327A	1.08653	0.01631	0.18894	0.00958	0.07283	0.00368
148379A	1.15921	0.01978	-0.26082	0.01370	0.22171	0.00600
148689A	1.47795	0.02640	0.61824	0.00845	0.14274	0.00281
150198A	1.26205	0.02020	0.50470	0.00855	0.08773	0.00284
150215A	0.88027	0.02532	0.91410	0.01825	0.28232	0.00489
150218A	0.98196	0.02051	0.44069	0.01397	0.20573	0.00488
150223A	1.46100	0.02017	-0.24476	0.00832	0.11403	0.00402
151253A	1.28935	0.02582	0.59459	0.01053	0.20806	0.00354
151283A	0.83242	0.01496	0.08445	0.01535	0.10130	0.00599
152296A	0.55583	0.00780	-1.21723	0.02420	0.01868	0.00830
153423A	0.85023	0.02067	-0.41083	0.03074	0.39211	0.00972
154159A	0.62025	0.00945	-0.77937	0.02370	0.02480	0.00900
154320A	0.45585	0.01137	-0.21187	0.04597	0.04911	0.01422
161462A	1.99297	0.03466	0.32443	0.00706	0.20495	0.00298
164493A	1.40805	0.02771	0.55130	0.00985	0.21978	0.00342
183795A	1.04326	0.02626	1.09805	0.01449	0.18480	0.00344
183885A	0.56842	0.01615	-0.11563	0.04358	0.20718	0.01337
484772	0.88905	0.02231	0.55068	0.01775	0.27806	0.00556
484815	0.90422	0.02866	1.37782	0.02036	0.22058	0.00384
484821	1.32461	0.02557	0.12010	0.01198	0.29644	0.00465
484823	0.94109	0.01693	-0.57919	0.02075	0.20884	0.00891
484828	0.71459	0.01876	-0.34598	0.03772	0.33990	0.01148
484841	1.66771	0.06241	1.74877	0.01790	0.18748	0.00211
484853	1.02331	0.01447	-0.00022	0.00997	0.05041	0.00397
484860	1.72528	0.05340	1.29755	0.01276	0.27568	0.00258
484866	1.10394	0.02528	1.03172	0.01280	0.15468	0.00315
484873	0.77489	0.02668	1.46309	0.02410	0.21130	0.00446
484877	0.91941	0.02102	-0.12672	0.02266	0.34884	0.00760
484881	0.34960	0.00576	-1.38462	0.02158	0.00000	0.00000
484977	1.00427	0.02776	0.99305	0.01607	0.27015	0.00409
484984	0.87397	0.02118	1.24202	0.01621	0.09875	0.00329
490067	1.40612	0.02123	0.21268	0.00804	0.11354	0.00323
490116	1.41182	0.03557	0.58546	0.01290	0.39805	0.00383

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
490178	0.71622	0.03465	2.12997	0.04627	0.20704	0.00410
636559	1.58296	0.03392	0.59355	0.00987	0.28265	0.00333
636567	1.69727	0.04890	0.94813	0.01199	0.38164	0.00305
636578	1.32180	0.02157	0.31080	0.00892	0.13669	0.00345
636590	1.24382	0.02845	1.18289	0.01234	0.12631	0.00252
636594	0.95529	0.02775	0.68070	0.01900	0.38251	0.00511
636602	1.46100	0.04688	1.64390	0.01703	0.15810	0.00216
636610	0.71618	0.01508	-0.77465	0.03576	0.18854	0.01378
674875	2.12447	0.05823	1.12198	0.00957	0.25324	0.00243
674877	1.59348	0.02146	-0.07923	0.00703	0.09329	0.00319
733318	1.53695	0.04983	1.45901	0.01512	0.23973	0.00252
733322	1.36435	0.02986	0.39814	0.01206	0.33720	0.00412
484750	0.33724	0.00679	2.25135	0.04974	0.00000	0.00000
484766	0.36422	0.00566	-0.71904	0.01578	0.00000	0.00000
733332	1.04740	0.01067	0.67195	0.00845	0.00000	0.00000

Table 2.6.25
IRT Parameters for Dichotomous Items
Science Grade 5

	Parameters and Measures of Standard Error					
Item ID	a	SE(a)	b	SE(b)	c	SE(c)
184387A	1.08933	0.01998	0.08144	0.01374	0.20781	0.00556
184423A	1.29265	0.03424	0.89002	0.01335	0.32892	0.00377
185413A	1.26582	0.03149	1.13054	0.01247	0.19749	0.00310
186483A	0.45227	0.02788	1.38589	0.05385	0.35234	0.01233
186489A	0.68901	0.01644	0.08404	0.02723	0.17980	0.00949
186490A	0.66608	0.02254	0.97995	0.02512	0.25330	0.00717
186754A	0.87226	0.01503	-1.05526	0.02736	0.12385	0.01329
186756A	0.95193	0.02038	-0.90552	0.03195	0.35112	0.01263
186759A	1.41657	0.02464	-0.96470	0.01660	0.28042	0.00908
187503A	0.65994	0.02125	0.69929	0.02780	0.27235	0.00819
187505A	0.77119	0.01280	-1.40025	0.03312	0.06377	0.01638
187510A	1.36857	0.02474	-1.19711	0.01988	0.28710	0.01124
188698A	0.94092	0.01913	0.79047	0.01247	0.10899	0.00393
188699A	0.79706	0.02229	0.68276	0.02080	0.27527	0.00638
188700A	0.92849	0.02048	0.78541	0.01373	0.15201	0.00441
188717A	1.08456	0.01677	-0.78917	0.01692	0.13114	0.00866
188718A	1.58395	0.02669	-1.21086	0.01518	0.22907	0.00978
188720A	0.80489	0.00975	-1.30212	0.01593	0.01502	0.00645
189235A	0.66875	0.01025	-1.23513	0.02920	0.03414	0.01253
189237A	0.95806	0.01763	0.06230	0.01527	0.16644	0.00613
189238A	0.66580	0.02652	1.29882	0.02750	0.28768	0.00657
189340A	1.16965	0.01802	-0.45001	0.01338	0.14733	0.00650
189341A	0.78647	0.02051	0.42226	0.02245	0.27133	0.00723
189345A	1.21943	0.03656	1.32025	0.01547	0.24778	0.00322
189356A	0.85240	0.01952	0.66546	0.01573	0.16968	0.00530
189358A	1.35488	0.03807	0.99602	0.01347	0.34063	0.00355
189361A	1.04448	0.01604	-0.99580	0.01900	0.10854	0.01009
437241	0.99944	0.02007	0.41838	0.01368	0.18732	0.00503
437243	1.00323	0.02682	1.00688	0.01537	0.24303	0.00422
437245	1.08366	0.02648	0.95264	0.01351	0.21648	0.00387
638751	0.27886	0.00560	0.52902	0.02467	0.00000	0.00000
638753	0.45967	0.01608	0.50021	0.04720	0.11804	0.01412
638755	0.55009	0.02128	0.92062	0.03465	0.24587	0.00987
638783	0.73394	0.01627	0.07245	0.02370	0.16735	0.00860

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
638791	1.05863	0.01630	-0.54409	0.01522	0.12107	0.00733
638793	0.86515	0.01589	-0.45866	0.02221	0.16346	0.00937
638808	0.45764	0.01089	0.40993	0.03069	0.02790	0.00938
638810	0.89911	0.01664	0.33757	0.01367	0.11214	0.00519
638812	0.54534	0.01630	0.77483	0.02740	0.10368	0.00903
701950	0.60518	0.01643	0.06451	0.03619	0.18738	0.01172
701956	0.90013	0.01669	-0.09572	0.01769	0.16279	0.00717
701960	0.41950	0.01964	0.96245	0.05441	0.17806	0.01502
760514	0.80417	0.02175	-0.24223	0.03489	0.41695	0.01010
760544	0.65883	0.01716	-0.15481	0.03698	0.24120	0.01199
760546	0.95221	0.01799	-1.42039	0.03419	0.20954	0.01768

Table 2.6.27
IRT Parameters for Dichotomous Items
Science Grade 8

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
185899A	1.24070	0.02403	0.04017	0.01354	0.29926	0.00538
185901A	1.37845	0.05009	1.65050	0.01900	0.22792	0.00257
185916A	1.08518	0.02249	0.20819	0.01491	0.27878	0.00553
186321A	0.68334	0.01660	0.02781	0.02896	0.18395	0.01019
186325A	0.68621	0.01563	-1.13349	0.05226	0.19203	0.02124
186364A	0.58103	0.01215	0.09647	0.02522	0.03842	0.00908
188149A	0.49057	0.02393	1.17625	0.04196	0.26778	0.01133
188150A	1.11835	0.02446	0.46939	0.01360	0.27435	0.00472
188153A	0.84650	0.03512	1.97577	0.03478	0.16678	0.00336
188312A	1.13245	0.03505	1.36456	0.01696	0.23883	0.00325
188317A	0.90576	0.01951	-0.34445	0.02504	0.30376	0.00935
188328A	1.16306	0.01598	-0.16838	0.00977	0.06671	0.00444
188332A	1.25849	0.02376	0.11981	0.01242	0.26883	0.00499
189061A	0.85969	0.01839	0.62940	0.01439	0.13359	0.00500
189076A	0.86059	0.02125	0.25646	0.02147	0.30275	0.00711
189080A	0.52419	0.01522	-0.11365	0.04951	0.13201	0.01586
189438A	0.54176	0.01941	0.26897	0.04936	0.26892	0.01368
189440A	0.39766	0.00605	-1.12662	0.01758	0.00000	0.00000
189442A	0.89759	0.01390	-0.91274	0.02134	0.07062	0.01081
300093A	0.99441	0.01688	-0.35044	0.01674	0.16021	0.00755
300095A	1.15461	0.02929	0.94231	0.01343	0.25670	0.00373
300097A	1.15523	0.01863	-0.37879	0.01396	0.17800	0.00667
437757	1.09651	0.02345	0.61995	0.01252	0.21490	0.00425
437771	0.62181	0.01884	0.62528	0.02759	0.19549	0.00889
437788	0.42280	0.02106	1.34377	0.04415	0.15554	0.01310
437995	1.49542	0.03623	0.86986	0.01100	0.28727	0.00323
437999	1.12780	0.02036	-0.05998	0.01402	0.22753	0.00591
638857	0.63111	0.02928	1.17044	0.03359	0.39136	0.00769
638862	0.73815	0.01982	0.61183	0.02120	0.21488	0.00698
638866	0.95193	0.02623	0.94946	0.01630	0.26138	0.00454
638873	0.77307	0.01480	0.21908	0.01662	0.08276	0.00646
638875	0.63289	0.02606	1.20428	0.02910	0.29946	0.00738
638883	0.70471	0.00901	-0.66930	0.01559	0.01451	0.00595
638918	1.03788	0.04652	1.87561	0.03078	0.26049	0.00315

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
638920	0.73866	0.01474	-0.75526	0.03358	0.13933	0.01417
638928	0.89281	0.01827	-0.19045	0.02157	0.23937	0.00838
701179	0.48981	0.01966	0.13600	0.06789	0.28433	0.01723
701187	1.23885	0.04981	1.66588	0.02231	0.28868	0.00294
701189	0.49581	0.01936	1.23928	0.03101	0.12567	0.00956
701389	1.48762	0.03580	0.83790	0.01103	0.29355	0.00329
701392	1.36347	0.02759	0.42027	0.01105	0.27711	0.00406
701395	1.38290	0.03128	1.28828	0.01160	0.09904	0.00210

Table 2.6.28
IRT Parameters for Polytomous Items
Science Grade 8

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
438018	0.29150	0.00202	0.48063	0.01709	1.41494	0.01856	-1.41494	0.02074	0.00000	0.00000
494074	1.05910	0.00783	-1.05069	0.00619	0.30391	0.00706	-0.30391	0.00628	0.00000	0.00000
494991	0.70159	0.00482	-1.21853	0.00828	0.67906	0.01050	-0.67906	0.00843	0.00000	0.00000

Table 2.6.29
IRT Parameters for Dichotomous Items
Science Grade 11

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
186972A	0.61347	0.01898	1.21469	0.02345	0.10932	0.00791
186989A	1.08218	0.02250	0.41698	0.01571	0.24342	0.00626
186992A	0.68527	0.00797	-0.55823	0.01051	0.00000	0.00000
187933A	1.02577	0.01591	-0.70840	0.01970	0.06639	0.01106
187935A	0.73712	0.01317	-0.21208	0.02448	0.04694	0.01057
187938A	0.55288	0.00730	-0.71999	0.01359	0.00000	0.00000
187996A	1.54517	0.03057	0.28337	0.01193	0.32205	0.00519
187999A	0.95153	0.02596	1.29794	0.01580	0.19386	0.00455
188008A	0.78344	0.03017	1.32140	0.02510	0.35164	0.00649
188657A	0.72324	0.03086	1.46912	0.02799	0.34524	0.00686
188658A	0.97433	0.04664	2.01556	0.03066	0.31829	0.00399
188659A	0.43123	0.01869	0.99827	0.05681	0.11778	0.01686
188833A	0.93584	0.03450	1.74274	0.02227	0.24605	0.00423
188834A	1.12800	0.02685	0.87103	0.01411	0.26556	0.00488
188835A	1.21942	0.02460	0.54160	0.01289	0.23820	0.00517
188947A	0.73426	0.02807	1.73248	0.02531	0.20360	0.00556
188949A	0.57946	0.02584	2.02925	0.03453	0.13927	0.00680
188952A	0.51464	0.01552	0.63988	0.03861	0.07334	0.01297
189421A	0.59886	0.05714	3.44053	0.15465	0.17697	0.00482
189423A	0.38312	0.03814	3.00534	0.10831	0.23479	0.01302
189425A	0.95360	0.04039	1.97436	0.02756	0.25245	0.00391
300046A	1.02861	0.03168	1.57985	0.01735	0.20627	0.00384
300048A	0.79913	0.01124	-1.03649	0.02208	0.02621	0.01070
300049A	0.76472	0.01625	0.40819	0.02068	0.10289	0.00819
586027	0.96107	0.02402	1.21923	0.01454	0.16199	0.00442
586029	1.22965	0.02566	0.86575	0.01143	0.19508	0.00417
586031	1.33402	0.02590	0.55155	0.01144	0.23013	0.00470
586051	1.08572	0.03106	1.16706	0.01586	0.30473	0.00462
586069	1.09757	0.04211	1.70593	0.02084	0.31709	0.00386
586218	1.63572	0.03098	0.38186	0.01026	0.27754	0.00459
586649	1.25315	0.02847	0.92688	0.01219	0.24446	0.00424
586655	0.67676	0.02375	1.35058	0.02422	0.20768	0.00727
586691	1.22375	0.04409	1.54726	0.01789	0.35667	0.00377
586693	1.22569	0.02896	1.01521	0.01251	0.24288	0.00416

continued

Item ID	Parameters and Measures of Standard Error					
	a	SE(a)	b	SE(b)	c	SE(c)
586701	1.03927	0.02608	0.95137	0.01523	0.25698	0.00509
586709	1.79692	0.03444	0.89345	0.00795	0.17741	0.00303
586711	1.30973	0.03693	1.36347	0.01353	0.26559	0.00355
591949	1.51417	0.04116	1.33483	0.01189	0.26583	0.00325
592069	1.07539	0.01559	-0.07900	0.01236	0.05073	0.00592
592071	0.94713	0.01484	-0.59955	0.02035	0.05745	0.01070
592073	1.01311	0.02932	1.57507	0.01665	0.16749	0.00368
593424	1.64900	0.04520	1.24380	0.01144	0.31480	0.00332
593426	1.38240	0.02775	0.61204	0.01129	0.25069	0.00453
656455	1.28707	0.05185	1.96200	0.02188	0.24587	0.00299
656457	1.15631	0.03675	1.35925	0.01640	0.33104	0.00413
656465	1.04601	0.02812	1.35802	0.01478	0.19309	0.00400
701417	1.39910	0.03084	1.16505	0.01036	0.17402	0.00320
701425	1.38243	0.03683	1.40757	0.01243	0.21602	0.00318
701601	1.15402	0.03580	1.76695	0.01763	0.16355	0.00302
701612	1.31509	0.02028	0.36783	0.00929	0.09769	0.00413
701624	1.63658	0.05388	1.82208	0.01472	0.17895	0.00242
701635	0.37625	0.00635	-0.47180	0.01735	0.00000	0.00000
701641	0.55702	0.01686	0.30779	0.04596	0.14008	0.01520
701654	1.00079	0.02317	0.06171	0.02385	0.34522	0.00882
754205	1.14350	0.03578	1.41901	0.01621	0.29525	0.00400
754209	0.82002	0.02483	0.87850	0.02321	0.31133	0.00720
754213	0.40259	0.02275	1.67784	0.05192	0.14376	0.01562
603684	0.55889	0.00712	0.27402	0.01119	0.00000	0.00000

Table 2.6.30
IRT Parameters for Polytomous Items
Science Grade 11

Item ID	Parameters and Measures of Standard Error									
	a	SE(a)	b	SE(b)	d0	SE(d0)	d1	SE(d1)	d2	SE(d2)
586659	0.82756	0.00528	-0.30706	0.00686	0.89556	0.00929	-0.89556	0.00813	0.00000	0.00000
701400	0.69739	0.00489	0.94326	0.00865	0.81288	0.00904	-0.81288	0.01166	0.00000	0.00000

Section 2.7

Decision Accuracy and Consistency (DAC)

Table 2.7.1

DAC Results

English Language Arts Grade 3

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
49563	0.93	0.58	Overall	0.79	0.71	0.12	0.09
			Cut 1	0.92	0.88	0.05	0.03
			Cut 2	0.92	0.88	0.04	0.05
			Cut 3	0.96	0.94	0.03	0.01
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.88	0.84		
			Perf 2	0.75	0.66		
			Perf 3	0.70	0.61		
			Perf 4	0.72	0.53		

Table 2.7.2

DAC Results

English Language Arts Grade 4

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
48326	0.93	0.61	Overall	0.81	0.74	0.10	0.09
			Cut 1	0.92	0.89	0.04	0.04
			Cut 2	0.91	0.88	0.03	0.05
			Cut 3	0.98	0.97	0.02	0.00
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.91	0.86		
			Perf 2	0.77	0.68		
			Perf 3	0.70	0.63		
			Perf 4	1.00	0.24		

Table 2.7.3

DAC Results

English Language Arts Grade 5

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
42835	0.92	0.59	Overall	0.80	0.72	0.11	0.09
			Cut 1	0.93	0.90	0.04	0.03
			Cut 2	0.91	0.88	0.04	0.04
			Cut 3	0.96	0.94	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.85	0.79		
			Perf 2	0.82	0.76		
			Perf 3	0.71	0.60		
			Perf 4	0.79	0.64		

Table 2.7.4

DAC Results

English Language Arts Grade 6

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
49567	0.92	0.61	Overall	0.82	0.74	0.10	0.08
			Cut 1	0.92	0.89	0.04	0.03
			Cut 2	0.92	0.88	0.04	0.04
			Cut 3	0.97	0.96	0.02	0.01
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.86	0.81		
			Perf 2	0.83	0.76		
			Perf 3	0.74	0.65		
			Perf 4	0.69	0.47		

Table 2.7.5

DAC Results

English Language Arts Grade 7

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
50993	0.92	0.56	Overall	0.78	0.71	0.12	0.10
			Cut 1	0.92	0.88	0.04	0.04
			Cut 2	0.91	0.88	0.03	0.05
			Cut 3	0.95	0.94	0.05	0.00
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.91	0.86		
			Perf 2	0.77	0.68		
			Perf 3	0.56	0.49		
			Perf 4	0.62	0.39		

Table 2.7.6

DAC Results

English Language Arts Grade 8

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
46257	0.89	0.53	Overall	0.76	0.68	0.15	0.09
			Cut 1	0.92	0.89	0.04	0.03
			Cut 2	0.90	0.85	0.05	0.05
			Cut 3	0.94	0.93	0.05	0.00
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.86	0.81		
			Perf 2	0.79	0.71		
			Perf 3	0.61	0.53		
			Perf 4	0.61	0.36		

Table 2.7.7

DAC Results

Mathematics Grade 3

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
49530	0.94	0.62	Overall	0.80	0.72	0.11	0.09
			Cut 1	0.93	0.90	0.04	0.03
			Cut 2	0.92	0.89	0.05	0.04
			Cut 3	0.95	0.93	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.88	0.84		
			Perf 2	0.77	0.69		
			Perf 3	0.72	0.61		
			Perf 4	0.81	0.69		

Table 2.7.8

DAC Results

Mathematics Grade 4

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
48282	0.94	0.62	Overall	0.80	0.73	0.11	0.09
			Cut 1	0.93	0.90	0.04	0.03
			Cut 2	0.92	0.89	0.04	0.04
			Cut 3	0.95	0.93	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.89	0.85		
			Perf 2	0.78	0.70		
			Perf 3	0.68	0.56		
			Perf 4	0.82	0.71		

Table 2.7.9

DAC Results

Mathematics Grade 5

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
48340	0.94	0.62	Overall	0.81	0.74	0.12	0.07
			Cut 1	0.92	0.90	0.05	0.02
			Cut 2	0.92	0.89	0.05	0.03
			Cut 3	0.96	0.94	0.02	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.85	0.83		
			Perf 2	0.82	0.76		
			Perf 3	0.69	0.56		
			Perf 4	0.78	0.62		

Table 2.7.10

DAC Results

Mathematics Grade 6

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
49431	0.93	0.62	Overall	0.82	0.75	0.11	0.07
			Cut 1	0.92	0.89	0.05	0.03
			Cut 2	0.93	0.90	0.03	0.04
			Cut 3	0.97	0.96	0.03	0.01
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.88	0.85		
			Perf 2	0.83	0.76		
			Perf 3	0.68	0.58		
			Perf 4	0.76	0.54		

Table 2.7.11

DAC Results

Mathematics Grade 7

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
50842	0.92	0.59	Overall	0.81	0.73	0.10	0.09
			Cut 1	0.91	0.88	0.05	0.04
			Cut 2	0.92	0.89	0.04	0.04
			Cut 3	0.97	0.96	0.02	0.01
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.90	0.86		
			Perf 2	0.71	0.61		
			Perf 3	0.72	0.63		
			Perf 4	0.75	0.56		

Table 2.7.12

DAC Results

Mathematics Grade 8

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
50941	0.94	0.57	Overall	0.82	0.76	0.09	0.09
			Cut 1	0.92	0.89	0.04	0.04
			Cut 2	0.94	0.91	0.03	0.04
			Cut 3	0.96	0.94	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.94	0.91		
			Perf 2	0.71	0.60		
			Perf 3	0.49	0.38		
			Perf 4	0.69	0.53		

Table 2.7.13
DAC Results
Science Grade 5

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
48261	0.92	0.59	Overall	0.79	0.71	0.11	0.10
			Cut 1	0.93	0.90	0.03	0.04
			Cut 2	0.91	0.87	0.05	0.04
			Cut 3	0.96	0.94	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.88	0.81		
			Perf 2	0.75	0.67		
			Perf 3	0.78	0.70		
			Perf 4	0.72	0.55		

Table 2.7.14
DAC Results
Science Grade 8

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
50769	0.92	0.55	Overall	0.78	0.71	0.11	0.11
			Cut 1	0.91	0.87	0.05	0.04
			Cut 2	0.91	0.88	0.04	0.05
			Cut 3	0.96	0.94	0.03	0.01
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.90	0.86		
			Perf 2	0.60	0.49		
			Perf 3	0.70	0.61		
			Perf 4	0.70	0.51		

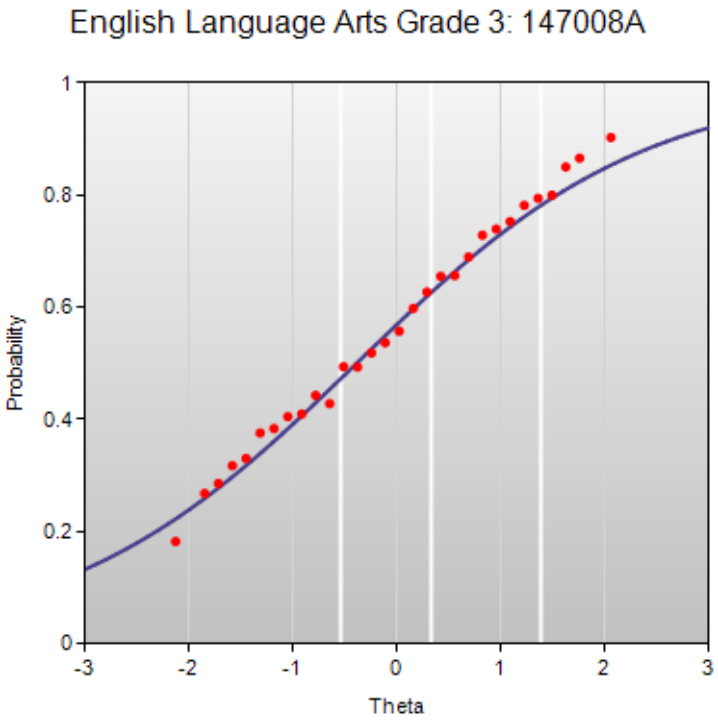
Table 2.7.15
DAC Results
Science Grade 11

N	Reliability	Kappa		Accuracy	Consistency	F Pos	F Neg
44157	0.94	0.59	Overall	0.81	0.74	0.10	0.09
			Cut 1	0.93	0.90	0.04	0.03
			Cut 2	0.93	0.90	0.03	0.04
			Cut 3	0.95	0.93	0.03	0.02
			Cut 4	1.00	1.00	0.00	0.00
			Perf 1	0.93	0.90		
			Perf 2	0.67	0.56		
			Perf 3	0.65	0.55		
			Perf 4	0.72	0.55		

Section 2.8

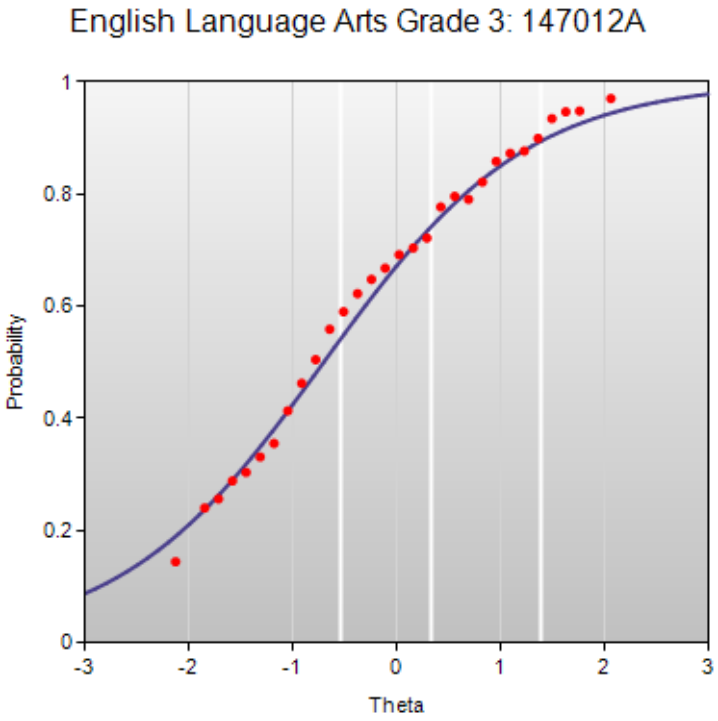
Fit Plots of Watchlist Items

Initial Calibration



Beta Chart

Initial Calibration



Beta Chart

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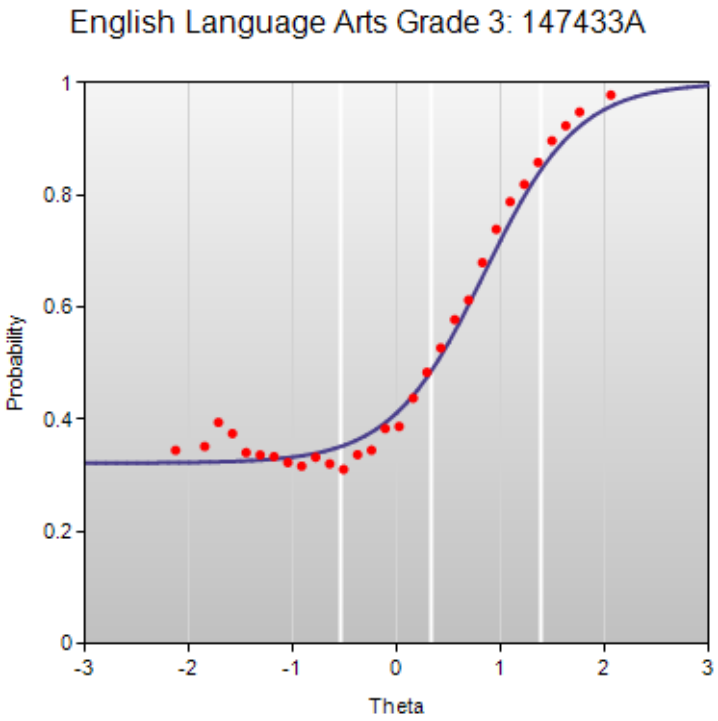

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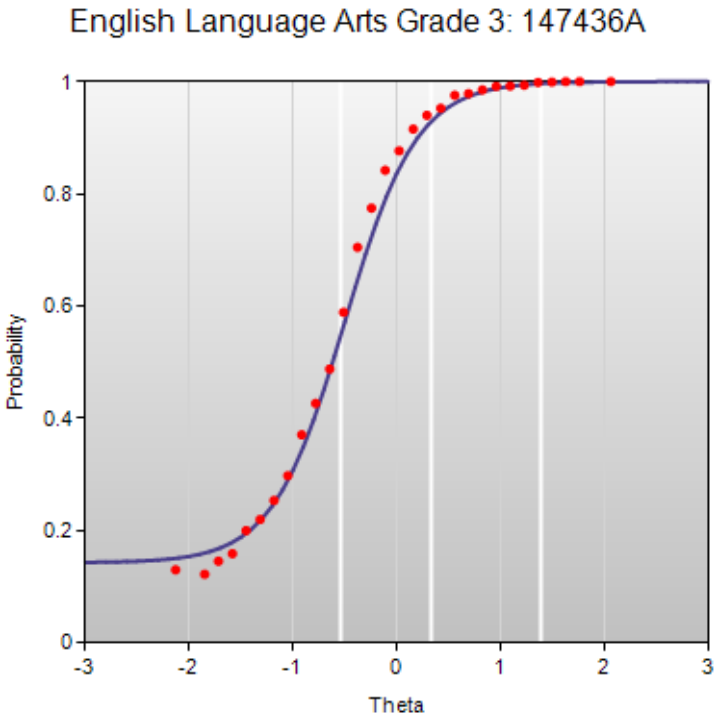

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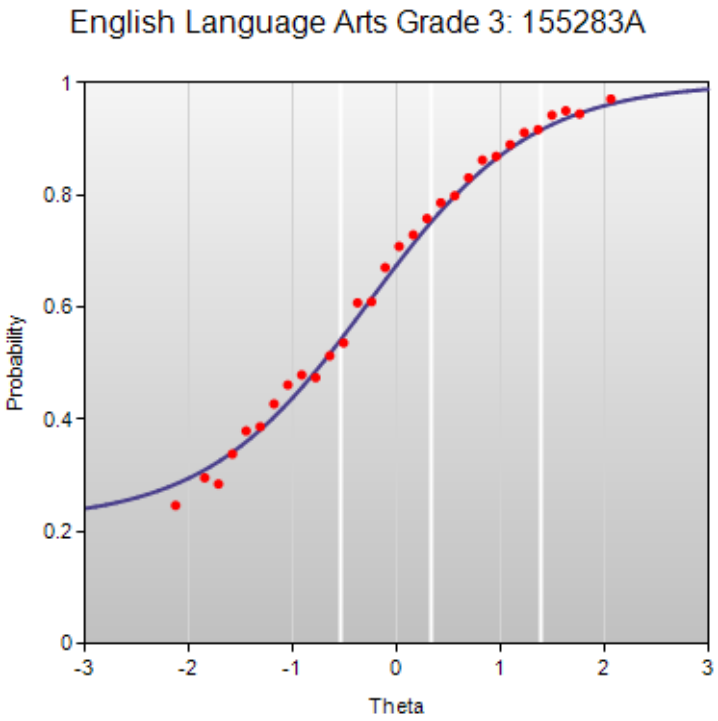
Initial Calibration



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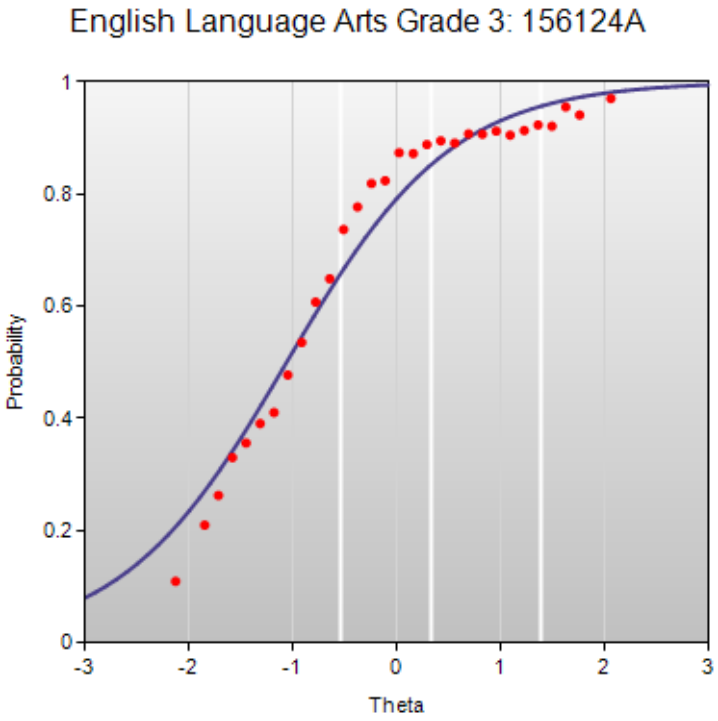

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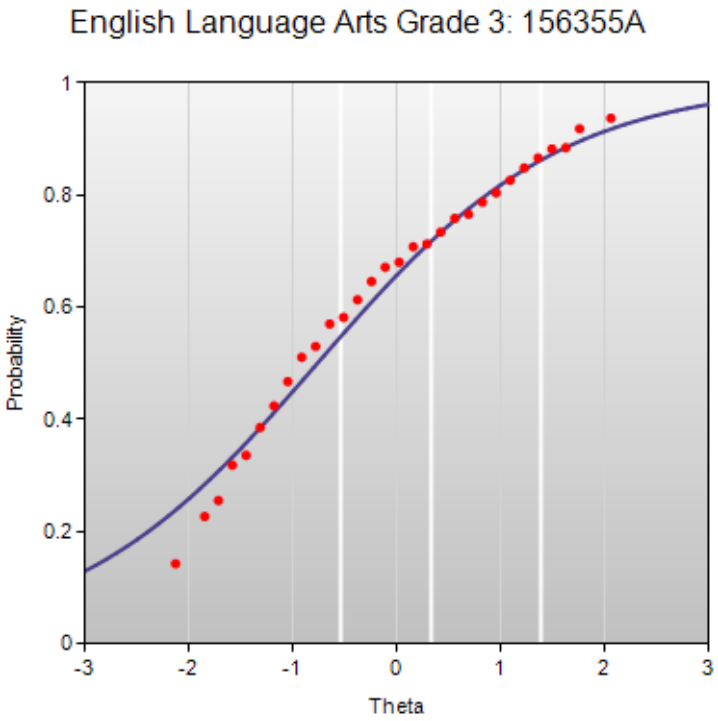

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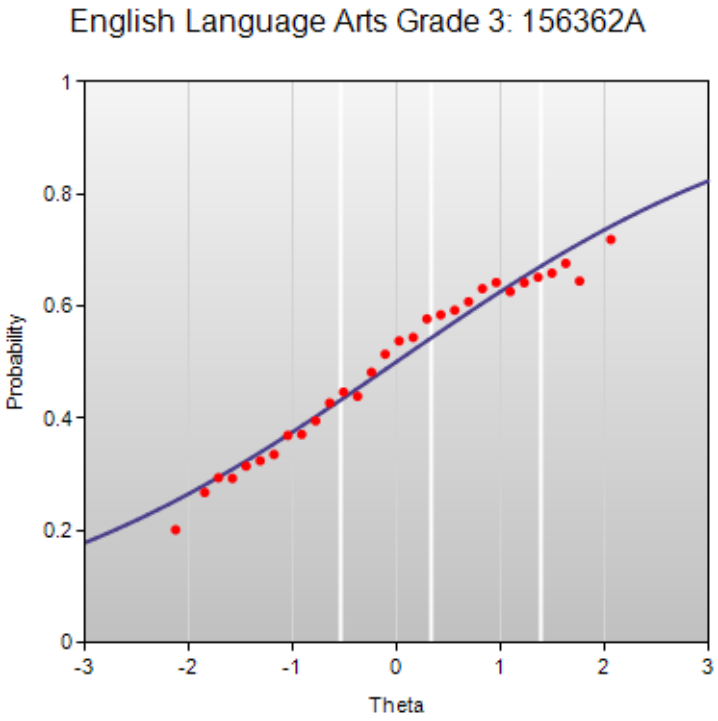

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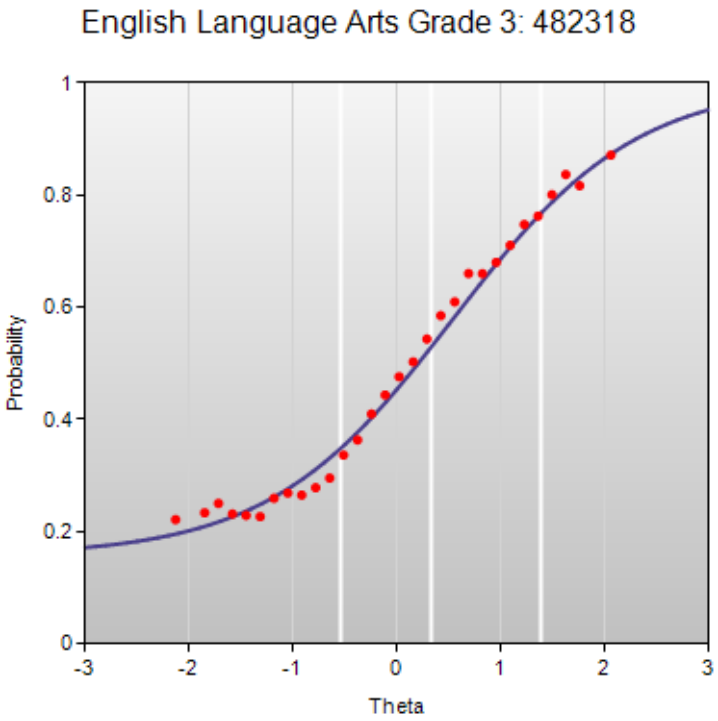

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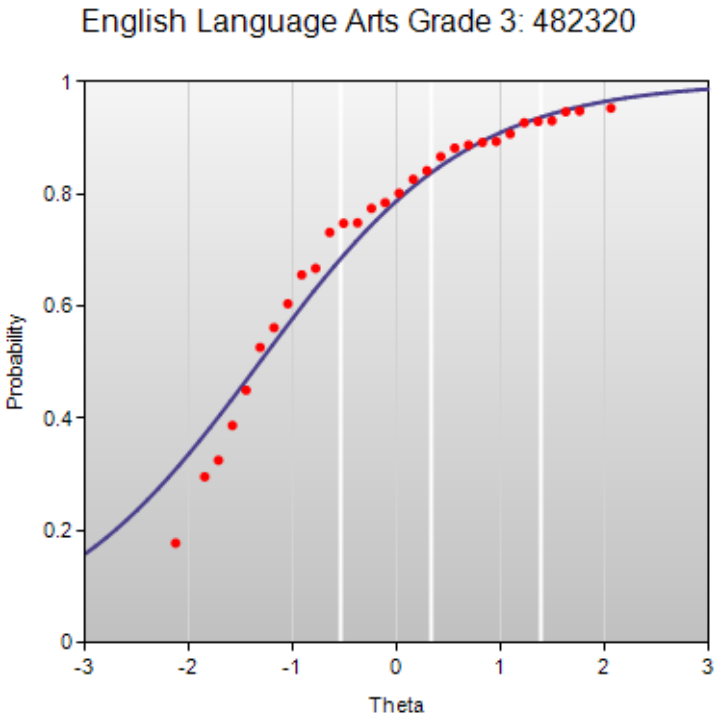

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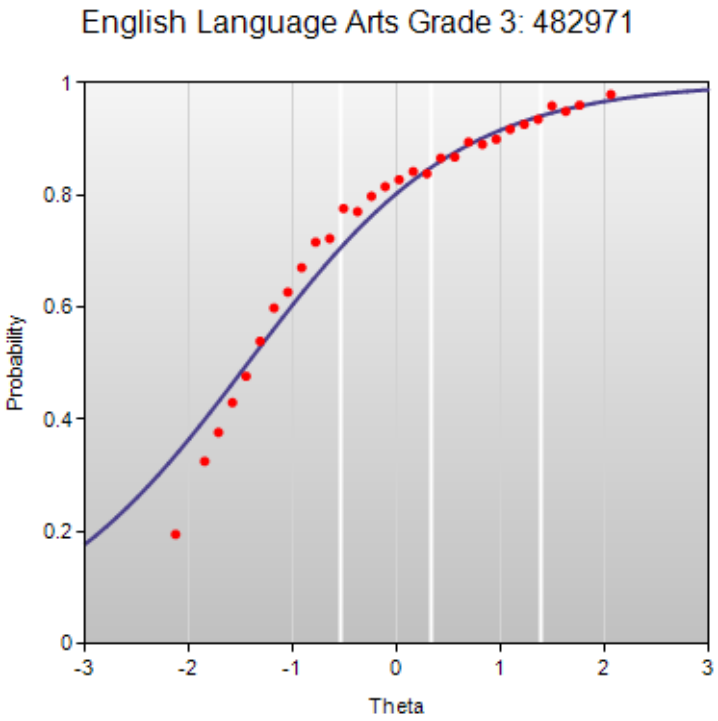

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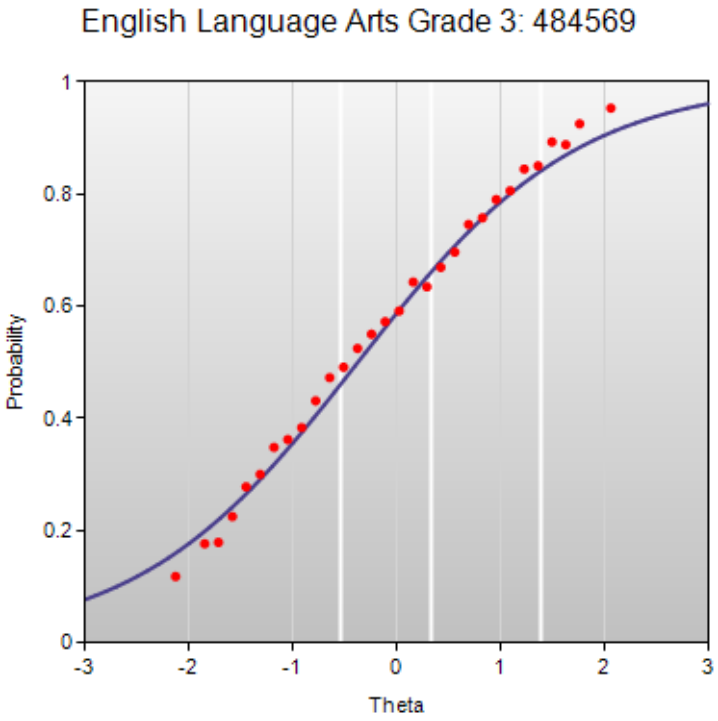
Initial Calibration



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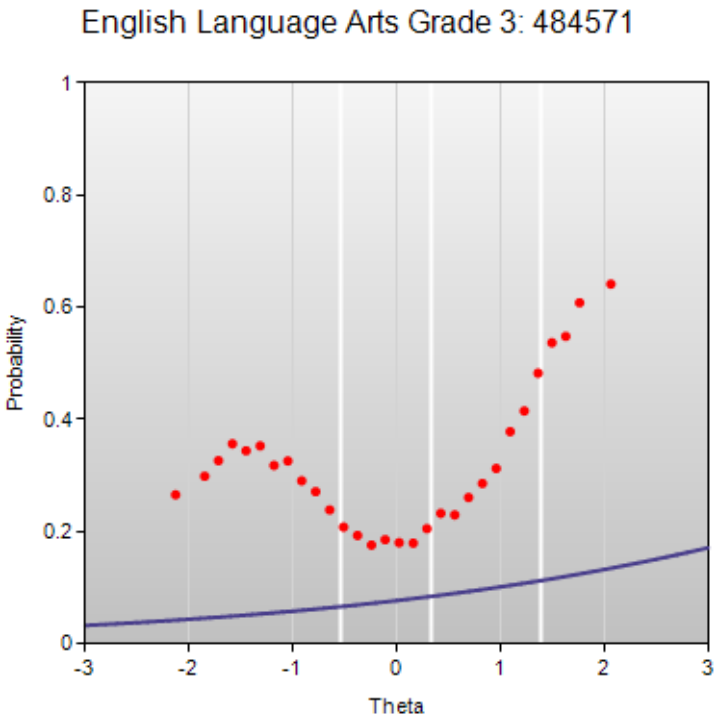

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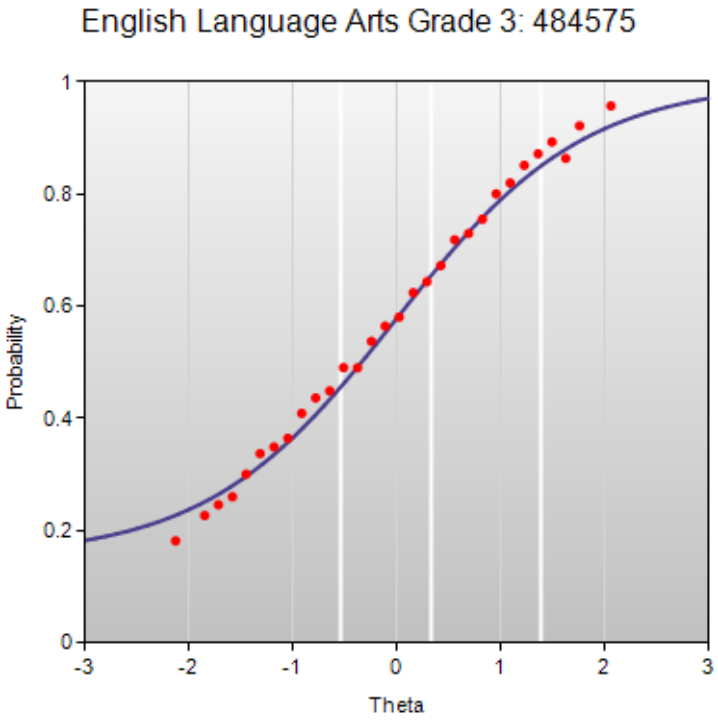

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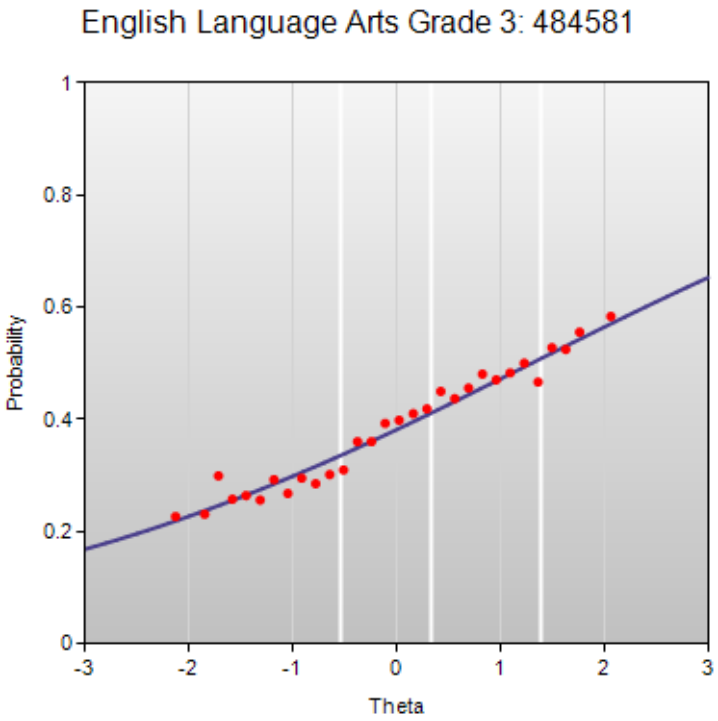
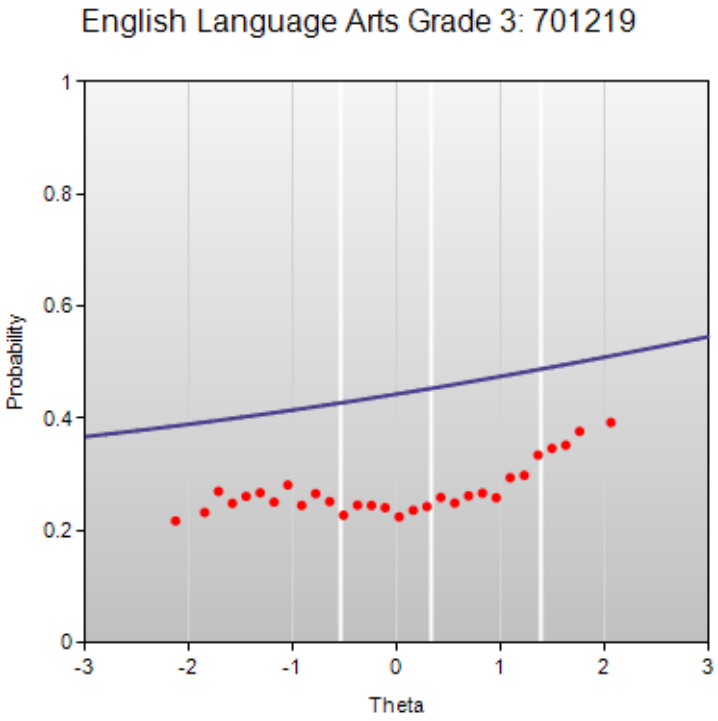
Initial Calibration



Beta Chart

Initial Calibration



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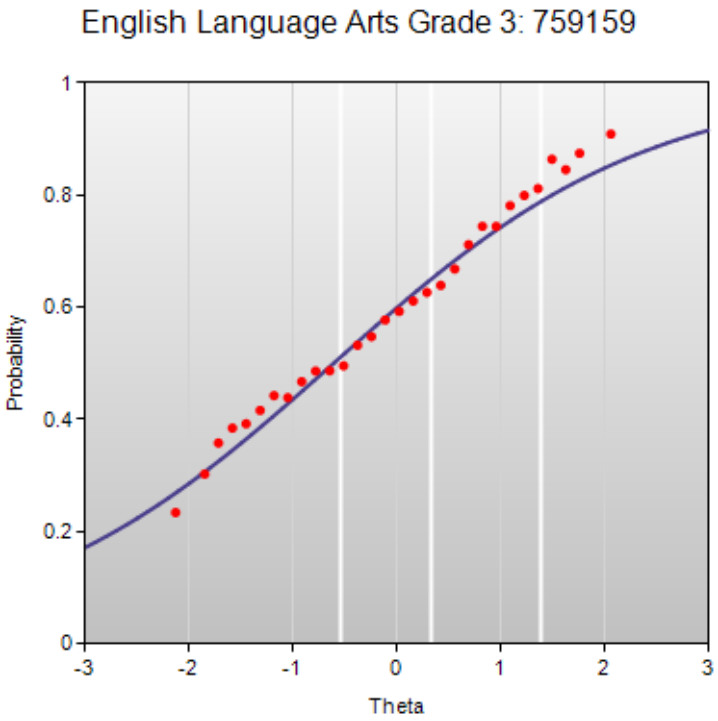

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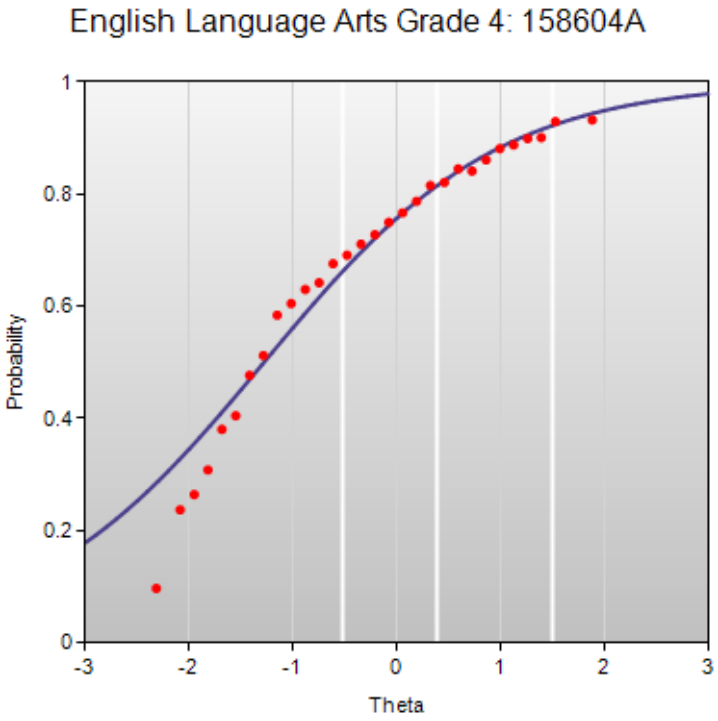

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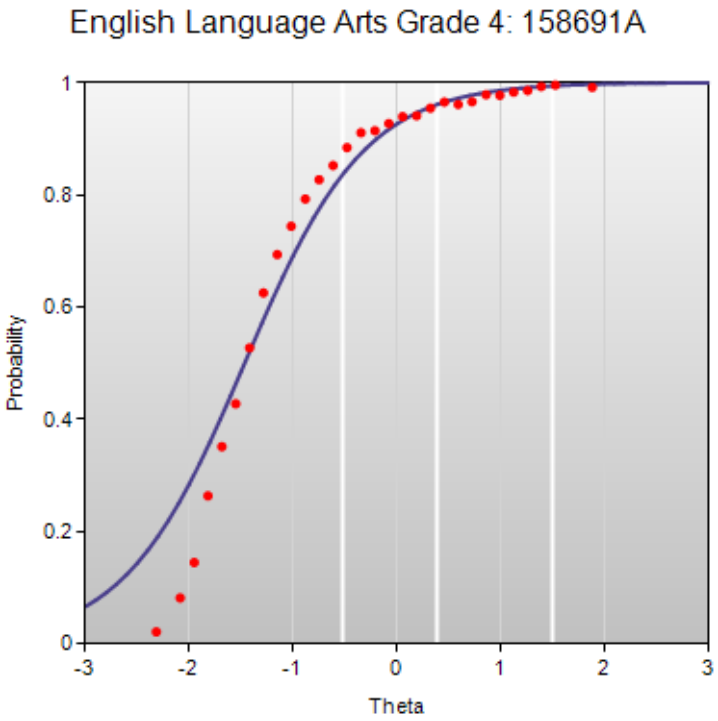

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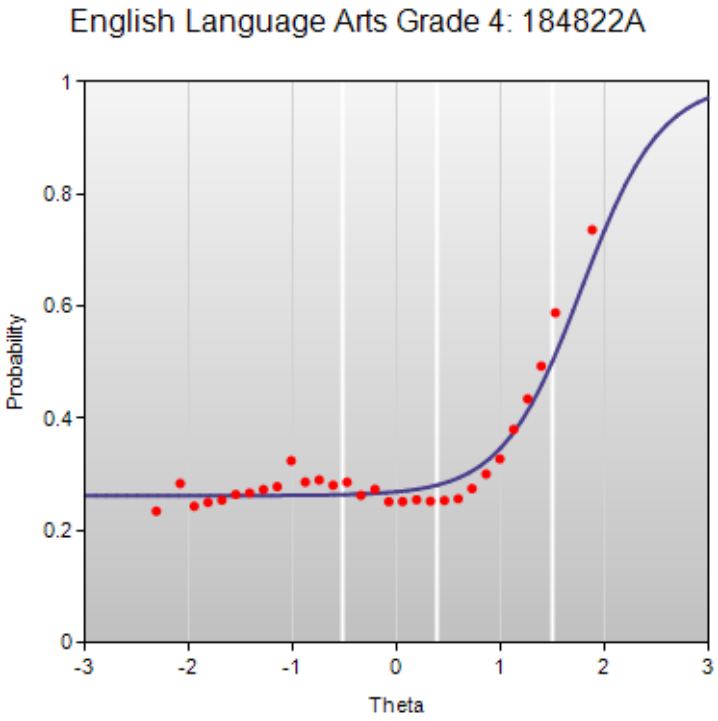

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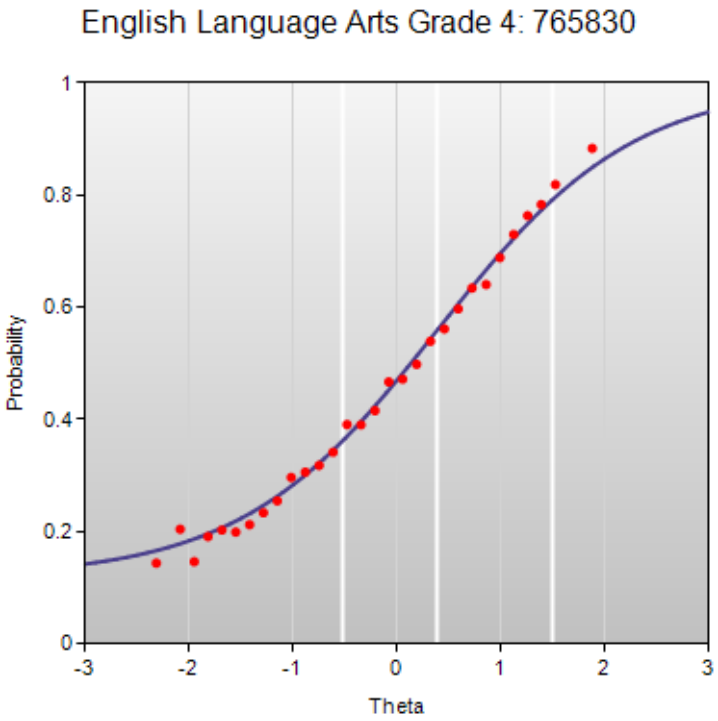

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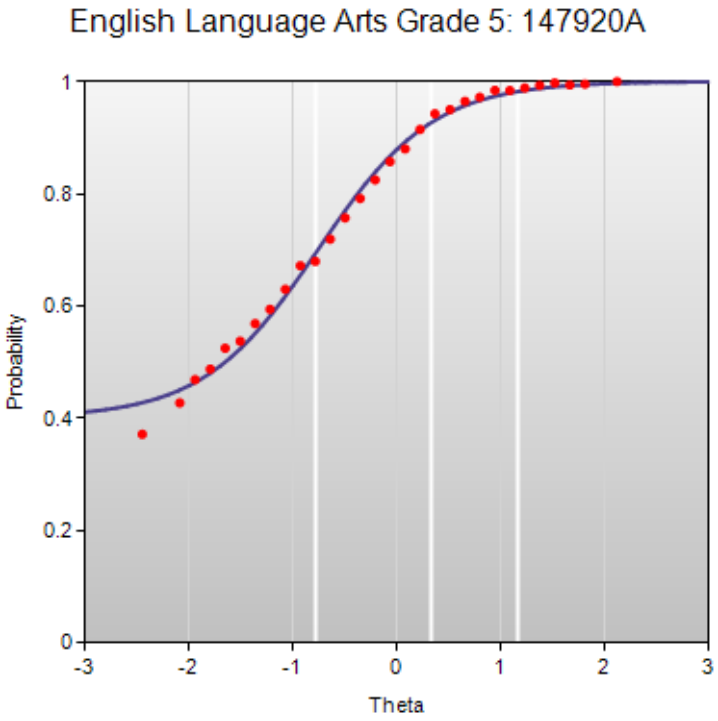

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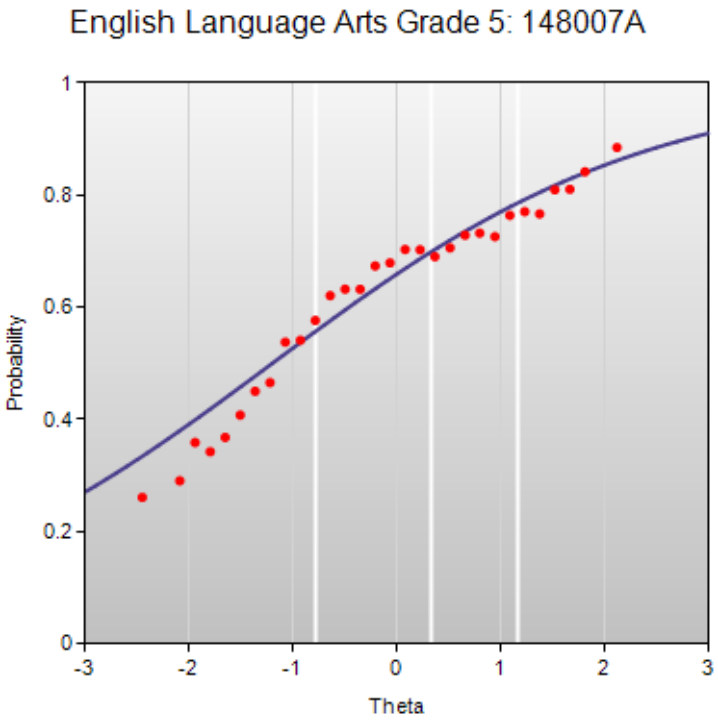

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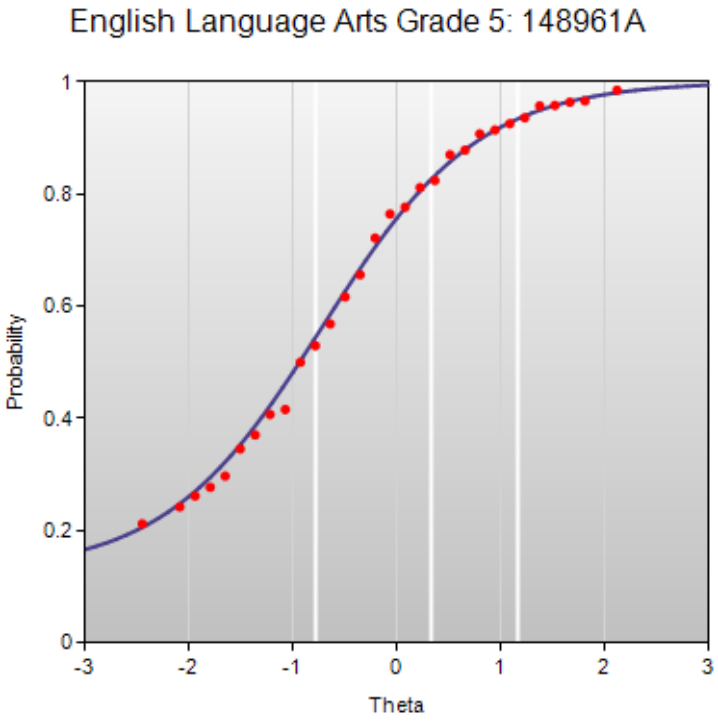

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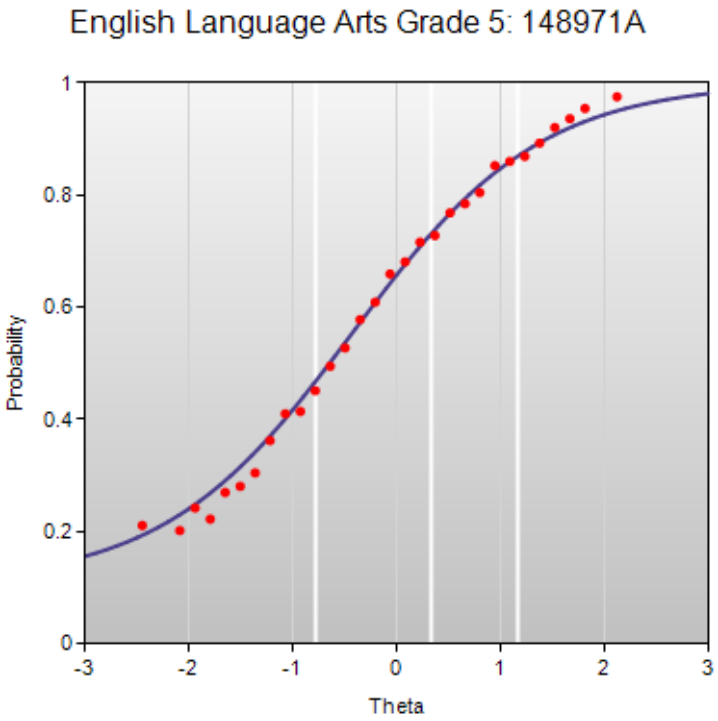

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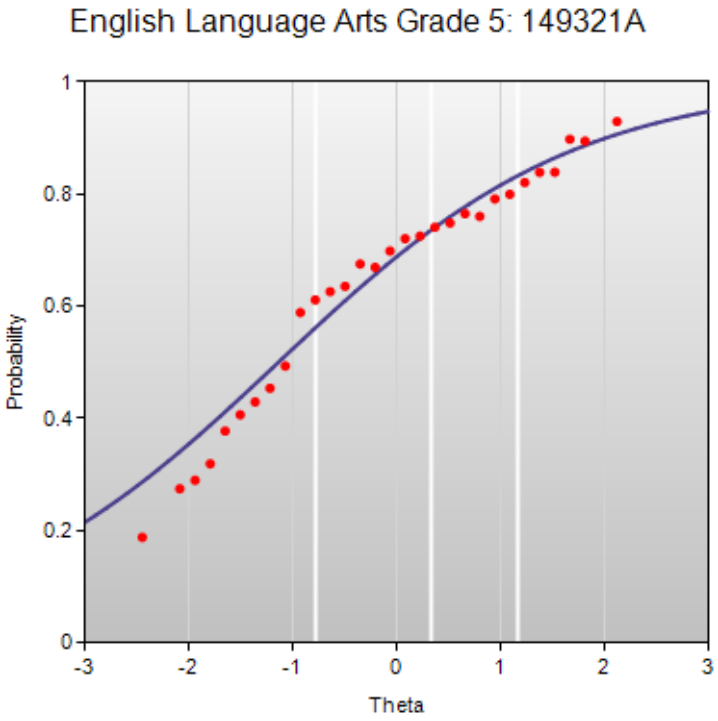

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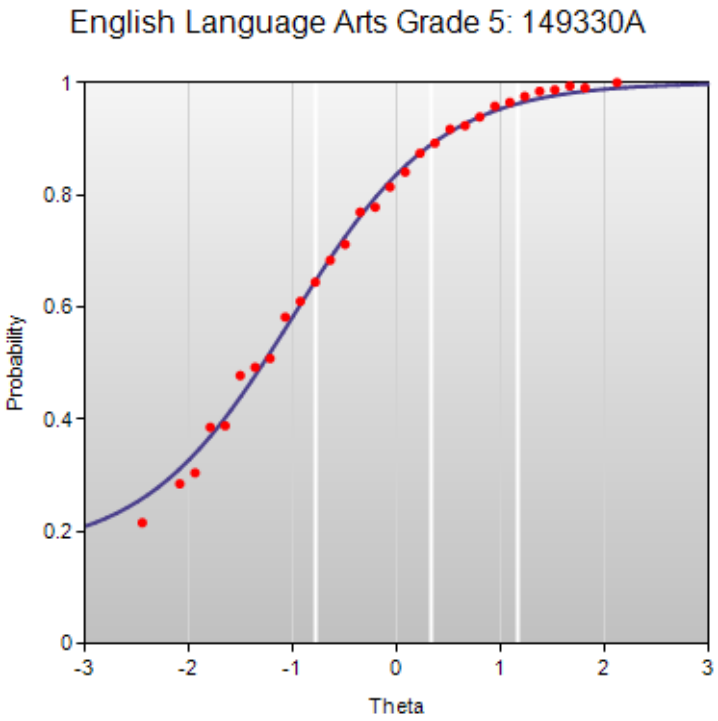

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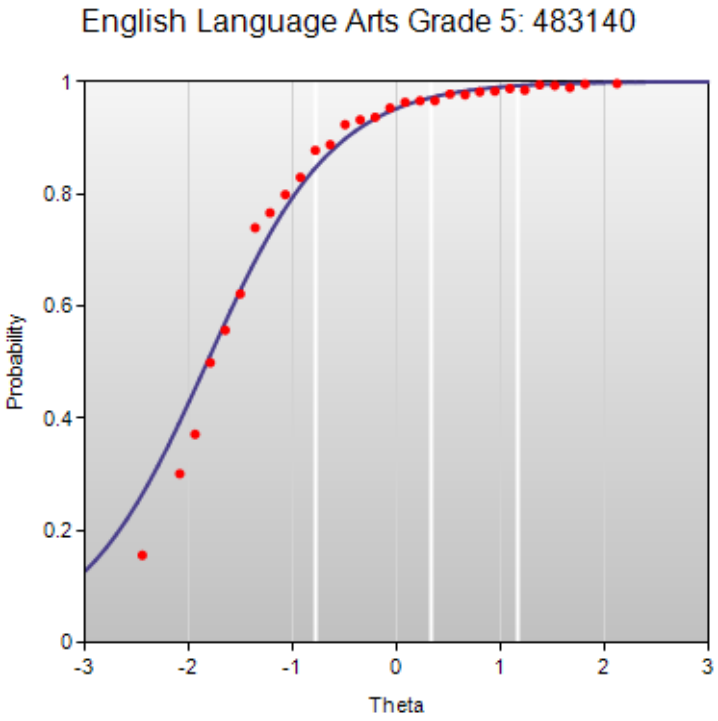

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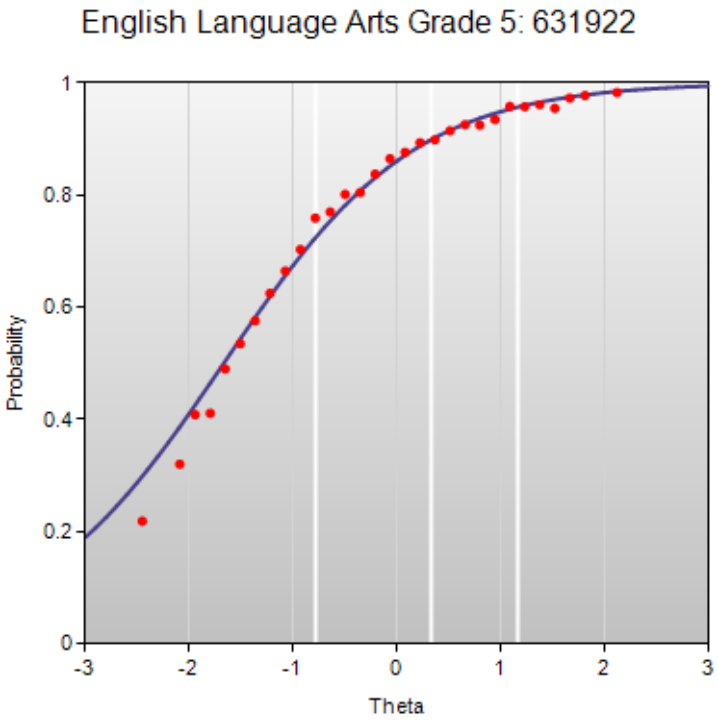

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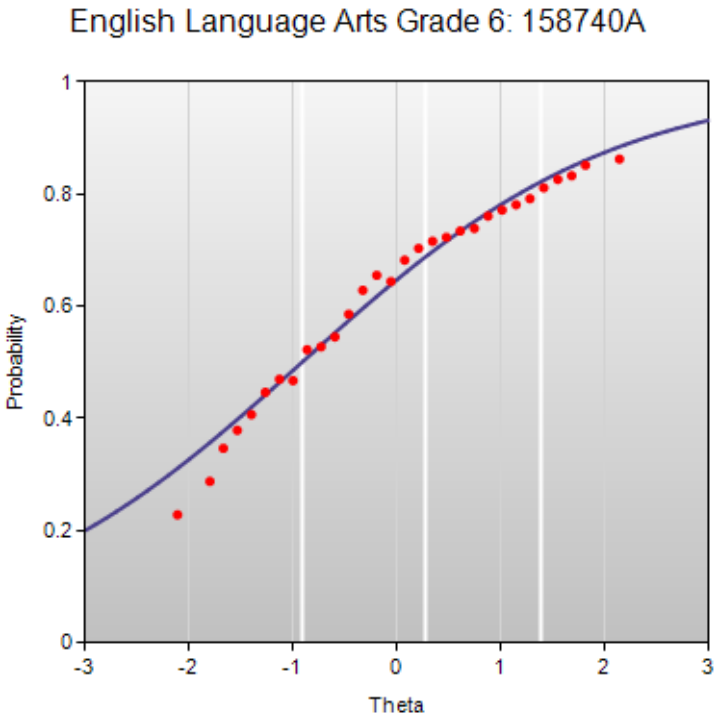

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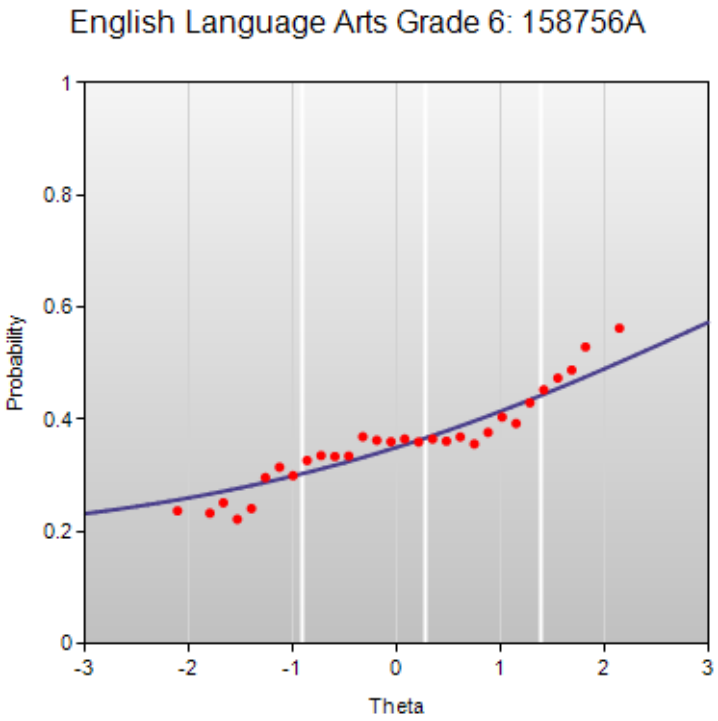

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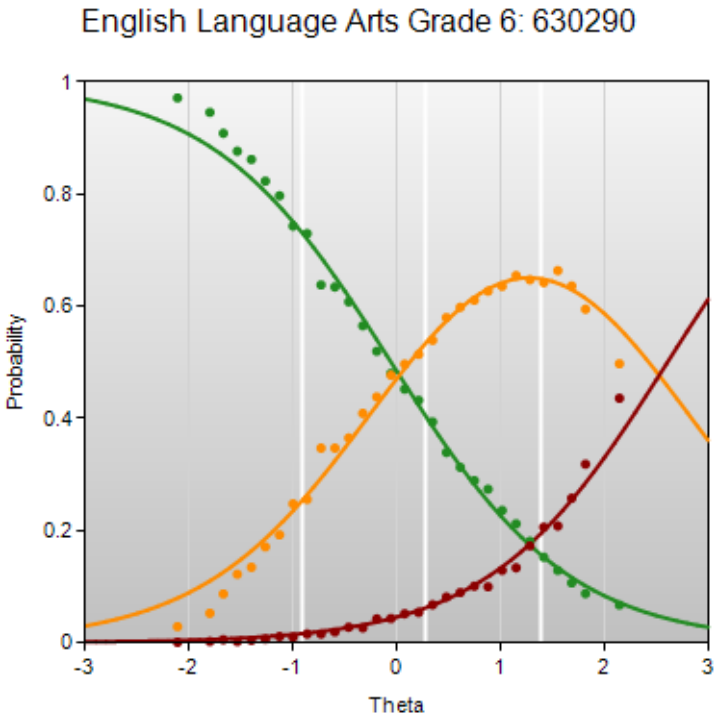

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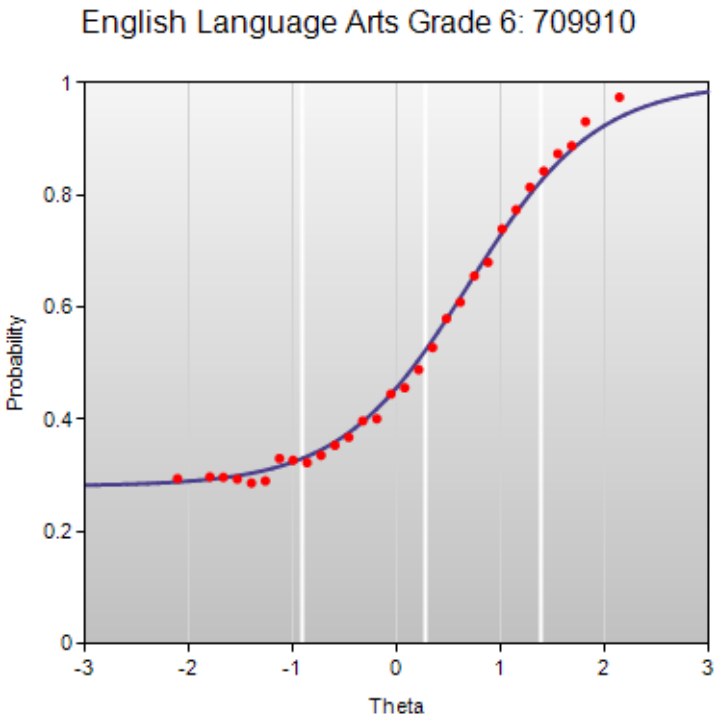

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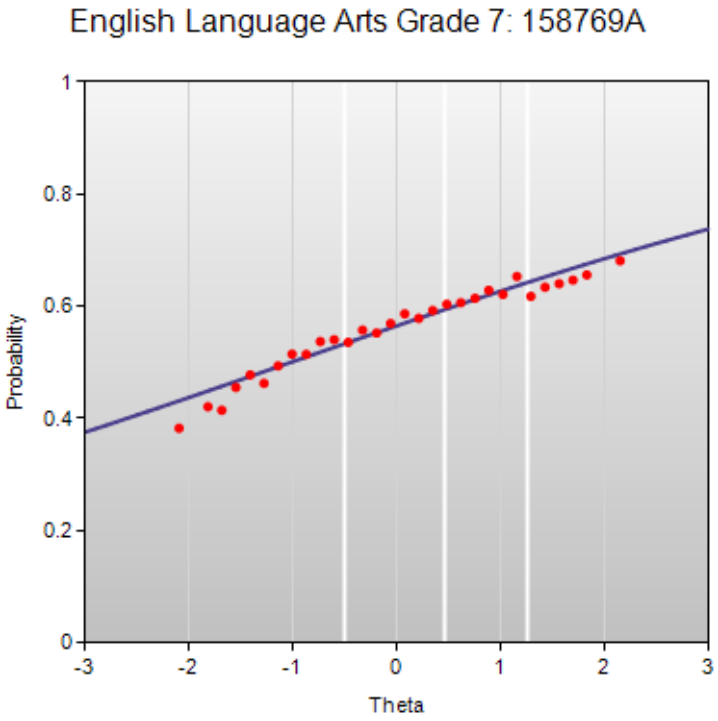

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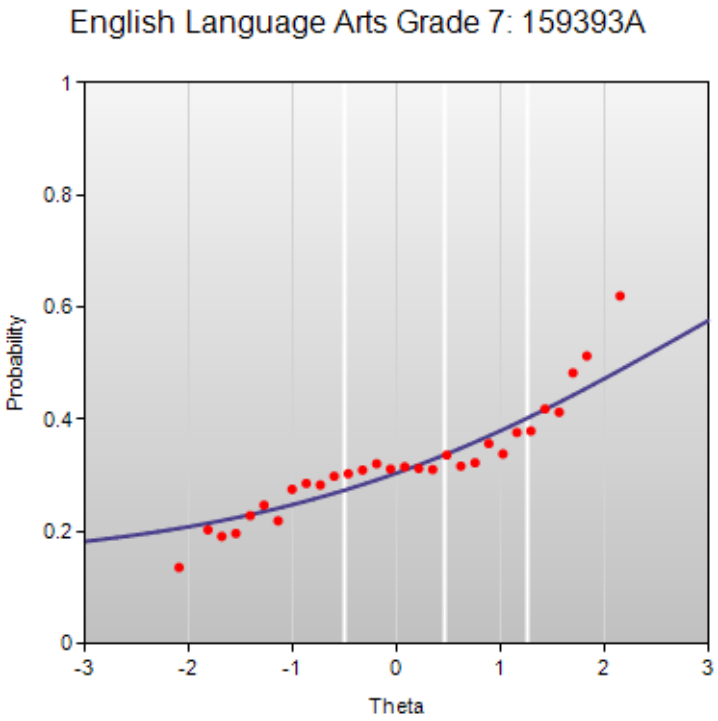

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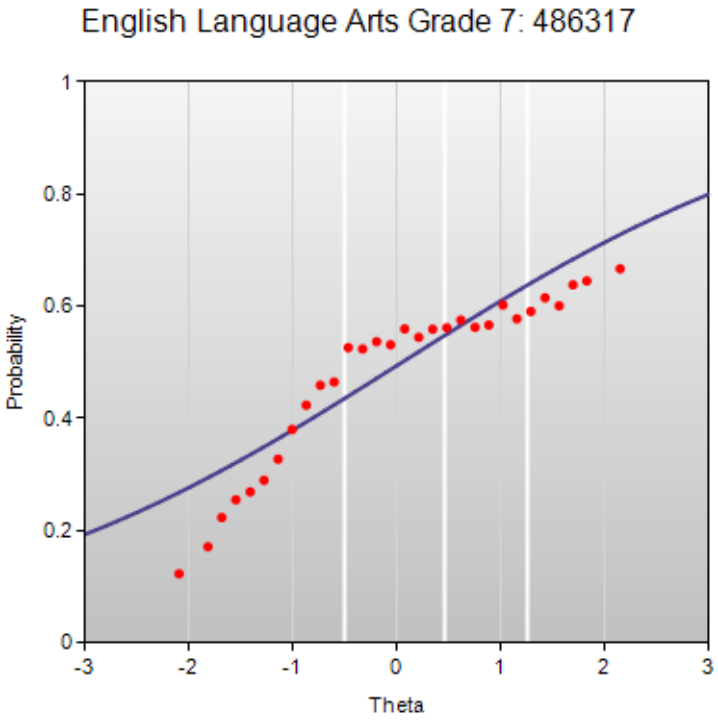

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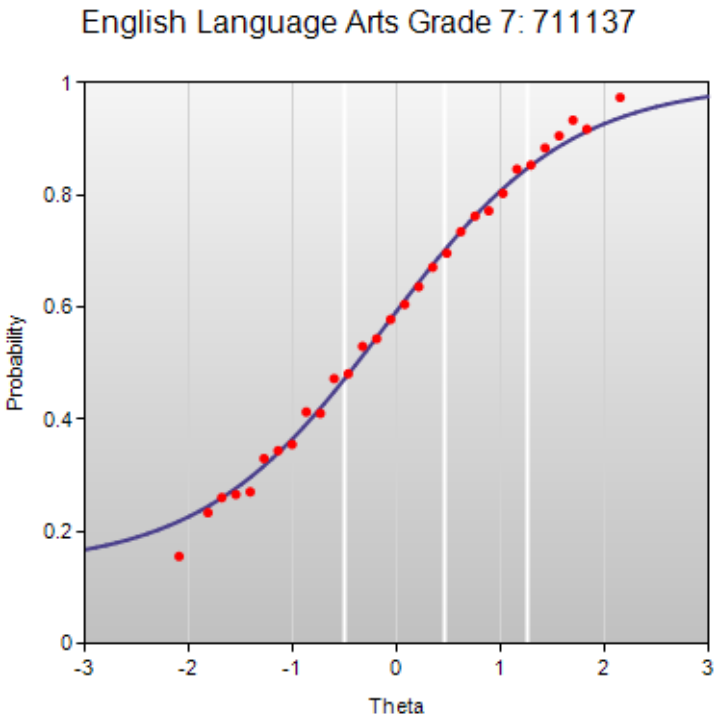

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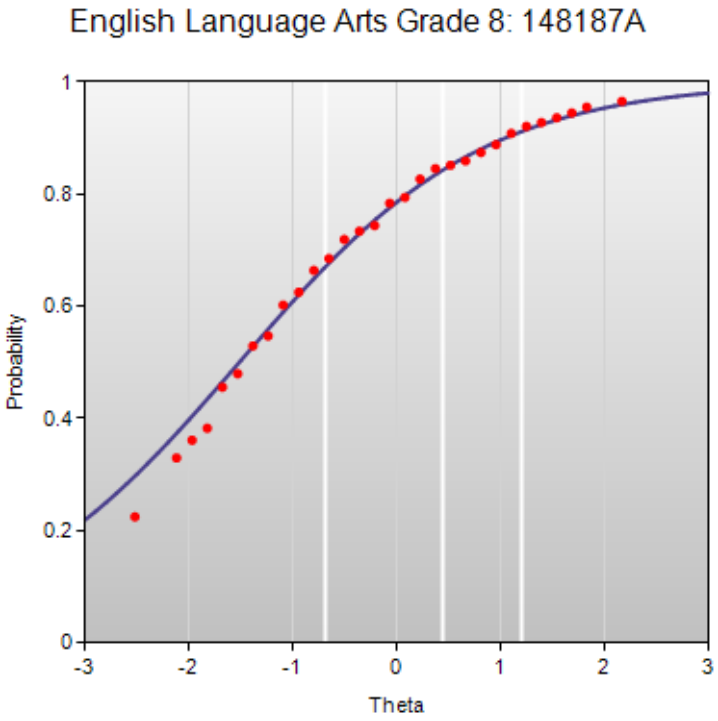

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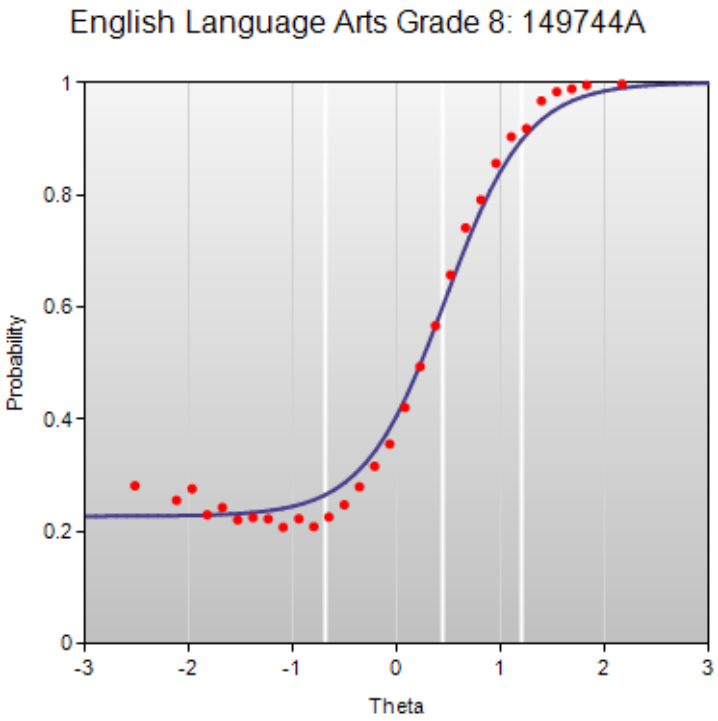

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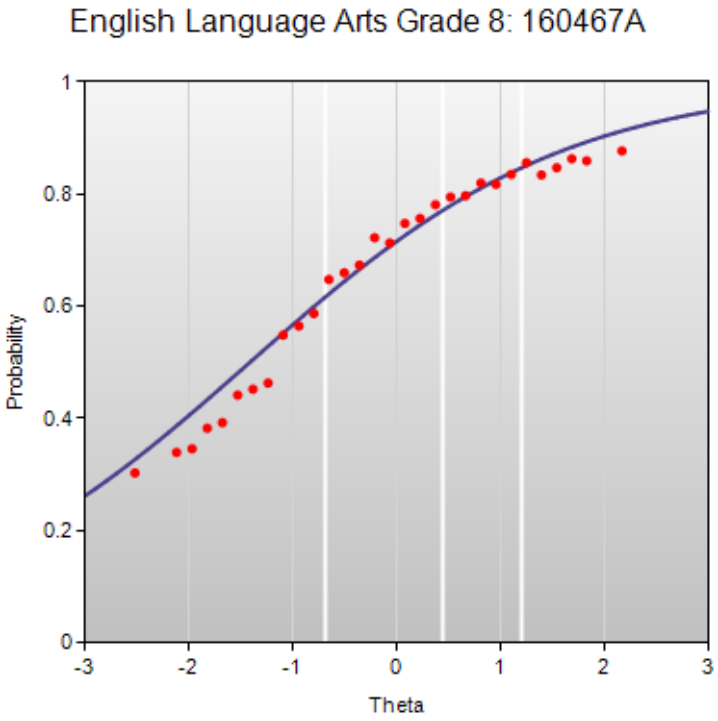

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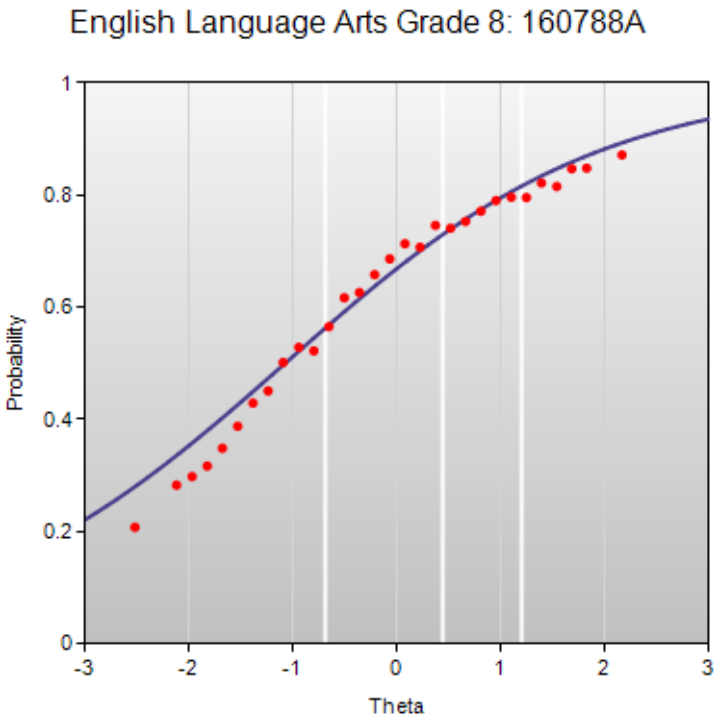

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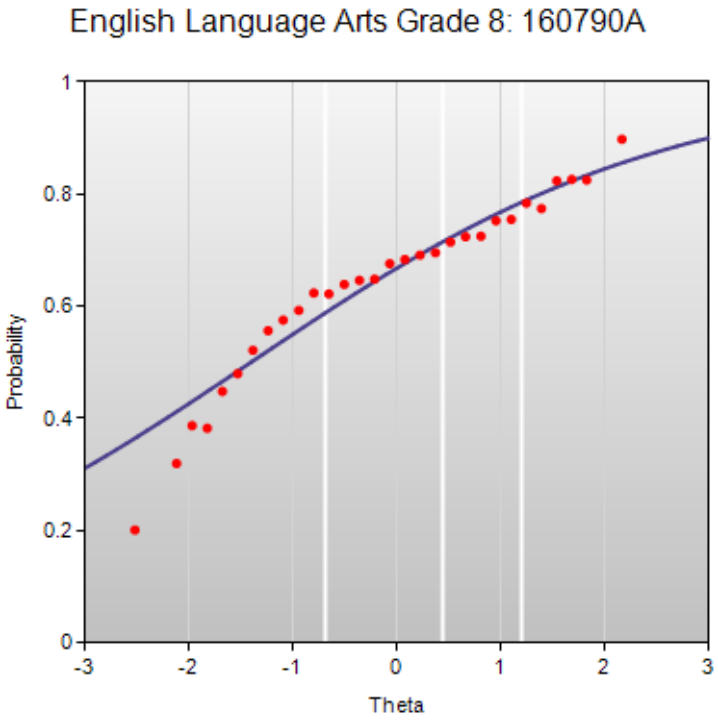

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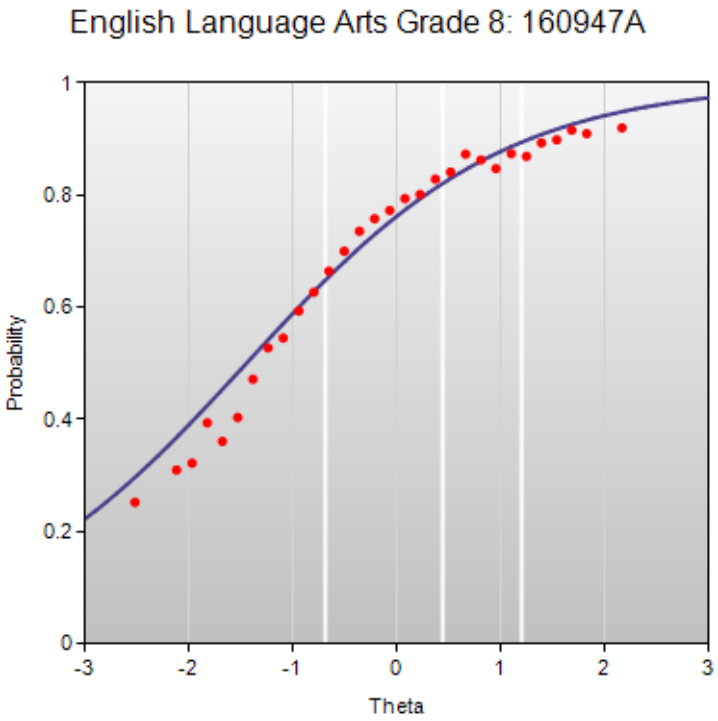

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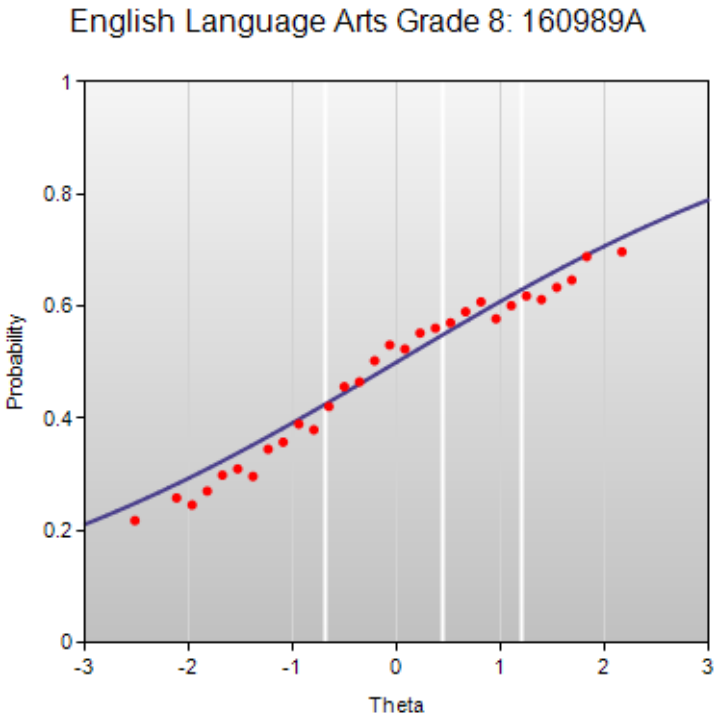

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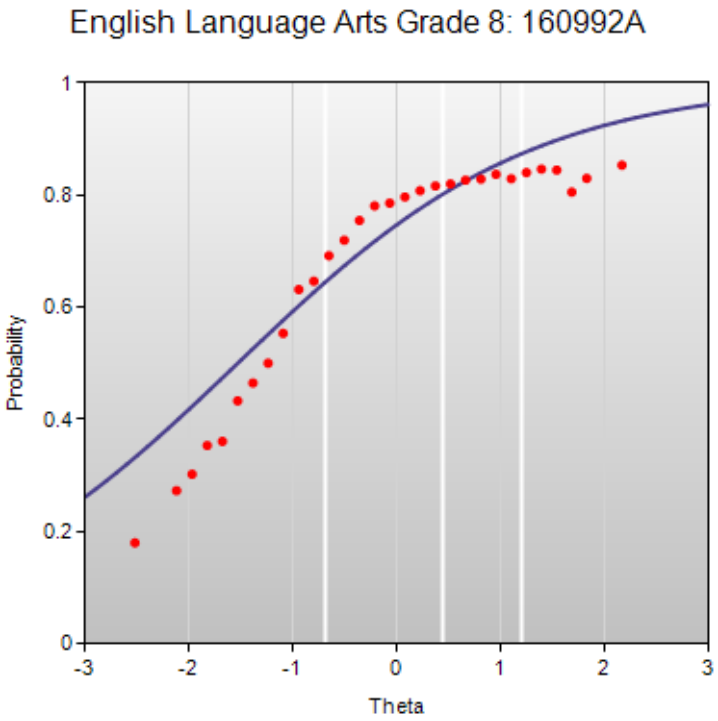

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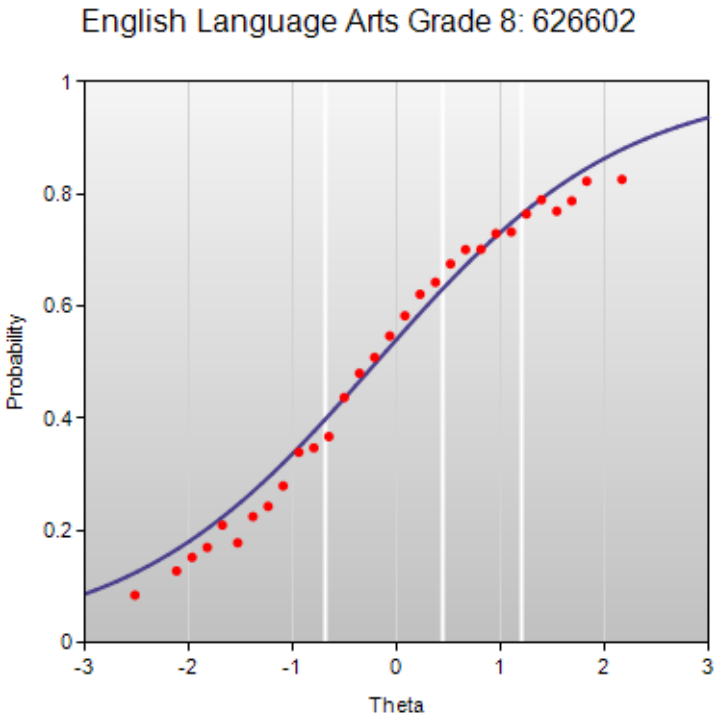

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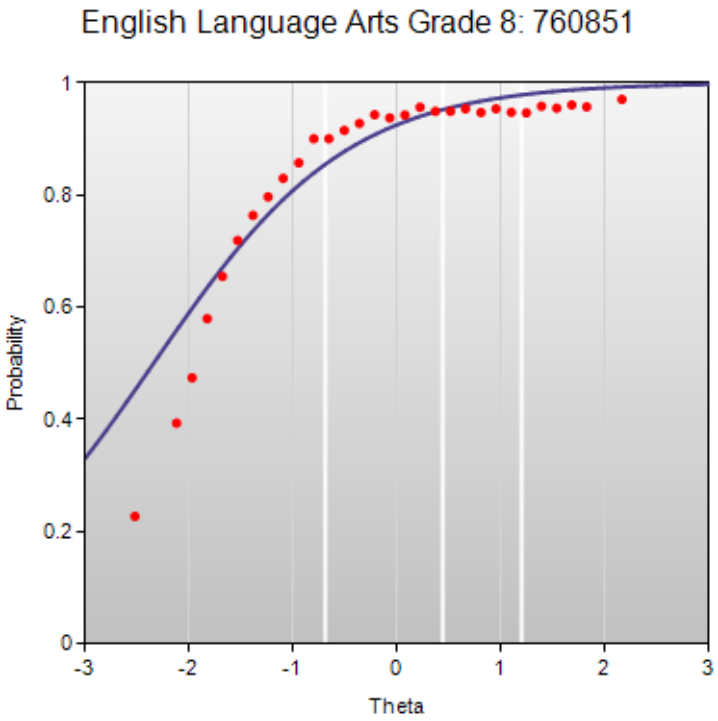

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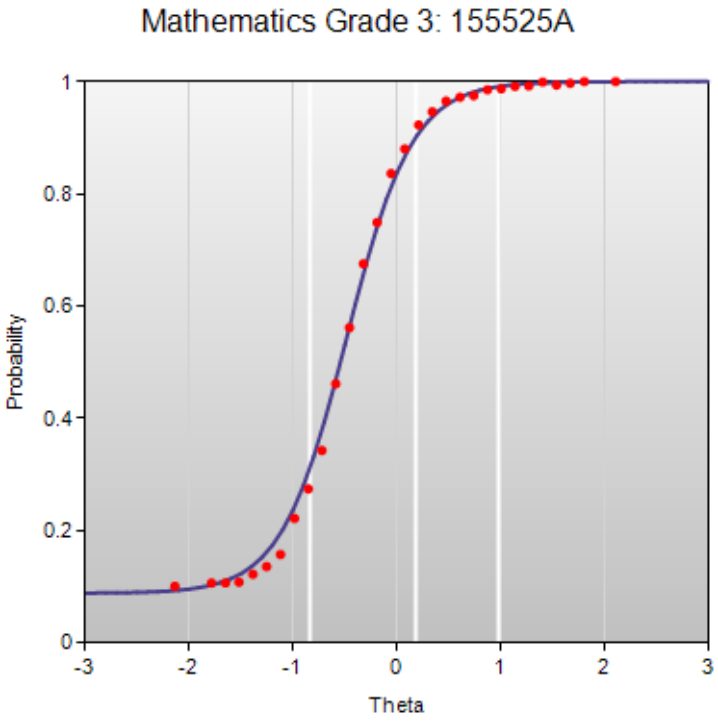

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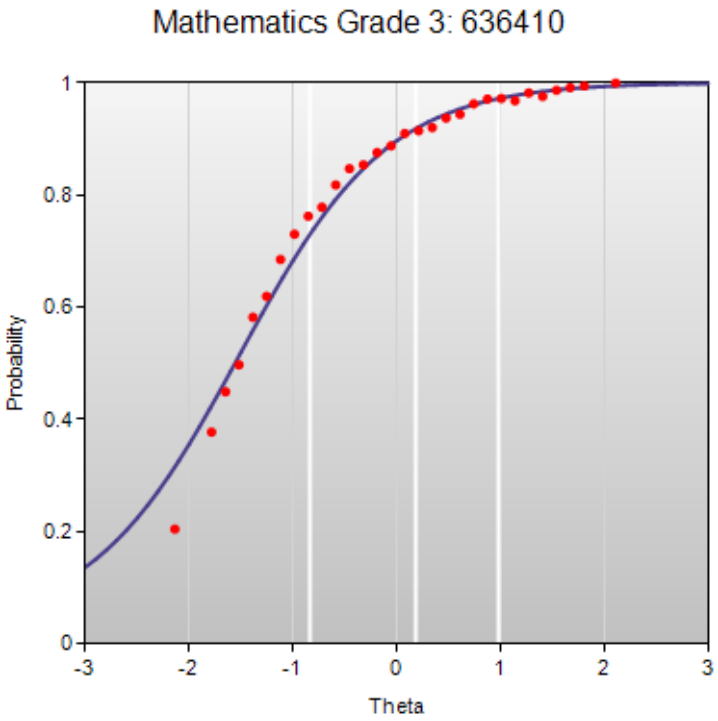

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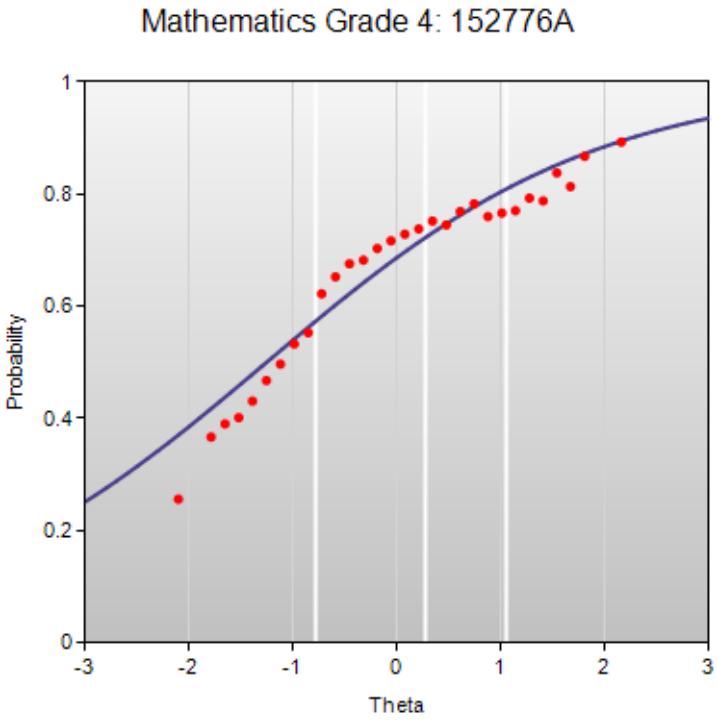

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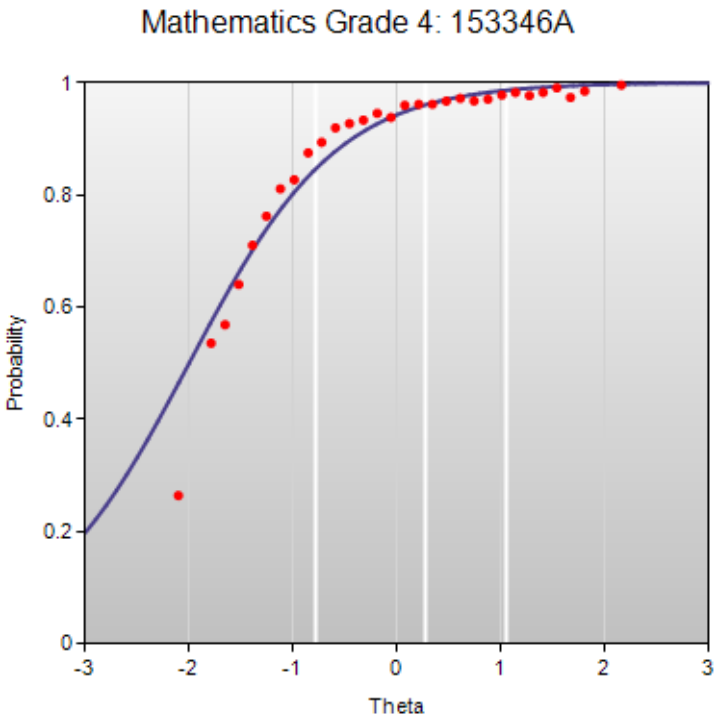

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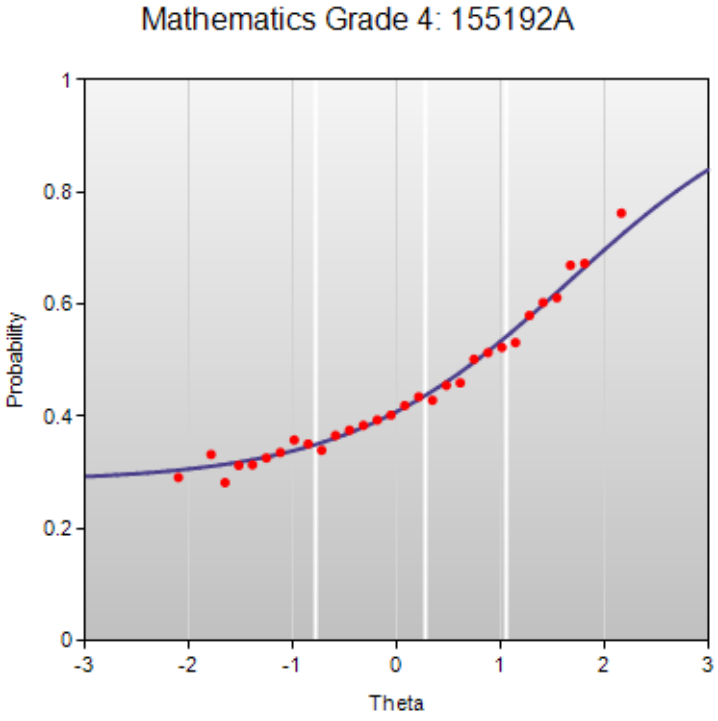

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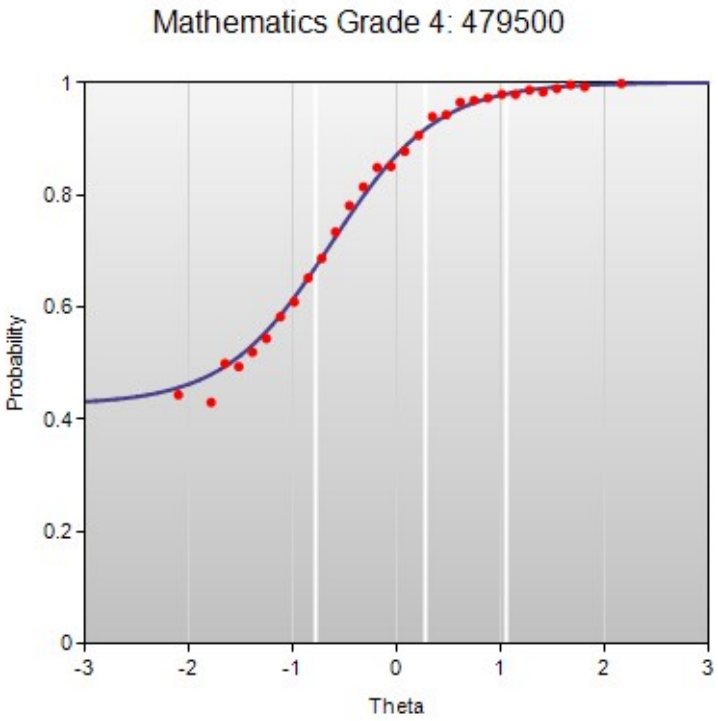

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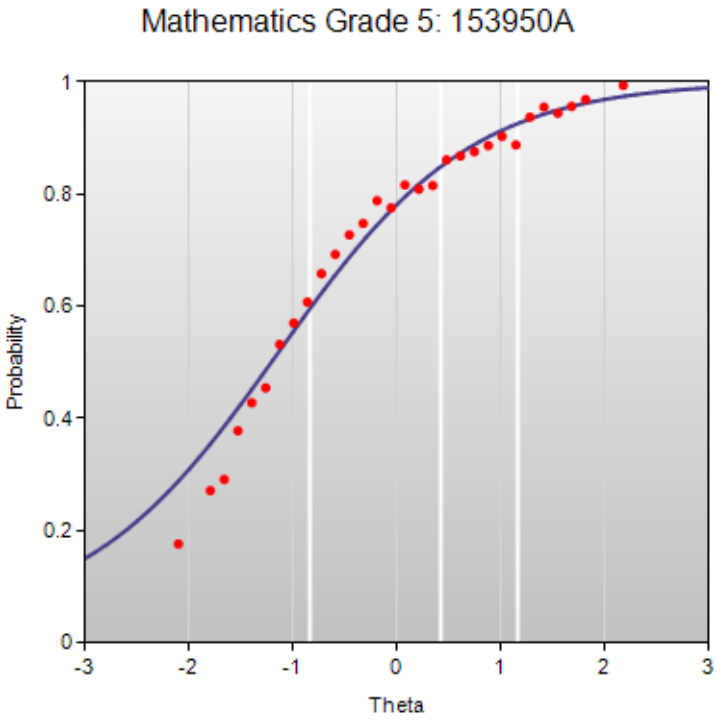

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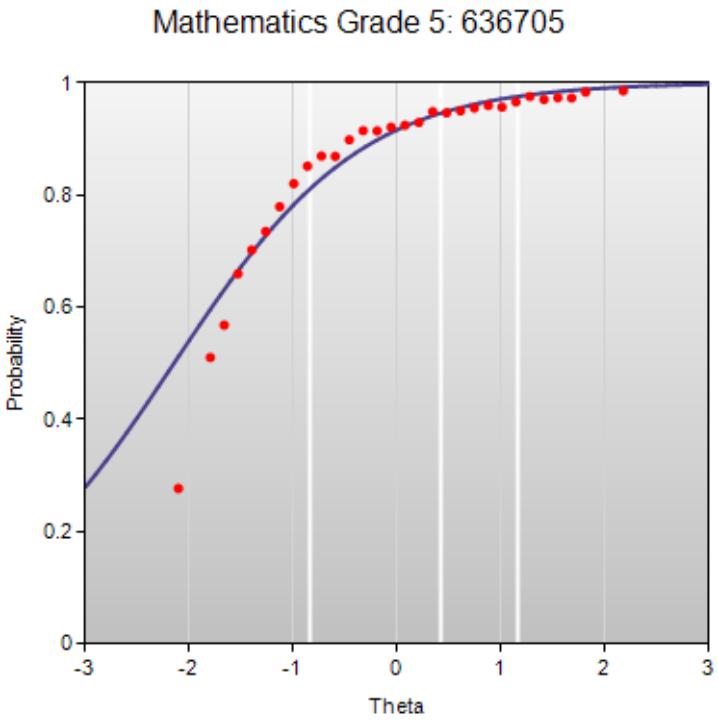

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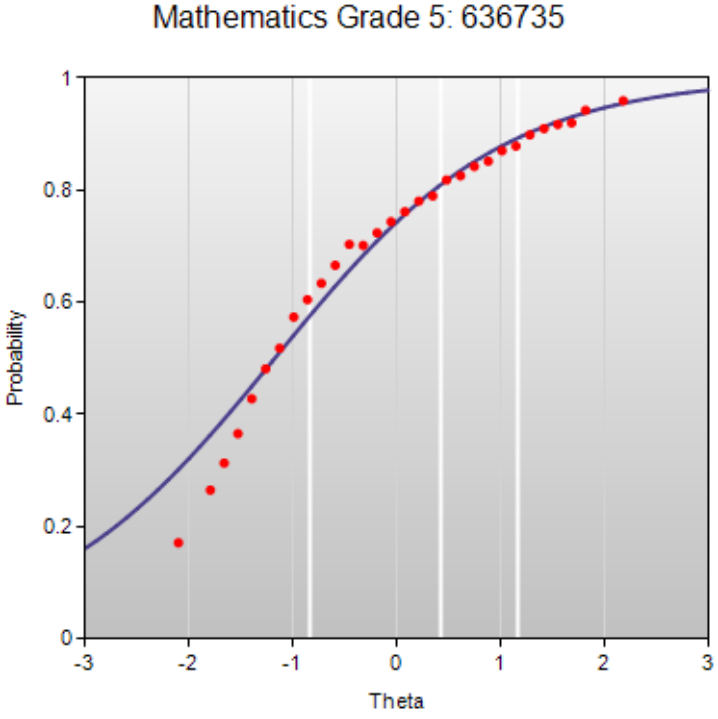

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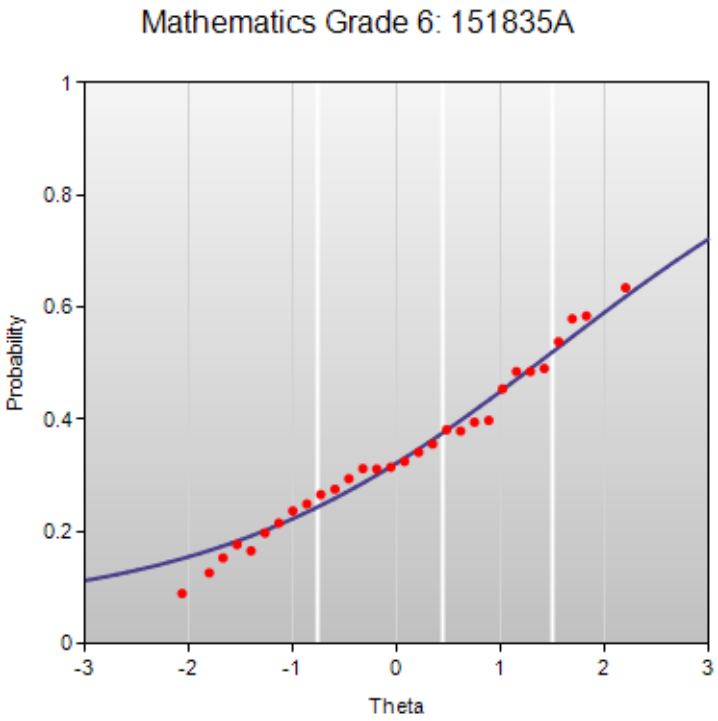

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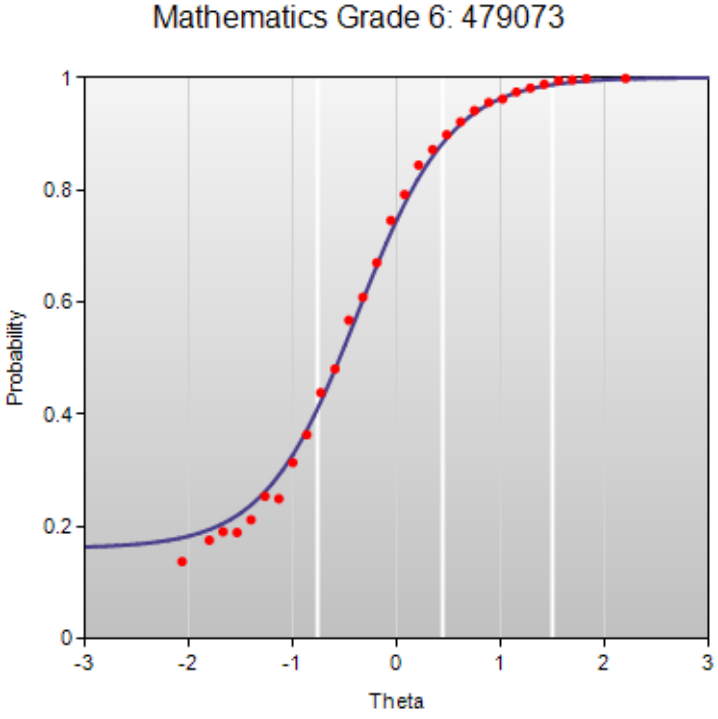

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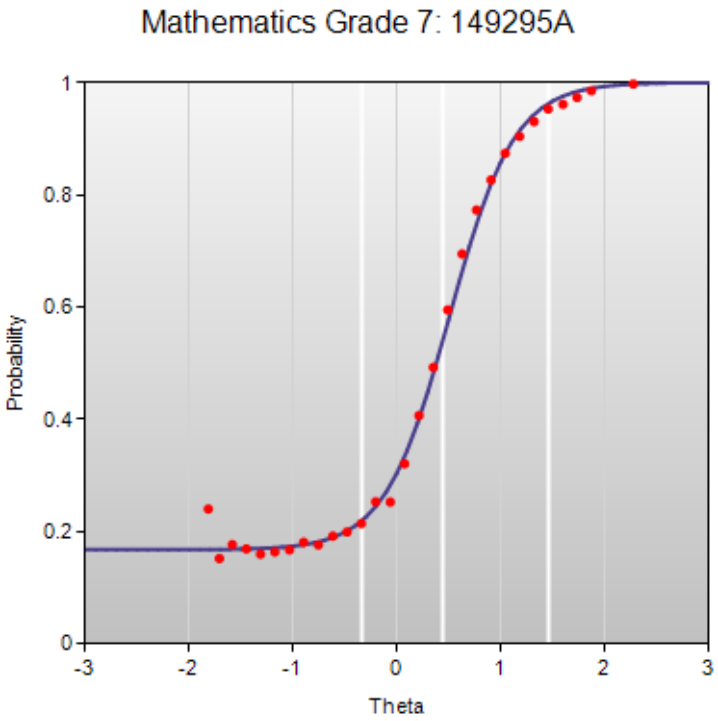

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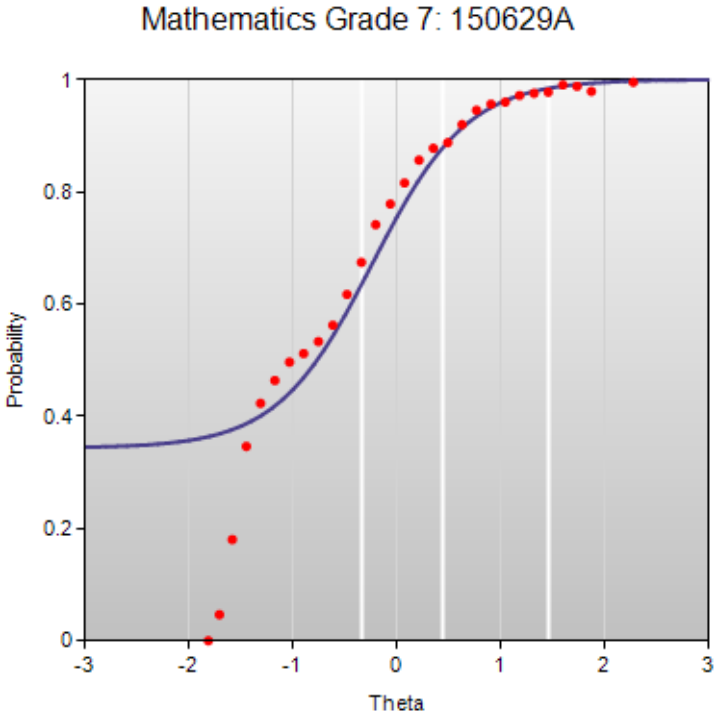

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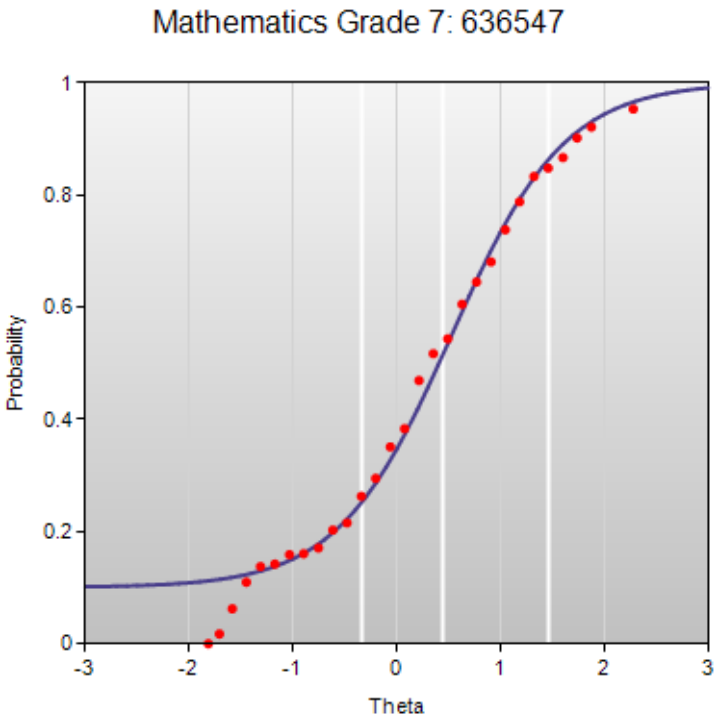

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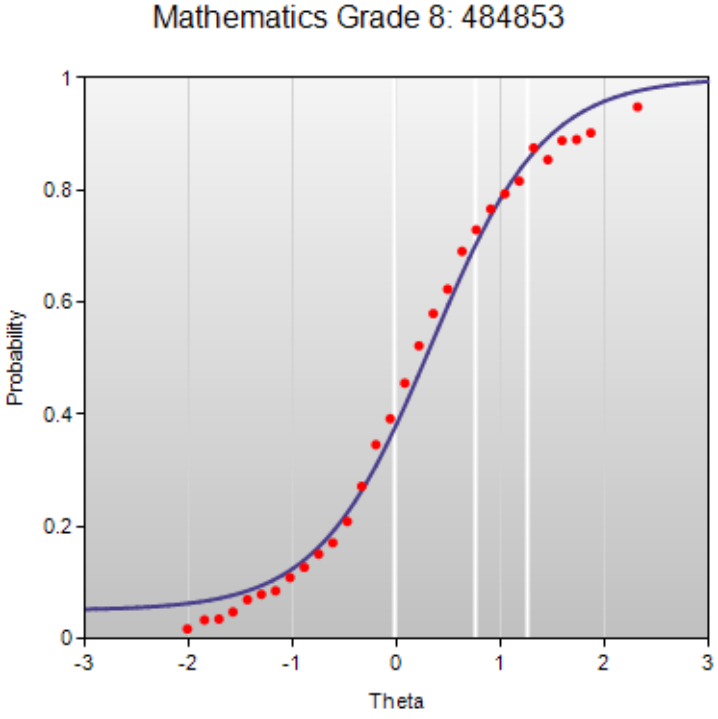

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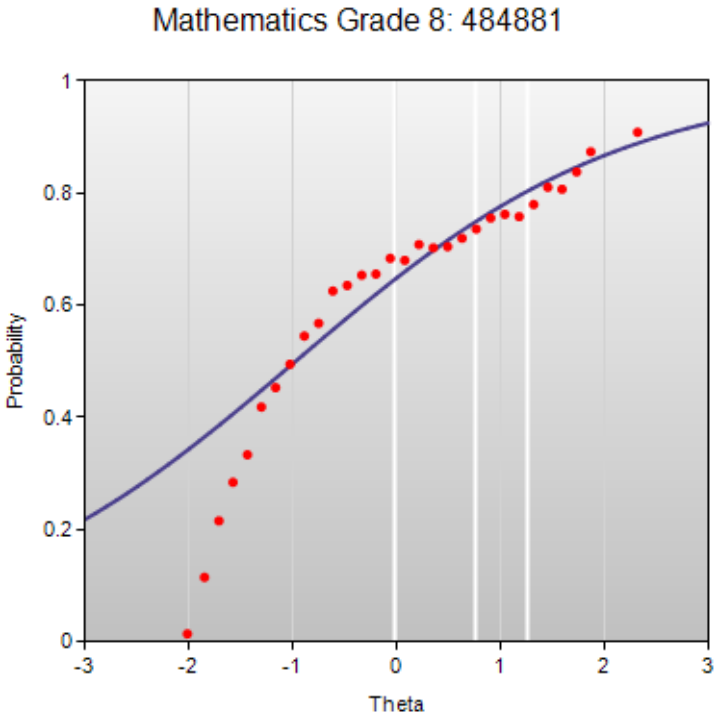

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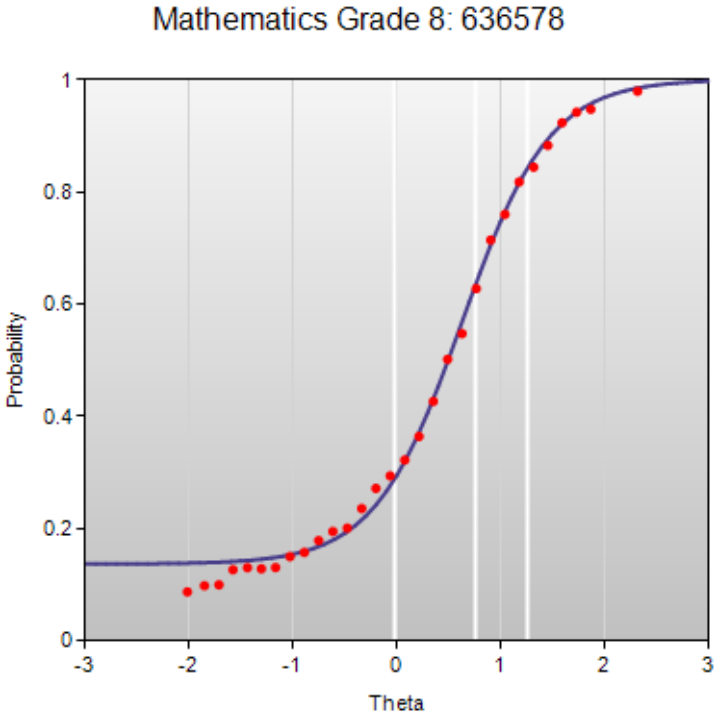

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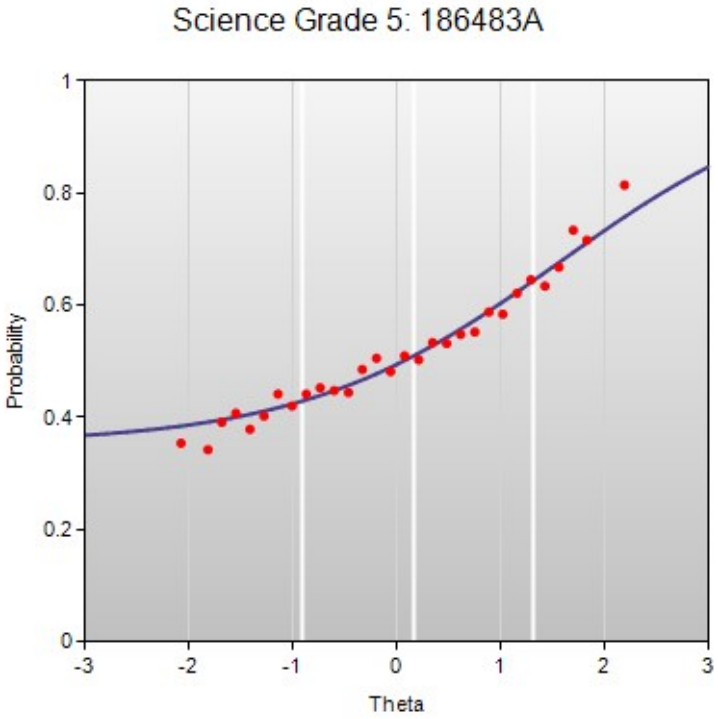

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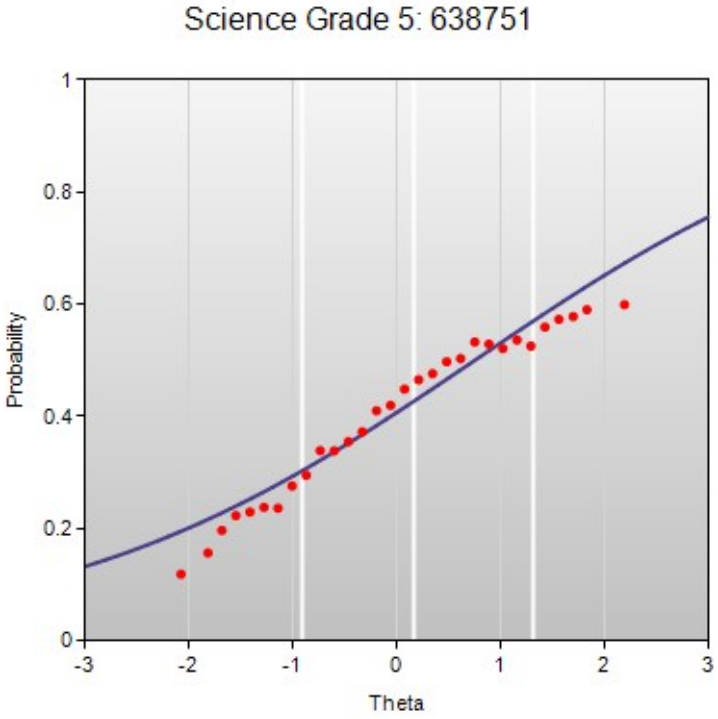

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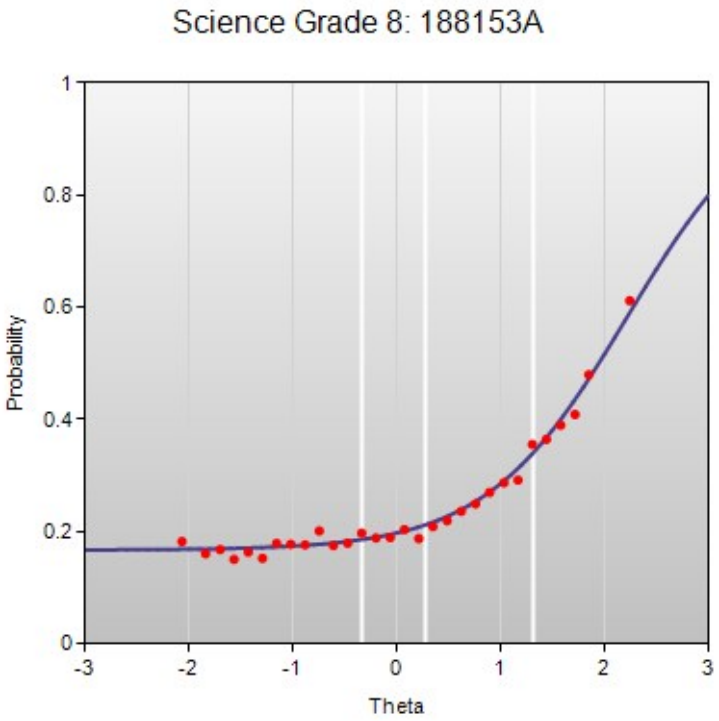

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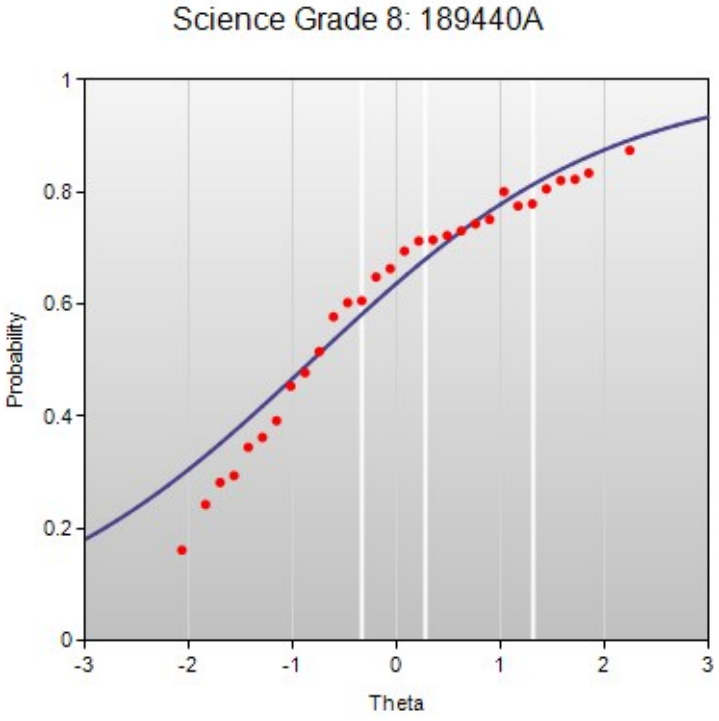

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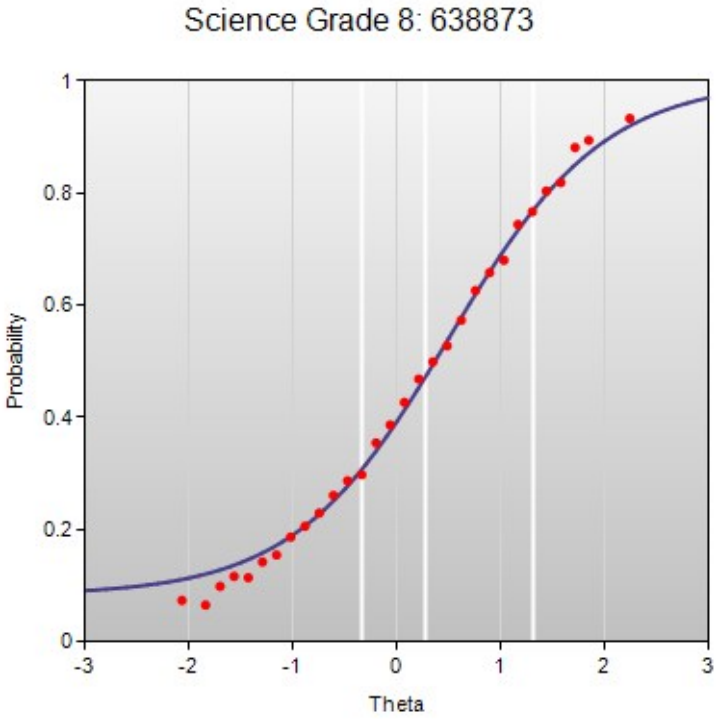

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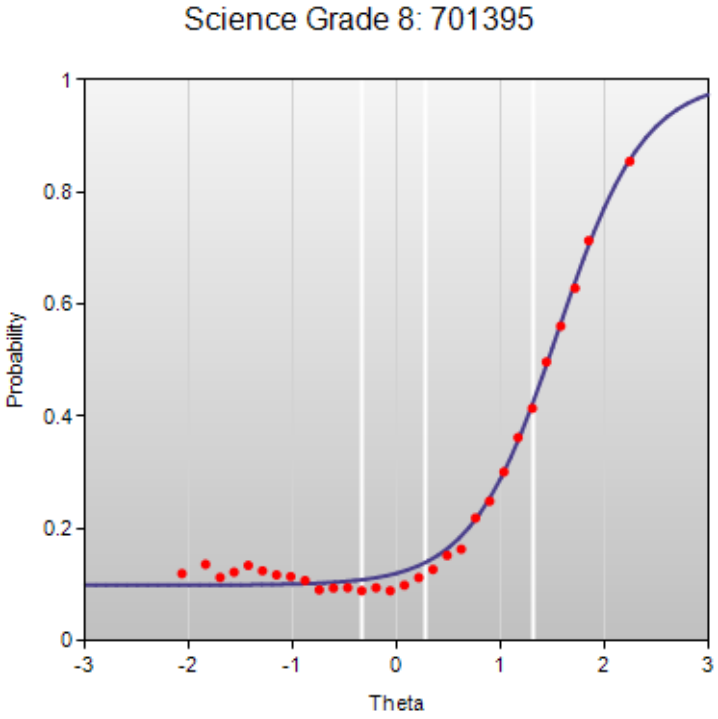

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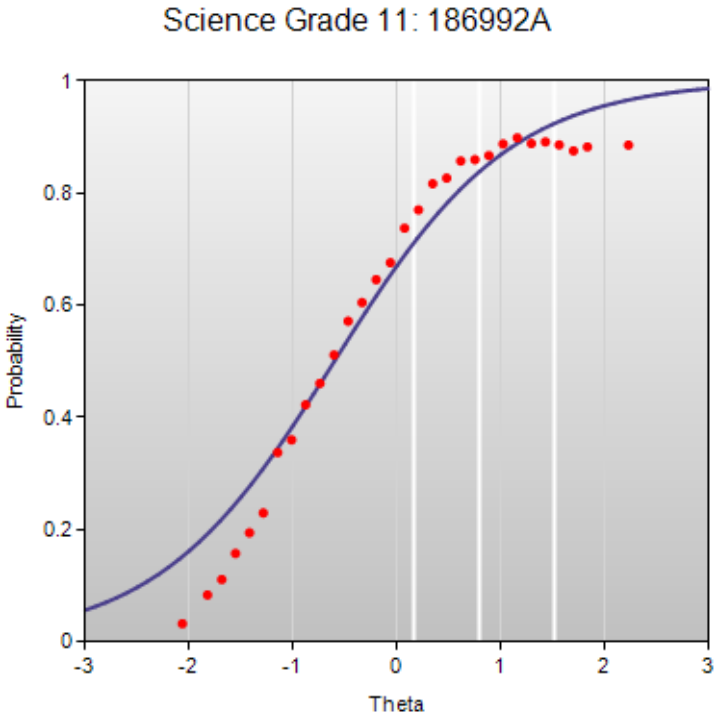

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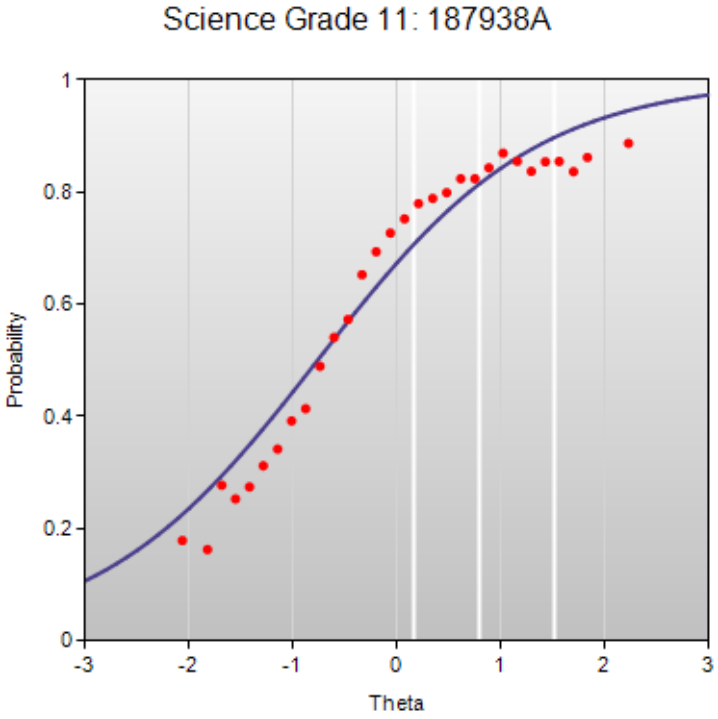

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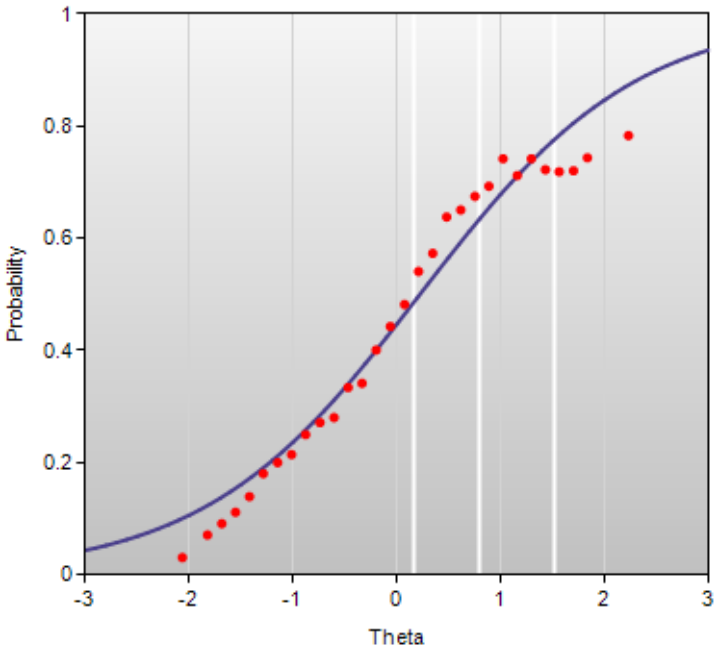
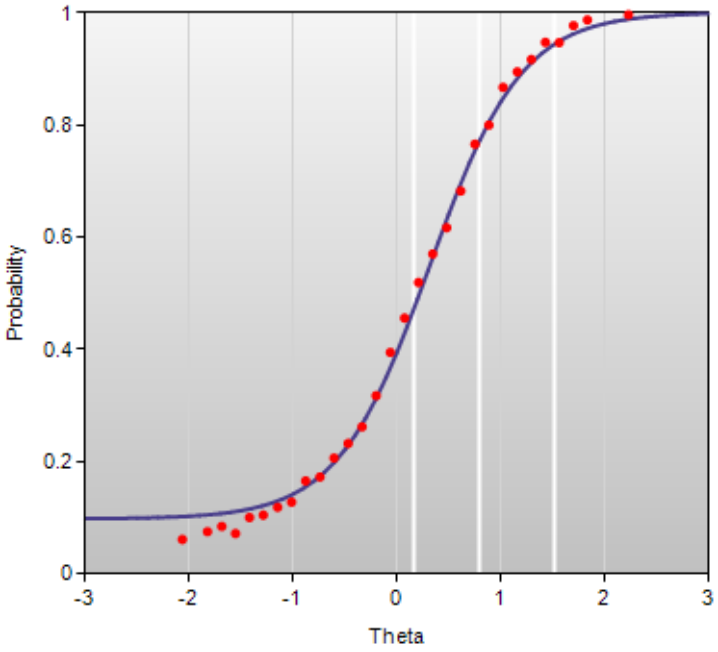
Science Grade 11: 603684



Beta Chart

Initial Calibration

Science Grade 11: 701612



Beta Chart

Initial Calibration

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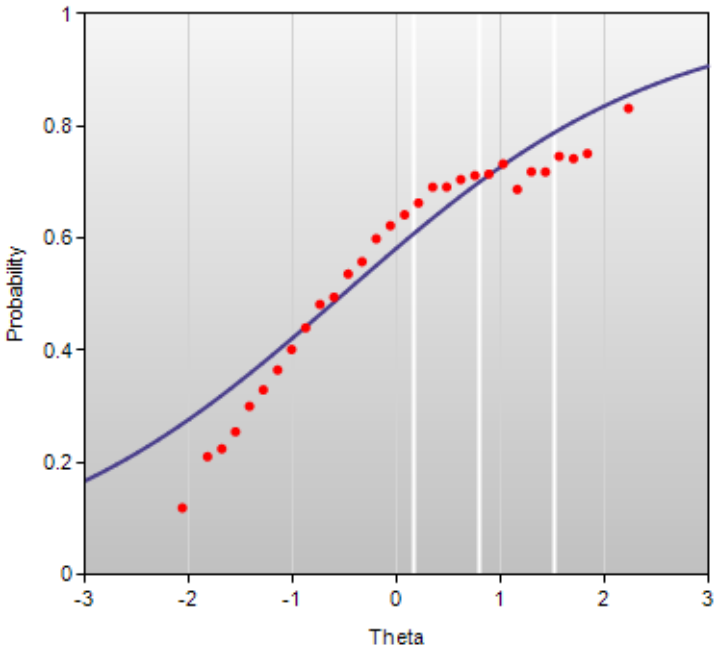
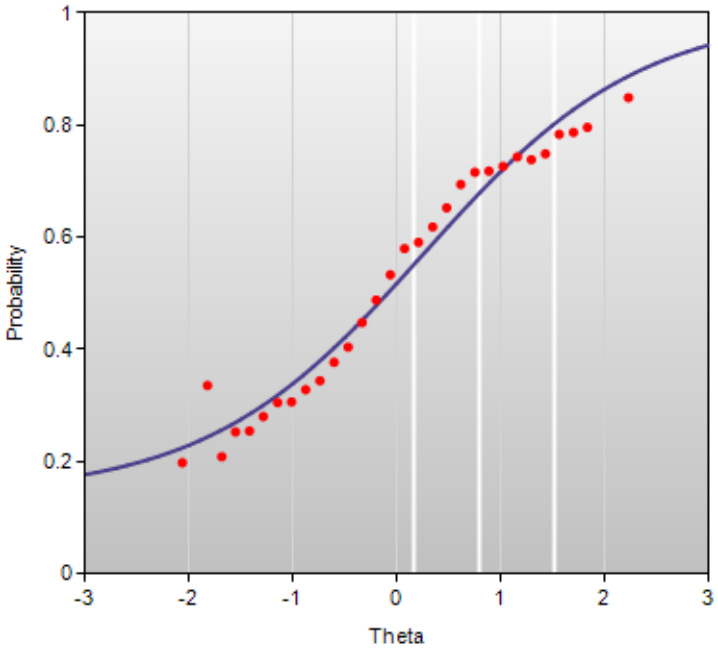


Beta Chart

Initial Calibration

Science Grade 11: 701641



Beta Chart

APPENDIX N
2017 OSTP STANDARD SETTING REPORT

Oklahoma School Testing Program

Standard Setting Report

August 7– 11, 2017

Oklahoma City, OK

100 EDUCATION WAY, DOVER, NH 03820 www.measuredprogress.org

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Chapter 1. OVERVIEW OF STANDARD SETTING PROCEDURES

The purpose of this report is to summarize the activities involved in the standard setting process for the Oklahoma School Testing Program (OSTP) assessments in grades 3–8 and high school English languages arts (ELA) and mathematics as well as grades 5 and 8 and high school science on behalf of the Oklahoma State Department of Education (SDE). The need for standard setting arises from the fact that this is a new assessment that was administered for the first time in 2017. For these new assessments, performance standards must be set. The primary goal of the standard setting was to determine the knowledge, skills, and abilities (KSAs) that students must demonstrate in order to be classified into each of the student status levels (performance levels).

The standard setting process used was the bookmark procedure (see, e.g., Lewis et al., 1996; Mitzel et al., 2000; Cizek & Bunch, 2007). There were two main reasons this method was chosen. First, the assessment consists primarily of multiple-choice items but also includes some constructed-response items, and the bookmark procedure is appropriate for use with assessments that contain primarily or exclusively multiple-choice items, scaled using item response theory (IRT; Cizek & Bunch, 2007). Second, the modified bookmark method has been used successfully to establish performance standards for SDE in the past (CTB/McGraw-Hill, 2013, 2014; Measured Progress, 2015).

The standard setting meeting was held between August 7 and August 11, 2017. In all, 111 panelists participated in the process and were organized into eight panels of 8–11 panelists each plus a facilitator provided by Measured Progress.

This report is organized into three major sections, describing tasks completed prior to, during, and after the standard setting meeting.

Chapter 2. TASKS COMPLETED PRIOR TO THE STANDARD SETTING MEETING

2.1 Creation of Performance Level Descriptors

Oklahoma State Statute: Title 70. Schools, Chapter 22 – Testing and Assessment, Section 1210.541 – Student Performance Levels and Cut Scores – Accountability System mandates the adoption of "a series of student performance levels and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act." The law states that performance levels must be labeled and defined as follows:

1. Advanced, which shall indicate that students demonstrate superior performance on challenging subject matter;
2. Proficient, which shall indicate that students demonstrate mastery over appropriate grade-level subject matter and that students are ready for the next grade, course, or level of education, as applicable;
3. Limited knowledge, which shall indicate that students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level or course; and
4. Unsatisfactory, which shall indicate that students have not performed at least at the limited knowledge level.

In March 2016, the 62 Oklahoma educators who formed the English language arts (ELA) and mathematics Performance Level Descriptor (PLD) committees, members of the SDE, and six Measured Progress staff members met for a three-day PLD writing meeting in Oklahoma City and two additional two-hour conference calls. In July 2016, the 29 Oklahoma educators who formed the science PLD committees, members of the Oklahoma SDE, and three Measured Progress staff members met for another three-day PLD writing meeting in Oklahoma City. The purpose of the meetings was to write PLDs that describe what students know and are able to display on a statewide assessment of the Oklahoma academic standards. The descriptors are used to provide a common understanding of each performance level for recommending cut scores during standard setting and to inform stakeholders on how to interpret student test scores.

After introductions of those in attendance at the PLD writing meetings, a brief overview of the purpose of PLDs, and an explanation of the PLD writing process, the Oklahoma PLD committees used the standards and the SDE test and item specifications document to begin development of the PLDs. To ensure that the committee members focused on the state-adopted standards and objectives, the committee members were not shown any items that appeared on the assessment.

Independently, PLD committee members filled in the PLD tables by writing down the skills and knowledge students would demonstrate in the Advanced, Proficient, and Limited Knowledge levels for each standard and objective. After the individual work was completed, the group discussed and arrived at a consensus on the wording for the performance levels. As a final step, the PLD committee members reviewed and revised the suggested wording for each level to ensure appropriateness and consistency, and that each level indicated a trajectory of students' knowledge of the content.

2.2 Preparation of Materials for Panelists

The following materials were assembled for presentation to the panelists at the standard setting meeting:

- PLDs
- Meeting agendas
- Nondisclosure forms
- Test booklets
- Answer keys/scoring rubrics
- Ordered item booklets
- Item map forms
- Rating forms
- Evaluation forms

Copies of the PLDs, meeting agenda, nondisclosure form, sample item map form, sample rating form, and evaluation form are included in Appendices A through F.

2.3 Preparation of Presentation Materials

The PowerPoint presentation used in the opening session was prepared prior to the meeting. A copy of the presentation is included in Appendix G.

2.4 Preparation of Instructions for Facilitators

Scripts were created for the group facilitators to refer to while working through each step of the standard setting process. This document is included in Appendix H. The facilitators also attended a training session, led by a Measured Progress psychometrician, approximately four weeks before the standard setting. The purpose of the training was to prepare the facilitators for the panel activities and to ensure consistency in the implemented procedures.

2.5 Preparation of Systems and Materials for Analysis During the Meeting

The computational programming used to calculate cutpoints and impact data during the standard setting meeting was completed and thoroughly tested prior to the standard setting meeting. See Section 3.3.2, Round 1 Judgments and Results, for a description of the analyses performed during standard setting.

2.6 Selection of Panelists

As emphasized in Cizek and Bunch (2007), regardless of the method used, the selection of panelists is an important factor in determining standard setting outcomes and maximizing the validity of the standard setting process. The guidance provided by *Standards for Educational and Psychological Testing* (AERA et al., 1999) states that "a sufficiently large and representative group of judges should be involved to provide reasonable assurance that results would not vary greatly if the process were repeated." Consistent with the above guidance, as well as practical considerations regarding the maximum size of a group that can be successfully managed, the goal was to recruit standard setting panels each with 10–12 members representing different stakeholder groups to set standards for each grade. Targets for the size and composition of the panels were also consistent with federal guidelines as described in *Standards and Assessment Peer Review Guidance: Information and examples for meeting requirements of the No Child Left Behind Act of 2001* (U.S. Department of Education, 2009).

Panelists were selected by the SDE prior to the standard setting meeting. The goal was for each panel to include participants who are primarily teachers but also to include school administrators, higher education personnel, and stakeholders from other interest groups. Moreover, to the extent possible, panelists were selected to reflect a balance of gender, race/ethnicity, and geographic location. Finally, panelists were selected who were familiar not only with the subject matter but also with the grade for which they would be setting standards. A list of the panelists is included in Appendix I.

Chapter 3. TASKS COMPLETED DURING THE STANDARD SETTING MEETING

3.1 Overview of the Bookmark Method

The bookmark method (Lewis et al., 1996; Mitzel et al., 2000; Cizek & Bunch, 2007) involves rank ordering the items by difficulty and asking the panelists to identify the point in the ordered set of items at which the students at the borderline of two adjacent performance levels no longer have at least a two-thirds chance of answering the item correctly.

3.2 General Orientation and Panelist Training

With regard to panelist training, *Standards for Educational and Psychological Testing* (AERA et al., 2014) states the following:

> Care must be taken to assure these persons understand what they are to do and that their judgments are as thoughtful and objective as possible. The process must be such that well-qualified participants can apply their knowledge and experience to reach meaningful and relevant judgments that accurately reflect their understandings and intentions. (p. 101)

The training of the panelists began with a general orientation session at the start of the standard setting meeting. The purpose of the orientation was to ensure that all panelists received the same information about the need for and goals of standard setting and about their part in the process. The orientation consisted of three parts. First, Oklahoma State Superintendent of Education Joy Hofmeister provided an overview of education policy in the state of Oklahoma followed by more specific assessment context provided by t Assistant Executive Director of State Assessments for SDE Maria Harris. Next, a Measured Progress psychometrician, Dr. Matthew Gushta, presented a brief overview of the bookmark procedure and the activities that would occur during the standard setting meeting. Finally, Measured Progress Portfolio Manager Julie DiBona provided panelists with various logistical information (e.g., materials review, content security, attendance).

An additional presentation was provided to English language arts (ELA) panelists specifically regarding the writing prompts administered in grades 5, 8, and 10. Student responses to these items were formula-scored based on five substantive rubrics, generating an overall writing composite score. This composite score could be the result of numerous combinations of rubric scores; this formula-scoring approach was described to the panelists, and the most frequent rubric score combinations for each grade and composite score were presented.

Once the general orientation was complete, panelists convened in break-out rooms associated with their specific subject and grade span (i.e., ELA and mathematics, grades 3/4, 5/6, and 7/8) or single grades (i.e., ELA and mathematics 10; science 5, 8, and 10), where they received more detailed training and completed the standard setting activities.

3.3 Table Leader Training

During breakfast on Day 1, the two table leaders identified for each panel attended a brief training session led by Measured Progress Test Development Manager David Harrison. During this training, expectations for the table leaders were set to include: leading panelist review of the ordered item booklet, leading panelist development of borderline descriptors, facilitation of panel discussion, collection and review of standard setting materials, control of secure materials, and attendance at vertical articulation (for ELA and mathematics participants). Table leaders were expected to support the lead facilitators in ensuring that discussion and logistics within panels were conducted fairly and efficiently; introductions were made at this time to the Measured Progress staff members who served as lead facilitators in their respective rooms

3.4 Review of Assessment Materials

The first step after the opening session was for the panelists to take the test. The purpose of this step was to familiarize the panelists with the assessment and what it asks students to do. Once panelists completed the test, the answer key was distributed. At this point, panelists were encouraged to discuss any issues regarding items or scoring. For grade-span panels, review of materials and all subsequent activities proceeded for the lower grade first followed by the upper grade as indicated in the meeting agenda (see Appendix B).

3.5 Review of Performance Level Descriptors and Definition of Borderline Students

Next, panelists reviewed the Performance Level Descriptors (PLDs). This important step was designed to ensure that panelists thoroughly understood the knowledge, skills, and abilities (KSAs) needed for students to be classified into performance levels (Unsatisfactory, Limited Knowledge, Proficient, and Advanced). Panelists first reviewed the PLDs on their own and then participated in group discussion of the PLDs, clarifying each level. Afterward, panelists developed consensus definitions of borderline students—that is, students who have only barely qualified for a particular performance level. Bulleted lists of characteristics for each level were generated based on the whole-group discussion and posted in the room for reference throughout the bookmark process. Note that the purpose of this step was to clarify and add specificity to the PLDs based on the KSAs, paying particular attention to the definitions of the borderline students.

The bulleted lists were developed as working documents to be used by the panelists for the purposes of standard setting. They supplemented the PLDs, which provide the official definition of what it means for a student to be classified into each performance level, by specifically addressing the KSAs that define the borderline of each level.

The PLDs are provided in Appendix A.

3.6 Completion of the Item Map Form

Each panelist then reviewed the ordered item booklet item by item, considering the KSAs students needed to answer each one. The ordered item booklet contained one item per page, ordered from the easiest item to the most difficult item. The ordered item booklet was created by sorting the items according to their item response theory (IRT)-based difficulty values ($RP_{0.67}$ was used). A three-parameter logistic IRT model was used to calculate the $RP_{0.67}$ values for dichotomous items.

Panelists then completed the item map form. The item map form listed the items in the same order as they were presented in the ordered item booklet; the form included space for the panelists to write in the KSAs required to answer each item correctly as well as indicating why they believed each item was more difficult than the previous one.

Additionally, the item map form was shaded to indicate regions of comparability to NAEP Proficiency (grades 3 through 8) or ACT Benchmark (grade 10), as shown in Table 3-1. Item map entries that would produce percentages of students at or above Proficient comparable to those external assessments were identified as benchmarking items. The shaded region on the item map form was then calculated as +/-2 standard errors around the IRT-based difficulty of the OSTP benchmarking items.

Table 3-1: OSTP Standard Setting Benchmarking Regions

Subject	*Grade*	*External Assessment*	*Percentage**	*OIB Shaded Region*
English Language Arts	3	NAEP	34**	25-45
	4	NAEP	33	26-45
	5	NAEP	32	31-51
	6	NAEP	31	33-51
	7	NAEP	30	30-50
	8	NAEP	29	33-51
	10	ACT	37	25-55
Mathematics	3	NAEP	40.5	33-51
	4	NAEP	37	27-47
	5	NAEP	33.5	29-46
	6	NAEP	30	27-41
	7	NAEP	26.5	21-37
	8	NAEP	23	18-40
	10	ACT	25	17-37
Science	5	NAEP	34	17-38
	8	NAEP	28	18-43
	10	ACT	24	12-33

** Percentage of students at or above Proficient (NAEP) or Benchmark (ACT).*
*** NAEP grades 4 and 8 ELA and mathematics used to generate linear interpolations of grades 3, 5, 6, and 7.*

After they finished working individually, panelists had the opportunity to discuss the item map form as a group and make necessary additions or adjustments. The purpose of this step was to ensure that panelists became familiar with the ordered item booklet and understood the relationships among the ordered items.

3.7 Rating Rounds and Feedback

3.7.1 Practice Round

Next, the panelists completed a practice round of ratings. The purpose of the practice round was to familiarize the panelists with all the materials they would be using for the standard setting process and to walk them through the process of placing bookmarks. In addition to the PLDs and borderline descriptions, panelists were given a practice ordered item booklet, which consisted of 10 items representing the range of difficulty on the test, and a practice rating form.

The facilitator explained what each of the materials was and how panelists would use it to make their ratings. Then, beginning with the first ordered item and considering the skills and abilities needed to complete it, panelists were instructed to ask themselves, "Would at least two out of three students performing at the borderline of Proficient answer this question correctly?" Panelists considered each ordered item in turn, asking themselves the same question until their answer changed from "yes" (or predominantly "yes") to "no" (or predominantly "no"). Each panelist practiced placing the Proficient bookmark in the ordered item booklet. The facilitator then led the panelists in a readiness discussion, asking panelists to share the reasoning behind their bookmark placements with the group and assessing each panelist's understanding of the rating task, borderline students, and the two-thirds rule. At the end of the practice round, panelists completed the practice evaluation form. The evaluation form was designed to ascertain whether the panelists were comfortable moving ahead to the rating task or whether there were lingering questions or issues that needed to be addressed before proceeding to the Round 1 ratings. Facilitators were instructed to glance over each panelist's evaluation as he or she completed it to make sure panelists were ready to move on. The results of the training evaluation can be found in Appendix J.

For panelists who participated in grade-span panels, this practice round was conducted only for the lower grade (i.e., grades 3, 5, and 7).

3.7.2 Round 1 Judgments and Results

In the first round, panelists worked individually with the PLDs, the item map form, and the ordered item booklet. Beginning with the first ordered item in the shaded region described previously and considering the skills and abilities needed to complete it, panelists asked themselves, "Would at least two out of three students performing at the borderline of Proficient answer this question correctly?" Panelists considered each ordered item in turn, asking themselves the same question. They placed the bookmark between the two items where their answer changed from "yes" (or predominantly "yes") to "no" (or predominantly "no"). For the

identification of this Proficient cut, panelists were instructed to place their bookmark within the shaded region; placing a bookmark outside the shaded region required explicit written justification by the panelist. Panelists then repeated the process for the other two cuts and used the rating form to record their ratings for each cut.

After the Round 1 ratings were complete, Measured Progress staff members calculated the median cut points for the group based on Round 1 bookmark placements. First, each panelist's cutpoints were found on the theta scale by averaging the $RP_{0.67}$ values of the items on either side of the bookmark placed by that panelist for each cut. The cutpoints were then determined by calculating the median of the individual cutpoints obtained from each panelist

Results for panelist ratings across all rounds are displayed in Appendix L. Shown are the theta scale cuts along with the Median Absolute Deviation (MAD) of the panelists' cutpoints, which indicates the extent to which judgments were consistent across panelists and reflects the level of agreement among the ratings with each successive round of ratings, as well as the conditional standard error of measurement (SEM) for each of the scale cuts. Finally, impact data—reflecting the percentage of students across the state who would fall into each performance level category according to the Round 1 total group median cutpoints —were calculated.

3.7.3 Round 2 Judgments and Results

The purpose of Round 2 was for panelists to discuss their Round 1 placements and, if necessary, to revise their ratings. Prior to beginning their discussions, the panelists at each table were presented with the median cutpoints based on the Round 1 ratings for the panelists in that subject and grade. A Measured Progress psychometrician presented this information to the group using a projector and laptop and explained how to use it as they completed their Round 2 discussions. The distribution of panelists' cutpoints was presented in terms of location in the ordered item booklet, both as numerical summaries of cutpoints ranges and graphically as histograms.

Panelists were then given the opportunity to share their individual rationales for their bookmark placements in terms of the necessary knowledge and skills for each classification. Panelists were asked to pay particular attention to how their individual ratings compared to those of other panelists in their room and get a sense for whether they were unusually stringent or lenient within the group. Once the discussions were complete, panelists were given the opportunity to revise their Round 1 ratings on the rating form. Panelists were told to set bookmarks according to their *individual* best judgments; consensus among the panelists was not necessary. Panelists were encouraged to listen to the points made by their colleagues but not to feel compelled to change their bookmark placements.

When Round 2 ratings were complete, Measured Progress staff members calculated the median cutpoints and associated impact data and discussed the results with SDE staff. During this discussion, a number of cutpoints were identified that yielded impact data which was notably discrepant from the

Benchmarking percentages (see Table 3-1). This provided an opportunity for Measured Progress and SDE staff to return to the panels for the purpose of clarifying and confirming both the judgmental task - for each item answering, "Would at least two out of three students performing at the borderline of the current PLD answer this item correctly?" - and the policy context, which sought to align OSTP results more closely with nationally-recognized test results such as demonstrated via NAEP and ACT.

3.7.4 Round 3 Judgments and Results

The purpose of Round 3 was for panelists to again discuss their Round 2 placements and, if necessary, to revise their ratings. Prior to the discussions, the panelists were presented with the median cuts based on Round 2 results as well as impact data (i.e., the percentage of students classified into each performance level based on the median cuts). A Measured Progress psychometrician presented the information and explained how to use it, as described in Round 2. Additionally, SDE staff members presented condensed versions of the educational context information originally provided during the opening session.

The lead facilitator then led an extended discussion of the Round 2 results, which walked the panelists through the ordered item booklet, focusing on the KSAs needed for each item and how they related to the PLDs. In addition, the discussion explored the differences in where each panelist and table placed the cuts. After the discussions, panelists were given a final opportunity to revise their bookmark placements. Once again, the facilitator reminded the panelists to place the bookmarks according to their individual best judgment and that it was not necessary for them to reach a consensus. When Round 3 ratings were complete, Measured Progress staff members once again calculated the median cutpoints and associated impact data and reviewed these results with SDE staff.

3.7.5 Round 4 Judgments and Results

While Round 3 marked the completion of standard setting activities for most panelists, an additional round was convened in specific instances after review and consideration by SDE staff, Measured Progress staff, together with the panelists. Described earlier, the results of Round 2 led Measured Progress and SDE staff to identify points in the standard setting process that required further clarification and confirmation. As a result, staff and panelists worked together to identify the need for an additional round in order to produce ratings reflective of panelists understanding of the assessment content and standard setting process. Specifically, ELA grade 5, mathematics grade 3, and science grade 5 conducted a Round 4, where the purpose was again for panelists to further discuss their cutpoint placements and to revise their ratings, if necessary.

Prior to the discussions, a Measured Progress psychometrician presented the panelists with the median cuts based on Round 3 results as well as impact data. The lead facilitator then led an extended discussion of the Round 3 results. After discussion, panelists were given a final opportunity to revise their bookmark placements. When Round 4 ratings were complete, Measured Progress staff members once again calculated the median cutpoints and associated impact data.

A summary of the results is provided in Tables 3-2–3-4, reporting final median cutpoints on the theta scale and impact data (percentage of students in performance level; percentage of students at-or-above performance level), respectively. Note that disaggregated impact data broken down by demographics are provided in Appendix K.

Table 3-2: OSTP Standard Setting: Round 3 Results – Theta Scale Cuts

Subject	*Grade*	*Unsatisfactory*	*Limited Knowledge*	*Proficient*	*Advanced*
English Language Arts	3	--	-0.53135	0.26234	1.39558
	4	--	-0.52719	0.24183	1.49870
	5	--	-0.78321	0.27136	1.17231
	6	--	-0.91412	0.23755	1.39169
	7	--	-0.49771	0.19463	1.19095
	8	--	-0.69508	0.53881	1.46111
	10	--	-1.09572	0.10061	1.40466
Mathematics	3	--	-0.85713	0.08600	0.98750
	4	--	-0.85598	0.21582	1.06199
	5	--	-1.01408	0.25552	1.16994
	6	--	-0.89687	0.44047	1.51120
	7	--	-0.00998	0.44732	1.47147
	8	--	-0.00143	0.75594	1.21172
	10	--	0.14320	0.70757	1.34848
Science	5	--	-0.91364	0.17570	1.32213
	8	--	-0.34011	0.27999	1.32579
	10	--	0.28292	1.02248	1.77837

Table 3-3: OSTP Standard Setting: Round 3 Results – Percentage of Students At/In Performance Level

Subject_Name	*Grade*	*Unsatisfactory*	*Limited Knowledge*	*Proficient*	*Advanced*
English Language Arts	3	29.5	27.6	35.3	7.6
	4	28.8	28.0	36.5	6.7
	5	21.1	39.0	27.7	12.2
	6	18.2	40.0	32.4	9.4
	7	29.2	25.2	33.6	12.0
	8	20.8	42.4	25.2	11.6
	10	13.0	31.5	45.0	10.5
Mathematics	3	19.7	31.7	31.5	17.0
	4	20.6	36.0	29.3	14.0
	5	16.8	41.2	29.8	12.2
	6	18.8	45.5	29.5	6.2
	7	46.8	19.1	27.0	7.1

continued

Subject_Name	*Grade*	*Unsatisfactory*	*Limited Knowledge*	*Proficient*	*Advanced*
Mathematics	8	48.9	27.8	11.4	11.9
	10	53.9	21.3	15.4	9.4
Science	5	21.5	35.4	33.7	9.4
	8	37.7	21.4	30.1	10.8
	10	60.0	21.0	14.7	4.4

Table 3-4: OSTP Standard Setting: Round 3 Results – Percentage of Students At/Above Performance Level

Subject_Name	*Grade*	*Unsatisfactory*	*Limited Knowledge*	*Proficient*	*Advanced*
English Language Arts	3	100.0	70.5	42.9	7.6
	4	100.0	71.2	43.1	6.7
	5	100.0	78.9	39.9	12.2
	6	100.0	81.8	41.8	9.4
	7	100.0	70.8	45.6	12.0
	8	100.0	79.2	36.8	11.6
	10	100.0	87.0	55.5	10.5
Mathematics	3	100.0	80.3	48.5	17.0
	4	100.0	79.4	43.4	14.0
	5	100.0	83.2	42.0	12.2
	6	100.0	81.2	35.7	6.2
	7	100.0	53.2	34.1	7.1
	8	100.0	51.1	23.3	11.9
	10	100.0	46.1	24.8	9.4
Science	5	100.0	78.5	43.0	9.4
	8	100.0	62.3	40.9	10.8
	10	100.0	40.0	19.0	4.4

Chapter 4. VERTICAL ARTICULATION

4.1 The Vertical Articulation Process

Following regular standard setting activities, table leaders from the English language arts (ELA) and mathematics panels participated in a vertical articulation meeting. The mathematics articulation panel was convened first and then the ELA articulation panel was convened after the mathematics group completed the articulation process.

An overview PowerPoint was presented that outlined, at a very high level, the steps of the articulation process. Once this was completed, panelists were presented with the same materials available during regular standard setting activities as well as the impact data that were provided during the final round of discussions for each grade level (i.e., the percentage of students at each performance level based on the 2017 administration results). In addition, cutpoint locations (i.e., ordered item booklet item numbers) corresponding to the final ranges indicated by specific panels, benchmarking values (i.e., NAEP or ACT impact data and ordered item booklet locations), and linearly smoothed percentages of students in each performance level across grades were presented. Panelists shared the discussion that had taken place within their grade-span panels with the larger articulation panel, and then were asked to complete the articulation feedback form from the perspective of their grade-span panel.

The full articulation panel conducted a discussion of these cutpoints and impact data and provided individual recommendations for each cutpoint, indicating the panel-recommended cutpoint when no change was deemed necessary. As in the general process, these ratings were tabulated and presented back to the table leader as well as final impact data associated with median cutpoints resulting from their recommendations. A final opportunity to change any cutpoint was afforded to the vertical articulation panel's given consensus. Discussion and a final individual survey regarding the appropriateness of the adjusted cuts and any comments were finally collected.

Articulation evaluation results are presented in Appendix J.

4.2 Vertical Articulation Results

Cuts that resulted from vertical articulation for ELA and mathematics are included in Table 4-1 and Table 4-2 below. Final cutpoints are presented as the median theta cuts resulting from Round 3, Round 4, and Vertical Articulation, as appropriate; at the time of writing, the reporting scale scores had not yet been defined.

Table 4-1. OSTP Standard Setting: ELA Vertical Articulation Results

Grade	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
3	Unsatisfactory		29.5	100.0
	Limited Knowledge	-0.53135	31.8	70.5
	Proficient	0.34092	31.1	38.7
	Advanced	1.39558	7.6	7.6
4	Unsatisfactory		28.8	100.0
	Limited Knowledge	-0.52719	34.0	71.2
	Proficient	0.38608	30.5	37.1
	Advanced	1.49870	6.7	6.7
5	Unsatisfactory		21.1	100.0
	Limited Knowledge	-0.78321	39.0	78.9
	Proficient	0.32533	27.7	39.9
	Advanced	1.17231	12.2	12.2
6	Unsatisfactory		18.2	100.0
	Limited Knowledge	-0.90856	41.5	81.8
	Proficient	0.28516	31.0	40.3
	Advanced	1.39169	9.4	9.4
7	Unsatisfactory		29.2	100.0
	Limited Knowledge	-0.49771	38.0	70.8
	Proficient	0.46660	22.3	32.8
	Advanced	1.25890	10.6	10.6
8	Unsatisfactory		20.8	100.0
	Limited Knowledge	-0.69508	45.5	79.2
	Proficient	0.60707	22.1	33.6
	Advanced	1.46111	11.6	11.6
10	Unsatisfactory		16.4	100.0
	Limited Knowledge	-0.88010	44.6	83.6
	Proficient	0.50703	28.5	39.0
	Advanced	1.40466	10.5	10.5

Table 4-2. OSTP Standard Setting: Mathematics Vertical Articulation Results

Grade	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
3	Unsatisfactory		20.6	100.0
	Limited Knowledge	-0.84047	35.2	79.4
	Proficient	0.18660	27.2	44.2
	Advanced	0.98750	17.0	17.0
4	Unsatisfactory		23.5	100.0
	Limited Knowledge	-0.77087	35.9	76.5
	Proficient	0.26986	26.6	40.6
	Advanced	1.06199	14.0	14.0
5	Unsatisfactory		21.6	100.0

continued

Grade	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
5	Limited Knowledge	-0.82901	43.2	78.4
	Proficient	0.42687	23.1	35.3
	Advanced	1.16994	12.2	12.2
6	Unsatisfactory		21.8	100.0
	Limited Knowledge	-0.75897	42.5	78.2
	Proficient	0.44047	29.5	35.7
	Advanced	1.51120	6.2	6.2
7	Unsatisfactory		46.8	100.0
	Limited Knowledge	-0.00998	19.1	53.2
	Proficient	0.44732	27.0	34.1
	Advanced	1.47147	7.1	7.1
8	Unsatisfactory		48.9	100.0
	Limited Knowledge	-0.02698	27.8	51.1
	Proficient	0.75594	11.4	23.3
	Advanced	1.21172	11.9	11.9
10	Unsatisfactory		53.9	100.0
	Limited Knowledge	0.13593	20.0	46.1
	Proficient	0.68404	16.7	26.2
	Advanced	1.33423	9.4	9.4

Chapter 5. TASKS COMPLETED AFTER THE STANDARD SETTING MEETING

Upon conclusion of the standard setting meeting, several important tasks were completed. These tasks centered on the following: reviewing the standard setting process and addressing issues presented by the outcomes; presenting the results to the SDE; and making any final revisions or adjustments based on policy considerations under direction of the SDE.

The SDE was provided the recommended cuts from the standard setting panels and the recommended adjusted cuts from the articulation panel. In addition, the evaluation results from the cross- grade and articulation panels were provided.

5.1 Analysis and Review of Panelists' Feedback

The measurement literature sometimes considers the evaluation process to be another product of the standard setting process (e.g., Reckase, 2001), as it provides important validity evidence supporting the cutpoints that are obtained. To provide evidence of the participants' views of the standard setting process, panelists were asked to complete questionnaires after the practice round and again after the completion of Round 3.

After the evaluation forms were completed, panelists' responses were reviewed. This review did not reveal any anomalies in the standard setting process or indicate any reason that a particular panelist's data should not be included when the final cutpoints were calculated. In general, participants felt that the recommended cutpoints were appropriate and that their judgments were based on appropriate information and decision making. The results of the evaluations are presented in Appendix J.

5.2 Policy Adjustments

After all standard setting activities had been completed and all materials reviewed, the SDE recommended adjustments to the Limited Knowledge cut for grade 7 mathematics and Advanced cut for grade 8 mathematics that resulted from the standard setting process, as shown in Table 4-3. The full set of cuts, along with the SDE-recommended adjustment, were presented to the CEQA and approved for use on August 16, 2017.

Table 4-3. OSTP Standard Setting: Policy Adjustments to Mathematics

Grade	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
7	Unsatisfactory		34.9	100.0
	Limited Knowledge	-0.33556	31.0	65.1
	Proficient	0.44732	27.0	34.1
	Advanced	1.47147	7.1	7.1
8	Unsatisfactory		48.9	100.0
	Limited Knowledge	-0.02698	27.8	51.1
	Proficient	0.75594	12.6	23.3
	Advanced	1.26746	10.6	10.6

After the policy adjustments, Measured Progress suggested adjustments to SDE for the Proficient and Advanced cutpoints in grade 8 and 10 ELA. These adjustments were suggested to ensure that the cutpoints appropriately represented the total number of score categories associated with each writing prompt instead of the score categories achieved by students during the Spring 2017 administration, which were fewer. To achieve this resolution, the cutpoints were lowered on the theta scale to preserve the student level outcomes as accepted by the standard setting panelists during their reviews of impact data. The final grade 8 and 10 ELA cutpoints are presented in table 4-4.

Table 4-4. OSTP Standard Setting: Writing Prompt Adjustments to ELA

Grade	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
8	Unsatisfactory		23.1	100.0
	Limited Knowledge	-0.69508	42.3	76.9
	Proficient	0.45070	23.4	34.5
	Advanced	1.20801	11.2	11.2
10	Unsatisfactory		20.1	100.0
	Limited Knowledge	-0.88010	44.2	79.9
	Proficient	0.45602	26.0	35.6
	Advanced	1.25613	9.7	9.7

5.3 Preparation of Standard Setting Report

Following final compilation of standard setting results, Measured Progress prepared this report, which documents the procedures and results of the 2017 standard setting meeting that was held to establish performance standards for the assessment.

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APPENDICES

APPENDIX A—PERFORMANCE LEVEL DESCRIPTORS

Grade 3 ELA
Borderline Advanced

- Identify main idea, key details, and summaries
- Infer 1st and 3rd person, point of view in complex texts
- Compare and contrast details to describe genres in text
- Identify characters, setting, plot, characterization, and theme
- Can analyze all objectives in standard 4
- Determine relevance of sources

Grade 3 ELA
Borderline Limited Knowledge

- May identify 1st person point of view
- May identify main idea
- May compare within text
- Identify characters, setting
- Use common prefixes or suffixes to determine word meaning
- Identify synonyms
- May use some graphic features to understand a text

Grade 3 ELA
Borderline Proficient

- Identify main idea
- May not be able to identify key details
- Choose best summary
- Identify basic genres
- Identify 1st and 3rd person point of view
- Identify author's purpose
- Identify characters, setting, plot
- Find examples of simile and metaphor
- Distinguish between fact and opinion
- Use prefixes and suffixes to interpret word meaning
- Use synonyms, antonyms, homographs, and homonyms to interpret text meaning
- Use context clues to interpret text meaning within a single sentence ????
- Use dictionary or glossary to clarify word meaning
- Recognize subject/verb agreement
- Identify pronouns, adjectives, verb tense, conjunctions, prepositions ????
- Recognize correct capitalization of titles of respect and geographical names
- Recognize end marks in dialogue
- Recognize simple and compound sentences that are declarative, interrogative, exclamatory, and imperative
- Use graphic features to understand a text
- Identify appropriate reference source to find information

Grade 4 ELA
Borderline Advanced

- Analyze details
- Describe genres
- Efficiently use vocabulary knowledge/resources to analyze complex text through context clues

Grade 4 ELA
Borderline Limited Knowledge

- Compare NOT contrast
- Inconsistently identify NOT describe or apply (literary elements, author's purpose, point of view)
- Inconsistently use context clues
- Inconsistently identify appropriate grammar
- Inconsistently use graphic features

Grade 4 ELA
Borderline Proficient

- Choose best summary
- Identify key details that may or may not support main idea
- Discriminate genres by comparing and contrasting details
- May recognize paraphrase in simple text
- May identify some text structure
- Identify author's purpose, some literary elements, and point of view
- Identify some literary devices
- Identify fact from opinion
- May infer meaning from text
- Use some word parts to interpret word meaning
- Students may apply and identify appropriate grammar and mechanics
- Use graphic features

Grade 5 ELA
Borderline Advanced

- DOK 1-2, usually 3; capable of 4
- Compare/contrast details from fiction/nonfiction to describe genre and subgenres
- Use more descriptive vocabulary/better word choice
- Great organization in writing, but may not be as engaging
- Use effective transitions and phrases
- Understand complex ideas, but not abstract ones in a consistent manner
- Can evaluate or analyze, but not always both
- Compare/contrast to support simple inferences within and between texts

Grade 5 ELA
Borderline Limited Knowledge

- Can answer some DOK1s, no real DOK 2's – 4's
- Can find obvious answers in simple items
- Can find details in a passage, but not categories them
- Knows the topic, but not the main idea
- Inconsistently identifies literary elements
- Can usually eliminate only one distractors – get hung up on others
- Have a very limited vocabulary
- Genre: Know Fiction from Non-fiction (no sub-genres)
- Random mechanics – probably know first word capitalization and periods
- No transfer of knowledge
- Very little to no structure in writing
- More fragments than complete sentences
- Attempt topic in writing passage
- Cannot generalize

Grade 5 ELA
Borderline Proficient

- Can get most DOK 1's, usually 2's, and handful 3's
- Can consistently locate apparent information
- Can identify main ideas, but seldom apply
- Can identify inferences in passages, but can't support the inference
- Partially comprehends text in relationship to length (struggles with longer, more dense passages)
- Can connect between texts that are similar in structure or topic
- Can understand most used/simple genres and subgenres (poetry, fiction, main sub-genre categories)
- May have difficulty eliminating close distractors
- May miss the judgement calls of "best, most, etc."
- Usually comprehends and can sometimes apply
- Makes simple connections within texts, but not implied or complex connections
- Mostly understands context clues, but struggles with word part relationships
- Struggles with but can make obvious generalizations
- May only do 2 of 3 modes of writing; can do narrative writing
- Writing is formulaic
- Can find and locate information, but lacks evidence or content
- Bare-minimum writing information – lacks explanations and expansion
- Engages in writing process, but writing is not complex
- Students write on topic, but editing may be inconsistent
- Identifies grammar well in MC items but not in own writing
- Understands main/common grammar (ie verbs, nouns)
- Has organizational structure to writing, but transitions may be the same; repeats words
- Can find/locate the best resources to use, but may not be able to apply or organize it
- Mastered use of simple resources
- Inconsistent judging BEST resource

Grade 6 ELA
Borderline Advanced

- Can comprehend and interpret text and inconsistently evaluate
- Know most genres (80-90%)
- Can evaluate or analyze but not always both
- Skillfully Understand context clues
- Use pre-fix suffix to understand unfamiliar language
- Solid command of grammar - Only minimal grammar issues
- Recognize thesis statements
- Identify a thesis statement

Grade 6 ELA
Borderline Limited Knowledge

- Comprehend simple information in short texts
- Limited response and critical thinking – with vocabulary. Understand fundamental vocabulary
- Inconsistently compare/contrast. Compare is easier.
- Struggle with word parts
- Understand major/common genres – non fiction
- Recognize blatant main ideas
- Simple inferences within one text
- Can do familiar context clues
- Use dictionary/thesaurus – simple research tools
- No transfer of knowledge
- Inconsistently know common grammar – should identify noun, verb, adjective, adjectives

Grade 6 ELA
Borderline Proficient

- Can comprehend and interpret most genres (most familiar), but may not be able to analyze/evaluate
- Can recognize/determine details that support a stated main idea within 1 text
- Can determine simple main idea within one text but not usually 2
- Can do explicit/obvious compare/contrast between and within texts
- Identity point of view/sometimes can evaluate
- Can breakdown come words parts
- Can do basic /obvious context clues
- Identify basic parts of speech
- Understand simple verb tenses
- Demonstrate basic understanding of grammar, punctuation
- Can find/locate resources but inconsistently apply
- Can get hung up between two close distractors
- Recognize title, author, publisher date
- Can recognize multiple-meaning high frequency words

Grade 7 ELA
Borderline Advanced

- Summaries of more complex texts; summary is not as in-depth
- Can create an objective, complete summary, but may be missing some details
- Paraphrase is completely reworded
- Compare/contrast multiple traits
- Can analyze/evaluate literary devices in a more complex text, but their analysis of how it is used is weaker
- Can synthesize across more complex texts – go beyond surface level
- Handful of advanced vocabulary words that they repeat
- They bring in prior knowledge, because they are reading more complex words
- They eliminate distractors, because they know more vocabulary

Grade 7 ELA
Borderline Limited Knowledge

- Summaries of simple texts, with more complex texts, they focus on details. They try to match words from texts to identify a summary
- Paraphrase is partially a direct quote
- Can compare/contrast directly stated authors' purposes
- Can find evidence, but can't synthesize ideas between texts
- Know a few fact/option code words
- Very little background knowledge to help with decoding
- May have some vocabulary skills, but have difficulty when texts move beyond their experience

Grade 7 ELA
Borderline Proficient

- Create a simple summary with fewer, more obvious details. Not enough stamina to get all the details. Main idea is not developed
- Paraphrase – not changes many words (not verbatim, but not enough of a paraphrase) Not demonstrating as much connection with text
- Compare and contrast stated/obvious purpose of author's writing
- Can identify literary devices, point of view and perspectives and gain some meaning
- Fact vs. opinion – They are dependent on the "code/magic" words that clue fact or opinion
- Obvious, surface level conclusions or inferences from texts that have fewer, less complex details
- Less stamina
- Limited prior knowledge of vocabulary words
- Some understanding of word parts – Common prefixes and suffixes
- Can use obvious context clues, often only in the same sentence
- Can understand less nuanced work meanings
- Not good with parallel Structure

Grade 8 ELA
Borderline Advanced

- Can analyze/evaluate literary devices in a more complex text, but their analysis of how it is used is weaker
- Can synthesize across more complex texts – go beyond surface level
- Can use more evidence to support a claim or inference
- Claim and counter claim
- Use unique reasons or evidence
- Use varied evidence
- Clear organization, consistent voice
- Varied word choice and sentence structure
- Some errors in more complex sentences
- Can recognize research questions without repetitive words

Grade 8 ELA
Borderline Limited Knowledge

- Summaries of simple texts, with more complex texts, they focus on details. They try to match words from texts to identify a summary
- Paraphrase is partially a direct quote
- Can compare/contrast directly stated authors' purposes
- Can find evidence, but can't synthesize ideas between texts
- Very little background knowledge to help with decoding
- May have some vocabulary skills, but have difficulty when texts move beyond their experience
- Can use basic prefixes/suffixes
- Familiar only with common sources
- Incomplete understanding of sources
- Can evaluate the main literary devices at a very surface level
- Can find explicit evidence and use it to support simple inferences/conclusions
- Weak organization
- Not varied sentences/simple sentences
- Not enough extension
- Very limited reasons and evidence
- Have a lot of difficulty recognizing good research questions

Grade 8 ELA
Borderline Proficient

- Can identify literary devices, point of view and perspectives and gain some meaning
- Can make simple evaluations of literary devices, but misses big impacts on text
- Obvious, surface level conclusions or inferences from texts that have fewer, less complex details
- Less stamina
- Some understanding of word parts – Common prefixes and suffixes
- Can use obvious context clues, often only in the same sentence
- Can understand less nuanced work meanings
- Can make simple evaluations of literary devices, with more complex texts
- Draws purposeful conclusions or inferences and can identify obvious support
- Mostly complex sentences; some sentence variety
- More obvious transition words
- Paragraph structure
- Organizational structure is attempted
- Recognize different types of writing
- Introduce a claim
- An attempt at recognizing an opposing viewpoint
- Organization is there, but may contain errors. Reason that are so close, the support all seems the same
- Organization can be muddled or out-of-order
- Can use appropriate voice for 1 or 2 situations
- Start focused, lose it on the body of the writing
- Repetitive limited word choice/figurative language
- Familiar with a wider variety of sources
- Can do a limited evaluation of sources
- Should know which sources are “no-no’s”
- Should know gov. edu, etc. are more credible
- Can identify good research questions mostly when the words are repetitive

Grade 10 ELA
Borderline Advanced

- Comprehend, analyze, and make connections within and between texts
- Summarize, paraphrase, and synthesize texts
- Identify and connect genres to author's purpose
- Evaluate effectiveness of differing perspectives and rhetorical devices
- Distinguish different types of evidence to support conclusions and inferences
- Purposefully engage in the writing process to create writing that is focused, organized, and coherent… for multiple purposes.
- Use context clues, word parts, and reference tools to determine or clarify precise word meaning
- Select effective vocabulary to communicate complex ideas
- Effectively evaluate the reliability and validity of evidence and synthesize relevant information
- Purposefully integrate and cite evidence
- Intentionally apply knowledge of grammatical and rhetorical style choices
- Strong command of standard English
- Recognize strong research questions and thesis statements

Grade 10 ELA
Borderline Limited Knowledge

- Inconsistently comprehend texts
- Recognize a basic summary
- Recognize basic genres
- Attempt to determine author's basic purpose
- Recognize different perspectives and common rhetorical devices
- Recognize evidence and attempt to support conclusions
- Attempt parts of the writing process
- Create a piece of writing that lacks focus
- Attempt to use context clues, word parts or reference tools to determine word meaning
- Use limited vocabulary to communicate simple ideas
- Limited recognition of basic grammatical choices
- Limited use of standard English
- May recognize a thesis sentence
- Recognize evidence
- Attempt to use and cite evidence

Grade 10 ELA
Borderline Proficient

- Comprehend and make simple connections within and between texts
- Recognize and/or generate a basic summary
- Identify some genres
- Determine author's basic purpose
- Identify differing perspectives and rhetorical devices
- Distinguish different types of evidence to sometimes support conclusions or inferences
- Engage in parts of the writing process
- Create a coherent piece of writing with focus, for multiple purposes
- Use context clues, word part, and reference tools to determine or clarify word meaning
- Select vocabulary intentionally
- Recognize grammatical and rhetorical style choices
- General command of standard English
- Distinguish between strong and weak research Qs and Ts.
- Distinguish between reliable/unreliable and valid/invalid evidence to include relevant information
- Students will cite evidence used

Grade 5 & 6 Math Parking Lot Questions

- Question # 22: Has a pictograph – no pictographs in 5th grade only line and double bar
- Triangle prisms are not in the limits of the item specs
- #15 Questions # 15 & 17 address estimate multiplication; not our objective – 4th graders do that
- #52 – we do not convert in 5th grade
- Why does question #12 go to the ten millions when objective is to the millions place?
- 6th grade #38 – Several ways to correctly estimate and come up with an answer given that not correct
- The following questions do not meet the item spec requirements:
    - # 1 Triangle prisms not assessed per item spec
    - #19 Fractional rules not assessed per item spec
    - #14 Triangular pyramids not assessed per item specs
    - #16 Conversions should not be assessed
- Find a rule limited to whole #5
- #52 conversions should not be assessed
- Estimator – there needs to be a greater rang within the answer choices
- How do we deal with the backlash from administration regarding low scores?
- Will all schools, administrators, parents, etc. have access or be given the letter info regarding scores from Superintendent Hofmeister?
- 6th – direction #50 poorly explained
- 6th - #55 – could measures be skewed on computer screen?

Grade 8 science parking lot

- CO_2 in glucose question said provided but not in stimulus (requires prior knowledge?)
    - Form B1 item 16 (listed as an assessment boundary as not tested)
- NAEO Limited knowledge is too high, esp. for barely limited (critique is higher level)
- Form B1 item 30 add (70 kg) after rider 3

Grade 3 Math
Borderline Advanced

- Complex: addition, subtraction, multiplication
    - With more than one regrouping (addition and subtraction)
    - Multiply 2 by 1 with regrouping
    - Modeling division and show the relationship between multiplication and division
    - Identify the unknown using the relationship between multiplication and division
- Fractions
    - Comparing fractions with a number line and order
    - Composing fractions
- Extend number patters using multiplication by 5 or less
- Solve for an unknown in a basic multiplication problem
- Determine volume by counting unit cubes
- Solving elapsed time problems within 5 minute increments up to an hour
- Solve a complex real work problem using multi-steps to draw logical conclusions
- Compare data in 2 different representations
- Identify the next step in a geometric pattern
- Apply knowledge about angles

Grade 3 Math
Borderline Limited Knowledge

- Simplify estimating to solve basic +, -, x, / one step word problems
- Simple equivalent fractions using models (1/2 = 2/4 = 3/6)
- Compare and order whole numbers and fractions with a model
- Decompose fractions (3/4 = ¼ + ¼+ ¼)
- Read and write decimals to the tenths place
- Compare and order simple whole numbers and decimals
- Make changes with whole dollars
- Determine rule for a simple patter and extend
- Determine missing value of unknown
- Identify quads and simply polygons and their area of squares and rectangles with a grid
- Select appropriate unit of measurement
- Solve one step problem using data sets

Grade 3 Math
Borderline Proficient

- Addition and subtraction with regrouping in the 1's place without word problems
- Represent whole numbers
- Multiplication facts: 1s, 2s, 3s, 5s, 10s
- Match a simple fraction to a model
- Identify the value of dollar bills
- Adding coins of like values
- Extend shape patterns (A,B,C) 2s, 5s, 10s
- Solving an unknown using a basic addition problem
- Identify a right angle
- Use appropriate tool for measurement
- Read a digital clock

Grade 4 Math
Borderline Advanced

- Determine rule and extend pattern with one step (x,/ with larger numbers)
- Measure angles using a protractor
- Measurement problems using more than one operations
- Solve two step problems using data that include decimals and fractions. One line plots and frequency tables
- Determine volume with cubes, cm^3
- Compose and decompose shapes to find the area
- Estimate and solve complex problems
- Determine the unknown in a non-equivalent fraction
- Compare decimals and fractions
- Find the change in complex money problems, providing change when given $20, in dollar bills and coins

Grade 4 Math
Borderline Limited Knowledge

- Simplify estimating to solve basic +, -, x, / one step word problems
- Simple equivalent fractions using models (1/2 = 2/4 = 3/6)
- Compare and order whole numbers and fractions with a model
- Decompose fractions (3/4 = ¼ + ¼+ ¼)
- Read and write decimals to the tenths place
- Compare and order simple whole numbers and decimals
- Make changes with whole dollars
- Determine rule for a simple patter and extend
- Determine missing value of unknown
- Identify quads and simply polygons and their area of squares and rectangles with a grid
- Select appropriate unit of measurement
- Solve one step problem using data sets

Grade 4 Math
Borderline Limited Proficient

- Simplify estimating to solve basic +, -, x, / one step word problems
- Simple equivalent fractions using models (1/2 = 2/4 = 3/6)
- Compare and order whole numbers and fractions with a model
- Decompose fractions (3/4 = ¼ + ¼+ ¼)
- Read and write decimals to the tenths place
- Compare and order simple whole numbers and decimals
- Make changes with whole dollars
- Determine rule for a simple patter and extend
- Determine missing value of unknown
- Identify quads and simply polygons and their area of squares and rectangles with a grid
- Select appropriate unit of measurement
- Solve one step problem using data sets

Grade 5 Math
Borderline Advanced

- Recognize nets. SA with given nets
- Mean no remainders
- Graphics with fraction and decimal
- Single increments
- Represent remainder as a decimal
- Order decimals or fractions
- Any algebra with multi steps and expressions given

Grade 5 Math
Borderline Limited Knowledge

- Any algebra with a single operation including addition or subtraction
- Identify right or equilateral triangles. Identify cube/rectangular prism
- GM2 Find perimeter of regular polygons with given side lengths
- Basic angle identification, measure to nearest 1/2 inch
- Read simple line or bar graphs

Grade 5 Math
Borderline Proficient

- Graph an ordered pair; find a single operation (all) rule from a table
- Two step order of operation (no dist prep), Single step with variables given, Single step inequalities
- Classify triangles by 1 descriptor; classify cubes and prism (rectangular)
- Volume with filled in cubes (by counting cubes)
- Measure angles with ray pointing to 0, to nearest 5 degree
- Measure with ruler starting at 0
- Nearest centimeter Nearest centimeter
- Choosing appropriate unit of measure
- Division: all division with basic algorithm with “r” represented as fraction
- Single step word problems all operations
- Range, mode, and median. Line and double bar graphs with whole numbers
- decimal <-> fraction/mixed number 1/10, 1/4, 1/5, 1/2 with number lines in single intervals and labeled.
- Compare not order
- Read/write/represent numbers whole to thousandths without a zero place holder
- Add and subtract fractions <1 with one den a factor of the other (answer doesn’t need to be reduced)
- Estimate +/- decimals 0.1, 0.01, 0.001, if all places are already established

Grade 6 Math
Borderline Advanced

- Multi-step unit conversion with length
- Use distance between points to prove congruency
- Analyze difference between two outcomes of simple experiments
- Cannot justify solutions

Grade 6 Math
Borderline Limited Knowledge

- Read and represent all rational numbers
- All Prime factorizations not represented with experience
- +/- a positive number from any integer
- Determine a ratio from a given situation
- Find equivalent fractions
- Multiply fractions: X1 ÷ decimals
- Graph whole numbers in all quadrants
- Evaluate with positive whole numbers
- Solve equations with whole numbers
- Area of parallelograms and triangles with whole numbers
- Identify vertical angles
- Identify translation, reflection and rotation
- Identify lines of symmetry
- Identify sample space of simple experiments and identify possible outcomes

Grade 6 Math
Borderline Proficient

- Use equivalent fractions to solve ratio problems
- Unit rate should be a whole number
- Units need to be defined (example: 65 miles per 1 hour)
- Estimate (to nearest whole number) x/÷ problems for fractions and mixed numbers using benchmark fraction
- Estimate (to nearest whole number) x/÷ problems with decimal
- Limit exponents to squares in order of op
- Limit order of op to only include +/- of fraction and decimals
- Limit evaluating an expression with a variable to all operations with decimals and +/- with fractions
- Solve one step equations with nonnegative rational numbers
- Polygons can be decomposed into at most 2 simple shapes (□ Δ ▱)
- All necessary info is given to find area
- Apply the definition for vertical angle
- Given a simple triangle with angle measures for two of the angles , find missing angle
- Convert length in metric/customary system
- Predict translations and reflections
- Analyze lines of symmetry
- Identify minimum, maximum, and median for box-and-whisker plot
- Use “impossible” and “certain” to describe probability

Grade 7 Math
Borderline Advanced

- Interprets equations involving variables and rational numbers
- Make connections between circumference and area to solve problems involving full circles
- Analyze, apply and display the effect of dilations and mult. trans. on a coordinate plane
- Solve complex and non-routine real world problems

Grade 7 Math
Borderline Limited Knowledge

- Compare and order fractions or decimals in isolation
- Calculate problems involving rational numbers and exponents
- Identify a proportional relationship
- Solve and write simple equations
- Write a simple inequality
- Calculate area and circumference of circles in terms of pi or using 3.14

Grade 7 Math
Borderline Proficient

- Identify constant of proportionality and proportional relationships
- Identify the graph/table of inversely proper relationships
- Interpret simple theoretical probability using decimals, fractions or percents
- Solve problems using estimations of whole numbers and decimals or fractions
- Solve 2-step equations of real world problems
- Solve and graph one step inequalities
- Identify the unit rate on a graph when the y-intercept equals zero
- Define a transformation and apply a 1-step transformation

Grade 8 Math
Borderline Advanced

- Generate, simplify or evaluate complex equivalent expressions
- Compare the volume and surface area of different solids
- Describe the impact on central tendencies of a data set with one outlier
- Solve complex and non-routine real world problems and draw logical conclusions

Grade 8 Math
Borderline Limited Knowledge

- Interprets equations involving variables and rational numbers
- Make connections between circumference and area to solve problems involving full circles
- Analyze, apply and display the effect of dilations and mult. trans. on a coordinate plane
- Solve complex and non-routine real world problems

Grade 8 Math
Borderline Proficient

- Generate, simplify and evaluate simple equivalent expressions
- Classify rational and irrational
- Describe, analyze and represent linear functions with 2 variables using a graph or equation
- Successfully solve Pythagorean theorem in Pythagorean triple format
- Solve central tendency problems with one outlier affecting one measure of central tend. given all fata and relevant information
- Interpret a scatterplot and determine rate of change
- Solve problems involving theoretical or experimental probability

Grade 10 Math
Borderline Advanced

- Applying radicals in real world
- Multiply polynomials
- Factor with GCF and coefficient of 1
- Items with multiple standards (algebra 1)
- Polygons
- Calculate experimental probabilities of multiple complex events

Grade 10 Math
Borderline Limited Knowledge

- Simplify numerical
- Square roots
- Add polynomials and multiply by constant
- Graph given slope (any info)
- Identify y-intercept from a graph or slope-intercept form
- Convert between graph and slope –intercept form
- Calculate simple probability and sample space
- Simplify simple linear, ABS, rational
- Solve linear equations and inequalities
- Extend both types of sequences
- Identify parallel lines
- Relation/function given table or graph

Grade 10 Math
Borderline Proficient

- Radicals (square roots not cube roots)
    - Simplify
    - Add/subtract
    - Multiply
- Polynomial expressions
    - Add, subtract, multiply, factor, mon
- Evaluate all expressions
- Transfer on linear only
- Add functions algebraically
- Represent equations not inequalities or absolute value; =, +, >, <
- Simple literal
- Recognize create interpret arithmetic sequence only
- Can translate various representations only slope-intercept form
- Identify form
- Identify line of best fit
- Apply simple probability
- Lines and angles

Grade 5 Science
Borderline Advanced

- Make predictions on a basic model
- Expand a basic model
- Modify a basic model
- Scale up and down models (basic)
- Analyze simple exchange/transfer of matter and energy between organisms and between ecosystems/spheres
- Analyze scale, proportion, quantity and pattern for data for understanding distribution of water, cons. of matter Earth's relationship with the sun, moon and stars
- Analyze or compare evidence, data or model to engage in argument to explain cause and effect relationships (Earth's gravity, apparent brightness of sun/stars, how plants use matter)
- Observe or measure phenom. to interpret or evaluate patterns that classify materials based on properties
- Describe cause-effect relationships when mixing substances in an investigation

Grade 5 Science
Borderline Limited Knowledge

- Identify most of the components within a system
    - Organization
    - Energy flow
- Identify structure/function
- Use provided data to support explanations and claims
    - Cycling of matter
    - Natural selection
    - Diversity
    - Structure and function
- Describe arguments based on evidence about stability and change
    - Ecosystem dynamics and adaptation
    - Social interaction

    OR

- Identify explanations related to matter and energy cycling
- Describe, measure, classify phenomena at different scales for living systems
- Critique studies
- Critique solutions

Grade 5 Science
Borderline Proficient

- recognize/identify/use basic models
- transfer of energy (and matter) between organisms in a simple/familiar food web or a food chain
- simple description of biosphere
- will not be able to scale up or down or describe the outcomes
- recognize and apply simple scale, patterns, quantity
- recognize proportion
- know Earth's relationship to the sun, moon and stars
- limited knowledge of water on the Earth
- Can identify familiar/simple conservation of matter examples
- Can identify evidence but use only in a limited fashion to support argument
- Limited ability to identify cause and effect
- Identify patters and classify matter based on simple physical properties (color, texture, size, shape, smell)
- In familiar contexts, make simple predictions

Grade 8 Science
Borderline Advanced

- Multiple scales
- Describe/explain evidence of relationships
- Evaluation of evidence of relationships without complex/in-depth reasoning
- Can synthesize a design solution with prompting
- Missing proper, relative weight for the “best” answer with multiple variables
- Inferences from cause and effect relationships
- Apply cause /effect to other simple scenarios
- Critique, improve and modify an investigate
- Applying ungiven principles to an investigation
- Given picture is not needed/can create mental picture
- Simple analysis but maybe con complex or multi-step
- Decipher importance of complex data consistently
- Grasp and use of higher and more frequent academic language
- Evaluate complex and revise simple models and design solutions
- Develop a model (create, build, etc.) with previous information provided
- Apply model to simpler concepts
- Make predictions either forward or backward using given data
- Dra conclusions from multiple sets of inferred data/patterns

Grade 8 Science
Borderline Limited Knowledge

- Identify basic invest. steps
- Can identify cause or effect only if given the other with a picture or diagram
- Pattern given linearly can agree/disagree
- Associate vocabulary to the topic but not connections between
- Require image stimulus but with misconceptions
- Agree/disagree with a description of a basic, provided argument/explanation
- Struggle with scale but can maybe work with single provided scale
- Understand some of the basic components in a model or design
- Can use a simple pre-identified pattern/relationship
- Can identify there was a change in a model
- Qualitative, not quantitative
- Use inappropriate descriptions
- Use single set of data/variable partially
- Cannot pick which data set to use
- Cannot apply vocabulary but can recognize

Grade 8 Science
Borderline Proficient

- Multiple scales
- Describe/explain evidence of relationships
- Evaluation of evidence of relationships without complex/in-depth reasoning
- Can synthesize a design solution with prompting
- Missing proper, relative weight for the “best” answer with multiple variables
- Inferences from cause and effect relationships
- Apply cause /effect to other simple scenarios
- Critique, improve and modify an investigate
- Applying ungiven principles to an investigation
- Given picture is not needed/can create mental picture
- Simple analysis but maybe con complex or multi-step
- Decipher importance of complex data consistently
- Grasp and use of higher and more frequent academic language
- Evaluate complex and revise simple models and design solutions
- Develop a model (create, build, etc.) with previous information provided
- Apply model to simpler concepts
- Make predictions either forward or backward using given data
- Draw conclusions from multiple sets of inferred data/patterns

Grade 10 Science
Borderline Advanced

- Develop and use models to interpret or evaluate components and relationships within complex systems
- Plan and conduct an investigation to produce accurate data
- Interpret complex data sets
- Support or defend arguments based on evidence
- Ask questions to analyze relationships
- Construct and evaluate based on valid and reliable evidence
- Evaluate explanations from evidence from more than 1 source
- Use alternative models to generate predictions or explanations
- Explain differences using evidence
- Compare risks and benefits on a global scale

Grade 10 Science
Borderline Limited Knowledge

- Identify most of the components within a system
    - Organization of matter
    - Energy flow
- Identify structure/function
- Use provided data to support explanation and claims
    - Cycling of matter
    - Natural selection
    - Diversity
    - Structure and function
- Describe arguments based on evidence about stability and change in
    - Ecosystem dynamics and adaptation
    - Social interaction
    - Cause and effect
- Identify basic relationships based on evidence of
    - Natural selection
    - Adaptation

      OR

      Identify explanations and matter and energy cycling

- Describe, measure, classify phenomena at multiple scales for living systems
- Critique studies
- Critique solutions

Grade 10 Science
Borderline Proficient

- Use models but not develop models independently
- Interpret provided data
- Conduct investigations to produce reliable data
- Interpret for patterns, trends
- Plan investigations
- Barely proficient – average = analysis
- Determine patterns in data trends
- Calculate averages, not density, expectations
- Identify increasing or decreasing slope
- Scale – inter/intra
- Population vs. community level
- Limiting factors – competition at different levels
    - Among species
    - Within species

    Terminology difference conceptually
- Abstract – scale is difficult
- Ecology is easiest – competition
- Energy flow in food web
- Revise explanations about organization/cycling/transferring of energy using evidence from sources
- Recognize sources are valid and reliable
- Revise explanation based on sources
- Revise explanation about cause and effect – complex relationships (DNA -> protein)
- Ask questions to clarify simple relationships about cause and effect about structure and function of inherited traits

  OR

  Evaluate arguments based on evidence (but not synthesize understanding)
- Demonstrate relationships (but not compare alternative models)
- Recognize and control variables
- Choose conclusions best supported by evidence
- Compare risks and benefits on small scale

Grade 5 Science
Borderline Advanced

- Develop and use models to interpret or evaluate components and relationships within complex systems
- Plan and conduct investigations to produce accurate data
- Interpret complex data sets
- Support or defend arguments based on evidence
- Ask questions to analyze relationships
- Construct and evaluate explanations based on valid and reliable evidence
- Evaluate explanations from evidence from more than 1 source
- Use alternative models to generate predictions or explanations
- Explore differences using evidence
- Compare risks and benefits on a global scale

Grade 5 Science
Borderline Limited Knowledge

- Identify most of the components within a system
    - Organization
    - Energy flow
- Identify structure/function
- Use provided data to support explanations and claims
    - Cycling of matter
    - Natural selection
    - Diversity
    - Structure and function
- Describe arguments based on evidence about stability and change
    - Ecosystem dynamics and adaptation
    - Social interaction

    OR

- Identify explanations related to matter and energy cycling
- Describe, measure, classify phenomena at different scales for living systems
- Critique studies
- Critique solutions

Grade 5 Science
Borderline Proficient

- Use (but not develop) models independently
- Interpret provided data (look for patterns, trends)
- Conduct, investigations to produce reliable data
- Plan investigations
- Determine patters in data, trends
- Calculate averages
- Increasing or decreasing slope
- Scale: At conceptual level versus terminology; ecology, competition is easiest, energy flow in food web
- Revise explanations about organization/cycles transfer of energy using evidence from sources
- Recognize sources are valid and reliable
- Revise explanations based on sources
- Reuse explanations about cause and effect relations about structure and functions of inherited traits OR
  evaluate arguments based on evidence (but not compare alternative models)
- Recognize and control variables
- Choose conclusions best supported by evidence
- Compare risjs and befits on a small scale

APPENDIX B—MEETING AGENDA

Oklahoma School Test Program Standard Setting
Panelists Agenda: Grades 3-8, 10
August 8 10, 2017

Day 1 (Tuesday, August 8) *All times are approximate. Breaks will take place as needed.*

Time	Activity/Presentation	Location	Presenter
8:00 am – 8:55 am	Registration & Breakfast 8:30 – Table Lead training	Room 14 & 15 The Native American Room	Karen Paavola and Matthew Gushta, Measured Progress
9:00 am – 9:20 am	Welcome and Introductions	Room 14 & 15	Superintendent Hofmeister Oklahoma State Department of Education, Measured Progress
9:20 am – 9:50 am	General Orientation Role of Panelists	Room 14 & 15	Craig Walker, Oklahoma State Department of Education
	Review Agenda and Materials	Room 14 & 15	Julie DiBona, Measured Progress
9:50 am – 10:50 am	Standard-Setting Process Overview	Room 14 & 15	Matthew Gushta, Measured Progress
10:50 am – 11:00 am	Break (transition to break-out rooms, refer to the Room Map for panel room assignments)		
11:00 am – 12:00 pm	Individual Group Introductions Review Performance Level Descriptors (for first grade level in multiple grade rooms[3, 5, or 7]) Performance Level Discussions	Room 1 – Math, Grades 3 and 4 Room 2 – Math, Grades 5 and 6 Room 3 – Math, Grades 7 and 8 Room 4 – Math, High School Room 5 – ELA, Grades 3 and 4 Room 7 – ELA, Grades 5 and 6 Room 8 – ELA, Grades 7 and 8 Room 9 – ELA, High School Room 10 – Science, Grade 5 Room 11 – Science, Grade 8 Room 12 – Science, High School	Measured Progress Facilitator
12:00 pm – 1:00 pm	Lunch	Room 14 & 15	
1:00 pm – 2:30 pm	Standard-Setting Process (for first grade level in multiple grade rooms [3, 5, or 7])	See above	Measured Progress Facilitator
2:30 pm – 2:45 pm	Break	Breakout Room Pre-Function Area	

2:45 pm – 5:00 pm	Continue Standard-Setting Process (for first grade level in multiple grade rooms [3, 5, or 7])	See above	Measured Progress Facilitator

Day 2 (Wednesday, August 9) *All times are approximate. Breaks will take place as needed.*

Time	Activity/Presentation	Location	Presenter
8:00 am – 9:00 am	Breakfast	Room 14 & 15	
9:00 am – 12:00 pm	Standard-Setting Process Completed (for first grade level in multiple grade rooms [3, 5 or 7])	Room 1 – Math, Grades 3 and 4 Room 2 – Math, Grades 5 and 6 Room 3 – Math, Grades 7 and 8 Room 4 – Math, High School Room 5 – ELA, Grades 3 and 4 Room 7 – ELA, Grades 5 and 6 Room 8 – ELA, Grades 7 and 8 Room 9 – ELA, High School Room 10 – Science, Grade 5 Room 11 – Science, Grade 8 Room 12 – Science, High School	Measured Progress Facilitator
12:00 pm – 1:00 pm	Lunch	Room 14 & 15	
1:00 pm – 2:00 pm	Review Achievement Level Descriptors (for second grade level in multiple grade rooms [4,6, or 8]) Performance Level Discussions	See above	Measured Progress Facilitator
2:00 pm – 2:15 pm	Break	Breakout Room Pre-Function Area	
2:15 pm – 5:00 pm	Standard-Setting Process (for second grade level in multiple grade rooms [4, 6, or 8])	See above	Measured Progress Facilitator

Day 3 (Thursday, August 10) *All times are approximate. Breaks will take place as needed.*

Time	Activity/Presentation	Location	Presenter
8:00 am – 9:00 am	Breakfast	Room 15	
8:30 am – 12:00 pm	Standard-Setting Process (for second grade level in multiple grade rooms [4, 6, or 8])	Room 1 – Math, Grades 3 and 4 Room 2 – Math, Grades 5 and 6 Room 3 – Math, Grades 7 and 8 Room 5 – ELA, Grades 3 and 4 Room 7 – ELA, Grades 5 and 6 Room 8 – ELA, Grades 7 and 8	Measured Progress Facilitator
12:00 pm – 1:00 pm	Lunch	Room 15	
1:00 pm – 2:15 pm	Standard-Setting Process Completed (for second grade level in multiple grade rooms [4, 6, or 8])	See above	Measured Progress Facilitator
2:15 pm – 2:30 pm	Break	Breakout Room Pre-Function Area	

2:30 pm – 5:00 pm	Continue Standard-Setting Process Completed (for second grade level in multiple grade rooms [4, 6, or 8])	See above	Measured Progress Facilitator

APPENDIX C—NONDISCLOSURE FORM

Nondisclosure Agreement

Grades 3-8 & HS State Assessment Standard Setting Meeting
August 8th – 11th

The undersigned is an employee, contractor, assessment committee member, or person otherwise authorized to view secure state assessment materials. The undersigned hereby agrees to be bound to the terms of this agreement restricting the disclosure of said materials.

It is essential to the integrity of this item development project and testing program that all test items remain secure. To maintain this security, only authorized persons are permitted to view the test questions. With the exception of materials released by the Oklahoma State Department of Education for informational purposes, all test questions (draft or final) in hardcopy or electronic format and associated materials must be regarded as secure documents. As a result, such materials may not be reproduced, electronically transmitted, discussed, used in classroom instruction, or in any way released or distributed to unauthorized persons. All materials including items and item drafts must be returned at the end of the meeting.

I understand that I am responsible for test materials security. By breaching test materials security as described here, I am breaching professional testing ethics.

Name: _____

Signature: _____

Date: _____

Grade _____

Content _____

APPENDIX D—SAMPLE ITEM LIST FORM

OSTP ELA Grade 5
Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		

OSTP ELA Grade 5
Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

OSTP ELA Grade 5
Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
35		
36		
37		
38		
39		
40		
41		
42		
43		
44		
45		
46		
47		
48		
49		
50		
51		

OSTP ELA Grade 5
Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
52		
53		
54		
55		
56		
57		
58		

APPENDIX E—SAMPLE RATING FORM

OSTP Assessments
Practice Rating Form

ID: _____

Practice Round

Limited Knowledge Ordered Item Numbers First Last 1 ____	

Directions: Please enter the range of ordered item numbers that fall into each criteria student status level category according to where you placed your bookmark.

Note: The ranges must be adjacent to each other. For example: Limited Knowledge: 1-5, Proficient: 6-10.

OSTP Assessments
Rating Form

Content Area: _____
Grade: _____
ID Number: _____

Round 1

Unsatisfactory	**Limited Knowledge**	**Proficient**	**Advanced**
Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers
First 1 Last ____	First ____ Last ____	First ____ Last ____	First ____ Last ____

Round 2

Unsatisfactory	**Limited Knowledge**	**Proficient**	**Advanced**
Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers
First 1 Last ____	First ____ Last ____	First ____ Last ____	First ____ Last ____

Round 3

Unsatisfactory	**Limited Knowledge**	**Proficient**	**Advanced**
Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers	Ordered Item Numbers
First 1 Last ____	First ____ Last ____	First ____ Last ____	First ____ Last ____

Directions: Please enter the range of ordered item numbers that fall into each criteria student status level category according to where you placed your bookmark.

Note: The ranges must be adjacent to each other. For example: Unsatisfactory 1-12, Limited Knowledge: 13-23, Proficient: 24-36, Advanced 37-50. The Advanced Last is the last page in the OIB.

APPENDIX F—EVALUATION FORM

Content Area: _____
Grade: _____

Standard Setting Practice Evaluation

The purpose of this evaluation form is to obtain your feedback about the training you have received through the Practice Round. Please complete the information below. **Do not put your name on the form.** We want your feedback to be confidential.

Please mark the appropriate box for each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understand the goals of the standard setting meeting.	☐	☐	☐	☐	☐
I understand the procedures we are using to set standards.	☐	☐	☐	☐	☐
I understand how to use the standard setting materials.	☐	☐	☐	☐	☐
I understand the differences between the performance levels.	☐	☐	☐	☐	☐
I understand how to make the bookmark placements.	☐	☐	☐	☐	☐
I know what tasks to expect for the remainder of the meeting.	☐	☐	☐	☐	☐
I am confident in my understanding of the standard setting task.	☐	☐	☐	☐	☐

I am ready to proceed with the standard setting process. ☐Yes ☐No

Please indicate any areas in which you would like more information before you continue.

Please indicate any questions you may have about the remainder of the standard setting meeting.

Content Area: _____
Grade: _____

Standard Setting Procedural Evaluation

The purpose of this evaluation form is to obtain your feedback about the Standard Setting process. Please complete the information below. **Do not put your name on the form.** We want your feedback to be confidential.

Please mark the appropriate box for each statement:

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understood how to make the bookmark placements.	☐	☐	☐	☐	☐
I understood how to use the materials provided.	☐	☐	☐	☐	☐
I understood how to record my judgments.	☐	☐	☐	☐	☐
I thought the procedures made sense.	☐	☐	☐	☐	☐
I was sufficiently familiar with the assessment.	☐	☐	☐	☐	☐
I understood the differences between the performance levels.	☐	☐	☐	☐	☐

Please rate the influence of the following when setting standards:

	Not at all influential	Somewhat not influential	Neutral	Somewhat influential	Extremely influential
The Performance Level Definitions.	☐	☐	☐	☐	☐
My expectations of students.	☐	☐	☐	☐	☐
The difficulty of the test materials.	☐	☐	☐	☐	☐
My experience in the field.	☐	☐	☐	☐	☐
Discussions with other participants.	☐	☐	☐	☐	☐
Decisions of other participants.	☐	☐	☐	☐	☐
Impact data.	☐	☐	☐	☐	☐

What materials, information, or procedures were most influential in your placement of the cut scores? Why?

Do you believe the final recommended cut score for the performance levels for this grade was Too Low, Somewhat Low, About Right, Somewhat High, or Too High?

	Too Low	Somewhat Low	About Right	Somewhat High	Too High
Advanced/Proficient	☐	☐	☐	☐	☐
Proficient/Limited Knowledge	☐	☐	☐	☐	☐
Limited Knowledge/Unsatisfactory	☐	☐	☐	☐	☐

Please provide any additional comments about the cut score placements for this grade.

Content Area: _____
Grade: _____

Standard Setting Final Evaluation

Please complete the information below. Your feedback will provide a basis for evaluating the training, methods, and materials. **Do not put your name on the form.** We want your feedback to be confidential.

Gender: Male ☐ Female ☐

Race/ethnicity: White ☐ Black ☐ Hispanic ☐ Asian ☐ Pacific Islander ☐ American Indian ☐

Years of experience in education: 0-5 ☐ 6-10 ☐ 11-15 ☐ More than 15 ☐

Area of Expertise (Check all that apply):

- Students with Disabilities ☐
- Students with Limited English Proficiency ☐
- Economically Disadvantaged Students ☐
- Gifted and Talented Students ☐
- General Education ☐

Please rate the usefulness of each of the following:

	Not at all useful	Somewhat not useful	Neutral	Somewhat useful	Extremely useful
The opening session.	☐	☐	☐	☐	☐
Completing the practice test.	☐	☐	☐	☐	☐
Completing the item map.	☐	☐	☐	☐	☐
Discussions with other participants.	☐	☐	☐	☐	☐
Impact data.	☐	☐	☐	☐	☐

Please mark the appropriate box for each statement.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understood the goals of the standard setting meeting.	☐	☐	☐	☐	☐
The facilitator helped me understand the process.	☐	☐	☐	☐	☐
The materials contained the information needed to set standards.	☐	☐	☐	☐	☐
I understood how to use the impact data.	☐	☐	☐	☐	☐
I understood how the cut scores were calculated.	☐	☐	☐	☐	☐
The facilitator was able to provide answers to my questions.	☐	☐	☐	☐	☐
Sufficient time was allotted for training on the standard setting tasks.	☐	☐	☐	☐	☐
Sufficient time was allotted to complete the standard setting tasks.	☐	☐	☐	☐	☐
The facilitator helped the standard setting process run smoothly.	☐	☐	☐	☐	☐
Overall, the standard setting process produced credible results.	☐	☐	☐	☐	☐

Please provide any additional comments about the standard setting process or suggestions as to how the training and process could be improved.

Standard Setting Articulation Evaluation:

Prior to Discussion

Content Area: _____

Think about the KSAs that each grade-content group came to consensus on for each performance level, the profiles, and your knowledge of the students and the content. When you look across all grades, do you judge the cut scores for each of the performance levels as too low, somewhat low, about right, somewhat high, or too high?

Grade		3	4	5	6	7	8	9	10
Advanced/ Proficient	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐
Proficient/ Limited Knowledge	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐
Limited Knowledge/ Unsatisfactory	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐

Please provide any additional comments about the cut score placements across grades.

Standard Setting Articulation Evaluation:

Post Discussion

Content Area: _____

Think about the KSAs that each grade-content group came to consensus on for each performance level, the profiles, and your knowledge of the students and the content. When you look across all grades, do you judge the adjusted cut scores for each of the performance levels as too low, somewhat low, about right, somewhat high, or too high?

Grade		3	4	5	6	7	8	9	10
Advanced/ Proficient	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐
Proficient/ Limited Knowledge	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐
Limited Knowledge/ Unsatisfactory	Too Low	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat Low	☐	☐	☐	☐	☐	☐	☐	☐
	About Right	☐	☐	☐	☐	☐	☐	☐	☐
	Somewhat High	☐	☐	☐	☐	☐	☐	☐	☐
	Too High	☐	☐	☐	☐	☐	☐	☐	☐

Please provide any additional comments about the cut score placements across grades.

APPENDIX G—POWERPOINT PRESENTATION

Welcome!

OKLAHOMA STATE DEPARTMENT OF EDUCATION

CHAMPION EXCELLENCE

Oklahoma State Testing Program
(OSTP)

Standard Setting
ELA (3-8 and10), Math (3-8 and10), and Science (5, 8 and 10)
August 8-11, 2017

Today's Agenda

1. Context and Policy Introduction
2. Georgetown Study: Providing Context
3. Standard Setting Process

Oklahoma State Department of Education Staff

- Superintendent Joy Hofmeister
- Dr. Jeanene Barnett – Deputy Superintendent of Assessment & Accountability
- Craig Walker – Executive Director of State Assessments
- Maria Harris – Assistant Executive Director of State Assessments
- Elizabeth Warren – Director of ELPA
- Vacant – Director of Assessment & Data Literacy
- Sarah Owens – Math Assessment Specialist
- Cora James – Science Assessment Specialist
- Christy McCreary – ELA/Social Studies Assessment Specialist
- Rebecca Logan – Executive Director of NAEP
- Dr. Maridyth McBee – Assessment & Accountability Systems Consultant
- Dr. Marianne Perie – External Standard Setting Evaluator

Measured Progress Staff

- Margie McCaw – Vice President, Client Services
- Tammy Bullock – Director, Client Services
- Julie DiBona – Portfolio Manager, Client Services
- Matthew Gushta – Director, Psychometrics
- Xi Wang – Psychometrician
- Karen Paavola – Director, Content, Design and Development
- Jim Kroening – Manager, Content, Design, and Development: ELA, Social Studies, Alternate Assessments (also facilitator ELA Grade 10)
- David Harrison – STEM Manager, Content, Design and Development
- Sharman Lyons – Program Coordinator, Client Services
- Andrew Martin – Statistical Analyst
- Michelle Boazeman – Statistical Analyst

Measured Progress Staff - Facilitators

- Eva Villagrana – Math Grades 3 and 4
- Tim Pozdol – Math Grades 5 and 6
- Robert Hodgman – Math Grades 7 and 8
- Richard Sedillo – Math Grade 10
- Debbie Hamilton – ELA Grades 3 and 4
- Leslie Ruff – ELA Grades 5 and 6
- Lisa Jones Kennedy – ELA Grades 7 and 8
- Nandita Dangoria – Science Grade 5
- Paul Ritchie – Science Grade 8
- Veronica Zonick – Science Grade 10

Oklahoma Statute on Performance Levels

- The Commission for Educational Quality and Accountability shall determine and adopt a series of student **performance levels** and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act.

- The Commission for Educational Quality and Accountability shall have the authority to set cut scores using any method which the State Board of Education was authorized to use in setting cut scores prior to July 1, 2013.

Oklahoma Statute on Performance Levels

- The **performance levels** shall be set by a method that indicates students are ready for the next grade, course, or level of education, as applicable.
- The Commission for Educational Quality and Accountability shall establish panels to review and revise the **performance level** descriptors for each subject and grade level. The Commission shall ensure that the criterion-referenced tests developed and administered by the State Board of Education pursuant to the Oklahoma School Testing Program Act in grades three through eight and the tests administered at the high school level are vertically aligned by content across grade levels to ensure consistency, continuity, alignment and clarity.

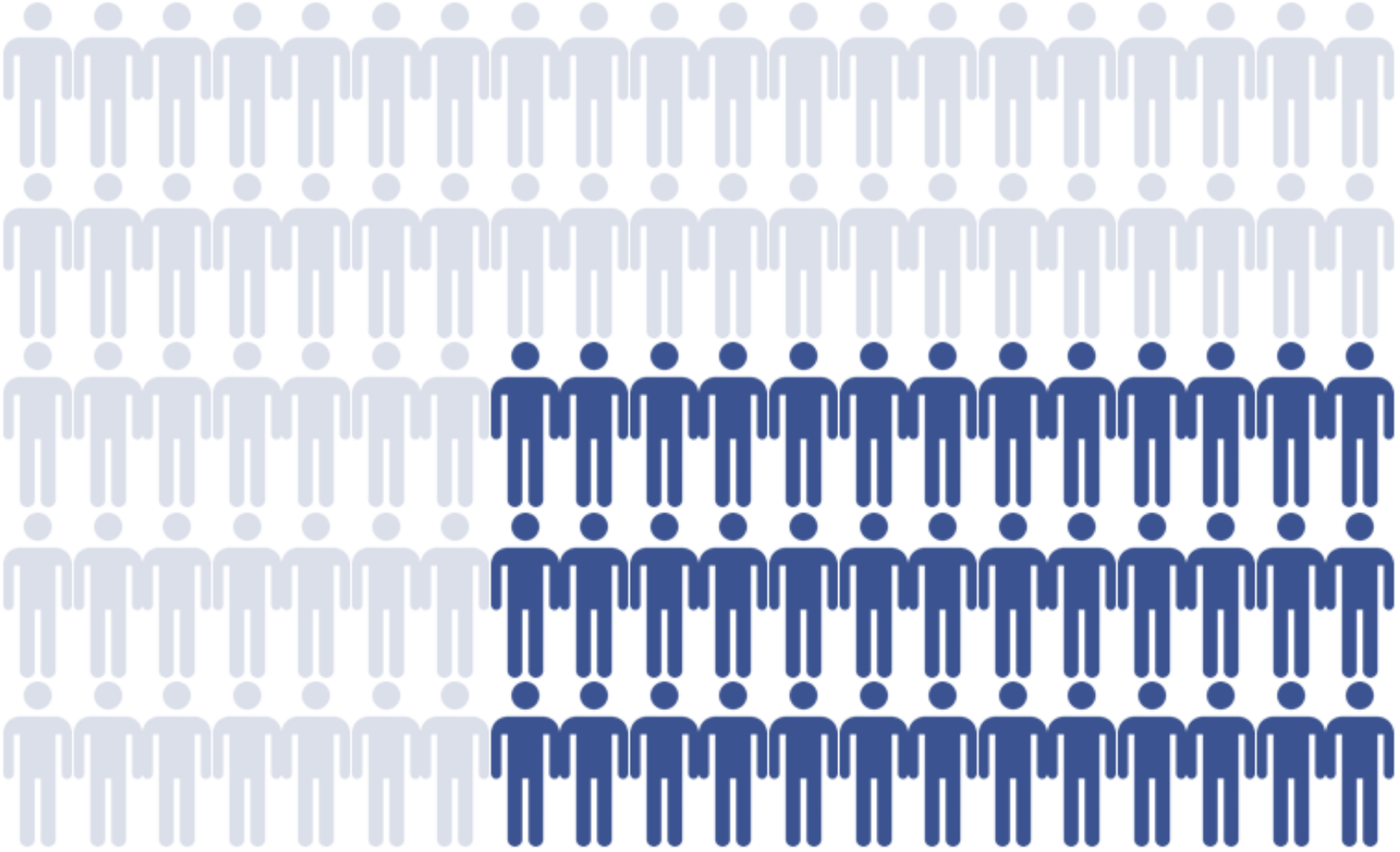
Transitioning to Oklahoma Academic Standards (OAS)

- Oklahoma is transitioning to more challenging standards and assessments
- This transition provides Oklahoma with an **opportunity** to ensure our students are College and Career Ready
- *Why* is this transition needed?

Oklahoma 2017 CCRA Results

ACT	SAT
English:	Reading & Writing:
• 46% met benchmark (18)	• 45% met benchmark (480)
Mathematics	Mathematics
• 25% met benchmark (22)	• 23% met benchmark (530)
Reading	
• 37% met benchmark (22)	

39% of 2015 High School Graduates had to Take College Remediation Classes

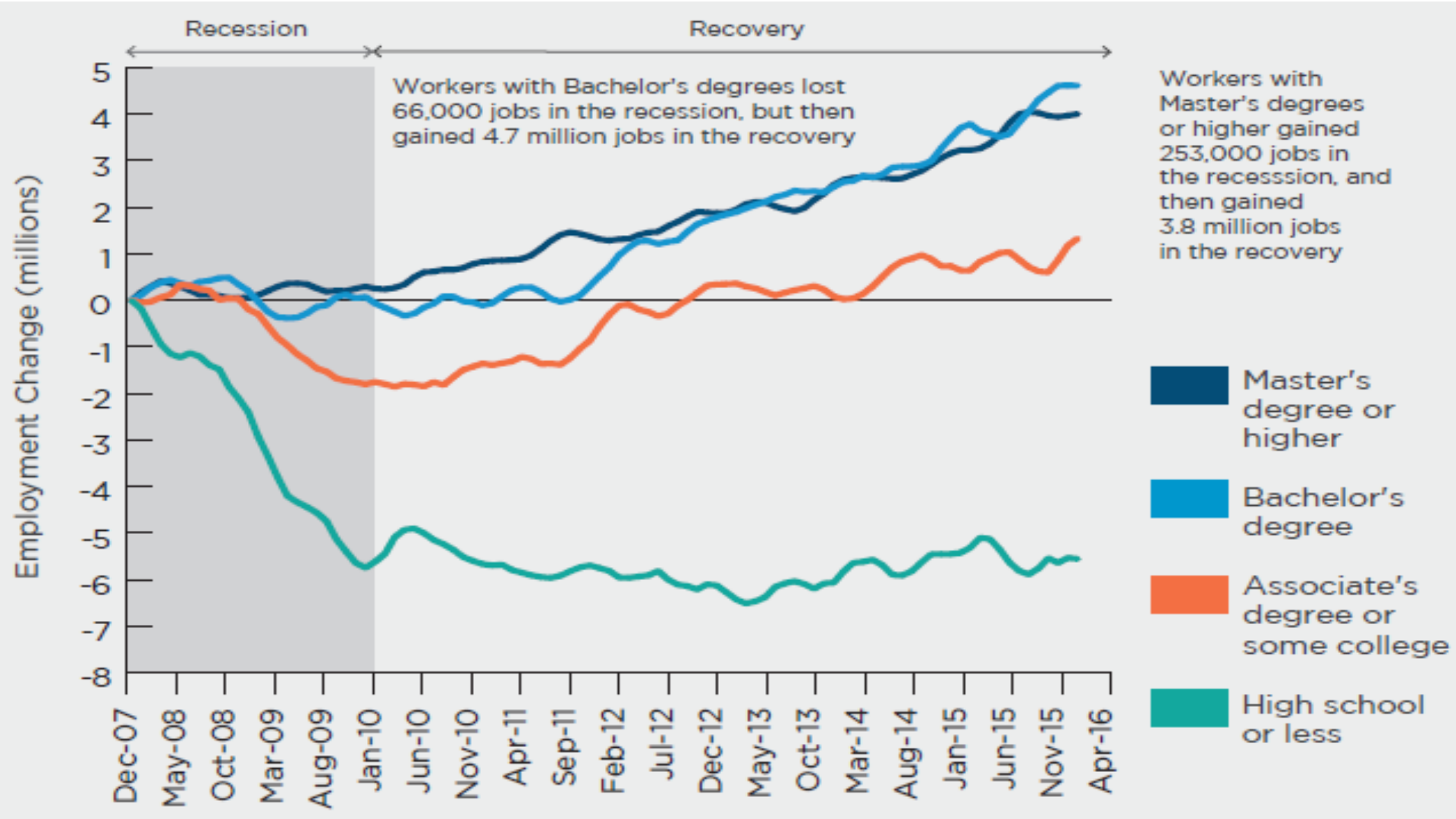


Remediation Courses Impact Student Success

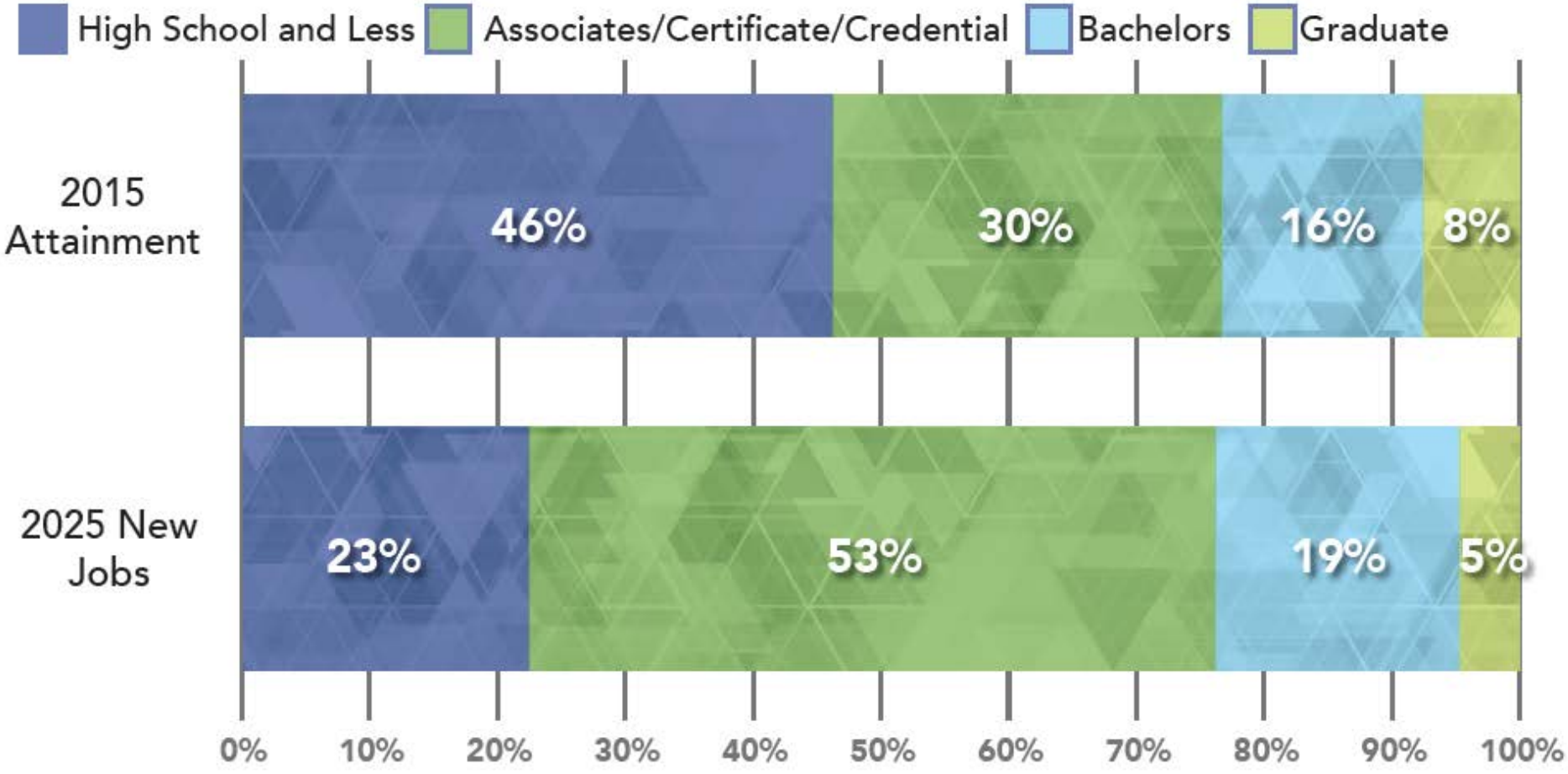
- **Eighty-one percent** of Oklahoma *community college* students who are required to take a math remediation class **fail to graduate** within three years. Around 70 percent of students who take a math remediation class at a four-year university fail to graduate within six years.
- Remediation courses costs students tuition —

  $22.2 million annually in Oklahoma — but do not go toward college credit.

Post Great Recession Workforce Trends



Oklahoma's Workforce Gap



Source: OK Office of Workforce Development EMSI Q2, 2015

Assessment Report 2017

Oklahoma Legislature directed the State Board of Education:

- to evaluate Oklahoma's current state assessment system, and
- make recommendations for its future.

As a result, Oklahoma State Department of Education:

- held regional meetings across the state to determine stakeholder concerns
- convened the Oklahoma Assessment & Accountability Task Force to develop recommendations
- followed the federal requirements and rules as described in ESSA

Recommendations from the Task Force

Assessments in Grades 3-8

- Score Interpretation
  - Provide a measure of performance indicative of being on track to College and Career Readiness (CCR).

- Reporting and State Comparability
  - Utilize the existing National Assessment of Educational Progress (NAEP) data to establish statewide comparisons at grades 4 and 8. NAEP data should also be used during standard-setting activities to ensure the CCR cut score is set using national and other state data.

Goals for Oklahoma Schools

- Focus on college and career readiness:

  College and career ready means that students graduate from high school prepared to enter and succeed in postsecondary opportunities whether college or career.

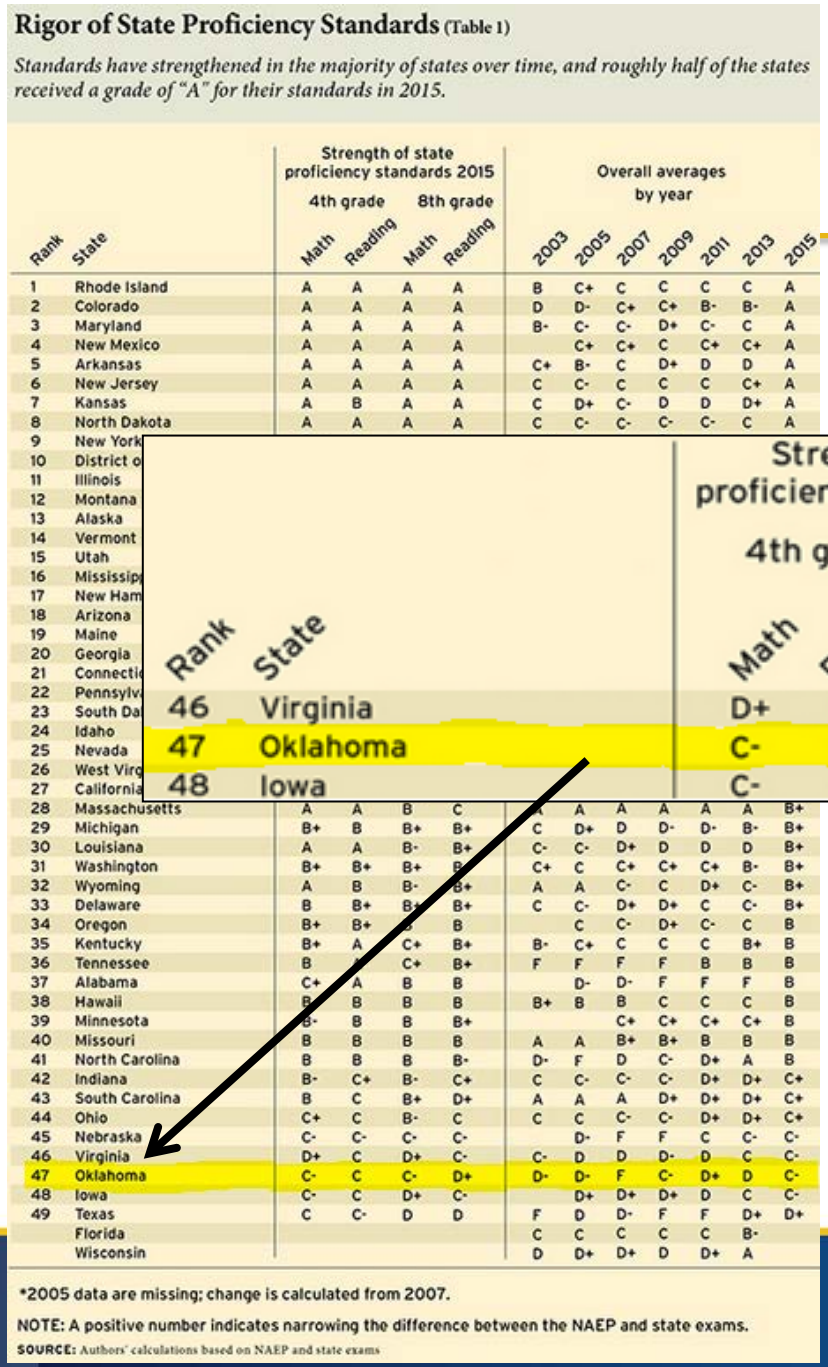
- Students should graduate high school ready for postsecondary success and need to demonstrate they are on-track towards that goal in grades 3–8.

Rigor of State Proficiency Standards

- Since 2011, **45 states** have raised their standards for student proficiency in reading and math, with the greatest gains between 2013 and 2015.

- Most states set only mediocre expectations for students for nearly 10 years after the passage of the federal No Child Left Behind Act (2001).

The differences between state and NAEP proficiency rates



Rigor of State Proficiency Standards (Table 1)

Standards have strengthened in the majority of states over time, and roughly half of the states received a grade of "A" for their standards in 2015.

Rank	State	Strength of state proficiency standards 2015				Overall averages by year						
		4th grade		8th grade								
		Math	Reading	Math	Reading	2003	2005	2007	2009	2011	2013	2015
1	Rhode Island	A	A	A	A	B	C+	C	C	C	C	A
2	Colorado	A	A	A	A	D	D-	C+	C+	B-	B-	A
3	Maryland	A	A	A	A	B-	C-	C-	D+	C-	C	A
4	New Mexico	A	A	A	A		C+	C+	C	C+	C+	A
5	Arkansas	A	A	A	A	C+	B-	C	D+	D	D	A
6	New Jersey	A	A	A	A	C	C-	C	C	C	C+	A
7	Kansas	A	B	A	A	C	D+	C-	D	D	D+	A
8	North Dakota	A	A	A	A	C	C-	C-	C-	C-	C	A
9	New York											
10	District o											
11	Illinois											
12	Montana											
13	Alaska											
14	Vermont											
15	Utah											
16	Mississip											
17	New Ham											
18	Arizona											
19	Maine											
20	Georgia											
21	Connecti											
22	Pennsylv											
23	South Da											
24	Idaho											
25	Nevada											
26	West Virg											
27	California											
28	Massachusetts	A	A	B	C	A	A	A	A	A	A	B+
29	Michigan	B+	B	B+	B+	C	D+	D	D-	D-	B-	B+
30	Louisiana	A	A	B-	B+	C-	C-	D+	D	D	D	B+
31	Washington	B+	B+	B+	B	C+	C	C+	C+	C+	B-	B+
32	Wyoming	A	B	B-	B+	A	A	C-	C	D+	C-	B+
33	Delaware	B	B+	B	B+	C	C-	D+	D+	C	C-	B+
34	Oregon	B+	B+	B	B		C	C-	D+	C-	C	B
35	Kentucky	B+	A	C+	B+	B-	C+	C	C	C	B+	B
36	Tennessee	B	A	C+	B+	F	F	F	F	B	B	B
37	Alabama	C+	A	B	B		D-	D-	F	F	F	B
38	Hawaii	B	B	B	B	B+	B	B	C	C	C	B
39	Minnesota	B-	B	B	B+			C+	C+	C+	C+	B
40	Missouri	B	B	B	B	A	A	B+	B+	B	B	B
41	North Carolina	B	B	B	B-	D-	F	D	C-	D+	A	B
42	Indiana	B-	C+	B-	C+	C	C-	C-	C-	D+	D+	C+
43	South Carolina	B	C	B+	D+	A	A	A	D+	D+	D+	C+
44	Ohio	C+	C	B-	C	C	C	C-	C-	D+	D+	C+
45	Nebraska	C-	C-	C-	C-		D-	F	F	C	C-	C-
46	Virginia	D+	C	D+	C-	C-	D	D	D-	D	C	C-
47	Oklahoma	C-	C	C-	D+	D-	D-	F	C-	D+	D	C-
48	Iowa	C-	C	D+	C-		D+	D+	D+	D	C	C-
49	Texas	C	C-	D	D	F	D	D-	F	F	D+	D+
	Florida					C	C	C	C	C	B-	
	Wisconsin					D	D+	D+	D	D+	A	

*2005 data are missing; change is calculated from 2007.

NOTE: A positive number indicates narrowing the difference between the NAEP and state exams.

SOURCE: Authors' calculations based on NAEP and state exams

Rank	State	Strength of state proficiency standards 2015				Overall averages by year						
		4th grade		8th grade								
		Math	Reading	Math	Reading	2003	2005	2007	2009	2011	2013	2015
46	Virginia	D+	C	D+	C-	C-	D	D	D-	D	C	C-
47	Oklahoma	C-	C	C-	D+	D-	D-	F	C-	D+	D	C-
48	Iowa	C-	C	D+	C-		D+	D+	D+	D	C	C-

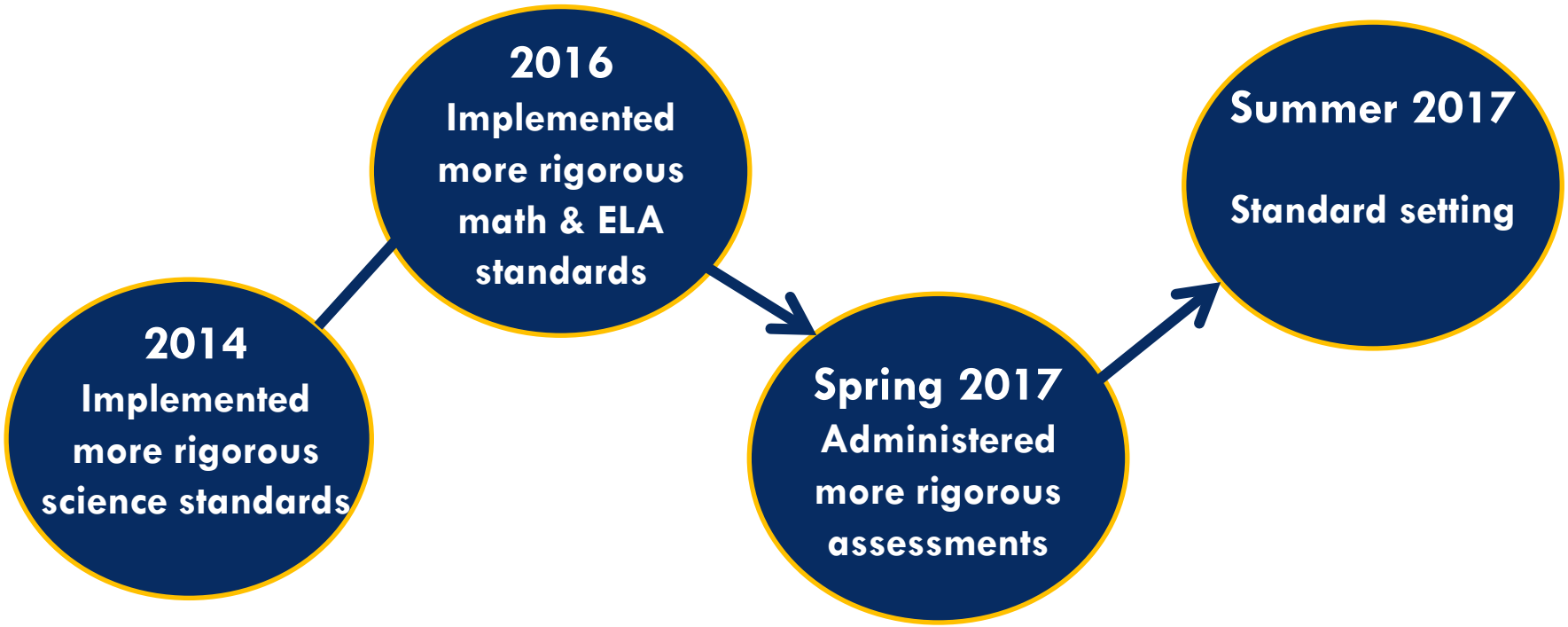
OKLAHOMA STATE DEPARTMENT OF EDUCATION
CHAMPION EXCELLENCE

Understanding NAEP

- First administered in 1969, the **National Assessment of Educational Progress** (NAEP) also known as the *Nation's Report Card,* is the largest nationally representative and continuing assessment of what America's students know and can do in various subjects areas such as, math, reading, science, and writing.
- Elected officials, policymakers, educators, and researchers all use NAEP resources and results to develop ways to improve education in the United States.

Transition to Oklahoma Academic Standards

Ensure our Students are College & Career Ready



What is Depth of Knowledge (DOK)?

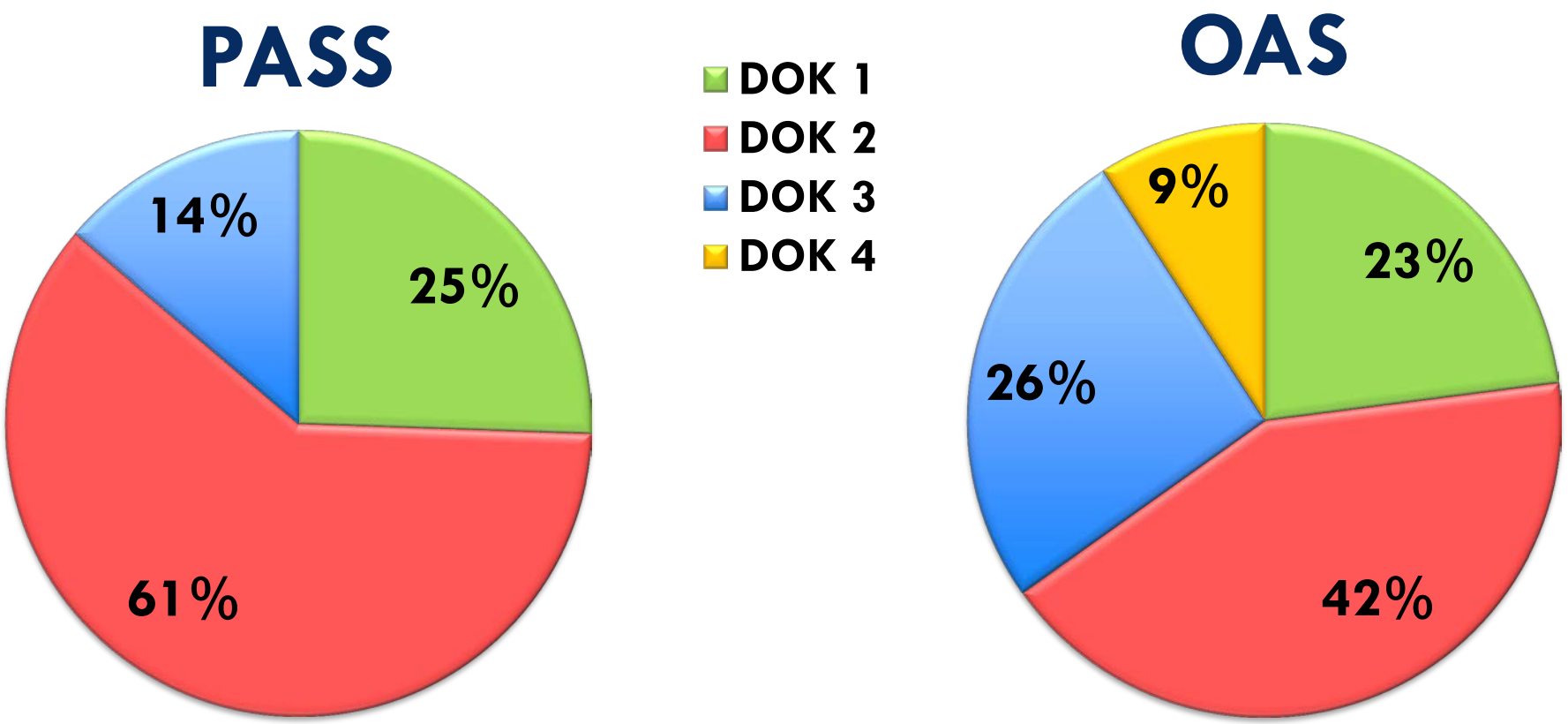
- DOK **measures** the degree to which knowledge is elicited from students.
- DOK is a common language educators use to describe the **complexity of learning tasks** and test items.

What is Depth of Knowledge (DOK)

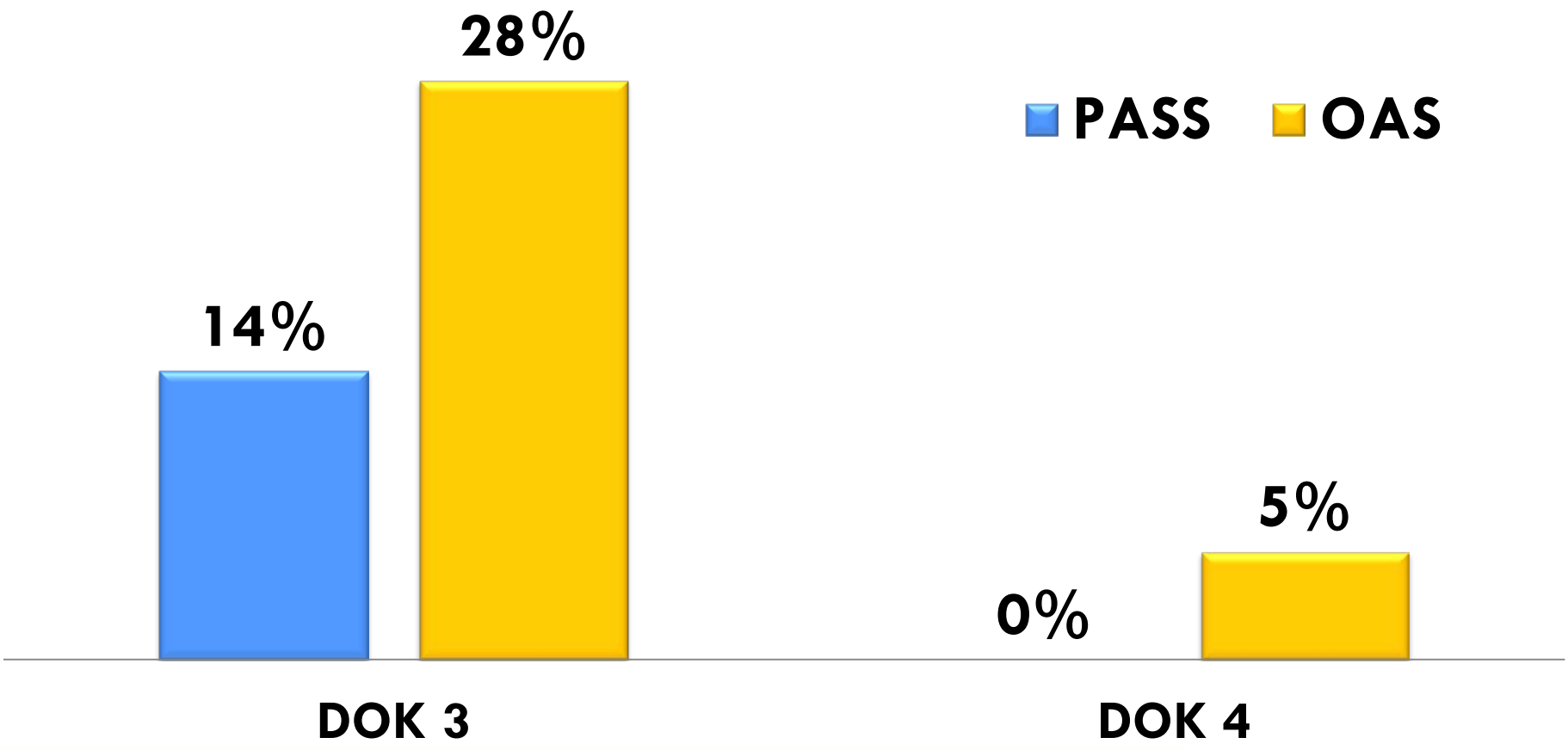
DOK is About Complexity

- **Level 1** requires students to use simple skills or abilities.
- **Level 2** includes the engagement of some mental processing beyond recalling.
- **Level 3** requires some higher level mental processing like reasoning, planning, and using evidence.
- **Level 4** requires complex reasoning, planning, developing, and thinking over an extended period of time.

DOK Distribution for Assessed ELA Standards



DOK Distribution for ALL Assessed Standards (3-8)



The Standard Setting Process

Content Standards vs. Performance Standards

- Content standards = “What”
  - Describe the knowledge and skills students are expected to demonstrate by content area and grade
- Performance standards = “How well”
  - Describe attributes of student performance based on Performance Level descriptors

What is Your Job?

- To recommend cut scores for each of the performance levels that will be used to report results:
  - *Unsatisfactory*
  - *Limited Knowledge*
  - *Proficient*
  - *Advanced*

← Cut Score

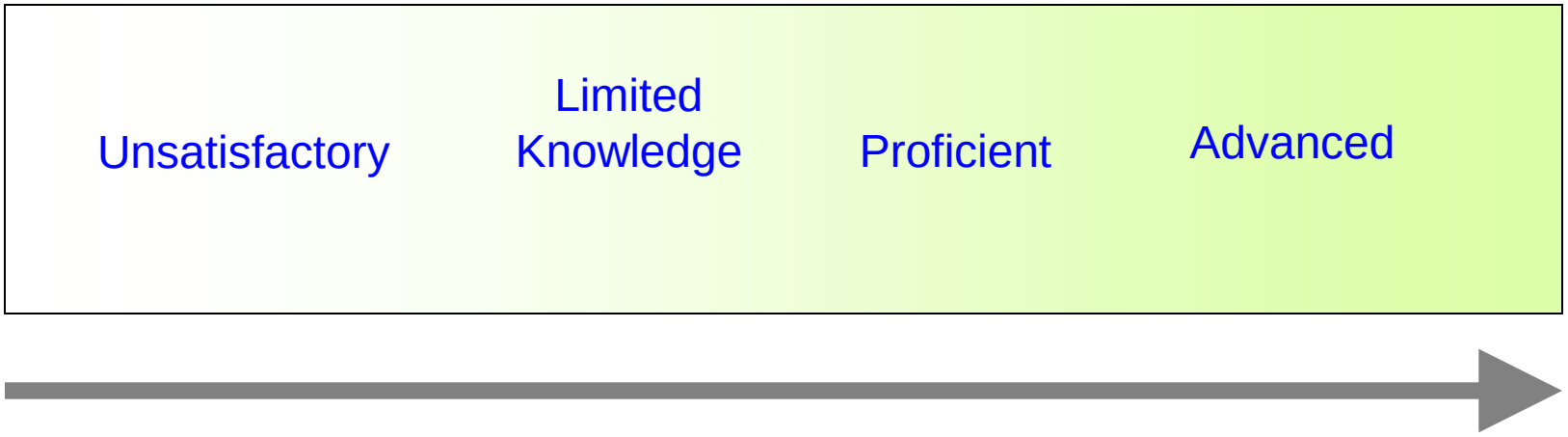
← Cut Score

← Cut Score

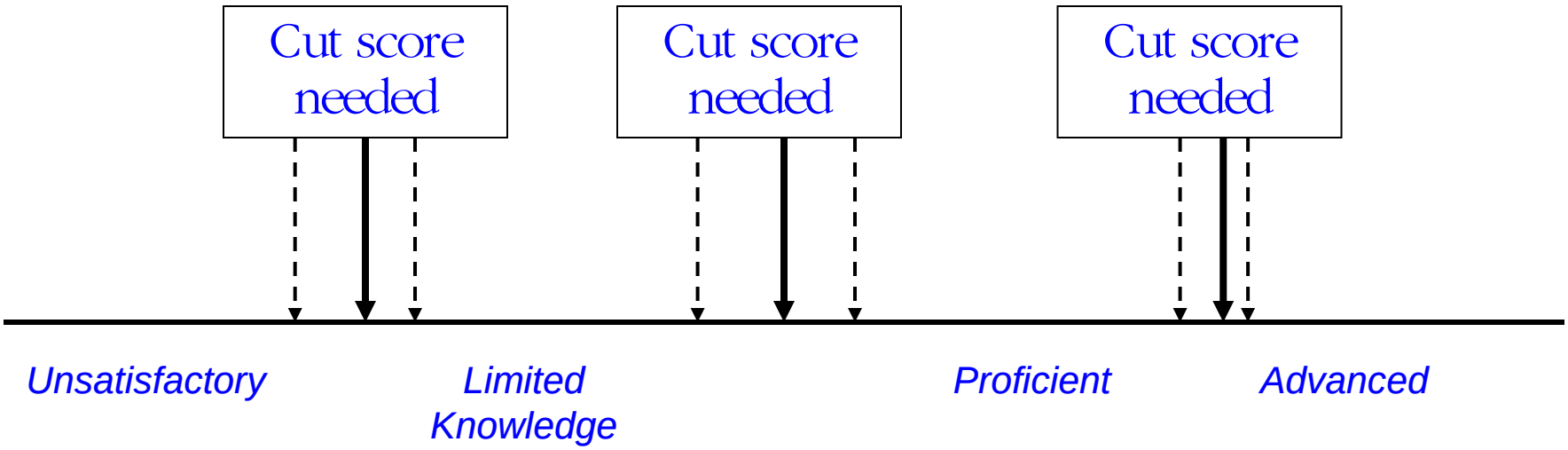
We are Trying to Determine?

- What knowledge, skills, and abilities (KSAs) need to be demonstrated to be classified in each Performance Level?
- How much is enough?
- What test performance corresponds to:
  - Unsatisfactory
  - Limited Knowledge
  - Proficient
  - Advanced

Performance Continuum



Based on **Proficiency Levels**, You will Recommend a Cut Score…



Performance Continuum

General Phases of Standard Setting

Data-collection 

Policy-making/Decision-making

Final Recommendations

- Your recommendations will be reviewed and presented to the policy makers, responsible for final adoption of the cut scores.

- The recommendations may be accepted, rejected, or modified by the Commission for Educational Quality and Accountability (CEQA).

Overview of Standard Setting Method

- We will cover
  - Implementation of the Bookmark procedure
- Note
  - This session is intended to be an overview
  - Your facilitator will give you more details and guide you through the process step by step

Factors that Influence Selection of Standard-Setting Method

- Prior usage/history
- Recommendation/requirement by policy-making authority
- Type of assessments

Bookmark method chosen

What is the Bookmark Method and How Does It Work?

- A collection of test items is ordered in a ordered item book from easiest to most difficult.
- Panelists place one or more “bookmarks” in that book of items.

Important Terms to Know

- Performance Levels
- Test items
- “Borderline” students
- Knowledge, skills, and abilities (KSAs) needed to answer each test question
- Cut scores

Performance Levels

- Individual review of Performance Levels
- Group Discussion of what student performance in each Performance Level looks like.
- Focus on the “borderline” students, i.e., students who just barely make it into Performance Level.

Review Performance Levels and Develop Borderline Descriptions

- Create bulleted lists of
  - the **knowledge, skills**, and **abilities** a student must demonstrate to be classified in each Performance Level, and
  - the **knowledge, skills,** and **abilities** that distinguish one Performance Level from another.

- You must reach consensus as a group about the KSAs that define borderline student performance.

How to Place a Bookmark

- Start at the beginning of the ordered item booklet.
- Evaluate whether at least two thirds of the students who demonstrate knowledge and skills at the borderline of Proficient would correctly answer the item: If Yes, move on to the next item.
- Place the bookmark where you think at least two thirds of the Proficient “borderline” students would no longer correctly answer the item.

How to Place a Bookmark

Item Number	Would at least two-thirds of the students who demonstrate skills at the *Does Not Limited Knowledge– Proficient* "borderline" correctly answer this item?
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	No
7	Yes
8	Yes
9	No
10	No
11	No
12	No
13	No
14	No
15	No
…	No

How to Place a Bookmark

- In this example, the bookmark would go between items 8 and 9.
- You will have opportunities to discuss your bookmark placements and change them, if desired.
- Place one bookmark for each cut score (between the Performance Levels).

Before You Place the Bookmarks...

- **Take the test** to familiarize yourself with the test taking experience.
- Review the ordered item book.
- Complete the **item map form**, involves identifying the knowledge, skills, and abilities specific to each item.

Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
1		
2		
3		
4		
5		
6		
7		
8		

- Review and discuss **Performance Levels.**
- Develop **definition of "borderline"** for Limited Knowledge, Proficient, and Advanced.

Bookmarking the Ordered Item Booklet: Practice Round

- Before the actual rating rounds occur you will have an opportunity to practice the bookmark method with a set of practice items.
- You will be given a ordered item book with approximately 10 items to **practice** the bookmark placement for the cut point between Limited Knowledge and Proficient.

Check for Understanding

- Your facilitator will check with you for understanding and answer any questions you may have during and after the practice round.
- You will then complete a training evaluation form.
- This evaluation form will be used as a check for readiness before proceeding.

Actual Bookmarking: Three Rounds

- Round 1 (Without Discussion)
  - Work through the ordered item booklet.
  - Place bookmarks between the items as appropriate.
- Round 2 (With Group Discussion)
  - Discuss the first-round bookmark placements (focus on the KSAs).
  - Examine your cut points in relation to the group results.
  - Review and revise placement of bookmarks as appropriate.
- Round 3 (With Group Discussion)
  - Discuss the second-round bookmark placements (focus on the KSAs).
  - Examine your cut points in relation to the group results and impact data.
  - Review and revise placement of bookmarks as appropriate.

External Assessment Data

- Comparability to external assessments important as validity check.
- External benchmark data will be included as follows:

Subject	Grade	External Benchmark Data
Math	3-8	NAEP Proficiency
Math	10	ACT National College Readiness Benchmark
ELA	3-8	NAEP Proficiency
ELA	10	ACT National College Readiness Benchmark (Reading)
Science	5	NAEP Grade 4 Proficiency
Science	8	NAEP Grade 8 Proficiency
Science	10	ACT National College Readiness Benchmark

External Assessment Data

- For each grade, a region will be shaded in the item map that corresponds to NAEP proficiency or ACT college readiness with a range of +/- 2SEMs around that point.
- For NAEP Proficiency, a linear relationship was determined between grades 4 and 8 and extended to other grades 3-8.
- Within this region is where the Proficient bookmark will be placed.
- Your facilitator will give additional training and guidance on the usage of this data.

External Assessment Data

Example Item Map with Shading

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

Role of the Facilitator

- Lead and keep the group on track.
- Ensure that all panelists clearly understand the procedures.
- Ensure that the evaluation forms are completed.
  - Your honest feedback is important!

A Few Reminders

- It is **not** necessary for panelists to reach consensus as to how the items should be categorized.
- You should be open-minded when listening to your colleagues' rationales for their ratings.
- You may or may not change your mind as a result of the discussions.
- We want each panelist to use his or her own **best judgment** in each round of rating.

Ground Rules

- Process is focused solely on recommending performance labels (cut scores).
- Role of facilitator is to lead and keep the group on track.
- The Performance Levels and their definitions are not open for debate.
- Panelists' recommendations are vital, but final cut score decisions will be made by the Commission of Educational Quality and Accountability.
- Each panelist must complete an evaluation form at the end of the process.
- Each panelist must participate in the entire process or his/her judgments will be discounted.
- No cell phone use except during breaks.
- Please be sure to arrive on time each day.

What's Next?

- Take the Test
- Discuss the Performance Levels
- Complete Item Map Form
- Practice Round
- Round 1
- Round 2
- Round 3
- Evaluation

Any Questions?

Housekeeping

- Folder review
  - Content material
  - Administrative forms
- Secure materials
  - Signing out
  - No electronics
- Signing in for the remainder of the week
- Varied end times
- Importance of attendance

Thank you.

measured progress

APPENDIX H—INSTRUCTIONS FOR FACILITATORS

GENERAL INSTRUCTIONS FOR
OSTP ASSESSMENTS
STANDARD SETTING GROUP FACILITATORS

ELA and Math 3-8
August 8-11, 2017

The Standard Setting activities begin with all panelists in one large group, facilitated by one facilitator.

Preliminaries

Introductions:

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask each participant to sign a nondisclosure form. Do not proceed until a signed nondisclosure form has been collected from each participant.
4. Note that while panelists are making their recommendation for the cut scores, the Commission for Education Quality and Accountability make the final cut decision. The decision is almost always within a range around the recommended cut.

Take the Test

Overview: In order to establish an understanding of the test items and for panelists to gain an understanding of the experience of the students who take the test, each participant will take the test. Panelists may wish to discuss or take issue with the items in the test. Tell them we will gladly take their feedback to the SDE. However, this is the actual assessment that students took and it is the set of items on which we must set standards.

Activities:

1) Introduce the assessment and convey/do each of the following:
    a. Tell panelists that they are about to take an actual OSTP assessment.
    b. The purpose of the exercise is to help them establish a good understanding of the test items and to gain an understanding of the experience of the students who take the assessment.
2) Give each panelist a test booklet.
3) Tell panelists to try to take on the perspective of a student as they complete the test.
4) When the majority of the panelists have finished, pass out the answer key/scoring rubrics.

Discuss Performance Definitions and Describe Characteristics of the "Borderline" Student

Overview: In order to establish an understanding of the expected performance of borderline students on the test, panelists must have a clear understanding of:

1) The definition of the four performance levels, and

2) Characteristics of students who are "just able enough" to be classified into each level above Unsatisfactory. These students will be referred to as borderline students, since they are right on the border between levels.

The purpose of this activity is for the panelists to obtain an understanding of the Performance Definitions with an emphasis on characteristics that describe students at the borderline -- both what these students can and cannot do.

This activity is critical since the ratings panelists will be making will be based on these understandings.

Preparation:

1. Use 3 sheets of chart paper and label the top of each one: Borderline Limited Knowledge, Borderline Proficient and Borderline Advanced.

Activities:

1) Introduce the task. In this activity they will:
   a. individually review the Performance Level Descriptors again as needed;

   b. generate group descriptions of borderline Limited Knowledge, Proficient and Advanced students.

   The facilitator should compile the descriptions as bulleted lists on chart paper; the chart paper will then be posted so the panelists can refer to the lists as they go through the bookmark process.

2) Check to see if panelists want to discuss the performance levels again. Once they have a solid understanding of the PLDs, have them focus their discussion on the knowledge, skills, and abilities of students who are in the Proficient category, but just barely. The focus should be on those characteristics and KSAs that best describe the lowest level of performance necessary to warrant Proficient classification.

3) After discussing Proficient, have the panelists discuss characteristics of the borderline Limited Knowledge student and then characteristics of the borderline Advanced student. Panelists should be made aware of the importance of the Proficient cut. This is the cut from non- proficient to just barely proficient.

4) Using chart paper, generate a bulleted list of characteristics for each of the levels. Post these on the wall of the room. Make sure that panelists agree on the bulleted characteristics and have a common understanding.

Fill Out Item Map Form

Overview: The primary purpose of this activity is for panelists to think about what knowledge, skills and abilities (KSAs) are measured by each item as well as what makes one question harder or easier than another. The notes panelists take here will be useful in helping them place their bookmarks and in discussions during the rounds of ratings.

On the item map form there is a shaded region comparable to NAEP proficiency.
This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to NAEP proficiency with a range of +/- 2 SEMs around that point.

Activities:

1. Pass out the following materials:
   a. Item map form
   b. Ordered item book

2. Review the ordered item book and item map form with the panelists. Explain what each is, and point out the correspondence of the ordered items between the two. Explain that the items are statistically ordered from easiest to hardest, based on student performance from the most recent administration of the assessment.

3. Tell panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range.

4. Tell panelists they will work individually at first. After they have completed the item map form, they will then discuss it as a group.

5. Starting with the first item, they will record for each item:
   a. The knowledge, skills and abilities (KSAs) the item measures, and
   b. their thoughts about what makes that question harder than the previous question.

6. Panelists should not agonize over these decisions. It may be that the second item is only slightly harder than the first. Panelists should keep in mind that the purpose of the task is to record notes that will be useful to them in completing their ratings and not necessarily to fill in every space on the form.

7. Once panelists have completed the item map form, they should discuss them as a group.

8. Based on the group discussion, the panelists should modify their own item map form (make additional notes, cross things out, etc…)

Practice Round (FIRST GRADE ONLY)

Overview of Practice Round: The primary purpose of the Practice Round is for panelists to become familiar with the task of placing the bookmarks. The facilitator will walk the panelists through the Proficient bookmark placement on the practice set, engage the panelists in a readiness discussion and check for understanding. If any of the panelists indicate an incomplete understanding of the practice rating task, then the facilitator will continue to work with the panelists to clarify any misconceptions before proceeding to Round 1.

Activities:

1. Make sure panelists have the following materials:
    a. Practice ordered item set
    b. Performance Definitions

2. Orient panelists to the practice ordered item set. Point out the following:
    a. Items are organized by difficulty from easiest to hardest;
    b. The items represent the full range of difficulty included on the test.
    c. Identify the items on the item map form that correspond to the practice ordered item set. Panelists can note this on the Item Map Form as desired.

3. Give the panelists a few minutes to read through the items.

4. The facilitator leads the group through a discussion of the Proficient bookmark placement in the practice OIB.
    a. Referring to the ten ordered items in the practice set, the Performance Definitions, and the bulleted lists of characteristics posted on chart paper, the facilitator will lead a discussion about the placement of the Proficient bookmark.

    b. Panelists should consider the question: would at least two-thirds of the students performing at the borderline of Proficient answer the item correctly?

    c. Where the answer changes from yes to no is where the bookmark should be placed.

    d. Panelists should answer question for all items to check for anomalies.

    e. Using a show of hands, indicate on chart paper where each panelist placed their bookmark. Have a discussion of their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings.

Readiness Discussion (FIRST GRADE ONLY)

After the panelists have placed bookmarks in the practice ordered item set, lead a readiness discussion by posing the following seven questions.

The purpose of this discussion is to determine how well each panelist understands the bookmark task, to correct any misunderstandings, and if necessary, to identify panelists whose ratings should be excluded from the standard setting if their understanding doesn't improve.

The "correct" answers for each of the questions are listed directly under each question. Some common misunderstandings are also listed for questions one and two. Please watch for these typical misunderstandings and if they arise, redirect the panelists to the correct responses. **Make sure any questions or concerns are resolved prior to moving on.**

1. What questions should you ask for each item?
    - Would at least two-thirds of the borderline students get this item correct?
    - Would at least two-thirds of the students who just barely fall in the criteria level of interest get this item correct?

   Please watch for and correct the following misconceptions.
    - Omission of two-thirds (stating all students is also incorrect)
    - Omission of borderline (stating all students, or all students in the criteria level of interest is also incorrect)

2. What is meant by the "at least two-thirds" rule?
    - At least two-thirds of the borderline students would get items like this correct

   Please watch for and correct the following misconceptions.
    - All students falling in the criteria level of interest have a one out of two chance of getting this item correct.

3. What population of students should you consider for each item?
    - Borderline students
    - Students who just barely fall in the performance level of interest

    a. Does the target population of borderline students change as I progress through the items for the first bookmark? (NO)
    b. Does the target population change as I progress to the next bookmark? (YES)

4. As you approach a bookmark, how do answers change?
    - The answer to "Would at least two-thirds of the borderline students get this item correct" should change from a "yes" to a "no"
    - The confidence the panelist has in the yes/no answer will decrease as he/she approaches the bookmark placement

5. How should your confidence in the answers affect your bookmark placement?
    - As you become less confident in a "yes" answer, the bookmark placement should be approaching.
    - Where you are least confident in your answers is typically where the bookmark will be placed.

6. Does placing a bookmark after a certain page mean the student needs to get that many items correct on the assessment? (NO. The OIB page number is only an ordered index, and does not correspond to the number correct).

7. Should the population you are thinking about be the students in your classroom or school? (NO. You should be thinking about all of the students in the state)

NOTE: Make sure you collect all of the 'training' OIBs!

Standard Setting Practice Evaluation (FIRST GRADE ONLY)

After the panelists have placed bookmarks in the practice ordered item set and you've completed the readiness discussion and answered any questions, have panelists fill out the training evaluation form. Before you start the Round 1 activities, scan the completed evaluations to see if there are any problems or concerns that need to be addressed before proceeding. **Make sure any questions or concerns are resolved prior to moving on.** Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Round 1

Overview of Round 1: The primary purpose of Round 1 is to ask the panelists to make their initial judgments as to where the bookmark should be placed for each cut. For this round, panelists will work individually, without consulting with their colleagues. Beginning with the first ordered item in the OIB, panelists will evaluate each item in turn. The panelists will gauge the level of difficulty of each of the items for those students who barely meet the definition of Proficient. The task that panelists are asked to do is to estimate whether a student performing at the borderline of Proficient, would answer each question correctly. More specifically, panelists should answer:

- Would *at least* two-thirds of the students performing at the borderline of Proficient answer the question correctly?

On the item map form there is a shaded region comparable to NAEP proficiency.
This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to NAEP proficiency with a range of +/- 2 SEMs around that point.

The Proficient bookmark placement must be between two shaded items.

The same process is then repeated for the [Unsatisfactory/Limited Knowledge] and [Proficient/Advanced] cuts.

Activities:

1. Panelists should have their ordered item booklets, item map forms, and Performance Definitions. Pass out one rating form to each panelist.

2. Have panelists write their Content area, grade, and ID number on the rating form. The ID number is on the back of their name tags.

3. Provide an overview of Round 1, covering each of the following:
    a. Orient panelists to the ordered-item book. Remind them that the items are presented in order of difficulty, from easiest to hardest.

    b. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    c. The primary purpose of this activity is for the panelists to make their initial determination as to whether students whose performance is barely Proficient would correctly answer each item, and to place their bookmark where they believe the answer of 'yes' turns to 'no'. Remind panelists that they should be thinking about at least two-thirds of the borderline students. Once they have completed the process for the [Limited Knowledge/Proficient] cut, they will

proceed to the remaining two cut points starting with [Unsatisfactory/Limited Knowledge] and then the [Proficient/Advanced] cut.

d. Each panelist needs to base his/her judgments on his/her experience with the content, understanding of students, and the definitions of the borderline students generated previously.

e. One bookmark will be placed for each cut point. For OSTP assessments there are 3 cut points and, therefore, three bookmarks will be placed.

f. If panelists are struggling with placing a particular bookmark, they should use their best judgment and move on. They will have an opportunity to discuss their ratings and make revisions in Rounds 2 and 3.

4. Tell panelists that they will be discussing each cut point with the other panelists during Round 2 but that they will be placing the bookmarks individually. **It is not necessary for the panelists to come to consensus about where the bookmarks should be placed.**

5. Go over the rating form with panelists.
   a. Lead panelists through a step-by-step demonstration of how to fill in the rating form.

   b. Answer questions the panelists may have about the work in Round 1.

   c. Once everyone understands what they are to do in Round 1, tell them to begin.

6. Starting with the first ordered item in the OIB and the cut between Limited Knowledge and Proficient, the panelists will work through the OIB item by item and make their initial bookmark placements. Have panelists examine five items past their placement to check for anomalies.

7. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

   e. When all the rating forms have been collected, the group will take a break. Order the rating forms by ID number and immediately bring the rating forms to the data analysis work room for tabulation.

Tabulation of Round 1 Results

Tabulation of Round 1 results will be completed by the data analysis team as quickly as possible after receipt of the rating forms.

Round 2

Overview of Round 2: In Round 2, the panelists will discuss their Round 1 placements as a group and then revise their ratings on the basis of that discussion. They will discuss their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings. Panelists should also consider the question, "How tough or easy a rater are you?" The purpose here is to allow panelists to examine their individual expectations (in terms of their experiences) and to share these expectations and experiences in order to attain a better understanding of how their experiences impact their decision-making.

To aid with the discussion, the panelists will be provided with the median Round 1 bookmark placements for their group.

Once panelists have reviewed and discussed their bookmark placements, they will be given the opportunity to change or revise their Round 1 ratings.

Activities:

1. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

2. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

3. Provide an overview of Round 2. Remind panelists of the following:
    a. As in Round 1, the primary purpose is to place bookmarks where you feel the criteria levels are best distinguished, considering the additional information and discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities (KSAs) required to answer each item.

4. The panelists will discuss their Round 1 ratings as a group, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.
    a. The discussion should focus on differences in where individual panelists in the group placed their bookmarks.

    b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

d. On the basis of the discussions, panelists should make a second round of ratings.

e. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

f. When placing their Round 2 bookmarks, panelists should not feel compelled to change their ratings.

g. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is consistently higher or lower than the group, they may have a different understanding of the borderline student than the rest of the group, or a different understanding of the Performance Definitions, or both. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Performance Definitions.**

5. As the group is conducting their discussions, circulate around the room to ensure that the discussions are staying on topic, the panelists understand the task, and that all panelists are participating appropriately in the discussion.

6. When all panelists at each group have completed their second ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

   e. When all the rating forms have been collected, the group will take a break. Sort rating forms by ID number, and immediately bring the rating forms to the data analysis work room for tabulation.

Round 3

Overview of Round 3: The primary purpose of Round 3 is to ask the panelists to discuss their Round 2 placements as a group and to give them one last opportunity to revise their ratings on the basis of that discussion. As in Round 2, they will discuss their ratings in the context of the ratings made by other members of the group.

To aid with the discussion, a psychometrician will present the following information to the panelists:

1. The group median Round 2 bookmark placements, and

2. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements from Round 2.

3. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms.

Once panelists have reviewed and discussed their bookmark placements and the impact data, they will be given the opportunity to change or revise their Round 2 ratings.

Activities:

4. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

5. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

    b. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements. Panelists will use this information as a "reasonableness check." In other words, they will discuss whether the percentages in each level seem reasonable, based on their knowledge of the test and the current status of students across the state relative to the Performance Definitions. If the answer is no, panelists may choose to make adjustments to one or more of their bookmark placements.

    c. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

6. Provide an overview of Round 3. Remind panelists of the following:
    a. As in Round 2, the primary purpose is to place bookmarks where you feel the performance levels are best distinguished, considering the additional information and further discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities required to answer each item.

    a. The panelists will discuss their Round 2 ratings, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.

    b. The discussion should focus on differences in where individual panelists placed their bookmarks.

    c. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

    d. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

    e. On the basis of the discussions, panelists should make a third round of ratings.

    f. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    g. When placing their Round 3 bookmarks, panelists should not feel compelled to change their ratings.

    h. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

    i. Write brief notes on any notable discussions of the process, any particular sticking points or issues, or key rationales had in their judgments. These do not need to formal, but will be useful if the client has questions regarding the process.

7. When the group has completed their final ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
    a. **The panelist Content area, grade, and ID number must be filled in**.

b. **The item numbers identifying each cut score must be adjacent**.

c. The Proficient bookmark placement must be between two shaded items on the item map form.

d. Sort rating forms by ID number, and immediately provide the completed rating forms to the data analysis team.

Complete Procedural Evaluation Form for the Grade

Make sure panelists fill out the procedural evaluation for the grade. Emphasize that their honest feedback is important. Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Collect the materials from the grade and mark them off on the Materials Tracking sheet.

Complete Second Grade Standard Setting Activities

Begin the standard setting process for the second grade assigned to the panel. Follow the same steps with the exception of the Practice Round, Readiness Discussion, and Practice Evaluation steps.

Complete Final Evaluation Forms

Make sure panelists fill out the final evaluations before they leave. Emphasize that their honest feedback is important.

GENERAL INSTRUCTIONS FOR
OSTP ASSESSMENTS
STANDARD SETTING GROUP FACILITATORS

ELA 10 and Math 10
August 8-11, 2017

The Standard Setting activities begin with all panelists in one large group, facilitated by one facilitator.

Preliminaries

Introductions:

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask each participant to sign a nondisclosure form. Do not proceed until a signed nondisclosure form has been collected from each participant.
4. Note that while panelists are making their recommendation for the cut scores, the Commission for Education Quality and Accountability make the final cut decision. The decision is almost always within a range around the recommended cut.

Take the Test

Overview: In order to establish an understanding of the test items and for panelists to gain an understanding of the experience of the students who take the test, each participant will take the test. Panelists may wish to discuss or take issue with the items in the test. Tell them we will gladly take their feedback to the SDE. However, this is the actual assessment that students took and it is the set of items on which we must set standards.

Activities:

1) Introduce the assessment and convey/do each of the following:
    a. Tell panelists that they are about to take an actual OSTP assessment.
    b. The purpose of the exercise is to help them establish a good understanding of the test items and to gain an understanding of the experience of the students who take the assessment.
2) Give each panelist a test booklet.
3) Tell panelists to try to take on the perspective of a student as they complete the test.
4) When the majority of the panelists have finished, pass out the answer key/scoring rubrics.

Discuss Performance Definitions and Describe Characteristics of the "Borderline" Student

Overview: In order to establish an understanding of the expected performance of borderline students on the test, panelists must have a clear understanding of:

1) The definition of the four performance levels, and

2) Characteristics of students who are "just able enough" to be classified into each level above Unsatisfactory. These students will be referred to as borderline students, since they are right on the border between levels.

The purpose of this activity is for the panelists to obtain an understanding of the Performance Definitions with an emphasis on characteristics that describe students at the borderline -- both what these students can and cannot do.

This activity is critical since the ratings panelists will be making will be based on these understandings.

Preparation:

1. Use 3 sheets of chart paper and label the top of each one: Borderline Limited Knowledge, Borderline Proficient and Borderline Advanced.

Activities:

1) Introduce the task. In this activity they will:
   a. individually review the Performance Level Descriptors again as needed;

   b. generate group descriptions of borderline Limited Knowledge, Proficient and Advanced students.

   The facilitator should compile the descriptions as bulleted lists on chart paper; the chart paper will then be posted so the panelists can refer to the lists as they go through the bookmark process.

2) Check to see if panelists want to discuss the performance levels again. Once they have a solid understanding of the PLDs, have them focus their discussion on the knowledge, skills, and abilities of students who are in the Proficient category, but just barely. The focus should be on those characteristics and KSAs that best describe the lowest level of performance necessary to warrant Proficient classification.

3) After discussing Proficient, have the panelists discuss characteristics of the borderline Limited Knowledge student and then characteristics of the borderline Advanced student. Panelists should be made aware of the importance of the Proficient cut. This is the cut from non- proficient to just barely proficient.

4) Using chart paper, generate a bulleted list of characteristics for each of the levels. Post these on the wall of the room. Make sure that panelists agree on the bulleted characteristics and have a common understanding.

Fill Out Item Map Form

Overview: The primary purpose of this activity is for panelists to think about what knowledge, skills and abilities (KSAs) are measured by each item as well as what makes one question harder or easier than another. The notes panelists take here will be useful in helping them place their bookmarks and in discussions during the rounds of ratings.

On the item map form there is a shaded region comparable to the ACT college readiness benchmark. This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to the ACT college readiness benchmark with a range of +/- 2 SEMs around that point.

Activities:

1. Pass out the following materials:
   a. Item map form
   b. Ordered item book

2. Review the ordered item book and item map form with the panelists. Explain what each is, and point out the correspondence of the ordered items between the two. Explain that the items are statistically ordered from easiest to hardest, based on student performance from the most recent administration of the assessment.

3. Tell panelists that the shaded region is comparable to the ACT college readiness benchmark, and that the Proficient bookmark placement will be set in this range.

4. Tell panelists they will work individually at first. After they have completed the item map form, they will then discuss it as a group.

5. Starting with the first item, they will record for each item:
   a. The knowledge, skills and abilities (KSAs) the item measures, and
   b. their thoughts about what makes that question harder than the previous question.

6. Panelists should not agonize over these decisions. It may be that the second item is only slightly harder than the first. Panelists should keep in mind that the purpose of the task is to record notes that will be useful to them in completing their ratings and not necessarily to fill in every space on the form.

7. Once panelists have completed the item map form, they should discuss them as a group.

8. Based on the group discussion, the panelists should modify their own item map form (make additional notes, cross things out, etc…)

Practice Round

Overview of Practice Round: The primary purpose of the Practice Round is for panelists to become familiar with the task of placing the bookmarks. The facilitator will walk the panelists through the Proficient bookmark placement on the practice set, engage the panelists in a readiness discussion and check for understanding. If any of the panelists indicate an incomplete understanding of the practice rating task, then the facilitator will continue to work with the panelists to clarify any misconceptions before proceeding to Round 1.

Activities:

1. Make sure panelists have the following materials:
    a. Practice ordered item set
    b. Performance Definitions

2. Orient panelists to the practice ordered item set. Point out the following:
    a. Items are organized by difficulty from easiest to hardest;
    b. The items represent the full range of difficulty included on the test.
    c. Identify the items on the item map form that correspond to the practice ordered item set. Panelists can note this on the Item Map Form as desired.

3. Give the panelists a few minutes to read through the items.

4. The facilitator leads the group through a discussion of the Proficient bookmark placement in the practice OIB.
    a. Referring to the ten ordered items in the practice set, the Performance Definitions, and the bulleted lists of characteristics posted on chart paper, the facilitator will lead a discussion about the placement of the Proficient bookmark.

    b. Panelists should consider the question: would at least two-thirds of the students performing at the borderline of Proficient answer the item correctly?

    c. Where the answer changes from yes to no is where the bookmark should be placed.

    d. Panelists should answer question for all items to check for anomalies.

    e. Using a show of hands, indicate on chart paper where each panelist placed their bookmark. Have a discussion of their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings.

Readiness Discussion

After the panelists have placed bookmarks in the practice ordered item set, lead a readiness discussion by posing the following seven questions.

The purpose of this discussion is to determine how well each panelist understands the bookmark task, to correct any misunderstandings, and if necessary, to identify panelists whose ratings should be excluded from the standard setting if their understanding doesn't improve.

The "correct" answers for each of the questions are listed directly under each question. Some common misunderstandings are also listed for questions one and two. Please watch for these typical misunderstandings and if they arise, redirect the panelists to the correct responses. **Make sure any questions or concerns are resolved prior to moving on.**

1. What questions should you ask for each item?
    - Would at least two-thirds of the borderline students get this item correct?
    - Would at least two-thirds of the students who just barely fall in the criteria level of interest get this item correct?

   Please watch for and correct the following misconceptions.
    - Omission of two-thirds (stating all students is also incorrect)
    - Omission of borderline (stating all students, or all students in the criteria level of interest is also incorrect)

2. What is meant by the "at least two-thirds" rule?
    - At least two-thirds of the borderline students would get items like this correct

   Please watch for and correct the following misconceptions.
    - All students falling in the criteria level of interest have a one out of two chance of getting this item correct.

3. What population of students should you consider for each item?
    - Borderline students
    - Students who just barely fall in the performance level of interest

    a. Does the target population of borderline students change as I progress through the items for the first bookmark? (NO)
    b. Does the target population change as I progress to the next bookmark? (YES)

4. As you approach a bookmark, how do answers change?
    - The answer to "Would at least two-thirds of the borderline students get this item correct" should change from a "yes" to a "no"
    - The confidence the panelist has in the yes/no answer will decrease as he/she approaches the bookmark placement

5. How should your confidence in the answers affect your bookmark placement?
    - As you become less confident in a "yes" answer, the bookmark placement should be approaching.
    - Where you are least confident in your answers is typically where the bookmark will be placed.

6. Does placing a bookmark after a certain page mean the student needs to get that many items correct on the assessment? (NO. The OIB page number is only an ordered index, and does not correspond to the number correct).

7. Should the population you are thinking about be the students in your classroom or school? (NO. You should be thinking about all of the students in the state)

NOTE: Make sure you collect all of the 'training' OIBs!

Standard Setting Practice Evaluation

After the panelists have placed bookmarks in the practice ordered item set and you've completed the readiness discussion and answered any questions, have panelists fill out the training evaluation form. Before you start the Round 1 activities, scan the completed evaluations to see if there are any problems or concerns that need to be addressed before proceeding. **Make sure any questions or concerns are resolved prior to moving on.** Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Round 1

Overview of Round 1: The primary purpose of Round 1 is to ask the panelists to make their initial judgments as to where the bookmark should be placed for each cut. For this round, panelists will work individually, without consulting with their colleagues. Beginning with the first ordered item in the OIB, panelists will evaluate each item in turn. The panelists will gauge the level of difficulty of each of the items for those students who barely meet the definition of Proficient. The task that panelists are asked to do is to estimate whether a student performing at the borderline of Proficient, would answer each question correctly. More specifically, panelists should answer:

- Would *at least* two-thirds of the students performing at the borderline of Proficient answer the question correctly?

On the item map form there is a shaded region comparable to the ACT college readiness benchmark. This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to the ACT college readiness benchmark with a range of +/- 2 SEMs around that point.

The Proficient bookmark placement must be between two shaded items.

The same process is then repeated for the [Unsatisfactory/Limited Knowledge] and [Proficient/Advanced] cuts.

Activities:

1. Panelists should have their ordered item booklets, item map forms, and Performance Definitions. Pass out one rating form to each panelist.

2. Have panelists write their Content area, grade, and ID number on the rating form. The ID number is on the back of their name tags.

3. Provide an overview of Round 1, covering each of the following:
    a. Orient panelists to the ordered-item book. Remind them that the items are presented in order of difficulty, from easiest to hardest.

    b. Remind panelists that the shaded region is comparable to the ACT college readiness benchmark, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    c. The primary purpose of this activity is for the panelists to make their initial determination as to whether students whose performance is barely Proficient would correctly answer each item, and to place their bookmark where they believe the answer of 'yes' turns to 'no'. Remind panelists that they should be thinking about at least two-thirds of the borderline students. Once they have

completed the process for the [Limited Knowledge/Proficient] cut, they will proceed to the remaining two cut points starting with [Unsatisfactory/Limited Knowledge] and then the [Proficient/Advanced] cut.

d. Each panelist needs to base his/her judgments on his/her experience with the content, understanding of students, and the definitions of the borderline students generated previously.

e. One bookmark will be placed for each cut point. For OSTP assessments there are 3 cut points and, therefore, three bookmarks will be placed.

f. If panelists are struggling with placing a particular bookmark, they should use their best judgment and move on. They will have an opportunity to discuss their ratings and make revisions in Rounds 2 and 3.

4. Tell panelists that they will be discussing each cut point with the other panelists during Round 2 but that they will be placing the bookmarks individually. **It is not necessary for the panelists to come to consensus about where the bookmarks should be placed.**

5. Go over the rating form with panelists.
   a. Lead panelists through a step-by-step demonstration of how to fill in the rating form.

   b. Answer questions the panelists may have about the work in Round 1.

   c. Once everyone understands what they are to do in Round 1, tell them to begin.

6. Starting with the first ordered item in the OIB and the cut between Limited Knowledge and Proficient, the panelists will work through the OIB item by item and make their initial bookmark placements. Have panelists examine five items past their placement to check for anomalies.

7. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

   e. When all the rating forms have been collected, the group will take a break. Order the rating forms by ID number and immediately bring the rating forms to the data analysis work room for tabulation.

Tabulation of Round 1 Results

Tabulation of Round 1 results will be completed by the data analysis team as quickly as possible after receipt of the rating forms.

Round 2

Overview of Round 2: In Round 2, the panelists will discuss their Round 1 placements as a group and then revise their ratings on the basis of that discussion. They will discuss their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings. Panelists should also consider the question, "How tough or easy a rater are you?" The purpose here is to allow panelists to examine their individual expectations (in terms of their experiences) and to share these expectations and experiences in order to attain a better understanding of how their experiences impact their decision-making.

To aid with the discussion, the panelists will be provided with the median Round 1 bookmark placements for their group.

Once panelists have reviewed and discussed their bookmark placements, they will be given the opportunity to change or revise their Round 1 ratings.

Activities:

1. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

2. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

3. Provide an overview of Round 2. Remind panelists of the following:
    a. As in Round 1, the primary purpose is to place bookmarks where you feel the criteria levels are best distinguished, considering the additional information and discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities (KSAs) required to answer each item.

4. The panelists will discuss their Round 1 ratings as a group, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.
    a. The discussion should focus on differences in where individual panelists in the group placed their bookmarks.

b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

d. On the basis of the discussions, panelists should make a second round of ratings.

e. Remind panelists that the shaded region is comparable to the ACT college readiness benchmark, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

f. When placing their Round 2 bookmarks, panelists should not feel compelled to change their ratings.

g. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is consistently higher or lower than the group, they may have a different understanding of the borderline student than the rest of the group, or a different understanding of the Performance Definitions, or both. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Performance Definitions.**

5. As the group is conducting their discussions, circulate around the room to ensure that the discussions are staying on topic, the panelists understand the task, and that all panelists are participating appropriately in the discussion.

6. When all panelists at each group have completed their second ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

e. When all the rating forms have been collected, the group will take a break. Sort rating forms by ID number, and immediately bring the rating forms to the data analysis work room for tabulation.

Round 3

Overview of Round 3: The primary purpose of Round 3 is to ask the panelists to discuss their Round 2 placements as a group and to give them one last opportunity to revise their ratings on the basis of that discussion. As in Round 2, they will discuss their ratings in the context of the ratings made by other members of the group.

To aid with the discussion, a psychometrician will present the following information to the panelists:

1. The group median Round 2 bookmark placements, and

2. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements from Round 2.

3. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms.

4. Remediation Data, this will show percentage of college students requiring remediation in appropriate subjects.

Once panelists have reviewed and discussed their bookmark placements and the impact data, they will be given the opportunity to change or revise their Round 2 ratings.

Activities:

5. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

6. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

    b. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements. Panelists will use this information as a "reasonableness check." In other words, they will discuss whether the percentages in each level seem reasonable, based on their knowledge of the test and the current status of students across the state relative to the Performance Definitions. If the answer is no, panelists may choose to make adjustments to one or more of their bookmark placements.

    c. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range

of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

d. Remediation Data, this will show percentage of Oklahoma college students requiring remediation in appropriate subjects.

7. Provide an overview of Round 3. Remind panelists of the following:
    a. As in Round 2, the primary purpose is to place bookmarks where you feel the performance levels are best distinguished, considering the additional information and further discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities required to answer each item.

    a. The panelists will discuss their Round 2 ratings, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.

    b. The discussion should focus on differences in where individual panelists placed their bookmarks.

    c. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

    d. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

    e. On the basis of the discussions, panelists should make a third round of ratings.

    f. Remind panelists that the shaded region is comparable to the ACT college readiness benchmark, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    g. When placing their Round 3 bookmarks, panelists should not feel compelled to change their ratings.

    h. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

    i. Write brief notes on any notable discussions of the process, any particular sticking points or issues, or key rationales had in their judgments. These do not need to formal, but will be useful if the client has questions regarding the process.

8. When the group has completed their final ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
    a. **The panelist Content area, grade, and ID number must be filled in**.

    b. **The item numbers identifying each cut score must be adjacent**.

    c. The Proficient bookmark placement must be between two shaded items on the item map form.

    d. Sort rating forms by ID number, and immediately provide the completed rating forms to the data analysis team.

Complete Procedural Evaluation Form

Make sure panelists fill out the procedural evaluation for the grade. Emphasize that their honest feedback is important. Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Collect the materials from the grade and mark them off on the Materials Tracking sheet.

Complete Final Evaluation Forms

Make sure panelists fill out the final evaluations before they leave. Emphasize that their honest feedback is important.

GENERAL INSTRUCTIONS FOR
OSTP ASSESSMENTS
STANDARD SETTING GROUP FACILITATORS

Science 5, 8, and 10
August 8-11, 2017

The Standard Setting activities begin with all panelists in one large group, facilitated by one facilitator.

Preliminaries

Introductions:

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask each participant to sign a nondisclosure form. Do not proceed until a signed nondisclosure form has been collected from each participant.
4. Note that while panelists are making their recommendation for the cut scores, the Commission for Education Quality and Accountability make the final cut decision. The decision is almost always within a range around the recommended cut.

Take the Test

Overview: In order to establish an understanding of the test items and for panelists to gain an understanding of the experience of the students who take the test, each participant will take the test. Panelists may wish to discuss or take issue with the items in the test. Tell them we will gladly take their feedback to the SDE. However, this is the actual assessment that students took and it is the set of items on which we must set standards.

Activities:

1) Introduce the assessment and convey/do each of the following:
    a. Tell panelists that they are about to take an actual OSTP assessment.
    b. The purpose of the exercise is to help them establish a good understanding of the test items and to gain an understanding of the experience of the students who take the assessment.
2) Give each panelist a test booklet.
3) Tell panelists to try to take on the perspective of a student as they complete the test.
4) When the majority of the panelists have finished, pass out the answer key/scoring rubrics.

Discuss Performance Definitions and Describe Characteristics of the "Borderline" Student

Overview: In order to establish an understanding of the expected performance of borderline students on the test, panelists must have a clear understanding of:

1) The definition of the four performance levels, and

2) Characteristics of students who are "just able enough" to be classified into each level above Unsatisfactory. These students will be referred to as borderline students, since they are right on the border between levels.

The purpose of this activity is for the panelists to obtain an understanding of the Performance Definitions with an emphasis on characteristics that describe students at the borderline -- both what these students can and cannot do.

This activity is critical since the ratings panelists will be making will be based on these understandings.

Preparation:

1. Use 3 sheets of chart paper and label the top of each one: Borderline Limited Knowledge, Borderline Proficient and Borderline Advanced.

Activities:

1) Introduce the task. In this activity they will:
   a. individually review the Performance Level Descriptors again as needed;

   b. generate group descriptions of borderline Limited Knowledge, Proficient and Advanced students.

   The facilitator should compile the descriptions as bulleted lists on chart paper; the chart paper will then be posted so the panelists can refer to the lists as they go through the bookmark process.

2) Check to see if panelists want to discuss the performance levels again. Once they have a solid understanding of the PLDs, have them focus their discussion on the knowledge, skills, and abilities of students who are in the Proficient category, but just barely. The focus should be on those characteristics and KSAs that best describe the lowest level of performance necessary to warrant Proficient classification.

3) After discussing Proficient, have the panelists discuss characteristics of the borderline Limited Knowledge student and then characteristics of the borderline Advanced student. Panelists should be made aware of the importance of the Proficient cut. This is the cut from non- proficient to just barely proficient.

4) Using chart paper, generate a bulleted list of characteristics for each of the levels. Post these on the wall of the room. Make sure that panelists agree on the bulleted characteristics and have a common understanding.

Fill Out Item Map Form

Overview: The primary purpose of this activity is for panelists to think about what knowledge, skills and abilities (KSAs) are measured by each item as well as what makes one question harder or easier than another. The notes panelists take here will be useful in helping them place their bookmarks and in discussions during the rounds of ratings.

On the item map form there is a shaded region comparable to NAEP proficiency.
This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to NAEP proficiency with a range of +/- 2 SEMs around that point.

Activities:

1. Pass out the following materials:
   a. Item map form
   b. Ordered item book

2. Review the ordered item book and item map form with the panelists. Explain what each is, and point out the correspondence of the ordered items between the two. Explain that the items are statistically ordered from easiest to hardest, based on student performance from the most recent administration of the assessment.

3. Tell panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range.

4. Tell panelists they will work individually at first. After they have completed the item map form, they will then discuss it as a group.

5. Starting with the first item, they will record for each item:
   a. The knowledge, skills and abilities (KSAs) the item measures, and
   b. their thoughts about what makes that question harder than the previous question.

6. Panelists should not agonize over these decisions. It may be that the second item is only slightly harder than the first. Panelists should keep in mind that the purpose of the task is to record notes that will be useful to them in completing their ratings and not necessarily to fill in every space on the form.

7. Once panelists have completed the item map form, they should discuss them as a group.

8. Based on the group discussion, the panelists should modify their own item map form (make additional notes, cross things out, etc…)

Practice Round

Overview of Practice Round: The primary purpose of the Practice Round is for panelists to become familiar with the task of placing the bookmarks. The facilitator will walk the panelists through the Proficient bookmark placement on the practice set, engage the panelists in a readiness discussion and check for understanding. If any of the panelists indicate an incomplete understanding of the practice rating task, then the facilitator will continue to work with the panelists to clarify any misconceptions before proceeding to Round 1.

Activities:

1. Make sure panelists have the following materials:
    a. Practice ordered item set
    b. Performance Definitions

2. Orient panelists to the practice ordered item set. Point out the following:
    a. Items are organized by difficulty from easiest to hardest;
    b. The items represent the full range of difficulty included on the test.
    c. Identify the items on the item map form that correspond to the practice ordered item set. Panelists can note this on the Item Map Form as desired.

3. Give the panelists a few minutes to read through the items.

4. The facilitator leads the group through a discussion of the Proficient bookmark placement in the practice OIB.
    a. Referring to the ten ordered items in the practice set, the Performance Definitions, and the bulleted lists of characteristics posted on chart paper, the facilitator will lead a discussion about the placement of the Proficient bookmark.

    b. Panelists should consider the question: would at least two-thirds of the students performing at the borderline of Proficient answer the item correctly?

    c. Where the answer changes from yes to no is where the bookmark should be placed.

    d. Panelists should answer question for all items to check for anomalies.

    e. Using a show of hands, indicate on chart paper where each panelist placed their bookmark. Have a discussion of their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings.

Readiness Discussion

After the panelists have placed bookmarks in the practice ordered item set, lead a readiness discussion by posing the following seven questions.

The purpose of this discussion is to determine how well each panelist understands the bookmark task, to correct any misunderstandings, and if necessary, to identify panelists whose ratings should be excluded from the standard setting if their understanding doesn't improve.

The "correct" answers for each of the questions are listed directly under each question. Some common misunderstandings are also listed for questions one and two. Please watch for these typical misunderstandings and if they arise, redirect the panelists to the correct responses. **Make sure any questions or concerns are resolved prior to moving on.**

1. What questions should you ask for each item?
    - Would at least two-thirds of the borderline students get this item correct?
    - Would at least two-thirds of the students who just barely fall in the criteria level of interest get this item correct?

   Please watch for and correct the following misconceptions.
    - Omission of two-thirds (stating all students is also incorrect)
    - Omission of borderline (stating all students, or all students in the criteria level of interest is also incorrect)

2. What is meant by the "at least two-thirds" rule?
    - At least two-thirds of the borderline students would get items like this correct

   Please watch for and correct the following misconceptions.
    - All students falling in the criteria level of interest have a one out of two chance of getting this item correct.

3. What population of students should you consider for each item?
    - Borderline students
    - Students who just barely fall in the performance level of interest

    a. Does the target population of borderline students change as I progress through the items for the first bookmark? (NO)
    b. Does the target population change as I progress to the next bookmark? (YES)

4. As you approach a bookmark, how do answers change?
    - The answer to "Would at least two-thirds of the borderline students get this item correct" should change from a "yes" to a "no"
    - The confidence the panelist has in the yes/no answer will decrease as he/she approaches the bookmark placement

5. How should your confidence in the answers affect your bookmark placement?
    - As you become less confident in a "yes" answer, the bookmark placement should be approaching.
    - Where you are least confident in your answers is typically where the bookmark will be placed.

6. Does placing a bookmark after a certain page mean the student needs to get that many items correct on the assessment? (NO. The OIB page number is only an ordered index, and does not correspond to the number correct).

7. Should the population you are thinking about be the students in your classroom or school? (NO. You should be thinking about all of the students in the state)

NOTE: Make sure you collect all of the 'training' OIBs!

Standard Setting Practice Evaluation

After the panelists have placed bookmarks in the practice ordered item set and you've completed the readiness discussion and answered any questions, have panelists fill out the training evaluation form. Before you start the Round 1 activities, scan the completed evaluations to see if there are any problems or concerns that need to be addressed before proceeding. **Make sure any questions or concerns are resolved prior to moving on.** Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Round 1

Overview of Round 1: The primary purpose of Round 1 is to ask the panelists to make their initial judgments as to where the bookmark should be placed for each cut. For this round, panelists will work individually, without consulting with their colleagues. Beginning with the first ordered item in the OIB, panelists will evaluate each item in turn. The panelists will gauge the level of difficulty of each of the items for those students who barely meet the definition of Proficient. The task that panelists are asked to do is to estimate whether a student performing at the borderline of Proficient, would answer each question correctly. More specifically, panelists should answer:

- Would *at least* two-thirds of the students performing at the borderline of Proficient answer the question correctly?

On the item map form there is a shaded region comparable to NAEP proficiency.
This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to NAEP proficiency with a range of +/- 2 SEMs around that point.

The Proficient bookmark placement must be between two shaded items.

The same process is then repeated for the [Unsatisfactory/Limited Knowledge] and [Proficient/Advanced] cuts.

Activities:

1. Panelists should have their ordered item booklets, item map forms, and Performance Definitions. Pass out one rating form to each panelist.

2. Have panelists write their Content area, grade, and ID number on the rating form. The ID number is on the back of their name tags.

3. Provide an overview of Round 1, covering each of the following:
    a. Orient panelists to the ordered-item book. Remind them that the items are presented in order of difficulty, from easiest to hardest.

    b. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    c. The primary purpose of this activity is for the panelists to make their initial determination as to whether students whose performance is barely Proficient would correctly answer each item, and to place their bookmark where they believe the answer of 'yes' turns to 'no'. Remind panelists that they should be thinking about at least two-thirds of the borderline students. Once they have completed the process for the [Limited Knowledge/Proficient] cut, they will

proceed to the remaining two cut points starting with [Unsatisfactory/Limited Knowledge] and then the [Proficient/Advanced] cut.

d. Each panelist needs to base his/her judgments on his/her experience with the content, understanding of students, and the definitions of the borderline students generated previously.

e. One bookmark will be placed for each cut point. For OSTP assessments there are 3 cut points and, therefore, three bookmarks will be placed.

f. If panelists are struggling with placing a particular bookmark, they should use their best judgment and move on. They will have an opportunity to discuss their ratings and make revisions in Rounds 2 and 3.

4. Tell panelists that they will be discussing each cut point with the other panelists during Round 2 but that they will be placing the bookmarks individually. **It is not necessary for the panelists to come to consensus about where the bookmarks should be placed.**

5. Go over the rating form with panelists.
   a. Lead panelists through a step-by-step demonstration of how to fill in the rating form.

   b. Answer questions the panelists may have about the work in Round 1.

   c. Once everyone understands what they are to do in Round 1, tell them to begin.

6. Starting with the first ordered item in the OIB and the cut between Limited Knowledge and Proficient, the panelists will work through the OIB item by item and make their initial bookmark placements. Have panelists examine five items past their placement to check for anomalies.

7. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

   e. When all the rating forms have been collected, the group will take a break. Order the rating forms by ID number and immediately bring the rating forms to the data analysis work room for tabulation.

Tabulation of Round 1 Results

Tabulation of Round 1 results will be completed by the data analysis team as quickly as possible after receipt of the rating forms.

Round 2

Overview of Round 2: In Round 2, the panelists will discuss their Round 1 placements as a group and then revise their ratings on the basis of that discussion. They will discuss their ratings in the context of the ratings made by other members of their group. The panelists with the highest and lowest ratings should comment on why they gave the ratings they did. The group should get a sense of how much variation there is in the ratings. Panelists should also consider the question, "How tough or easy a rater are you?" The purpose here is to allow panelists to examine their individual expectations (in terms of their experiences) and to share these expectations and experiences in order to attain a better understanding of how their experiences impact their decision-making.

To aid with the discussion, the panelists will be provided with the median Round 1 bookmark placements for their group.

Once panelists have reviewed and discussed their bookmark placements, they will be given the opportunity to change or revise their Round 1 ratings.

Activities:

1. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

2. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

3. Provide an overview of Round 2. Remind panelists of the following:
    a. As in Round 1, the primary purpose is to place bookmarks where you feel the criteria levels are best distinguished, considering the additional information and discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities (KSAs) required to answer each item.

4. The panelists will discuss their Round 1 ratings as a group, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.
    a. The discussion should focus on differences in where individual panelists in the group placed their bookmarks.

b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

d. On the basis of the discussions, panelists should make a second round of ratings.

e. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

f. When placing their Round 2 bookmarks, panelists should not feel compelled to change their ratings.

g. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is consistently higher or lower than the group, they may have a different understanding of the borderline student than the rest of the group, or a different understanding of the Performance Definitions, or both. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Performance Definitions.**

5. As the group is conducting their discussions, circulate around the room to ensure that the discussions are staying on topic, the panelists understand the task, and that all panelists are participating appropriately in the discussion.

6. When all panelists at each group have completed their second ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
   a. **The Content area, grade, and ID number must be filled in**.

   b. **The item numbers identifying each cut score must be adjacent**.

   c. The Proficient bookmark placement must be between two shaded items on the item map form.

   d. Check each panelist's rating form before you allow them to leave for a short break.

e. When all the rating forms have been collected, the group will take a break. Sort rating forms by ID number, and immediately bring the rating forms to the data analysis work room for tabulation.

Round 3

Overview of Round 3: The primary purpose of Round 3 is to ask the panelists to discuss their Round 2 placements as a group and to give them one last opportunity to revise their ratings on the basis of that discussion. As in Round 2, they will discuss their ratings in the context of the ratings made by other members of the group.

To aid with the discussion, a psychometrician will present the following information to the panelists:

1. The group median Round 2 bookmark placements, and

2. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements from Round 2.

3. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms.

Once panelists have reviewed and discussed their bookmark placements and the impact data, they will be given the opportunity to change or revise their Round 2 ratings.

Activities:

4. Make sure the panelists have their ordered item booklets, item map forms, and Performance Definitions. Return the rating form to each panelist.

5. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

    b. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements. Panelists will use this information as a "reasonableness check." In other words, they will discuss whether the percentages in each level seem reasonable, based on their knowledge of the test and the current status of students across the state relative to the Performance Definitions. If the answer is no, panelists may choose to make adjustments to one or more of their bookmark placements.

    c. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

6. Provide an overview of Round 3. Remind panelists of the following:
    a. As in Round 2, the primary purpose is to place bookmarks where you feel the performance levels are best distinguished, considering the additional information and further discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities required to answer each item.

    a. The panelists will discuss their Round 2 ratings, beginning with the Proficient cut point and followed by the Limited Knowledge and Advanced cuts.

    b. The discussion should focus on differences in where individual panelists placed their bookmarks.

    c. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

    d. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

    e. On the basis of the discussions, panelists should make a third round of ratings.

    f. Remind panelists that the shaded region is comparable to NAEP proficiency, and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items.

    g. When placing their Round 3 bookmarks, panelists should not feel compelled to change their ratings.

    h. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

    i. Write brief notes on any notable discussions of the process, any particular sticking points or issues, or key rationales had in their judgments. These do not need to formal, but will be useful if the client has questions regarding the process.

7. When the group has completed their final ratings, collect the rating forms. When you collect the rating forms **carefully inspect them** to ensure they are filled out properly.
    a. **The panelist Content area, grade, and ID number must be filled in**.

b. **The item numbers identifying each cut score must be adjacent**.

c. The Proficient bookmark placement must be between two shaded items on the item map form.

d. Sort rating forms by ID number, and immediately provide the completed rating forms to the data analysis team.

Complete Procedural Evaluation Form

Make sure panelists fill out the procedural evaluation for the grade. Emphasize that their honest feedback is important. Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Collect the materials from the grade and mark them off on the Materials Tracking sheet.

Complete Final Evaluation Forms

Make sure panelists fill out the final evaluations before they leave. Emphasize that their honest feedback is important.

APPENDIX I—PANELISTS

Panelists

Grade 3 and 4 English Language Arts

Jackaline Chapman
Andrea Cook
Charity Covey
Kristen Jones
Jordan Shaff
Penny Dilg
Trier Davenport
Sarah Price
Angela McElhiney
Jennifer McLemore
Danny Sipes

Grade 3 and 4 Mathematics

Amy Wingard
Amy Schachle
Andrea Andrade
Shannon Ashong
Codi Barnett
Mendy Shepard
Candice Raines
Sandra Garner
Annabelle Randall
Lauren Coleman
Mindy Englett

Grade 5 and 6 English Language Arts

Delaney Chidester
Carnie Cullen
Kay Williams
Allie Nobles
Lezlie Kropf
Ray Robinson
Bobbie Reeves
Charolette Uzzel
Tammie Richardson
Gina Taylor
Audra Plummer

Grade 5 and 6 Mathematics

Jamie Schulze
Holly Crawford
Sondra Hardin
Betsie Polk
Bobbi Peery
Jennifer Nestelroad
Paula Stewart
Meagan Habluetzel

Grade 5 Science

Angela Ervin
Alecia Jarvis
Teresa Johnson
Rachel Magaw
Karla White
Lisa Pitts
Susan Wray
Theresa Balan
Toni Humphrey
Megan Veldhuizen

Grade 7 and 8 English Language Arts

Jennie Lowther
Christy Teel
Vanessa Stice
Jamie Cargill
Erica Nail
Classie Nolan
Ashley Pierson
Becky Tivis
Vicki Donley

Grade 7 and 8 Mathematics

Brooke Alley
Sandra Brierton
Angela Farris
Katie Brown
Sara Hyde
Mary Kendrick
Michael Rohler
Brenda Reading
Emily Seymour
Abbie Wasson
Angela Bilyeu

Grade 8 Science

Danielle Ebert
Teri Kimble
Theresa Miller
Ashleigh Morton
Susan O'Dell
Andrea Farriester
Amie Sellers
Leiha Chaisson
Tishina Mindemann
Wes Ankrom

Grade 10 English Language Arts

Michelle Baldwin
Katherine Boydston
Denise Clark
Jacy Goostree
Dana Turpin
Barbara Scherich
Debby Yarbrough
Lauren Pena
Shona Willis
Sheena Walker

Grade 10 Mathematics

Angela Archer
Tricia Compton
Barbara Aylworth
Stephanie Garis
Nita Cochran
Donna Hogan
Courtney Keck
Kari Smith
Rebecca Welch
Melinda Wallace

Grade 10 Science

Cheryl Fentress
Nathan Friesen
Zach Murray
Bob Melton
Kristi Nelson
Chanda Peters
Erin Regier
Lori Pettijohn
Kurtis Rowan
Jennifer Ellis

APPENDIX J—EVALUATION RESULTS

Training Evaluation Results – ELA

Grades 3-4

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	11	4.55	0%	0%	0%	45%	55%
I understand the procedures we are using to set standards	11	4.36	0%	0%	0%	64%	36%
I understand how to use the standard setting material	11	4.45	0%	0%	0%	55%	45%
I understand the differences between the performance levels	11	4.55	0%	0%	0%	45%	55%
I understand how to make bookmark placements	11	4.36	0%	0%	0%	64%	36%
I know what tasks to expect for the remainder of the meeting	11	3.91	0%	9%	18%	45%	27%
I am confident in my understanding of the standard setting task	11	4.36	0%	0%	0%	64%	36%
I am ready to proceed with the standard setting process	11					100%	

Grades 5-6

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	11	4.64	0%	0%	0%	36%	64%
I understand the procedures we are using to set standards	11	4.45	0%	0%	0%	55%	45%
I understand how to use the standard setting material	11	4.45	0%	0%	0%	55%	45%
I understand the differences between the performance levels	11	4.55	0%	0%	0%	45%	55%
I understand how to make bookmark placements	11	4.64	0%	0%	0%	36%	64%
I know what tasks to expect for the remainder of the meeting	11	4.64	0%	0%	0%	36%	64%
I am confident in my understanding of the standard setting task	11	4.64	0%	0%	0%	36%	64%
I am ready to proceed with the standard setting process	11					100%	

Grades 7-8

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	9	5.00	0%	0%	0%	0%	100%
I understand the procedures we are using to set standards	9	4.89	0%	0%	0%	11%	89%
I understand how to use the standard setting material	9	4.89	0%	0%	0%	11%	89%
I understand the differences between the performance levels	9	4.89	0%	0%	0%	11%	89%
I understand how to make bookmark placements	9	4.89	0%	0%	0%	11%	89%
I know what tasks to expect for the remainder of the meeting	9	4.67	0%	0%	11%	11%	78%
I am confident in my understanding of the standard setting task	9	4.78	0%	0%	0%	22%	78%
I am ready to proceed with the standard setting process	9					100%	

Grade 10

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	10	4.90	0%	0%	0%	10%	90%
I understand the procedures we are using to set standards	10	4.90	0%	0%	0%	10%	90%
I understand how to use the standard setting material	10	4.90	0%	0%	0%	10%	90%
I understand the differences between the performance levels	10	4.90	0%	0%	0%	10%	90%
I understand how to make bookmark placements	10	4.90	0%	0%	0%	10%	90%
I know what tasks to expect for the remainder of the meeting	10	4.80	0%	0%	0%	20%	80%
I am confident in my understanding of the standard setting task	10	5.00	0%	0%	0%	0%	100%
I am ready to proceed with the standard setting process	10					100%	

Training Evaluation Results – Math

Grades 3-4

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	11	4.45	0%	0%	0%	55%	45%
I understand the procedures we are using to set standards	11	4.64	0%	0%	0%	36%	64%
I understand how to use the standard setting material	11	4.64	0%	0%	0%	36%	64%
I understand the differences between the performance levels	11	4.55	0%	0%	0%	45%	55%
I understand how to make bookmark placements	11	4.64	0%	0%	0%	36%	64%
I know what tasks to expect for the remainder of the meeting	11	4.64	0%	0%	0%	36%	64%
I am confident in my understanding of the standard setting task	11	4.64	0%	0%	0%	36%	64%
I am ready to proceed with the standard setting process	11					100%	

Grades 5-6

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	9	4.78	0%	0%	0%	22%	78%
I understand the procedures we are using to set standards	9	4.78	0%	0%	0%	22%	78%
I understand how to use the standard setting material	9	4.78	0%	0%	0%	22%	78%
I understand the differences between the performance levels	9	4.78	0%	0%	0%	22%	78%
I understand how to make bookmark placements	9	4.56	0%	0%	0%	44%	56%
I know what tasks to expect for the remainder of the meeting	9	4.78	0%	0%	0%	22%	78%
I am confident in my understanding of the standard setting task	9	4.67	0%	0%	0%	33%	67%
I am ready to proceed with the standard setting process	9					100%	

Grades 7-8

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	11	4.64	9%	0%	0%	0%	91%
I understand the procedures we are using to set standards	11	4.64	9%	0%	0%	0%	91%
I understand how to use the standard setting material	11	4.64	9%	0%	0%	0%	91%
I understand the differences between the performance levels	11	4.64	9%	0%	0%	0%	91%
I understand how to make bookmark placements	11	4.64	9%	0%	0%	0%	91%
I know what tasks to expect for the remainder of the meeting	11	4.45	9%	0%	0%	18%	73%
I am confident in my understanding of the standard setting task	11	4.55	9%	0%	0%	9%	82%
I am ready to proceed with the standard setting process	11					100%	

Grade 10

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	10	5.00	0%	0%	0%	0%	100%
I understand the procedures we are using to set standards	10	5.00	0%	0%	0%	0%	100%
I understand how to use the standard setting material	10	5.00	0%	0%	0%	0%	100%
I understand the differences between the performance levels	10	5.00	0%	0%	0%	0%	100%
I understand how to make bookmark placements	10	5.00	0%	0%	0%	0%	100%
I know what tasks to expect for the remainder of the meeting	10	5.00	0%	0%	0%	0%	100%
I am confident in my understanding of the standard setting task	10	5.00	0%	0%	0%	0%	100%
I am ready to proceed with the standard setting process	10					100%	

Training Evaluation Results – Science

Grade 5

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	10	4.80	0%	0%	0%	20%	80%
I understand the procedures we are using to set standards	10	4.80	0%	0%	0%	20%	80%
I understand how to use the standard setting material	10	4.80	0%	0%	0%	20%	80%
I understand the differences between the performance levels	10	4.80	0%	0%	0%	20%	80%
I understand how to make bookmark placements	10	4.90	0%	0%	0%	10%	90%
I know what tasks to expect for the remainder of the meeting	10	4.90	0%	0%	0%	10%	90%
I am confident in my understanding of the standard setting task	10	4.80	0%	0%	0%	20%	80%
I am ready to proceed with the standard setting process	10					100%	

Grade 8

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	9	4.89	0%	0%	0%	11%	89%
I understand the procedures we are using to set standards	9	5.00	0%	0%	0%	0%	100%
I understand how to use the standard setting material	9	5.00	0%	0%	0%	0%	100%
I understand the differences between the performance levels	9	4.89	0%	0%	0%	11%	89%
I understand how to make bookmark placements	9	5.00	0%	0%	0%	0%	100%
I know what tasks to expect for the remainder of the meeting	9	4.78	0%	0%	0%	22%	78%
I am confident in my understanding of the standard setting task	9	4.89	0%	0%	0%	11%	89%
I am ready to proceed with the standard setting process	9					100%	

Grade 10

	N	*Average*	*%SD*	*%D*	*%N*	*%A*	*%SA*
I understand the goals of the standard setting meeting	10	4.70	0%	0%	0%	30%	70%
I understand the procedures we are using to set standards	10	4.70	0%	0%	0%	30%	70%
I understand how to use the standard setting material	10	4.80	0%	0%	0%	20%	80%
I understand the differences between the performance levels	10	4.60	0%	0%	0%	40%	60%
I understand how to make bookmark placements	10	4.80	0%	0%	0%	20%	80%
I know what tasks to expect for the remainder of the meeting	10	4.70	0%	0%	0%	30%	70%
I am confident in my understanding of the standard setting task	10	4.80	0%	0%	0%	20%	80%
I am ready to proceed with the standard setting process	10					100%	

Procedural Evaluation Results – ELA

Grade 3

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how to use the materials provided.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how to record my judgments.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I think the procedures make sense.	11	4.55	0.00%	0.00%	9.09%	27.27%	63.64%
I am sufficiently familiar with the assessment.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understand the differences between the criteria student status levels.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.73	0.00%	0.00%	9.09%	9.09%	81.82%
My expectations of students.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
The difficulty of the test materials.	11	4.27	0.00%	0.00%	18.18%	36.36%	45.45%
My experience in the field.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%

continued

Discussions with other participants.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%
Decisions of other participants.	11	3.55	0.00%	27.27%	18.18%	27.27%	27.27%
Impact data.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	11	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	11	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Limited Knowledge/Unsatisfactory	11	3.09	0.00%	0.00%	90.91%	9.09%	0.00%

Grade 4

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to use the materials provided.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to record my judgments.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I think the procedures make sense.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I am sufficiently familiar with the assessment.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential -5*
The Criteria Student Status Defintions.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
My expectations of students.	11	4.36	0.00%	0.00%	9.09%	45.45%	45.45%
The difficulty of the test materials.	11	4.27	0.00%	0.00%	9.09%	54.55%	36.36%
My experience in the field.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%
Discussions with other participants.	11	4.36	0.00%	0.00%	0.00%	63.64%	36.36%
Decisions of other participants.	11	3.73	0.00%	18.18%	18.18%	36.36%	27.27%
Impact data.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	9	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Limited Knowledge/Unsatisfactory	9	3.11	0.00%	0.00%	88.89%	11.11%	0.00%

Grade 5

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	10	4.50	0.00%	0.00%	0.00%	50.00%	50.00%
I understood how to use the materials provided.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
I understood how to record my judgments.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
I think the procedures make sense.	10	4.50	0.00%	0.00%	10.00%	30.00%	60.00%
I am sufficiently familiar with the assessment.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
I understand the differences between the criteria student status levels.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	10	4.60	0.00%	10.00%	0.00%	10.00%	80.00%
My expectations of students.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
The difficulty of the test materials.	10	4.40	0.00%	0.00%	0.00%	60.00%	40.00%
My experience in the field.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
Discussions with other participants.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Decisions of other participants.	10	4.20	0.00%	10.00%	10.00%	30.00%	50.00%
Impact data.	10	4.10	0.00%	10.00%	10.00%	40.00%	40.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	10	3.05	0.00%	0.00%	90.00%	0.00%	0.00%
Proficient/Limited Knowledge	10	3.50	0.00%	0.00%	50.00%	50.00%	0.00%
Limited Knowledge/Unsatisfactory	10	3.20	0.00%	0.00%	80.00%	20.00%	0.00%

Grade 6

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
I understood how to use the materials provided.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
I understood how to record my judgments.	11	4.73	0.00%	0.00%	9.09%	9.09%	81.82%
I think the procedures make sense.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
I am sufficiently familiar with the assessment.	11	4.64	0.00%	0.00%	9.09%	18.18%	72.73%
I understand the differences between the criteria student status levels.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
My expectations of students.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
The difficulty of the test materials.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
My experience in the field.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
Discussions with other participants.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Decisions of other participants.	10	4.50	0.00%	0.00%	0.00%	50.00%	50.00%
Impact data.	10	4.50	0.00%	0.00%	10.00%	30.00%	60.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	10	3.70	0.00%	0.00%	50.00%	30.00%	20.00%
Proficient/Limited Knowledge	10	3.50	0.00%	0.00%	70.00%	10.00%	20.00%
Limited Knowledge/Unsatisfactory	10	3.40	0.00%	0.00%	70.00%	20.00%	10.00%

Grade 7

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I understood how to use the materials provided.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to record my judgments.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I think the procedures make sense.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
I am sufficiently familiar with the assessment.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
My expectations of students.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
The difficulty of the test materials.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
My experience in the field.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
Discussions with other participants.	9	4.44	0.00%	0.00%	11.11%	33.33%	55.56%
Decisions of other participants.	9	3.56	0.00%	11.11%	33.33%	44.44%	11.11%
Impact data.	9	3.89	0.00%	11.11%	22.22%	33.33%	33.33%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	9	3.11	0.00%	11.11%	66.67%	22.22%	0.00%
Limited Knowledge/Unsatisfactory	9	3.33	0.00%	11.11%	44.44%	44.44%	0.00%

Grade 8

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to use the materials provided.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to record my judgments.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I think the procedures make sense.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I am sufficiently familiar with the assessment.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
My expectations of students.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The difficulty of the test materials.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
My experience in the field.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Discussions with other participants.	9	4.44	0.00%	0.00%	11.11%	33.33%	55.56%
Decisions of other participants.	9	4.11	0.00%	0.00%	33.33%	22.22%	44.44%
Impact data.	9	4.56	0.00%	0.00%	22.22%	0.00%	77.78%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	3.33	0.00%	0.00%	66.67%	33.33%	0.00%
Proficient/Limited Knowledge	9	3.44	0.00%	11.11%	55.56%	11.11%	22.22%
Limited Knowledge/Unsatisfactory	9	3.00	0.00%	0.00%	100.00%	0.00%	0.00%

Grade 10

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understood how to use the materials provided.	10	4.50	0.00%	10.00%	0.00%	20.00%	70.00%
I understood how to record my judgments.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I think the procedures make sense.	10	4.10	0.00%	10.00%	10.00%	40.00%	40.00%
I am sufficiently familiar with the assessment.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understand the differences between the criteria student status levels.	10	4.50	10.00%	0.00%	0.00%	10.00%	80.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	10	4.40	10.00%	0.00%	10.00%	0.00%	80.00%
My expectations of students.	10	4.30	0.00%	0.00%	10.00%	50.00%	40.00%
The difficulty of the test materials.	10	4.30	0.00%	0.00%	10.00%	50.00%	40.00%
My experience in the field.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Discussions with other participants.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Decisions of other participants.	10	4.00	0.00%	0.00%	20.00%	60.00%	20.00%
Impact data.	10	3.60	0.00%	20.00%	20.00%	40.00%	20.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	10	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	10	2.90	0.00%	10.00%	90.00%	0.00%	0.00%
Limited Knowledge/Unsatisfactory	10	3.10	0.00%	0.00%	90.00%	10.00%	0.00%

Procedural Evaluation Results – Math

Grade 3

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how to use the materials provided.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
I understood how to record my judgments.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
I think the procedures make sense.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I am sufficiently familiar with the assessment.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understand the differences between the criteria student status levels.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
My expectations of students.	11	4.55	0.00%	0.00%	0.00%	45.45%	54.55%
The difficulty of the test materials.	11	4.36	0.00%	0.00%	18.18%	27.27%	54.55%
My experience in the field.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
Discussions with other participants.	11	4.55	0.00%	0.00%	9.09%	27.27%	63.64%
Decisions of other participants.	11	3.91	0.00%	9.09%	18.18%	45.45%	27.27%
Impact data.	11	4.55	0.00%	0.00%	0.00%	45.45%	54.55%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	11	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	11	3.00	0.00%	9.09%	81.82%	9.09%	0.00%
Limited Knowledge/Unsatisfactory	11	3.09	0.00%	0.00%	90.91%	9.09%	0.00%

Grade 4

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how to use the materials provided.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
I understood how to record my judgments.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I think the procedures make sense.	11	4.55	0.00%	0.00%	0.00%	45.45%	54.55%
I am sufficiently familiar with the assessment.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understand the differences between the criteria student status levels.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
My expectations of students.	11	4.27	0.00%	9.09%	9.09%	27.27%	54.55%
The difficulty of the test materials.	11	4.45	0.00%	0.00%	18.18%	18.18%	63.64%
My experience in the field.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Discussions with other participants.	11	4.73	0.00%	0.00%	9.09%	9.09%	81.82%
Decisions of other participants.	11	4.09	0.00%	0.00%	27.27%	36.36%	36.36%
Impact data.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	11	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	11	2.82	0.00%	18.18%	81.82%	0.00%	0.00%
Limited Knowledge/Unsatisfactory	11	3.45	0.00%	0.00%	54.55%	45.45%	0.00%

Grade 5

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to use the materials provided.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I understood how to record my judgments.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I think the procedures make sense.	9	4.56	0.00%	0.00%	0.00%	44.44%	55.56%
I am sufficiently familiar with the assessment.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
I understand the differences between the criteria student status levels.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
My expectations of students.	9	4.33	0.00%	0.00%	11.11%	44.44%	44.44%
The difficulty of the test materials.	9	4.00	0.00%	0.00%	33.33%	33.33%	33.33%
My experience in the field.	9	4.44	0.00%	0.00%	0.00%	55.56%	44.44%
Discussions with other participants.	9	4.11	0.00%	0.00%	22.22%	44.44%	33.33%
Decisions of other participants.	9	2.78	11.11%	33.33%	22.22%	33.33%	0.00%
Impact data.	9	3.33	11.11%	11.11%	33.33%	22.22%	22.22%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	2.28	22.22%	11.11%	55.56%	0.00%	0.00%
Proficient/Limited Knowledge	9	3.00	11.11%	11.11%	55.56%	11.11%	11.11%
Limited Knowledge/Unsatisfactory	9	3.11	0.00%	0.00%	88.89%	11.11%	0.00%

Grade 6

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I understood how to use the materials provided.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
I understood how to record my judgments.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I think the procedures make sense.	9	4.56	0.00%	0.00%	0.00%	44.44%	55.56%
I am sufficiently familiar with the assessment.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
I understand the differences between the criteria student status levels.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential -5*
The Criteria Student Status Defintions.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
My expectations of students.	9	4.44	0.00%	0.00%	11.11%	33.33%	55.56%
The difficulty of the test materials.	9	3.89	0.00%	0.00%	33.33%	44.44%	22.22%
My experience in the field.	9	4.33	0.00%	0.00%	11.11%	44.44%	44.44%
Discussions with other participants.	9	4.56	0.00%	0.00%	0.00%	44.44%	55.56%
Decisions of other participants.	9	3.00	11.11%	22.22%	22.22%	44.44%	0.00%
Impact data.	9	3.56	0.00%	0.00%	55.56%	33.33%	11.11%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	2.89	0.00%	11.11%	88.89%	0.00%	0.00%
Proficient/Limited Knowledge	9	3.56	0.00%	11.11%	33.33%	44.44%	11.11%
Limited Knowledge/Unsatisfactory	9	2.67	11.11%	11.11%	77.78%	0.00%	0.00%

Grade 7

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
I understood how to use the materials provided.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to record my judgments.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
I think the procedures make sense.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
I am sufficiently familiar with the assessment.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
My expectations of students.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
The difficulty of the test materials.	11	4.18	0.00%	0.00%	36.36%	9.09%	54.55%
My experience in the field.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
Discussions with other participants.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
Decisions of other participants.	11	3.73	9.09%	0.00%	27.27%	36.36%	27.27%
Impact data.	11	3.82	0.00%	9.09%	27.27%	36.36%	27.27%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	11	3.18	9.09%	9.09%	36.36%	45.45%	0.00%
Proficient/Limited Knowledge	11	3.00	0.00%	9.09%	81.82%	9.09%	0.00%
Limited Knowledge/Unsatisfactory	11	3.18	0.00%	0.00%	81.82%	18.18%	0.00%

Grade 8

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
I understood how to use the materials provided.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to record my judgments.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I think the procedures make sense.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I am sufficiently familiar with the assessment.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
My expectations of students.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
The difficulty of the test materials.	11	4.09	0.00%	0.00%	36.36%	18.18%	45.45%
My experience in the field.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
Discussions with other participants.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
Decisions of other participants.	11	4.00	9.09%	0.00%	9.09%	45.45%	36.36%
Impact data.	11	4.00	0.00%	9.09%	18.18%	36.36%	36.36%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	11	3.09	0.00%	18.18%	63.64%	9.09%	9.09%
Proficient/Limited Knowledge	11	2.91	9.09%	9.09%	63.64%	18.18%	0.00%
Limited Knowledge/Unsatisfactory	11	3.18	0.00%	0.00%	81.82%	18.18%	0.00%

Grade 10

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understood how to use the materials provided.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understood how to record my judgments.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I think the procedures make sense.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I am sufficiently familiar with the assessment.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understand the differences between the criteria student status levels.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
My expectations of students.	10	4.70	0.00%	0.00%	10.00%	10.00%	80.00%
The difficulty of the test materials.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
My experience in the field.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Discussions with other participants.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
Decisions of other participants.	10	4.50	0.00%	0.00%	10.00%	30.00%	60.00%
Impact data.	10	4.20	0.00%	0.00%	20.00%	40.00%	40.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	9	3.00	0.00%	11.11%	77.78%	11.11%	0.00%
Proficient/Limited Knowledge	10	3.00	0.00%	20.00%	60.00%	20.00%	0.00%
Limited Knowledge/Unsatisfactory	10	2.90	0.00%	20.00%	70.00%	10.00%	0.00%

Procedural Evaluation Results – Science

Grade 5

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understood how to use the materials provided.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understood how to record my judgments.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
I think the procedures make sense.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I am sufficiently familiar with the assessment.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understand the differences between the criteria student status levels.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
My expectations of students.	9	4.22	0.00%	0.00%	22.22%	33.33%	44.44%
The difficulty of the test materials.	10	4.40	0.00%	0.00%	0.00%	60.00%	40.00%
My experience in the field.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Discussions with other participants.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Decisions of other participants.	10	3.75	10.00%	0.00%	20.00%	30.00%	30.00%
Impact data.	10	3.95	10.00%	0.00%	0.00%	50.00%	30.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	10	3.00	0.00%	10.00%	80.00%	10.00%	0.00%
Proficient/Limited Knowledge	10	3.10	0.00%	0.00%	90.00%	10.00%	0.00%
Limited Knowledge/Unsatisfactory	10	3.00	0.00%	0.00%	100.00%	0.00%	0.00%

Grade 8

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
I understood how to use the materials provided.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I understood how to record my judgments.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
I think the procedures make sense.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
I am sufficiently familiar with the assessment.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
I understand the differences between the criteria student status levels.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential -5*
The Criteria Student Status Defintions.	9	4.56	0.00%	11.11%	0.00%	11.11%	77.78%
My expectations of students.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
The difficulty of the test materials.	9	4.44	0.00%	0.00%	0.00%	55.56%	44.44%
My experience in the field.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
Discussions with other participants.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
Decisions of other participants.	9	4.00	0.00%	11.11%	11.11%	44.44%	33.33%
Impact data.	8	4.25	0.00%	0.00%	25.00%	25.00%	50.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	8	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	8	3.13	0.00%	12.50%	62.50%	25.00%	0.00%
Limited Knowledge/Unsatisfactory	8	3.13	0.00%	12.50%	62.50%	25.00%	0.00%

Grade 10

Please rate the usefulness of each of the following:	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood how to make the bookmark placements.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understood how to use the materials provided.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understood how to record my judgments.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I think the procedures make sense.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I am sufficiently familiar with the assessment.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understand the differences between the criteria student status levels.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%

Please rate the influence of the following when setting standards.	*N*	*Mean*	*Not at all Influential-1*	*2*	*3*	*4*	*Extremely Influential-5*
The Criteria Student Status Defintions.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
My expectations of students.	10	4.30	0.00%	0.00%	0.00%	70.00%	30.00%
The difficulty of the test materials.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
My experience in the field.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Discussions with other participants.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Decisions of other participants.	10	3.90	0.00%	0.00%	20.00%	70.00%	10.00%
Impact data.	10	4.20	0.00%	0.00%	20.00%	40.00%	40.00%

Do you believe the final recommended cut score for each of the achievement levels is too low, about right, or too high?	*N*	*Mean*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	10	3.00	0.00%	0.00%	100.00%	0.00%	0.00%
Proficient/Limited Knowledge	10	2.90	0.00%	10.00%	90.00%	0.00%	0.00%
Limited Knowledge/Unsatisfactory	10	2.90	0.00%	10.00%	90.00%	0.00%	0.00%

Final Evaluation Results – ELA

Grades 3/4

Panelist Demographics	*Count (N=11)*	*%*
Gender:		
Male	1	9.09%
Female	10	90.91%
Race/Ethnicity:		
White	9	81.82%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	2	18.18%
Years of Experience:		
0-5	0	0.00%
5-10	2	18.18%
10-15	6	54.55%
More than 15	2	18.18%
Professional Experience:		
Students with Disabilities	5	45.45%
Students with Limited English Proficiency	3	27.27%
Economically Disadvantaged Students	9	81.82%
Gifted and Talented Students	4	36.36%
General Education	10	90.91%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	11	4.09	0.00%	0.00%	9.09%	72.73%	18.18%
Completing the practice test	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
Completing the item map	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Discussions with other participants.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
Impact data.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	11	4.73	0.00%	0.00%	9.09%	9.09%	81.82%
The facilitator helped me understand the process.	11	4.27	0.00%	0.00%	18.18%	36.36%	45.45%
The materials contained the information needed to set standards.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how to use the impact data.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how the cut scores were calculated.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
The facilitator was able to provide answers to my questions.	11	4.27	0.00%	0.00%	18.18%	36.36%	45.45%
Sufficient time was allotted for training on the standard setting tasks.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
Sufficient time was allotted to complete the standard setting tasks.	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
The facilitator helped the standard setting process run smoothly.	11	4.18	0.00%	9.09%	18.18%	18.18%	54.55%
Overall the standard setting process produced credible results.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%

Grades 5/6

Panelist Demographics	*Count (N=11)*	*%*
Gender:		
Male	1	9.09%
Female	10	90.91%
Race/Ethnicity:		
White	10	90.91%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	0	0.00%
Years of Experience:		
0-5	1	9.09%
5-10	3	27.27%
10-15	1	9.09%
More than 15	4	36.36%
Professional Experience:		
Students with Disabilities	4	36.36%
Students with Limited English Proficiency	2	18.18%
Economically Disadvantaged Students	3	27.27%
Gifted and Talented Students	6	54.55%
General Education	11	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	11	3.64	0.00%	18.18%	27.27%	27.27%	27.27%
Completing the practice test	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Completing the item map	11	3.45	9.09%	27.27%	9.09%	18.18%	36.36%
Discussions with other participants.	11	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Impact data.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	11	4.55	0.00%	0.00%	0.00%	45.45%	54.55%
The facilitator helped me understand the process.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%
The materials contained the information needed to set standards.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%
I understood how to use the impact data.	11	4.45	0.00%	0.00%	0.00%	54.55%	45.45%
I understood how the cut scores were calculated.	11	4.27	0.00%	0.00%	9.09%	54.55%	36.36%
The facilitator was able to provide answers to my questions.	11	4.55	0.00%	0.00%	9.09%	27.27%	63.64%
Sufficient time was allotted for training on the standard setting tasks.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
Sufficient time was allotted to complete the standard setting tasks.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
The facilitator helped the standard setting process run smoothly.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
Overall the standard setting process produced credible results.	11	4.09	0.00%	0.00%	27.27%	36.36%	36.36%

Grades 7/8

Panelist Demographics	*Count (N=9)*	*%*
Gender:		
Male	0	0.00%
Female	9	100.00%
Race/Ethnicity:		
White	9	100.00%
Black	1	11.11%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	0	0.00%
Years of Experience:		
0-5	1	11.11%
5-10	2	22.22%
10-15	1	11.11%
More than 15	4	44.44%
Professional Experience:		
Students with Disabilities	2	22.22%
Students with Limited English Proficiency	3	33.33%
Economically Disadvantaged Students	7	77.78%
Gifted and Talented Students	5	55.56%
General Education	9	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	9	4.00	11.11%	0.00%	11.11%	33.33%	44.44%
Completing the practice test	9	4.22	0.00%	11.11%	11.11%	22.22%	55.56%
Completing the item map	9	4.78	0.00%	0.00%	11.11%	0.00%	88.89%
Discussions with other participants.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
Impact data.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The facilitator helped me understand the process.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The materials contained the information needed to set standards.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
I understood how to use the impact data.	9	4.78	0.00%	0.00%	11.11%	0.00%	88.89%
I understood how the cut scores were calculated.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The facilitator was able to provide answers to my questions.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Sufficient time was allotted for training on the standard setting tasks.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Sufficient time was allotted to complete the standard setting tasks.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The facilitator helped the standard setting process run smoothly.	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Overall the standard setting process produced credible results.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%

Grade 10

Panelist Demographics	Count (N=10)	%
Gender:		
Male	0	0.00%
Female	10	100.00%
Race/Ethnicity:		
White	10	100.00%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	0	0.00%
Years of Experience:		
0-5	2	20.00%
5-10	1	10.00%
10-15	3	30.00%
More than 15	4	40.00%
Professional Experience:		
Students with Disabilities	2	20.00%
Students with Limited English Proficiency	3	30.00%
Economically Disadvantaged Students	5	50.00%
Gifted and Talented Students	4	40.00%
General Education	10	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	10	4.00	0.00%	10.00%	10.00%	50.00%	30.00%
Completing the practice test	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Completing the item map	10	3.50	10.00%	20.00%	10.00%	30.00%	30.00%
Discussions with other participants.	10	4.80	0.00%	0.00%	10.00%	0.00%	90.00%
Impact data.	10	4.30	0.00%	10.00%	0.00%	40.00%	50.00%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
The facilitator helped me understand the process.	10	4.20	10.00%	0.00%	10.00%	20.00%	60.00%
The materials contained the information needed to set standards.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
I understood how to use the impact data.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
I understood how the cut scores were calculated.	10	4.40	0.00%	0.00%	0.00%	60.00%	40.00%
The facilitator was able to provide answers to my questions.	10	4.30	10.00%	0.00%	0.00%	30.00%	60.00%
Sufficient time was allotted for training on the standard setting tasks.	10	4.50	0.00%	0.00%	0.00%	50.00%	50.00%
Sufficient time was allotted to complete the standard setting tasks.	10	4.40	0.00%	10.00%	0.00%	30.00%	60.00%
The facilitator helped the standard setting process run smoothly.	10	4.20	10.00%	0.00%	0.00%	40.00%	50.00%
Overall the standard setting process produced credible results.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%

Final Evaluation Results – Math

Grades 3/4

Panelist Demographics	*Count (N=11)*	*%*
Gender:		
Male	0	0.00%
Female	11	100.00%
Race/Ethnicity:		
White	8	72.73%
Black	1	9.09%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	3	27.27%
Years of Experience:		
0-5	2	18.18%
5-10	4	36.36%
10-15	3	27.27%
More than 15	2	18.18%
Professional Experience:		
Students with Disabilities	5	45.45%
Students with Limited English Proficiency	3	27.27%
Economically Disadvantaged Students	7	63.64%
Gifted and Talented Students	5	45.45%
General Education	11	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	11	4.09	0.00%	0.00%	18.18%	54.55%	27.27%
Completing the practice test	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
Completing the item map	11	4.27	0.00%	0.00%	18.18%	36.36%	45.45%
Discussions with other participants.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Impact data.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	11	4.55	0.00%	0.00%	0.00%	45.45%	54.55%
The facilitator helped me understand the process.	11	4.45	0.00%	0.00%	9.09%	36.36%	54.55%
The materials contained the information needed to set standards.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
I understood how to use the impact data.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
I understood how the cut scores were calculated.	11	4.27	9.09%	0.00%	0.00%	36.36%	54.55%
The facilitator was able to provide answers to my questions.	11	4.55	0.00%	9.09%	0.00%	18.18%	72.73%
Sufficient time was allotted for training on the standard setting tasks.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Sufficient time was allotted to complete the standard setting tasks.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
The facilitator helped the standard setting process run smoothly.	11	4.73	0.00%	0.00%	0.00%	27.27%	72.73%
Overall the standard setting process produced credible results.	11	4.27	0.00%	9.09%	0.00%	45.45%	45.45%

Grades 5/6

Panelist Demographics	*Count (N=9)*	*%*
Gender:		
Male	0	0.00%
Female	9	100.00%
Race/Ethnicity:		
White	8	88.89%
Black	0	0.00%
Hispanic	1	11.11%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	0	0.00%
Years of Experience:		
0-5	1	11.11%
5-10	2	22.22%
10-15	3	33.33%
More than 15	3	33.33%
Professional Experience:		
Students with Disabilities	2	22.22%
Students with Limited English Proficiency	3	33.33%
Economically Disadvantaged Students	4	44.44%
Gifted and Talented Students	4	44.44%
General Education	9	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	9	2.56	11.11%	33.33%	44.44%	11.11%	0.00%
Completing the practice test	9	4.33	0.00%	11.11%	0.00%	33.33%	55.56%
Completing the item map	9	4.22	0.00%	0.00%	11.11%	55.56%	33.33%
Discussions with other participants.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
Impact data.	9	4.33	0.00%	0.00%	11.11%	44.44%	44.44%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
The facilitator helped me understand the process.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
The materials contained the information needed to set standards.	9	4.33	0.00%	11.11%	0.00%	33.33%	55.56%
I understood how to use the impact data.	9	4.56	0.00%	0.00%	11.11%	22.22%	66.67%
I understood how the cut scores were calculated.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
The facilitator was able to provide answers to my questions.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
Sufficient time was allotted for training on the standard setting tasks.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
Sufficient time was allotted to complete the standard setting tasks.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
The facilitator helped the standard setting process run smoothly.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
Overall the standard setting process produced credible results.	9	4.33	0.00%	0.00%	11.11%	44.44%	44.44%

Grades 7/8

Panelist Demographics	*Count (N=11)*	*%*
Gender:		
Male	1.1	10.00%
Female	9.9	90.00%
Race/Ethnicity:		
White	9	81.82%
Black	0	0.00%
Hispanic	0	0.00%
Asian	1	9.09%
Pacific Islander	0	0.00%
American Indian	2	18.18%
Years of Experience:		
0-5	1	9.09%
5-10	2	18.18%
10-15	4	36.36%
More than 15	4	36.36%
Professional Experience:		
Students with Disabilities	6	54.55%
Students with Limited English Proficiency	3	27.27%
Economically Disadvantaged Students	8	72.73%
Gifted and Talented Students	8	72.73%
General Education	11	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	11	3.91	0.00%	9.09%	18.18%	45.45%	27.27%
Completing the practice test	11	4.09	18.18%	0.00%	0.00%	18.18%	63.64%
Completing the item map	11	4.64	0.00%	0.00%	0.00%	36.36%	63.64%
Discussions with other participants.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Impact data.	11	4.36	0.00%	0.00%	18.18%	27.27%	54.55%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
The facilitator helped me understand the process.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
The materials contained the information needed to set standards.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
I understood how to use the impact data.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
I understood how the cut scores were calculated.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
The facilitator was able to provide answers to my questions.	11	4.91	0.00%	0.00%	0.00%	9.09%	90.91%
Sufficient time was allotted for training on the standard setting tasks.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
Sufficient time was allotted to complete the standard setting tasks.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
The facilitator helped the standard setting process run smoothly.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%
Overall the standard setting process produced credible results.	11	4.82	0.00%	0.00%	0.00%	18.18%	81.82%

Grade 10

Panelist Demographics	*Count (N=10)*	*%*
Gender:		
Male	0	0.00%
Female	10	100.00%
Race/Ethnicity:		
White	8	80.00%
Black	0	0.00%
Hispanic	1	10.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	1	10.00%
Years of Experience:		
0-5	0	0.00%
5-10	1	10.00%
10-15	4	40.00%
More than 15	5	50.00%
Professional Experience:		
Students with Disabilities	2	20.00%
Students with Limited English Proficiency	4	40.00%
Economically Disadvantaged Students	3	30.00%
Gifted and Talented Students	3	30.00%
General Education	9	90.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	10	4.40	0.00%	0.00%	10.00%	40.00%	50.00%
Completing the practice test	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
Completing the item map	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Discussions with other participants.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
Impact data.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	8	4.88	0.00%	0.00%	0.00%	12.50%	87.50%
The facilitator helped me understand the process.	8	4.63	0.00%	0.00%	0.00%	37.50%	62.50%
The materials contained the information needed to set standards.	8	4.75	0.00%	0.00%	0.00%	25.00%	75.00%
I understood how to use the impact data.	8	4.75	0.00%	0.00%	0.00%	25.00%	75.00%
I understood how the cut scores were calculated.	8	4.88	0.00%	0.00%	0.00%	12.50%	87.50%
The facilitator was able to provide answers to my questions.	8	4.63	0.00%	0.00%	0.00%	37.50%	62.50%
Sufficient time was allotted for training on the standard setting tasks.	8	4.63	0.00%	0.00%	0.00%	37.50%	62.50%
Sufficient time was allotted to complete the standard setting tasks.	8	4.75	0.00%	0.00%	0.00%	25.00%	75.00%
The facilitator helped the standard setting process run smoothly.	8	4.75	0.00%	0.00%	0.00%	25.00%	75.00%
Overall the standard setting process produced credible results.	8	4.75	0.00%	0.00%	0.00%	25.00%	75.00%

Final Evaluation Results – Science

Grade 5

Panelist Demographics	*Count (N=10)*	*%*
Gender:		
Male	0	0.00%
Female	10	100.00%
Race/Ethnicity:		
White	9	90.00%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	1	10.00%
Years of Experience:		
0-5	1	10.00%
5-10	3	30.00%
10-15	1	10.00%
More than 15	5	50.00%
Professional Experience:		
Students with Disabilities	3	30.00%
Students with Limited English Proficiency	3	30.00%
Economically Disadvantaged Students	5	50.00%
Gifted and Talented Students	2	20.00%
General Education	10	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	10	4.40	0.00%	0.00%	10.00%	40.00%	50.00%
Completing the practice test	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Completing the item map	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Discussions with other participants.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Impact data.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
The facilitator helped me understand the process.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
The materials contained the information needed to set standards.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understood how to use the impact data.	10	4.70	0.00%	0.00%	10.00%	10.00%	80.00%
I understood how the cut scores were calculated.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
The facilitator was able to provide answers to my questions.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Sufficient time was allotted for training on the standard setting tasks.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
Sufficient time was allotted to complete the standard setting tasks.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
The facilitator helped the standard setting process run smoothly.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Overall the standard setting process produced credible results.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%

Grade 8

Panelist Demographics	*Count (N=9)*	*%*
Gender:		
Male	1	11.11%
Female	8	88.89%
Race/Ethnicity:		
White	8	88.89%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	1	11.11%
Years of Experience:		
0-5	2	22.22%
5-10	4	44.44%
10-15	0	0.00%
More than 15	3	33.33%
Professional Experience:		
Students with Disabilities	3	33.33%
Students with Limited English Proficiency	3	33.33%
Economically Disadvantaged Students	6	66.67%
Gifted and Talented Students	5	55.56%
General Education	7	77.78%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	9	3.33	22.22%	11.11%	22.22%	0.00%	44.44%
Completing the practice test	9	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Completing the item map	9	4.44	0.00%	0.00%	0.00%	55.56%	44.44%
Discussions with other participants.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
Impact data.	8	4.63	0.00%	0.00%	0.00%	37.50%	62.50%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	9	4.89	0.00%	0.00%	0.00%	11.11%	88.89%
The facilitator helped me understand the process.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
The materials contained the information needed to set standards.	9	4.67	0.00%	0.00%	11.11%	11.11%	77.78%
I understood how to use the impact data.	9	4.56	0.00%	0.00%	0.00%	44.44%	55.56%
I understood how the cut scores were calculated.	9	4.22	0.00%	0.00%	11.11%	55.56%	33.33%
The facilitator was able to provide answers to my questions.	9	4.67	0.00%	0.00%	11.11%	11.11%	77.78%
Sufficient time was allotted for training on the standard setting tasks.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
Sufficient time was allotted to complete the standard setting tasks.	9	4.67	0.00%	0.00%	0.00%	33.33%	66.67%
The facilitator helped the standard setting process run smoothly.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%
Overall the standard setting process produced credible results.	9	4.78	0.00%	0.00%	0.00%	22.22%	77.78%

Grade 10

Panelist Demographics	*Count (N=10)*	*%*
Gender:		
Male	4	40.00%
Female	6	60.00%
Race/Ethnicity:		
White	10	100.00%
Black	0	0.00%
Hispanic	0	0.00%
Asian	0	0.00%
Pacific Islander	0	0.00%
American Indian	0	0.00%
Years of Experience:		
0-5	0	0.00%
5-10	2	20.00%
10-15	3	30.00%
More than 15	5	50.00%
Professional Experience:		
Students with Disabilities	4	40.00%
Students with Limited English Proficiency	2	20.00%
Economically Disadvantaged Students	5	50.00%
Gifted and Talented Students	6	60.00%
General Education	10	100.00%

Please rate the usefulness of each of the following:	*N*	*Mean*	*Not Useful at All 1*	*2*	*3*	*4*	*Extremely Useful 5*
The opening session.	10	3.60	0.00%	10.00%	30.00%	50.00%	10.00%
Completing the practice test	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Completing the item map	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
Discussions with other participants.	10	5.00	0.00%	0.00%	0.00%	0.00%	100.00%
Impact data.	10	4.10	0.00%	0.00%	10.00%	70.00%	20.00%

Please mark the appropriate box for each statement.	*N*	*Mean*	*% SD*	*% D*	*% N*	*% A*	*% SA*
I understood the goals of the standard setting meeting.	10	4.80	0.00%	0.00%	0.00%	20.00%	80.00%
The facilitator helped me understand the process.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%
The materials contained the information needed to set standards.	10	4.90	0.00%	0.00%	0.00%	10.00%	90.00%
I understood how to use the impact data.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
I understood how the cut scores were calculated.	10	4.60	0.00%	0.00%	0.00%	40.00%	60.00%
The facilitator was able to provide answers to my questions.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Sufficient time was allotted for training on the standard setting tasks.	10	4.50	0.00%	10.00%	0.00%	20.00%	70.00%
Sufficient time was allotted to complete the standard setting tasks.	10	4.50	0.00%	10.00%	0.00%	20.00%	70.00%
The facilitator helped the standard setting process run smoothly.	10	4.60	0.00%	0.00%	10.00%	20.00%	70.00%
Overall the standard setting process produced credible results.	10	4.70	0.00%	0.00%	0.00%	30.00%	70.00%

Vertical Articulation Evaluation – ELA

Pre-Articulation

Do you believe the final recommended cut score for each of the performance levels is too low, about right, or too high?	*Grade*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced Proficient	3	0%	0%	88%	13%	0%
	4	0%	0%	75%	25%	0%
	5	0%	13%	63%	25%	0%
	6	0%	0%	88%	13%	0%
	7	0%	38%	50%	13%	0%
	8	0%	13%	88%	0%	0%
	10	0%	0%	63%	38%	0%
Proficient/Knowledge	3	0%	50%	25%	25%	0%
	4	0%	63%	13%	25%	0%
	5	0%	38%	38%	25%	0%
	6	13%	63%	0%	25%	0%
	7	25%	38%	13%	25%	0%
	8	0%	50%	13%	38%	0%
	10	75%	0%	0%	25%	0%
Limited Knowledge/Unsatisfactory	3	0%	0%	63%	38%	0%
	4	0%	0%	63%	38%	0%
	5	0%	25%	75%	0%	0%
	6	13%	25%	50%	13%	0%
	7	0%	0%	75%	25%	0%
	8	0%	25%	38%	38%	0%
	10	38%	50%	13%	0%	0%

Post-Articulation

Do you believe the final recommended cut score for each of the performance levels is too low, about right, or too high?	*Grade*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced/Proficient	3	0%	0%	100%	0%	0%
	4	0%	0%	100%	0%	0%
	5	0%	0%	100%	0%	0%
	6	0%	0%	100%	0%	0%

continued

	7	0%	0%	100%	0%	0%
	8	0%	0%	100%	0%	0%
	10	13%	0%	88%	0%	0%
Proficient/Limited Knowledge	3	0%	0%	100%	0%	0%
	4	0%	0%	100%	0%	0%
	5	0%	0%	100%	0%	0%
	6	0%	0%	100%	0%	0%
	7	0%	63%	38%	0%	0%
	8	0%	0%	100%	0%	0%
	10	63%	0%	38%	0%	0%
Limited Knowledge/Unsatisfactory	3	0%	0%	100%	0%	0%
	4	0%	0%	100%	0%	0%
	5	0%	0%	100%	0%	0%
	6	0%	0%	88%	13%	0%
	7	0%	13%	88%	0%	0%
	8	0%	0%	100%	0%	0%
	10	0%	0%	100%	0%	0%

Vertical Articulation Evaluation – Math

Pre-Articulation

Do you believe the final recommended cut score for each of the performance levels is too low, about right, or too high?	*Grade*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced Proficient	3	0%	33%	50%	17%	0%
	4	17%	33%	33%	17%	0%
	5	0%	20%	80%	0%	0%
	6	0%	33%	67%	0%	0%
	7	0%	40%	40%	20%	0%
	8	0%	0%	100%	0%	0%
	10	0%	0%	83%	17%	0%
Proficient/Knowledge	3	17%	50%	33%	0%	0%
	4	17%	50%	33%	0%	0%
	5	0%	67%	33%	0%	0%
	6	0%	33%	67%	0%	0%
	7	0%	33%	67%	0%	0%
	8	0%	17%	67%	17%	0%
	10	0%	0%	83%	17%	0%
Limited Knowledge/Unsatisfactory	3	0%	50%	33%	0%	17%
	4	0%	33%	50%	0%	17%
	5	0%	50%	33%	0%	17%
	6	33%	17%	17%	17%	17%
	7	17%	33%	17%	33%	0%
	8	17%	17%	50%	17%	0%
	10	17%	17%	33%	33%	0%

Post-Articulation

Do you believe the final recommended cut score for each of the performance levels is too low, about right, or too high?	*Grade*	*Too Low -1*	*Somewhat Low*	*About Right*	*Somewhat High*	*Too High -5*
Advanced Proficient	3	0%	0%	75%	13%	13%
	4	0%	0%	75%	13%	13%
	5	0%	13%	63%	25%	0%
	6	0%	13%	88%	0%	0%
	7	0%	13%	88%	0%	0%
	8	0%	25%	50%	25%	0%

continued

	10	0%	13%	75%	13%	0%
Proficient/Knowledge	3	0%	0%	88%	13%	0%
	4	0%	0%	100%	0%	0%
	5	0%	0%	88%	13%	0%
	6	0%	0%	100%	0%	0%
	7	0%	0%	100%	0%	0%
	8	0%	0%	100%	0%	0%
	10	0%	0%	100%	0%	0%
Limited Knowledge/Unsatisfactory	3	0%	0%	88%	13%	0%
	4	0%	0%	88%	13%	0%
	5	0%	13%	63%	25%	0%
	6	0%	13%	63%	25%	0%
	7	0%	0%	100%	0%	0%
	8	0%	13%	88%	0%	0%
	10	0%	0%	100%	0%	0%

APPENDIX K—DISAGGREGATED IMPACT DATA

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,060	13,909	26.7	7,920	15.2	22,836	43.9	7,395	14.2
Form									
Form 1	17,400	4,661	26.8	2,784	16.0	7,456	42.9	2,499	14.4
Form 2	17,356	4,591	26.5	2,556	14.7	7,780	44.8	2,429	14.0
Form 3	17,304	4,657	26.9	2,580	14.9	7,600	43.9	2,467	14.3
Ethnicity									
Hispanic or Latino	9,553	3,804	39.8	1,699	17.8	3,382	35.4	668	7.0
Race									
American Indian/:Alaskan Native	6,741	1,778	26.4	1,120	16.6	3,037	45.1	806	12.0
Asian	944	165	17.5	112	11.9	432	45.8	235	24.9
Black/:African American	4,531	2,116	46.7	778	17.2	1,395	30.8	242	5.3
Pacific Islander	170	72	42.4	34	20.0	57	33.5	7	4.1
White/:Caucasian	24,798	4,692	18.9	3,350	13.5	12,079	48.7	4,677	18.9
Two or More Races	5,323	1,282	24.1	827	15.5	2,454	46.1	760	14.3
Gender									
Female	25,490	5,901	23.2	3,846	15.1	11,572	45.4	4,171	16.4
Male	26,560	8,004	30.1	4,073	15.3	11,259	42.4	3,224	12.1
Not Indicated	10	4	40.0	1	10.0	5	50.0	0	0.0
Other									
ELL 1st Yr: Proficient	575	34	5.9	62	10.8	385	67.0	94	16.4
ELL 2nd Yr: Proficient	268	14	5.2	20	7.5	152	56.7	82	30.6
Econ. Disadv.	33,483	11,171	33.4	5,724	17.1	13,606	40.6	2,982	8.9
Non-Econ. Disadv.	18,577	2,738	14.7	2,196	11.8	9,230	49.7	4,413	23.8
Migrant	30	8	26.7	4	13.3	15	50.0	3	10.0
Non-Migrant	52,030	13,901	26.7	7,916	15.2	22,821	43.9	7,392	14.2
Individualized Education Plan (IEP)									
IEP	9,331	5,497	58.9	1,272	13.6	2,140	22.9	422	4.5
IEP w/ Accomm.	5,034	3,689	73.3	632	12.6	653	13.0	60	1.2
IEP w/o Accomm.	4,297	1,808	42.1	640	14.9	1,487	34.6	362	8.4
Plan 504	**971**	**268**	**27.6**	**172**	**17.7**	**447**	**46.0**	**84**	**8.7**
Plan 504 w/ Accomm.	481	170	35.3	87	18.1	194	40.3	30	6.2
Plan 504 w/o Accomm.	490	98	20.0	85	17.4	253	51.6	54	11.0
English Language Learners (ELL)									
ELL	6,076	3,162	52.0	1,200	19.8	1,551	25.5	163	2.7
ELL w/ Accomm.	1,818	1,133	62.3	353	19.4	318	17.5	14	0.8
ELL w/o Accomm.	4,258	2,029	47.7	847	19.9	1,233	29.0	149	3.5
Non-English Language Learners (Non-ELL)									
Non-ELL	45,984	10,747	23.4	6,720	14.6	21,285	46.3	7,232	15.7
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Military	232	38	16.4	23	9.9	115	49.6	56	24.1
Non-Military	51,828	13,871	26.8	7,897	15.2	22,721	43.8	7,339	14.2
Foster									
Foster	390	136	34.9	74	19.0	155	39.7	25	6.4
Non-Foster	51,670	13,773	26.7	7,846	15.2	22,681	43.9	7,370	14.3

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,512	13,485	26.7	14,434	28.6	19,228	38.1	3,365	6.7
Form									
Form 1	16,954	4,524	26.7	4,851	28.6	6,549	38.6	1,030	6.1
Form 2	16,758	4,629	27.6	4,782	28.5	6,163	36.8	1,184	7.1
Form 3	16,800	4,332	25.8	4,801	28.6	6,516	38.8	1,151	6.9
Ethnicity									
Hispanic or Latino	9,168	3,541	38.6	2,879	31.4	2,474	27.0	274	3.0
Race									
American Indian/:Alaskan Native	6,650	1,835	27.6	2,057	30.9	2,431	36.6	327	4.9
Asian	960	170	17.7	217	22.6	433	45.1	140	14.6
Black/:African American	4,344	1,922	44.2	1,285	29.6	1,050	24.2	87	2.0
Pacific Islander	164	67	40.9	49	29.9	45	27.4	3	1.8
White/:Caucasian	24,207	4,713	19.5	6,469	26.7	10,818	44.7	2,207	9.1
Two or More Races	5,019	1,237	24.7	1,478	29.5	1,977	39.4	327	6.5
Gender									
Female	24,786	5,908	23.8	7,133	28.8	9,866	39.8	1,879	7.6
Male	25,691	7,558	29.4	7,292	28.4	9,355	36.4	1,486	5.8
Not Indicated	35	19	54.3	9	25.7	7	20.0	0	0.0
Other									
ELL 1st Yr: Proficient	1,799	409	22.7	778	43.3	568	31.6	44	2.5
ELL 2nd Yr: Proficient	584	50	8.6	194	33.2	298	51.0	42	7.2
Econ. Disadv.	31,744	10,544	33.2	9,942	31.3	10,128	31.9	1,130	3.6
Non-Econ. Disadv.	18,768	2,941	15.7	4,492	23.9	9,100	48.5	2,235	11.9
Migrant	29	13	44.8	8	27.6	8	27.6	0	0.0
Non-Migrant	50,483	13,472	26.7	14,426	28.6	19,220	38.1	3,365	6.7
Individualized Education Plan (IEP)									
IEP	8,795	5,390	61.3	1,939	22.1	1,312	14.9	154	1.8
IEP w/ Accomm.	5,296	3,849	72.7	1,023	19.3	405	7.7	19	0.4
IEP w/o Accomm.	3,499	1,541	44.0	916	26.2	907	25.9	135	3.9
Plan 504	**965**	**257**	**26.6**	**307**	**31.8**	**356**	**36.9**	**45**	**4.7**
Plan 504 w/ Accomm.	471	136	28.9	152	32.3	169	35.9	14	3.0
Plan 504 w/o Accomm.	494	121	24.5	155	31.4	187	37.9	31	6.3
English Language Learners (ELL)									
ELL	4,027	2,526	62.7	1,086	27.0	399	9.9	16	0.4
ELL w/ Accomm.	1,260	903	71.7	287	22.8	69	5.5	1	0.1
ELL w/o Accomm.	2,767	1,623	58.7	799	28.9	330	11.9	15	0.5
Non-English Language Learners (Non-ELL)									
Non-ELL	46,485	10,959	23.6	13,348	28.7	18,829	40.5	3,349	7.2

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	253	36	14.2	67	26.5	121	47.8	29	11.5
Non-Military	50,259	13,449	26.8	14,367	28.6	19,107	38.0	3,336	6.6
Foster									
Foster	362	140	38.7	109	30.1	102	28.2	11	3.0
Non-Foster	50,150	13,345	26.6	14,325	28.6	19,126	38.1	3,354	6.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,449	9,260	19.1	13,920	28.7	19,359	40.0	5,910	12.2
Form									
Form 1	16,248	3,154	19.4	4,832	29.7	6,429	39.6	1,833	11.3
Form 2	16,143	3,127	19.4	4,472	27.7	6,712	41.6	1,832	11.4
Form 3	16,058	2,979	18.6	4,616	28.8	6,218	38.7	2,245	14.0
Ethnicity									
Hispanic or Latino	8,678	2,327	26.8	2,912	33.6	2,886	33.3	553	6.4
Race									
American Indian/:Alaskan Native	6,657	1,279	19.2	2,078	31.2	2,618	39.3	682	10.2
Asian	917	104	11.3	210	22.9	372	40.6	231	25.2
Black/:African American	4,253	1,419	33.4	1,487	35.0	1,139	26.8	208	4.9
Pacific Islander	159	49	30.8	54	34.0	44	27.7	12	7.6
White/:Caucasian	23,316	3,276	14.1	5,930	25.4	10,416	44.7	3,694	15.8
Two or More Races	4,469	806	18.0	1,249	28.0	1,884	42.2	530	11.9
Gender									
Female	23,909	3,806	15.9	6,850	28.7	10,001	41.8	3,252	13.6
Male	24,497	5,439	22.2	7,051	28.8	9,349	38.2	2,658	10.9
Not Indicated	43	15	34.9	19	44.2	9	20.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,417	267	18.8	616	43.5	494	34.9	40	2.8
ELL 2nd Yr: Proficient	1,715	258	15.0	695	40.5	678	39.5	84	4.9
Econ. Disadv.	30,004	7,373	24.6	9,811	32.7	10,667	35.6	2,153	7.2
Non-Econ. Disadv.	18,445	1,887	10.2	4,109	22.3	8,692	47.1	3,757	20.4
Migrant	31	6	19.4	10	32.3	14	45.2	1	3.2
Non-Migrant	48,418	9,254	19.1	13,910	28.7	19,345	40.0	5,909	12.2
Individualized Education Plan (IEP)									
IEP	8,316	4,498	54.1	2,286	27.5	1,320	15.9	212	2.6
IEP w/ Accomm.	5,301	3,327	62.8	1,388	26.2	536	10.1	50	0.9
IEP w/o Accomm.	3,015	1,171	38.8	898	29.8	784	26.0	162	5.4
Plan 504	**1,061**	**186**	**17.5**	**333**	**31.4**	**445**	**41.9**	**97**	**9.1**
Plan 504 w/ Accomm.	520	119	22.9	168	32.3	201	38.7	32	6.2
Plan 504 w/o Accomm.	541	67	12.4	165	30.5	244	45.1	65	12.0
English Language Learners (ELL)									
ELL	2,462	1,380	56.1	779	31.6	270	11.0	33	1.3
ELL w/ Accomm.	746	483	64.8	216	29.0	45	6.0	2	0.3
ELL w/o Accomm.	1,716	897	52.3	563	32.8	225	13.1	31	1.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,987	7,880	17.1	13,141	28.6	19,089	41.5	5,877	12.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	247	24	9.7	50	20.2	111	44.9	62	25.1
Non-Military	48,202	9,236	19.2	13,870	28.8	19,248	39.9	5,848	12.1
Foster									
Foster	299	86	28.8	114	38.1	85	28.4	14	4.7
Non-Foster	48,150	9,174	19.1	13,806	28.7	19,274	40.0	5,896	12.3

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	46,499	8,461	18.2	18,606	40.0	13,345	28.7	6,087	13.1
Form									
Form 1	15,973	3,207	20.1	6,263	39.2	4,265	26.7	2,238	14.0
Form 2	15,254	2,683	17.6	5,860	38.4	4,759	31.2	1,952	12.8
Form 3	15,272	2,571	16.8	6,483	42.5	4,321	28.3	1,897	12.4
Ethnicity									
Hispanic or Latino	7,593	1,910	25.2	3,398	44.8	1,730	22.8	555	7.3
Race									
American Indian/:Alaskan Native	6,745	1,324	19.6	2,870	42.6	1,821	27.0	730	10.8
Asian	871	92	10.6	250	28.7	272	31.2	257	29.5
Black/:African American	3,837	1,117	29.1	1,743	45.4	765	19.9	212	5.5
Pacific Islander	139	42	30.2	59	42.5	31	22.3	7	5.0
White/:Caucasian	23,366	3,279	14.0	8,776	37.6	7,525	32.2	3,786	16.2
Two or More Races	3,948	697	17.7	1,510	38.3	1,201	30.4	540	13.7
Gender									
Female	22,695	3,484	15.4	9,198	40.5	6,777	29.9	3,236	14.3
Male	23,726	4,945	20.8	9,382	39.5	6,552	27.6	2,847	12.0
Not Indicated	78	32	41.0	26	33.3	16	20.5	4	5.1
Other									
ELL 1st Yr: Proficient	638	122	19.1	384	60.2	110	17.2	22	3.5
ELL 2nd Yr: Proficient	916	177	19.3	508	55.5	188	20.5	43	4.7
Econ. Disadv.	28,339	6,744	23.8	12,406	43.8	6,846	24.2	2,343	8.3
Non-Econ. Disadv.	18,160	1,717	9.5	6,200	34.1	6,499	35.8	3,744	20.6
Migrant	28	12	42.9	12	42.9	3	10.7	1	3.6
Non-Migrant	46,471	8,449	18.2	18,594	40.0	13,342	28.7	6,086	13.1
Individualized Education Plan (IEP)									
IEP	7,443	4,101	55.1	2,431	32.7	718	9.7	193	2.6
IEP w/ Accomm.	4,019	2,467	61.4	1,264	31.5	246	6.1	42	1.1
IEP w/o Accomm.	3,424	1,634	47.7	1,167	34.1	472	13.8	151	4.4
Plan 504	**1,091**	**168**	**15.4**	**504**	**46.2**	**304**	**27.9**	**115**	**10.5**
Plan 504 w/ Accomm.	332	67	20.2	161	48.5	78	23.5	26	7.8
Plan 504 w/o Accomm.	759	101	13.3	343	45.2	226	29.8	89	11.7
English Language Learners (ELL)									
ELL	1,658	1,025	61.8	513	30.9	101	6.1	19	1.2
ELL w/ Accomm.	293	220	75.1	66	22.5	7	2.4	0	0.0
ELL w/o Accomm.	1,365	805	59.0	447	32.8	94	6.9	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	44,841	7,436	16.6	18,093	40.4	13,244	29.5	6,068	13.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	260	27	10.4	88	33.9	91	35.0	54	20.8
Non-Military	46,239	8,434	18.2	18,518	40.1	13,254	28.7	6,033	13.1
Foster									
Foster	279	81	29.0	132	47.3	50	17.9	16	5.7
Non-Foster	46,220	8,380	18.1	18,474	40.0	13,295	28.8	6,071	13.1

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	48,035	13,581	28.3	11,849	24.7	15,653	32.6	6,952	14.5
Form									
Form 1	16,436	4,978	30.3	3,770	22.9	5,291	32.2	2,397	14.6
Form 2	15,795	4,386	27.8	3,874	24.5	5,191	32.9	2,344	14.8
Form 3	15,804	4,217	26.7	4,205	26.6	5,171	32.7	2,211	14.0
Ethnicity									
Hispanic or Latino	8,086	3,175	39.3	2,149	26.6	2,119	26.2	643	8.0
Race									
American Indian/:Alaskan Native	7,027	2,067	29.4	1,861	26.5	2,210	31.5	889	12.7
Asian	997	167	16.8	203	20.4	328	32.9	299	30.0
Black/:African American	4,178	1,940	46.4	1,044	25.0	931	22.3	263	6.3
Pacific Islander	146	67	45.9	35	24.0	36	24.7	8	5.5
White/:Caucasian	23,684	5,099	21.5	5,555	23.5	8,716	36.8	4,314	18.2
Two or More Races	3,917	1,066	27.2	1,002	25.6	1,313	33.5	536	13.7
Gender									
Female	23,357	5,767	24.7	5,808	24.9	8,069	34.6	3,713	15.9
Male	24,622	7,784	31.6	6,030	24.5	7,572	30.8	3,236	13.1
Not Indicated	56	30	53.6	11	19.6	12	21.4	3	5.4
Other									
ELL 1st Yr: Proficient	200	58	29.0	73	36.5	58	29.0	11	5.5
ELL 2nd Yr: Proficient	440	150	34.1	164	37.3	109	24.8	17	3.9
Econ. Disadv.	29,593	10,779	36.4	7,871	26.6	8,227	27.8	2,716	9.2
Non-Econ. Disadv.	18,442	2,802	15.2	3,978	21.6	7,426	40.3	4,236	23.0
Migrant	32	18	56.3	4	12.5	7	21.9	3	9.4
Non-Migrant	48,003	13,563	28.3	11,845	24.7	15,646	32.6	6,949	14.5
Individualized Education Plan (IEP)									
IEP	8,153	5,640	69.2	1,403	17.2	878	10.8	232	2.9
IEP w/ Accomm.	4,211	3,167	75.2	641	15.2	321	7.6	82	2.0
IEP w/o Accomm.	3,942	2,473	62.7	762	19.3	557	14.1	150	3.8
Plan 504	**1,009**	**257**	**25.5**	**256**	**25.4**	**361**	**35.8**	**135**	**13.4**
Plan 504 w/ Accomm.	233	76	32.6	65	27.9	68	29.2	24	10.3
Plan 504 w/o Accomm.	776	181	23.3	191	24.6	293	37.8	111	14.3
English Language Learners (ELL)									
ELL	2,173	1,689	77.7	349	16.1	119	5.5	16	0.7
ELL w/ Accomm.	287	256	89.2	25	8.7	6	2.1	0	0.0
ELL w/o Accomm.	1,886	1,433	76.0	324	17.2	113	6.0	16	0.9
Non-English Language Learners (Non-ELL)									
Non-ELL	45,862	11,892	25.9	11,500	25.1	15,534	33.9	6,936	15.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	40	17.5	59	25.9	82	36.0	47	20.6
Non-Military	47,807	13,541	28.3	11,790	24.7	15,571	32.6	6,905	14.4
Foster									
Foster	260	114	43.9	64	24.6	51	19.6	31	11.9
Non-Foster	47,775	13,467	28.2	11,785	24.7	15,602	32.7	6,921	14.5

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,893	9,972	20.8	16,338	34.1	16,038	33.5	5,545	11.6
Form									
Form 1	16,470	3,786	23.0	5,599	34.0	5,300	32.2	1,785	10.8
Form 2	15,698	3,256	20.7	5,472	34.9	5,311	33.8	1,659	10.6
Form 3	15,725	2,930	18.6	5,267	33.5	5,427	34.5	2,101	13.4
Ethnicity									
Hispanic or Latino	7,816	2,353	30.1	2,943	37.7	2,019	25.8	501	6.4
Race									
American Indian/:Alaskan Native	6,990	1,470	21.0	2,570	36.8	2,292	32.8	658	9.4
Asian	943	124	13.2	220	23.3	351	37.2	248	26.3
Black/:African American	4,196	1,569	37.4	1,496	35.7	936	22.3	195	4.7
Pacific Islander	167	62	37.1	50	29.9	48	28.7	7	4.2
White/:Caucasian	24,041	3,662	15.2	7,751	32.2	9,120	37.9	3,508	14.6
Two or More Races	3,740	732	19.6	1,308	35.0	1,272	34.0	428	11.4
Gender									
Female	23,511	3,864	16.4	7,789	33.1	8,479	36.1	3,379	14.4
Male	24,312	6,072	25.0	8,520	35.0	7,556	31.1	2,164	8.9
Not Indicated	70	36	51.4	29	41.4	3	4.3	2	2.9
Other									
ELL 1st Yr: Proficient	183	27	14.8	100	54.6	50	27.3	6	3.3
ELL 2nd Yr: Proficient	242	23	9.5	115	47.5	83	34.3	21	8.7
Econ. Disadv.	29,058	8,035	27.7	10,903	37.5	8,207	28.2	1,913	6.6
Non-Econ. Disadv.	18,835	1,937	10.3	5,435	28.9	7,831	41.6	3,632	19.3
Migrant	37	18	48.7	8	21.6	8	21.6	3	8.1
Non-Migrant	47,856	9,954	20.8	16,330	34.1	16,030	33.5	5,542	11.6
Individualized Education Plan (IEP)									
IEP	7,713	4,697	60.9	2,185	28.3	718	9.3	113	1.5
IEP w/ Accomm.	4,247	2,870	67.6	1,044	24.6	302	7.1	31	0.7
IEP w/o Accomm.	3,466	1,827	52.7	1,141	32.9	416	12.0	82	2.4
Plan 504	**986**	**161**	**16.3**	**385**	**39.1**	**335**	**34.0**	**105**	**10.7**
Plan 504 w/ Accomm.	211	42	19.9	90	42.7	63	29.9	16	7.6
Plan 504 w/o Accomm.	775	119	15.4	295	38.1	272	35.1	89	11.5
English Language Learners (ELL)									
ELL	2,127	1,460	68.6	529	24.9	124	5.8	14	0.7
ELL w/ Accomm.	360	296	82.2	53	14.7	11	3.1	0	0.0
ELL w/o Accomm.	1,767	1,164	65.9	476	26.9	113	6.4	14	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,766	8,512	18.6	15,809	34.5	15,914	34.8	5,531	12.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	226	29	12.8	74	32.7	88	38.9	35	15.5
Non-Military	47,667	9,943	20.9	16,264	34.1	15,950	33.5	5,510	11.6
Foster									
Foster	241	91	37.8	102	42.3	42	17.4	6	2.5
Non-Foster	47,652	9,881	20.7	16,236	34.1	15,996	33.6	5,539	11.6

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,802	5,938	13.0	14,440	31.5	15,156	33.1	10,268	22.4
Form									
Form 1	15,658	2,125	13.6	5,022	32.1	5,136	32.8	3,375	21.6
Form 2	15,095	1,863	12.3	4,752	31.5	5,332	35.3	3,148	20.9
Form 3	15,049	1,950	13.0	4,666	31.0	4,688	31.2	3,745	24.9
Ethnicity									
Hispanic or Latino	6,942	1,258	18.1	2,588	37.3	2,096	30.2	1,000	14.4
Race									
American Indian/:Alaskan Native	6,809	921	13.5	2,314	34.0	2,326	34.2	1,248	18.3
Asian	1,073	118	11.0	238	22.2	311	29.0	406	37.8
Black/:African American	3,981	952	23.9	1,604	40.3	1,023	25.7	402	10.1
Pacific Islander	149	24	16.1	60	40.3	42	28.2	23	15.4
White/:Caucasian	23,604	2,267	9.6	6,627	28.1	8,240	34.9	6,470	27.4
Two or More Races	3,244	398	12.3	1,009	31.1	1,118	34.5	719	22.2
Gender									
Female	22,529	2,004	8.9	6,770	30.1	7,857	34.9	5,898	26.2
Male	23,246	3,927	16.9	7,662	33.0	7,290	31.4	4,367	18.8
Not Indicated	27	7	25.9	8	29.6	9	33.3	3	11.1
Other									
ELL 1st Yr: Proficient	581	81	13.9	318	54.7	159	27.4	23	4.0
ELL 2nd Yr: Proficient	212	29	13.7	85	40.1	75	35.4	23	10.9
Econ. Disadv.	25,078	4,410	17.6	9,380	37.4	7,700	30.7	3,588	14.3
Non-Econ. Disadv.	20,724	1,528	7.4	5,060	24.4	7,456	36.0	6,680	32.2
Migrant	32	5	15.6	10	31.3	10	31.3	7	21.9
Non-Migrant	45,770	5,933	13.0	14,430	31.5	15,146	33.1	10,261	22.4
Individualized Education Plan (IEP)									
IEP	6,868	2,878	41.9	2,924	42.6	898	13.1	168	2.5
IEP w/ Accomm.	2,369	1,057	44.6	992	41.9	282	11.9	38	1.6
IEP w/o Accomm.	4,499	1,821	40.5	1,932	42.9	616	13.7	130	2.9
Plan 504	**898**	**98**	**10.9**	**308**	**34.3**	**314**	**35.0**	**178**	**19.8**
Plan 504 w/ Accomm.	80	7	8.8	35	43.8	23	28.8	15	18.8
Plan 504 w/o Accomm.	818	91	11.1	273	33.4	291	35.6	163	19.9
English Language Learners (ELL)									
ELL	1,601	851	53.2	602	37.6	112	7.0	36	2.3
ELL w/ Accomm.	262	162	61.8	86	32.8	13	5.0	1	0.4
ELL w/o Accomm.	1,339	689	51.5	516	38.5	99	7.4	35	2.6
Non-English Language Learners (Non-ELL)									
Non-ELL	44,201	5,087	11.5	13,838	31.3	15,044	34.0	10,232	23.2

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	131	10	7.6	29	22.1	56	42.8	36	27.5
Non-Military	45,671	5,928	13.0	14,411	31.6	15,100	33.1	10,232	22.4
Foster									
Foster	194	43	22.2	79	40.7	52	26.8	20	10.3
Non-Foster	45,608	5,895	12.9	14,361	31.5	15,104	33.1	10,248	22.5

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,060	13,909	26.7	7,920	15.2	24,019	46.1	6,212	11.9
Form									
Form 1	17,400	4,661	26.8	2,784	16.0	8,036	46.2	1,919	11.0
Form 2	17,356	4,591	26.5	2,556	14.7	8,383	48.3	1,826	10.5
Form 3	17,304	4,657	26.9	2,580	14.9	7,600	43.9	2,467	14.3
Ethnicity									
Hispanic or Latino	9,553	3,804	39.8	1,699	17.8	3,504	36.7	546	5.7
Race									
American Indian/:Alaskan Native	6,741	1,778	26.4	1,120	16.6	3,175	47.1	668	9.9
Asian	944	165	17.5	112	11.9	467	49.5	200	21.2
Black/:African American	4,531	2,116	46.7	778	17.2	1,437	31.7	200	4.4
Pacific Islander	170	72	42.4	34	20.0	58	34.1	6	3.5
White/:Caucasian	24,798	4,692	18.9	3,350	13.5	12,791	51.6	3,965	16.0
Two or More Races	5,323	1,282	24.1	827	15.5	2,587	48.6	627	11.8
Gender									
Female	25,490	5,901	23.2	3,846	15.1	12,213	47.9	3,530	13.9
Male	26,560	8,004	30.1	4,073	15.3	11,801	44.4	2,682	10.1
Not Indicated	10	4	40.0	1	10.0	5	50.0	0	0.0
Other									
ELL 1st Yr: Proficient	575	34	5.9	62	10.8	397	69.0	82	14.3
ELL 2nd Yr: Proficient	268	14	5.2	20	7.5	164	61.2	70	26.1
Econ. Disadv.	33,483	11,171	33.4	5,724	17.1	14,154	42.3	2,434	7.3
Non-Econ. Disadv.	18,577	2,738	14.7	2,196	11.8	9,865	53.1	3,778	20.3
Migrant	30	8	26.7	4	13.3	16	53.3	2	6.7
Non-Migrant	52,030	13,901	26.7	7,916	15.2	24,003	46.1	6,210	11.9
Individualized Education Plan (IEP)									
IEP	9,331	5,497	58.9	1,272	13.6	2,204	23.6	358	3.8
IEP w/ Accomm.	5,034	3,689	73.3	632	12.6	661	13.1	52	1.0
IEP w/o Accomm.	4,297	1,808	42.1	640	14.9	1,543	35.9	306	7.1
Plan 504	**971**	**268**	**27.6**	**172**	**17.7**	**463**	**47.7**	**68**	**7.0**
Plan 504 w/ Accomm.	481	170	35.3	87	18.1	198	41.2	26	5.4
Plan 504 w/o Accomm.	490	98	20.0	85	17.4	265	54.1	42	8.6
English Language Learners (ELL)									
ELL	6,076	3,162	52.0	1,200	19.8	1,594	26.2	120	2.0
ELL w/ Accomm.	1,818	1,133	62.3	353	19.4	321	17.7	11	0.6
ELL w/o Accomm.	4,258	2,029	47.7	847	19.9	1,273	29.9	109	2.6
Non-English Language Learners (Non-ELL)									
Non-ELL	45,984	10,747	23.4	6,720	14.6	22,425	48.8	6,092	13.3
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Military	232	38	16.4	23	9.9	126	54.3	45	19.4
Non-Military	51,828	13,871	26.8	7,897	15.2	23,893	46.1	6,167	11.9
Foster									
Foster	390	136	34.9	74	19.0	163	41.8	17	4.4
Non-Foster	51,670	13,773	26.7	7,846	15.2	23,856	46.2	6,195	12.0

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,512	14,564	28.8	13,355	26.4	19,228	38.1	3,365	6.7
Form									
Form 1	16,954	4,994	29.5	4,381	25.8	6,549	38.6	1,030	6.1
Form 2	16,758	4,629	27.6	4,782	28.5	6,163	36.8	1,184	7.1
Form 3	16,800	4,941	29.4	4,192	25.0	6,516	38.8	1,151	6.9
Ethnicity									
Hispanic or Latino	9,168	3,802	41.5	2,618	28.6	2,474	27.0	274	3.0
Race									
American Indian/:Alaskan Native	6,650	2,006	30.2	1,886	28.4	2,431	36.6	327	4.9
Asian	960	185	19.3	202	21.0	433	45.1	140	14.6
Black/:African American	4,344	2,037	46.9	1,170	26.9	1,050	24.2	87	2.0
Pacific Islander	164	71	43.3	45	27.4	45	27.4	3	1.8
White/:Caucasian	24,207	5,132	21.2	6,050	25.0	10,818	44.7	2,207	9.1
Two or More Races	5,019	1,331	26.5	1,384	27.6	1,977	39.4	327	6.5
Gender									
Female	24,786	6,420	25.9	6,621	26.7	9,866	39.8	1,879	7.6
Male	25,691	8,125	31.6	6,725	26.2	9,355	36.4	1,486	5.8
Not Indicated	35	19	54.3	9	25.7	7	20.0	0	0.0
Other									
ELL 1st Yr: Proficient	1,799	464	25.8	723	40.2	568	31.6	44	2.5
ELL 2nd Yr: Proficient	584	62	10.6	182	31.2	298	51.0	42	7.2
Econ. Disadv.	31,744	11,342	35.7	9,144	28.8	10,128	31.9	1,130	3.6
Non-Econ. Disadv.	18,768	3,222	17.2	4,211	22.4	9,100	48.5	2,235	11.9
Migrant	29	14	48.3	7	24.1	8	27.6	0	0.0
Non-Migrant	50,483	14,550	28.8	13,348	26.4	19,220	38.1	3,365	6.7
Individualized Education Plan (IEP)									
IEP	8,795	5,614	63.8	1,715	19.5	1,312	14.9	154	1.8
IEP w/ Accomm.	5,296	3,992	75.4	880	16.6	405	7.7	19	0.4
IEP w/o Accomm.	3,499	1,622	46.4	835	23.9	907	25.9	135	3.9
Plan 504	**965**	**290**	**30.1**	**274**	**28.4**	**356**	**36.9**	**45**	**4.7**
Plan 504 w/ Accomm.	471	153	32.5	135	28.7	169	35.9	14	3.0
Plan 504 w/o Accomm.	494	137	27.7	139	28.1	187	37.9	31	6.3
English Language Learners (ELL)									
ELL	4,027	2,651	65.8	961	23.9	399	9.9	16	0.4
ELL w/ Accomm.	1,260	936	74.3	254	20.2	69	5.5	1	0.1
ELL w/o Accomm.	2,767	1,715	62.0	707	25.6	330	11.9	15	0.5
Non-English Language Learners (Non-ELL)									
Non-ELL	46,485	11,913	25.6	12,394	26.7	18,829	40.5	3,349	7.2

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	253	41	16.2	62	24.5	121	47.8	29	11.5
Non-Military	50,259	14,523	28.9	13,293	26.5	19,107	38.0	3,336	6.6
Foster									
Foster	362	147	40.6	102	28.2	102	28.2	11	3.0
Non-Foster	50,150	14,417	28.8	13,253	26.4	19,126	38.1	3,354	6.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,449	7,966	16.4	15,214	31.4	19,359	40.0	5,910	12.2
Form									
Form 1	16,248	2,857	17.6	5,129	31.6	6,429	39.6	1,833	11.3
Form 2	16,143	2,475	15.3	5,124	31.7	6,712	41.6	1,832	11.4
Form 3	16,058	2,634	16.4	4,961	30.9	6,218	38.7	2,245	14.0
Ethnicity									
Hispanic or Latino	8,678	2,001	23.1	3,238	37.3	2,886	33.3	553	6.4
Race									
American Indian/:Alaskan Native	6,657	1,089	16.4	2,268	34.1	2,618	39.3	682	10.2
Asian	917	92	10.0	222	24.2	372	40.6	231	25.2
Black/:African American	4,253	1,251	29.4	1,655	38.9	1,139	26.8	208	4.9
Pacific Islander	159	46	28.9	57	35.9	44	27.7	12	7.6
White/:Caucasian	23,316	2,794	12.0	6,412	27.5	10,416	44.7	3,694	15.8
Two or More Races	4,469	693	15.5	1,362	30.5	1,884	42.2	530	11.9
Gender									
Female	23,909	3,186	13.3	7,470	31.2	10,001	41.8	3,252	13.6
Male	24,497	4,766	19.5	7,724	31.5	9,349	38.2	2,658	10.9
Not Indicated	43	14	32.6	20	46.5	9	20.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,417	203	14.3	680	48.0	494	34.9	40	2.8
ELL 2nd Yr: Proficient	1,715	194	11.3	759	44.3	678	39.5	84	4.9
Econ. Disadv.	30,004	6,382	21.3	10,802	36.0	10,667	35.6	2,153	7.2
Non-Econ. Disadv.	18,445	1,584	8.6	4,412	23.9	8,692	47.1	3,757	20.4
Migrant	31	6	19.4	10	32.3	14	45.2	1	3.2
Non-Migrant	48,418	7,960	16.4	15,204	31.4	19,345	40.0	5,909	12.2
Individualized Education Plan (IEP)									
IEP	8,316	4,144	49.8	2,640	31.8	1,320	15.9	212	2.6
IEP w/ Accomm.	5,301	3,089	58.3	1,626	30.7	536	10.1	50	0.9
IEP w/o Accomm.	3,015	1,055	35.0	1,014	33.6	784	26.0	162	5.4
Plan 504	**1,061**	**158**	**14.9**	**361**	**34.0**	**445**	**41.9**	**97**	**9.1**
Plan 504 w/ Accomm.	520	102	19.6	185	35.6	201	38.7	32	6.2
Plan 504 w/o Accomm.	541	56	10.4	176	32.5	244	45.1	65	12.0
English Language Learners (ELL)									
ELL	2,462	1,255	51.0	904	36.7	270	11.0	33	1.3
ELL w/ Accomm.	746	441	59.1	258	34.6	45	6.0	2	0.3
ELL w/o Accomm.	1,716	814	47.4	646	37.7	225	13.1	31	1.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,987	6,711	14.6	14,310	31.1	19,089	41.5	5,877	12.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	247	17	6.9	57	23.1	111	44.9	62	25.1
Non-Military	48,202	7,949	16.5	15,157	31.4	19,248	39.9	5,848	12.1
Foster									
Foster	299	74	24.8	126	42.1	85	28.4	14	4.7
Non-Foster	48,150	7,892	16.4	15,088	31.3	19,274	40.0	5,896	12.3

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	46,499	8,461	18.2	19,293	41.5	12,658	27.2	6,087	13.1
Form									
Form 1	15,973	3,207	20.1	6,263	39.2	4,265	26.7	2,238	14.0
Form 2	15,254	2,683	17.6	6,547	42.9	4,072	26.7	1,952	12.8
Form 3	15,272	2,571	16.8	6,483	42.5	4,321	28.3	1,897	12.4
Ethnicity									
Hispanic or Latino	7,593	1,910	25.2	3,506	46.2	1,622	21.4	555	7.3
Race									
American Indian/:Alaskan Native	6,745	1,324	19.6	2,965	44.0	1,726	25.6	730	10.8
Asian	871	92	10.6	261	30.0	261	30.0	257	29.5
Black/:African American	3,837	1,117	29.1	1,792	46.7	716	18.7	212	5.5
Pacific Islander	139	42	30.2	62	44.6	28	20.1	7	5.0
White/:Caucasian	23,366	3,279	14.0	9,133	39.1	7,168	30.7	3,786	16.2
Two or More Races	3,948	697	17.7	1,574	39.9	1,137	28.8	540	13.7
Gender									
Female	22,695	3,484	15.4	9,552	42.1	6,423	28.3	3,236	14.3
Male	23,726	4,945	20.8	9,714	40.9	6,220	26.2	2,847	12.0
Not Indicated	78	32	41.0	27	34.6	15	19.2	4	5.1
Other									
ELL 1st Yr: Proficient	638	122	19.1	392	61.4	102	16.0	22	3.5
ELL 2nd Yr: Proficient	916	177	19.3	527	57.5	169	18.5	43	4.7
Econ. Disadv.	28,339	6,744	23.8	12,821	45.2	6,431	22.7	2,343	8.3
Non-Econ. Disadv.	18,160	1,717	9.5	6,472	35.6	6,227	34.3	3,744	20.6
Migrant	28	12	42.9	12	42.9	3	10.7	1	3.6
Non-Migrant	46,471	8,449	18.2	19,281	41.5	12,655	27.2	6,086	13.1
Individualized Education Plan (IEP)									
IEP	7,443	4,101	55.1	2,469	33.2	680	9.1	193	2.6
IEP w/ Accomm.	4,019	2,467	61.4	1,278	31.8	232	5.8	42	1.1
IEP w/o Accomm.	3,424	1,634	47.7	1,191	34.8	448	13.1	151	4.4
Plan 504	**1,091**	**168**	**15.4**	**520**	**47.7**	**288**	**26.4**	**115**	**10.5**
Plan 504 w/ Accomm.	332	67	20.2	165	49.7	74	22.3	26	7.8
Plan 504 w/o Accomm.	759	101	13.3	355	46.8	214	28.2	89	11.7
English Language Learners (ELL)									
ELL	1,658	1,025	61.8	523	31.5	91	5.5	19	1.2
ELL w/ Accomm.	293	220	75.1	68	23.2	5	1.7	0	0.0
ELL w/o Accomm.	1,365	805	59.0	455	33.3	86	6.3	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	44,841	7,436	16.6	18,770	41.9	12,567	28.0	6,068	13.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	260	27	10.4	93	35.8	86	33.1	54	20.8
Non-Military	46,239	8,434	18.2	19,200	41.5	12,572	27.2	6,033	13.1
Foster									
Foster	279	81	29.0	138	49.5	44	15.8	16	5.7
Non-Foster	46,220	8,380	18.1	19,155	41.4	12,614	27.3	6,071	13.1

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	48,035	12,184	25.4	13,246	27.6	16,862	35.1	5,743	12.0
Form									
Form 1	16,436	4,486	27.3	4,262	25.9	5,910	36.0	1,778	10.8
Form 2	15,795	3,921	24.8	4,339	27.5	5,781	36.6	1,754	11.1
Form 3	15,804	3,777	23.9	4,645	29.4	5,171	32.7	2,211	14.0
Ethnicity									
Hispanic or Latino	8,086	2,894	35.8	2,430	30.1	2,243	27.7	519	6.4
Race									
American Indian/:Alaskan Native	7,027	1,845	26.3	2,083	29.6	2,382	33.9	717	10.2
Asian	997	150	15.1	220	22.1	365	36.6	262	26.3
Black/:African American	4,178	1,799	43.1	1,185	28.4	975	23.3	219	5.2
Pacific Islander	146	63	43.2	39	26.7	38	26.0	6	4.1
White/:Caucasian	23,684	4,484	18.9	6,170	26.1	9,457	39.9	3,573	15.1
Two or More Races	3,917	949	24.2	1,119	28.6	1,402	35.8	447	11.4
Gender									
Female	23,357	5,120	21.9	6,455	27.6	8,716	37.3	3,066	13.1
Male	24,622	7,035	28.6	6,779	27.5	8,132	33.0	2,676	10.9
Not Indicated	56	29	51.8	12	21.4	14	25.0	1	1.8
Other									
ELL 1st Yr: Proficient	200	48	24.0	83	41.5	60	30.0	9	4.5
ELL 2nd Yr: Proficient	440	126	28.6	188	42.7	113	25.7	13	3.0
Econ. Disadv.	29,593	9,768	33.0	8,882	30.0	8,756	29.6	2,187	7.4
Non-Econ. Disadv.	18,442	2,416	13.1	4,364	23.7	8,106	44.0	3,556	19.3
Migrant	32	16	50.0	6	18.8	8	25.0	2	6.3
Non-Migrant	48,003	12,168	25.4	13,240	27.6	16,854	35.1	5,741	12.0
Individualized Education Plan (IEP)									
IEP	8,153	5,380	66.0	1,663	20.4	918	11.3	192	2.4
IEP w/ Accomm.	4,211	3,043	72.3	765	18.2	339	8.1	64	1.5
IEP w/o Accomm.	3,942	2,337	59.3	898	22.8	579	14.7	128	3.3
Plan 504	**1,009**	**208**	**20.6**	**305**	**30.2**	**391**	**38.8**	**105**	**10.4**
Plan 504 w/ Accomm.	233	61	26.2	80	34.3	74	31.8	18	7.7
Plan 504 w/o Accomm.	776	147	18.9	225	29.0	317	40.9	87	11.2
English Language Learners (ELL)									
ELL	2,173	1,622	74.6	416	19.1	120	5.5	15	0.7
ELL w/ Accomm.	287	245	85.4	36	12.5	6	2.1	0	0.0
ELL w/o Accomm.	1,886	1,377	73.0	380	20.2	114	6.0	15	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,862	10,562	23.0	12,830	28.0	16,742	36.5	5,728	12.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	30	13.2	69	30.3	90	39.5	39	17.1
Non-Military	47,807	12,154	25.4	13,177	27.6	16,772	35.1	5,704	11.9
Foster									
Foster	260	105	40.4	73	28.1	57	21.9	25	9.6
Non-Foster	47,775	12,079	25.3	13,173	27.6	16,805	35.2	5,718	12.0

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,893	9,972	20.8	20,292	42.4	12,084	25.2	5,545	11.6
Form									
Form 1	16,470	3,786	23.0	7,095	43.1	3,804	23.1	1,785	10.8
Form 2	15,698	3,256	20.7	6,285	40.0	4,498	28.7	1,659	10.6
Form 3	15,725	2,930	18.6	6,912	44.0	3,782	24.1	2,101	13.4
Ethnicity									
Hispanic or Latino	7,816	2,353	30.1	3,525	45.1	1,437	18.4	501	6.4
Race									
American Indian/:Alaskan Native	6,990	1,470	21.0	3,168	45.3	1,694	24.2	658	9.4
Asian	943	124	13.2	294	31.2	277	29.4	248	26.3
Black/:African American	4,196	1,569	37.4	1,761	42.0	671	16.0	195	4.7
Pacific Islander	167	62	37.1	62	37.1	36	21.6	7	4.2
White/:Caucasian	24,041	3,662	15.2	9,876	41.1	6,995	29.1	3,508	14.6
Two or More Races	3,740	732	19.6	1,606	42.9	974	26.0	428	11.4
Gender									
Female	23,511	3,864	16.4	9,751	41.5	6,517	27.7	3,379	14.4
Male	24,312	6,072	25.0	10,511	43.2	5,565	22.9	2,164	8.9
Not Indicated	70	36	51.4	30	42.9	2	2.9	2	2.9
Other									
ELL 1st Yr: Proficient	183	27	14.8	122	66.7	28	15.3	6	3.3
ELL 2nd Yr: Proficient	242	23	9.5	143	59.1	55	22.7	21	8.7
Econ. Disadv.	29,058	8,035	27.7	13,169	45.3	5,941	20.5	1,913	6.6
Non-Econ. Disadv.	18,835	1,937	10.3	7,123	37.8	6,143	32.6	3,632	19.3
Migrant	37	18	48.7	9	24.3	7	18.9	3	8.1
Non-Migrant	47,856	9,954	20.8	20,283	42.4	12,077	25.2	5,542	11.6
Individualized Education Plan (IEP)									
IEP	7,713	4,697	60.9	2,468	32.0	435	5.6	113	1.5
IEP w/ Accomm.	4,247	2,870	67.6	1,176	27.7	170	4.0	31	0.7
IEP w/o Accomm.	3,466	1,827	52.7	1,292	37.3	265	7.7	82	2.4
Plan 504	**986**	**161**	**16.3**	**475**	**48.2**	**245**	**24.9**	**105**	**10.7**
Plan 504 w/ Accomm.	211	42	19.9	104	49.3	49	23.2	16	7.6
Plan 504 w/o Accomm.	775	119	15.4	371	47.9	196	25.3	89	11.5
English Language Learners (ELL)									
ELL	2,127	1,460	68.6	582	27.4	71	3.3	14	0.7
ELL w/ Accomm.	360	296	82.2	59	16.4	5	1.4	0	0.0
ELL w/o Accomm.	1,767	1,164	65.9	523	29.6	66	3.7	14	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,766	8,512	18.6	19,710	43.1	12,013	26.3	5,531	12.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	226	29	12.8	91	40.3	71	31.4	35	15.5
Non-Military	47,667	9,943	20.9	20,201	42.4	12,013	25.2	5,510	11.6
Foster									
Foster	241	91	37.8	108	44.8	36	14.9	6	2.5
Non-Foster	47,652	9,881	20.7	20,184	42.4	12,048	25.3	5,539	11.6

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,802	5,938	13.0	14,440	31.5	16,797	36.7	8,627	18.8
Form									
Form 1	15,658	2,125	13.6	5,022	32.1	5,521	35.3	2,990	19.1
Form 2	15,095	1,863	12.3	4,752	31.5	5,729	38.0	2,751	18.2
Form 3	15,049	1,950	13.0	4,666	31.0	5,547	36.9	2,886	19.2
Ethnicity									
Hispanic or Latino	6,942	1,258	18.1	2,588	37.3	2,293	33.0	803	11.6
Race									
American Indian/:Alaskan Native	6,809	921	13.5	2,314	34.0	2,554	37.5	1,020	15.0
Asian	1,073	118	11.0	238	22.2	347	32.3	370	34.5
Black/:African American	3,981	952	23.9	1,604	40.3	1,110	27.9	315	7.9
Pacific Islander	149	24	16.1	60	40.3	45	30.2	20	13.4
White/:Caucasian	23,604	2,267	9.6	6,627	28.1	9,231	39.1	5,479	23.2
Two or More Races	3,244	398	12.3	1,009	31.1	1,217	37.5	620	19.1
Gender									
Female	22,529	2,004	8.9	6,770	30.1	8,760	38.9	4,995	22.2
Male	23,246	3,927	16.9	7,662	33.0	8,027	34.5	3,630	15.6
Not Indicated	27	7	25.9	8	29.6	10	37.0	2	7.4
Other									
ELL 1st Yr: Proficient	581	81	13.9	318	54.7	165	28.4	17	2.9
ELL 2nd Yr: Proficient	212	29	13.7	85	40.1	79	37.3	19	9.0
Econ. Disadv.	25,078	4,410	17.6	9,380	37.4	8,369	33.4	2,919	11.6
Non-Econ. Disadv.	20,724	1,528	7.4	5,060	24.4	8,428	40.7	5,708	27.5
Migrant	32	5	15.6	10	31.3	11	34.4	6	18.8
Non-Migrant	45,770	5,933	13.0	14,430	31.5	16,786	36.7	8,621	18.8
Individualized Education Plan (IEP)									
IEP	6,868	2,878	41.9	2,924	42.6	935	13.6	131	1.9
IEP w/ Accomm.	2,369	1,057	44.6	992	41.9	290	12.2	30	1.3
IEP w/o Accomm.	4,499	1,821	40.5	1,932	42.9	645	14.3	101	2.2
Plan 504	**898**	**98**	**10.9**	**308**	**34.3**	**347**	**38.6**	**145**	**16.2**
Plan 504 w/ Accomm.	80	7	8.8	35	43.8	24	30.0	14	17.5
Plan 504 w/o Accomm.	818	91	11.1	273	33.4	323	39.5	131	16.0
English Language Learners (ELL)									
ELL	1,601	851	53.2	602	37.6	117	7.3	31	1.9
ELL w/ Accomm.	262	162	61.8	86	32.8	13	5.0	1	0.4
ELL w/o Accomm.	1,339	689	51.5	516	38.5	104	7.8	30	2.2
Non-English Language Learners (Non-ELL)									
Non-ELL	44,201	5,087	11.5	13,838	31.3	16,680	37.7	8,596	19.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	131	10	7.6	29	22.1	62	47.3	30	22.9
Non-Military	45,671	5,928	13.0	14,411	31.6	16,735	36.6	8,597	18.8
Foster									
Foster	194	43	22.2	79	40.7	61	31.4	11	5.7
Non-Foster	45,608	5,895	12.9	14,361	31.5	16,736	36.7	8,616	18.9

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,060	15,361	29.5	14,370	27.6	18,356	35.3	3,973	7.6
Form									
Form 1	17,400	5,190	29.8	4,916	28.3	5,878	33.8	1,416	8.1
Form 2	17,356	5,048	29.1	4,729	27.3	6,321	36.4	1,258	7.3
Form 3	17,304	5,123	29.6	4,725	27.3	6,157	35.6	1,299	7.5
Ethnicity									
Hispanic or Latino	9,553	4,140	43.3	2,754	28.8	2,331	24.4	328	3.4
Race									
American Indian/:Alaskan Native	6,741	1,974	29.3	2,037	30.2	2,315	34.3	415	6.2
Asian	944	181	19.2	229	24.3	396	42.0	138	14.6
Black/:African American	4,531	2,274	50.2	1,227	27.1	910	20.1	120	2.7
Pacific Islander	170	81	47.7	45	26.5	40	23.5	4	2.4
White/:Caucasian	24,798	5,276	21.3	6,563	26.5	10,387	41.9	2,572	10.4
Two or More Races	5,323	1,435	27.0	1,515	28.5	1,977	37.1	396	7.4
Gender									
Female	25,490	6,565	25.8	7,073	27.8	9,545	37.5	2,307	9.1
Male	26,560	8,792	33.1	7,294	27.5	8,808	33.2	1,666	6.3
Not Indicated	10	4	40.0	3	30.0	3	30.0	0	0.0
Other									
ELL 1st Yr: Proficient	575	43	7.5	189	32.9	298	51.8	45	7.8
ELL 2nd Yr: Proficient	268	17	6.3	60	22.4	146	54.5	45	16.8
Econ. Disadv.	33,483	12,280	36.7	9,835	29.4	9,923	29.6	1,445	4.3
Non-Econ. Disadv.	18,577	3,081	16.6	4,535	24.4	8,433	45.4	2,528	13.6
Migrant	30	8	26.7	9	30.0	12	40.0	1	3.3
Non-Migrant	52,030	15,353	29.5	14,361	27.6	18,344	35.3	3,972	7.6
Individualized Education Plan (IEP)									
IEP	9,331	5,768	61.8	1,887	20.2	1,454	15.6	222	2.4
IEP w/ Accomm.	5,034	3,836	76.2	826	16.4	347	6.9	25	0.5
IEP w/o Accomm.	4,297	1,932	45.0	1,061	24.7	1,107	25.8	197	4.6
Plan 504	**971**	**307**	**31.6**	**314**	**32.3**	**313**	**32.2**	**37**	**3.8**
Plan 504 w/ Accomm.	481	190	39.5	152	31.6	127	26.4	12	2.5
Plan 504 w/o Accomm.	490	117	23.9	162	33.1	186	38.0	25	5.1
English Language Learners (ELL)									
ELL	6,076	3,426	56.4	1,702	28.0	879	14.5	69	1.1
ELL w/ Accomm.	1,818	1,207	66.4	470	25.9	132	7.3	9	0.5
ELL w/o Accomm.	4,258	2,219	52.1	1,232	28.9	747	17.5	60	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	45,984	11,935	26.0	12,668	27.6	17,477	38.0	3,904	8.5
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Military	232	41	17.7	55	23.7	109	47.0	27	11.6
Non-Military	51,828	15,320	29.6	14,315	27.6	18,247	35.2	3,946	7.6
Foster									
Foster	390	150	38.5	123	31.5	107	27.4	10	2.6
Non-Foster	51,670	15,211	29.4	14,247	27.6	18,249	35.3	3,963	7.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,512	14,564	28.8	14,161	28.0	18,422	36.5	3,365	6.7
Form									
Form 1	16,954	4,994	29.5	4,381	25.8	6,549	38.6	1,030	6.1
Form 2	16,758	4,629	27.6	4,782	28.5	6,163	36.8	1,184	7.1
Form 3	16,800	4,941	29.4	4,998	29.8	5,710	34.0	1,151	6.9
Ethnicity									
Hispanic or Latino	9,168	3,802	41.5	2,740	29.9	2,352	25.7	274	3.0
Race									
American Indian/:Alaskan Native	6,650	2,006	30.2	1,984	29.8	2,333	35.1	327	4.9
Asian	960	185	19.3	212	22.1	423	44.1	140	14.6
Black/:African American	4,344	2,037	46.9	1,224	28.2	996	22.9	87	2.0
Pacific Islander	164	71	43.3	45	27.4	45	27.4	3	1.8
White/:Caucasian	24,207	5,132	21.2	6,489	26.8	10,379	42.9	2,207	9.1
Two or More Races	5,019	1,331	26.5	1,467	29.2	1,894	37.7	327	6.5
Gender									
Female	24,786	6,420	25.9	7,008	28.3	9,479	38.2	1,879	7.6
Male	25,691	8,125	31.6	7,144	27.8	8,936	34.8	1,486	5.8
Not Indicated	35	19	54.3	9	25.7	7	20.0	0	0.0
Other									
ELL 1st Yr: Proficient	1,799	464	25.8	744	41.4	547	30.4	44	2.5
ELL 2nd Yr: Proficient	584	62	10.6	198	33.9	282	48.3	42	7.2
Econ. Disadv.	31,744	11,342	35.7	9,651	30.4	9,621	30.3	1,130	3.6
Non-Econ. Disadv.	18,768	3,222	17.2	4,510	24.0	8,801	46.9	2,235	11.9
Migrant	29	14	48.3	8	27.6	7	24.1	0	0.0
Non-Migrant	50,483	14,550	28.8	14,153	28.0	18,415	36.5	3,365	6.7
Individualized Education Plan (IEP)									
IEP	8,795	5,614	63.8	1,792	20.4	1,235	14.0	154	1.8
IEP w/ Accomm.	5,296	3,992	75.4	914	17.3	371	7.0	19	0.4
IEP w/o Accomm.	3,499	1,622	46.4	878	25.1	864	24.7	135	3.9
Plan 504	**965**	**290**	**30.1**	**289**	**30.0**	**341**	**35.3**	**45**	**4.7**
Plan 504 w/ Accomm.	471	153	32.5	143	30.4	161	34.2	14	3.0
Plan 504 w/o Accomm.	494	137	27.7	146	29.6	180	36.4	31	6.3
English Language Learners (ELL)									
ELL	4,027	2,651	65.8	991	24.6	369	9.2	16	0.4
ELL w/ Accomm.	1,260	936	74.3	259	20.6	64	5.1	1	0.1
ELL w/o Accomm.	2,767	1,715	62.0	732	26.5	305	11.0	15	0.5
Non-English Language Learners (Non-ELL)									
Non-ELL	46,485	11,913	25.6	13,170	28.3	18,053	38.8	3,349	7.2

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	253	41	16.2	68	26.9	115	45.5	29	11.5
Non-Military	50,259	14,523	28.9	14,093	28.0	18,307	36.4	3,336	6.6
Foster									
Foster	362	147	40.6	107	29.6	97	26.8	11	3.0
Non-Foster	50,150	14,417	28.8	14,054	28.0	18,325	36.5	3,354	6.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,449	7,966	16.4	14,643	30.2	19,930	41.1	5,910	12.2
Form									
Form 1	16,248	2,857	17.6	5,129	31.6	6,429	39.6	1,833	11.3
Form 2	16,143	2,475	15.3	4,553	28.2	7,283	45.1	1,832	11.4
Form 3	16,058	2,634	16.4	4,961	30.9	6,218	38.7	2,245	14.0
Ethnicity									
Hispanic or Latino	8,678	2,001	23.1	3,134	36.1	2,990	34.5	553	6.4
Race									
American Indian/:Alaskan Native	6,657	1,089	16.4	2,202	33.1	2,684	40.3	682	10.2
Asian	917	92	10.0	213	23.2	381	41.6	231	25.2
Black/:African American	4,253	1,251	29.4	1,613	37.9	1,181	27.8	208	4.9
Pacific Islander	159	46	28.9	53	33.3	48	30.2	12	7.6
White/:Caucasian	23,316	2,794	12.0	6,117	26.2	10,711	45.9	3,694	15.8
Two or More Races	4,469	693	15.5	1,311	29.3	1,935	43.3	530	11.9
Gender									
Female	23,909	3,186	13.3	7,184	30.1	10,287	43.0	3,252	13.6
Male	24,497	4,766	19.5	7,439	30.4	9,634	39.3	2,658	10.9
Not Indicated	43	14	32.6	20	46.5	9	20.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,417	203	14.3	659	46.5	515	36.3	40	2.8
ELL 2nd Yr: Proficient	1,715	194	11.3	727	42.4	710	41.4	84	4.9
Econ. Disadv.	30,004	6,382	21.3	10,424	34.7	11,045	36.8	2,153	7.2
Non-Econ. Disadv.	18,445	1,584	8.6	4,219	22.9	8,885	48.2	3,757	20.4
Migrant	31	6	19.4	10	32.3	14	45.2	1	3.2
Non-Migrant	48,418	7,960	16.4	14,633	30.2	19,916	41.1	5,909	12.2
Individualized Education Plan (IEP)									
IEP	8,316	4,144	49.8	2,580	31.0	1,380	16.6	212	2.6
IEP w/ Accomm.	5,301	3,089	58.3	1,596	30.1	566	10.7	50	0.9
IEP w/o Accomm.	3,015	1,055	35.0	984	32.6	814	27.0	162	5.4
Plan 504	**1,061**	**158**	**14.9**	**349**	**32.9**	**457**	**43.1**	**97**	**9.1**
Plan 504 w/ Accomm.	520	102	19.6	178	34.2	208	40.0	32	6.2
Plan 504 w/o Accomm.	541	56	10.4	171	31.6	249	46.0	65	12.0
English Language Learners (ELL)									
ELL	2,462	1,255	51.0	887	36.0	287	11.7	33	1.3
ELL w/ Accomm.	746	441	59.1	254	34.1	49	6.6	2	0.3
ELL w/o Accomm.	1,716	814	47.4	633	36.9	238	13.9	31	1.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,987	6,711	14.6	13,756	29.9	19,643	42.7	5,877	12.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	247	17	6.9	56	22.7	112	45.3	62	25.1
Non-Military	48,202	7,949	16.5	14,587	30.3	19,818	41.1	5,848	12.1
Foster									
Foster	299	74	24.8	125	41.8	86	28.8	14	4.7
Non-Foster	48,150	7,892	16.4	14,518	30.2	19,844	41.2	5,896	12.3

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	46,499	8,461	18.2	18,606	40.0	15,079	32.4	4,353	9.4
Form									
Form 1	15,973	3,207	20.1	6,263	39.2	4,924	30.8	1,579	9.9
Form 2	15,254	2,683	17.6	5,860	38.4	5,261	34.5	1,450	9.5
Form 3	15,272	2,571	16.8	6,483	42.5	4,894	32.1	1,324	8.7
Ethnicity									
Hispanic or Latino	7,593	1,910	25.2	3,398	44.8	1,902	25.1	383	5.0
Race									
American Indian/:Alaskan Native	6,745	1,324	19.6	2,870	42.6	2,040	30.2	511	7.6
Asian	871	92	10.6	250	28.7	336	38.6	193	22.2
Black/:African American	3,837	1,117	29.1	1,743	45.4	836	21.8	141	3.7
Pacific Islander	139	42	30.2	59	42.5	33	23.7	5	3.6
White/:Caucasian	23,366	3,279	14.0	8,776	37.6	8,550	36.6	2,761	11.8
Two or More Races	3,948	697	17.7	1,510	38.3	1,382	35.0	359	9.1
Gender									
Female	22,695	3,484	15.4	9,198	40.5	7,668	33.8	2,345	10.3
Male	23,726	4,945	20.8	9,382	39.5	7,393	31.2	2,006	8.5
Not Indicated	78	32	41.0	26	33.3	18	23.1	2	2.6
Other									
ELL 1st Yr: Proficient	638	122	19.1	384	60.2	114	17.9	18	2.8
ELL 2nd Yr: Proficient	916	177	19.3	508	55.5	205	22.4	26	2.8
Econ. Disadv.	28,339	6,744	23.8	12,406	43.8	7,579	26.7	1,610	5.7
Non-Econ. Disadv.	18,160	1,717	9.5	6,200	34.1	7,500	41.3	2,743	15.1
Migrant	28	12	42.9	12	42.9	3	10.7	1	3.6
Non-Migrant	46,471	8,449	18.2	18,594	40.0	15,076	32.4	4,352	9.4
Individualized Education Plan (IEP)									
IEP	7,443	4,101	55.1	2,431	32.7	781	10.5	130	1.8
IEP w/ Accomm.	4,019	2,467	61.4	1,264	31.5	260	6.5	28	0.7
IEP w/o Accomm.	3,424	1,634	47.7	1,167	34.1	521	15.2	102	3.0
Plan 504	**1,091**	**168**	**15.4**	**504**	**46.2**	**337**	**30.9**	**82**	**7.5**
Plan 504 w/ Accomm.	332	67	20.2	161	48.5	86	25.9	18	5.4
Plan 504 w/o Accomm.	759	101	13.3	343	45.2	251	33.1	64	8.4
English Language Learners (ELL)									
ELL	1,658	1,025	61.8	513	30.9	106	6.4	14	0.8
ELL w/ Accomm.	293	220	75.1	66	22.5	7	2.4	0	0.0
ELL w/o Accomm.	1,365	805	59.0	447	32.8	99	7.3	14	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,841	7,436	16.6	18,093	40.4	14,973	33.4	4,339	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	260	27	10.4	88	33.9	99	38.1	46	17.7
Non-Military	46,239	8,434	18.2	18,518	40.1	14,980	32.4	4,307	9.3
Foster									
Foster	279	81	29.0	132	47.3	56	20.1	10	3.6
Non-Foster	46,220	8,380	18.1	18,474	40.0	15,023	32.5	4,343	9.4

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	48,035	14,029	29.2	12,126	25.2	16,137	33.6	5,743	12.0
Form									
Form 1	16,436	4,978	30.3	4,495	27.4	5,185	31.6	1,778	10.8
Form 2	15,795	4,386	27.8	3,874	24.5	5,781	36.6	1,754	11.1
Form 3	15,804	4,665	29.5	3,757	23.8	5,171	32.7	2,211	14.0
Ethnicity									
Hispanic or Latino	8,086	3,278	40.5	2,170	26.8	2,119	26.2	519	6.4
Race									
American Indian/:Alaskan Native	7,027	2,144	30.5	1,897	27.0	2,269	32.3	717	10.2
Asian	997	173	17.4	208	20.9	354	35.5	262	26.3
Black/:African American	4,178	1,978	47.3	1,067	25.5	914	21.9	219	5.2
Pacific Islander	146	68	46.6	38	26.0	34	23.3	6	4.1
White/:Caucasian	23,684	5,286	22.3	5,721	24.2	9,104	38.4	3,573	15.1
Two or More Races	3,917	1,102	28.1	1,025	26.2	1,343	34.3	447	11.4
Gender									
Female	23,357	5,983	25.6	5,958	25.5	8,350	35.8	3,066	13.1
Male	24,622	8,015	32.6	6,158	25.0	7,773	31.6	2,676	10.9
Not Indicated	56	31	55.4	10	17.9	14	25.0	1	1.8
Other									
ELL 1st Yr: Proficient	200	61	30.5	73	36.5	57	28.5	9	4.5
ELL 2nd Yr: Proficient	440	159	36.1	165	37.5	103	23.4	13	3.0
Econ. Disadv.	29,593	11,113	37.6	7,966	26.9	8,327	28.1	2,187	7.4
Non-Econ. Disadv.	18,442	2,916	15.8	4,160	22.6	7,810	42.4	3,556	19.3
Migrant	32	18	56.3	4	12.5	8	25.0	2	6.3
Non-Migrant	48,003	14,011	29.2	12,122	25.3	16,129	33.6	5,741	12.0
Individualized Education Plan (IEP)									
IEP	8,153	5,711	70.1	1,391	17.1	859	10.5	192	2.4
IEP w/ Accomm.	4,211	3,202	76.0	632	15.0	313	7.4	64	1.5
IEP w/o Accomm.	3,942	2,509	63.7	759	19.3	546	13.9	128	3.3
Plan 504	**1,009**	**268**	**26.6**	**264**	**26.2**	**372**	**36.9**	**105**	**10.4**
Plan 504 w/ Accomm.	233	81	34.8	66	28.3	68	29.2	18	7.7
Plan 504 w/o Accomm.	776	187	24.1	198	25.5	304	39.2	87	11.2
English Language Learners (ELL)									
ELL	2,173	1,714	78.9	332	15.3	112	5.2	15	0.7
ELL w/ Accomm.	287	258	89.9	24	8.4	5	1.7	0	0.0
ELL w/o Accomm.	1,886	1,456	77.2	308	16.3	107	5.7	15	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,862	12,315	26.9	11,794	25.7	16,025	34.9	5,728	12.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	43	18.9	57	25.0	89	39.0	39	17.1
Non-Military	47,807	13,986	29.3	12,069	25.3	16,048	33.6	5,704	11.9
Foster									
Foster	260	114	43.9	65	25.0	56	21.5	25	9.6
Non-Foster	47,775	13,915	29.1	12,061	25.3	16,081	33.7	5,718	12.0

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,893	9,972	20.8	20,292	42.4	12,084	25.2	5,545	11.6
Form									
Form 1	16,470	3,786	23.0	7,095	43.1	3,804	23.1	1,785	10.8
Form 2	15,698	3,256	20.7	6,285	40.0	4,498	28.7	1,659	10.6
Form 3	15,725	2,930	18.6	6,912	44.0	3,782	24.1	2,101	13.4
Ethnicity									
Hispanic or Latino	7,816	2,353	30.1	3,525	45.1	1,437	18.4	501	6.4
Race									
American Indian/:Alaskan Native	6,990	1,470	21.0	3,168	45.3	1,694	24.2	658	9.4
Asian	943	124	13.2	294	31.2	277	29.4	248	26.3
Black/:African American	4,196	1,569	37.4	1,761	42.0	671	16.0	195	4.7
Pacific Islander	167	62	37.1	62	37.1	36	21.6	7	4.2
White/:Caucasian	24,041	3,662	15.2	9,876	41.1	6,995	29.1	3,508	14.6
Two or More Races	3,740	732	19.6	1,606	42.9	974	26.0	428	11.4
Gender									
Female	23,511	3,864	16.4	9,751	41.5	6,517	27.7	3,379	14.4
Male	24,312	6,072	25.0	10,511	43.2	5,565	22.9	2,164	8.9
Not Indicated	70	36	51.4	30	42.9	2	2.9	2	2.9
Other									
ELL 1st Yr: Proficient	183	27	14.8	122	66.7	28	15.3	6	3.3
ELL 2nd Yr: Proficient	242	23	9.5	143	59.1	55	22.7	21	8.7
Econ. Disadv.	29,058	8,035	27.7	13,169	45.3	5,941	20.5	1,913	6.6
Non-Econ. Disadv.	18,835	1,937	10.3	7,123	37.8	6,143	32.6	3,632	19.3
Migrant	37	18	48.7	9	24.3	7	18.9	3	8.1
Non-Migrant	47,856	9,954	20.8	20,283	42.4	12,077	25.2	5,542	11.6
Individualized Education Plan (IEP)									
IEP	7,713	4,697	60.9	2,468	32.0	435	5.6	113	1.5
IEP w/ Accomm.	4,247	2,870	67.6	1,176	27.7	170	4.0	31	0.7
IEP w/o Accomm.	3,466	1,827	52.7	1,292	37.3	265	7.7	82	2.4
Plan 504	**986**	**161**	**16.3**	**475**	**48.2**	**245**	**24.9**	**105**	**10.7**
Plan 504 w/ Accomm.	211	42	19.9	104	49.3	49	23.2	16	7.6
Plan 504 w/o Accomm.	775	119	15.4	371	47.9	196	25.3	89	11.5
English Language Learners (ELL)									
ELL	2,127	1,460	68.6	582	27.4	71	3.3	14	0.7
ELL w/ Accomm.	360	296	82.2	59	16.4	5	1.4	0	0.0
ELL w/o Accomm.	1,767	1,164	65.9	523	29.6	66	3.7	14	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,766	8,512	18.6	19,710	43.1	12,013	26.3	5,531	12.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	226	29	12.8	91	40.3	71	31.4	35	15.5
Non-Military	47,667	9,943	20.9	20,201	42.4	12,013	25.2	5,510	11.6
Foster									
Foster	241	91	37.8	108	44.8	36	14.9	6	2.5
Non-Foster	47,652	9,881	20.7	20,184	42.4	12,048	25.3	5,539	11.6

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,802	5,938	13.0	14,440	31.5	20,622	45.0	4,802	10.5
Form									
Form 1	15,658	2,125	13.6	5,022	32.1	6,930	44.3	1,581	10.1
Form 2	15,095	1,863	12.3	4,752	31.5	7,032	46.6	1,448	9.6
Form 3	15,049	1,950	13.0	4,666	31.0	6,660	44.3	1,773	11.8
Ethnicity									
Hispanic or Latino	6,942	1,258	18.1	2,588	37.3	2,697	38.9	399	5.8
Race									
American Indian/:Alaskan Native	6,809	921	13.5	2,314	34.0	3,045	44.7	529	7.8
Asian	1,073	118	11.0	238	22.2	472	44.0	245	22.8
Black/:African American	3,981	952	23.9	1,604	40.3	1,281	32.2	144	3.6
Pacific Islander	149	24	16.1	60	40.3	57	38.3	8	5.4
White/:Caucasian	23,604	2,267	9.6	6,627	28.1	11,590	49.1	3,120	13.2
Two or More Races	3,244	398	12.3	1,009	31.1	1,480	45.6	357	11.0
Gender									
Female	22,529	2,004	8.9	6,770	30.1	10,905	48.4	2,850	12.7
Male	23,246	3,927	16.9	7,662	33.0	9,705	41.8	1,952	8.4
Not Indicated	27	7	25.9	8	29.6	12	44.4	0	0.0
Other									
ELL 1st Yr: Proficient	581	81	13.9	318	54.7	174	30.0	8	1.4
ELL 2nd Yr: Proficient	212	29	13.7	85	40.1	92	43.4	6	2.8
Econ. Disadv.	25,078	4,410	17.6	9,380	37.4	9,860	39.3	1,428	5.7
Non-Econ. Disadv.	20,724	1,528	7.4	5,060	24.4	10,762	51.9	3,374	16.3
Migrant	32	5	15.6	10	31.3	12	37.5	5	15.6
Non-Migrant	45,770	5,933	13.0	14,430	31.5	20,610	45.0	4,797	10.5
Individualized Education Plan (IEP)									
IEP	6,868	2,878	41.9	2,924	42.6	1,012	14.7	54	0.8
IEP w/ Accomm.	2,369	1,057	44.6	992	41.9	307	13.0	13	0.6
IEP w/o Accomm.	4,499	1,821	40.5	1,932	42.9	705	15.7	41	0.9
Plan 504	**898**	**98**	**10.9**	**308**	**34.3**	**409**	**45.6**	**83**	**9.2**
Plan 504 w/ Accomm.	80	7	8.8	35	43.8	30	37.5	8	10.0
Plan 504 w/o Accomm.	818	91	11.1	273	33.4	379	46.3	75	9.2
English Language Learners (ELL)									
ELL	1,601	851	53.2	602	37.6	129	8.1	19	1.2
ELL w/ Accomm.	262	162	61.8	86	32.8	13	5.0	1	0.4
ELL w/o Accomm.	1,339	689	51.5	516	38.5	116	8.7	18	1.3
Non-English Language Learners (Non-ELL)									
Non-ELL	44,201	5,087	11.5	13,838	31.3	20,493	46.4	4,783	10.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	131	10	7.6	29	22.1	77	58.8	15	11.5
Non-Military	45,671	5,928	13.0	14,411	31.6	20,545	45.0	4,787	10.5
Foster									
Foster	194	43	22.2	79	40.7	66	34.0	6	3.1
Non-Foster	45,608	5,895	12.9	14,361	31.5	20,556	45.1	4,796	10.5

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,060	15,361	29.5	14,370	27.6	18,356	35.3	3,973	7.6
Form									
Form 1	17,400	5,190	29.8	4,916	28.3	5,878	33.8	1,416	8.1
Form 2	17,356	5,048	29.1	4,729	27.3	6,321	36.4	1,258	7.3
Form 3	17,304	5,123	29.6	4,725	27.3	6,157	35.6	1,299	7.5
Ethnicity									
Hispanic or Latino	9,553	4,140	43.3	2,754	28.8	2,331	24.4	328	3.4
Race									
American Indian/:Alaskan Native	6,741	1,974	29.3	2,037	30.2	2,315	34.3	415	6.2
Asian	944	181	19.2	229	24.3	396	42.0	138	14.6
Black/:African American	4,531	2,274	50.2	1,227	27.1	910	20.1	120	2.7
Pacific Islander	170	81	47.7	45	26.5	40	23.5	4	2.4
White/:Caucasian	24,798	5,276	21.3	6,563	26.5	10,387	41.9	2,572	10.4
Two or More Races	5,323	1,435	27.0	1,515	28.5	1,977	37.1	396	7.4
Gender									
Female	25,490	6,565	25.8	7,073	27.8	9,545	37.5	2,307	9.1
Male	26,560	8,792	33.1	7,294	27.5	8,808	33.2	1,666	6.3
Not Indicated	10	4	40.0	3	30.0	3	30.0	0	0.0
Other									
ELL 1st Yr: Proficient	575	43	7.5	189	32.9	298	51.8	45	7.8
ELL 2nd Yr: Proficient	268	17	6.3	60	22.4	146	54.5	45	16.8
Econ. Disadv.	33,483	12,280	36.7	9,835	29.4	9,923	29.6	1,445	4.3
Non-Econ. Disadv.	18,577	3,081	16.6	4,535	24.4	8,433	45.4	2,528	13.6
Migrant	30	8	26.7	9	30.0	12	40.0	1	3.3
Non-Migrant	52,030	15,353	29.5	14,361	27.6	18,344	35.3	3,972	7.6
Individualized Education Plan (IEP)									
IEP	9,331	5,768	61.8	1,887	20.2	1,454	15.6	222	2.4
IEP w/ Accomm.	5,034	3,836	76.2	826	16.4	347	6.9	25	0.5
IEP w/o Accomm.	4,297	1,932	45.0	1,061	24.7	1,107	25.8	197	4.6
Plan 504	**971**	**307**	**31.6**	**314**	**32.3**	**313**	**32.2**	**37**	**3.8**
Plan 504 w/ Accomm.	481	190	39.5	152	31.6	127	26.4	12	2.5
Plan 504 w/o Accomm.	490	117	23.9	162	33.1	186	38.0	25	5.1
English Language Learners (ELL)									
ELL	6,076	3,426	56.4	1,702	28.0	879	14.5	69	1.1
ELL w/ Accomm.	1,818	1,207	66.4	470	25.9	132	7.3	9	0.5
ELL w/o Accomm.	4,258	2,219	52.1	1,232	28.9	747	17.5	60	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	45,984	11,935	26.0	12,668	27.6	17,477	38.0	3,904	8.5
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 03	N	N	%	N	%	N	%	N	%
Military	232	41	17.7	55	23.7	109	47.0	27	11.6
Non-Military	51,828	15,320	29.6	14,315	27.6	18,247	35.2	3,946	7.6
Foster									
Foster	390	150	38.5	123	31.5	107	27.4	10	2.6
Non-Foster	51,670	15,211	29.4	14,247	27.6	18,249	35.3	3,963	7.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,512	14,564	28.8	14,161	28.0	18,422	36.5	3,365	6.7
Form									
Form 1	16,954	4,994	29.5	4,381	25.8	6,549	38.6	1,030	6.1
Form 2	16,758	4,629	27.6	4,782	28.5	6,163	36.8	1,184	7.1
Form 3	16,800	4,941	29.4	4,998	29.8	5,710	34.0	1,151	6.9
Ethnicity									
Hispanic or Latino	9,168	3,802	41.5	2,740	29.9	2,352	25.7	274	3.0
Race									
American Indian/:Alaskan Native	6,650	2,006	30.2	1,984	29.8	2,333	35.1	327	4.9
Asian	960	185	19.3	212	22.1	423	44.1	140	14.6
Black/:African American	4,344	2,037	46.9	1,224	28.2	996	22.9	87	2.0
Pacific Islander	164	71	43.3	45	27.4	45	27.4	3	1.8
White/:Caucasian	24,207	5,132	21.2	6,489	26.8	10,379	42.9	2,207	9.1
Two or More Races	5,019	1,331	26.5	1,467	29.2	1,894	37.7	327	6.5
Gender									
Female	24,786	6,420	25.9	7,008	28.3	9,479	38.2	1,879	7.6
Male	25,691	8,125	31.6	7,144	27.8	8,936	34.8	1,486	5.8
Not Indicated	35	19	54.3	9	25.7	7	20.0	0	0.0
Other									
ELL 1st Yr: Proficient	1,799	464	25.8	744	41.4	547	30.4	44	2.5
ELL 2nd Yr: Proficient	584	62	10.6	198	33.9	282	48.3	42	7.2
Econ. Disadv.	31,744	11,342	35.7	9,651	30.4	9,621	30.3	1,130	3.6
Non-Econ. Disadv.	18,768	3,222	17.2	4,510	24.0	8,801	46.9	2,235	11.9
Migrant	29	14	48.3	8	27.6	7	24.1	0	0.0
Non-Migrant	50,483	14,550	28.8	14,153	28.0	18,415	36.5	3,365	6.7
Individualized Education Plan (IEP)									
IEP	8,795	5,614	63.8	1,792	20.4	1,235	14.0	154	1.8
IEP w/ Accomm.	5,296	3,992	75.4	914	17.3	371	7.0	19	0.4
IEP w/o Accomm.	3,499	1,622	46.4	878	25.1	864	24.7	135	3.9
Plan 504	**965**	**290**	**30.1**	**289**	**30.0**	**341**	**35.3**	**45**	**4.7**
Plan 504 w/ Accomm.	471	153	32.5	143	30.4	161	34.2	14	3.0
Plan 504 w/o Accomm.	494	137	27.7	146	29.6	180	36.4	31	6.3
English Language Learners (ELL)									
ELL	4,027	2,651	65.8	991	24.6	369	9.2	16	0.4
ELL w/ Accomm.	1,260	936	74.3	259	20.6	64	5.1	1	0.1
ELL w/o Accomm.	2,767	1,715	62.0	732	26.5	305	11.0	15	0.5
Non-English Language Learners (Non-ELL)									
Non-ELL	46,485	11,913	25.6	13,170	28.3	18,053	38.8	3,349	7.2

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	253	41	16.2	68	26.9	115	45.5	29	11.5
Non-Military	50,259	14,523	28.9	14,093	28.0	18,307	36.4	3,336	6.6
Foster									
Foster	362	147	40.6	107	29.6	97	26.8	11	3.0
Non-Foster	50,150	14,417	28.8	14,054	28.0	18,325	36.5	3,354	6.7

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,449	10,229	21.1	18,897	39.0	13,413	27.7	5,910	12.2
Form									
Form 1	16,248	3,491	21.5	6,509	40.1	4,415	27.2	1,833	11.3
Form 2	16,143	3,448	21.4	6,023	37.3	4,840	30.0	1,832	11.4
Form 3	16,058	3,290	20.5	6,365	39.6	4,158	25.9	2,245	14.0
Ethnicity									
Hispanic or Latino	8,678	2,564	29.6	3,749	43.2	1,812	20.9	553	6.4
Race									
American Indian/:Alaskan Native	6,657	1,428	21.5	2,752	41.3	1,795	27.0	682	10.2
Asian	917	115	12.5	289	31.5	282	30.8	231	25.2
Black/:African American	4,253	1,545	36.3	1,800	42.3	700	16.5	208	4.9
Pacific Islander	159	55	34.6	66	41.5	26	16.4	12	7.6
White/:Caucasian	23,316	3,648	15.7	8,480	36.4	7,494	32.1	3,694	15.8
Two or More Races	4,469	874	19.6	1,761	39.4	1,304	29.2	530	11.9
Gender									
Female	23,909	4,257	17.8	9,456	39.6	6,944	29.0	3,252	13.6
Male	24,497	5,956	24.3	9,417	38.4	6,466	26.4	2,658	10.9
Not Indicated	43	16	37.2	24	55.8	3	7.0	0	0.0
Other									
ELL 1st Yr: Proficient	1,417	312	22.0	774	54.6	291	20.5	40	2.8
ELL 2nd Yr: Proficient	1,715	305	17.8	913	53.2	413	24.1	84	4.9
Econ. Disadv.	30,004	8,102	27.0	12,785	42.6	6,964	23.2	2,153	7.2
Non-Econ. Disadv.	18,445	2,127	11.5	6,112	33.1	6,449	35.0	3,757	20.4
Migrant	31	7	22.6	14	45.2	9	29.0	1	3.2
Non-Migrant	48,418	10,222	21.1	18,883	39.0	13,404	27.7	5,909	12.2
Individualized Education Plan (IEP)									
IEP	8,316	4,742	57.0	2,591	31.2	771	9.3	212	2.6
IEP w/ Accomm.	5,301	3,493	65.9	1,490	28.1	268	5.1	50	0.9
IEP w/o Accomm.	3,015	1,249	41.4	1,101	36.5	503	16.7	162	5.4
Plan 504	**1,061**	**208**	**19.6**	**449**	**42.3**	**307**	**28.9**	**97**	**9.1**
Plan 504 w/ Accomm.	520	130	25.0	229	44.0	129	24.8	32	6.2
Plan 504 w/o Accomm.	541	78	14.4	220	40.7	178	32.9	65	12.0
English Language Learners (ELL)									
ELL	2,462	1,474	59.9	824	33.5	131	5.3	33	1.3
ELL w/ Accomm.	746	516	69.2	212	28.4	16	2.1	2	0.3
ELL w/o Accomm.	1,716	958	55.8	612	35.7	115	6.7	31	1.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,987	8,755	19.0	18,073	39.3	13,282	28.9	5,877	12.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	247	25	10.1	70	28.3	90	36.4	62	25.1
Non-Military	48,202	10,204	21.2	18,827	39.1	13,323	27.6	5,848	12.1
Foster									
Foster	299	96	32.1	138	46.2	51	17.1	14	4.7
Non-Foster	48,150	10,133	21.0	18,759	39.0	13,362	27.8	5,896	12.3

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	46,499	8,461	18.2	18,606	40.0	15,079	32.4	4,353	9.4
Form									
Form 1	15,973	3,207	20.1	6,263	39.2	4,924	30.8	1,579	9.9
Form 2	15,254	2,683	17.6	5,860	38.4	5,261	34.5	1,450	9.5
Form 3	15,272	2,571	16.8	6,483	42.5	4,894	32.1	1,324	8.7
Ethnicity									
Hispanic or Latino	7,593	1,910	25.2	3,398	44.8	1,902	25.1	383	5.0
Race									
American Indian/:Alaskan Native	6,745	1,324	19.6	2,870	42.6	2,040	30.2	511	7.6
Asian	871	92	10.6	250	28.7	336	38.6	193	22.2
Black/:African American	3,837	1,117	29.1	1,743	45.4	836	21.8	141	3.7
Pacific Islander	139	42	30.2	59	42.5	33	23.7	5	3.6
White/:Caucasian	23,366	3,279	14.0	8,776	37.6	8,550	36.6	2,761	11.8
Two or More Races	3,948	697	17.7	1,510	38.3	1,382	35.0	359	9.1
Gender									
Female	22,695	3,484	15.4	9,198	40.5	7,668	33.8	2,345	10.3
Male	23,726	4,945	20.8	9,382	39.5	7,393	31.2	2,006	8.5
Not Indicated	78	32	41.0	26	33.3	18	23.1	2	2.6
Other									
ELL 1st Yr: Proficient	638	122	19.1	384	60.2	114	17.9	18	2.8
ELL 2nd Yr: Proficient	916	177	19.3	508	55.5	205	22.4	26	2.8
Econ. Disadv.	28,339	6,744	23.8	12,406	43.8	7,579	26.7	1,610	5.7
Non-Econ. Disadv.	18,160	1,717	9.5	6,200	34.1	7,500	41.3	2,743	15.1
Migrant	28	12	42.9	12	42.9	3	10.7	1	3.6
Non-Migrant	46,471	8,449	18.2	18,594	40.0	15,076	32.4	4,352	9.4
Individualized Education Plan (IEP)									
IEP	7,443	4,101	55.1	2,431	32.7	781	10.5	130	1.8
IEP w/ Accomm.	4,019	2,467	61.4	1,264	31.5	260	6.5	28	0.7
IEP w/o Accomm.	3,424	1,634	47.7	1,167	34.1	521	15.2	102	3.0
Plan 504	**1,091**	**168**	**15.4**	**504**	**46.2**	**337**	**30.9**	**82**	**7.5**
Plan 504 w/ Accomm.	332	67	20.2	161	48.5	86	25.9	18	5.4
Plan 504 w/o Accomm.	759	101	13.3	343	45.2	251	33.1	64	8.4
English Language Learners (ELL)									
ELL	1,658	1,025	61.8	513	30.9	106	6.4	14	0.8
ELL w/ Accomm.	293	220	75.1	66	22.5	7	2.4	0	0.0
ELL w/o Accomm.	1,365	805	59.0	447	32.8	99	7.3	14	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,841	7,436	16.6	18,093	40.4	14,973	33.4	4,339	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	260	27	10.4	88	33.9	99	38.1	46	17.7
Non-Military	46,239	8,434	18.2	18,518	40.1	14,980	32.4	4,307	9.3
Foster									
Foster	279	81	29.0	132	47.3	56	20.1	10	3.6
Non-Foster	46,220	8,380	18.1	18,474	40.0	15,023	32.5	4,343	9.4

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	48,035	14,029	29.2	12,126	25.2	16,137	33.6	5,743	12.0
Form									
Form 1	16,436	4,978	30.3	4,495	27.4	5,185	31.6	1,778	10.8
Form 2	15,795	4,386	27.8	3,874	24.5	5,781	36.6	1,754	11.1
Form 3	15,804	4,665	29.5	3,757	23.8	5,171	32.7	2,211	14.0
Ethnicity									
Hispanic or Latino	8,086	3,278	40.5	2,170	26.8	2,119	26.2	519	6.4
Race									
American Indian/:Alaskan Native	7,027	2,144	30.5	1,897	27.0	2,269	32.3	717	10.2
Asian	997	173	17.4	208	20.9	354	35.5	262	26.3
Black/:African American	4,178	1,978	47.3	1,067	25.5	914	21.9	219	5.2
Pacific Islander	146	68	46.6	38	26.0	34	23.3	6	4.1
White/:Caucasian	23,684	5,286	22.3	5,721	24.2	9,104	38.4	3,573	15.1
Two or More Races	3,917	1,102	28.1	1,025	26.2	1,343	34.3	447	11.4
Gender									
Female	23,357	5,983	25.6	5,958	25.5	8,350	35.8	3,066	13.1
Male	24,622	8,015	32.6	6,158	25.0	7,773	31.6	2,676	10.9
Not Indicated	56	31	55.4	10	17.9	14	25.0	1	1.8
Other									
ELL 1st Yr: Proficient	200	61	30.5	73	36.5	57	28.5	9	4.5
ELL 2nd Yr: Proficient	440	159	36.1	165	37.5	103	23.4	13	3.0
Econ. Disadv.	29,593	11,113	37.6	7,966	26.9	8,327	28.1	2,187	7.4
Non-Econ. Disadv.	18,442	2,916	15.8	4,160	22.6	7,810	42.4	3,556	19.3
Migrant	32	18	56.3	4	12.5	8	25.0	2	6.3
Non-Migrant	48,003	14,011	29.2	12,122	25.3	16,129	33.6	5,741	12.0
Individualized Education Plan (IEP)									
IEP	8,153	5,711	70.1	1,391	17.1	859	10.5	192	2.4
IEP w/ Accomm.	4,211	3,202	76.0	632	15.0	313	7.4	64	1.5
IEP w/o Accomm.	3,942	2,509	63.7	759	19.3	546	13.9	128	3.3
Plan 504	**1,009**	**268**	**26.6**	**264**	**26.2**	**372**	**36.9**	**105**	**10.4**
Plan 504 w/ Accomm.	233	81	34.8	66	28.3	68	29.2	18	7.7
Plan 504 w/o Accomm.	776	187	24.1	198	25.5	304	39.2	87	11.2
English Language Learners (ELL)									
ELL	2,173	1,714	78.9	332	15.3	112	5.2	15	0.7
ELL w/ Accomm.	287	258	89.9	24	8.4	5	1.7	0	0.0
ELL w/o Accomm.	1,886	1,456	77.2	308	16.3	107	5.7	15	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,862	12,315	26.9	11,794	25.7	16,025	34.9	5,728	12.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	43	18.9	57	25.0	89	39.0	39	17.1
Non-Military	47,807	13,986	29.3	12,069	25.3	16,048	33.6	5,704	11.9
Foster									
Foster	260	114	43.9	65	25.0	56	21.5	25	9.6
Non-Foster	47,775	13,915	29.1	12,061	25.3	16,081	33.7	5,718	12.0

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,893	9,972	20.8	20,292	42.4	12,084	25.2	5,545	11.6
Form									
Form 1	16,470	3,786	23.0	7,095	43.1	3,804	23.1	1,785	10.8
Form 2	15,698	3,256	20.7	6,285	40.0	4,498	28.7	1,659	10.6
Form 3	15,725	2,930	18.6	6,912	44.0	3,782	24.1	2,101	13.4
Ethnicity									
Hispanic or Latino	7,816	2,353	30.1	3,525	45.1	1,437	18.4	501	6.4
Race									
American Indian/:Alaskan Native	6,990	1,470	21.0	3,168	45.3	1,694	24.2	658	9.4
Asian	943	124	13.2	294	31.2	277	29.4	248	26.3
Black/:African American	4,196	1,569	37.4	1,761	42.0	671	16.0	195	4.7
Pacific Islander	167	62	37.1	62	37.1	36	21.6	7	4.2
White/:Caucasian	24,041	3,662	15.2	9,876	41.1	6,995	29.1	3,508	14.6
Two or More Races	3,740	732	19.6	1,606	42.9	974	26.0	428	11.4
Gender									
Female	23,511	3,864	16.4	9,751	41.5	6,517	27.7	3,379	14.4
Male	24,312	6,072	25.0	10,511	43.2	5,565	22.9	2,164	8.9
Not Indicated	70	36	51.4	30	42.9	2	2.9	2	2.9
Other									
ELL 1st Yr: Proficient	183	27	14.8	122	66.7	28	15.3	6	3.3
ELL 2nd Yr: Proficient	242	23	9.5	143	59.1	55	22.7	21	8.7
Econ. Disadv.	29,058	8,035	27.7	13,169	45.3	5,941	20.5	1,913	6.6
Non-Econ. Disadv.	18,835	1,937	10.3	7,123	37.8	6,143	32.6	3,632	19.3
Migrant	37	18	48.7	9	24.3	7	18.9	3	8.1
Non-Migrant	47,856	9,954	20.8	20,283	42.4	12,077	25.2	5,542	11.6
Individualized Education Plan (IEP)									
IEP	7,713	4,697	60.9	2,468	32.0	435	5.6	113	1.5
IEP w/ Accomm.	4,247	2,870	67.6	1,176	27.7	170	4.0	31	0.7
IEP w/o Accomm.	3,466	1,827	52.7	1,292	37.3	265	7.7	82	2.4
Plan 504	**986**	**161**	**16.3**	**475**	**48.2**	**245**	**24.9**	**105**	**10.7**
Plan 504 w/ Accomm.	211	42	19.9	104	49.3	49	23.2	16	7.6
Plan 504 w/o Accomm.	775	119	15.4	371	47.9	196	25.3	89	11.5
English Language Learners (ELL)									
ELL	2,127	1,460	68.6	582	27.4	71	3.3	14	0.7
ELL w/ Accomm.	360	296	82.2	59	16.4	5	1.4	0	0.0
ELL w/o Accomm.	1,767	1,164	65.9	523	29.6	66	3.7	14	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,766	8,512	18.6	19,710	43.1	12,013	26.3	5,531	12.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	226	29	12.8	91	40.3	71	31.4	35	15.5
Non-Military	47,667	9,943	20.9	20,201	42.4	12,013	25.2	5,510	11.6
Foster									
Foster	241	91	37.8	108	44.8	36	14.9	6	2.5
Non-Foster	47,652	9,881	20.7	20,184	42.4	12,048	25.3	5,539	11.6

Oklahoma School Testing Program (OSTP)

English Language Arts - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,802	5,938	13.0	14,440	31.5	20,622	45.0	4,802	10.5
Form									
Form 1	15,658	2,125	13.6	5,022	32.1	6,930	44.3	1,581	10.1
Form 2	15,095	1,863	12.3	4,752	31.5	7,032	46.6	1,448	9.6
Form 3	15,049	1,950	13.0	4,666	31.0	6,660	44.3	1,773	11.8
Ethnicity									
Hispanic or Latino	6,942	1,258	18.1	2,588	37.3	2,697	38.9	399	5.8
Race									
American Indian/:Alaskan Native	6,809	921	13.5	2,314	34.0	3,045	44.7	529	7.8
Asian	1,073	118	11.0	238	22.2	472	44.0	245	22.8
Black/:African American	3,981	952	23.9	1,604	40.3	1,281	32.2	144	3.6
Pacific Islander	149	24	16.1	60	40.3	57	38.3	8	5.4
White/:Caucasian	23,604	2,267	9.6	6,627	28.1	11,590	49.1	3,120	13.2
Two or More Races	3,244	398	12.3	1,009	31.1	1,480	45.6	357	11.0
Gender									
Female	22,529	2,004	8.9	6,770	30.1	10,905	48.4	2,850	12.7
Male	23,246	3,927	16.9	7,662	33.0	9,705	41.8	1,952	8.4
Not Indicated	27	7	25.9	8	29.6	12	44.4	0	0.0
Other									
ELL 1st Yr: Proficient	581	81	13.9	318	54.7	174	30.0	8	1.4
ELL 2nd Yr: Proficient	212	29	13.7	85	40.1	92	43.4	6	2.8
Econ. Disadv.	25,078	4,410	17.6	9,380	37.4	9,860	39.3	1,428	5.7
Non-Econ. Disadv.	20,724	1,528	7.4	5,060	24.4	10,762	51.9	3,374	16.3
Migrant	32	5	15.6	10	31.3	12	37.5	5	15.6
Non-Migrant	45,770	5,933	13.0	14,430	31.5	20,610	45.0	4,797	10.5
Individualized Education Plan (IEP)									
IEP	6,868	2,878	41.9	2,924	42.6	1,012	14.7	54	0.8
IEP w/ Accomm.	2,369	1,057	44.6	992	41.9	307	13.0	13	0.6
IEP w/o Accomm.	4,499	1,821	40.5	1,932	42.9	705	15.7	41	0.9
Plan 504	**898**	**98**	**10.9**	**308**	**34.3**	**409**	**45.6**	**83**	**9.2**
Plan 504 w/ Accomm.	80	7	8.8	35	43.8	30	37.5	8	10.0
Plan 504 w/o Accomm.	818	91	11.1	273	33.4	379	46.3	75	9.2
English Language Learners (ELL)									
ELL	1,601	851	53.2	602	37.6	129	8.1	19	1.2
ELL w/ Accomm.	262	162	61.8	86	32.8	13	5.0	1	0.4
ELL w/o Accomm.	1,339	689	51.5	516	38.5	116	8.7	18	1.3
Non-English Language Learners (Non-ELL)									
Non-ELL	44,201	5,087	11.5	13,838	31.3	20,493	46.4	4,783	10.8

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
English Language Arts - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	131	10	7.6	29	22.1	77	58.8	15	11.5
Non-Military	45,671	5,928	13.0	14,411	31.6	20,545	45.0	4,787	10.5
Foster									
Foster	194	43	22.2	79	40.7	66	34.0	6	3.1
Non-Foster	45,608	5,895	12.9	14,361	31.5	20,556	45.1	4,796	10.5

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,518	1,734	3.3	7,552	14.4	18,507	35.2	24,725	47.1
Form									
Form 1	17,526	651	3.7	2,730	15.6	6,237	35.6	7,908	45.1
Form 2	17,553	537	3.1	2,391	13.6	6,149	35.0	8,476	48.3
Form 3	17,439	546	3.1	2,431	13.9	6,121	35.1	8,341	47.8
Ethnicity									
Hispanic or Latino	9,684	465	4.8	2,132	22.0	3,873	40.0	3,214	33.2
Race									
American Indian/:Alaskan Native	6,764	188	2.8	912	13.5	2,568	38.0	3,096	45.8
Asian	972	13	1.3	71	7.3	249	25.6	639	65.7
Black/:African American	4,567	439	9.6	1,267	27.7	1,729	37.9	1,132	24.8
Pacific Islander	178	5	2.8	44	24.7	84	47.2	45	25.3
White/:Caucasian	24,881	454	1.8	2,370	9.5	8,013	32.2	14,044	56.4
Two or More Races	5,472	170	3.1	756	13.8	1,991	36.4	2,555	46.7
Gender									
Female	25,718	853	3.3	3,942	15.3	9,249	36.0	11,674	45.4
Male	26,758	878	3.3	3,600	13.5	9,241	34.5	13,039	48.7
Not Indicated	42	3	7.1	10	23.8	17	40.5	12	28.6
Other									
ELL 1st Yr: Proficient	574	1	0.2	24	4.2	174	30.3	375	65.3
ELL 2nd Yr: Proficient	268	0	0.0	11	4.1	65	24.3	192	71.6
Econ. Disadv.	33,722	1,447	4.3	6,012	17.8	13,256	39.3	13,007	38.6
Non-Econ. Disadv.	18,796	287	1.5	1,540	8.2	5,251	27.9	11,718	62.3
Migrant	33	2	6.1	5	15.2	11	33.3	15	45.5
Non-Migrant	52,485	1,732	3.3	7,547	14.4	18,496	35.2	24,710	47.1
Individualized Education Plan (IEP)									
IEP	9,382	886	9.4	2,608	27.8	3,456	36.8	2,432	25.9
IEP w/ Accomm.	5,073	637	12.6	1,728	34.1	1,932	38.1	776	15.3
IEP w/o Accomm.	4,309	249	5.8	880	20.4	1,524	35.4	1,656	38.4
Plan 504	**974**	**16**	**1.6**	**137**	**14.1**	**429**	**44.1**	**392**	**40.3**
Plan 504 w/ Accomm.	485	8	1.7	90	18.6	234	48.3	153	31.6
Plan 504 w/o Accomm.	489	8	1.6	47	9.6	195	39.9	239	48.9
English Language Learners (ELL)									
ELL	6,236	411	6.6	1,684	27.0	2,658	42.6	1,483	23.8
ELL w/ Accomm.	1,894	136	7.2	601	31.7	816	43.1	341	18.0
ELL w/o Accomm.	4,342	275	6.3	1,083	24.9	1,842	42.4	1,142	26.3
Non-English Language Learners (Non-ELL)									
Non-ELL	46,282	1,323	2.9	5,868	12.7	15,849	34.2	23,242	50.2
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	**N**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Military	234	3	1.3	19	8.1	67	28.6	145	62.0
Non-Military	52,284	1,731	3.3	7,533	14.4	18,440	35.3	24,580	47.0
Foster									
Foster	394	25	6.4	80	20.3	158	40.1	131	33.3
Non-Foster	52,124	1,709	3.3	7,472	14.3	18,349	35.2	24,594	47.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,677	10,455	20.6	18,251	36.0	14,863	29.3	7,108	14.0
Form									
Form 1	16,913	3,573	21.1	5,856	34.6	5,273	31.2	2,211	13.1
Form 2	16,920	3,392	20.1	5,899	34.9	5,079	30.0	2,550	15.1
Form 3	16,844	3,490	20.7	6,496	38.6	4,511	26.8	2,347	13.9
Ethnicity									
Hispanic or Latino	9,251	2,683	29.0	3,657	39.5	2,193	23.7	718	7.8
Race									
American Indian/:Alaskan Native	6,646	1,318	19.8	2,639	39.7	1,939	29.2	750	11.3
Asian	988	90	9.1	207	21.0	342	34.6	349	35.3
Black/:African American	4,355	1,768	40.6	1,630	37.4	733	16.8	224	5.1
Pacific Islander	166	48	28.9	66	39.8	37	22.3	15	9.0
White/:Caucasian	24,235	3,598	14.9	8,134	33.6	8,098	33.4	4,405	18.2
Two or More Races	5,036	950	18.9	1,918	38.1	1,521	30.2	647	12.9
Gender									
Female	24,869	5,353	21.5	9,359	37.6	7,094	28.5	3,063	12.3
Male	25,770	5,086	19.7	8,878	34.5	7,764	30.1	4,042	15.7
Not Indicated	38	16	42.1	14	36.8	5	13.2	3	7.9
Other									
ELL 1st Yr: Proficient	1,798	311	17.3	766	42.6	545	30.3	176	9.8
ELL 2nd Yr: Proficient	584	40	6.9	215	36.8	215	36.8	114	19.5
Econ. Disadv.	31,870	8,179	25.7	12,731	40.0	8,240	25.9	2,720	8.5
Non-Econ. Disadv.	18,807	2,276	12.1	5,520	29.4	6,623	35.2	4,388	23.3
Migrant	30	7	23.3	14	46.7	7	23.3	2	6.7
Non-Migrant	50,647	10,448	20.6	18,237	36.0	14,856	29.3	7,106	14.0
Individualized Education Plan (IEP)									
IEP	8,789	3,725	42.4	3,199	36.4	1,450	16.5	415	4.7
IEP w/ Accomm.	5,293	2,632	49.7	1,954	36.9	608	11.5	99	1.9
IEP w/o Accomm.	3,496	1,093	31.3	1,245	35.6	842	24.1	316	9.0
Plan 504	**964**	**202**	**21.0**	**388**	**40.3**	**266**	**27.6**	**108**	**11.2**
Plan 504 w/ Accomm.	469	113	24.1	190	40.5	132	28.1	34	7.3
Plan 504 w/o Accomm.	495	89	18.0	198	40.0	134	27.1	74	15.0
English Language Learners (ELL)									
ELL	4,144	1,817	43.9	1,632	39.4	580	14.0	115	2.8
ELL w/ Accomm.	1,354	668	49.3	507	37.4	154	11.4	25	1.9
ELL w/o Accomm.	2,790	1,149	41.2	1,125	40.3	426	15.3	90	3.2
Non-English Language Learners (Non-ELL)									
Non-ELL	46,533	8,638	18.6	16,619	35.7	14,283	30.7	6,993	15.0

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	254	16	6.3	86	33.9	80	31.5	72	28.4
Non-Military	50,423	10,439	20.7	18,165	36.0	14,783	29.3	7,036	14.0
Foster									
Foster	360	117	32.5	135	37.5	79	21.9	29	8.1
Non-Foster	50,317	10,338	20.6	18,116	36.0	14,784	29.4	7,079	14.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,460	9,029	18.6	14,472	29.9	19,057	39.3	5,902	12.2
Form									
Form 1	16,146	3,141	19.5	5,049	31.3	6,206	38.4	1,750	10.8
Form 2	16,160	2,968	18.4	4,631	28.7	6,343	39.3	2,218	13.7
Form 3	16,154	2,920	18.1	4,792	29.7	6,508	40.3	1,934	12.0
Ethnicity									
Hispanic or Latino	8,760	2,126	24.3	2,981	34.0	3,016	34.4	637	7.3
Race									
American Indian/:Alaskan Native	6,644	1,256	18.9	2,197	33.1	2,573	38.7	618	9.3
Asian	951	83	8.7	172	18.1	378	39.8	318	33.4
Black/:African American	4,250	1,522	35.8	1,394	32.8	1,152	27.1	182	4.3
Pacific Islander	164	41	25.0	50	30.5	58	35.4	15	9.2
White/:Caucasian	23,245	3,226	13.9	6,325	27.2	10,076	43.4	3,618	15.6
Two or More Races	4,446	775	17.4	1,353	30.4	1,804	40.6	514	11.6
Gender									
Female	23,927	4,347	18.2	7,364	30.8	9,564	40.0	2,652	11.1
Male	24,490	4,666	19.1	7,096	29.0	9,478	38.7	3,250	13.3
Not Indicated	43	16	37.2	12	27.9	15	34.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,420	247	17.4	532	37.5	558	39.3	83	5.9
ELL 2nd Yr: Proficient	1,711	298	17.4	597	34.9	665	38.9	151	8.8
Econ. Disadv.	30,007	6,979	23.3	10,148	33.8	10,696	35.7	2,184	7.3
Non-Econ. Disadv.	18,453	2,050	11.1	4,324	23.4	8,361	45.3	3,718	20.2
Migrant	31	4	12.9	11	35.5	14	45.2	2	6.5
Non-Migrant	48,429	9,025	18.6	14,461	29.9	19,043	39.3	5,900	12.2
Individualized Education Plan (IEP)									
IEP	8,228	3,489	42.4	2,817	34.2	1,657	20.1	265	3.2
IEP w/ Accomm.	5,220	2,477	47.5	1,830	35.1	838	16.1	75	1.4
IEP w/o Accomm.	3,008	1,012	33.6	987	32.8	819	27.2	190	6.3
Plan 504	**1,048**	**202**	**19.3**	**359**	**34.3**	**392**	**37.4**	**95**	**9.1**
Plan 504 w/ Accomm.	514	115	22.4	195	37.9	173	33.7	31	6.0
Plan 504 w/o Accomm.	534	87	16.3	164	30.7	219	41.0	64	12.0
English Language Learners (ELL)									
ELL	2,600	1,146	44.1	902	34.7	494	19.0	58	2.2
ELL w/ Accomm.	863	416	48.2	285	33.0	150	17.4	12	1.4
ELL w/o Accomm.	1,737	730	42.0	617	35.5	344	19.8	46	2.7
Non-English Language Learners (Non-ELL)									
Non-ELL	45,860	7,883	17.2	13,570	29.6	18,563	40.5	5,844	12.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	246	19	7.7	59	24.0	124	50.4	44	17.9
Non-Military	48,214	9,010	18.7	14,413	29.9	18,933	39.3	5,858	12.2
Foster									
Foster	299	92	30.8	111	37.1	84	28.1	12	4.0
Non-Foster	48,161	8,937	18.6	14,361	29.8	18,973	39.4	5,890	12.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	45,876	11,055	24.1	17,714	38.6	14,273	31.1	2,834	6.2
Form									
Form 1	18,114	5,446	30.1	6,663	36.8	5,109	28.2	896	5.0
Form 2	13,898	2,731	19.7	5,604	40.3	4,589	33.0	974	7.0
Form 3	13,864	2,878	20.8	5,447	39.3	4,575	33.0	964	7.0
Ethnicity									
Hispanic or Latino	7,529	2,401	31.9	3,078	40.9	1,814	24.1	236	3.1
Race									
American Indian/:Alaskan Native	6,604	1,677	25.4	2,711	41.1	1,957	29.6	259	3.9
Asian	884	104	11.8	218	24.7	369	41.7	193	21.8
Black/:African American	3,774	1,720	45.6	1,423	37.7	572	15.2	59	1.6
Pacific Islander	143	71	49.7	41	28.7	23	16.1	8	5.6
White/:Caucasian	23,074	4,227	18.3	8,710	37.8	8,287	35.9	1,850	8.0
Two or More Races	3,868	855	22.1	1,533	39.6	1,251	32.3	229	5.9
Gender									
Female	22,439	5,625	25.1	9,064	40.4	6,523	29.1	1,227	5.5
Male	23,363	5,402	23.1	8,628	36.9	7,729	33.1	1,604	6.9
Not Indicated	74	28	37.8	22	29.7	21	28.4	3	4.1
Other									
ELL 1st Yr: Proficient	634	201	31.7	285	45.0	139	21.9	9	1.4
ELL 2nd Yr: Proficient	903	260	28.8	427	47.3	199	22.0	17	1.9
Econ. Disadv.	27,891	8,563	30.7	11,476	41.2	6,941	24.9	911	3.3
Non-Econ. Disadv.	17,985	2,492	13.9	6,238	34.7	7,332	40.8	1,923	10.7
Migrant	30	11	36.7	12	40.0	7	23.3	0	0.0
Non-Migrant	45,846	11,044	24.1	17,702	38.6	14,266	31.1	2,834	6.2
Individualized Education Plan (IEP)									
IEP	6,891	4,040	58.6	2,003	29.1	749	10.9	99	1.4
IEP w/ Accomm.	3,600	2,323	64.5	971	27.0	280	7.8	26	0.7
IEP w/o Accomm.	3,291	1,717	52.2	1,032	31.4	469	14.3	73	2.2
Plan 504	**1,072**	**264**	**24.6**	**435**	**40.6**	**318**	**29.7**	**55**	**5.1**
Plan 504 w/ Accomm.	319	92	28.8	136	42.6	81	25.4	10	3.1
Plan 504 w/o Accomm.	753	172	22.8	299	39.7	237	31.5	45	6.0
English Language Learners (ELL)									
ELL	1,667	1,054	63.2	499	29.9	99	5.9	15	0.9
ELL w/ Accomm.	297	208	70.0	76	25.6	11	3.7	2	0.7
ELL w/o Accomm.	1,370	846	61.8	423	30.9	88	6.4	13	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,209	10,001	22.6	17,215	38.9	14,174	32.1	2,819	6.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	258	42	16.3	85	33.0	102	39.5	29	11.2
Non-Military	45,618	11,013	24.1	17,629	38.6	14,171	31.1	2,805	6.2
Foster									
Foster	266	92	34.6	120	45.1	47	17.7	7	2.6
Non-Foster	45,610	10,963	24.0	17,594	38.6	14,226	31.2	2,827	6.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	47,554	23,487	49.4	8,372	17.6	12,321	25.9	3,374	7.1
Form									
Form 1	19,110	10,746	56.2	3,065	16.0	4,227	22.1	1,072	5.6
Form 2	14,221	6,416	45.1	2,626	18.5	4,006	28.2	1,173	8.3
Form 3	14,223	6,325	44.5	2,681	18.9	4,088	28.7	1,129	7.9
Ethnicity									
Hispanic or Latino	8,024	4,826	60.1	1,364	17.0	1,546	19.3	288	3.6
Race									
American Indian/:Alaskan Native	6,910	3,606	52.2	1,265	18.3	1,679	24.3	360	5.2
Asian	1,021	246	24.1	159	15.6	373	36.5	243	23.8
Black/:African American	4,170	3,028	72.6	541	13.0	523	12.5	78	1.9
Pacific Islander	151	98	64.9	29	19.2	20	13.3	4	2.7
White/:Caucasian	23,411	9,797	41.9	4,317	18.4	7,167	30.6	2,130	9.1
Two or More Races	3,867	1,886	48.8	697	18.0	1,013	26.2	271	7.0
Gender									
Female	23,187	11,395	49.1	4,265	18.4	6,066	26.2	1,461	6.3
Male	24,312	12,062	49.6	4,094	16.8	6,245	25.7	1,911	7.9
Not Indicated	55	30	54.6	13	23.6	10	18.2	2	3.6
Other									
ELL 1st Yr: Proficient	199	98	49.3	51	25.6	39	19.6	11	5.5
ELL 2nd Yr: Proficient	432	254	58.8	88	20.4	77	17.8	13	3.0
Econ. Disadv.	29,240	17,508	59.9	5,006	17.1	5,741	19.6	985	3.4
Non-Econ. Disadv.	18,314	5,979	32.7	3,366	18.4	6,580	35.9	2,389	13.0
Migrant	30	19	63.3	4	13.3	5	16.7	2	6.7
Non-Migrant	47,524	23,468	49.4	8,368	17.6	12,316	25.9	3,372	7.1
Individualized Education Plan (IEP)									
IEP	7,705	6,389	82.9	674	8.8	537	7.0	105	1.4
IEP w/ Accomm.	3,877	3,378	87.1	303	7.8	167	4.3	29	0.8
IEP w/o Accomm.	3,828	3,011	78.7	371	9.7	370	9.7	76	2.0
Plan 504	**995**	**518**	**52.1**	**175**	**17.6**	**232**	**23.3**	**70**	**7.0**
Plan 504 w/ Accomm.	229	140	61.1	41	17.9	39	17.0	9	3.9
Plan 504 w/o Accomm.	766	378	49.4	134	17.5	193	25.2	61	8.0
English Language Learners (ELL)									
ELL	2,185	1,816	83.1	221	10.1	129	5.9	19	0.9
ELL w/ Accomm.	294	247	84.0	33	11.2	12	4.1	2	0.7
ELL w/o Accomm.	1,891	1,569	83.0	188	9.9	117	6.2	17	0.9
Non-English Language Learners (Non-ELL)									
Non-ELL	45,369	21,671	47.8	8,151	18.0	12,192	26.9	3,355	7.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	94	41.2	41	18.0	75	32.9	18	7.9
Non-Military	47,326	23,393	49.4	8,331	17.6	12,246	25.9	3,356	7.1
Foster									
Foster	245	162	66.1	34	13.9	36	14.7	13	5.3
Non-Foster	47,309	23,325	49.3	8,338	17.6	12,285	26.0	3,361	7.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,141	24,124	51.2	12,826	27.2	4,577	9.7	5,614	11.9
Form									
Form 1	18,715	10,795	57.7	4,493	24.0	1,394	7.5	2,033	10.9
Form 2	14,218	6,601	46.4	4,470	31.4	1,313	9.2	1,834	12.9
Form 3	14,208	6,728	47.4	3,863	27.2	1,870	13.2	1,747	12.3
Ethnicity									
Hispanic or Latino	7,722	4,776	61.9	1,882	24.4	547	7.1	517	6.7
Race									
American Indian/:Alaskan Native	6,814	3,816	56.0	1,846	27.1	570	8.4	582	8.5
Asian	960	232	24.2	239	24.9	143	14.9	346	36.0
Black/:African American	4,098	2,832	69.1	873	21.3	212	5.2	181	4.4
Pacific Islander	164	104	63.4	40	24.4	12	7.3	8	4.9
White/:Caucasian	23,721	10,511	44.3	6,928	29.2	2,720	11.5	3,562	15.0
Two or More Races	3,662	1,853	50.6	1,018	27.8	373	10.2	418	11.4
Gender									
Female	23,200	11,302	48.7	6,770	29.2	2,367	10.2	2,761	11.9
Male	23,870	12,770	53.5	6,045	25.3	2,206	9.2	2,849	11.9
Not Indicated	71	52	73.2	11	15.5	4	5.6	4	5.6
Other									
ELL 1st Yr: Proficient	183	90	49.2	65	35.5	18	9.8	10	5.5
ELL 2nd Yr: Proficient	241	112	46.5	71	29.5	30	12.5	28	11.6
Econ. Disadv.	28,521	17,538	61.5	7,072	24.8	2,083	7.3	1,828	6.4
Non-Econ. Disadv.	18,620	6,586	35.4	5,754	30.9	2,494	13.4	3,786	20.3
Migrant	35	20	57.1	10	28.6	3	8.6	2	5.7
Non-Migrant	47,106	24,104	51.2	12,816	27.2	4,574	9.7	5,612	11.9
Individualized Education Plan (IEP)									
IEP	7,240	6,250	86.3	727	10.0	144	2.0	119	1.6
IEP w/ Accomm.	3,905	3,505	89.8	304	7.8	53	1.4	43	1.1
IEP w/o Accomm.	3,335	2,745	82.3	423	12.7	91	2.7	76	2.3
Plan 504	**964**	**505**	**52.4**	**269**	**27.9**	**94**	**9.8**	**96**	**10.0**
Plan 504 w/ Accomm.	197	115	58.4	51	25.9	17	8.6	14	7.1
Plan 504 w/o Accomm.	767	390	50.9	218	28.4	77	10.0	82	10.7
English Language Learners (ELL)									
ELL	2,105	1,776	84.4	266	12.6	34	1.6	29	1.4
ELL w/ Accomm.	375	324	86.4	44	11.7	5	1.3	2	0.5
ELL w/o Accomm.	1,730	1,452	83.9	222	12.8	29	1.7	27	1.6
Non-English Language Learners (Non-ELL)									
Non-ELL	45,036	22,348	49.6	12,560	27.9	4,543	10.1	5,585	12.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	227	88	38.8	79	34.8	24	10.6	36	15.9
Non-Military	46,914	24,036	51.2	12,747	27.2	4,553	9.7	5,578	11.9
Foster									
Foster	237	158	66.7	60	25.3	12	5.1	7	3.0
Non-Foster	46,904	23,966	51.1	12,766	27.2	4,565	9.7	5,607	12.0

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,352	21,574	47.6	12,523	27.6	6,985	15.4	4,270	9.4
Form									
Form 1	16,973	8,448	49.8	4,592	27.1	2,421	14.3	1,512	8.9
Form 2	14,163	6,929	48.9	3,682	26.0	2,200	15.5	1,352	9.6
Form 3	14,216	6,197	43.6	4,249	29.9	2,364	16.6	1,406	9.9
Ethnicity									
Hispanic or Latino	6,933	3,939	56.8	1,870	27.0	776	11.2	348	5.0
Race									
American Indian/:Alaskan Native	6,690	3,435	51.4	1,946	29.1	920	13.8	389	5.8
Asian	1,096	288	26.3	227	20.7	244	22.3	337	30.8
Black/:African American	3,934	2,687	68.3	834	21.2	295	7.5	118	3.0
Pacific Islander	155	82	52.9	43	27.7	20	12.9	10	6.5
White/:Caucasian	23,341	9,601	41.1	6,748	28.9	4,235	18.1	2,757	11.8
Two or More Races	3,203	1,542	48.1	855	26.7	495	15.5	311	9.7
Gender									
Female	22,336	10,063	45.1	6,670	29.9	3,583	16.0	2,020	9.0
Male	22,991	11,496	50.0	5,846	25.4	3,399	14.8	2,250	9.8
Not Indicated	25	15	60.0	7	28.0	3	12.0	0	0.0
Other									
ELL 1st Yr: Proficient	584	368	63.0	153	26.2	48	8.2	15	2.6
ELL 2nd Yr: Proficient	218	119	54.6	62	28.4	23	10.6	14	6.4
Econ. Disadv.	24,793	14,451	58.3	6,439	26.0	2,722	11.0	1,181	4.8
Non-Econ. Disadv.	20,559	7,123	34.7	6,084	29.6	4,263	20.7	3,089	15.0
Migrant	32	16	50.0	5	15.6	7	21.9	4	12.5
Non-Migrant	45,320	21,558	47.6	12,518	27.6	6,978	15.4	4,266	9.4
Individualized Education Plan (IEP)									
IEP	6,532	5,601	85.8	727	11.1	147	2.3	57	0.9
IEP w/ Accomm.	2,173	1,903	87.6	220	10.1	38	1.8	12	0.6
IEP w/o Accomm.	4,359	3,698	84.8	507	11.6	109	2.5	45	1.0
Plan 504	**882**	**435**	**49.3**	**260**	**29.5**	**116**	**13.2**	**71**	**8.1**
Plan 504 w/ Accomm.	77	41	53.3	22	28.6	9	11.7	5	6.5
Plan 504 w/o Accomm.	805	394	48.9	238	29.6	107	13.3	66	8.2
English Language Learners (ELL)									
ELL	1,625	1,364	83.9	189	11.6	48	3.0	24	1.5
ELL w/ Accomm.	278	246	88.5	23	8.3	4	1.4	5	1.8
ELL w/o Accomm.	1,347	1,118	83.0	166	12.3	44	3.3	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	43,727	20,210	46.2	12,334	28.2	6,937	15.9	4,246	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	130	54	41.5	32	24.6	27	20.8	17	13.1
Non-Military	45,222	21,520	47.6	12,491	27.6	6,958	15.4	4,253	9.4
Foster									
Foster	196	124	63.3	51	26.0	16	8.2	5	2.6
Non-Foster	45,156	21,450	47.5	12,472	27.6	6,969	15.4	4,265	9.5

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,518	8,573	16.3	13,178	25.1	17,146	32.7	13,621	25.9
Form									
Form 1	17,526	3,034	17.3	4,555	26.0	5,183	29.6	4,754	27.1
Form 2	17,553	2,928	16.7	4,083	23.3	6,039	34.4	4,503	25.7
Form 3	17,439	2,611	15.0	4,540	26.0	5,924	34.0	4,364	25.0
Ethnicity									
Hispanic or Latino	9,684	2,390	24.7	3,013	31.1	2,830	29.2	1,451	15.0
Race									
American Indian/:Alaskan Native	6,764	1,017	15.0	1,805	26.7	2,369	35.0	1,573	23.3
Asian	972	76	7.8	153	15.7	308	31.7	435	44.8
Black/:African American	4,567	1,620	35.5	1,384	30.3	1,069	23.4	494	10.8
Pacific Islander	178	46	25.8	67	37.6	45	25.3	20	11.2
White/:Caucasian	24,881	2,576	10.4	5,371	21.6	8,688	34.9	8,246	33.1
Two or More Races	5,472	848	15.5	1,385	25.3	1,837	33.6	1,402	25.6
Gender									
Female	25,718	4,432	17.2	6,685	26.0	8,312	32.3	6,289	24.5
Male	26,758	4,129	15.4	6,479	24.2	8,822	33.0	7,328	27.4
Not Indicated	42	12	28.6	14	33.3	12	28.6	4	9.5
Other									
ELL 1st Yr: Proficient	574	24	4.2	104	18.1	244	42.5	202	35.2
ELL 2nd Yr: Proficient	268	10	3.7	38	14.2	103	38.4	117	43.7
Econ. Disadv.	33,722	6,902	20.5	9,729	28.9	10,824	32.1	6,267	18.6
Non-Econ. Disadv.	18,796	1,671	8.9	3,449	18.4	6,322	33.6	7,354	39.1
Migrant	33	7	21.2	8	24.2	9	27.3	9	27.3
Non-Migrant	52,485	8,566	16.3	13,170	25.1	17,137	32.7	13,612	25.9
Individualized Education Plan (IEP)									
IEP	9,382	3,287	35.0	2,747	29.3	2,191	23.4	1,157	12.3
IEP w/ Accomm.	5,073	2,230	44.0	1,601	31.6	950	18.7	292	5.8
IEP w/o Accomm.	4,309	1,057	24.5	1,146	26.6	1,241	28.8	865	20.1
Plan 504	**974**	**135**	**13.9**	**325**	**33.4**	**326**	**33.5**	**188**	**19.3**
Plan 504 w/ Accomm.	485	88	18.1	184	37.9	133	27.4	80	16.5
Plan 504 w/o Accomm.	489	47	9.6	141	28.8	193	39.5	108	22.1
English Language Learners (ELL)									
ELL	6,236	1,944	31.2	2,145	34.4	1,565	25.1	582	9.3
ELL w/ Accomm.	1,894	674	35.6	695	36.7	400	21.1	125	6.6
ELL w/o Accomm.	4,342	1,270	29.3	1,450	33.4	1,165	26.8	457	10.5
Non-English Language Learners (Non-ELL)									
Non-ELL	46,282	6,629	14.3	11,033	23.8	15,581	33.7	13,039	28.2
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	**N**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Military	234	21	9.0	44	18.8	82	35.0	87	37.2
Non-Military	52,284	8,552	16.4	13,134	25.1	17,064	32.6	13,534	25.9
Foster									
Foster	394	97	24.6	121	30.7	118	30.0	58	14.7
Non-Foster	52,124	8,476	16.3	13,057	25.1	17,028	32.7	13,563	26.0

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,677	10,455	20.6	19,624	38.7	13,490	26.6	7,108	14.0
Form									
Form 1	16,913	3,573	21.1	6,490	38.4	4,639	27.4	2,211	13.1
Form 2	16,920	3,392	20.1	6,638	39.2	4,340	25.7	2,550	15.1
Form 3	16,844	3,490	20.7	6,496	38.6	4,511	26.8	2,347	13.9
Ethnicity									
Hispanic or Latino	9,251	2,683	29.0	3,904	42.2	1,946	21.0	718	7.8
Race									
American Indian/:Alaskan Native	6,646	1,318	19.8	2,840	42.7	1,738	26.2	750	11.3
Asian	988	90	9.1	230	23.3	319	32.3	349	35.3
Black/:African American	4,355	1,768	40.6	1,721	39.5	642	14.7	224	5.1
Pacific Islander	166	48	28.9	75	45.2	28	16.9	15	9.0
White/:Caucasian	24,235	3,598	14.9	8,796	36.3	7,436	30.7	4,405	18.2
Two or More Races	5,036	950	18.9	2,058	40.9	1,381	27.4	647	12.9
Gender									
Female	24,869	5,353	21.5	10,028	40.3	6,425	25.8	3,063	12.3
Male	25,770	5,086	19.7	9,581	37.2	7,061	27.4	4,042	15.7
Not Indicated	38	16	42.1	15	39.5	4	10.5	3	7.9
Other									
ELL 1st Yr: Proficient	1,798	311	17.3	832	46.3	479	26.6	176	9.8
ELL 2nd Yr: Proficient	584	40	6.9	230	39.4	200	34.3	114	19.5
Econ. Disadv.	31,870	8,179	25.7	13,583	42.6	7,388	23.2	2,720	8.5
Non-Econ. Disadv.	18,807	2,276	12.1	6,041	32.1	6,102	32.5	4,388	23.3
Migrant	30	7	23.3	14	46.7	7	23.3	2	6.7
Non-Migrant	50,647	10,448	20.6	19,610	38.7	13,483	26.6	7,106	14.0
Individualized Education Plan (IEP)									
IEP	8,789	3,725	42.4	3,374	38.4	1,275	14.5	415	4.7
IEP w/ Accomm.	5,293	2,632	49.7	2,039	38.5	523	9.9	99	1.9
IEP w/o Accomm.	3,496	1,093	31.3	1,335	38.2	752	21.5	316	9.0
Plan 504	**964**	**202**	**21.0**	**415**	**43.1**	**239**	**24.8**	**108**	**11.2**
Plan 504 w/ Accomm.	469	113	24.1	206	43.9	116	24.7	34	7.3
Plan 504 w/o Accomm.	495	89	18.0	209	42.2	123	24.9	74	15.0
English Language Learners (ELL)									
ELL	4,144	1,817	43.9	1,712	41.3	500	12.1	115	2.8
ELL w/ Accomm.	1,354	668	49.3	537	39.7	124	9.2	25	1.9
ELL w/o Accomm.	2,790	1,149	41.2	1,175	42.1	376	13.5	90	3.2
Non-English Language Learners (Non-ELL)									
Non-ELL	46,533	8,638	18.6	17,912	38.5	12,990	27.9	6,993	15.0

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	254	16	6.3	93	36.6	73	28.7	72	28.4
Non-Military	50,423	10,439	20.7	19,531	38.7	13,417	26.6	7,036	14.0
Foster									
Foster	360	117	32.5	140	38.9	74	20.6	29	8.1
Non-Foster	50,317	10,338	20.6	19,484	38.7	13,416	26.7	7,079	14.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,460	9,029	18.6	14,472	29.9	16,868	34.8	8,091	16.7
Form									
Form 1	16,146	3,141	19.5	5,049	31.3	5,385	33.4	2,571	15.9
Form 2	16,160	2,968	18.4	4,631	28.7	5,825	36.1	2,736	16.9
Form 3	16,154	2,920	18.1	4,792	29.7	5,658	35.0	2,784	17.2
Ethnicity									
Hispanic or Latino	8,760	2,126	24.3	2,981	34.0	2,750	31.4	903	10.3
Race									
American Indian/:Alaskan Native	6,644	1,256	18.9	2,197	33.1	2,316	34.9	875	13.2
Asian	951	83	8.7	172	18.1	298	31.3	398	41.9
Black/:African American	4,250	1,522	35.8	1,394	32.8	1,060	24.9	274	6.5
Pacific Islander	164	41	25.0	50	30.5	53	32.3	20	12.2
White/:Caucasian	23,245	3,226	13.9	6,325	27.2	8,794	37.8	4,900	21.1
Two or More Races	4,446	775	17.4	1,353	30.4	1,597	35.9	721	16.2
Gender									
Female	23,927	4,347	18.2	7,364	30.8	8,519	35.6	3,697	15.5
Male	24,490	4,666	19.1	7,096	29.0	8,335	34.0	4,393	17.9
Not Indicated	43	16	37.2	12	27.9	14	32.6	1	2.3
Other									
ELL 1st Yr: Proficient	1,420	247	17.4	532	37.5	508	35.8	133	9.4
ELL 2nd Yr: Proficient	1,711	298	17.4	597	34.9	601	35.1	215	12.6
Econ. Disadv.	30,007	6,979	23.3	10,148	33.8	9,683	32.3	3,197	10.7
Non-Econ. Disadv.	18,453	2,050	11.1	4,324	23.4	7,185	38.9	4,894	26.5
Migrant	31	4	12.9	11	35.5	13	41.9	3	9.7
Non-Migrant	48,429	9,025	18.6	14,461	29.9	16,855	34.8	8,088	16.7
Individualized Education Plan (IEP)									
IEP	8,228	3,489	42.4	2,817	34.2	1,520	18.5	402	4.9
IEP w/ Accomm.	5,220	2,477	47.5	1,830	35.1	799	15.3	114	2.2
IEP w/o Accomm.	3,008	1,012	33.6	987	32.8	721	24.0	288	9.6
Plan 504	**1,048**	**202**	**19.3**	**359**	**34.3**	**356**	**34.0**	**131**	**12.5**
Plan 504 w/ Accomm.	514	115	22.4	195	37.9	160	31.1	44	8.6
Plan 504 w/o Accomm.	534	87	16.3	164	30.7	196	36.7	87	16.3
English Language Learners (ELL)									
ELL	2,600	1,146	44.1	902	34.7	472	18.2	80	3.1
ELL w/ Accomm.	863	416	48.2	285	33.0	143	16.6	19	2.2
ELL w/o Accomm.	1,737	730	42.0	617	35.5	329	18.9	61	3.5
Non-English Language Learners (Non-ELL)									
Non-ELL	45,860	7,883	17.2	13,570	29.6	16,396	35.8	8,011	17.5

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	246	19	7.7	59	24.0	106	43.1	62	25.2
Non-Military	48,214	9,010	18.7	14,413	29.9	16,762	34.8	8,029	16.7
Foster									
Foster	299	92	30.8	111	37.1	76	25.4	20	6.7
Non-Foster	48,161	8,937	18.6	14,361	29.8	16,792	34.9	8,071	16.8

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	45,876	8,634	18.8	22,163	48.3	12,245	26.7	2,834	6.2
Form									
Form 1	18,114	4,313	23.8	8,513	47.0	4,392	24.3	896	5.0
Form 2	13,898	2,297	16.5	6,725	48.4	3,902	28.1	974	7.0
Form 3	13,864	2,024	14.6	6,925	50.0	3,951	28.5	964	7.0
Ethnicity									
Hispanic or Latino	7,529	1,883	25.0	3,878	51.5	1,532	20.4	236	3.1
Race									
American Indian/:Alaskan Native	6,604	1,284	19.4	3,403	51.5	1,658	25.1	259	3.9
Asian	884	83	9.4	271	30.7	337	38.1	193	21.8
Black/:African American	3,774	1,420	37.6	1,825	48.4	470	12.5	59	1.6
Pacific Islander	143	60	42.0	58	40.6	17	11.9	8	5.6
White/:Caucasian	23,074	3,234	14.0	10,824	46.9	7,166	31.1	1,850	8.0
Two or More Races	3,868	670	17.3	1,904	49.2	1,065	27.5	229	5.9
Gender									
Female	22,439	4,339	19.3	11,335	50.5	5,538	24.7	1,227	5.5
Male	23,363	4,274	18.3	10,795	46.2	6,690	28.6	1,604	6.9
Not Indicated	74	21	28.4	33	44.6	17	23.0	3	4.1
Other									
ELL 1st Yr: Proficient	634	148	23.3	365	57.6	112	17.7	9	1.4
ELL 2nd Yr: Proficient	903	183	20.3	535	59.3	168	18.6	17	1.9
Econ. Disadv.	27,891	6,812	24.4	14,331	51.4	5,837	20.9	911	3.3
Non-Econ. Disadv.	17,985	1,822	10.1	7,832	43.6	6,408	35.6	1,923	10.7
Migrant	30	8	26.7	15	50.0	7	23.3	0	0.0
Non-Migrant	45,846	8,626	18.8	22,148	48.3	12,238	26.7	2,834	6.2
Individualized Education Plan (IEP)									
IEP	6,891	3,536	51.3	2,635	38.2	621	9.0	99	1.4
IEP w/ Accomm.	3,600	2,042	56.7	1,315	36.5	217	6.0	26	0.7
IEP w/o Accomm.	3,291	1,494	45.4	1,320	40.1	404	12.3	73	2.2
Plan 504	**1,072**	**195**	**18.2**	**555**	**51.8**	**267**	**24.9**	**55**	**5.1**
Plan 504 w/ Accomm.	319	68	21.3	174	54.6	67	21.0	10	3.1
Plan 504 w/o Accomm.	753	127	16.9	381	50.6	200	26.6	45	6.0
English Language Learners (ELL)									
ELL	1,667	894	53.6	680	40.8	78	4.7	15	0.9
ELL w/ Accomm.	297	169	56.9	117	39.4	9	3.0	2	0.7
ELL w/o Accomm.	1,370	725	52.9	563	41.1	69	5.0	13	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,209	7,740	17.5	21,483	48.6	12,167	27.5	2,819	6.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	258	33	12.8	107	41.5	89	34.5	29	11.2
Non-Military	45,618	8,601	18.9	22,056	48.4	12,156	26.7	2,805	6.2
Foster									
Foster	266	75	28.2	140	52.6	44	16.5	7	2.6
Non-Foster	45,610	8,559	18.8	22,023	48.3	12,201	26.8	2,827	6.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	47,554	23,487	49.4	8,372	17.6	12,321	25.9	3,374	7.1
Form									
Form 1	19,110	10,746	56.2	3,065	16.0	4,227	22.1	1,072	5.6
Form 2	14,221	6,416	45.1	2,626	18.5	4,006	28.2	1,173	8.3
Form 3	14,223	6,325	44.5	2,681	18.9	4,088	28.7	1,129	7.9
Ethnicity									
Hispanic or Latino	8,024	4,826	60.1	1,364	17.0	1,546	19.3	288	3.6
Race									
American Indian/:Alaskan Native	6,910	3,606	52.2	1,265	18.3	1,679	24.3	360	5.2
Asian	1,021	246	24.1	159	15.6	373	36.5	243	23.8
Black/:African American	4,170	3,028	72.6	541	13.0	523	12.5	78	1.9
Pacific Islander	151	98	64.9	29	19.2	20	13.3	4	2.7
White/:Caucasian	23,411	9,797	41.9	4,317	18.4	7,167	30.6	2,130	9.1
Two or More Races	3,867	1,886	48.8	697	18.0	1,013	26.2	271	7.0
Gender									
Female	23,187	11,395	49.1	4,265	18.4	6,066	26.2	1,461	6.3
Male	24,312	12,062	49.6	4,094	16.8	6,245	25.7	1,911	7.9
Not Indicated	55	30	54.6	13	23.6	10	18.2	2	3.6
Other									
ELL 1st Yr: Proficient	199	98	49.3	51	25.6	39	19.6	11	5.5
ELL 2nd Yr: Proficient	432	254	58.8	88	20.4	77	17.8	13	3.0
Econ. Disadv.	29,240	17,508	59.9	5,006	17.1	5,741	19.6	985	3.4
Non-Econ. Disadv.	18,314	5,979	32.7	3,366	18.4	6,580	35.9	2,389	13.0
Migrant	30	19	63.3	4	13.3	5	16.7	2	6.7
Non-Migrant	47,524	23,468	49.4	8,368	17.6	12,316	25.9	3,372	7.1
Individualized Education Plan (IEP)									
IEP	7,705	6,389	82.9	674	8.8	537	7.0	105	1.4
IEP w/ Accomm.	3,877	3,378	87.1	303	7.8	167	4.3	29	0.8
IEP w/o Accomm.	3,828	3,011	78.7	371	9.7	370	9.7	76	2.0
Plan 504	**995**	**518**	**52.1**	**175**	**17.6**	**232**	**23.3**	**70**	**7.0**
Plan 504 w/ Accomm.	229	140	61.1	41	17.9	39	17.0	9	3.9
Plan 504 w/o Accomm.	766	378	49.4	134	17.5	193	25.2	61	8.0
English Language Learners (ELL)									
ELL	2,185	1,816	83.1	221	10.1	129	5.9	19	0.9
ELL w/ Accomm.	294	247	84.0	33	11.2	12	4.1	2	0.7
ELL w/o Accomm.	1,891	1,569	83.0	188	9.9	117	6.2	17	0.9
Non-English Language Learners (Non-ELL)									
Non-ELL	45,369	21,671	47.8	8,151	18.0	12,192	26.9	3,355	7.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	94	41.2	41	18.0	75	32.9	18	7.9
Non-Military	47,326	23,393	49.4	8,331	17.6	12,246	25.9	3,356	7.1
Foster									
Foster	245	162	66.1	34	13.9	36	14.7	13	5.3
Non-Foster	47,309	23,325	49.3	8,338	17.6	12,285	26.0	3,361	7.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,141	23,065	48.9	13,106	27.8	5,356	11.4	5,614	11.9
Form									
Form 1	18,715	10,242	54.7	4,656	24.9	1,784	9.5	2,033	10.9
Form 2	14,218	6,601	46.4	4,081	28.7	1,702	12.0	1,834	12.9
Form 3	14,208	6,222	43.8	4,369	30.8	1,870	13.2	1,747	12.3
Ethnicity									
Hispanic or Latino	7,722	4,615	59.8	1,956	25.3	634	8.2	517	6.7
Race									
American Indian/:Alaskan Native	6,814	3,664	53.8	1,887	27.7	681	10.0	582	8.5
Asian	960	215	22.4	230	24.0	169	17.6	346	36.0
Black/:African American	4,098	2,739	66.8	936	22.8	242	5.9	181	4.4
Pacific Islander	164	101	61.6	41	25.0	14	8.5	8	4.9
White/:Caucasian	23,721	9,970	42.0	7,018	29.6	3,171	13.4	3,562	15.0
Two or More Races	3,662	1,761	48.1	1,038	28.4	445	12.2	418	11.4
Gender									
Female	23,200	10,754	46.4	6,938	29.9	2,747	11.8	2,761	11.9
Male	23,870	12,260	51.4	6,156	25.8	2,605	10.9	2,849	11.9
Not Indicated	71	51	71.8	12	16.9	4	5.6	4	5.6
Other									
ELL 1st Yr: Proficient	183	84	45.9	69	37.7	20	10.9	10	5.5
ELL 2nd Yr: Proficient	241	106	44.0	74	30.7	33	13.7	28	11.6
Econ. Disadv.	28,521	16,868	59.1	7,365	25.8	2,460	8.6	1,828	6.4
Non-Econ. Disadv.	18,620	6,197	33.3	5,741	30.8	2,896	15.6	3,786	20.3
Migrant	35	19	54.3	10	28.6	4	11.4	2	5.7
Non-Migrant	47,106	23,046	48.9	13,096	27.8	5,352	11.4	5,612	11.9
Individualized Education Plan (IEP)									
IEP	7,240	6,143	84.9	795	11.0	183	2.5	119	1.6
IEP w/ Accomm.	3,905	3,439	88.1	351	9.0	72	1.8	43	1.1
IEP w/o Accomm.	3,335	2,704	81.1	444	13.3	111	3.3	76	2.3
Plan 504	**964**	**479**	**49.7**	**269**	**27.9**	**120**	**12.5**	**96**	**10.0**
Plan 504 w/ Accomm.	197	110	55.8	51	25.9	22	11.2	14	7.1
Plan 504 w/o Accomm.	767	369	48.1	218	28.4	98	12.8	82	10.7
English Language Learners (ELL)									
ELL	2,105	1,741	82.7	290	13.8	45	2.1	29	1.4
ELL w/ Accomm.	375	321	85.6	44	11.7	8	2.1	2	0.5
ELL w/o Accomm.	1,730	1,420	82.1	246	14.2	37	2.1	27	1.6
Non-English Language Learners (Non-ELL)									
Non-ELL	45,036	21,324	47.4	12,816	28.5	5,311	11.8	5,585	12.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	227	84	37.0	80	35.2	27	11.9	36	15.9
Non-Military	46,914	22,981	49.0	13,026	27.8	5,329	11.4	5,578	11.9
Foster									
Foster	237	150	63.3	60	25.3	20	8.4	7	3.0
Non-Foster	46,904	22,915	48.9	13,046	27.8	5,336	11.4	5,607	12.0

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,352	24,439	53.9	9,658	21.3	6,985	15.4	4,270	9.4
Form									
Form 1	16,973	9,421	55.5	3,619	21.3	2,421	14.3	1,512	8.9
Form 2	14,163	7,832	55.3	2,779	19.6	2,200	15.5	1,352	9.6
Form 3	14,216	7,186	50.6	3,260	22.9	2,364	16.6	1,406	9.9
Ethnicity									
Hispanic or Latino	6,933	4,418	63.7	1,391	20.1	776	11.2	348	5.0
Race									
American Indian/:Alaskan Native	6,690	3,902	58.3	1,479	22.1	920	13.8	389	5.8
Asian	1,096	333	30.4	182	16.6	244	22.3	337	30.8
Black/:African American	3,934	2,883	73.3	638	16.2	295	7.5	118	3.0
Pacific Islander	155	92	59.4	33	21.3	20	12.9	10	6.5
White/:Caucasian	23,341	11,059	47.4	5,290	22.7	4,235	18.1	2,757	11.8
Two or More Races	3,203	1,752	54.7	645	20.1	495	15.5	311	9.7
Gender									
Female	22,336	11,576	51.8	5,157	23.1	3,583	16.0	2,020	9.0
Male	22,991	12,846	55.9	4,496	19.6	3,399	14.8	2,250	9.8
Not Indicated	25	17	68.0	5	20.0	3	12.0	0	0.0
Other									
ELL 1st Yr: Proficient	584	411	70.4	110	18.8	48	8.2	15	2.6
ELL 2nd Yr: Proficient	218	136	62.4	45	20.6	23	10.6	14	6.4
Econ. Disadv.	24,793	16,075	64.8	4,815	19.4	2,722	11.0	1,181	4.8
Non-Econ. Disadv.	20,559	8,364	40.7	4,843	23.6	4,263	20.7	3,089	15.0
Migrant	32	17	53.1	4	12.5	7	21.9	4	12.5
Non-Migrant	45,320	24,422	53.9	9,654	21.3	6,978	15.4	4,266	9.4
Individualized Education Plan (IEP)									
IEP	6,532	5,834	89.3	494	7.6	147	2.3	57	0.9
IEP w/ Accomm.	2,173	1,979	91.1	144	6.6	38	1.8	12	0.6
IEP w/o Accomm.	4,359	3,855	88.4	350	8.0	109	2.5	45	1.0
Plan 504	**882**	**503**	**57.0**	**192**	**21.8**	**116**	**13.2**	**71**	**8.1**
Plan 504 w/ Accomm.	77	46	59.7	17	22.1	9	11.7	5	6.5
Plan 504 w/o Accomm.	805	457	56.8	175	21.7	107	13.3	66	8.2
English Language Learners (ELL)									
ELL	1,625	1,438	88.5	115	7.1	48	3.0	24	1.5
ELL w/ Accomm.	278	255	91.7	14	5.0	4	1.4	5	1.8
ELL w/o Accomm.	1,347	1,183	87.8	101	7.5	44	3.3	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	43,727	23,001	52.6	9,543	21.8	6,937	15.9	4,246	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	130	62	47.7	24	18.5	27	20.8	17	13.1
Non-Military	45,222	24,377	53.9	9,634	21.3	6,958	15.4	4,253	9.4
Foster									
Foster	196	134	68.4	41	20.9	16	8.2	5	2.6
Non-Foster	45,156	24,305	53.8	9,617	21.3	6,969	15.4	4,265	9.5

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,518	8,573	16.3	13,178	25.1	21,842	41.6	8,925	17.0
Form									
Form 1	17,526	3,034	17.3	4,555	26.0	6,922	39.5	3,015	17.2
Form 2	17,553	2,928	16.7	4,083	23.3	7,473	42.6	3,069	17.5
Form 3	17,439	2,611	15.0	4,540	26.0	7,447	42.7	2,841	16.3
Ethnicity									
Hispanic or Latino	9,684	2,390	24.7	3,013	31.1	3,440	35.5	841	8.7
Race									
American Indian/:Alaskan Native	6,764	1,017	15.0	1,805	26.7	2,968	43.9	974	14.4
Asian	972	76	7.8	153	15.7	429	44.1	314	32.3
Black/:African American	4,567	1,620	35.5	1,384	30.3	1,279	28.0	284	6.2
Pacific Islander	178	46	25.8	67	37.6	54	30.3	11	6.2
White/:Caucasian	24,881	2,576	10.4	5,371	21.6	11,321	45.5	5,613	22.6
Two or More Races	5,472	848	15.5	1,385	25.3	2,351	43.0	888	16.2
Gender									
Female	25,718	4,432	17.2	6,685	26.0	10,551	41.0	4,050	15.8
Male	26,758	4,129	15.4	6,479	24.2	11,277	42.1	4,873	18.2
Not Indicated	42	12	28.6	14	33.3	14	33.3	2	4.8
Other									
ELL 1st Yr: Proficient	574	24	4.2	104	18.1	325	56.6	121	21.1
ELL 2nd Yr: Proficient	268	10	3.7	38	14.2	138	51.5	82	30.6
Econ. Disadv.	33,722	6,902	20.5	9,729	28.9	13,296	39.4	3,795	11.3
Non-Econ. Disadv.	18,796	1,671	8.9	3,449	18.4	8,546	45.5	5,130	27.3
Migrant	33	7	21.2	8	24.2	13	39.4	5	15.2
Non-Migrant	52,485	8,566	16.3	13,170	25.1	21,829	41.6	8,920	17.0
Individualized Education Plan (IEP)									
IEP	9,382	3,287	35.0	2,747	29.3	2,637	28.1	711	7.6
IEP w/ Accomm.	5,073	2,230	44.0	1,601	31.6	1,080	21.3	162	3.2
IEP w/o Accomm.	4,309	1,057	24.5	1,146	26.6	1,557	36.1	549	12.7
Plan 504	**974**	**135**	**13.9**	**325**	**33.4**	**395**	**40.6**	**119**	**12.2**
Plan 504 w/ Accomm.	485	88	18.1	184	37.9	167	34.4	46	9.5
Plan 504 w/o Accomm.	489	47	9.6	141	28.8	228	46.6	73	14.9
English Language Learners (ELL)									
ELL	6,236	1,944	31.2	2,145	34.4	1,843	29.6	304	4.9
ELL w/ Accomm.	1,894	674	35.6	695	36.7	469	24.8	56	3.0
ELL w/o Accomm.	4,342	1,270	29.3	1,450	33.4	1,374	31.6	248	5.7
Non-English Language Learners (Non-ELL)									
Non-ELL	46,282	6,629	14.3	11,033	23.8	19,999	43.2	8,621	18.6
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	**N**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Military	234	21	9.0	44	18.8	116	49.6	53	22.7
Non-Military	52,284	8,552	16.4	13,134	25.1	21,726	41.6	8,872	17.0
Foster									
Foster	394	97	24.6	121	30.7	143	36.3	33	8.4
Non-Foster	52,124	8,476	16.3	13,057	25.1	21,699	41.6	8,892	17.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,677	10,455	20.6	18,251	36.0	14,863	29.3	7,108	14.0
Form									
Form 1	16,913	3,573	21.1	5,856	34.6	5,273	31.2	2,211	13.1
Form 2	16,920	3,392	20.1	5,899	34.9	5,079	30.0	2,550	15.1
Form 3	16,844	3,490	20.7	6,496	38.6	4,511	26.8	2,347	13.9
Ethnicity									
Hispanic or Latino	9,251	2,683	29.0	3,657	39.5	2,193	23.7	718	7.8
Race									
American Indian/:Alaskan Native	6,646	1,318	19.8	2,639	39.7	1,939	29.2	750	11.3
Asian	988	90	9.1	207	21.0	342	34.6	349	35.3
Black/:African American	4,355	1,768	40.6	1,630	37.4	733	16.8	224	5.1
Pacific Islander	166	48	28.9	66	39.8	37	22.3	15	9.0
White/:Caucasian	24,235	3,598	14.9	8,134	33.6	8,098	33.4	4,405	18.2
Two or More Races	5,036	950	18.9	1,918	38.1	1,521	30.2	647	12.9
Gender									
Female	24,869	5,353	21.5	9,359	37.6	7,094	28.5	3,063	12.3
Male	25,770	5,086	19.7	8,878	34.5	7,764	30.1	4,042	15.7
Not Indicated	38	16	42.1	14	36.8	5	13.2	3	7.9
Other									
ELL 1st Yr: Proficient	1,798	311	17.3	766	42.6	545	30.3	176	9.8
ELL 2nd Yr: Proficient	584	40	6.9	215	36.8	215	36.8	114	19.5
Econ. Disadv.	31,870	8,179	25.7	12,731	40.0	8,240	25.9	2,720	8.5
Non-Econ. Disadv.	18,807	2,276	12.1	5,520	29.4	6,623	35.2	4,388	23.3
Migrant	30	7	23.3	14	46.7	7	23.3	2	6.7
Non-Migrant	50,647	10,448	20.6	18,237	36.0	14,856	29.3	7,106	14.0
Individualized Education Plan (IEP)									
IEP	8,789	3,725	42.4	3,199	36.4	1,450	16.5	415	4.7
IEP w/ Accomm.	5,293	2,632	49.7	1,954	36.9	608	11.5	99	1.9
IEP w/o Accomm.	3,496	1,093	31.3	1,245	35.6	842	24.1	316	9.0
Plan 504	**964**	**202**	**21.0**	**388**	**40.3**	**266**	**27.6**	**108**	**11.2**
Plan 504 w/ Accomm.	469	113	24.1	190	40.5	132	28.1	34	7.3
Plan 504 w/o Accomm.	495	89	18.0	198	40.0	134	27.1	74	15.0
English Language Learners (ELL)									
ELL	4,144	1,817	43.9	1,632	39.4	580	14.0	115	2.8
ELL w/ Accomm.	1,354	668	49.3	507	37.4	154	11.4	25	1.9
ELL w/o Accomm.	2,790	1,149	41.2	1,125	40.3	426	15.3	90	3.2
Non-English Language Learners (Non-ELL)									
Non-ELL	46,533	8,638	18.6	16,619	35.7	14,283	30.7	6,993	15.0

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	254	16	6.3	86	33.9	80	31.5	72	28.4
Non-Military	50,423	10,439	20.7	18,165	36.0	14,783	29.3	7,036	14.0
Foster									
Foster	360	117	32.5	135	37.5	79	21.9	29	8.1
Non-Foster	50,317	10,338	20.6	18,116	36.0	14,784	29.4	7,079	14.1

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Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,460	8,146	16.8	19,953	41.2	14,459	29.8	5,902	12.2
Form									
Form 1	16,146	3,141	19.5	6,682	41.4	4,573	28.3	1,750	10.8
Form 2	16,160	2,535	15.7	6,852	42.4	4,555	28.2	2,218	13.7
Form 3	16,154	2,470	15.3	6,419	39.7	5,331	33.0	1,934	12.0
Ethnicity									
Hispanic or Latino	8,760	1,921	21.9	4,016	45.8	2,186	25.0	637	7.3
Race									
American Indian/:Alaskan Native	6,644	1,114	16.8	2,993	45.1	1,919	28.9	618	9.3
Asian	951	70	7.4	245	25.8	318	33.4	318	33.4
Black/:African American	4,250	1,403	33.0	1,836	43.2	829	19.5	182	4.3
Pacific Islander	164	37	22.6	68	41.5	44	26.8	15	9.2
White/:Caucasian	23,245	2,897	12.5	8,920	38.4	7,810	33.6	3,618	15.6
Two or More Races	4,446	704	15.8	1,875	42.2	1,353	30.4	514	11.6
Gender									
Female	23,927	3,905	16.3	10,193	42.6	7,177	30.0	2,652	11.1
Male	24,490	4,229	17.3	9,738	39.8	7,273	29.7	3,250	13.3
Not Indicated	43	12	27.9	22	51.2	9	20.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,420	210	14.8	731	51.5	396	27.9	83	5.9
ELL 2nd Yr: Proficient	1,711	261	15.3	809	47.3	490	28.6	151	8.8
Econ. Disadv.	30,007	6,327	21.1	13,725	45.7	7,771	25.9	2,184	7.3
Non-Econ. Disadv.	18,453	1,819	9.9	6,228	33.8	6,688	36.2	3,718	20.2
Migrant	31	4	12.9	14	45.2	11	35.5	2	6.5
Non-Migrant	48,429	8,142	16.8	19,939	41.2	14,448	29.8	5,900	12.2
Individualized Education Plan (IEP)									
IEP	8,228	3,285	39.9	3,567	43.4	1,111	13.5	265	3.2
IEP w/ Accomm.	5,220	2,345	44.9	2,258	43.3	542	10.4	75	1.4
IEP w/o Accomm.	3,008	940	31.3	1,309	43.5	569	18.9	190	6.3
Plan 504	**1,048**	**178**	**17.0**	**462**	**44.1**	**313**	**29.9**	**95**	**9.1**
Plan 504 w/ Accomm.	514	107	20.8	243	47.3	133	25.9	31	6.0
Plan 504 w/o Accomm.	534	71	13.3	219	41.0	180	33.7	64	12.0
English Language Learners (ELL)									
ELL	2,600	1,064	40.9	1,165	44.8	313	12.0	58	2.2
ELL w/ Accomm.	863	387	44.8	367	42.5	97	11.2	12	1.4
ELL w/o Accomm.	1,737	677	39.0	798	45.9	216	12.4	46	2.7
Non-English Language Learners (Non-ELL)									
Non-ELL	45,860	7,082	15.4	18,788	41.0	14,146	30.9	5,844	12.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	246	17	6.9	87	35.4	98	39.8	44	17.9
Non-Military	48,214	8,129	16.9	19,866	41.2	14,361	29.8	5,858	12.2
Foster									
Foster	299	83	27.8	147	49.2	57	19.1	12	4.0
Non-Foster	48,161	8,063	16.7	19,806	41.1	14,402	29.9	5,890	12.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	45,876	8,634	18.8	20,852	45.5	13,556	29.6	2,834	6.2
Form									
Form 1	18,114	4,313	23.8	8,513	47.0	4,392	24.3	896	5.0
Form 2	13,898	2,297	16.5	6,038	43.5	4,589	33.0	974	7.0
Form 3	13,864	2,024	14.6	6,301	45.5	4,575	33.0	964	7.0
Ethnicity									
Hispanic or Latino	7,529	1,883	25.0	3,689	49.0	1,721	22.9	236	3.1
Race									
American Indian/:Alaskan Native	6,604	1,284	19.4	3,205	48.5	1,856	28.1	259	3.9
Asian	884	83	9.4	249	28.2	359	40.6	193	21.8
Black/:African American	3,774	1,420	37.6	1,763	46.7	532	14.1	59	1.6
Pacific Islander	143	60	42.0	56	39.2	19	13.3	8	5.6
White/:Caucasian	23,074	3,234	14.0	10,111	43.8	7,879	34.2	1,850	8.0
Two or More Races	3,868	670	17.3	1,779	46.0	1,190	30.8	229	5.9
Gender									
Female	22,439	4,339	19.3	10,684	47.6	6,189	27.6	1,227	5.5
Male	23,363	4,274	18.3	10,138	43.4	7,347	31.5	1,604	6.9
Not Indicated	74	21	28.4	30	40.5	20	27.0	3	4.1
Other									
ELL 1st Yr: Proficient	634	148	23.3	348	54.9	129	20.4	9	1.4
ELL 2nd Yr: Proficient	903	183	20.3	514	56.9	189	20.9	17	1.9
Econ. Disadv.	27,891	6,812	24.4	13,618	48.8	6,550	23.5	911	3.3
Non-Econ. Disadv.	17,985	1,822	10.1	7,234	40.2	7,006	39.0	1,923	10.7
Migrant	30	8	26.7	15	50.0	7	23.3	0	0.0
Non-Migrant	45,846	8,626	18.8	20,837	45.5	13,549	29.6	2,834	6.2
Individualized Education Plan (IEP)									
IEP	6,891	3,536	51.3	2,594	37.6	662	9.6	99	1.4
IEP w/ Accomm.	3,600	2,042	56.7	1,305	36.3	227	6.3	26	0.7
IEP w/o Accomm.	3,291	1,494	45.4	1,289	39.2	435	13.2	73	2.2
Plan 504	**1,072**	**195**	**18.2**	**523**	**48.8**	**299**	**27.9**	**55**	**5.1**
Plan 504 w/ Accomm.	319	68	21.3	165	51.7	76	23.8	10	3.1
Plan 504 w/o Accomm.	753	127	16.9	358	47.5	223	29.6	45	6.0
English Language Learners (ELL)									
ELL	1,667	894	53.6	664	39.8	94	5.6	15	0.9
ELL w/ Accomm.	297	169	56.9	117	39.4	9	3.0	2	0.7
ELL w/o Accomm.	1,370	725	52.9	547	39.9	85	6.2	13	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,209	7,740	17.5	20,188	45.7	13,462	30.5	2,819	6.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	258	33	12.8	98	38.0	98	38.0	29	11.2
Non-Military	45,618	8,601	18.9	20,754	45.5	13,458	29.5	2,805	6.2
Foster									
Foster	266	75	28.2	137	51.5	47	17.7	7	2.6
Non-Foster	45,610	8,559	18.8	20,715	45.4	13,509	29.6	2,827	6.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	47,554	22,240	46.8	9,087	19.1	12,853	27.0	3,374	7.1
Form									
Form 1	19,110	10,005	52.4	3,274	17.1	4,759	24.9	1,072	5.6
Form 2	14,221	5,910	41.6	3,132	22.0	4,006	28.2	1,173	8.3
Form 3	14,223	6,325	44.5	2,681	18.9	4,088	28.7	1,129	7.9
Ethnicity									
Hispanic or Latino	8,024	4,605	57.4	1,501	18.7	1,630	20.3	288	3.6
Race									
American Indian/:Alaskan Native	6,910	3,430	49.6	1,369	19.8	1,751	25.3	360	5.2
Asian	1,021	225	22.0	167	16.4	386	37.8	243	23.8
Black/:African American	4,170	2,904	69.6	641	15.4	547	13.1	78	1.9
Pacific Islander	151	94	62.3	33	21.9	20	13.3	4	2.7
White/:Caucasian	23,411	9,203	39.3	4,630	19.8	7,448	31.8	2,130	9.1
Two or More Races	3,867	1,779	46.0	746	19.3	1,071	27.7	271	7.0
Gender									
Female	23,187	10,794	46.6	4,600	19.8	6,332	27.3	1,461	6.3
Male	24,312	11,418	47.0	4,473	18.4	6,510	26.8	1,911	7.9
Not Indicated	55	28	50.9	14	25.5	11	20.0	2	3.6
Other									
ELL 1st Yr: Proficient	199	89	44.7	56	28.1	43	21.6	11	5.5
ELL 2nd Yr: Proficient	432	244	56.5	94	21.8	81	18.8	13	3.0
Econ. Disadv.	29,240	16,707	57.1	5,521	18.9	6,027	20.6	985	3.4
Non-Econ. Disadv.	18,314	5,533	30.2	3,566	19.5	6,826	37.3	2,389	13.0
Migrant	30	18	60.0	5	16.7	5	16.7	2	6.7
Non-Migrant	47,524	22,222	46.8	9,082	19.1	12,848	27.0	3,372	7.1
Individualized Education Plan (IEP)									
IEP	7,705	6,211	80.6	791	10.3	598	7.8	105	1.4
IEP w/ Accomm.	3,877	3,281	84.6	364	9.4	203	5.2	29	0.8
IEP w/o Accomm.	3,828	2,930	76.5	427	11.2	395	10.3	76	2.0
Plan 504	**995**	**486**	**48.8**	**200**	**20.1**	**239**	**24.0**	**70**	**7.0**
Plan 504 w/ Accomm.	229	129	56.3	49	21.4	42	18.3	9	3.9
Plan 504 w/o Accomm.	766	357	46.6	151	19.7	197	25.7	61	8.0
English Language Learners (ELL)									
ELL	2,185	1,768	80.9	257	11.8	141	6.5	19	0.9
ELL w/ Accomm.	294	243	82.7	33	11.2	16	5.4	2	0.7
ELL w/o Accomm.	1,891	1,525	80.7	224	11.9	125	6.6	17	0.9
Non-English Language Learners (Non-ELL)									
Non-ELL	45,369	20,472	45.1	8,830	19.5	12,712	28.0	3,355	7.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	90	39.5	40	17.5	80	35.1	18	7.9
Non-Military	47,326	22,150	46.8	9,047	19.1	12,773	27.0	3,356	7.1
Foster									
Foster	245	160	65.3	34	13.9	38	15.5	13	5.3
Non-Foster	47,309	22,080	46.7	9,053	19.1	12,815	27.1	3,361	7.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,141	23,065	48.9	13,106	27.8	5,356	11.4	5,614	11.9
Form									
Form 1	18,715	10,242	54.7	4,656	24.9	1,784	9.5	2,033	10.9
Form 2	14,218	6,601	46.4	4,081	28.7	1,702	12.0	1,834	12.9
Form 3	14,208	6,222	43.8	4,369	30.8	1,870	13.2	1,747	12.3
Ethnicity									
Hispanic or Latino	7,722	4,615	59.8	1,956	25.3	634	8.2	517	6.7
Race									
American Indian/:Alaskan Native	6,814	3,664	53.8	1,887	27.7	681	10.0	582	8.5
Asian	960	215	22.4	230	24.0	169	17.6	346	36.0
Black/:African American	4,098	2,739	66.8	936	22.8	242	5.9	181	4.4
Pacific Islander	164	101	61.6	41	25.0	14	8.5	8	4.9
White/:Caucasian	23,721	9,970	42.0	7,018	29.6	3,171	13.4	3,562	15.0
Two or More Races	3,662	1,761	48.1	1,038	28.4	445	12.2	418	11.4
Gender									
Female	23,200	10,754	46.4	6,938	29.9	2,747	11.8	2,761	11.9
Male	23,870	12,260	51.4	6,156	25.8	2,605	10.9	2,849	11.9
Not Indicated	71	51	71.8	12	16.9	4	5.6	4	5.6
Other									
ELL 1st Yr: Proficient	183	84	45.9	69	37.7	20	10.9	10	5.5
ELL 2nd Yr: Proficient	241	106	44.0	74	30.7	33	13.7	28	11.6
Econ. Disadv.	28,521	16,868	59.1	7,365	25.8	2,460	8.6	1,828	6.4
Non-Econ. Disadv.	18,620	6,197	33.3	5,741	30.8	2,896	15.6	3,786	20.3
Migrant	35	19	54.3	10	28.6	4	11.4	2	5.7
Non-Migrant	47,106	23,046	48.9	13,096	27.8	5,352	11.4	5,612	11.9
Individualized Education Plan (IEP)									
IEP	7,240	6,143	84.9	795	11.0	183	2.5	119	1.6
IEP w/ Accomm.	3,905	3,439	88.1	351	9.0	72	1.8	43	1.1
IEP w/o Accomm.	3,335	2,704	81.1	444	13.3	111	3.3	76	2.3
Plan 504	**964**	**479**	**49.7**	**269**	**27.9**	**120**	**12.5**	**96**	**10.0**
Plan 504 w/ Accomm.	197	110	55.8	51	25.9	22	11.2	14	7.1
Plan 504 w/o Accomm.	767	369	48.1	218	28.4	98	12.8	82	10.7
English Language Learners (ELL)									
ELL	2,105	1,741	82.7	290	13.8	45	2.1	29	1.4
ELL w/ Accomm.	375	321	85.6	44	11.7	8	2.1	2	0.5
ELL w/o Accomm.	1,730	1,420	82.1	246	14.2	37	2.1	27	1.6
Non-English Language Learners (Non-ELL)									
Non-ELL	45,036	21,324	47.4	12,816	28.5	5,311	11.8	5,585	12.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	227	84	37.0	80	35.2	27	11.9	36	15.9
Non-Military	46,914	22,981	49.0	13,026	27.8	5,329	11.4	5,578	11.9
Foster									
Foster	237	150	63.3	60	25.3	20	8.4	7	3.0
Non-Foster	46,904	22,915	48.9	13,046	27.8	5,336	11.4	5,607	12.0

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,352	24,439	53.9	9,658	21.3	6,985	15.4	4,270	9.4
Form									
Form 1	16,973	9,421	55.5	3,619	21.3	2,421	14.3	1,512	8.9
Form 2	14,163	7,832	55.3	2,779	19.6	2,200	15.5	1,352	9.6
Form 3	14,216	7,186	50.6	3,260	22.9	2,364	16.6	1,406	9.9
Ethnicity									
Hispanic or Latino	6,933	4,418	63.7	1,391	20.1	776	11.2	348	5.0
Race									
American Indian/:Alaskan Native	6,690	3,902	58.3	1,479	22.1	920	13.8	389	5.8
Asian	1,096	333	30.4	182	16.6	244	22.3	337	30.8
Black/:African American	3,934	2,883	73.3	638	16.2	295	7.5	118	3.0
Pacific Islander	155	92	59.4	33	21.3	20	12.9	10	6.5
White/:Caucasian	23,341	11,059	47.4	5,290	22.7	4,235	18.1	2,757	11.8
Two or More Races	3,203	1,752	54.7	645	20.1	495	15.5	311	9.7
Gender									
Female	22,336	11,576	51.8	5,157	23.1	3,583	16.0	2,020	9.0
Male	22,991	12,846	55.9	4,496	19.6	3,399	14.8	2,250	9.8
Not Indicated	25	17	68.0	5	20.0	3	12.0	0	0.0
Other									
ELL 1st Yr: Proficient	584	411	70.4	110	18.8	48	8.2	15	2.6
ELL 2nd Yr: Proficient	218	136	62.4	45	20.6	23	10.6	14	6.4
Econ. Disadv.	24,793	16,075	64.8	4,815	19.4	2,722	11.0	1,181	4.8
Non-Econ. Disadv.	20,559	8,364	40.7	4,843	23.6	4,263	20.7	3,089	15.0
Migrant	32	17	53.1	4	12.5	7	21.9	4	12.5
Non-Migrant	45,320	24,422	53.9	9,654	21.3	6,978	15.4	4,266	9.4
Individualized Education Plan (IEP)									
IEP	6,532	5,834	89.3	494	7.6	147	2.3	57	0.9
IEP w/ Accomm.	2,173	1,979	91.1	144	6.6	38	1.8	12	0.6
IEP w/o Accomm.	4,359	3,855	88.4	350	8.0	109	2.5	45	1.0
Plan 504	**882**	**503**	**57.0**	**192**	**21.8**	**116**	**13.2**	**71**	**8.1**
Plan 504 w/ Accomm.	77	46	59.7	17	22.1	9	11.7	5	6.5
Plan 504 w/o Accomm.	805	457	56.8	175	21.7	107	13.3	66	8.2
English Language Learners (ELL)									
ELL	1,625	1,438	88.5	115	7.1	48	3.0	24	1.5
ELL w/ Accomm.	278	255	91.7	14	5.0	4	1.4	5	1.8
ELL w/o Accomm.	1,347	1,183	87.8	101	7.5	44	3.3	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	43,727	23,001	52.6	9,543	21.8	6,937	15.9	4,246	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	130	62	47.7	24	18.5	27	20.8	17	13.1
Non-Military	45,222	24,377	53.9	9,634	21.3	6,958	15.4	4,253	9.4
Foster									
Foster	196	134	68.4	41	20.9	16	8.2	5	2.6
Non-Foster	45,156	24,305	53.8	9,617	21.3	6,969	15.4	4,265	9.5

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	N	N	%	N	%	N	%	N	%
Total									
All	52,518	10,364	19.7	16,665	31.7	16,564	31.5	8,925	17.0
Form									
Form 1	17,526	3,739	21.3	5,115	29.2	5,657	32.3	3,015	17.2
Form 2	17,553	3,309	18.9	5,768	32.9	5,407	30.8	3,069	17.5
Form 3	17,439	3,316	19.0	5,782	33.2	5,500	31.5	2,841	16.3
Ethnicity									
Hispanic or Latino	9,684	2,885	29.8	3,451	35.6	2,507	25.9	841	8.7
Race									
American Indian/:Alaskan Native	6,764	1,243	18.4	2,332	34.5	2,215	32.8	974	14.4
Asian	972	96	9.9	225	23.2	337	34.7	314	32.3
Black/:African American	4,567	1,844	40.4	1,539	33.7	900	19.7	284	6.2
Pacific Islander	178	57	32.0	73	41.0	37	20.8	11	6.2
White/:Caucasian	24,881	3,193	12.8	7,263	29.2	8,812	35.4	5,613	22.6
Two or More Races	5,472	1,046	19.1	1,782	32.6	1,756	32.1	888	16.2
Gender									
Female	25,718	5,346	20.8	8,336	32.4	7,986	31.1	4,050	15.8
Male	26,758	5,003	18.7	8,314	31.1	8,568	32.0	4,873	18.2
Not Indicated	42	15	35.7	15	35.7	10	23.8	2	4.8
Other									
ELL 1st Yr: Proficient	574	32	5.6	160	27.9	261	45.5	121	21.1
ELL 2nd Yr: Proficient	268	12	4.5	62	23.1	112	41.8	82	30.6
Econ. Disadv.	33,722	8,290	24.6	11,923	35.4	9,714	28.8	3,795	11.3
Non-Econ. Disadv.	18,796	2,074	11.0	4,742	25.2	6,850	36.4	5,130	27.3
Migrant	33	7	21.2	10	30.3	11	33.3	5	15.2
Non-Migrant	52,485	10,357	19.7	16,655	31.7	16,553	31.5	8,920	17.0
Individualized Education Plan (IEP)									
IEP	9,382	3,786	40.4	3,042	32.4	1,843	19.6	711	7.6
IEP w/ Accomm.	5,073	2,546	50.2	1,691	33.3	674	13.3	162	3.2
IEP w/o Accomm.	4,309	1,240	28.8	1,351	31.4	1,169	27.1	549	12.7
Plan 504	**974**	**173**	**17.8**	**395**	**40.6**	**287**	**29.5**	**119**	**12.2**
Plan 504 w/ Accomm.	485	109	22.5	216	44.5	114	23.5	46	9.5
Plan 504 w/o Accomm.	489	64	13.1	179	36.6	173	35.4	73	14.9
English Language Learners (ELL)									
ELL	6,236	2,324	37.3	2,348	37.7	1,260	20.2	304	4.9
ELL w/ Accomm.	1,894	810	42.8	717	37.9	311	16.4	56	3.0
ELL w/o Accomm.	4,342	1,514	34.9	1,631	37.6	949	21.9	248	5.7
Non-English Language Learners (Non-ELL)									
Non-ELL	46,282	8,040	17.4	14,317	30.9	15,304	33.1	8,621	18.6
Military									

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 03	**N**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Military	234	25	10.7	62	26.5	94	40.2	53	22.7
Non-Military	52,284	10,339	19.8	16,603	31.8	16,470	31.5	8,872	17.0
Foster									
Foster	394	115	29.2	141	35.8	105	26.7	33	8.4
Non-Foster	52,124	10,249	19.7	16,524	31.7	16,459	31.6	8,892	17.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Total									
All	50,677	10,455	20.6	18,251	36.0	14,863	29.3	7,108	14.0
Form									
Form 1	16,913	3,573	21.1	5,856	34.6	5,273	31.2	2,211	13.1
Form 2	16,920	3,392	20.1	5,899	34.9	5,079	30.0	2,550	15.1
Form 3	16,844	3,490	20.7	6,496	38.6	4,511	26.8	2,347	13.9
Ethnicity									
Hispanic or Latino	9,251	2,683	29.0	3,657	39.5	2,193	23.7	718	7.8
Race									
American Indian/:Alaskan Native	6,646	1,318	19.8	2,639	39.7	1,939	29.2	750	11.3
Asian	988	90	9.1	207	21.0	342	34.6	349	35.3
Black/:African American	4,355	1,768	40.6	1,630	37.4	733	16.8	224	5.1
Pacific Islander	166	48	28.9	66	39.8	37	22.3	15	9.0
White/:Caucasian	24,235	3,598	14.9	8,134	33.6	8,098	33.4	4,405	18.2
Two or More Races	5,036	950	18.9	1,918	38.1	1,521	30.2	647	12.9
Gender									
Female	24,869	5,353	21.5	9,359	37.6	7,094	28.5	3,063	12.3
Male	25,770	5,086	19.7	8,878	34.5	7,764	30.1	4,042	15.7
Not Indicated	38	16	42.1	14	36.8	5	13.2	3	7.9
Other									
ELL 1st Yr: Proficient	1,798	311	17.3	766	42.6	545	30.3	176	9.8
ELL 2nd Yr: Proficient	584	40	6.9	215	36.8	215	36.8	114	19.5
Econ. Disadv.	31,870	8,179	25.7	12,731	40.0	8,240	25.9	2,720	8.5
Non-Econ. Disadv.	18,807	2,276	12.1	5,520	29.4	6,623	35.2	4,388	23.3
Migrant	30	7	23.3	14	46.7	7	23.3	2	6.7
Non-Migrant	50,647	10,448	20.6	18,237	36.0	14,856	29.3	7,106	14.0
Individualized Education Plan (IEP)									
IEP	8,789	3,725	42.4	3,199	36.4	1,450	16.5	415	4.7
IEP w/ Accomm.	5,293	2,632	49.7	1,954	36.9	608	11.5	99	1.9
IEP w/o Accomm.	3,496	1,093	31.3	1,245	35.6	842	24.1	316	9.0
Plan 504	**964**	**202**	**21.0**	**388**	**40.3**	**266**	**27.6**	**108**	**11.2**
Plan 504 w/ Accomm.	469	113	24.1	190	40.5	132	28.1	34	7.3
Plan 504 w/o Accomm.	495	89	18.0	198	40.0	134	27.1	74	15.0
English Language Learners (ELL)									
ELL	4,144	1,817	43.9	1,632	39.4	580	14.0	115	2.8
ELL w/ Accomm.	1,354	668	49.3	507	37.4	154	11.4	25	1.9
ELL w/o Accomm.	2,790	1,149	41.2	1,125	40.3	426	15.3	90	3.2
Non-English Language Learners (Non-ELL)									
Non-ELL	46,533	8,638	18.6	16,619	35.7	14,283	30.7	6,993	15.0

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 04	N	N	%	N	%	N	%	N	%
Military									
Military	254	16	6.3	86	33.9	80	31.5	72	28.4
Non-Military	50,423	10,439	20.7	18,165	36.0	14,783	29.3	7,036	14.0
Foster									
Foster	360	117	32.5	135	37.5	79	21.9	29	8.1
Non-Foster	50,317	10,338	20.6	18,116	36.0	14,784	29.4	7,079	14.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,460	8,146	16.8	19,953	41.2	14,459	29.8	5,902	12.2
Form									
Form 1	16,146	3,141	19.5	6,682	41.4	4,573	28.3	1,750	10.8
Form 2	16,160	2,535	15.7	6,852	42.4	4,555	28.2	2,218	13.7
Form 3	16,154	2,470	15.3	6,419	39.7	5,331	33.0	1,934	12.0
Ethnicity									
Hispanic or Latino	8,760	1,921	21.9	4,016	45.8	2,186	25.0	637	7.3
Race									
American Indian/:Alaskan Native	6,644	1,114	16.8	2,993	45.1	1,919	28.9	618	9.3
Asian	951	70	7.4	245	25.8	318	33.4	318	33.4
Black/:African American	4,250	1,403	33.0	1,836	43.2	829	19.5	182	4.3
Pacific Islander	164	37	22.6	68	41.5	44	26.8	15	9.2
White/:Caucasian	23,245	2,897	12.5	8,920	38.4	7,810	33.6	3,618	15.6
Two or More Races	4,446	704	15.8	1,875	42.2	1,353	30.4	514	11.6
Gender									
Female	23,927	3,905	16.3	10,193	42.6	7,177	30.0	2,652	11.1
Male	24,490	4,229	17.3	9,738	39.8	7,273	29.7	3,250	13.3
Not Indicated	43	12	27.9	22	51.2	9	20.9	0	0.0
Other									
ELL 1st Yr: Proficient	1,420	210	14.8	731	51.5	396	27.9	83	5.9
ELL 2nd Yr: Proficient	1,711	261	15.3	809	47.3	490	28.6	151	8.8
Econ. Disadv.	30,007	6,327	21.1	13,725	45.7	7,771	25.9	2,184	7.3
Non-Econ. Disadv.	18,453	1,819	9.9	6,228	33.8	6,688	36.2	3,718	20.2
Migrant	31	4	12.9	14	45.2	11	35.5	2	6.5
Non-Migrant	48,429	8,142	16.8	19,939	41.2	14,448	29.8	5,900	12.2
Individualized Education Plan (IEP)									
IEP	8,228	3,285	39.9	3,567	43.4	1,111	13.5	265	3.2
IEP w/ Accomm.	5,220	2,345	44.9	2,258	43.3	542	10.4	75	1.4
IEP w/o Accomm.	3,008	940	31.3	1,309	43.5	569	18.9	190	6.3
Plan 504	**1,048**	**178**	**17.0**	**462**	**44.1**	**313**	**29.9**	**95**	**9.1**
Plan 504 w/ Accomm.	514	107	20.8	243	47.3	133	25.9	31	6.0
Plan 504 w/o Accomm.	534	71	13.3	219	41.0	180	33.7	64	12.0
English Language Learners (ELL)									
ELL	2,600	1,064	40.9	1,165	44.8	313	12.0	58	2.2
ELL w/ Accomm.	863	387	44.8	367	42.5	97	11.2	12	1.4
ELL w/o Accomm.	1,737	677	39.0	798	45.9	216	12.4	46	2.7
Non-English Language Learners (Non-ELL)									
Non-ELL	45,860	7,082	15.4	18,788	41.0	14,146	30.9	5,844	12.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 05	N	N	%	N	%	N	%	N	%
Military									
Military	246	17	6.9	87	35.4	98	39.8	44	17.9
Non-Military	48,214	8,129	16.9	19,866	41.2	14,361	29.8	5,858	12.2
Foster									
Foster	299	83	27.8	147	49.2	57	19.1	12	4.0
Non-Foster	48,161	8,063	16.7	19,806	41.1	14,402	29.9	5,890	12.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Total									
All	45,876	8,634	18.8	20,852	45.5	13,556	29.6	2,834	6.2
Form									
Form 1	18,114	4,313	23.8	8,513	47.0	4,392	24.3	896	5.0
Form 2	13,898	2,297	16.5	6,038	43.5	4,589	33.0	974	7.0
Form 3	13,864	2,024	14.6	6,301	45.5	4,575	33.0	964	7.0
Ethnicity									
Hispanic or Latino	7,529	1,883	25.0	3,689	49.0	1,721	22.9	236	3.1
Race									
American Indian/:Alaskan Native	6,604	1,284	19.4	3,205	48.5	1,856	28.1	259	3.9
Asian	884	83	9.4	249	28.2	359	40.6	193	21.8
Black/:African American	3,774	1,420	37.6	1,763	46.7	532	14.1	59	1.6
Pacific Islander	143	60	42.0	56	39.2	19	13.3	8	5.6
White/:Caucasian	23,074	3,234	14.0	10,111	43.8	7,879	34.2	1,850	8.0
Two or More Races	3,868	670	17.3	1,779	46.0	1,190	30.8	229	5.9
Gender									
Female	22,439	4,339	19.3	10,684	47.6	6,189	27.6	1,227	5.5
Male	23,363	4,274	18.3	10,138	43.4	7,347	31.5	1,604	6.9
Not Indicated	74	21	28.4	30	40.5	20	27.0	3	4.1
Other									
ELL 1st Yr: Proficient	634	148	23.3	348	54.9	129	20.4	9	1.4
ELL 2nd Yr: Proficient	903	183	20.3	514	56.9	189	20.9	17	1.9
Econ. Disadv.	27,891	6,812	24.4	13,618	48.8	6,550	23.5	911	3.3
Non-Econ. Disadv.	17,985	1,822	10.1	7,234	40.2	7,006	39.0	1,923	10.7
Migrant	30	8	26.7	15	50.0	7	23.3	0	0.0
Non-Migrant	45,846	8,626	18.8	20,837	45.5	13,549	29.6	2,834	6.2
Individualized Education Plan (IEP)									
IEP	6,891	3,536	51.3	2,594	37.6	662	9.6	99	1.4
IEP w/ Accomm.	3,600	2,042	56.7	1,305	36.3	227	6.3	26	0.7
IEP w/o Accomm.	3,291	1,494	45.4	1,289	39.2	435	13.2	73	2.2
Plan 504	**1,072**	**195**	**18.2**	**523**	**48.8**	**299**	**27.9**	**55**	**5.1**
Plan 504 w/ Accomm.	319	68	21.3	165	51.7	76	23.8	10	3.1
Plan 504 w/o Accomm.	753	127	16.9	358	47.5	223	29.6	45	6.0
English Language Learners (ELL)									
ELL	1,667	894	53.6	664	39.8	94	5.6	15	0.9
ELL w/ Accomm.	297	169	56.9	117	39.4	9	3.0	2	0.7
ELL w/o Accomm.	1,370	725	52.9	547	39.9	85	6.2	13	1.0
Non-English Language Learners (Non-ELL)									
Non-ELL	44,209	7,740	17.5	20,188	45.7	13,462	30.5	2,819	6.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 06	N	N	%	N	%	N	%	N	%
Military									
Military	258	33	12.8	98	38.0	98	38.0	29	11.2
Non-Military	45,618	8,601	18.9	20,754	45.5	13,458	29.5	2,805	6.2
Foster									
Foster	266	75	28.2	137	51.5	47	17.7	7	2.6
Non-Foster	45,610	8,559	18.8	20,715	45.4	13,509	29.6	2,827	6.2

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Total									
All	47,554	22,240	46.8	9,087	19.1	12,853	27.0	3,374	7.1
Form									
Form 1	19,110	10,005	52.4	3,274	17.1	4,759	24.9	1,072	5.6
Form 2	14,221	5,910	41.6	3,132	22.0	4,006	28.2	1,173	8.3
Form 3	14,223	6,325	44.5	2,681	18.9	4,088	28.7	1,129	7.9
Ethnicity									
Hispanic or Latino	8,024	4,605	57.4	1,501	18.7	1,630	20.3	288	3.6
Race									
American Indian/:Alaskan Native	6,910	3,430	49.6	1,369	19.8	1,751	25.3	360	5.2
Asian	1,021	225	22.0	167	16.4	386	37.8	243	23.8
Black/:African American	4,170	2,904	69.6	641	15.4	547	13.1	78	1.9
Pacific Islander	151	94	62.3	33	21.9	20	13.3	4	2.7
White/:Caucasian	23,411	9,203	39.3	4,630	19.8	7,448	31.8	2,130	9.1
Two or More Races	3,867	1,779	46.0	746	19.3	1,071	27.7	271	7.0
Gender									
Female	23,187	10,794	46.6	4,600	19.8	6,332	27.3	1,461	6.3
Male	24,312	11,418	47.0	4,473	18.4	6,510	26.8	1,911	7.9
Not Indicated	55	28	50.9	14	25.5	11	20.0	2	3.6
Other									
ELL 1st Yr: Proficient	199	89	44.7	56	28.1	43	21.6	11	5.5
ELL 2nd Yr: Proficient	432	244	56.5	94	21.8	81	18.8	13	3.0
Econ. Disadv.	29,240	16,707	57.1	5,521	18.9	6,027	20.6	985	3.4
Non-Econ. Disadv.	18,314	5,533	30.2	3,566	19.5	6,826	37.3	2,389	13.0
Migrant	30	18	60.0	5	16.7	5	16.7	2	6.7
Non-Migrant	47,524	22,222	46.8	9,082	19.1	12,848	27.0	3,372	7.1
Individualized Education Plan (IEP)									
IEP	7,705	6,211	80.6	791	10.3	598	7.8	105	1.4
IEP w/ Accomm.	3,877	3,281	84.6	364	9.4	203	5.2	29	0.8
IEP w/o Accomm.	3,828	2,930	76.5	427	11.2	395	10.3	76	2.0
Plan 504	**995**	**486**	**48.8**	**200**	**20.1**	**239**	**24.0**	**70**	**7.0**
Plan 504 w/ Accomm.	229	129	56.3	49	21.4	42	18.3	9	3.9
Plan 504 w/o Accomm.	766	357	46.6	151	19.7	197	25.7	61	8.0
English Language Learners (ELL)									
ELL	2,185	1,768	80.9	257	11.8	141	6.5	19	0.9
ELL w/ Accomm.	294	243	82.7	33	11.2	16	5.4	2	0.7
ELL w/o Accomm.	1,891	1,525	80.7	224	11.9	125	6.6	17	0.9
Non-English Language Learners (Non-ELL)									
Non-ELL	45,369	20,472	45.1	8,830	19.5	12,712	28.0	3,355	7.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 07	N	N	%	N	%	N	%	N	%
Military									
Military	228	90	39.5	40	17.5	80	35.1	18	7.9
Non-Military	47,326	22,150	46.8	9,047	19.1	12,773	27.0	3,356	7.1
Foster									
Foster	245	160	65.3	34	13.9	38	15.5	13	5.3
Non-Foster	47,309	22,080	46.7	9,053	19.1	12,815	27.1	3,361	7.1

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,141	23,065	48.9	13,106	27.8	5,356	11.4	5,614	11.9
Form									
Form 1	18,715	10,242	54.7	4,656	24.9	1,784	9.5	2,033	10.9
Form 2	14,218	6,601	46.4	4,081	28.7	1,702	12.0	1,834	12.9
Form 3	14,208	6,222	43.8	4,369	30.8	1,870	13.2	1,747	12.3
Ethnicity									
Hispanic or Latino	7,722	4,615	59.8	1,956	25.3	634	8.2	517	6.7
Race									
American Indian/:Alaskan Native	6,814	3,664	53.8	1,887	27.7	681	10.0	582	8.5
Asian	960	215	22.4	230	24.0	169	17.6	346	36.0
Black/:African American	4,098	2,739	66.8	936	22.8	242	5.9	181	4.4
Pacific Islander	164	101	61.6	41	25.0	14	8.5	8	4.9
White/:Caucasian	23,721	9,970	42.0	7,018	29.6	3,171	13.4	3,562	15.0
Two or More Races	3,662	1,761	48.1	1,038	28.4	445	12.2	418	11.4
Gender									
Female	23,200	10,754	46.4	6,938	29.9	2,747	11.8	2,761	11.9
Male	23,870	12,260	51.4	6,156	25.8	2,605	10.9	2,849	11.9
Not Indicated	71	51	71.8	12	16.9	4	5.6	4	5.6
Other									
ELL 1st Yr: Proficient	183	84	45.9	69	37.7	20	10.9	10	5.5
ELL 2nd Yr: Proficient	241	106	44.0	74	30.7	33	13.7	28	11.6
Econ. Disadv.	28,521	16,868	59.1	7,365	25.8	2,460	8.6	1,828	6.4
Non-Econ. Disadv.	18,620	6,197	33.3	5,741	30.8	2,896	15.6	3,786	20.3
Migrant	35	19	54.3	10	28.6	4	11.4	2	5.7
Non-Migrant	47,106	23,046	48.9	13,096	27.8	5,352	11.4	5,612	11.9
Individualized Education Plan (IEP)									
IEP	7,240	6,143	84.9	795	11.0	183	2.5	119	1.6
IEP w/ Accomm.	3,905	3,439	88.1	351	9.0	72	1.8	43	1.1
IEP w/o Accomm.	3,335	2,704	81.1	444	13.3	111	3.3	76	2.3
Plan 504	**964**	**479**	**49.7**	**269**	**27.9**	**120**	**12.5**	**96**	**10.0**
Plan 504 w/ Accomm.	197	110	55.8	51	25.9	22	11.2	14	7.1
Plan 504 w/o Accomm.	767	369	48.1	218	28.4	98	12.8	82	10.7
English Language Learners (ELL)									
ELL	2,105	1,741	82.7	290	13.8	45	2.1	29	1.4
ELL w/ Accomm.	375	321	85.6	44	11.7	8	2.1	2	0.5
ELL w/o Accomm.	1,730	1,420	82.1	246	14.2	37	2.1	27	1.6
Non-English Language Learners (Non-ELL)									
Non-ELL	45,036	21,324	47.4	12,816	28.5	5,311	11.8	5,585	12.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 08	N	N	%	N	%	N	%	N	%
Military									
Military	227	84	37.0	80	35.2	27	11.9	36	15.9
Non-Military	46,914	22,981	49.0	13,026	27.8	5,329	11.4	5,578	11.9
Foster									
Foster	237	150	63.3	60	25.3	20	8.4	7	3.0
Non-Foster	46,904	22,915	48.9	13,046	27.8	5,336	11.4	5,607	12.0

Oklahoma School Testing Program (OSTP)

Mathematics - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	45,352	24,439	53.9	9,658	21.3	6,985	15.4	4,270	9.4
Form									
Form 1	16,973	9,421	55.5	3,619	21.3	2,421	14.3	1,512	8.9
Form 2	14,163	7,832	55.3	2,779	19.6	2,200	15.5	1,352	9.6
Form 3	14,216	7,186	50.6	3,260	22.9	2,364	16.6	1,406	9.9
Ethnicity									
Hispanic or Latino	6,933	4,418	63.7	1,391	20.1	776	11.2	348	5.0
Race									
American Indian/:Alaskan Native	6,690	3,902	58.3	1,479	22.1	920	13.8	389	5.8
Asian	1,096	333	30.4	182	16.6	244	22.3	337	30.8
Black/:African American	3,934	2,883	73.3	638	16.2	295	7.5	118	3.0
Pacific Islander	155	92	59.4	33	21.3	20	12.9	10	6.5
White/:Caucasian	23,341	11,059	47.4	5,290	22.7	4,235	18.1	2,757	11.8
Two or More Races	3,203	1,752	54.7	645	20.1	495	15.5	311	9.7
Gender									
Female	22,336	11,576	51.8	5,157	23.1	3,583	16.0	2,020	9.0
Male	22,991	12,846	55.9	4,496	19.6	3,399	14.8	2,250	9.8
Not Indicated	25	17	68.0	5	20.0	3	12.0	0	0.0
Other									
ELL 1st Yr: Proficient	584	411	70.4	110	18.8	48	8.2	15	2.6
ELL 2nd Yr: Proficient	218	136	62.4	45	20.6	23	10.6	14	6.4
Econ. Disadv.	24,793	16,075	64.8	4,815	19.4	2,722	11.0	1,181	4.8
Non-Econ. Disadv.	20,559	8,364	40.7	4,843	23.6	4,263	20.7	3,089	15.0
Migrant	32	17	53.1	4	12.5	7	21.9	4	12.5
Non-Migrant	45,320	24,422	53.9	9,654	21.3	6,978	15.4	4,266	9.4
Individualized Education Plan (IEP)									
IEP	6,532	5,834	89.3	494	7.6	147	2.3	57	0.9
IEP w/ Accomm.	2,173	1,979	91.1	144	6.6	38	1.8	12	0.6
IEP w/o Accomm.	4,359	3,855	88.4	350	8.0	109	2.5	45	1.0
Plan 504	**882**	**503**	**57.0**	**192**	**21.8**	**116**	**13.2**	**71**	**8.1**
Plan 504 w/ Accomm.	77	46	59.7	17	22.1	9	11.7	5	6.5
Plan 504 w/o Accomm.	805	457	56.8	175	21.7	107	13.3	66	8.2
English Language Learners (ELL)									
ELL	1,625	1,438	88.5	115	7.1	48	3.0	24	1.5
ELL w/ Accomm.	278	255	91.7	14	5.0	4	1.4	5	1.8
ELL w/o Accomm.	1,347	1,183	87.8	101	7.5	44	3.3	19	1.4
Non-English Language Learners (Non-ELL)									
Non-ELL	43,727	23,001	52.6	9,543	21.8	6,937	15.9	4,246	9.7

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Mathematics - Grade 10	N	N	%	N	%	N	%	N	%
Military									
Military	130	62	47.7	24	18.5	27	20.8	17	13.1
Non-Military	45,222	24,377	53.9	9,634	21.3	6,958	15.4	4,253	9.4
Foster									
Foster	196	134	68.4	41	20.9	16	8.2	5	2.6
Non-Foster	45,156	24,305	53.8	9,617	21.3	6,969	15.4	4,265	9.5

Oklahoma School Testing Program (OSTP)

Science - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Form									
Form 1	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Ethnicity									
Hispanic or Latino	8,739	2,683	30.7	2,729	31.2	2,670	30.6	657	7.5
Race									
American Indian/:Alaskan Native	6,656	1,462	22.0	1,906	28.6	2,432	36.5	856	12.9
Asian	944	123	13.0	196	20.8	344	36.4	281	29.8
Black/:African American	4,247	1,737	40.9	1,311	30.9	994	23.4	205	4.8
Pacific Islander	165	64	38.8	44	26.7	50	30.3	7	4.2
White/:Caucasian	23,264	3,502	15.1	5,643	24.3	9,388	40.4	4,731	20.3
Two or More Races	4,435	858	19.4	1,194	26.9	1,690	38.1	693	15.6
Gender									
Female	23,925	5,071	21.2	6,585	27.5	8,853	37.0	3,416	14.3
Male	24,481	5,341	21.8	6,423	26.2	8,705	35.6	4,012	16.4
Not Indicated	44	17	38.6	15	34.1	10	22.7	2	4.6
Other									
ELL 1st Yr: Proficient	1,415	359	25.4	539	38.1	446	31.5	71	5.0
ELL 2nd Yr: Proficient	1,700	387	22.8	599	35.2	586	34.5	128	7.5
Econ. Disadv.	30,012	8,079	26.9	8,942	29.8	10,017	33.4	2,974	9.9
Non-Econ. Disadv.	18,438	2,350	12.8	4,081	22.1	7,551	41.0	4,456	24.2
Migrant	32	6	18.8	8	25.0	12	37.5	6	18.8
Non-Migrant	48,418	10,423	21.5	13,015	26.9	17,556	36.3	7,424	15.3
Individualized Education Plan (IEP)									
IEP	8,247	3,845	46.6	2,349	28.5	1,640	19.9	413	5.0
IEP w/ Accomm.	5,216	2,785	53.4	1,473	28.2	818	15.7	140	2.7
IEP w/o Accomm.	3,031	1,060	35.0	876	28.9	822	27.1	273	9.0
Plan 504	**1,048**	**236**	**22.5**	**294**	**28.1**	**355**	**33.9**	**163**	**15.6**
Plan 504 w/ Accomm.	513	145	28.3	156	30.4	156	30.4	56	10.9
Plan 504 w/o Accomm.	535	91	17.0	138	25.8	199	37.2	107	20.0
English Language Learners (ELL)									
ELL	2,599	1,438	55.3	764	29.4	349	13.4	48	1.9
ELL w/ Accomm.	861	522	60.6	241	28.0	89	10.3	9	1.1
ELL w/o Accomm.	1,738	916	52.7	523	30.1	260	15.0	39	2.2
Non-English Language Learners (Non-ELL)									
Non-ELL	45,851	8,991	19.6	12,259	26.7	17,219	37.6	7,382	16.1
Military									
Military	250	24	9.6	52	20.8	97	38.8	77	30.8
Non-Military	48,200	10,405	21.6	12,971	26.9	17,471	36.3	7,353	15.3

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Foster									
Foster	295	106	35.9	82	27.8	94	31.9	13	4.4
Non-Foster	48,155	10,323	21.4	12,941	26.9	17,474	36.3	7,417	15.4

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Form									
Form 1	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Ethnicity									
Hispanic or Latino	7,731	3,774	48.8	1,751	22.7	1,797	23.2	409	5.3
Race									
American Indian/:Alaskan Native	6,860	2,735	39.9	1,580	23.0	1,991	29.0	554	8.1
Asian	963	193	20.0	179	18.6	344	35.7	247	25.7
Black/:African American	4,156	2,494	60.0	848	20.4	674	16.2	140	3.4
Pacific Islander	166	92	55.4	26	15.7	39	23.5	9	5.4
White/:Caucasian	23,783	7,151	30.1	4,917	20.7	8,355	35.1	3,360	14.1
Two or More Races	3,683	1,408	38.2	816	22.2	1,056	28.7	403	10.9
Gender									
Female	23,293	8,517	36.6	5,334	22.9	7,187	30.9	2,255	9.7
Male	23,979	9,275	38.7	4,774	19.9	7,066	29.5	2,864	11.9
Not Indicated	70	55	78.6	9	12.9	3	4.3	3	4.3
Other									
ELL 1st Yr: Proficient	182	62	34.1	53	29.1	57	31.3	10	5.5
ELL 2nd Yr: Proficient	241	79	32.8	72	29.9	77	32.0	13	5.4
Econ. Disadv.	28,653	13,476	47.0	6,362	22.2	7,066	24.7	1,749	6.1
Non-Econ. Disadv.	18,689	4,371	23.4	3,755	20.1	7,190	38.5	3,373	18.1
Migrant	35	15	42.9	8	22.9	9	25.7	3	8.6
Non-Migrant	47,307	17,832	37.7	10,109	21.4	14,247	30.1	5,119	10.8
Individualized Education Plan (IEP)									
IEP	7,285	5,404	74.2	1,020	14.0	713	9.8	148	2.0
IEP w/ Accomm.	3,929	3,113	79.2	496	12.6	278	7.1	42	1.1
IEP w/o Accomm.	3,356	2,291	68.3	524	15.6	435	13.0	106	3.2
Plan 504	**968**	**332**	**34.3**	**215**	**22.2**	**309**	**31.9**	**112**	**11.6**
Plan 504 w/ Accomm.	197	88	44.7	38	19.3	55	27.9	16	8.1
Plan 504 w/o Accomm.	771	244	31.7	177	23.0	254	32.9	96	12.5
English Language Learners (ELL)									
ELL	2,113	1,684	79.7	271	12.8	145	6.9	13	0.6
ELL w/ Accomm.	372	328	88.2	31	8.3	13	3.5	0	0.0
ELL w/o Accomm.	1,741	1,356	77.9	240	13.8	132	7.6	13	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,229	16,163	35.7	9,846	21.8	14,111	31.2	5,109	11.3
Military									
Military	226	58	25.7	53	23.5	73	32.3	42	18.6

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Non-Military	47,116	17,789	37.8	10,064	21.4	14,183	30.1	5,080	10.8
Foster									
Foster	241	135	56.0	50	20.8	50	20.8	6	2.5
Non-Foster	47,101	17,712	37.6	10,067	21.4	14,206	30.2	5,116	10.9

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 1 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	29,367	16,385	55.8	8,195	27.9	3,863	13.2	924	3.2
Form									
Form 1	29,367	16,385	55.8	8,195	27.9	3,863	13.2	924	3.2
Ethnicity									
Hispanic or Latino	4,477	2,958	66.1	1,072	23.9	383	8.6	64	1.4
Race									
American Indian/:Alaskan Native	5,249	2,916	55.6	1,528	29.1	648	12.4	157	3.0
Asian	439	256	58.3	107	24.4	61	13.9	15	3.4
Black/:African American	2,414	1,874	77.6	420	17.4	102	4.2	18	0.8
Pacific Islander	113	81	71.7	21	18.6	10	8.9	1	0.9
White/:Caucasian	14,587	7,179	49.2	4,446	30.5	2,365	16.2	597	4.1
Two or More Races	2,088	1,121	53.7	601	28.8	294	14.1	72	3.5
Gender									
Female	14,181	7,788	54.9	4,201	29.6	1,795	12.7	397	2.8
Male	15,165	8,584	56.6	3,990	26.3	2,064	13.6	527	3.5
Not Indicated	21	13	61.9	4	19.1	4	19.1	0	0.0
Other									
ELL 1st Yr: Proficient	377	257	68.2	101	26.8	19	5.0	0	0.0
ELL 2nd Yr: Proficient	82	41	50.0	28	34.2	11	13.4	2	2.4
Econ. Disadv.	18,043	11,221	62.2	4,598	25.5	1,834	10.2	390	2.2
Non-Econ. Disadv.	11,324	5,164	45.6	3,597	31.8	2,029	17.9	534	4.7
Migrant	27	13	48.2	6	22.2	3	11.1	5	18.5
Non-Migrant	29,340	16,372	55.8	8,189	27.9	3,860	13.2	919	3.1
Individualized Education Plan (IEP)									
IEP	5,290	4,402	83.2	698	13.2	164	3.1	26	0.5
IEP w/ Accomm.	1,911	1,599	83.7	252	13.2	51	2.7	9	0.5
IEP w/o Accomm.	3,379	2,803	83.0	446	13.2	113	3.3	17	0.5
Plan 504	**542**	**308**	**56.8**	**146**	**26.9**	**75**	**13.8**	**13**	**2.4**
Plan 504 w/ Accomm.	63	35	55.6	16	25.4	12	19.1	0	0.0
Plan 504 w/o Accomm.	479	273	57.0	130	27.1	63	13.2	13	2.7
English Language Learners (ELL)									
ELL	1,341	1,194	89.0	117	8.7	25	1.9	5	0.4
ELL w/ Accomm.	246	228	92.7	15	6.1	3	1.2	0	0.0
ELL w/o Accomm.	1,095	966	88.2	102	9.3	22	2.0	5	0.5
Non-English Language Learners (Non-ELL)									
Non-ELL	28,026	15,191	54.2	8,078	28.8	3,838	13.7	919	3.3
Military									
Military	85	44	51.8	21	24.7	14	16.5	6	7.1

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Non-Military	29,282	16,341	55.8	8,174	27.9	3,849	13.1	918	3.1
Foster									
Foster	155	105	67.7	36	23.2	13	8.4	1	0.7
Non-Foster	29,212	16,280	55.7	8,159	27.9	3,850	13.2	923	3.2

Oklahoma School Testing Program (OSTP)

Science - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Form									
Form 1	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Ethnicity									
Hispanic or Latino	8,739	2,683	30.7	2,729	31.2	2,670	30.6	657	7.5
Race									
American Indian/:Alaskan Native	6,656	1,462	22.0	1,906	28.6	2,432	36.5	856	12.9
Asian	944	123	13.0	196	20.8	344	36.4	281	29.8
Black/:African American	4,247	1,737	40.9	1,311	30.9	994	23.4	205	4.8
Pacific Islander	165	64	38.8	44	26.7	50	30.3	7	4.2
White/:Caucasian	23,264	3,502	15.1	5,643	24.3	9,388	40.4	4,731	20.3
Two or More Races	4,435	858	19.4	1,194	26.9	1,690	38.1	693	15.6
Gender									
Female	23,925	5,071	21.2	6,585	27.5	8,853	37.0	3,416	14.3
Male	24,481	5,341	21.8	6,423	26.2	8,705	35.6	4,012	16.4
Not Indicated	44	17	38.6	15	34.1	10	22.7	2	4.6
Other									
ELL 1st Yr: Proficient	1,415	359	25.4	539	38.1	446	31.5	71	5.0
ELL 2nd Yr: Proficient	1,700	387	22.8	599	35.2	586	34.5	128	7.5
Econ. Disadv.	30,012	8,079	26.9	8,942	29.8	10,017	33.4	2,974	9.9
Non-Econ. Disadv.	18,438	2,350	12.8	4,081	22.1	7,551	41.0	4,456	24.2
Migrant	32	6	18.8	8	25.0	12	37.5	6	18.8
Non-Migrant	48,418	10,423	21.5	13,015	26.9	17,556	36.3	7,424	15.3
Individualized Education Plan (IEP)									
IEP	8,247	3,845	46.6	2,349	28.5	1,640	19.9	413	5.0
IEP w/ Accomm.	5,216	2,785	53.4	1,473	28.2	818	15.7	140	2.7
IEP w/o Accomm.	3,031	1,060	35.0	876	28.9	822	27.1	273	9.0
Plan 504	**1,048**	**236**	**22.5**	**294**	**28.1**	**355**	**33.9**	**163**	**15.6**
Plan 504 w/ Accomm.	513	145	28.3	156	30.4	156	30.4	56	10.9
Plan 504 w/o Accomm.	535	91	17.0	138	25.8	199	37.2	107	20.0
English Language Learners (ELL)									
ELL	2,599	1,438	55.3	764	29.4	349	13.4	48	1.9
ELL w/ Accomm.	861	522	60.6	241	28.0	89	10.3	9	1.1
ELL w/o Accomm.	1,738	916	52.7	523	30.1	260	15.0	39	2.2
Non-English Language Learners (Non-ELL)									
Non-ELL	45,851	8,991	19.6	12,259	26.7	17,219	37.6	7,382	16.1
Military									
Military	250	24	9.6	52	20.8	97	38.8	77	30.8
Non-Military	48,200	10,405	21.6	12,971	26.9	17,471	36.3	7,353	15.3

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Foster									
Foster	295	106	35.9	82	27.8	94	31.9	13	4.4
Non-Foster	48,155	10,323	21.4	12,941	26.9	17,474	36.3	7,417	15.4

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,342	19,525	41.2	10,170	21.5	12,525	26.5	5,122	10.8
Form									
Form 1	47,342	19,525	41.2	10,170	21.5	12,525	26.5	5,122	10.8
Ethnicity									
Hispanic or Latino	7,731	4,092	52.9	1,691	21.9	1,539	19.9	409	5.3
Race									
American Indian/:Alaskan Native	6,860	2,994	43.6	1,574	22.9	1,738	25.3	554	8.1
Asian	963	228	23.7	168	17.5	320	33.2	247	25.7
Black/:African American	4,156	2,659	64.0	796	19.2	561	13.5	140	3.4
Pacific Islander	166	93	56.0	29	17.5	35	21.1	9	5.4
White/:Caucasian	23,783	7,929	33.3	5,101	21.5	7,393	31.1	3,360	14.1
Two or More Races	3,683	1,530	41.5	811	22.0	939	25.5	403	10.9
Gender									
Female	23,293	9,410	40.4	5,351	23.0	6,277	27.0	2,255	9.7
Male	23,979	10,057	41.9	4,812	20.1	6,246	26.1	2,864	11.9
Not Indicated	70	58	82.9	7	10.0	2	2.9	3	4.3
Other									
ELL 1st Yr: Proficient	182	70	38.5	54	29.7	48	26.4	10	5.5
ELL 2nd Yr: Proficient	241	92	38.2	66	27.4	70	29.1	13	5.4
Econ. Disadv.	28,653	14,617	51.0	6,190	21.6	6,097	21.3	1,749	6.1
Non-Econ. Disadv.	18,689	4,908	26.3	3,980	21.3	6,428	34.4	3,373	18.1
Migrant	35	17	48.6	7	20.0	8	22.9	3	8.6
Non-Migrant	47,307	19,508	41.2	10,163	21.5	12,517	26.5	5,119	10.8
Individualized Education Plan (IEP)									
IEP	7,285	5,630	77.3	916	12.6	591	8.1	148	2.0
IEP w/ Accomm.	3,929	3,221	82.0	438	11.2	228	5.8	42	1.1
IEP w/o Accomm.	3,356	2,409	71.8	478	14.2	363	10.8	106	3.2
Plan 504	**968**	**373**	**38.5**	**219**	**22.6**	**264**	**27.3**	**112**	**11.6**
Plan 504 w/ Accomm.	197	95	48.2	42	21.3	44	22.3	16	8.1
Plan 504 w/o Accomm.	771	278	36.1	177	23.0	220	28.5	96	12.5
English Language Learners (ELL)									
ELL	2,113	1,757	83.2	229	10.8	114	5.4	13	0.6
ELL w/ Accomm.	372	338	90.9	28	7.5	6	1.6	0	0.0
ELL w/o Accomm.	1,741	1,419	81.5	201	11.6	108	6.2	13	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,229	17,768	39.3	9,941	22.0	12,411	27.4	5,109	11.3
Military									
Military	226	65	28.8	57	25.2	62	27.4	42	18.6

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Non-Military	47,116	19,460	41.3	10,113	21.5	12,463	26.5	5,080	10.8
Foster									
Foster	241	142	58.9	53	22.0	40	16.6	6	2.5
Non-Foster	47,101	19,383	41.2	10,117	21.5	12,485	26.5	5,116	10.9

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 2 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	29,367	16,385	55.8	8,195	27.9	3,505	11.9	1,282	4.4
Form									
Form 1	29,367	16,385	55.8	8,195	27.9	3,505	11.9	1,282	4.4
Ethnicity									
Hispanic or Latino	4,477	2,958	66.1	1,072	23.9	361	8.1	86	1.9
Race									
American Indian/:Alaskan Native	5,249	2,916	55.6	1,528	29.1	588	11.2	217	4.1
Asian	439	256	58.3	107	24.4	56	12.8	20	4.6
Black/:African American	2,414	1,874	77.6	420	17.4	98	4.1	22	0.9
Pacific Islander	113	81	71.7	21	18.6	9	8.0	2	1.8
White/:Caucasian	14,587	7,179	49.2	4,446	30.5	2,127	14.6	835	5.7
Two or More Races	2,088	1,121	53.7	601	28.8	266	12.7	100	4.8
Gender									
Female	14,181	7,788	54.9	4,201	29.6	1,637	11.5	555	3.9
Male	15,165	8,584	56.6	3,990	26.3	1,864	12.3	727	4.8
Not Indicated	21	13	61.9	4	19.1	4	19.1	0	0.0
Other									
ELL 1st Yr: Proficient	377	257	68.2	101	26.8	18	4.8	1	0.3
ELL 2nd Yr: Proficient	82	41	50.0	28	34.2	11	13.4	2	2.4
Econ. Disadv.	18,043	11,221	62.2	4,598	25.5	1,680	9.3	544	3.0
Non-Econ. Disadv.	11,324	5,164	45.6	3,597	31.8	1,825	16.1	738	6.5
Migrant	27	13	48.2	6	22.2	2	7.4	6	22.2
Non-Migrant	29,340	16,372	55.8	8,189	27.9	3,503	11.9	1,276	4.4
Individualized Education Plan (IEP)									
IEP	5,290	4,402	83.2	698	13.2	151	2.9	39	0.7
IEP w/ Accomm.	1,911	1,599	83.7	252	13.2	46	2.4	14	0.7
IEP w/o Accomm.	3,379	2,803	83.0	446	13.2	105	3.1	25	0.7
Plan 504	**542**	**308**	**56.8**	**146**	**26.9**	**69**	**12.7**	**19**	**3.5**
Plan 504 w/ Accomm.	63	35	55.6	16	25.4	10	15.9	2	3.2
Plan 504 w/o Accomm.	479	273	57.0	130	27.1	59	12.3	17	3.6
English Language Learners (ELL)									
ELL	1,341	1,194	89.0	117	8.7	24	1.8	6	0.5
ELL w/ Accomm.	246	228	92.7	15	6.1	3	1.2	0	0.0
ELL w/o Accomm.	1,095	966	88.2	102	9.3	21	1.9	6	0.6
Non-English Language Learners (Non-ELL)									
Non-ELL	28,026	15,191	54.2	8,078	28.8	3,481	12.4	1,276	4.6
Military									
Military	85	44	51.8	21	24.7	12	14.1	8	9.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	**N**	**N**	**%**	**N**	**%**	**N**	**%**	**N**	**%**
Non-Military	29,282	16,341	55.8	8,174	27.9	3,493	11.9	1,274	4.4
Foster									
Foster	155	105	67.7	36	23.2	12	7.7	2	1.3
Non-Foster	29,212	16,280	55.7	8,159	27.9	3,493	12.0	1,280	4.4

Oklahoma School Testing Program (OSTP)

Science - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Form									
Form 1	48,450	10,429	21.5	13,023	26.9	17,568	36.3	7,430	15.3
Ethnicity									
Hispanic or Latino	8,739	2,683	30.7	2,729	31.2	2,670	30.6	657	7.5
Race									
American Indian/:Alaskan Native	6,656	1,462	22.0	1,906	28.6	2,432	36.5	856	12.9
Asian	944	123	13.0	196	20.8	344	36.4	281	29.8
Black/:African American	4,247	1,737	40.9	1,311	30.9	994	23.4	205	4.8
Pacific Islander	165	64	38.8	44	26.7	50	30.3	7	4.2
White/:Caucasian	23,264	3,502	15.1	5,643	24.3	9,388	40.4	4,731	20.3
Two or More Races	4,435	858	19.4	1,194	26.9	1,690	38.1	693	15.6
Gender									
Female	23,925	5,071	21.2	6,585	27.5	8,853	37.0	3,416	14.3
Male	24,481	5,341	21.8	6,423	26.2	8,705	35.6	4,012	16.4
Not Indicated	44	17	38.6	15	34.1	10	22.7	2	4.6
Other									
ELL 1st Yr: Proficient	1,415	359	25.4	539	38.1	446	31.5	71	5.0
ELL 2nd Yr: Proficient	1,700	387	22.8	599	35.2	586	34.5	128	7.5
Econ. Disadv.	30,012	8,079	26.9	8,942	29.8	10,017	33.4	2,974	9.9
Non-Econ. Disadv.	18,438	2,350	12.8	4,081	22.1	7,551	41.0	4,456	24.2
Migrant	32	6	18.8	8	25.0	12	37.5	6	18.8
Non-Migrant	48,418	10,423	21.5	13,015	26.9	17,556	36.3	7,424	15.3
Individualized Education Plan (IEP)									
IEP	8,247	3,845	46.6	2,349	28.5	1,640	19.9	413	5.0
IEP w/ Accomm.	5,216	2,785	53.4	1,473	28.2	818	15.7	140	2.7
IEP w/o Accomm.	3,031	1,060	35.0	876	28.9	822	27.1	273	9.0
Plan 504	**1,048**	**236**	**22.5**	**294**	**28.1**	**355**	**33.9**	**163**	**15.6**
Plan 504 w/ Accomm.	513	145	28.3	156	30.4	156	30.4	56	10.9
Plan 504 w/o Accomm.	535	91	17.0	138	25.8	199	37.2	107	20.0
English Language Learners (ELL)									
ELL	2,599	1,438	55.3	764	29.4	349	13.4	48	1.9
ELL w/ Accomm.	861	522	60.6	241	28.0	89	10.3	9	1.1
ELL w/o Accomm.	1,738	916	52.7	523	30.1	260	15.0	39	2.2
Non-English Language Learners (Non-ELL)									
Non-ELL	45,851	8,991	19.6	12,259	26.7	17,219	37.6	7,382	16.1
Military									
Military	250	24	9.6	52	20.8	97	38.8	77	30.8
Non-Military	48,200	10,405	21.6	12,971	26.9	17,471	36.3	7,353	15.3

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Foster									
Foster	295	106	35.9	82	27.8	94	31.9	13	4.4
Non-Foster	48,155	10,323	21.4	12,941	26.9	17,474	36.3	7,417	15.4

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Form									
Form 1	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Ethnicity									
Hispanic or Latino	7,731	3,774	48.8	1,751	22.7	1,797	23.2	409	5.3
Race									
American Indian/:Alaskan Native	6,860	2,735	39.9	1,580	23.0	1,991	29.0	554	8.1
Asian	963	193	20.0	179	18.6	344	35.7	247	25.7
Black/:African American	4,156	2,494	60.0	848	20.4	674	16.2	140	3.4
Pacific Islander	166	92	55.4	26	15.7	39	23.5	9	5.4
White/:Caucasian	23,783	7,151	30.1	4,917	20.7	8,355	35.1	3,360	14.1
Two or More Races	3,683	1,408	38.2	816	22.2	1,056	28.7	403	10.9
Gender									
Female	23,293	8,517	36.6	5,334	22.9	7,187	30.9	2,255	9.7
Male	23,979	9,275	38.7	4,774	19.9	7,066	29.5	2,864	11.9
Not Indicated	70	55	78.6	9	12.9	3	4.3	3	4.3
Other									
ELL 1st Yr: Proficient	182	62	34.1	53	29.1	57	31.3	10	5.5
ELL 2nd Yr: Proficient	241	79	32.8	72	29.9	77	32.0	13	5.4
Econ. Disadv.	28,653	13,476	47.0	6,362	22.2	7,066	24.7	1,749	6.1
Non-Econ. Disadv.	18,689	4,371	23.4	3,755	20.1	7,190	38.5	3,373	18.1
Migrant	35	15	42.9	8	22.9	9	25.7	3	8.6
Non-Migrant	47,307	17,832	37.7	10,109	21.4	14,247	30.1	5,119	10.8
Individualized Education Plan (IEP)									
IEP	7,285	5,404	74.2	1,020	14.0	713	9.8	148	2.0
IEP w/ Accomm.	3,929	3,113	79.2	496	12.6	278	7.1	42	1.1
IEP w/o Accomm.	3,356	2,291	68.3	524	15.6	435	13.0	106	3.2
Plan 504	**968**	**332**	**34.3**	**215**	**22.2**	**309**	**31.9**	**112**	**11.6**
Plan 504 w/ Accomm.	197	88	44.7	38	19.3	55	27.9	16	8.1
Plan 504 w/o Accomm.	771	244	31.7	177	23.0	254	32.9	96	12.5
English Language Learners (ELL)									
ELL	2,113	1,684	79.7	271	12.8	145	6.9	13	0.6
ELL w/ Accomm.	372	328	88.2	31	8.3	13	3.5	0	0.0
ELL w/o Accomm.	1,741	1,356	77.9	240	13.8	132	7.6	13	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,229	16,163	35.7	9,846	21.8	14,111	31.2	5,109	11.3
Military									
Military	226	58	25.7	53	23.5	73	32.3	42	18.6

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Non-Military	47,116	17,789	37.8	10,064	21.4	14,183	30.1	5,080	10.8
Foster									
Foster	241	135	56.0	50	20.8	50	20.8	6	2.5
Non-Foster	47,101	17,712	37.6	10,067	21.4	14,206	30.2	5,116	10.9

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 3 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	29,367	17,618	60.0	6,157	21.0	4,310	14.7	1,282	4.4
Form									
Form 1	29,367	17,618	60.0	6,157	21.0	4,310	14.7	1,282	4.4
Ethnicity									
Hispanic or Latino	4,477	3,136	70.1	810	18.1	445	9.9	86	1.9
Race									
American Indian/:Alaskan Native	5,249	3,155	60.1	1,136	21.6	741	14.1	217	4.1
Asian	439	273	62.2	84	19.1	62	14.1	20	4.6
Black/:African American	2,414	1,954	80.9	322	13.3	116	4.8	22	0.9
Pacific Islander	113	83	73.5	16	14.2	12	10.6	2	1.8
White/:Caucasian	14,587	7,810	53.5	3,339	22.9	2,603	17.8	835	5.7
Two or More Races	2,088	1,207	57.8	450	21.6	331	15.9	100	4.8
Gender									
Female	14,181	8,448	59.6	3,140	22.1	2,038	14.4	555	3.9
Male	15,165	9,157	60.4	3,013	19.9	2,268	15.0	727	4.8
Not Indicated	21	13	61.9	4	19.1	4	19.1	0	0.0
Other									
ELL 1st Yr: Proficient	377	280	74.3	68	18.0	28	7.4	1	0.3
ELL 2nd Yr: Proficient	82	44	53.7	21	25.6	15	18.3	2	2.4
Econ. Disadv.	18,043	11,986	66.4	3,408	18.9	2,105	11.7	544	3.0
Non-Econ. Disadv.	11,324	5,632	49.7	2,749	24.3	2,205	19.5	738	6.5
Migrant	27	13	48.2	6	22.2	2	7.4	6	22.2
Non-Migrant	29,340	17,605	60.0	6,151	21.0	4,308	14.7	1,276	4.4
Individualized Education Plan (IEP)									
IEP	5,290	4,547	86.0	508	9.6	196	3.7	39	0.7
IEP w/ Accomm.	1,911	1,647	86.2	194	10.2	56	2.9	14	0.7
IEP w/o Accomm.	3,379	2,900	85.8	314	9.3	140	4.1	25	0.7
Plan 504	**542**	**322**	**59.4**	**123**	**22.7**	**78**	**14.4**	**19**	**3.5**
Plan 504 w/ Accomm.	63	37	58.7	13	20.6	11	17.5	2	3.2
Plan 504 w/o Accomm.	479	285	59.5	110	23.0	67	14.0	17	3.6
English Language Learners (ELL)									
ELL	1,341	1,216	90.7	90	6.7	29	2.2	6	0.5
ELL w/ Accomm.	246	232	94.3	11	4.5	3	1.2	0	0.0
ELL w/o Accomm.	1,095	984	89.9	79	7.2	26	2.4	6	0.6
Non-English Language Learners (Non-ELL)									
Non-ELL	28,026	16,402	58.5	6,067	21.7	4,281	15.3	1,276	4.6
Military									
Military	85	49	57.7	15	17.7	13	15.3	8	9.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Non-Military	29,282	17,569	60.0	6,142	21.0	4,297	14.7	1,274	4.4
Foster									
Foster	155	109	70.3	29	18.7	15	9.7	2	1.3
Non-Foster	29,212	17,509	59.9	6,128	21.0	4,295	14.7	1,280	4.4

Oklahoma School Testing Program (OSTP)

Science - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Total									
All	48,450	10,429	21.5	17,171	35.4	16,311	33.7	4,539	9.4
Form									
Form 1	48,450	10,429	21.5	17,171	35.4	16,311	33.7	4,539	9.4
Ethnicity									
Hispanic or Latino	8,739	2,683	30.7	3,457	39.6	2,228	25.5	371	4.3
Race									
American Indian/:Alaskan Native	6,656	1,462	22.0	2,501	37.6	2,200	33.1	493	7.4
Asian	944	123	13.0	266	28.2	365	38.7	190	20.1
Black/:African American	4,247	1,737	40.9	1,609	37.9	783	18.4	118	2.8
Pacific Islander	165	64	38.8	51	30.9	46	27.9	4	2.4
White/:Caucasian	23,264	3,502	15.1	7,672	33.0	9,120	39.2	2,970	12.8
Two or More Races	4,435	858	19.4	1,615	36.4	1,569	35.4	393	8.9
Gender									
Female	23,925	5,071	21.2	8,722	36.5	8,087	33.8	2,045	8.6
Male	24,481	5,341	21.8	8,427	34.4	8,219	33.6	2,494	10.2
Not Indicated	44	17	38.6	22	50.0	5	11.4	0	0.0
Other									
ELL 1st Yr: Proficient	1,415	359	25.4	679	48.0	338	23.9	39	2.8
ELL 2nd Yr: Proficient	1,700	387	22.8	762	44.8	491	28.9	60	3.5
Econ. Disadv.	30,012	8,079	26.9	11,599	38.7	8,633	28.8	1,701	5.7
Non-Econ. Disadv.	18,438	2,350	12.8	5,572	30.2	7,678	41.6	2,838	15.4
Migrant	32	6	18.8	11	34.4	10	31.3	5	15.6
Non-Migrant	48,418	10,423	21.5	17,160	35.4	16,301	33.7	4,534	9.4
Individualized Education Plan (IEP)									
IEP	8,247	3,845	46.6	2,871	34.8	1,286	15.6	245	3.0
IEP w/ Accomm.	5,216	2,785	53.4	1,766	33.9	594	11.4	71	1.4
IEP w/o Accomm.	3,031	1,060	35.0	1,105	36.5	692	22.8	174	5.7
Plan 504	**1,048**	**236**	**22.5**	**368**	**35.1**	**347**	**33.1**	**97**	**9.3**
Plan 504 w/ Accomm.	513	145	28.3	194	37.8	140	27.3	34	6.6
Plan 504 w/o Accomm.	535	91	17.0	174	32.5	207	38.7	63	11.8
English Language Learners (ELL)									
ELL	2,599	1,438	55.3	892	34.3	242	9.3	27	1.0
ELL w/ Accomm.	861	522	60.6	269	31.2	66	7.7	4	0.5
ELL w/o Accomm.	1,738	916	52.7	623	35.9	176	10.1	23	1.3
Non-English Language Learners (Non-ELL)									
Non-ELL	45,851	8,991	19.6	16,279	35.5	16,069	35.1	4,512	9.8
Military									
Military	250	24	9.6	77	30.8	95	38.0	54	21.6
Non-Military	48,200	10,405	21.6	17,094	35.5	16,216	33.6	4,485	9.3

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 05	N	N	%	N	%	N	%	N	%
Foster									
Foster	295	106	35.9	112	38.0	71	24.1	6	2.0
Non-Foster	48,155	10,323	21.4	17,059	35.4	16,240	33.7	4,533	9.4

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Total									
All	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Form									
Form 1	47,342	17,847	37.7	10,117	21.4	14,256	30.1	5,122	10.8
Ethnicity									
Hispanic or Latino	7,731	3,774	48.8	1,751	22.7	1,797	23.2	409	5.3
Race									
American Indian/:Alaskan Native	6,860	2,735	39.9	1,580	23.0	1,991	29.0	554	8.1
Asian	963	193	20.0	179	18.6	344	35.7	247	25.7
Black/:African American	4,156	2,494	60.0	848	20.4	674	16.2	140	3.4
Pacific Islander	166	92	55.4	26	15.7	39	23.5	9	5.4
White/:Caucasian	23,783	7,151	30.1	4,917	20.7	8,355	35.1	3,360	14.1
Two or More Races	3,683	1,408	38.2	816	22.2	1,056	28.7	403	10.9
Gender									
Female	23,293	8,517	36.6	5,334	22.9	7,187	30.9	2,255	9.7
Male	23,979	9,275	38.7	4,774	19.9	7,066	29.5	2,864	11.9
Not Indicated	70	55	78.6	9	12.9	3	4.3	3	4.3
Other									
ELL 1st Yr: Proficient	182	62	34.1	53	29.1	57	31.3	10	5.5
ELL 2nd Yr: Proficient	241	79	32.8	72	29.9	77	32.0	13	5.4
Econ. Disadv.	28,653	13,476	47.0	6,362	22.2	7,066	24.7	1,749	6.1
Non-Econ. Disadv.	18,689	4,371	23.4	3,755	20.1	7,190	38.5	3,373	18.1
Migrant	35	15	42.9	8	22.9	9	25.7	3	8.6
Non-Migrant	47,307	17,832	37.7	10,109	21.4	14,247	30.1	5,119	10.8
Individualized Education Plan (IEP)									
IEP	7,285	5,404	74.2	1,020	14.0	713	9.8	148	2.0
IEP w/ Accomm.	3,929	3,113	79.2	496	12.6	278	7.1	42	1.1
IEP w/o Accomm.	3,356	2,291	68.3	524	15.6	435	13.0	106	3.2
Plan 504	**968**	**332**	**34.3**	**215**	**22.2**	**309**	**31.9**	**112**	**11.6**
Plan 504 w/ Accomm.	197	88	44.7	38	19.3	55	27.9	16	8.1
Plan 504 w/o Accomm.	771	244	31.7	177	23.0	254	32.9	96	12.5
English Language Learners (ELL)									
ELL	2,113	1,684	79.7	271	12.8	145	6.9	13	0.6
ELL w/ Accomm.	372	328	88.2	31	8.3	13	3.5	0	0.0
ELL w/o Accomm.	1,741	1,356	77.9	240	13.8	132	7.6	13	0.8
Non-English Language Learners (Non-ELL)									
Non-ELL	45,229	16,163	35.7	9,846	21.8	14,111	31.2	5,109	11.3
Military									
Military	226	58	25.7	53	23.5	73	32.3	42	18.6

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 08	N	N	%	N	%	N	%	N	%
Non-Military	47,116	17,789	37.8	10,064	21.4	14,183	30.1	5,080	10.8
Foster									
Foster	241	135	56.0	50	20.8	50	20.8	6	2.5
Non-Foster	47,101	17,712	37.6	10,067	21.4	14,206	30.2	5,116	10.9

Oklahoma School Testing Program (OSTP)
Science - Standard Setting - Round 4 Committee Results

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Total									
All	29,367	17,618	60.0	6,157	21.0	4,310	14.7	1,282	4.4
Form									
Form 1	29,367	17,618	60.0	6,157	21.0	4,310	14.7	1,282	4.4
Ethnicity									
Hispanic or Latino	4,477	3,136	70.1	810	18.1	445	9.9	86	1.9
Race									
American Indian/:Alaskan Native	5,249	3,155	60.1	1,136	21.6	741	14.1	217	4.1
Asian	439	273	62.2	84	19.1	62	14.1	20	4.6
Black/:African American	2,414	1,954	80.9	322	13.3	116	4.8	22	0.9
Pacific Islander	113	83	73.5	16	14.2	12	10.6	2	1.8
White/:Caucasian	14,587	7,810	53.5	3,339	22.9	2,603	17.8	835	5.7
Two or More Races	2,088	1,207	57.8	450	21.6	331	15.9	100	4.8
Gender									
Female	14,181	8,448	59.6	3,140	22.1	2,038	14.4	555	3.9
Male	15,165	9,157	60.4	3,013	19.9	2,268	15.0	727	4.8
Not Indicated	21	13	61.9	4	19.1	4	19.1	0	0.0
Other									
ELL 1st Yr: Proficient	377	280	74.3	68	18.0	28	7.4	1	0.3
ELL 2nd Yr: Proficient	82	44	53.7	21	25.6	15	18.3	2	2.4
Econ. Disadv.	18,043	11,986	66.4	3,408	18.9	2,105	11.7	544	3.0
Non-Econ. Disadv.	11,324	5,632	49.7	2,749	24.3	2,205	19.5	738	6.5
Migrant	27	13	48.2	6	22.2	2	7.4	6	22.2
Non-Migrant	29,340	17,605	60.0	6,151	21.0	4,308	14.7	1,276	4.4
Individualized Education Plan (IEP)									
IEP	5,290	4,547	86.0	508	9.6	196	3.7	39	0.7
IEP w/ Accomm.	1,911	1,647	86.2	194	10.2	56	2.9	14	0.7
IEP w/o Accomm.	3,379	2,900	85.8	314	9.3	140	4.1	25	0.7
Plan 504	**542**	**322**	**59.4**	**123**	**22.7**	**78**	**14.4**	**19**	**3.5**
Plan 504 w/ Accomm.	63	37	58.7	13	20.6	11	17.5	2	3.2
Plan 504 w/o Accomm.	479	285	59.5	110	23.0	67	14.0	17	3.6
English Language Learners (ELL)									
ELL	1,341	1,216	90.7	90	6.7	29	2.2	6	0.5
ELL w/ Accomm.	246	232	94.3	11	4.5	3	1.2	0	0.0
ELL w/o Accomm.	1,095	984	89.9	79	7.2	26	2.4	6	0.6
Non-English Language Learners (Non-ELL)									
Non-ELL	28,026	16,402	58.5	6,067	21.7	4,281	15.3	1,276	4.6
Military									
Military	85	49	57.7	15	17.7	13	15.3	8	9.4

	Number and Percent in Each Performance Levels								
	Total	Unsatisfactory		Limited Knowledge		Proficient		Advanced	
Science - Grade 10	N	N	%	N	%	N	%	N	%
Non-Military	29,282	17,569	60.0	6,142	21.0	4,297	14.7	1,274	4.4
Foster									
Foster	155	109	70.3	29	18.7	15	9.7	2	1.3
Non-Foster	29,212	17,509	59.9	6,128	21.0	4,295	14.7	1,280	4.4

APPENDIX L—STANDARD SETTING RESULTS

Table L-1. 2017 OK Standard Setting Report: ELA Round 1

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-0.64765	0.26270	0.11630	15.2	73.3
	Proficient	-0.13874	0.26610	0.14068	43.9	58.1
	Advanced	1.05701	0.31280	0.20766	14.2	14.2
4	Limited Knowledge	-0.62585	0.27530	0.10794	28.6	73.3
	Proficient	0.22107	0.26960	0.23869	38.1	44.7
	Advanced	1.49870	0.40580	0.00000	6.7	6.7
5	Limited Knowledge	-0.88324	0.25990	0.10002	28.7	80.9
	Proficient	0.01724	0.27960	0.04911	40.0	52.2
	Advanced	1.17231	0.37400	0.20371	12.2	12.2
6	Limited Knowledge	-0.91616	0.27630	0.02491	40.0	81.8
	Proficient	0.23755	0.29840	0.09798	28.7	41.8
	Advanced	1.10725	0.37280	0.12135	13.1	13.1
7	Limited Knowledge	-0.54707	0.28370	0.27647	24.7	71.7
	Proficient	0.16319	0.30400	0.00000	32.6	47.1
	Advanced	1.08454	0.37720	0.10642	14.5	14.5
8	Limited Knowledge	-0.69508	0.30310	0.13326	34.1	79.2
	Proficient	0.31452	0.29180	0.15152	33.5	45.1
	Advanced	1.46111	0.42420	0.00000	11.6	11.6
10	Limited Knowledge	-1.09572	0.32570	0.12543	31.5	87.0
	Proficient	0.10061	0.24300	0.02055	33.1	55.5
	Advanced	0.95003	0.25560	0.18552	22.4	22.4

Table L-2. 2017 OK Standard Setting Report: Math Round 1

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-2.13131	0.37400	0.00000	14.4	96.7
	Proficient	-0.95609	0.24790	0.11562	35.2	82.3
	Advanced	0.14369	0.25020	0.12622	47.1	47.1
4	Limited Knowledge	-0.85598	0.28500	0.06719	36.0	79.4

continued

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
4	Proficient	0.21582	0.23060	0.03156	29.3	43.4
	Advanced	1.07636	0.31480	0.02931	14.0	14.0
5	Limited Knowledge	-0.92288	0.31960	0.09119	29.9	81.4
	Proficient	-0.00351	0.25380	0.00000	39.3	51.5
	Advanced	1.16994	0.25880	0.15748	12.2	12.2
6	Limited Knowledge	-0.69754	0.27450	0.11264	38.6	75.9
	Proficient	0.37560	0.26900	0.06487	31.1	37.3
	Advanced	1.57909	0.31490	0.23581	6.2	6.2
7	Limited Knowledge	0.02240	0.25410	0.06151	17.6	50.6
	Proficient	0.49130	0.23010	0.17953	25.9	33.0
	Advanced	1.48547	0.22170	0.02713	7.1	7.1
8	Limited Knowledge	0.05488	0.24840	0.06636	27.2	48.8
	Proficient	0.80638	0.22250	0.09280	9.7	21.6
	Advanced	1.21172	0.24950	0.03131	11.9	11.9
10	Limited Knowledge	-0.03088	0.24340	0.19325	27.6	52.4
	Proficient	0.70757	0.19320	0.05858	15.4	24.8
	Advanced	1.31796	0.17800	0.20980	9.4	9.4

Table L-3. 2017 OK Standard Setting Report: Science Round 1

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
5	Limited Knowledge	-0.91364	0.33480	0.06659	26.9	78.5
	Proficient	0.01333	0.30500	0.17095	36.3	51.6
	Advanced	1.14632	0.32040	0.26336	15.3	15.3
8	Limited Knowledge	-0.34011	0.29830	0.12405	21.4	62.3
	Proficient	0.27999	0.28320	0.08315	30.1	40.9
	Advanced	1.32579	0.33330	0.24435	10.8	10.8
10	Limited Knowledge	0.23461	0.30420	0.06169	27.9	44.2
	Proficient	1.04237	0.26860	0.03976	13.2	16.3
	Advanced	1.87180	0.33700	0.19295	3.1	3.1

Table L-4. 2017 OK Standard Setting Report: ELA Round 2

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-0.64765	0.26270	0.08145	15.2	73.3
	Proficient	-0.13874	0.26610	0.00000	46.1	58.1
	Advanced	1.18279	0.32270	0.11129	11.9	11.9
4	Limited Knowledge	-0.52719	0.27240	0.09866	26.4	71.2
	Proficient	0.22107	0.26960	0.02076	38.1	44.7
	Advanced	1.49870	0.40580	0.00000	6.7	6.7
5	Limited Knowledge	-0.99935	0.26110	0.09897	31.4	83.6
	Proficient	-0.03187	0.27550	0.02818	40.0	52.2
	Advanced	1.17231	0.37400	0.20371	12.2	12.2
6	Limited Knowledge	-0.91616	0.27630	0.00204	41.5	81.8
	Proficient	0.28516	0.29840	0.05038	27.2	40.3
	Advanced	1.19106	0.40020	0.20063	13.1	13.1
7	Limited Knowledge	-0.65400	0.28340	0.15629	27.6	74.6
	Proficient	0.16319	0.30400	0.00000	35.1	47.1
	Advanced	1.19095	0.37720	0.06795	12.0	12.0
8	Limited Knowledge	-0.69508	0.30310	0.07289	42.4	79.2
	Proficient	0.53881	0.29710	0.17617	25.2	36.8
	Advanced	1.46111	0.42420	0.00000	11.6	11.6
10	Limited Knowledge	-1.09572	0.32570	0.00000	31.5	87.0
	Proficient	0.10061	0.24300	0.00000	36.7	55.5
	Advanced	1.09912	0.25970	0.00000	18.8	18.8

Table L-5. 2017 OK Standard Setting Report: Math Round 2

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-1.03105	0.25190	0.00000	25.1	83.7
	Proficient	-0.17669	0.24040	0.03597	32.6	58.6

continued

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Advanced	0.67238	0.29910	0.05491	25.9	25.9
4	Limited Knowledge	-0.85598	0.28500	0.00000	38.7	79.4
	Proficient	0.25249	0.23060	0.03473	26.6	40.6
	Advanced	1.07636	0.31480	0.02931	14.0	14.0
5	Limited Knowledge	-0.92288	0.31960	0.09119	29.9	81.4
	Proficient	-0.00351	0.25380	0.00000	34.8	51.5
	Advanced	1.01246	0.25420	0.06194	16.7	16.7
6	Limited Knowledge	-0.89687	0.28670	0.06497	48.3	81.2
	Proficient	0.51727	0.27030	0.07680	26.7	32.9
	Advanced	1.51120	0.31490	0.00000	6.2	6.2
7	Limited Knowledge	0.02240	0.25410	0.03457	17.6	50.6
	Proficient	0.49130	0.23010	0.09735	25.9	33.0
	Advanced	1.50462	0.22830	0.01092	7.1	7.1
8	Limited Knowledge	-0.00143	0.25620	0.05630	27.8	51.1
	Proficient	0.75594	0.22180	0.06830	11.4	23.3
	Advanced	1.21172	0.24950	0.03131	11.9	11.9
10	Limited Knowledge	0.14320	0.23170	0.10222	21.3	46.1
	Proficient	0.70757	0.19320	0.04647	15.4	24.8
	Advanced	1.34848	0.17820	0.01425	9.4	9.4

Table L-6. 2017 OK Standard Setting Report: Science Round 2

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
5	Limited Knowledge	-0.91364	0.33480	0.00000	26.9	78.5
	Proficient	0.01333	0.30500	0.17095	36.3	51.6
	Advanced	1.02686	0.31430	0.03361	15.3	15.3
8	Limited Knowledge	-0.21606	0.29300	0.00000	21.5	58.8
	Proficient	0.35797	0.28430	0.05276	26.5	37.3
	Advanced	1.32579	0.33330	0.00000	10.8	10.8
10	Limited Knowledge	0.24130	0.30420	0.05500	27.9	44.2
	Proficient	1.03243	0.26860	0.00994	11.9	16.3
	Advanced	1.77837	0.31740	0.03393	4.4	4.4

Table L-7. 2017 OK Standard Setting Report: ELA Round 3

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-0.53135	0.26350	0.08202	27.6	70.5
	Proficient	0.26234	0.27550	0.04597	35.3	42.9
	Advanced	1.39558	0.33530	0.05766	7.6	7.6
4	Limited Knowledge	-0.52719	0.27240	0.09866	28.0	71.2
	Proficient	0.24183	0.27350	0.02076	36.5	43.1
	Advanced	1.49870	0.40580	0.00000	6.7	6.7
5	Limited Knowledge	-0.99935	0.26110	0.09897	30.2	83.6
	Proficient	-0.05950	0.27550	0.05581	41.1	53.3
	Advanced	1.17231	0.37400	0.20371	12.2	12.2
6	Limited Knowledge	-0.91412	0.27630	0.00204	40.0	81.8
	Proficient	0.23755	0.29840	0.00000	32.4	41.8
	Advanced	1.39169	0.43700	0.00000	9.4	9.4
7	Limited Knowledge	-0.49771	0.28460	0.10266	25.2	70.8
	Proficient	0.19463	0.30960	0.03144	33.6	45.6
	Advanced	1.19095	0.37720	0.18213	12.0	12.0
8	Limited Knowledge	-0.69508	0.30310	0.07289	42.4	79.2
	Proficient	0.53881	0.29710	0.14447	25.2	36.8
	Advanced	1.46111	0.42420	0.00000	11.6	11.6
10	Limited Knowledge	-1.09572	0.32570	0.00000	31.5	87.0
	Proficient	0.10061	0.24300	0.00000	45.0	55.5
	Advanced	1.40466	0.29110	0.00000	10.5	10.5

Table L-8. 2017 OK Standard Setting Report: Math Round 3

Grade	*Performance Level*	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
3	Limited Knowledge	-1.03105	0.25190	0.00000	25.1	83.7
	Proficient	-0.17669	0.24040	0.03904	41.6	58.6
	Advanced	0.98750	0.33110	0.07881	17.0	17.0
4	Limited Knowledge	-0.85598	0.28500	0.02886	36.0	79.4

continued

Grade	Performance Level	Theta Cut	SE	MAD	At %	At or Above %
4	Proficient	0.21582	0.23060	0.00000	29.3	43.4
	Advanced	1.06199	0.31480	0.02664	14.0	14.0
5	Limited Knowledge	-1.01408	0.33040	0.00000	41.2	83.2
	Proficient	0.25552	0.24550	0.17136	29.8	42.0
	Advanced	1.16994	0.25880	0.00000	12.2	12.2
6	Limited Knowledge	-0.89687	0.28670	0.06497	45.5	81.2
	Proficient	0.44047	0.27030	0.07680	29.5	35.7
	Advanced	1.51120	0.31490	0.00000	6.2	6.2
7	Limited Knowledge	-0.00998	0.26000	0.06696	19.1	53.2
	Proficient	0.44732	0.23320	0.04397	27.0	34.1
	Advanced	1.47147	0.22170	0.03315	7.1	7.1
8	Limited Knowledge	-0.00143	0.25620	0.05630	27.8	51.1
	Proficient	0.75594	0.22180	0.05044	11.4	23.3
	Advanced	1.21172	0.24950	0.03131	11.9	11.9
10	Limited Knowledge	0.14320	0.23170	0.10222	21.3	46.1
	Proficient	0.70757	0.19320	0.04647	15.4	24.8
	Advanced	1.34848	0.17820	0.01425	9.4	9.4

Table L-9. 2017 OK Standard Setting Report: Science Round 3

Grade	Performance Level	Theta Cut	SE	MAD	At %	At or Above %
5	Limited Knowledge	-0.91364	0.33480	0.00000	26.9	78.5
	Proficient	0.01333	0.30500	0.16236	36.3	51.6
	Advanced	1.02686	0.31430	0.03361	15.3	15.3
8	Limited Knowledge	-0.34011	0.29830	0.00000	21.4	62.3
	Proficient	0.27999	0.28320	0.00000	30.1	40.9
	Advanced	1.32579	0.33330	0.00000	10.8	10.8
10	Limited Knowledge	0.28292	0.29740	0.01338	21.0	40.0
	Proficient	1.02248	0.26860	0.00000	14.7	19.0
	Advanced	1.77837	0.31740	0.00000	4.4	4.4

APPENDIX M—MEMORANDUM STANDARD SETTING IMPACT DATA

Memorandum: Oklahoma School Testing Program 2016-2017 – Standard Setting Impact Data

The purpose of this memo is to summarize an issue that was discovered with the calculation of the impact data for the recent Oklahoma standard settings. This issue affected only two tests: English Language Arts (ELA) Grade 8 and 10 (hereafter ELA08 and ELA10). This issue was limited to grades 8 and 10 because the issue had to do with missing score points related to the writing prompts, which did not occur with grade 5.

Oklahoma writing prompts are scored on five traits, with each trait earning a score of 1 to 4. A holistic score is obtained by taking a weighted average of the five trait scores and then multiplying by a constant: 5/4 for grade 5, 7/4 for grade 8, and 11/4 for grade 10. These multipliers have the effect of stretching the score scale for the writing prompt from 1 to 4 to: 1 to 5 for grade 5; 2 to 7 for grade 8; and 3 to 11 for grade 10. It is also possible to get a score of zero on a writing prompt, which occurs when a student's response is off topic. In that case, all the trait scores are assigned a zero. Thus, the possible scores on the writing prompts were: 0 to 5 for grade 5; 0 and 2 to 7 for grade 8; and 0 and 3 to 11 for grade 10. This scoring mechanism clearly results in certain scores not being possible for grades 8 and 10. The score of 1 cannot occur for grade 8, and the scores of 1 and 2 cannot occur for grade 10. As a result of these score points being missing by design, extra care needs to be taken to ensure that the Test Characteristic Curve (TCC) is properly built to reflect this design. Usually, if a writing prompt has a maximum score of N, the number of score categories in N+1, reflecting the integer scores from 0 to N. This is not the case for grades 8 and 10. The grade 8 writing prompt has 7 categories, but the highest score is 7, not a high of 6 the N+1 model would normally expect. And the grade 10 writing prompt has 10 categories, but the highest score is 11, not a high of 9 the N+1 model would normally expect.

When the writing prompts were calibrated using the commercially available software PARSCALE, it only knew the number of categories (this is the way PARSCALE works): ELA08 with 6 and ELA10 with 10. When the calibrated item parameters were used to get the TCC, the number of categories was not equal to the maximum score minus one, which was inadvertently overlooked. Thus, the TCC for ELA08 had a maximum score that was one point less than it should have been, and the TCC for ELA10 had a maximum score that was two points less than it should have been.

Additionally, during the review of the writing prompts, it was noticed that in ELA08 there were some students who received a score of 8 on the writing prompt, even though the maximum possible score was supposed to be a 7. Through our investigation, it was discovered that the problem was due to a rounding procedure. The correct rounding procedure has now been implemented, a new data file produced, and the ELA08 writing prompt has been recalibrated using the new data. This problem did not affect the calibration of any other ELA08 items, and it did not occur with the grade 10 writing prompt. This did have an effect on the OIB for ELA08, but the shifts were small and generally far away from the cuts, except for one instance. The Advanced cut was placed next to a WP OIB page, and the new WP page moved away from that location. This means the advanced cut needed to be recalculated. The change for the ability estimate associated with that page number was only 0.01.

As a consequence of the updates to the ELA08 and ELA10 writing prompts to account for the appropriate number of score categories, the impact data changed because the changes in the TCC required the

calculation of a new theta estimate for each student using the inverse TCC method (as was done previously for standard setting). The TCC program developed to provide student theta estimates was updated and used to recalculate the theta estimate (using the inverse TCC method) for every student in ELA08 and ELA10. These results were then used to update the impact data for the standard setting.

In the information provided below, there are three pieces of information "After Standard Setting", "No Adjustment", and "After Adjustment". "After Standard Setting" identifies the impact data and cut scores produced from the standard setting recommendations following vertical articulation, "No Adjustment" identifies the impact data and cut scores after changing the student theta estimates with no adjustment to the original cut scores and "After Adjustment" is the impact data and cut scores after changing the student theta estimates and also adjusting the theta cut bookmarks in the ordered item booklets so as to give impact data results similar to those approved after the standard setting.

In ELA08, the adjustments required to generate impact data resembling the outcomes from standard setting, would be to move the Bookmarks down two OIB pages for both Proficient and Advanced. In ELA10, the adjustments required to generate impact data resembling the outcomes from standard setting, would be to move the Bookmark down 5 OIB pages for Proficient, while also moving the Bookmark down 3 OIB pages for Advanced.

Scope and Impact

English Language Arts – Grade 8

The Percent-Proficient-and-Above (PPAA)

After Standard Setting:	33.65% (22.07% Proficient, 11.58% Advanced)
No Adjustment:	29.48% (22.44% Proficient, 7.04% Advanced)
After Adjustment:	34.63% (23.35%Proficient, 11.28% Advanced)

The benchmark NAEP percentage was 29

Raw scores (associated with cut scores) with point change[1]

Cut 2 After Standard Setting:	40, 42, 40
Cut 2 No Adjustment:	40, 42, 40
Cut 2 After Adjustment:	39, 41, 40
Cut 3 After Standard Setting:	45, 47, 45
Cut 3 No Adjustment:	45, 47, 45
Cut 3 After Adjustment:	44, 46, 45

English Language Arts – Grade 10

The Percent-Proficient-and-Above (PPAA)

After Standard Setting:	39.00% (28.52% Proficient, 10.48% Advanced)
No Adjustment:	32.89% (26.01% Proficient, 6.88% Advanced)
After Adjustment:	35.78% (26.00% Proficient, 9.78% Advanced)

The ACT College Readiness benchmark percentage was 37

[1] The three values represent the three operational forms. Although the standard setting used a single synthetic form, impact data was calculated using the actual three forms that were administered.

Raw score point change

Cut 2 After Standard Setting: 47, 45, 45
Cut 2 No Adjustment: 49, 47, 47
Cut 2 After Adjustment: 48, 46, 46
Cut 3 After Standard Setting: 58, 56, 55
Cut 3 No Adjustment: 60, 58, 57
Cut 3 After Adjustment: 58, 56, 56

Options and Recommendation

One purpose of the standard setting was to recommend cut scores that aligned to expectations of College and Career Readiness goals and to ACT and NAEP Benchmarks. A key component informing these cut scores was impact data. Given the changes resulting from re-computing the student ability estimates there are two options to consider.

Option One: Make no adjustments to the cut scores and have different impact data

Option Two: Make adjustments to the cut sores recapture impact data closely resembling the results from standard setting

As a consequence of updates to the TCC to more accurately reflect the total score points available, which caused changes to the student theta estimates and impact data, and since impact data was key to the final cut scores, we recommend *Option Two*. *Option Two* makes an adjustment to the cut scores (in the OIB) in order to more closely align with the impact data produced from the standard setting.

APPENDIX N—FINAL CUTPOINTS

Table N-1. 2017 OK Standard Setting Report: Final Cutpoints—ELA

Content	*Grade*	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
English Language Arts	3	Unsatisfactory		29.5	100.0
		Limited Knowledge	-0.53135	31.8	70.5
		Proficient	0.34092	31.1	38.7
		Advanced	1.39558	7.6	7.6
	4	Unsatisfactory		28.8	100.0
		Limited Knowledge	-0.52719	34.0	71.2
		Proficient	0.38608	30.5	37.1
		Advanced	1.49870	6.7	6.7
	5	Unsatisfactory		21.1	100.0
		Limited Knowledge	-0.78321	39.0	78.9
		Proficient	0.32533	27.7	39.9
		Advanced	1.17231	12.2	12.2
	6	Unsatisfactory		18.2	100.0
		Limited Knowledge	-0.90856	41.5	81.8
		Proficient	0.28516	31.0	40.3
		Advanced	1.39169	9.4	9.4
	7	Unsatisfactory		29.2	100.0
		Limited Knowledge	-0.49771	38.0	70.8
		Proficient	0.46660	22.3	32.8
		Advanced	1.25890	10.6	10.6
	8	Unsatisfactory		20.8	100.0
		Limited Knowledge	-0.69508	45.5	79.2
		Proficient	0.45070	23.4	34.6
		Advanced	1.20801	11.3	11.3
	10	Unsatisfactory		16.4	100.0
		Limited Knowledge	-0.88010	44.6	83.6
		Proficient	0.45602	26.0	35.8
		Advanced	1.25613	9.8	9.8

Table N-2. 2017 OK Standard Setting Report: Final Cutpoints—Mathematics

Content	*Grade*	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
Mathematics	3	Unsatisfactory		20.6	100.0
		Limited Knowledge	-0.84047	35.2	79.4
		Proficient	0.18660	27.2	44.2
		Advanced	0.98750	17.0	17.0
	4	Unsatisfactory		23.5	100.0
		Limited Knowledge	-0.77087	35.9	76.5
		Proficient	0.26986	26.6	40.6
		Advanced	1.06199	14.0	14.0
	5	Unsatisfactory		21.6	100.0

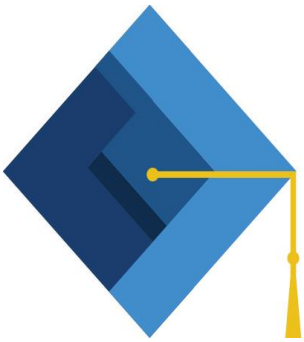
continued

Content	*Grade*	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
Mathematics	5	Limited Knowledge	-0.82901	43.2	78.4
		Proficient	0.42687	23.1	35.3
		Advanced	1.16994	12.2	12.2
	6	Unsatisfactory		21.8	100.0
		Limited Knowledge	-0.75897	42.5	78.2
		Proficient	0.44047	29.5	35.7
		Advanced	1.51120	6.2	6.2
	7	Unsatisfactory		34.9	100.0
		Limited Knowledge	-0.33556	31.0	65.1
		Proficient	0.44732	27.0	34.1
		Advanced	1.47147	7.1	7.1
	8	Unsatisfactory		48.9	100.0
		Limited Knowledge	-0.02698	27.8	51.1
		Proficient	0.75594	12.6	23.3
		Advanced	1.26746	10.6	10.6
	10	Unsatisfactory		53.9	100.0
		Limited Knowledge	0.13593	20.0	46.1
		Proficient	0.68404	16.7	26.2
		Advanced	1.33423	9.4	9.4

Table N-3. 2017 OK Standard Setting Report: Final Cutpoints—Science

Content	*Grade*	*Performance Level*	*Theta Cut*	*At %*	*At or Above %*
Science	5	Unsatisfactory		21.5	100.0
		Limited Knowledge	-0.91364	35.4	78.5
		Proficient	0.17570	33.7	43.0
		Advanced	1.32213	9.4	9.4
	8	Unsatisfactory		37.7	100.0
		Limited Knowledge	-0.34011	21.4	62.3
		Proficient	0.27999	30.1	40.9
		Advanced	1.32579	10.8	10.8
	10	Unsatisfactory		60.0	100.0
		Limited Knowledge	0.28292	21.0	40.0
		Proficient	1.02248	14.7	19.0
		Advanced	1.77837	4.4	4.4

APPENDIX O
2019 CCRA STANDARD SETTING REPORT



OKLAHOMA STATE DEPARTMENT OF EDUCATION

CHAMPION EXCELLENCE

Oklahoma College and Career Readiness

Standard-Setting Report

June 5-6, 2019

Oklahoma City, OK

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Chapter 1. OVERVIEW OF STANDARD-SETTING PROCEDURES

The purpose of this report is to summarize the activities involved in the standard-setting process for the Oklahoma College and Career Readiness Assessment (CCRA) in high school science (SCI) on behalf of the Oklahoma State Department of Education (SDE). The need for standard setting arises from the fact that this is a new assessment that was administered for the first time in 2019. For such new assessments, performance standards must be set. The primary goal of the standard setting was to determine the knowledge, skills, and abilities (KSAs) that students must demonstrate to be classified into each of the student status levels (performance levels).

The standard-setting process used was the bookmark procedure (see, e.g., Lewis et al., 1996; Mitzel et al., 2000; Cizek & Bunch, 2007). There were two main reasons this method was chosen. First, the assessment consists primarily of multiple-choice items but also includes some constructed-response items, and the bookmark procedure is appropriate for use with assessments that contain primarily or exclusively multiple-choice items, scaled using item response theory (IRT; Cizek & Bunch, 2007). Second, the modified bookmark method has been used successfully to establish performance standards for Oklahoma in the past (CTB/McGraw-Hill, 2013, 2014; Measured Progress, 2015).

The standard-setting meeting was held from June 5th through June 6th of 2019. In all, 12 panelists participated in the process and were organized into 2 groups of 6 panelists each plus a facilitator provided by Cognia. In initial rounds, panelists were organized according to the domain (Life Sciences or Physical Sciences) in which each panelist had the most professional experience. In later rounds, panelists were organized into a single panel.

This report is organized into three major sections, describing tasks completed prior to, during, and after the standard-setting meeting.

Chapter 2. TASKS COMPLETED PRIOR TO STANDARD-SETTING

2.1 Creation of Performance Level Descriptors

Oklahoma State Statute: Title 70. Schools, Chapter 22 – Testing and Assessment, Section 1210.541 – Student Performance Levels and Cut Scores – Accountability System mandates the adoption of "a series of student performance levels and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act." The law states that performance levels must be labeled and defined as follows:

1. Advanced, which shall indicate that students demonstrate superior performance on challenging subject matter;
2. Proficient, which shall indicate that students demonstrate mastery over appropriate grade-level subject matter and that students are ready for the next grade, course, or level of education, as applicable;
3. Basic, which shall indicate that students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level or course; and
4. Below Basic, which shall indicate that students have not performed at least at the limited knowledge level.

In 2016, the 29 Oklahoma educators who formed the science PLD committees, members of the Oklahoma SDE, and three Cognia staff members met for a three-day PLD writing meeting in Oklahoma City. The purpose of the meetings was to write PLDs for grades 5, 8 and high school that describe what students know and are able to display on a statewide assessment of the Oklahoma academic standards. The descriptors are used to provide a common understanding of each performance level for recommending cut scores during standard setting and to inform stakeholders on how to interpret student test scores.

After introductions of those in attendance at the PLD writing meetings, a brief overview of the purpose of PLDs, and an explanation of the PLD writing process, the Oklahoma PLD committees used the standards and the SDE test and item specifications document to begin development of the PLDs. To ensure that the committee members focused on the state-adopted standards and objectives, the committee members were not shown any items that appeared on the assessment.

Independently, PLD committee members filled in the PLD tables by writing down the skills and knowledge students would demonstrate in the Advanced, Proficient, and Limited Knowledge levels for each standard and objective. After the individual work was completed, the group discussed and arrived at a consensus on the wording for the performance levels. As a final step,

the PLD committee members reviewed and revised the suggested wording for each level to ensure appropriateness and consistency, and that each level indicated a trajectory of students' knowledge of the content.

At this 2016 meeting the committee members dedicated to high school completed the PLDs for the Life Science domain of the assessment. In February of 2019 a second group was convened to define the PLDs for Physical Science. This meeting was conducted virtually, with some participants in the state department office in OK and the rest on a web conference with the facilitator from Cognia. Prior to the meeting the participants were provided with materials to review, including the Life Science PLDs for reference. The same process was followed as described above to create the Physical Science PLD descriptions.

2.2 Preparation of Materials for Panelists

The following materials were assembled for presentation to the panelists at the standard-setting meeting in paper or digital form (as indicated):

- PLDs (paper)
- Meeting agendas (paper)
- Nondisclosure forms (paper)
- Test booklets (paper)
- Answer keys/scoring rubrics (paper)
- Ordered item booklets (paper)
- Item map forms (digital)
- Rating forms (digital)
- Evaluation forms (digital)

Copies of the PLDs, meeting agenda, nondisclosure form, sample item map form, sample rating form, and evaluation form are included in Appendices A through F.

2.3 Preparation of Presentation Materials

The PowerPoint presentation used in the opening session was prepared and approved by the SDE and TAC prior to the meeting. A copy of the presentation is included in Appendix A.

2.4 Preparation of Instructions for Facilitators

Scripts were created for the group facilitators to refer to while working through each step of the standard-setting process. This document is included in Appendix B. The facilitators also attended a training session, led by a Cognia psychometrician, approximately four weeks before the

standard setting. The purpose of the training was to prepare the facilitators for the panel activities and to ensure consistency in the implemented procedures.

2.5 Preparation of Systems and Materials for Analysis During the Meeting

The computational programming used to calculate cutpoints and impact data during the standard- setting meeting was completed and thoroughly tested prior to the standard-setting meeting. See *Section 3.7.2, Round 1 Judgments and Results*, for a description of the analyses performed during standard setting.

2.6 Selection of Panelists

As emphasized in Cizek and Bunch (2007), regardless of the method used, the selection of panelists is an important factor in determining standard-setting outcomes and maximizing the validity of the standard- setting process. The guidance provided by *Standards for Educational and Psychological Testing* (AERA et al., 1999) states that "a sufficiently large and representative group of judges should be involved to provide reasonable assurance that results would not vary greatly if the process were repeated." Consistent with the above guidance and respecting practical considerations regarding the maximum size of a group that can be successfully managed, the goal was to recruit a standard-setting panel of 10–12 members representing different stakeholder groups to set standards for the CCRA science. Additionally, in consideration of the distinct content of each domain, an attempt was made to ensure the panel equally represented experts in both the LS and PS domains. Targets for the size and composition of the panel were also consistent with federal guidelines as described in *Standards and Assessment Peer Review Guidance: Information and examples for meeting requirements of the No Child Left Behind Act of 2001* (U.S. Department of Education, 2009).

The SDE selected panelists prior to the standard-setting meeting. The goal for panel selection was to include participants who are primarily teachers, but also to include school administrators, higher education personnel, and stakeholders from other interest groups. Moreover, to the extent possible, panelists were selected to reflect a balance of gender, race/ethnicity, and geographic location. Finally, panelists were selected who were familiar not only with the subject matter, but also with the grade for which they would be setting standards. A list of the panelists is included in Appendix C.

Chapter 3. TASKS COMPLETED DURING THE STANDARD-SETTING MEETING

3.1 Overview of the Bookmark Method

The bookmark method (Lewis et al., 1996; Mitzel et al., 2000; Cizek & Bunch, 2007) involves rank ordering the items by difficulty and asking the panelists to identify the point in the ordered set of items at which the students at the borderline of two adjacent performance levels no longer have at least a two-thirds chance of answering the item correctly.

3.2 General Orientation and Panelist Training

Concerning panelist training, *Standards for Educational and Psychological Testing* (AERA et al., 2014) states the following:

> Care must be taken to assure these persons understand what they are to do and that their judgments are as thoughtful and objective as possible. The process must be such that well-qualified participants can apply their knowledge and experience to reach meaningful and relevant judgments that accurately reflect their understandings and intentions. (p. 101)

The training of the panelists began with a general orientation session at the start of the standard- setting meeting. The purpose of the orientation was to ensure that all panelists received the same information about the need for and the goals of standard setting, and about their part in the process. The orientation consisted of three parts. First, Oklahoma Executive Director of State Assessments Craig Walker provided an overview of education policy in the state of Oklahoma, including additional context specific to the CCRA science assessment. Next, a Cognia psychometrician, Dr. Matthew Gushta, presented a brief overview of the bookmark procedure and the activities that would occur during the standard-setting meeting. Finally, Cognia Lead Program Manager Julie DiBona provided panelists with logistical information (e.g., materials review, content security, attendance).

Once the general orientation was complete, panelists broke out into domain specific groups, where they received more detailed training and completed the first two rounds of the standard-setting activities.

3.3 Lead Facilitator Training

Prior to Day 1, the two facilitators attended a brief training session led by Cognia psychometricians Dr. Matthew Gushta and Dr. Frank Padellaro. During this training, expectations for facilitators were set to include leading panelist review of the ordered item booklet, leading panelist development of borderline descriptors, facilitation of panel discussion, collection and review

of standard- setting materials, and control of secure materials. Facilitators were separately expected to act as table leaders during the preliminary rounds, ensuring that discussion and logistics within each domain group were conducted fairly and efficiently.

3.4 Review of Assessment Materials

The first step after the opening session was for the panelists to take the test. The purpose of this step was to familiarize the panelists with the assessment and the test taking activities expected of students during administration. Once panelists completed the test, the answer key was distributed. At this point, panelists were encouraged to discuss any issues regarding items or scoring.

3.5 Completion of the Item Map Form

Panelists were then split into two groups based on domain expertise and each panelist reviewed a domain-specific ordered item booklet item by item, considering the knowledge, skills, and abilities (KSAs) students needed to answer each one. The ordered item booklet contained one item per page, ordered from the easiest item to the most difficult item. The ordered item booklet was created by sorting the items according to their item response theory (IRT)-based difficulty values ($RP_{0.67}$ was used). A three-parameter logistic IRT model was used to calculate the $RP_{0.67}$ values for dichotomous items.

Panelists then completed the item map form using the provided laptop computers. The item map form listed the items in the same order as they were presented in the ordered item booklet. The form included space for the panelists to type in the KSAs required to answer each item correctly and to indicate why they believed each item was more difficult than the previous one. To ensure each panelist was comfortable using the provided laptop computers and understood the mechanics of data entry, Cognia Psychometrician Dr. Frank Padellaro reviewed the technology the panelists would use to complete their item maps.

Additionally, the item map form was shaded to show a projected range of expected proficiency, based on historic averages of student performance on state assessments from multiple grades and subjects. Item map entries that would produce percentages of students at or above Proficient comparable to those external assessments were identified as benchmarking locations. The shaded region on the item map form was then calculated as +/-2 standard errors around the IRT-based difficulty of the CCRA benchmarking locations. Table 3-1 identifies the benchmarking region for each booklet.

Table 3-1: CCR Standard-Setting Benchmarking Regions

Subject	*Grade*	*Percentage**	*PS OIB Shaded Region*	*LS OIB Shaded Region*	*Complete OIB Shaded Region*
Science	11	18% – 50%	3-9	4-12	6-21

**OSTP historic % proficient and above grades 3–8 (ELA and mathematics) and grades 5 and 8 SCI were used to generate a predicted range of SCI 11 % proficient or above performance.*

After working individually, panelists had the opportunity to discuss the item map with members of their domain-specific group and make necessary additions or adjustments. The purpose of this step was to ensure that panelists became familiar with the ordered item booklet and understood the relationships among the ordered items.

3.6 Review of Performance Level Descriptors

Oklahoma State Statute: Title 70. Schools, Chapter 22 – Testing and Assessment, Section 1210.541 – Student Performance Levels and Cut Scores – Accountability System mandates the adoption of "a series of student performance levels and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act." The law states that performance levels must be labeled and defined as follows:

1. Advanced, which shall indicate that students demonstrate superior performance on challenging subject matter;
2. Proficient, which shall indicate that students demonstrate mastery over appropriate grade-level subject matter and that students are ready for the next grade, course, or level of education, as applicable;
3. Basic, which shall indicate that students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level or course; and
4. Below Basic, which shall indicate that students have not performed at least at the basic level.

In June of 2019, 12 Oklahoma educators, members of the SDE, and five Cognia staff members met for a two-day standard-setting meeting in Oklahoma City. Panelists discussed performance level descriptors (PLD), which describe what students know and are able to display on a statewide assessment of the Oklahoma academic standards. The descriptors are used to provide a common understanding of each performance level for recommending cut scores during standard setting and to inform stakeholders of how to interpret student test scores. Panelists then worked to

define descriptors of a borderline level student. A borderline student is one who is minimally able to meet the requirements set by the descriptors for each performance level.

After introductions of those in attendance, a brief overview of the meeting's purpose, and an explanation of the standard-setting process, the panelists were organized into groups to begin setting standards for the Oklahoma CCR Science assessment. According to their professional experience, the panelists were organized into Life Science (LS) and Physical Science (PS) groups. Independently, standard-setting committee members filled in the item mapping tables by writing down the knowledge, skills, and abilities necessary for a student to be successful on each item within the subset of items relevant to the domain to which the group was assigned. After the individual work was completed, each group carefully reviewed and discussed the PLDs for Proficient, Advanced, Basic, and Below Basic as they applied to their domain. This understanding was used within the LS and PS groups to separately discuss and arrive at consensus on the definition of a borderline student for each of the Basic, Proficient, and Advanced performance levels. After developing a working understanding of the PLDs and defining borderline students at each cut, the panelists engaged in the standard-setting process in order to recommend the cuts between performance levels.

3.7 Review of Performance Level Descriptors and Definition of Borderline Students

Next, panelists reviewed the Performance Level Descriptors (PLDs). This important step was designed to ensure that panelists thoroughly understood the KSAs needed for students to be classified into performance levels (Below Basic, Basic, Proficient, and Advanced). Panelists first reviewed the PLDs on their own and then participated in group discussion of the PLDs, clarifying each level. Afterward, panelists developed consensus definitions of borderline students—that is, students who have only barely qualified for a particular performance level. Bulleted lists of characteristics for each level were generated based on the whole-group discussion and posted in the room for reference throughout the bookmark process. Note that the purpose of this step was to clarify and add specificity to the PLDs based on the KSAs, paying particular attention to the definitions of the borderline students.

The bulleted lists were developed as working documents to be used by the panelists for the purposes of standard setting. They supplemented the PLDs, which provide the official definitions of each performance level, by specifically addressing the KSAs that define the borderline of each level.

The PLDs are provided in Appendix D.

3.8 Rating Rounds and Feedback

3.8.1 Practice Round

Next, the panelists completed a practice round of ratings. The purpose of the practice round was to familiarize the panelists with all the materials they would be using for the standard-setting process and to walk them through the process of placing bookmarks. In addition to the PLDs and borderline descriptions, panelists were given a practice ordered item booklet, which consisted of 10 items representing the range of difficulty on the test, and a practice rating form.

Within each domain-specific group, the facilitator explained what each of the materials was and how panelists would use it to make their ratings. Additionally, Cognia Psychometrician Dr. Frank Padellaro reviewed the technology panelists would use to complete their ratings, to ensure each panelist understood how to use the tools provided. Then, beginning with the first ordered item and considering the skills and abilities needed to complete it, panelists were instructed to ask themselves, "Would at least two out of three students performing at the borderline of Proficient answer this question correctly?" Panelists considered each ordered item in turn, asking themselves the same question until their answer changed from "yes" (or predominantly "yes") to "no" (or predominantly "no"). Each panelist practiced placing the Proficient bookmark in the ordered item booklet. The facilitator then led the panelists in a readiness discussion, asking panelists to share the reasoning behind their bookmark placements with the group and assessing each panelist's understanding of the rating task, borderline students, and the two-thirds rule. At the end of the practice round, panelists completed the practice evaluation form. The evaluation form was designed to ascertain whether the panelists were comfortable moving ahead to the rating task or whether they had lingering questions or issues that needed to be addressed before proceeding to the Round 1 ratings. Facilitators were instructed to glance over each panelist's evaluation as he or she completed it, to make sure panelists were ready to move on. The results of the training evaluation can be found in Appendix E.

3.8.2 Round 1 Judgments and Results

In the first round, panelists worked individually with the borderline definitions, the item map form, and the ordered item booklet. Beginning with the first ordered item in the shaded region of the domain-specific OIB, described previously, and considering the skills and abilities needed to complete it, panelists asked themselves, "Would at least two out of three students performing at the borderline of Proficient answer this question correctly?" Panelists considered each ordered item in turn, asking themselves the same question. They placed the bookmark between the two items where their answer changed from "yes" (or predominantly "yes") to "no" (or predominantly "no"). For the identification of this Proficient cut point, panelists were instructed that placing a bookmark

outside the shaded region required explicit written justification by the panelist. Panelists then repeated the process for the other two cut points and used the rating form to record their ratings for each cut point.

After the completion of each round, Cognia staff members calculated a variety of statistics which served various functions: feedback to panelists as part of the standard-setting method, reporting to Cognia and the SDE as intermediate evidence for the impact of panelists' judgements, and as quality control metrics. While these statistics were available, only specific results were revealed to panelists as appropriate for the goals of the specific round.

Results for panelist ratings across all rounds are displayed in Appendix F. For each round, Cognia staff members calculated the median cut points for the group based on bookmark placements, theta scale cuts, the Median Absolute Deviation (MAD) of the panelists' cut points, the conditional standard error of measurement (SEM) for each of the scale cuts, and impact data.

Each panelist's theta scale cut points were found by averaging the $RP_{0.67}$ values of the items on either side of the bookmark placed by that panelist for each cut point. The /Round 1 overall cut points were then determined by calculating the median of the individual cut points obtained from each panelist. The MAD of the panelists' cut points indicates the extent to which judgments were consistent across panelists and reflects the level of agreement among the ratings with each successive round of ratings. Conditional SEM characterizes the measurement precision for each of the scale cuts. Finally, impact data reflect the percentage of students across the state who would fall into each performance level category according to the total group median cut points.

3.8.3 Round 2 Judgments and Results

The purpose of Round 2 was for panelists to discuss their Round 1 placements and, if necessary, to revise their ratings. Prior to beginning their discussions, the panelists at each table were presented with the median cut points based on their Round 1 ratings for each cut point in that subject and grade. A Cognia psychometrician presented this information to the group using a projector and laptop and explained how to use it as they completed their Round 2 discussions. The distribution of panelists' cut points was presented in terms of location in the ordered item booklet, both as numerical summaries of cut points ranges and graphically, as histograms.

Within both domain-specific groups, panelists were then given the opportunity to share their individual rationales for their bookmark placements in terms of the necessary knowledge and skills for each classification. Panelists were asked to pay particular attention to how their individual ratings compared to those of other panelists in their room to assess whether they were unusually stringent or lenient within the group. Once the discussions were complete, panelists were given the opportunity to revise their Round 1 ratings on the rating form. Panelists were told to set bookmarks according to their *individual* best judgments; consensus among the panelists was not necessary.

They were encouraged to listen to the points made by their colleagues but not to feel compelled to change their bookmark placements.

When Round 2 ratings were complete, Cognia staff members calculated the statistics described above and discussed the results with SDE staff. During this discussion, a lack of agreement was noted among some panelists, especially regarding the bookmark associated with the placement of the Advanced cut. This provided an opportunity for Cognia and SDE staff to return to the panels for the purpose of clarifying and confirming the judgmental task—answering for each item, "Would at least two out of three students performing at the borderline of the current PLD answer this item correctly?"

3.8.4 Round 3 Judgments and Results

The purpose of Round 3 was for panelists to gather in a single group, regardless of domain-specific expertise, to discuss their Round 2 placements and, if necessary, to revise their ratings. Prior to the discussions, the panelists were separated into domain-specific groups and presented with the median cuts based on Round 2 results. A Cognia psychometrician presented the information and explained how to use it, as described in Round 2. Additionally, SDE staff members presented condensed versions of the educational context information originally provided during the opening session.

Following the domain-specific presentations, the panelists were gathered into a single group. During this discussion, domain-specific information was combined and presented according to the entire CCRA Science assessment and content. The lead facilitator, David Harrison, led an extended discussion of the Round 2 results as they applied to the entire CCRA Science form: walking the panelists through the complete ordered item booklet (i.e., LS and PS items), focusing on the KSAs needed for each item and how they related to the overall PLDs, and facilitated synthesis of the borderline definitions into overall concepts of borderline students. In addition, the discussion explored the differences in cut point placement among panelists and across domains. After the discussions, panelists were given another opportunity to revise their bookmark placements, this time considering the entirety of CCRA Science. Once again, the facilitator reminded the panelists to place the bookmarks according to their individual best judgment, and that it was not necessary for them to reach a consensus. When Round 3 ratings were complete, Cognia staff members once again calculated the statistics described previously and reviewed these results with SDE staff.

When Round 3 ratings were complete, Cognia staff members calculated the usual statistics though in the context of CCRA Science and not separated by domain. The results were discussed with SDE staff, noting a lack of agreement among some panelists – though less so than round 2 – especially regarding the bookmark associated with the placement of the Advanced cut. This

provided an opportunity for Cognia and SDE staff to return to the panels for the purpose of clarifying and confirming the judgmental task—answering for each item, "Would at least two out of three students performing at the borderline of the current PLD answer this item correctly?"

3.8.5 Round 4 Judgments and Results

Due to the separation of panelists into domain-specific groups in the first two rounds, a fourth round of judgments was planned as part of the standard-setting process, in order to review the results of Round 3 and introduce impact data (the percentage of students in each performance level using the Round 3 cuts). Following the introduction of impact data, the panelists met as a single group to discuss their Round 3 placements and, if necessary, revise their individual ratings

Prior to the discussions, a Cognia psychometrician presented the panelists with the median cuts based on Round 3 results, as well as the associated impact data. The lead facilitator then led an extended discussion of the Round 3 results. After discussion, panelists were given a final opportunity to revise their bookmark placements. When Round 4 ratings were complete, Cognia staff members once again calculated the various associated statistics.

A summary of the results is provided in Table 3-2, reporting final median cut points on the theta scale and impact data (percentage of students in performance level; percentage of students at-or-above performance level), respectively. Note that disaggregated impact data broken down by demographics are provided in Appendix G.

Table 3-2: CCRA Science Standard Setting: Round 4 Results

Statistic	Below Basic	Basic	Proficient	Advanced
Theta Scale Cuts	-1.52	0.17	0.80	1.53
Percentage of Students at/in Performance Level	53.30%	20.70%	18.10%	7.90%
Percentage of Students at/above Performance Level	100.00%	46.70%	26.00%	7.90%

Chapter 4. TASKS COMPLETED AFTER THE STANDARD-SETTING MEETING

Upon conclusion of the standard-setting meeting, several important tasks were completed. These tasks centered on the following: reviewing the standard-setting process and addressing issues presented by the outcomes; presenting the results to the SDE; and making any final revisions or adjustments based on policy considerations, under direction of the SDE.

4.1 Analysis and Review of Panelists' Feedback

The measurement literature sometimes considers the evaluation process to be another product of the standard-setting process (e.g., Reckase, 2001), as it provides important validity evidence supporting the cut points that are obtained. To provide evidence of the participants' views of the standard-setting process, panelists were asked to complete questionnaires after the practice round, after the completion of Round 1, and at the end of the meeting.

After the evaluation forms were completed, panelists' responses were reviewed. This review did not reveal any anomalies in the standard-setting process or indicate any reason that a particular panelist's data should not be included when the final cut points were calculated. In general, participants felt that the recommended cut points were appropriate and that their judgments were based on appropriate information and decision making. The results of the evaluations are presented in Appendix E.

4.2 Policy Adjustments

After all standard-setting activities had been completed and all materials reviewed, the SDE recommended no adjustments to the Round 4 cuts as recommended by panelists at the standard-setting meeting. The full set of cuts as shown in Table 3-2 were presented to the CEQA and approved for use assigning students to performance levels in the 2018–2019 CCRA science assessment.

4.3 Preparation of Standard-Setting Report

Following final compilation of standard-setting results, Cognia prepared this report, which documents the procedures and results of the 2019 standard-setting meeting that was held to establish performance standards for the assessment.

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APPENDICES

APPENDIX A—POWERPOINT PRESENTATION

Welcome!

OKLAHOMA STATE DEPARTMENT OF EDUCATION

CHAMPION EXCELLENCE

Oklahoma Career and College Readiness Assessment (CCRA)

Standard Setting

Science

June 5-6, 2019

Today's Agenda

1. Context and Policy Introduction
2. Standard Setting Process

Oklahoma State Department of Education Staff

Craig Walker

Executive Director of State Assessments

Assessment Report 2017

Oklahoma Legislature directed the State Board of Education to:

- Evaluate Oklahoma's current state assessment system, and make recommendations for its future.

As a result, Oklahoma State Department of Education:

- Held regional meetings across the state to determine stakeholder concerns
- Convened the Oklahoma Assessment & Accountability Task Force to develop recommendations
- Followed the federal requirements and rules as described in ESSA

Recommendations from the Task Force for CCR Assessments

- Score Interpretation
  - Support criterion-referenced interpretations (i.e., performance against the OAS) and report individual claims appropriate for high school students;
  - Provide a measure of performance indicative of being on track to College and Career Readiness (CCR).
    - (1) supported using theoretically related data in standard-setting activities (e.g., measures of college readiness and other nationally available data) and
    - (2) validated empirically using available postsecondary data linking to performance on the college-readiness assessment;

Goals for Oklahoma Schools

- Focus on college- and career- readiness:

  College and career ready means that students graduate from high school prepared to enter and succeed in postsecondary opportunities whether college or career.

- **Students** should graduate high school ready for postsecondary success and need to demonstrate they are on-track toward that goal.

Individual Career Academic Plan

Student-driven, multi-measures approach representing indications of college- and career-readiness

- Students' coursework, learning and assessment results
- Students' postsecondary plans, aligned with their career, academic and personal/social goals and financial reality
- Students' records of college- and career-readiness activities

Oklahoma Statute on Performance Levels

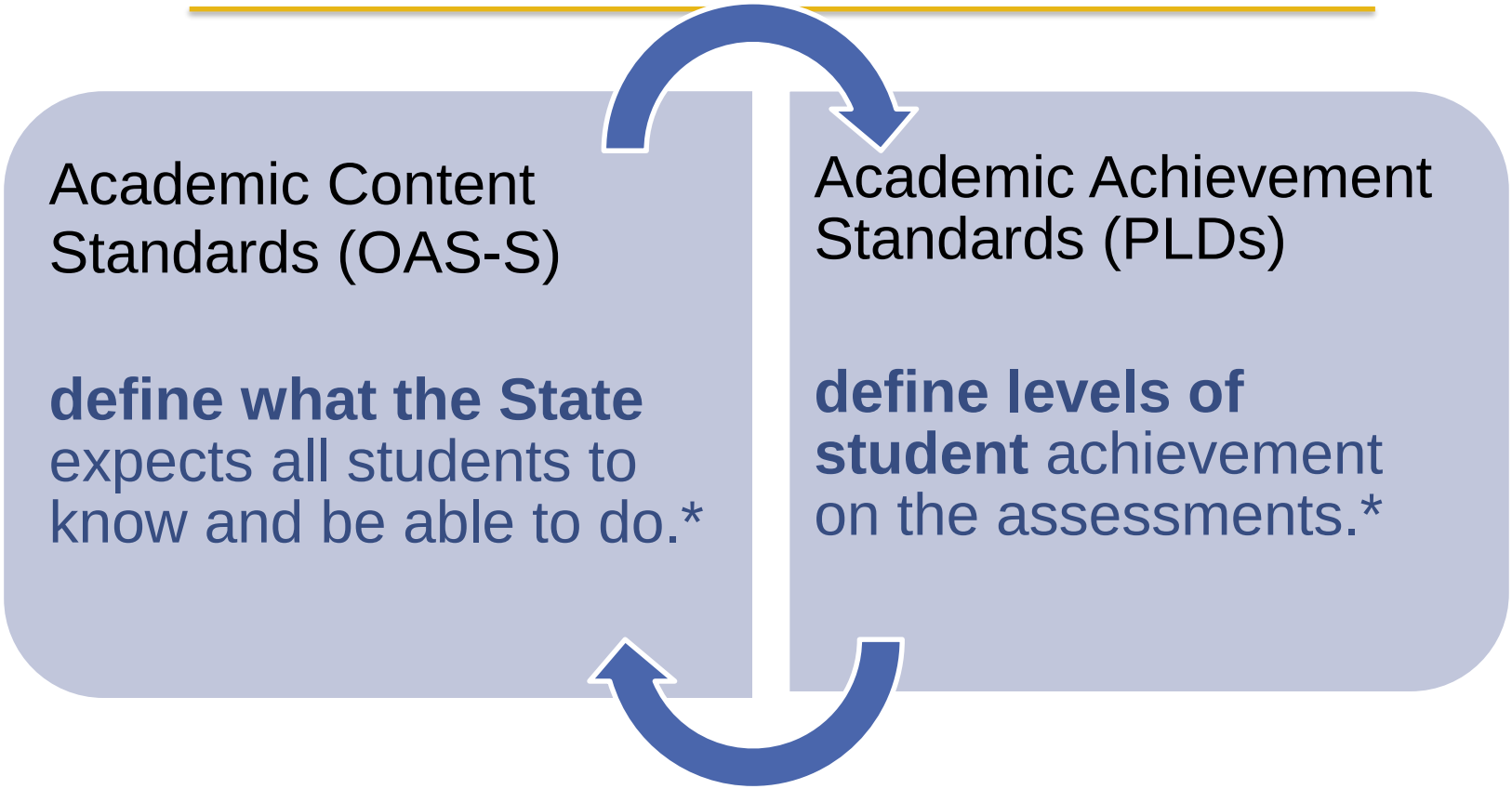
- The Commission for Educational Quality and Accountability shall determine and adopt a series of student **performance levels** and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act.

- The Commission for Educational Quality and Accountability shall have the authority to set cut scores using any method which the State Board of Education was authorized to use in setting cut scores prior to July 1, 2013.

Oklahoma Statute on Performance Levels

- The **performance levels** shall be set by a method that indicates students are ready for the next grade, course, or level of education, as applicable.
- The Commission for Educational Quality and Accountability shall establish panels to review and revise the **performance level descriptors (PLDs)** for each subject and grade level.
- The Commission shall ensure that the criterion-referenced tests developed and administered by the State Board of Education pursuant to the Oklahoma School Testing Program Act in grades three through eight and the tests administered at the high school level are vertically aligned by content across grade levels to ensure consistency, continuity, alignment and clarity.

Content Standards and PLDs



**U.S. Department of Education Peer Review of State Assessment Systems Non-Regulatory Guidance for States, September 25, 2015*

More about PLDs

PLDs provide a narrative account of the knowledge, skills, and abilities **demonstrated by** students in each level of achievement.

PLDs describe what students *know and are able to do* based on the OAS.

PLDs inform stakeholders of how to interpret student test scores in relation to the OAS

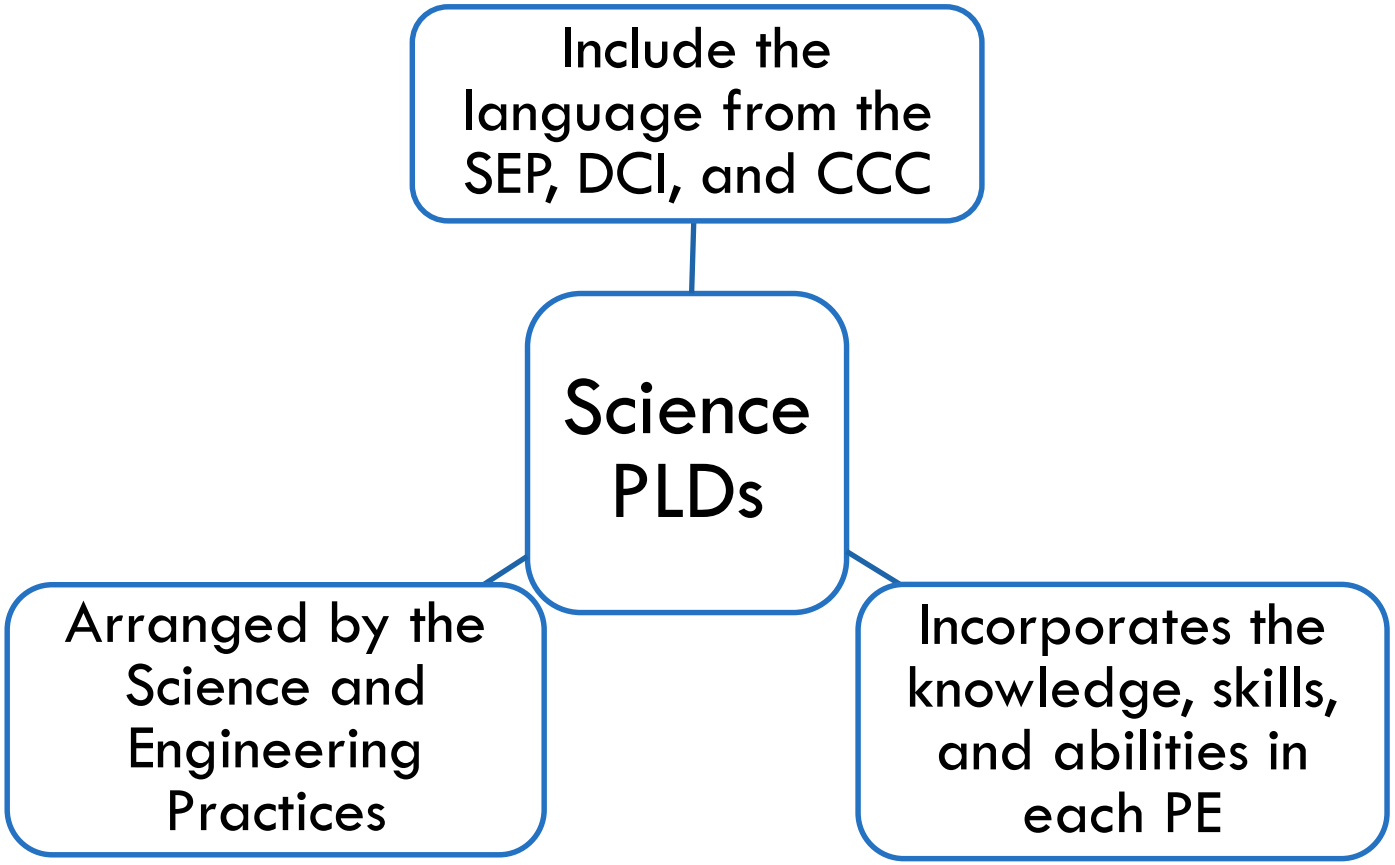
PLDs are typically used for standard setting and score reporting.

Purpose and Use of PLDs

PLDs define the intended interpretations of test scores

Purposes of PLDs	• Inform standard setting • Inform score interpretation
OK SDE uses for PLDs	• Item and test development • Standard setting • Score interpretation

Structure of PLDs for Science



Anatomy of a Science PLD

PS1-1 PS3-2 ← Standard/s	Proficient: ← Performance Level
SEP: **Develop and Use Models** DCI • PS1.A Structure and Properties of Matter • PS3.A Definitions of Energy CCC • Patterns • Energy and Matter	**Students demonstrate mastery with subject matter and exhibit readiness for college and career. Students scoring at the Proficient level typically use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.** PLD Knowledge, Skills, and Abilities (KSAs)

OK CCRA Science

Standard Setting

Cognia Staff

- Julie DiBona – Lead Program Manager, Client Services
- Matthew Gushta – Director, Research & Analytics
- Frank Padellaro – Psychometrician
- David Harrison – Content Manager, Content Development – State
- Katie Schmidt – Content Specialist II, Content Development - State

Housekeeping

- Folder review
  - Content material
  - Administrative forms
- Secure materials
  - Signing out
  - No electronics
- Use of laptops
  - Only use sites you are directed to
  - Do not log out

The Standard Setting Process

Matthew Gushta

Content Standards vs. Performance Standards

- Content standards = “What”
  - Describe the knowledge and skills students are expected to demonstrate by content area and grade
- Performance standards = “How well”
  - Describe attributes of student performance based on Performance Level descriptors

What is Your Job?

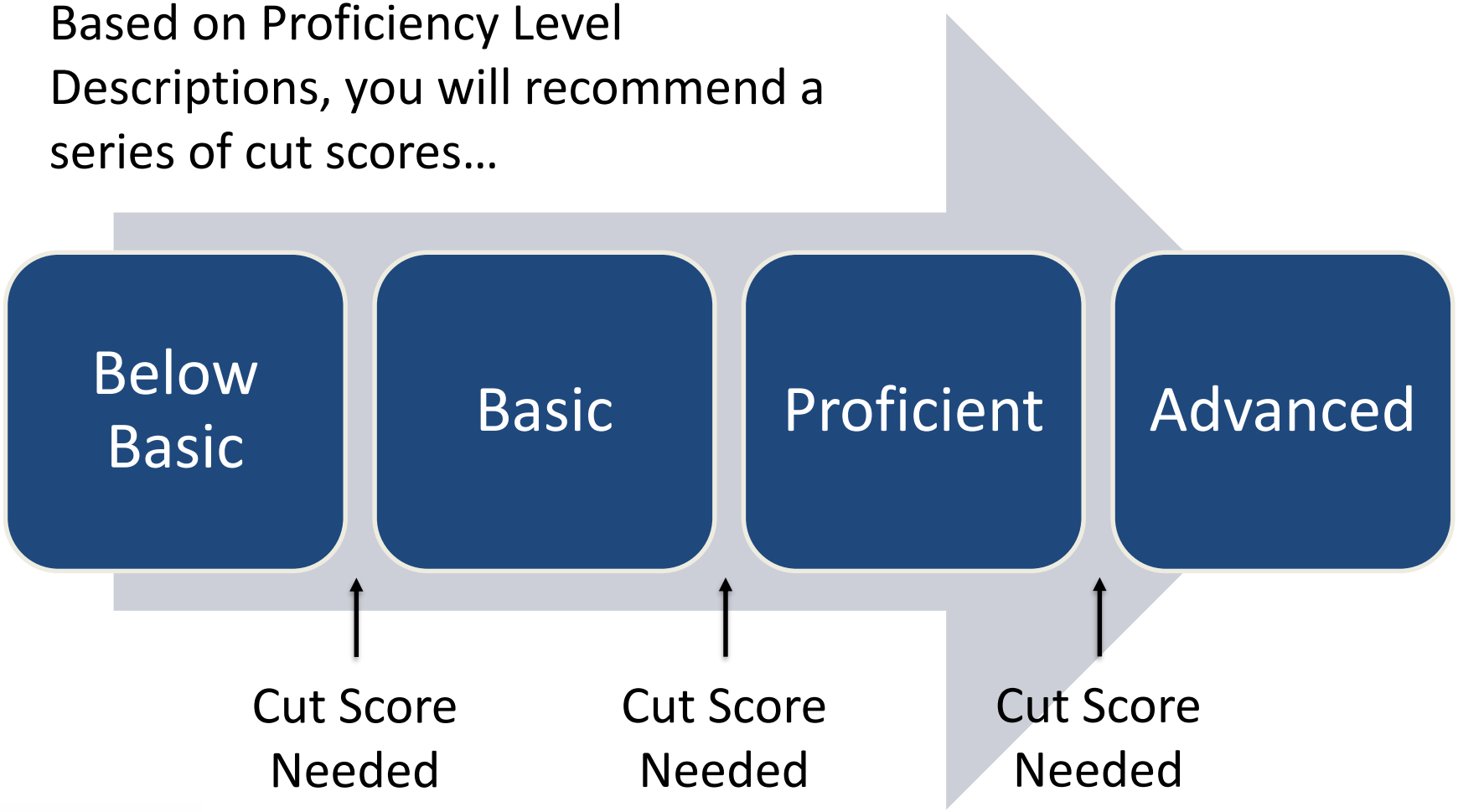
- To recommend cut scores for each of the performance levels that will be used to report results:
  - Below Basic
  - Basic ← Cut Score
  - Proficient ← Cut Score
  - Advanced ← Cut Score

What are we Trying to Determine?

- What knowledge, skills, and abilities (KSAs) need to be demonstrated to be classified in each Performance Level?
- How much is enough?
- What test performance corresponds to:
  - Below Basic
  - Basic
  - Proficient
  - Advanced

Performance Continuum

Based on Proficiency Level Descriptions, you will recommend a series of cut scores…



General Phases of Standard Setting

- Data Collection
  - Your recommendations will be reviewed and presented to the policy makers, responsible for final adoption of the cut scores.
- Policy/Decision Making
  - The recommendations may be accepted, rejected, or modified by the Commission for Educational Quality and Accountability (CEQA).

Overview of Standard Setting Method

- We will cover implementation of the Bookmark standard setting procedure
- This session is intended to be an overview
- Your facilitator will give you more details and guide you through the process step by step

Factors that Influence Selection of Standard Setting Method

- Prior usage and history
- Recommendation or requirement by policy making authority
- Type of assessment(s)

  .

  .

  .
- Bookmark method chosen

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What is the Bookmark Method and How Does It Work?

- A collection of test items is arranged in an Ordered Item Booklet (OIB)
  - Based on statistical analysis.
  - From easiest to most difficult.
- Panelists place one or more “bookmarks” in that OIB to recommend cut scores.

Important Terms to Know

- Performance Levels
- Test items
- “Borderline” students
- Knowledge, skills, and abilities (KSAs) needed to answer each test question
- Cut scores

Performance Levels

- Individual review of Performance Level Descriptors (PLDs)
- Group discussion of what student performance in each Performance Level looks like.
- Focus on the “borderline” students, i.e., students who just barely make it into Performance Level.

Develop Borderline Descriptions

- Create bulleted lists of
  - Knowledge, skills, and abilities (KSAs) a student must demonstrate to be classified in each Performance Level, and
  - Knowledge, skills, and abilities that distinguish one Performance Level from another.
- You must reach consensus as a group about the KSAs that define borderline student performance.

How to Place a Bookmark

- Start at the beginning of the OIB.
- Evaluate whether at least two thirds of the students who demonstrate knowledge and skills at the borderline of Proficient would correctly answer the item
- If Yes, move on to the next item.
- Place the bookmark where you think at least two thirds of the Proficient “borderline” students would no longer correctly answer the item.

How to Place a Bookmark

Item Number	Would at least two-thirds of borderline Proficient students correctly answer this item?
1	Yes
2	Yes
3	Yes
4	Yes
5	Yes
6	No
7	Yes
8	Yes
9	No
10	No
11	No
12	No
13	No
14	No
15	No
…	No

How to Place a Bookmark

- You will have opportunities to discuss your bookmark placements and change them, if desired.
- Place one bookmark for each cut score (between the Performance Levels).

Before You Place the Bookmarks

- Take the test to familiarize yourself with the test taking experience.
- Review the OIB.
- Use the item map form to identify KSAs specific to each item.

Item Map

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
1		
2		
3		
4		
5		
6		
7		
8		

- Review and discuss Performance Levels.
- Develop definition of “borderline” for Below Basic, Proficient, and Advanced.

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The Practice Round

- Before placing actual bookmarks, you will have an opportunity to practice the method with a set of practice items.
- You will be given an OIB with approximately 10 items to practice the bookmark placement for the cut point between Basic and Proficient.

Check for Understanding

- Your facilitator will check with you for understanding and answer any questions you may have during and after the practice round.
- You will then complete a training evaluation form which serves as readiness check before proceeding.

Domain-Specific Bookmark Placement

- Round 1 (Without Discussion)
  - Work through the ordered item booklet.
  - Place bookmarks between the items as appropriate.
- Round 2 (With Group Discussion)
  - Discuss the first-round bookmark placements (focus on the KSAs).
  - Examine your cut points in relation to the group results.
  - Review and revise placement of bookmarks as appropriate.

Overall Science Bookmark Placement

- Round 3 (With Group Discussion)
  - Discuss the second-round bookmark placements (focus on the KSAs).
  - Examine your cut points in relation to the group results and impact data.
  - Review and revise placement of bookmarks as appropriate.
- Round 4 (With Group Discussion)
  - Discuss the third bookmark placements (focus on the impact data).
  - Examine your cut points in relation to the group results and impact data.
  - Review and revise placement of bookmarks as appropriate.

External Assessment Data

- Information from prior OSTP assessments in grades 3-8 included as a validity check
- A region of the item map is shaded that corresponds to projected proficiency percentages, with a range of +/- 2SEMs around that point.
- Within this region is where the Proficient bookmark should be placed.
- Your facilitator will give additional training and guidance on the usage of this data.

External Assessment Data

Example Item Map with Shading

Item Order	What knowledge and skills does this item measure?	Why is this item more difficult than the preceding item?
18		
19		
20		
21		
22		
23		
24		
25		
26		
27		
28		
29		
30		
31		
32		
33		
34		

Role of the Facilitator

- Lead and keep the group on track.
- Ensure that all panelists clearly understand the procedures.
- Ensure that the evaluation forms are completed.
- Your honest feedback is important!

A Few Reminders

- It is not necessary for panelists to reach consensus as to how the items should be assigned to Performance Levels.
- You may or may not change your mind as a result of the discussions.
- Process is focused solely on recommending cut scores.
- The Performance Levels and their definitions are not open for debate.
- Items are operational and fixed.
- Panelists' recommendations are vital, but final cut score decisions will be made by the Commission of Educational Quality and Accountability (CEQA).

Each Panelist Must

- Use his or her own best judgment in each round of rating.
- Be open-minded when listening to your colleagues' rationales for their ratings.
- Complete an evaluation form at the end of the process.
- Participate in the entire process or his/her judgments will be discounted.
- Use cell phones only during breaks.
- Arrive on time after breaks and each day.

What's Next?

- Take the Test
- Domain-Specific Work
  - Complete Item Map Form
  - Discuss the Performance Levels
  - Practice, Rounds 1 & 2
- Overall Science Work
  - Rounds 3 & 4
- Final Evaluation

Any Questions?

cognia

Thank you.

cognia

APPENDIX B—INSTRUCTIONS FOR FACILITATORS

GENERAL INSTRUCTIONS FOR STANDARD SETTING GROUP FACILITATORS

CCRA Science
June 5-6, 2019

Single-Group Activity

General Orientation

The Standard Setting activities begin with all panelists in one large group, facilitated by the lead facilitator.

Take the Test

Overview: In order to establish an understanding of the test items and for panelists to gain an understanding of the experience of the students who take the test, each participant will take the test. Panelists may wish to discuss or take issue with the items in the test. Tell them we will gladly take their feedback to the SDE. However, this is the actual assessment that students took, and it is the set of items on which we must set standards.

Activities:

1) Introduce the assessment and convey/do each of the following:
    a. Tell panelists that they are about to take an actual OSTP assessment.
    b. The purpose of the exercise is to help them establish a good understanding of the test items and to gain an understanding of the experience of the students who take the assessment.
2) Distribute a computer to each panelist
3) Ensure each panelist is able to login to the eMetric Portal and begin the assessment
4) Tell panelists to try to take on the perspective of a student as they complete the test. The expectation is that they will spend no more than 30 minutes on this task.
5) When the majority of the panelists have finished, pass out the answer key/scoring rubrics.

Domain-Specific Panels: Preparation

Split into Smaller Panels

Overview: After the general orientation, panelists will convene into two smaller standard setting panels according to domain (Life Sciences or Physical Sciences) for which they will be setting standards. Domain-specific standard setting activities will first occur, allowing for close consideration of the distinct content within CCRA Science. These panels will reconvene at a later point in the meeting in order to set a single set of cut-points.

Preliminaries

1. Welcome group, introduce yourself (name, affiliation, a little selected background information).
2. Have each participant introduce him/herself.
3. Ask each participant to sign a nondisclosure form. Do not proceed until a signed nondisclosure form has been collected from each participant.
4. Note that while panelists are making their recommendation for the cut scores, the Commission for Education Quality and Accountability make the final cut decision. The decision is almost always within a range around the recommended cut.

Fill Out Item Map Form

Overview: The primary purpose of this activity is for panelists to think about what knowledge, skills and abilities (KSAs) are measured by each item as well as what makes one question harder or easier than another. The notes panelists take here will be useful in helping them place their bookmarks and in discussions during the rounds of ratings.

On the item map form there is a shaded region based on projections derived from previous assessment. This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to a projection based on expected proficiency with a range of +/- 2 SEMs around that point.

Activities:

1. Prepare the materials
   a. Ensure each panelist can open and view item map form (computer)
   b. Distribute the domain-specific ordered item book

2. Review the domain-specific ordered item book and item map form (computer) with the panelists. Explain what each is, and point out the correspondence of the ordered items between the two. Explain that the items are statistically ordered from easiest to hardest, based on student performance from the most recent administration of the assessment.

3. Tell panelists that the shaded region represents a projection or expectation based on other assessment information, including prior-grade assessment results. During the actual standard setting activity, the Proficient bookmark placement should be set within this range. This information is not critical for the current activity.

4. Tell panelists they will work individually at first. After they have completed the item map form, they will then discuss it as a group.

5. Starting with the first item, they will record for each item:
   a. The knowledge, skills and abilities (KSAs) the item measures, and
   b. their thoughts about what makes that question harder than the previous question.

6. Panelists should not agonize over these decisions. It may be that the second item is only slightly harder than the first. Panelists should keep in mind that the purpose of the task is to record notes that will be useful to them in completing their ratings and not necessarily to fill in every space on the form.

7. Once panelists have completed the item map form, they should discuss them as a group.

8. Based on the group discussion, the panelists may modify their own item map form (make additional notes, cross things out, etc.)

Discuss Performance Level Definitions and Describe Characteristics of the "Borderline" Student

Overview: In order to establish an understanding of the expected performance of borderline students on the test, panelists must have a clear understanding of:

1) Specific interpretation of the performance levels within their current domain (Life Sciences or Physical Sciences), and

2) Characteristics of students who are "just able enough" to be classified into each level above Below Basic within a specific domain. These students will be referred to as borderline students, since they are right on the border between levels.

The purpose of this activity is for the panelists to obtain an understanding of the domain-specific Performance Level Definitions with an emphasis on characteristics that describe students at the borderline within a specific domain -- both what these students can and cannot do.

This activity is critical since the ratings panelists will be making will be based on these understandings.

Preparation:

1. Use 3 sheets of chart paper and label the top of each one: Borderline Basic, Borderline Proficient and Borderline Advanced.

Activities:

1) Introduce the task. In this activity they will:
   a. individually review the domain-specific Performance Level Descriptors again as needed;

b. generate group descriptions of borderline Basic, Proficient and Advanced students.

The facilitator should compile the descriptions as bulleted lists on chart paper; the chart paper will then be posted so the panelists can refer to the lists as they go through the bookmark process.

2) Check to see if panelists want to discuss the performance levels again. Once they have a solid understanding of the PLDs, have them focus their discussion on the knowledge, skills, and abilities of students who are in the Proficient category, but just barely. The focus should be on those characteristics and KSAs that best describe the lowest level of performance necessary to warrant Proficient classification.

3) After discussing Proficient, have the panelists discuss characteristics of the borderline Basic student and then characteristics of the borderline Advanced student. Panelists should be made aware of the importance of the Proficient cut. This is the cut from non-proficient to just barely proficient.

4) Using chart paper, generate a bulleted list of characteristics for each of the levels. Post these on the wall of the room. Make sure that panelists agree on the bulleted characteristics and have a common understanding.

Practice Round

Overview of Practice Round: The primary purpose of the Practice Round is for panelists to become familiar with the task of placing the bookmarks. The facilitator will walk the panelists through the Proficient bookmark placement on the practice set, engage the panelists in a readiness discussion and check for understanding. If any of the panelists indicate an incomplete understanding of the practice rating task, then the facilitator will continue to work with the panelists to clarify any misconceptions before proceeding to Round 1.

Activities:

1. Make sure panelists have the following materials:
    a. Domain-specific practice ordered item set
    b. Domain-specific Performance Level Definitions
    c. Access to the domain-specific practice rating form (computer)

2. Orient panelists to the domain-specific practice ordered item set. Point out the following:
    a. Only items from the current domain are included in the item set;
    b. Items are organized by difficulty from easiest to hardest.
    c. The items represent the full range of difficulty included on the test.
    d. Identify the items on the item map form that correspond to the practice ordered item set. Panelists can see their item map form entries on the practice rating form.
    e. Show panelists how to indicate their bookmark placement on the practice rating form (computer).

3. Give the panelists a few minutes to read through the items.

4. The facilitator leads the group through a discussion of the Proficient bookmark placement in the domain-specific practice OIB.
    a. Referring to the ten ordered items in the practice set, the domain-specific Performance Level Definitions, and the bulleted lists of domain-specific borderline characteristics posted on chart paper, the facilitator will lead a discussion about the placement of the Proficient bookmark.

    b. Panelists should consider the question: **would at least two-thirds of the students performing at the borderline of Proficient answer the item correctly?**

    c. Where the answer changes from yes to no is where the bookmark should be placed.

    d. Panelists should answer the above question for all items to check for anomalies.

    e. Panelists should enter their bookmark placement on the practice rating form (computer)

    f. Use the practice rating master sheet to show where each panelist placed their bookmark. Have a discussion of their ratings in the context of the ratings made by other members of their group. Ask the panelists to discuss the rationale for placement of the highest and lowest ratings. The group should get a sense of how much variation there is in the ratings.

Readiness Discussion

After the panelists have placed bookmarks in the domain-specific practice ordered item set, lead a readiness discussion by posing the following seven questions.

The purpose of this discussion is to determine how well each panelist understands the bookmark task, to correct any misunderstandings, and if necessary, to identify panelists whose ratings should be excluded from the standard setting if their understanding doesn't improve.

The "correct" answer for each of the question is listed directly under each question. Some common misunderstandings are also listed for questions one and two. Please watch for these typical misunderstandings and if they arise, redirect the panelists to the correct responses. **Make sure any questions or concerns are resolved prior to moving on.**

1. What questions should you ask for each item?
    - Would at least two-thirds of the borderline students get this item correct?
    - Would at least two-thirds of the students who just barely fall in the criteria level of interest get this item correct?

    Please watch for and correct the following misconceptions.
    - Omission of two-thirds (stating all students is also incorrect)
    - Omission of borderline (stating all students, or all students in the criteria level of interest is also incorrect)

2. What is meant by the "at least two-thirds" rule?
    - At least two-thirds of the borderline students would get items like this correct

   Please watch for and correct the following misconceptions.
    - All students falling in the performance level of interest have a one out of two chance of getting this item correct.

3. What population of students should you consider for each item?
    - Borderline students
    - Students who just barely fall in the performance level of interest

    a. Does the target population of borderline students change as I progress through the items for the first bookmark? (NO)
    b. Does the target population change as I progress to the next bookmark? (YES)

4. As you approach a bookmark, how do answers change?
    - The answer to "Would at least two-thirds of the borderline students get this item correct" should change from a "yes" to a "no"
5. How should your confidence in the answers affect your bookmark placement?
    - As you become less confident in a "yes" answer, the bookmark placement should be approaching.
    - Where you are least confident in your "yes" answer, suggesting a "no", is typically where the bookmark will be placed.

6. Does placing a bookmark after a certain page mean the student needs to get that many items correct on the assessment?
    - NO. The OIB page number is only an ordered index, and does not correspond to the number correct.

7. Should the population you are thinking about be the students in your classroom or school?
    - NO. You should be thinking about all of the students in the state.

NOTE: Make sure you collect all of the 'training' OIBs!

Standard Setting Practice Evaluation

After the panelists have placed bookmarks in the domain-specific practice ordered item set and you've completed the readiness discussion and answered any questions, have panelists fill out the training evaluation form. Before you start the Round 1 activities, scan the completed evaluations to see if there are any problems or concerns that need to be addressed before proceeding. **Make sure any questions or concerns are resolved prior to moving on.** Return the completed evaluations to the data analysis work room at the next convenient opportunity.

Domain-Specific Panels: Standard Setting

Round 1

Overview of Round 1: The primary purpose of Round 1 is to ask the panelists to make their initial judgments as to where the bookmark should be placed for each cut within their domain-specific OIB. For this round, panelists will work individually, without consulting with their colleagues. Beginning with the first ordered item in the domain-specific OIB, panelists will evaluate each item in turn. The panelists will gauge the level of difficulty of each of the items for those students who barely meet the definition of Proficient. The task that panelists are asked to do is to estimate whether a student performing at the borderline of Proficient, would answer each question correctly. More specifically, panelists should answer:

- Would *at least* two-thirds of the students performing at the borderline of Proficient answer the question correctly?

On the item map form there is a shaded region based on projections derived from previous assessments. This is the region panelists should consider for the placement of the Proficient bookmark. The shaded region corresponds to a projection based on expected proficiency with a range of +/- 2 SEMs around that point.

The Proficient bookmark placement must be between two shaded items. Should a panelist desire to set the bookmark outside the shaded region they will be asked to provide written justification.

The same process is then repeated for the [Below Basic/Basic] and [Proficient/Advanced] cuts.

Activities:

1. Panelists should have their domain-specific ordered item booklets, and Performance Level Definitions. Instruct the panelists to open the procedural rating form (computer) and show how details from their individual item map descriptions have been carried forward to the rating form. Ensure each panelist is able to open their rating form before proceeding.

2. Have panelists confirm their ID number matches the ID number on their procedural rating form and item map form. The ID number is on the back of their table tent.

3. Provide an overview of Round 1, covering each of the following:
    a. Orient panelists to the domain-specific ordered-item book. Remind them that the items are presented in order of difficulty, from easiest to hardest, for their current domain only.

4. Remind panelists the shaded region is derived from growth projections, and that the Proficient bookmark placement should be set in this range. Placing the bookmark outside the shaded region will require that the panelist provide brief written justification.

b. The primary purpose of this activity is for the panelists to make their initial determination as to whether students whose performance is barely Proficient would correctly answer each item, and to place their bookmark where they believe the answer of 'yes' turns to 'no'. Remind panelists that they should be thinking about at least two-thirds of the borderline students. Once they have completed the process for the [Basic/Proficient] cut, they will proceed to the remaining two cut points starting with [Below Basic/Basic] and then the [Proficient/Advanced] cut.

c. Each panelist needs to base his/her judgments on his/her experience with the content, understanding of students, and the definitions of the borderline students generated previously.

d. One bookmark will be placed for each cut point. For CCRA there are 3 cut points and, therefore, three bookmarks will be placed ["Basic","Proficient","Advanced"]. Place the cut point number on the procedural rating form in the RND 1 column.

e. If panelists are struggling with placing a particular bookmark, they should use their best judgment and move on. They will have an opportunity to discuss their ratings and make revisions in Rounds 2 and 3.

5. Tell panelists that they will be placing the bookmarks individually; they will have the option to discuss each cut point with the other panelists during Round 2. **It is not necessary for the panelists to come to consensus about where the bookmarks should be placed.**

6. Go over the rating form with panelists.
   a. Lead panelists through a step-by-step demonstration of how to fill in the rating form.

   b. Answer questions the panelists may have about the work in Round 1.

   c. Once everyone understands what they are to do in Round 1, tell them to begin.

7. Starting with the first ordered item in the OIB and proceeding up to their bookmark placement for the [Basic/Proficient] cut point, the panelists will work through the OIB item by item and make their initial bookmark placements. Have panelists continue to examine five items past their placement to check for anomalies.

8. As panelists complete the task, ask them to carefully inspect their rating forms to ensure they are filled out properly.
   a. **The ID number must be filled in**.

   b. **Exactly three cuts must be entered and identified "Basic", "Proficient" and "Advanced" on the procedural rating form in the RND 1 column.**

c. **The cut points must be entered sequentially on the rating form (e.g., the bookmark for "Proficient" cannot be placed on an easier item in the OIB than the bookmark for "Basic" on the rating sheet).**
d. **The "Proficient" bookmark placement should be between two shaded items on the item map form, or a written justification must be provided.**

e. Check each panelist's rating form before you allow them to leave for a short break.

f. When all the rating forms have been validated, the group will take a break. Rating information for round 1 will be locked, so it cannot be changed.

Complete Procedural Evaluation Form

Make sure panelists fill out the procedural evaluation for the grade. Emphasize that their honest feedback is important. Return the completed evaluations to the data analysis work room at the next convenient opportunity. Collect the materials from the grade and mark them off on the Materials Tracking sheet.

Tabulation of Round 1 Results

Tabulation of Round 1 results will be completed by the data analysis team as quickly as possible after processing the rating forms.

Round 2

Overview of Round 2: In Round 2, the panelists will discuss their Round 1 placements as a group and then revise their ratings on the basis of that discussion. They will discuss their ratings in the context of the ratings made by other members of their group. Panelists should discuss the rationale for placement of the highest and lowest ratings. The group should get a sense of how much variation there is in the ratings. Panelists should also consider the question, "How tough or easy a rater are you?" The purpose here is to allow panelists to examine their individual expectations (in terms of their experiences) and to share these expectations and experiences in order to attain a better understanding of how their experiences impact their decision-making.

To aid with the discussion, the panelists will be provided with the median Round 1 bookmark placements for their group.

Once panelists have reviewed and discussed their bookmark placements, they will be given the opportunity to change or revise their Round 1 ratings.

Activities:

1. Make sure the panelists have their domain-specific ordered item booklets, item map forms (computer), and Performance Level Definitions. Ensure each panelist is able to open their rating form.

2. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. This information is provided so panelists can get a sense of where they fall

relative to the group median –if they are more stringent or more lenient than other panelists.

3. Provide an overview of Round 2. Remind panelists of the following:
    a. As in Round 1, the primary purpose is to place bookmarks where you feel the criteria levels are best distinguished, considering the additional information and discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area and specific domain, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities (KSAs) required to answer each item.

4. The panelists will discuss their Round 1 ratings as a group, beginning with the Proficient cut point and followed by the Basic and Advanced cuts.
    a. The discussion should focus on differences in where individual panelists in the group placed their bookmarks.

    b. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

    c. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

    d. On the basis of the discussions, panelists should make a second round of ratings.

    e. Remind panelists the shaded region is derived from growth projections and that the Proficient bookmark placement will be set in this range. The Proficient bookmark should be between two shaded items.

    f. When placing their Round 2 bookmarks, panelists should not feel compelled to change their ratings.

    g. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

    Encourage the panelists to use the discussion and feedback to assess how stringent or lenient a judge they are. If a panelist is consistently higher or lower than the group, they may have a different understanding of the borderline student than the rest of the group, or a different understanding of the Performance Level Definitions, or both. **It is O.K. for panelists to disagree, but that disagreement should be based on a common understanding of the Performance Level Definitions.**

5. As the group is conducting their discussions, circulate around the room to ensure that the discussions are staying on topic, the panelists understand the task, and that all panelists are participating appropriately in the discussion.

6. When all panelists in each group have completed their second ratings, **carefully inspect the rating forms** to ensure they are filled out properly.
    a. **The ID number must be filled in correctly**.

    b. **Exactly three cuts must be entered and identified "Basic", "Proficient" and "Advanced" on the procedural rating form.**

    c. The cut points must be entered sequentially on the rating form (e.g., the bookmark for "Proficient" can't come before the bookmark for "Basic" on the rating sheet).

    d. The "Proficient" bookmark placement should be between two shaded items on the item map form. If it is outside the shaded region, a written justification must be provided.

    e. Check each panelist's rating form before you allow them to leave for a short break.

    f. When all the rating forms have been validated, the group will take a break. Rating information for round 2 will be locked, so it cannot be changed.

Single-Group Activity: Standard Setting

Round 3

Overview of Round 3: At the conclusion of Round 2 discussions, the complete Science panel will be reassembled from the domain-specific Life Sciences and Physical Sciences panels. Subsequent standard setting activities will be conducted with the entire panel. The primary purpose of Round 3 is to ask the complete Science panel to discuss their Round 2 placements as a group. However, unlike in Round 2, in Round 3 the panelists will have the opportunity to discuss the impact of their domain-specific bookmark placements against overall Science performance and to revise the cut-points based on that discussion. The goal of these discussions is for panelists to resolve the cut-points determined separately by domain, considering whether the percentage of students in each achievement level category seems reasonable.

To aid with the discussion, a psychometrician will present the following information to the panelists:

1. The group median Round 2 bookmark placements for each domain;

2. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements from Round 2 for each domain; and

3. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

Once panelists have reviewed and discussed their bookmark placements and the impact data, they will be given the opportunity to change or revise their Round 2 ratings.

Activities:

1. Make sure the panelists have their complete Science ordered item booklets, item map forms (computer), and Performance Level Definitions. Ensure each panelist is able to open and access their Round 3 and 4 procedural rating form.
    a. The rating form for Rounds 3 and 4 (computer) is a different worksheet than for Rounds 1 and 2.
    b. The rating form continues to include the shaded region for guiding placement of the Proficient bookmark and includes colored regions for the range of domain-specific bookmark placements. Yellow indicates the range of Basic bookmarks, green indicates the range of Proficient bookmarks, and blue indicates the range of Advanced bookmarks. For example, a yellow region indicates the Life Sciences bookmark placement, the Physical Sciences bookmark placement, and any pages or items that are between the two.

2. A psychometrician will present and explain the following information to the panelists:
    a. the median bookmark placements for the group based on the Round 2 ratings. Based on their Round 2 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

    b. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements for each domain. Panelists will use this information as a "reasonableness check." In other words, they will discuss whether the percentages in each level seem reasonable, based on their knowledge of the test and the current status of students across the state relative to the Performance Level Definitions. If the answer is no, panelists may choose to make adjustments to one or more of their bookmark placements. Panelists may decide to select bookmarks resulting from either domain or select an entirely new bookmark between the domain-specific bookmarks. To facilitate these discussions and decisions, the panelists will be provided with an overall Science OIB which will include both Life and Physical Science items as administered on the core operational form. To facilitate the identification of an appropriate bookmark, panelists will be instructed to consider only those items in the OIB that appear between the domain-specific bookmarks.

    c. Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

3. Provide an overview of Round 3. Remind panelists of the following:
    a. As in Round 2, the primary purpose is to place bookmarks where you feel the performance levels are best distinguished, considering the additional information and further discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists, the knowledge, skills, and abilities required to answer each item, and the consensus and impact data.

    c. The panelists will discuss their domain-specific ratings, beginning with the Proficient cut point and followed by the Basic and Advanced cuts.

    d. The discussion should focus on differences in where individual panelists placed their bookmarks.

e. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

f. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

g. On the basis of the discussions, panelists should make a third round of ratings.

h. Remind panelists the shaded region is derived from growth projections and that the Proficient bookmark placement will be set in this range. The Proficient bookmark must be between two shaded items or a written justification must be provided by the panelist.

i. Remind panelists additionally that the yellow, green, and blue shaded regions indicate the domain-specific bookmark placements. The complete Science bookmarks for Basic, Proficient, and Advanced should be placed within those ranges, or a written justification must be provided.

j. Because of the combination of domain-specific OIBs and the need to make a judgement about overall Science performance, it is likely that panelists will change their bookmark placement from the previous round.

k. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

l. Write brief notes on any notable discussions of the process, any particular sticking points or issues, or key rationales had in their judgments. These do not need to formal, but will be useful if the client has questions regarding the process.

4. When all panelists have completed their second ratings, **carefully inspect the rating forms (computer)** to ensure they are filled out properly.

   a. **The ID number must be filled in correctly**.

   b. **Exactly three cuts must be entered and identified "Basic", "Proficient" and "Advanced" on the procedural rating form.**

   c. The cut points must be entered sequentially on the rating form (e.g., the bookmark for "Proficient" can't come before the bookmark for "Basic" on the rating sheet).

   d. The "Proficient" bookmark placement should be between two shaded items on the item map form. If it is outside the shaded region, a written justification must be provided.

e. Check each panelist's rating form before you allow them to leave for a short break.

f. When all the rating forms have been validated, the group will take a break. Rating information for round 3 will be locked, so it cannot be changed.

Round 4

Overview of Round 4: The primary purpose of Round 4 is to ask the panelists to discuss their Round 3 placements as a group and to give them one last opportunity to revise their ratings on the basis of that discussion. As in Round 3, they will discuss their ratings in the context of the ratings made by other members of the group.

To aid with the discussion, a psychometrician will present the following information to the panelists:

1. The group median Round 3 bookmark placements for Science overall, and

2. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements from Round 3 for Science overall.

3. Standard error information, as before.

Once panelists have reviewed and discussed their bookmark placements and the impact data, they will be given the opportunity to change or revise their Round 3 ratings.

Activities:

1. Make sure the panelists have their ordered item booklets, item map forms (computer), and Performance Level Definitions. Ensure each panelist can open their procedural rating form.

2. A psychometrician will present and explain the following information to the panelists:

    a. the median bookmark placements for the group based on the Round 3 ratings. Based on their Round 3 rating form, panelists will know where they fall relative to the group median. This information is provided so panelists can get a sense if they are more stringent or more lenient than other panelists.

    b. Impact data, showing the approximate percentage of students statewide that would be classified into each performance level category based on the room median bookmark placements. Panelists will use this information as a "reasonableness check." In other words, they will discuss whether the percentages in each level seem reasonable, based on their knowledge of the test and the current status of students across the state relative to the Performance Level Definitions. If the answer is no, panelists may choose to make adjustments to one or more of their bookmark placements.

Standard error information, this will demonstrate to the panelists the amount of variability present in the cut scores expressed in real-world terms. Both Median Absolute Deviation (How much disagreement among panelists) and Conditional Standard Error (Measure of error in assessment) data will be provided. A range of impact data for each cut will be determined for +/-1 SE around the cut score for each of these.

3. Provide an overview of Round 4. Remind panelists of the following:
    a. As in Round 3, the primary purpose is to place bookmarks where you feel the performance levels are best distinguished, considering the additional information and further discussion.

    b. Each panelist needs to base his/her judgments on his/her experience with the content area, understanding of students, the definitions of the borderline students generated previously, discussions with other panelists and the knowledge, skills, and abilities required to answer each item.

    c. The panelists will discuss their Round 3 ratings, beginning with the Proficient cut point and followed by the Basic and Advanced cuts.

    d. The discussion should focus on differences in where individual panelists placed their bookmarks.

    e. Panelists should be encouraged to listen to their colleagues as well as express their own points of view.

    f. If the panelists hear a logic/rationale/argument that they did not consider and that they feel is compelling, then they may adjust their ratings to incorporate that information.

    g. On the basis of the discussions, panelists should make a fourth round of ratings.

    h. Remind panelists that the shaded regions for Proficient, Basic, and Advanced should guide placement of their bookmarks. Placement outside these ranges will require brief written justification.

    i. When placing their Round 4 bookmarks, panelists should not feel compelled to change their ratings.

    j. The group does not have to achieve consensus. If panelists honestly disagree, that is fine. We are trying to get the best judgment of each panelist. Panelists should not feel compelled or coerced into making a rating they disagree with.

    k. Write brief notes on any notable discussions of the process, any particular sticking points or issues, or key rationales had in their judgments. These do not

need to formal, but will be useful if the client has questions regarding the process.

4. When all panelists have completed their fourth ratings, **carefully inspect the rating forms (computer)** to ensure they are filled out properly.
    a. **The ID number must be filled in**.

    b. **Exactly three cuts must be entered and identified "Basic", "Proficient" and "Advanced" on the procedural rating form.**

    c. The cut points must be entered sequentially on the rating form (e.g., the bookmark for "Proficient" can't come before the bookmark for "Basic" on the rating sheet).

    d. The "Proficient" bookmark placement should be between two shaded items on the item map form. If it is outside the shaded region, a written justification must be provided.

    e. The standard setting team will now lock the round 4 ratings.

Complete Final Evaluation Forms

Make sure panelists fill out the final evaluations before they leave. Emphasize that their honest feedback is important.

APPENDIX C—PANELISTS

Panelists

Table C-1. 2019 OK Standard Setting Report: Science Panelists

Full Name	*Email Address*	*Company*	*Invitation List*	*Status*
Peters, Chanda	cpeters@woodwardps.net	Woodward	Physical Science	Accepted
Wright, Gayla	docgayla@cox.net	OERB	Physical Science	Accepted
Jones, Vanessa (cancelled)	jonesv@bethel.k12.ok.us	Bethel High School	Life Science	Accepted
Chaisson, Leiha	lchaisson1@cox.net	Mustang	Life Science	Accepted
Will, Tammy	tammywill@morrisonps.com	Morrison Public School	Physical Science	Accepted
Tamez, Jeramey	Jeramey.Tamez@yukonps.com	Yukon	Life Science	Accepted
Zumwalt, Ruth	ruth.zumwalt@edmondschools.net	Edmond Public Schools	Physical Science	Accepted
Richardson, Traci	trichardson@stillwaterschools.com	Currently Stillwater, but that will change	Life Science	Accepted
Schweitzer, Dawna	schweitzer.dawna@gmail.com	Retired	Life Science	Accepted
Shrauner, Jennifer	jshrauner@putnamcityschools.org	Putnam City	Life Science	Accepted
Gilmore, Paul	pgilmore@putnamcityschools.org	Putnam City	Physical Science	Accepted
Maier, Steve	sjmaier@nwosu.edu	Alva	Physical Science	Accepted

APPENDIX D—PERFORMANCE LEVEL DESCRIPTORS

Oklahoma School Testing Program
Performance-Level Descriptors
Grade 7 Geography: Eastern Hemisphere

ADVANCED: Students demonstrate superior understanding of challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level will

- infer and apply information using a variety of geographic sources
- analyze the importance of Celebrate Freedom Week
- compare and contrast cultural, physical, and political regions; urban areas and countries
- analyze how human and physical characteristics affect regions over time
- evaluate the role of international organizations in conflict and cooperation
- identify and describe major landforms and bodies of water
- identify the causes of natural disasters and analyze their effects on human populations and the environment
- summarize and evaluate how countries/regions are categorized based on cultures, population locations, economic development, social and political structures, and standard of living measures
- analyze and predict the distribution of natural resources and the three sectors of the economy
- analyze how humans adapt to and change the natural environment
- evaluate governmental policies that address regional resource issues

PROFICIENT: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade. Students scoring at the Proficient level will

- interpret information using a variety of geographic sources
- explain the importance of Celebrate Freedom Week
- identify and describe cultural, physical, and political regions; urban areas and countries
- explain how human and physical characteristics affect regions over time

- describe the role of international organizations in conflict and cooperation
- identify and describe major landforms and bodies of water
- identify the causes of natural disasters and explain their effects on human populations and the environment
- compare and contrast how countries/regions are categorized based on cultures, population locations, economic development, social and political structures, and standard of living measures
- identify and describe the distribution of natural resources and the three sectors of the economy
- explain how humans adapt to and change the natural environment
- describe governmental policies that address regional resource issues

LIMITED KNOWLEDGE: Students demonstrate partial mastery of the essential grade-level knowledge and skills. Students at the Limited Knowledge level will

- identify some information using a variety of geographic sources
- identify the importance of Celebrate Freedom Week
- identify or describe some of the cultural, physical, and political regions; urban areas and countries
- identify how some human and physical characteristics affect regions over time
- identify the involvement of some international organizations in conflict and cooperation
- identify and locate some major landforms and bodies of water
- identify some of the causes of natural disasters and explain some of their effects on human populations and the environment
- compare or contrast how some countries/regions are categorized based on cultures, population locations, economic development, social and political structures, and standard of living measures
- identify or describe the distribution of some natural resources and some sectors of the economy
- identify some ways humans adapt to and change the natural environment
- identify or describe some governmental policies that address regional resource issues

UNSATISFACTORY: Students have not performed at least at the Limited Knowledge level. Students at the Unsatisfactory level have not demonstrated grade-level knowledge and skills.

Grade 3 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically complete complex addition, subtraction, and multiplication problems and model division facts. Students order fractions using models and compose and decompose fractions related to the same whole. Students extend patterns and generate real-world situations to represent number sentences. Students determine volume and elapsed time. Students summarize complex data sets and analyze the data to solve problems. Students solve complex and non-routine real-world problems, draw logical conclusions, and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically compare and order whole numbers. Students complete addition, subtraction, and multiplication problems and recognize the relationship between multiplication and division. Students construct and compare fractions using models. Students select the fewest number of coins for a given amount of money. Students determine rules to describe basic patterns. Students determine unknowns in equations and apply number properties. Students classify angles. Students sort three-dimensional figures and determine the perimeter of polygons. Students determine the area of two-dimensional figures. Students read and analyze length, temperature, and time. Students summarize a data set and analyze the data to solve problems. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level represent whole numbers. Students complete simple addition, subtraction, and multiplication problems. Students read and write fractions. Students determine the value of a set of coins or bills. Students determine rules to describe simple patterns. Students determine unknowns in simple equations. Students identify right angles. Students choose an appropriate instrument to measure an object. Students read and write time from a digital clock.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 3 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level consistently choose the best summary of the text and identify the main idea and key details. Students compare and contrast details in literary and nonfiction/informational texts to describe genres. Students frequently identify literary elements, literary devices, and author's purpose and frequently distinguish fact from opinion. Students consistently infer whether a text is written in first or third person point of view.

Students consistently engage in a recursive writing process to create organized written works with a purpose that is clearly communicated for an appropriate audience. Students skillfully use details that support the writing task.

Students skillfully use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. Students consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing.

Students consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students generate a question on a specific topic and consistently locate and use information, including graphic features, to understand the text. Students determine the relevance and reliability of information. Students clearly summarize and present information in an organized and cohesive way.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically choose the best summary of the text and identify the main idea and key details. Students compare and contrast details to classify genres. Students identify literary elements, literary devices, and author's purpose and distinguish fact from opinion. Students infer whether a text is written in first or third person point of view.

Students engage in a recursive writing process to create organized written works. Students create written works for specific purposes and audiences using details that support the writing task.

Students use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues. Students use appropriate vocabulary to write clearly and effectively.

Students frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students generate a question on a specific topic and locate and use information, including graphic features, to understand the text. Students summarize and present information in an organized way.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level inconsistently choose the best summary of the text and have difficulty identifying main ideas and key details. Students compare and contrast but inconsistently classify genres. Students inconsistently identify literary elements, literary devices, author's purpose, or points of view or inconsistently distinguish fact from opinion.

Students inconsistently engage in a recursive writing process to create written works that lack organization. Students write for a specific purpose but seldom consider the audience. Students inconsistently support their ideas with details.

Students inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues. Students inconsistently use appropriate vocabulary in written works.

Students inconsistently identify and apply appropriate use of grammar and mechanics.

Students generate a question on a topic but ineffectively locate and use information, or imprecisely use graphic features, to understand the text. Students provide an incomplete summary and present information with lack of clarity.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Grade 4 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically estimate and solve complex mathematical problems and determine the unknown in non-equivalent expressions. Students compare decimals and fractions. Students solve complex money problems. Students determine a rule and extend a complex pattern. Students determine and represent unknown values in complex problems. Students determine volume. Students solve complex measurement problems. Students represent complex data sets and solve problems involving the data. Students solve complex and non-routine real-world problems, draw logical conclusions, and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically estimate and solve mathematical problems. Students use models to determine equivalent fractions, compare and order fractions, and add and subtract fractions. Students read and write decimals and make connections between decimals and fractions. Students determine change using coins. Students determine rules and extend patterns. Students determine unknown values in mathematical problems. Students describe parts of geometrical figures and identify similarities in three-dimensional figures. Students decompose and determine the area of polygons. Students solve measurement problems. Students represent data sets and solve problems involving the data. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level demonstrate the ability to estimate and solve simple mathematical problems. Students use models to determine simple equivalent fractions, compare and order whole numbers and simple fractions, and decompose fractions. Students read and write simple decimals and compare and order whole numbers and decimals. Students determine change using whole dollars. Students determine a rule and extend a simple pattern. Students determine unknown values in simple mathematical problems. Students identify quadrilaterals and determine the area of simple polygons. Students identify appropriate units and tools to measure. Students solve simple problems given a data set.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 4 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level consistently choose the best summary of the text and explain how the details support the main idea. Students compare and contrast details in literary and nonfiction/informational texts to describe and analyze genres. Students consistently recognize the paraphrase of original text. Students consistently identify and describe literary elements, literary devices, author's purpose, accuracy of facts, and text structure in various texts. Students consistently infer meaning from increasingly complex text including author's purpose and points of view.

Students consistently engage in a recursive writing process to create purposeful and organized written works. Students create fully developed and engaging written works for specific purposes and audiences using details that support the writing task.

Students efficiently use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. Students consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing.

Students consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students generate a viable research question on a specific topic and consistently locate and use information, including graphic features, to interpret the text. Students organize and synthesize relevant and reliable information in order to present findings.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically choose the best summary of the text and identify the details that support the main idea. Students compare and contrast details in literary and nonfiction/informational texts to classify genres. Students recognize the paraphrase of original text most of the time. Students identify and describe literary elements, literary devices, author's purpose, accuracy of facts, and text structure in various texts. Students infer meaning from a text including author's purpose and points of view.

Students engage in a recursive writing process to create purposeful written works. Students select and apply the organizational structure that best fits the mode, purpose, and audience.

Students use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues. Students use appropriate vocabulary to write clearly and effectively.

Students frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students generate a viable research question on a specific topic and adequately locate and use information, including graphic features, to interpret the text. Students organize relevant and reliable information in order to present findings.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level inconsistently choose the best summary of the text and have difficulty differentiating main ideas from details. Students compare and contrast details in literary and nonfiction/informational texts but inconsistently classify genres. Students seldom identify the paraphrase of original text. Students inconsistently identify and describe literary elements, literary devices, author's purpose, points of view, or accuracy of fact.

Students inconsistently engage in a recursive writing process to create written works. Students' writing lacks organizational structure. Students create underdeveloped written works for specific purposes and audiences with inconsistent use of details.

Students inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues. Students inconsistently use appropriate vocabulary in written works.

Students inconsistently identify and apply appropriate use of grammar and mechanics.

Students generate a research question on a topic but ineffectively locate and use information, or imprecisely use graphic features, to interpret the text.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Grade 5 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically interpret the remainder of division problems within the context of the problem. Students order decimals, fractions, and whole numbers. Students evaluate complex expressions, equations, and inequalities. Students construct geometric figures and identify them in various contexts. Students compare the volume, perimeter, or surface area of geometric figures. Students analyze complex graphs. Students solve complex and non-routine real-world problems, draw logical conclusions, and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically estimate and solve division problems with the remainder represented as a fraction or decimal. Students generate equivalent decimals and fractions, represent whole numbers or decimals, and compare fractions and decimals, including mixed numbers. Students estimate, add, and subtract decimals and fractions. Students describe patterns of change and graph these patterns as ordered pairs on a coordinate plane. Students evaluate expressions, equations, and inequalities. Students solve volume and perimeter problems and simple surface area problems. Students determine reasonable values for the perimeter of shapes with curves. Students compare angles. Students recognize relationships within a measurement system. Students determine the mean, median, mode, and range of a data set and analyze simple graphs. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level estimate and solve division problems with remainders and solve addition and subtraction real-world problems. Students recognize basic equivalent decimals and fractions, represent whole numbers, and compare and order fractions or decimals. Students add and subtract decimals and fractions with like denominators. Students describe simple patterns of change and identify ordered pairs on a coordinate plane. Students evaluate simple equivalent numerical expressions or equations. Students describe and classify geometric figures. Students solve simple volume and perimeter problems. Students choose an appropriate instrument to measure objects and read and analyze the length of objects. Students read and analyze the measure of angles. Students read simple graphs.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 5 Science Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically analyze scale, proportion, quantity and patterns when performing computational thinking to complex data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon and stars. Students predict, modify, and extend complex models at various scales to analyze the movement of matter and energy between organisms, ecosystems, and Earth's systems, and analyze the outcomes of these interactions. Students analyze and compare evidence, data, and models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity, how scale and proportion affect the apparent brightness of the sun and other stars/ and/or how plants use matter (chiefly air and water) to grow. Students observe and measure phenomenon to interpret and evaluate patterns that classify materials based on properties. Students can describe complex cause and effect relationships when mixing substances within an investigation framework.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically describe, use and/or develop basic models at various scales to explain the movement of matter and energy between organisms, ecosystems, and Earth's systems and explain the outcomes of these interactions. Students apply scale, proportion, quantity, and/or patterns when performing computational thinking to data as it pertains to distribution of water on Earth, conservation of matter, and Earth's relationship with the sun, moon, and stars. Students use evidence, data, and/or models to engage in argument to explain the cause and effect relationships between an object and Earth's gravity, how scale and proportion affect the apparent brightness of the sun and other stars, or how plants use matter (chiefly air and water) to grow. Students observe and measure phenomenon to identify patterns that classify materials based on properties. Students can describe cause and effect relationships when mixing substances within an investigation framework.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level identify basic models to represent common features of matter and/or energy, ecosystems, and/or Earth's systems. Students recognize scale, proportion, quantity, or patterns when performing basic computations with data as it pertains to distribution of water on Earth, conservation of matter, and/or Earth's relationship with the sun, moon, and stars. Students identify evidence, data, or models to distinguish relationships between an object and Earth's gravity, how basic scale and proportion affect the brightness of the sun and other stars, or how plants use air and water. Students will observe or measure phenomenon to recognize patterns of materials. Students can identify basic relationships when mixing substances within an investigation framework.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive science instruction.

Grade 5 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level analyze how summaries reflect a meaningful, text-based sequence of the main idea and supporting details. Students compare and contrast details in literary and nonfiction/informational texts to describe and analyze genres. Students consistently recognize the paraphrase of original text. Students evaluate and analyze literary devices, author's purpose, point of view, and accuracy of fact to interpret the meaning of the text as a whole. Students consistently compare and contrast texts, and ideas within and between texts, to support inferences.

Students consistently engage in a recursive writing process to create purposeful and organized written works. Students create thoroughly organized and engaging written works by selecting and applying the organizational structure that best fits the mode, purpose, and audience.

Students skillfully use vocabulary knowledge and resources to analyze complex text through word parts, word relationships, and context clues. Students consistently use appropriate and meaningful vocabulary to enhance clarity and effectiveness in their writing.

Students consistently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students consistently locate, record, and organize relevant and reliable information on a topic in order to synthesize and clearly present findings.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically identify objective text-based summaries that include main idea, supporting details, and a logical sequence of events. Students compare and contrast details in literary and nonfiction/informational texts to classify genres. Students recognize the paraphrase of original text most of the time. Students explain how literary elements, literary devices, author's purpose, point of view, accuracy of facts, and text structure contribute to the meaning of the text. Students compare and contrast texts and ideas within and between texts.

Students engage in a recursive writing process to create purposeful written works. Students select and apply the organizational structure that best fits the mode, purpose, and audience.

Students use vocabulary knowledge and resources to interpret text through word parts, word relationships, and context clues. Students use appropriate vocabulary to write clearly and effectively.

Students frequently identify and apply appropriate use of grammar and mechanics to provide clarity and enhance communication.

Students adequately locate, record, and organize relevant and reliable information on a topic in order to present findings.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level inconsistently choose the best summary of the text and have difficulty differentiating main ideas from details. Students compare and contrast details in literary and nonfiction/informational texts but inconsistently classify genres. Students seldom identify the paraphrase of original text. Students identify literary elements, literary devices, author's purpose, point of view, or accuracy of fact. Students inconsistently compare and contrast texts and ideas within or between texts.

Students inconsistently engage in a recursive writing process to create written works. Students create written works for various purposes and audiences but inconsistently select and apply an organizational structure that fits the writing task.

Students inconsistently use vocabulary knowledge and resources to interpret text through word parts, word relationships, or context clues. Students inconsistently use appropriate vocabulary in written works.

Students inconsistently identify and apply appropriate use of grammar and mechanics.

Students ineffectively locate, record, and organize information on a topic in order to present findings.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Grade 6 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically estimate and solve complex problems requiring unit conversions. Students use the distance between points and transformations to solve complex problems involving congruent figures. Students analyze the differences between two outcomes of simple experiments. Students solve complex and non-routine real-world problems, draw logical conclusions, and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level estimate, illustrate, and simplify the addition and subtraction of integers and assess the reasonableness of an answer. Students solve ratio and unit rate problems. Students estimate and illustrate the multiplication and division of non-negative rational numbers. Students evaluate the validity of the value of a variable. Students generate expressions, equations, and inequalities. Students interpret the solution of an equation and assess the reasonableness of the solution. Students determine the area of polygons and composite figures. Students use relationships between angles and the triangle sum theorem to solve problems. Students estimate and solve problems requiring unit conversion. Students predict transformations, analyze lines of symmetry, and use the distance between points and transformations to solve problems involving congruent figures. Students explain and justify which measure of central tendency provides the most descriptive information for a data set. Students create and analyze box-and-whisker plots and explain and compare possible outcomes of simple experiments. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level read, order, represent, and explain rational numbers expressed as fractions, decimals, percents, and ratios. Students write positive integers as products of factors. Students illustrate or simplify the addition and subtraction of integers. Students identify and compare quantities, determine unit rates, and find equivalent fractions and percents. Students multiply and divide non-negative rational numbers. Students graph ordered pairs in all quadrants. Students represent reflective relationships between varying quantities. Students evaluate the value of a variable in expressions, equations, and inequalities. Students use number sense and properties of operations to solve equations and graph the solution. Students determine the area of parallelograms and triangles. Students identify angle relationships by name. Students identify and display the effect of transformations. Students identify lines of symmetry. Students calculate measures of central tendency, determine the sample space of simple experiments, and identify possible outcomes.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 6 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level will thoroughly comprehend, interpret, evaluate, and respond to a variety of increasingly complex texts of all literary and informational genres. Students skillfully create an objective summary including main idea and supporting details. Students effectively paraphrase main ideas with supporting details in a text. Students thoroughly compare and contrast stated or implied purposes of authors' writing. Students thoroughly evaluate literary devices, points of view, and perspectives, and they explicitly analyze how authors use key literary elements to contribute to the meaning of the text. Students consistently categorize facts included in an argument. Students analyze and evaluate complex textual evidence to support inferences and understanding within and between varied texts.

Students effectively engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In opinion writing, students strategically state an opinion supported with facts and details. Students use fully developed, complex ideas, thorough organization, purposeful word choice, a variety of fluent sentences, and appropriate voice.

Students skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer complex relationships among words with multiple meanings. Students select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a strong command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students thoroughly comprehend, evaluate, and synthesize resources. Students skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically comprehend, interpret, evaluate, and respond to a variety of complex texts of all literary and informational genres. Students create an objective summary including main idea and supporting details. Students paraphrase main ideas with supporting details in a text. Students compare and contrast stated or implied purposes of authors' writing. Students evaluate literary devices, points of view, and perspectives, and they analyze how authors use key literary elements to contribute to the meaning of the text. Students categorize facts included in an argument. Students analyze textual evidence to support inferences and understanding within and between texts.

Students engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim and organize reasons and evidence. Students use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

Students use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer the relationships among words with multiple meanings. Students select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions to find information on a topic. Students record and organize information from various sources. Students comprehend, evaluate, and synthesize resources. Students summarize and integrate information following a citation style with guidance and support. Students summarize and present information in a report.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills. Students create a summary including main idea and limited supporting details. Students inconsistently paraphrase main ideas with limited supporting details in a text. Students inconsistently compare and contrast stated or implied purposes of authors' writing. Students inconsistently identify literary devices, points of view, and perspectives, and they describe how authors use key literary elements. Students inconsistently categorize facts included in an argument. Students inconsistently identify limited textual evidence to support inferences between texts.

Students inconsistently engage in a writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In opinion writing, students inconsistently state an opinion supported with limited facts and details. Students use partially developed ideas, weak organization, and ineffective word choice, sentences, and voice.

Students ineffectively use context clues, word parts, and reference tools to determine the meaning of words. Students may or may not infer the relationships among words with multiple meanings. Students use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.

Students inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a limited command of Standard English grammar, mechanics, and usage.

Students may not recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students partially comprehend, evaluate, and synthesize resources. Students ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Grade 7 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically interpret equations and inequalities involving variables and rational numbers. Students make connections between circumference and area to solve problems involving circles. Students analyze, apply, and display the effect of dilations and multiple transformations. Students use central tendencies and range, predict data and select an appropriate data display, and predict theoretical probability. Students solve complex and non-routine real-world problems, draw logical conclusions, and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically estimate solutions of problems involving rational numbers and assess the reasonableness of the solutions. Students differentiate between proportional and inversely proportional relationships and identify the constant of proportionality. Students represent proportional relationships in a variety of ways. Students use representations to identify and compare unit rates. Students solve problems involving proportional relationships and assess the reasonableness of solutions. Students represent, solve, and write equations. Students solve simple inequalities. Students generate and evaluate equivalent expressions with justification of steps. Students interpret theoretical probability and draw conclusions. Students apply the effect of dilations and transformations. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level recognize, compare, and order rational numbers. Students create equivalent representations of rational numbers. Students calculate and model mathematical problems involving rational numbers and exponents. Students calculate the absolute value of a rational number. Students describe and identify a proportional relationship. Students identify and solve problems involving ratios and unit rates. Students represent, solve, and write simple equations. Students represent, write, and graph simple inequalities. Students evaluate expressions using the order of operations. Students determine the surface area and volume of rectangular prisms and calculate the area and perimeter of trapezoids. Students calculate the circumference and area of circles. Students describe the effect of dilations and transformations. Students calculate the measures of central tendencies and range and determine appropriate data displays. Students calculate theoretical probability.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 7 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level thoroughly comprehend, interpret, evaluate, and respond to a variety of increasingly complex texts of all literary and informational genres. Students skillfully create an objective summary including main idea and supporting details. Students effectively paraphrase main ideas with supporting details in a text. Students thoroughly compare and contrast stated or implied purposes of authors' writing. Students thoroughly evaluate literary devices, points of view, and perspectives, and they explicitly analyze how authors use key literary elements to contribute to the meaning of the text. Students consistently distinguish factual claims from opinions. Students analyze and evaluate complex textual evidence to support inferences and draw logical conclusions between and across multiple and varied texts.

Students effectively engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students strategically introduce a claim and organize well-developed reasons and evidence. Students use fully developed, complex ideas, thorough organization, purposeful word choice, a variety of fluent sentences, and appropriate voice.

Students skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer complex relationships among words with multiple meanings. Students select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a strong command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students thoroughly comprehend, evaluate, and synthesize resources. Students skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically read and comprehend increasingly complex literary and informational texts. Students create an objective summary including main idea and supporting details. Students paraphrase main ideas with supporting details in a text. Students compare and contrast stated or implied purposes of authors' writing. Students evaluate literary devices, points of view, and perspectives, and they analyze how authors use key literary elements to contribute to the meaning of the text. Students distinguish factual claims from opinions. Students analyze and evaluate textual evidence to support inferences and draw simple, logical conclusions between and across multiple texts.

Students engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim and organize reasons and evidence. Students use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

Students use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer the relationships among words with multiple meanings. Students select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students comprehend, evaluate, and synthesize resources. Students summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills. Students create a summary including main idea and limited supporting details. Students inconsistently paraphrase main ideas with limited supporting details in a text. Students inconsistently compare and contrast stated or implied purposes of authors' writing. Students inconsistently identify literary devices, points of view, and perspectives, and they describe how authors use key literary elements. Students inconsistently distinguish factual claims from opinions. Students inconsistently identify limited textual evidence to support inferences and draw weak conclusions between texts.

Students inconsistently engage in a writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim, reasons, and evidence. Students use partially developed ideas, weak organization, and ineffective word choice, sentences, and voice.

Students ineffectively use context clues, word parts, and reference tools to determine the meaning of words. Students may or may not infer the relationships among words with multiple meanings. Students use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.

Students inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a limited command of Standard English grammar, mechanics, and usage.

Students may not recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students partially comprehend, evaluate, and synthesize resources. Students ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Grade 8 Mathematics Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically generate, simplify, and evaluate complex equivalent expressions. Students make connections between volume and surface area to solve problems involving solids and compare the volume and surface area of different solids. Students describe the impact on central tendencies of a data set with multiple outliers and when inserting or deleting multiple data points. Students solve complex and non-routine real-world problems, draw logical conclusions and justify solutions.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically generate, simplify, and evaluate equivalent expressions. Students classify and explain operational closure of rational and irrational numbers. Students distinguish between a linear and nonlinear function. Students identify independent and dependent variables. Students describe, analyze, and represent linear functions with two variables and translate between representations. Students use and apply the Pythagorean Theorem. Students describe the impact on central tendencies of a data set with an outlier and when inserting or deleting a data point. Students interpret a scatterplot, determine the rate of change, and use a line of best fit to make predictions. Students calculate, interpret, and predict experimental probability and generalize samples to populations. Students solve real-world problems and employ problem-solving strategies of identifying and using appropriate information.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level simplify and generate simple equivalent expressions, including expressions in scientific notation. Students translate between standard form and scientific notation. Students identify and compare real numbers. Students recognize if a graph represents a linear function. Students identify intercepts and slope from the graph of a line. Students identify the effect on the graph of a linear function when characteristics are changed. Students solve and graph equations and inequalities. Students use the Pythagorean Theorem to identify right triangles and to find the length of the hypotenuse. Students calculate the surface area and volume of solids. Students identify the outliers of a data set. Students identify the line of best fit from a given scatterplot and determine if the rate of change is positive or negative. Students calculate the experimental probability of single events, identify sample spaces, and classify events as independent or dependent.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive mathematical instruction.

Grade 8 Science Performance Level Descriptors

Advanced: Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically evaluate, revise, or develop a model from evidence, or apply models to complex concepts involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems. Students design, evaluate, or modify investigations about stability and change of forces and motion, or analyze and draw conclusions from patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards. Students modify, synthesize, or apply a design solution, or evaluate evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions. Students analyze, infer, relate, or identify complex relationships within a system to construct or evaluate explanations for evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.

Proficient: Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically make predictions about, describe, develop, or use a given model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems. Students identify, describe, or explain how to plan or perform investigations about stability and change of forces and motion, or identify and apply patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards. Students use, describe, or explain a design solution, or identify evidence of relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions. Students construct explanations by identifying, describing, or comparing evidence of anatomy and common ancestry of organisms, or aspects of Earth systems including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.

Basic: Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level identify or describe basic components or concept(s) of a model involving conservation of matter in chemical reactions, patterns in the structure and function of waves, or stability and change at varying scales in Earth's systems. Students identify or describe basic steps or processes within investigations about stability and change of forces and motion, or identify and define patterns in data about common ancestry and diversity of organisms, the geologic history of Earth, or natural hazards. Students identify components of a design solution or describe simple relationships within a design solution in various systems involving energy transfer in chemical reactions or forces in collisions. Students identify or describe basic relationships shown in

evidence of anatomy and common ancestry of organisms, or aspects of Earth systems, including geologic history, materials and processes, natural resources, or human impacts on those systems using the concept of patterns in cause and effect relationships or the concept of scale and proportion.

Below Basic: Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive science instruction.

Grade 8 English Language Arts Performance Level Descriptors

***Advanced*:** Students demonstrate superior performance on challenging subject matter. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the **Advanced** level typically thoroughly comprehend, interpret, evaluate, and respond to literary and informational texts, applying critical thinking skills. Students skillfully evaluate literary devices, points of view, and perspectives, and they skillfully analyze how authors use key literary elements to contribute to the meaning of the text. Students explicitly analyze and evaluate textual evidence to support inferences and conclusions between and across multiple texts.

Students effectively engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim, counterclaim, and support with logical reasons and evidence. Students synthesize fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

Students skillfully use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer complex relationships among words with multiple meanings. Students select precise vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students intentionally apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a strong command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students thoroughly comprehend, evaluate, and synthesize resources. Students skillfully summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Proficient*:** Students demonstrate mastery over appropriate grade-level subject matter and readiness for the next grade level. Students scoring at the **Proficient** level typically read, comprehend, interpret, evaluate, and respond to literary and informational texts, applying critical thinking skills. Students evaluate literary devices, points of view, and perspectives, and they analyze how authors use key literary elements to contribute to the meaning of the text. Students analyze and evaluate textual evidence to support inferences and conclusions between and across multiple texts.

Students engage in a recursive writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim, recognize a claim from an opposing viewpoint, and organize reasons and evidence. Students use fully developed ideas, strong organization, well-chosen words, fluent sentences, and appropriate voice.

Students use context clues, word parts, and reference tools to determine or clarify the meaning of words. Students infer the relationships among words with multiple meanings. Students select vocabulary to communicate ideas in writing and to create a specific effect according to a purpose.

Students apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a command of Standard English grammar, mechanics, and usage.

Students recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students comprehend, evaluate, and synthesize resources. Students summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Basic*:** Students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level. Students scoring at the **Basic** level partially comprehend, interpret, evaluate, and respond to literary and informational texts, applying limited critical thinking skills. Students inconsistently evaluate literary devices, points of view, and perspectives, and they inconsistently analyze how authors use key literary elements to contribute to the meaning of the text. Students inconsistently analyze and evaluate textual evidence to support inferences and conclusions between or across multiple texts.

Students inconsistently engage in a writing process to compose narrative, informative, and argumentative responses for varied purposes and audiences. In argumentative writing, students introduce a claim and provide reasons and evidence. Students use partially developed ideas, weak organization, ineffective word choice, basic sentences, or inconsistent voice.

Students ineffectively use context clues, word parts, and reference tools to determine the meaning of words. Students may or may not infer the relationships among words with multiple meanings. Students use a limited vocabulary to communicate ideas in writing and to create an effect according to a purpose.

Students inconsistently apply knowledge of grammar and rhetorical style to analyze and evaluate a variety of texts in reading and writing. Students demonstrate a limited command of Standard English grammar, mechanics, and usage.

Students may not recognize viable research questions and well-developed thesis statements to find information on a specific topic. Students partially comprehend, evaluate, and synthesize resources. Students ineffectively summarize and paraphrase, integrate evidence, and cite sources to create written works for multiple purposes.

***Below Basic*:** Students have not performed at least at the Basic level. Students scoring at the **Below Basic** level should be given comprehensive reading instruction.

Oklahoma Grade 11 Life Science

Performance Level Descriptor Tables

Advanced

Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. Students scoring at the Advanced level:

- develop and use models to interpret and evaluate components and relationships among components within and between complex systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems and/or energy in chemistry processes.
- plan and conduct investigations to produce reliable data considering the types, amounts, and accuracy of data needed; analyze and interpret complex data sets to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- ask questions to analyze relationships about the effect of structure and function on inheritance of traits; or support and/or evaluate the merits of arguments to synthesize and communicate understanding and defend them based on empirical evidence about stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.
- construct, evaluate, make inferences and revise an explanation based on valid and reliable evidence from a variety of sources regarding the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or evaluate or refine explanations derived from evidence from a variety of sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Proficient

Students demonstrate mastery with subject matter and exhibit readiness for college and career. Students scoring at the Proficient Level:

- develop and use models to describe components and relationships among the components of a system, related to structure and function, growth and development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer In ecosystems, and energy in chemistry processes, including hierarchical structures and inputs and outputs of a system. Use the models to represent basic aspects of phenomena that result from changes in energy and matter.
- plan and conduct investigations to produce reliable data; analyze and interpret provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- ask questions to clarify relationships about the effect of structure and function on inheritance of traits; or evaluate arguments based on evidence as

students synthesize and communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.

- construct an explanation based on valid and reliable evidence from sources of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or construct and revise explanations derived from evidence from a variety of sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Basic:

Students demonstrate partial mastery with subject matter and may not exhibit readiness for college and career.
Students scoring at the Basic level typically:

- identify or describe basic components or relationships among components within systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, or energy in chemistry processes.
- conduct investigations to produce data; use provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- ask questions to identify relationships about the effect of structure and function on inheritance of traits; or describe arguments based on evidence as students communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.
- identify and describe basic relationships based on evidence of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or identify and describe explanations from evidence for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

Below Basic

Students scoring **Below Basic** have not demonstrated they can perform at the Basic level. Students scoring at the Basic Level**:**

- identify or describe basic components or relationships among components within systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, or energy in chemistry processes.
- conduct investigations to produce data; use provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- ask questions to identify relationships about the effect of structure and function on inheritance of traits; or describe arguments based on evidence

as students communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.

- identify and describe basic relationships based on evidence of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or identify and describe explanations from evidence for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

LS1-2 **LS1-4** **LS1-5** **LS1-7** **LS2-5**	**Below Basic** Students have not performed at least at the Basic level.	**Basic** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR)	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR)	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Develop and Use Models **DCI** • LS1.A Structure and function • LS1.B Growth and Development of Organisms • LS1.C Organization for Matter and Energy Flow in Organisms • LS2.B Cycles of matter and Energy Transfer In Ecosystems • PS3.D Energy in Chemistry Processes **CCC** • Systems and System Models • Energy and matter		**Students scoring at the Basic level typically identify or describe basic components or relationships among components within systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, or energy in chemistry processes.**	**Students scoring at the Proficient level typically develop and use models describing components and relationships among components of a system, related to structure and function, growth and development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer In ecosystems, and energy in chemistry processes, including hierarchical structures and inputs and outputs of a system. Use the models to represent basic aspects of phenomena that result from changes in energy and matter.**	**Students scoring at the Advanced level typically develop and use models to interpret and evaluate components and relationships among components within and between complex systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, and/or energy in chemistry processes.**

LS1-3 **LS2-1** **LS2-2** **LS2-4** **LS3-3** **LS4-1** **LS4-3**	**Below Basic:** Students have not performed at least at the Limited Knowledge level.	**Basic** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR)	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR)	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Planning and Carrying Out Investigations, Using Mathematics and Computational Thinking, Analyzing and Interpreting Data **DCI** • LS1.A Structure and Function • LS2.A Interdependent Relationships in Ecosystems • LS2.B Cycles of Matter and Energy Transfer in Ecosystems • LS2.C Ecosystem Dynamics, Functioning and Resilience • LS3.B Variation of Traits • LS4.A Evidence of Common Ancestry and Diversity • LS4.B Natural Selection • LS4.C Adaptation **CCC** • Patterns • Scale, Proportion, Quantity • Energy and matter • Stability and Change		**Students scoring at the Limited Knowledge level typically conduct investigations to produce data; use provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.**	**Students scoring at the Proficient level typically plan and conduct investigations to produce reliable data; analyze and interpret provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.**	**Students scoring at the Advanced level typically plan and conduct investigations; produce reliable data considering the types, amounts, and accuracy of data needed; analyze and interpret complex data sets to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.**

LS2-6 **LS2-8** **LS3-1** **LS3-2** **LS4-5**	**Limited Knowledge:** Students have not performed at least at the Limited Knowledge level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR)	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR)	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Asking Questions, Engaging in Argument from Evidence (make and defend a claim, evaluate a claim) **DCI** • LS2.C Ecosystem dynamics, functioning and resilience • LS2.D Social interactions and group behavior • LS3.A Inheritance of traits • LS1.A Structure and function • LS3.B Variation of traits • LS4.C Adaptation **CCC** • Stability and change • Cause and effect		**Students scoring at the Basic level typically ask questions to identify relationships demonstrating how cause of structure and function affect inheritance of traits; or describe arguments based on evidence to communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.**	**Students scoring at the Proficient level typically ask questions to clarify relationships demonstrating how cause of structure and function affect inheritance of traits; or evaluate arguments based on evidence as students synthesize and communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.**	**Students scoring at the Advanced level typically ask questions to analyze relationships demonstrating how cause of structure and function affect inheritance of traits; or support, evaluate, and defend arguments based on evidence as students synthesize and communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.**

LS1-1 **LS1-6** **LS2-3** **LS4-2** **LS4-4**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR)	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR)	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Constructing Explanations **DCI** • LS1.A Structure and function • LS1.C Organization for matter and energy flow in organisms • LS2.B Cycles of matter and energy transfer in ecosystems • LS4.B Natural selection • LS4.C Adaptation **CCC** • Structure and function • Energy and matter • Cause and effect		**Students scoring at the Basic level typically identify and describe basic relationships based on evidence of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or identify and describe explanations from evidence for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.**	**Students scoring at the Proficient level typically construct an explanation based on valid and reliable evidence from sources of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or construct and revise explanations from evidence from sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.**	**Students scoring at the Advanced level typically construct, evaluate, or draw inferences from an explanation based on valid and reliable evidence from a variety of sources of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or evaluate or refine explanations from evidence from a variety of sources for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.**

NAEP grade 12 Performance Level Descriptors with content extracted. NAEP only assesses science at grade 12 in high school.		
Limited Knowledge	Proficient	Advanced
Students performing at the Limited Knowledge level should be able to describe, measure, classify, explain, and predict phenomena at multiple scales, from atomic/molecular to interstellar. They should be able to design and critique observational and experimental studies, and they should be able to propose and critique solutions to problems at local or regional scales.	Students preforming at the Proficient level should be able to demonstrate relationships and compare alternative models, predictions, and extrapolations. They should be able to design and critique observational and experimental studies, controlling multiple variables; use scientific models to explain results; and choose among alternative conclusions based on the arguments from evidence. They should be able to compare scientific costs or risks and benefits of alternative solutions to problems at local or regional scales.	Students performing at the Advanced level should be able to use alternative models to generate predictions and explanations. They should be able to explain differences, use evidence, and be able to design and critique investigations that relate data to alternative models of phenomena. They should be able to compare costs or risks and benefits of alternative solutions to problems at local, regional, and global scales.

Oklahoma Grade 11 Physical Science

Performance Level Descriptor Tables

Name: _____

Advanced

Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically:

- evaluate multiple patterns to develop and use models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use complex mathematical models and plan and conduct investigations to produce and refine reliable data considering the types, amounts, accuracy, and limitations of data needed; analyze and interpret complex data sets to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and reliability of complex claims about the effects of electromagnetic radiation on matter from a variety of published sources, including complex texts.
- construct, evaluate, make inferences, and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design, refine, and evaluate solutions, taking into account unanticipated effects around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Proficient

Students demonstrate mastery with subject matter and exhibit readiness for college and career. In addition to demonstrating understanding and application of all skills in the Basic Level, students scoring at the Proficient Level typically:

- use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use mathematical models and plan and conduct investigations to produce and use reliable data to serve as a basis for evidence to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and reliability of claims about the effects of electromagnetic radiation on matter from a variety of published sources.
- construct and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design and refine solutions around defining and delimiting engineering problems and interdependence of science, engineering, and

technology.

Basic

Students demonstrate partial mastery with subject matter and may not exhibit readiness for college and career. Students scoring at the Basic level typically:

- use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

Below Basic

Students scoring **Below Basic** have not demonstrated they can perform at the Basic level. Students scoring at the Basic Level:

- use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.

PS1-1 **PS3-2**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Develop and Use Models **DCI** • PS1.A Structure and Properties of Matter • PS3.A Definitions of Energy **CCC** • Patterns • Energy and Matter		**Students scoring at the Basic level typically use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**	**Students scoring at the Proficient level typically use patterns and models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**	**Students scoring at the Advanced level typically evaluate multiple patterns to develop and use models to predict how components between or within systems are related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.**

PS1-7 **PS2-5** **PS3-1** **PS3-4** **PS4-1**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Planning and Carrying Out Investigations, Using Mathematics and Computational Thinking **DCI** • PS1.B Chemical Reactions • PS2.B Types of Interactions • PS3.A Definitions of Energy • PS3.B Conservation of Energy and Energy Transfer • PS4.A Wave Properties **CCC** • Energy and Matter • Cause and Effect • Systems and System Models		**Students scoring at the Basic level typically use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**	**Students scoring at the Proficient level typically use mathematical models and plan and conduct investigations to produce and use reliable data to serve as a basis for evidence to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**	**Students scoring at the Advanced level typically use complex mathematical models and plan and conduct investigations to produce and refine reliable data considering the types, amounts, accuracy and limitations of data needed; analyze and interpret complex data sets to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.**

PS4-4	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Obtaining, Evaluating, and Communicating Information **DCI** • PS4.B Electromagnetic Radiation **CCC** • Cause and Effect		**Students demonstrate partial mastery of the essential knowledge and skills appropriate to college and career readiness. Students scoring at the Basic level typically evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.**	**Students demonstrate mastery with subject matter and exhibit readiness for college and career. Students scoring at the Proficient level typically evaluate the validity and reliability of claims about the effects of electromagnetic radiation on matter from a variety of published sources.**	**Students demonstrate superior performance on challenging subject matter and clearly exhibit readiness for college and career. In addition to demonstrating a broad and in-depth understanding and application of all skills at the Proficient level, students scoring at the Advanced level typically evaluate the validity and reliability of complex claims about the effects of electromagnetic radiation on matter from a variety of published sources, including complex texts.**

PS1-2 **PS1-5** **PS3-3**	**Below Basic:** Students have not performed at least at the Basic level.	**Basic:** Students demonstrate partial mastery of the essential knowledge and skills that are foundational for proficient work at their grade level or course and that students are not on track to be career and college ready (CCR).	**Proficient:** Students demonstrate mastery over challenging grade-level subject matter, can analyze and apply such knowledge to real-world situations, are ready for the next grade, course, or level, and are on-track to be career and college ready (CCR).	**Advanced:** Students demonstrate superior performance on challenging subject matter.
Constructing Explanations and Designing Solutions **DCI** • PS1.A Structure and Properties of Matter • PS1.B: Chemical Reactions • PS3.A Definitions of Energy • ETS1.A Defining and Delimiting Engineering Problems • ETS2.B Interdependence of Science, Engineering, and Technology **CCC** • Patterns • Energy and Matter		**Students scoring at the Basic level typically identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**	**Students scoring at the Proficient level typically construct and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design and refine solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**	**Students scoring at the Advanced level typically construct, evaluate, make inferences, and revise an explanation based on scientific principles using valid and reliable evidence obtained from a variety of sources to identify patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter in order to design, refine, and evaluate solutions taking into account unanticipated effects around defining and delimiting engineering problems and interdependence of science, engineering, and technology.**

APPENDIX E—EVALUATION RESULTS

Training Evaluation Results

	N	Average	%SD	%D	%N	%A	%SA
I understand the goals of the standard setting meeting	12	4.92	0%	0%	0%	8%	92%
I understand the procedures we are using to set standards	12	4.67	0%	0%	0%	33%	67%
I understand how to use the standard setting materials	12	4.67	0%	0%	0%	33%	67%
I understand the differences between the performance levels	12	4.58	0%	0%	0%	42%	58%
I understand how to make the bookmark placements	12	4.83	0%	0%	0%	17%	83%
I know what tasks to expect for the remainder of the meeting	12	4.42	0%	0%	8%	42%	50%
I am confident in my understanding of the standard setting task	12	4.67	0%	0%	0%	33%	67%
I am ready to proceed with the standard setting process	12				100%		

Procedural Evaluation Results

	N	Average	%SD	%D	%N	%A	%SA
I understood how to make the bookmark placements	12	4.92	0%	0%	0%	8%	92%
I understood how to use the materials provided	12	4.92	0%	0%	0%	8%	92%
I understood how to record my judgments	12	4.75	0%	0%	0%	25%	75%
I thought the procedures made sense	12	4.67	0%	0%	8%	17%	75%
I was sufficiently familiar with the assessment	12	4.5	0%	0%	8%	33%	58%
I understood the differences between the performance levels	12	4.67	0%	0%	0%	33%	67%

Final Evaluation Results

			Not Useful at All				Extremely Useful
Please rate the usefulness of each of the following	**N**	**Average**	**1**	**2**	**3**	**4**	**5**
The opening session	12	4.92	0%	0%	0%	8%	92%
Completing the practice test	12	4.92	0%	0%	0%	8%	92%
Completing the item map	12	4.92	0%	0%	0%	8%	92%
Discussions with other participants	12	4.92	0%	0%	0%	8%	92%
Impact data	12	4.92	0%	0%	0%	8%	92%

Please rate the usefulness of each of the following	N	Average	Not at all influential 1	2	3	4	Extremely Influential 5
The Performance Level Definitions	12	4.92	0%	0%	0%	8%	92%
My expectations of students	12	4.33	0%	0%	17%	33%	50%
The difficulty of the test materials	12	4.17	8%	0%	8%	33%	50%
My experience in the field	12	4.58	0%	0%	8%	25%	67%
Discussions with other participants	12	4.67	0%	0%	8%	17%	75%
Decisions of other participants	12	4	0%	8%	8%	58%	25%
Impact data	12	3.92	8%	0%	25%	25%	42%

	N	Average	%SD	%D	%N	%A	%SA
I understood the goals of the standard setting meeting	12	4.75	0%	0%	0%	25%	75%
The facilitator helped me understand the process	12	4.92	0%	0%	0%	8%	92%
The materials contained the information needed to set standards	12	4.83	0%	0%	8%	0%	92%
I understood how to use the impact data	12	4.58	0%	0%	8%	25%	67%
I understood how the cut scores were calculated	12	4.42	0%	8%	0%	33%	58%
The facilitator was able to provide answers to my questions	12	5	0%	0%	0%	0%	100%
Sufficient time was allotted for training on the standard setting tasks	12	4	0%	8%	17%	42%	33%
Sufficient time was allotted to complete the standard setting tasks	12	4.25	0%	8%	8%	33%	50%
The facilitator helped the standard setting process run smoothly	12	5	0%	0%	0%	0%	100%
Overall, the standard setting process produced credible results	12	4.92	0%	0%	0%	8%	92%

Do you believe the final recommended cut score for each performance level was Too Low, Somewhat Low, About Right, Somewhat High, or Too High?	N	Average	%TL	%SL	%AR	%SH	%TH
Advanced / Proficient	12	3	0%	0%	100%	0%	0%
Proficient / Basic	12	2.92	0%	8%	92%	0%	0%
Basic / Below Basic	12	2.92	0%	8%	92%	0%	0%

Demographics and Professional Experience

Panelist Demographics	**Count (N=12)**	**%**
Gender:		
Male	3	25.00%
Female	9	75.00%
Race/Ethnicity:		
White	11	91.67%
Black		0.00%
Hispanic		0.00%
Asian		0.00%
Pacific Islander		0.00%
American Indian	1	8.33%
Professional Experience:		
Students with Disabilities	1	8.33%
Students with Limited English Proficiency	1	8.33%
Economically Disadvantaged Students	3	25.00%
Gifted and Talented Students	7	58.33%
General Education	12	100.00%

APPENDIX F—STANDARD SETTING RESULTS

Table F-1. 2017 OK Standard Setting Report: Round 1 CCRA Physical Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	0.3442	0.1432	0.0964	16.55%	40.49%
Proficient	0.8227	0.0838	0.4785	13.83%	23.94%
Advanced	1.3836	0.1416	0.2322	10.11%	10.11%

Table F-2. 2017 OK Standard Setting Report: Round 1 CCRA Life Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	-0.2795	0.2642	0.4274	31.00%	66.03%
Proficient	0.5126	0.0472	1.0483	26.00%	35.03%
Advanced	1.4509	0.1408	0.1886	9.03%	9.03%

Table F-3. 2017 OK Standard Setting Report: Round 2 CCRA Physical Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	0.3442	0.0604	0.1351	16.55%	40.49%
Proficient	0.8577	0.0567	0.4960	16.03%	23.94%
Advanced	1.5050	0.0319	0.0183	7.91%	7.91%

Table F-4. 2017 OK Standard Setting Report: Round 2 CCRA Life Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	0.1684	0.1064	0.0825	16.33%	46.69%
Proficient	0.6290	0.0576	0.6404	20.25%	30.36%
Advanced	1.4265	0.0246	0.0527	10.11%	10.11%

Table F-5. 2017 OK Standard Setting Report: Round 3 CCRA Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	0.3056	0.0258	0.1017	17.48%	43.47%
Proficient	0.8021	0.0211	0.4965	18.08%	25.99%
Advanced	1.5289	0.0053	0.0000	7.91%	7.91%

Table F-6. 2017 OK Standard Setting Report: Round 4 CCRA Science

Performance Level	*Theta Cut*	*SE*	*MAD*	*At %*	*At or Above %*
Limited Knowledge	0.1684	0.0114	0.0000	20.70%	46.69%
Proficient	0.8021	0.0131	0.6337	18.08%	25.99%
Advanced	1.5289	0.0047	0.0000	7.91%	7.91%

APPENDIX G—DISAGGREGATED IMPACT DATA

Table G-1. 2019 OK Standard Setting Report: Round 1—Physical Science

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	25,968	0.5951	7,222	0.1655	6,036	0.1383	4,412	0.1011
ELL	2,027	1,874	0.9245	116	0.0572	33	0.0163	4	0.0020
ELL w Acc	461	438	0.9501	17	0.0369	5	0.0108	1	0.0022
ELL wo Acc	1,566	1,436	0.9170	99	0.0632	28	0.0179	3	0.0019
Black African American	3,751	2,945	0.7851	409	0.1090	279	0.0744	118	0.0315
American Indian Alaskan Native	6,154	4,008	0.6513	995	0.1617	754	0.1225	397	0.0645
Hispanic or Latino	7,097	4,969	0.7002	1,044	0.1471	720	0.1015	364	0.0513
Asian	1,000	442	0.4420	156	0.1560	173	0.1730	229	0.2290
Native Hawaiian or Other Pacific Islander	136	104	0.7647	18	0.1324	9	0.0662	5	0.0368
White Caucasian	22,053	11,477	0.5204	4,006	0.1817	3,609	0.1637	2,961	0.1343
Multi Racial	3,404	1,994	0.5858	588	0.1727	487	0.1431	335	0.0984
No Response	43	29	0.6744	6	0.1395	5	0.1163	3	0.0698
Foster	166	123	0.7410	16	0.0964	19	0.1145	8	0.0482
Non Foster	43,472	25,845	0.5945	7,206	0.1658	6,017	0.1384	4,404	0.1013
Female	21,813	12,994	0.5957	3,898	0.1787	3,086	0.1415	1,835	0.0841
Male	21,788	12,948	0.5943	3,319	0.1523	2,947	0.1353	2,574	0.1181
Not Indicated	37	26	0.7027	5	0.1351	3	0.0811	3	0.0811
IEP	5,971	5,169	0.8657	447	0.0749	214	0.0358	141	0.0236
IEP w Accomm	2,689	2,361	0.8780	189	0.0703	85	0.0316	54	0.0201
IEP w o Accomm	3,282	2,808	0.8556	258	0.0786	129	0.0393	87	0.0265
Military	291	133	0.4570	61	0.2096	55	0.1890	42	0.1443
Non Military	43,347	25,835	0.5960	7,161	0.1652	5,981	0.1380	4,370	0.1008
ELL 1st Yr Proficient	159	88	0.5535	37	0.2327	24	0.1509	10	0.0629
ELL 2nd Yr Proficient	87	49	0.5632	20	0.2299	10	0.1149	8	0.0920
Econ Disadv	22,230	15,306	0.6885	3,328	0.1497	2,315	0.1041	1,281	0.0576
Non Econ Disadv	21,408	10,662	0.4980	3,894	0.1819	3,721	0.1738	3,131	0.1463
Migrant	13	8	0.6154	2	0.1538	2	0.1538	1	0.0769
Non Migrant	43,625	25,960	0.5951	7,220	0.1655	6,034	0.1383	4,411	0.1011
Plan 504	1,201	674	0.5612	207	0.1724	174	0.1449	146	0.1216
Plan 504 w Accomm	167	82	0.4910	28	0.1677	30	0.1796	27	0.1617
Plan 504 w o Accomm	1,034	592	0.5725	179	0.1731	144	0.1393	119	0.1151

Table G-2. 2019 OK Standard Setting Report: Round 1—Life Science

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	14,822	0.3397	13,529	0.3100	11,348	0.2600	3,939	0.0903
ELL	2,027	1,434	0.7074	490	0.2417	99	0.0488	4	0.0020
ELL w Acc	461	341	0.7397	99	0.2148	20	0.0434	1	0.0022
ELL wo Acc	1,566	1,093	0.6980	391	0.2497	79	0.0504	3	0.0019
Black African American	3,751	1,966	0.5241	1,127	0.3005	552	0.1472	106	0.0283
American Indian Alaskan Native	6,154	2,265	0.3681	2,051	0.3333	1,497	0.2433	341	0.0554
Hispanic or Latino	7,097	3,075	0.4333	2,272	0.3201	1,444	0.2035	306	0.0431
Asian	1,000	237	0.2370	240	0.2400	311	0.3110	212	0.2120
Native Hawaiian or Other Pacific Islander	136	70	0.5147	40	0.2941	21	0.1544	5	0.0368
White Caucasian	22,053	6,061	0.2748	6,728	0.3051	6,598	0.2992	2,666	0.1209
Multi Racial	3,404	1,131	0.3323	1,057	0.3105	916	0.2691	300	0.0881
No Response	43	17	0.3953	14	0.3256	9	0.2093	3	0.0698
Foster	166	73	0.4398	53	0.3193	32	0.1928	8	0.0482
Non Foster	43,472	14,749	0.3393	13,476	0.3100	11,316	0.2603	3,931	0.0904
Female	21,813	6,953	0.3188	7,329	0.3360	5,915	0.2712	1,616	0.0741
Male	21,788	7,853	0.3604	6,188	0.2840	5,427	0.2491	2,320	0.1065
Not Indicated	37	16	0.4324	12	0.3243	6	0.1622	3	0.0811
IEP	5,971	3,776	0.6324	1,566	0.2623	500	0.0837	129	0.0216
IEP w Accomm	2,689	1,747	0.6497	681	0.2533	210	0.0781	51	0.0190
IEP w o Accomm	3,282	2,029	0.6182	885	0.2697	290	0.0884	78	0.0238
Military	291	67	0.2302	82	0.2818	107	0.3677	35	0.1203
Non Military	43,347	14,755	0.3404	13,447	0.3102	11,241	0.2593	3,904	0.0901
ELL 1st Yr Proficient	159	35	0.2201	63	0.3962	51	0.3208	10	0.0629
ELL 2nd Yr Proficient	87	27	0.3103	28	0.3218	26	0.2989	6	0.0690
Econ Disadv	22,230	9,367	0.4214	7,099	0.3193	4,657	0.2095	1,107	0.0498
Non Econ Disadv	21,408	5,455	0.2548	6,430	0.3004	6,691	0.3125	2,832	0.1323
Migrant	13	6	0.4615	3	0.2308	3	0.2308	1	0.0769
Non Migrant	43,625	14,816	0.3396	13,526	0.3101	11,345	0.2601	3,938	0.0903
Plan 504	1,201	340	0.2831	409	0.3405	318	0.2648	134	0.1116
Plan 504 w Accomm	167	36	0.2156	55	0.3293	51	0.3054	25	0.1497
Plan 504 w o Accomm	1,034	304	0.2940	354	0.3424	267	0.2582	109	0.1054

Table G-3. 2019 OK Standard Setting Report: Round 2—Physical Science

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	25,968	0.5951	7,222	0.1655	6,997	0.1603	3,451	0.0791
ELL	2,027	1,874	0.9245	116	0.0572	33	0.0163	4	0.0020
ELL w Acc	461	438	0.9501	17	0.0369	5	0.0108	1	0.0022
ELL wo Acc	1,566	1,436	0.9170	99	0.0632	28	0.0179	3	0.0019
Black African American	3,751	2,945	0.7851	409	0.1090	304	0.0810	93	0.0248
American Indian Alaskan Native	6,154	4,008	0.6513	995	0.1617	850	0.1381	301	0.0489
Hispanic or Latino	7,097	4,969	0.7002	1,044	0.1471	832	0.1172	252	0.0355
Asian	1,000	442	0.4420	156	0.1560	205	0.2050	197	0.1970
Native Hawaiian or Other Pacific Islander	136	104	0.7647	18	0.1324	13	0.0956	1	0.0074
White Caucasian	22,053	11,477	0.5204	4,006	0.1817	4,227	0.1917	2,343	0.1062
Multi Racial	3,404	1,994	0.5858	588	0.1727	560	0.1645	262	0.0770
No Response	43	29	0.6744	6	0.1395	6	0.1395	2	0.0465
Foster	166	123	0.7410	16	0.0964	20	0.1205	7	0.0422
Non Foster	43,472	25,845	0.5945	7,206	0.1658	6,977	0.1605	3,444	0.0792
Female	21,813	12,994	0.5957	3,898	0.1787	3,533	0.1620	1,388	0.0636
Male	21,788	12,948	0.5943	3,319	0.1523	3,460	0.1588	2,061	0.0946
Not Indicated	37	26	0.7027	5	0.1351	4	0.1081	2	0.0541
IEP	5,971	5,169	0.8657	447	0.0749	243	0.0407	112	0.0188
IEP w Accomm	2,689	2,361	0.8780	189	0.0703	94	0.0350	45	0.0167
IEP w o Accomm	3,282	2,808	0.8556	258	0.0786	149	0.0454	67	0.0204
Military	291	133	0.4570	61	0.2096	63	0.2165	34	0.1168
Non Military	43,347	25,835	0.5960	7,161	0.1652	6,934	0.1600	3,417	0.0788
ELL 1st Yr Proficient	159	88	0.5535	37	0.2327	26	0.1635	8	0.0503
ELL 2nd Yr Proficient	87	49	0.5632	20	0.2299	14	0.1609	4	0.0460
Econ Disadv	22,230	15,306	0.6885	3,328	0.1497	2,649	0.1192	947	0.0426
Non Econ Disadv	21,408	10,662	0.4980	3,894	0.1819	4,348	0.2031	2,504	0.1170
Migrant	13	8	0.6154	2	0.1538	2	0.1538	1	0.0769
Non Migrant	43,625	25,960	0.5951	7,220	0.1655	6,995	0.1603	3,450	0.0791
Plan 504	1,201	674	0.5612	207	0.1724	207	0.1724	113	0.0941
Plan 504 w Accomm	167	82	0.4910	28	0.1677	36	0.2156	21	0.1257
Plan 504 w o Accomm	1,034	592	0.5725	179	0.1731	171	0.1654	92	0.0890

Table G-4. 2019 OK Standard Setting Report: Round 2—Life Science

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	23,265	0.5331	7,124	0.1633	8,837	0.2025	4,412	0.1011
ELL	2,027	1,809	0.8925	144	0.0710	70	0.0345	4	0.0020
ELL w Acc	461	431	0.9349	16	0.0347	13	0.0282	1	0.0022
ELL wo Acc	1,566	1,378	0.8799	128	0.0817	57	0.0364	3	0.0019
Black African American	3,751	2,747	0.7323	460	0.1226	426	0.1136	118	0.0315
American Indian Alaskan Native	6,154	3,591	0.5835	1,012	0.1644	1,154	0.1875	397	0.0645
Hispanic or Latino	7,097	4,550	0.6411	1,066	0.1502	1,117	0.1574	364	0.0513
Asian	1,000	375	0.3750	156	0.1560	240	0.2400	229	0.2290
Native Hawaiian or Other Pacific Islander	136	96	0.7059	17	0.1250	18	0.1324	5	0.0368
White Caucasian	22,053	10,120	0.4589	3,808	0.1727	5,164	0.2342	2,961	0.1343
Multi Racial	3,404	1,760	0.5170	597	0.1754	712	0.2092	335	0.0984
No Response	43	26	0.6047	8	0.1860	6	0.1395	3	0.0698
Foster	166	107	0.6446	24	0.1446	27	0.1627	8	0.0482
Non Foster	43,472	23,158	0.5327	7,100	0.1633	8,810	0.2027	4,404	0.1013
Female	21,813	11,502	0.5273	3,903	0.1789	4,573	0.2096	1,835	0.0841
Male	21,788	11,739	0.5388	3,214	0.1475	4,261	0.1956	2,574	0.1181
Not Indicated	37	24	0.6486	7	0.1892	3	0.0811	3	0.0811
IEP	5,971	4,924	0.8247	540	0.0904	366	0.0613	141	0.0236
IEP w Accomm	2,689	2,263	0.8416	211	0.0785	161	0.0599	54	0.0201
IEP w o Accomm	3,282	2,661	0.8108	329	0.1002	205	0.0625	87	0.0265
Military	291	115	0.3952	63	0.2165	71	0.2440	42	0.1443
Non Military	43,347	23,150	0.5341	7,061	0.1629	8,766	0.2022	4,370	0.1008
ELL 1st Yr Proficient	159	74	0.4654	34	0.2138	41	0.2579	10	0.0629
ELL 2nd Yr Proficient	87	44	0.5057	17	0.1954	18	0.2069	8	0.0920
Econ Disadv	22,230	13,947	0.6274	3,419	0.1538	3,583	0.1612	1,281	0.0576
Non Econ Disadv	21,408	9,318	0.4353	3,705	0.1731	5,254	0.2454	3,131	0.1463
Migrant	13	8	0.6154	1	0.0769	3	0.2308	1	0.0769
Non Migrant	43,625	23,257	0.5331	7,123	0.1633	8,834	0.2025	4,411	0.1011
Plan 504	1,201	591	0.4921	219	0.1823	245	0.2040	146	0.1216
Plan 504 w Accomm	167	73	0.4371	28	0.1677	39	0.2335	27	0.1617
Plan 504 w o Accomm	1,034	518	0.5010	191	0.1847	206	0.1992	119	0.1151

Table G-5. 2019 OK Standard Setting Report: Round 3—Combined

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	24,671	0.5654	7,626	0.1748	7,890	0.1808	3,451	0.0791
ELL	2,027	1,849	0.9122	131	0.0646	43	0.0212	4	0.0020
ELL w Acc	461	433	0.9393	18	0.0390	9	0.0195	1	0.0022
ELL wo Acc	1,566	1,416	0.9042	113	0.0722	34	0.0217	3	0.0019
Black African American	3,751	2,851	0.7601	456	0.1216	351	0.0936	93	0.0248
American Indian Alaskan Native	6,154	3,797	0.6170	1,066	0.1732	990	0.1609	301	0.0489
Hispanic or Latino	7,097	4,781	0.6737	1,108	0.1561	956	0.1347	252	0.0355
Asian	1,000	402	0.4020	178	0.1780	223	0.2230	197	0.1970
Native Hawaiian or Other Pacific Islander	136	100	0.7353	20	0.1471	15	0.1103	1	0.0074
White Caucasian	22,053	10,818	0.4905	4,180	0.1895	4,712	0.2137	2,343	0.1062
Multi Racial	3,404	1,895	0.5567	611	0.1795	636	0.1868	262	0.0770
No Response	43	27	0.6279	7	0.1628	7	0.1628	2	0.0465
Foster	166	114	0.6867	21	0.1265	24	0.1446	7	0.0422
Non Foster	43,472	24,557	0.5649	7,605	0.1749	7,866	0.1809	3,444	0.0792
Female	21,813	12,263	0.5622	4,164	0.1909	3,998	0.1833	1,388	0.0636
Male	21,788	12,383	0.5683	3,456	0.1586	3,888	0.1784	2,061	0.0946
Not Indicated	37	25	0.6757	6	0.1622	4	0.1081	2	0.0541
IEP	5,971	5,058	0.8471	512	0.0857	289	0.0484	112	0.0188
IEP w Accomm	2,689	2,324	0.8643	199	0.0740	121	0.0450	45	0.0167
IEP w o Accomm	3,282	2,734	0.8330	313	0.0954	168	0.0512	67	0.0204
Military	291	123	0.4227	65	0.2234	69	0.2371	34	0.1168
Non Military	43,347	24,548	0.5663	7,561	0.1744	7,821	0.1804	3,417	0.0788
ELL 1st Yr Proficient	159	84	0.5283	34	0.2138	33	0.2075	8	0.0503
ELL 2nd Yr Proficient	87	47	0.5402	19	0.2184	17	0.1954	4	0.0460
Econ Disadv	22,230	14,670	0.6599	3,581	0.1611	3,032	0.1364	947	0.0426
Non Econ Disadv	21,408	10,001	0.4672	4,045	0.1889	4,858	0.2269	2,504	0.1170
Migrant	13	8	0.6154	2	0.1538	2	0.1538	1	0.0769
Non Migrant	43,625	24,663	0.5653	7,624	0.1748	7,888	0.1808	3,450	0.0791
Plan 504	1,201	636	0.5296	223	0.1857	229	0.1907	113	0.0941
Plan 504 w Accomm	167	80	0.4790	24	0.1437	42	0.2515	21	0.1257
Plan 504 w o Accomm	1,034	556	0.5377	199	0.1925	187	0.1809	92	0.0890

Table G-6. 2019 OK Standard Setting Report: Round 4—Combined

	Total N	*Below Basic N*	*Below Basic %*	*Basic N*	*Basic %*	*Prof N*	*Prof %*	*Adv N*	*Adv %*
Total	43,638	23,265	0.5331	9,032	0.2070	7,890	0.1808	3,451	0.0791
ELL	2,027	1,809	0.8925	171	0.0844	43	0.0212	4	0.0020
ELL w Acc	461	431	0.9349	20	0.0434	9	0.0195	1	0.0022
ELL wo Acc	1,566	1,378	0.8799	151	0.0964	34	0.0217	3	0.0019
Black African American	3,751	2,747	0.7323	560	0.1493	351	0.0936	93	0.0248
American Indian Alaskan Native	6,154	3,591	0.5835	1,272	0.2067	990	0.1609	301	0.0489
Hispanic or Latino	7,097	4,550	0.6411	1,339	0.1887	956	0.1347	252	0.0355
Asian	1,000	375	0.3750	205	0.2050	223	0.2230	197	0.1970
Native Hawaiian or Other Pacific Islander	136	96	0.7059	24	0.1765	15	0.1103	1	0.0074
White Caucasian	22,053	10,120	0.4589	4,878	0.2212	4,712	0.2137	2,343	0.1062
Multi Racial	3,404	1,760	0.5170	746	0.2192	636	0.1868	262	0.0770
No Response	43	26	0.6047	8	0.1860	7	0.1628	2	0.0465
Foster	166	107	0.6446	28	0.1687	24	0.1446	7	0.0422
Non Foster	43,472	23,158	0.5327	9,004	0.2071	7,866	0.1809	3,444	0.0792
Female	21,813	11,502	0.5273	4,925	0.2258	3,998	0.1833	1,388	0.0636
Male	21,788	11,739	0.5388	4,100	0.1882	3,888	0.1784	2,061	0.0946
Not Indicated	37	24	0.6486	7	0.1892	4	0.1081	2	0.0541
IEP	5,971	4,924	0.8247	646	0.1082	289	0.0484	112	0.0188
IEP w Accomm	2,689	2,263	0.8416	260	0.0967	121	0.0450	45	0.0167
IEP w o Accomm	3,282	2,661	0.8108	386	0.1176	168	0.0512	67	0.0204
Military	291	115	0.3952	73	0.2509	69	0.2371	34	0.1168
Non Military	43,347	23,150	0.5341	8,959	0.2067	7,821	0.1804	3,417	0.0788
ELL 1st Yr Proficient	159	74	0.4654	44	0.2767	33	0.2075	8	0.0503
ELL 2nd Yr Proficient	87	44	0.5057	22	0.2529	17	0.1954	4	0.0460
Econ Disadv	22,230	13,947	0.6274	4,304	0.1936	3,032	0.1364	947	0.0426
Non Econ Disadv	21,408	9,318	0.4353	4,728	0.2209	4,858	0.2269	2,504	0.1170
Migrant	13	8	0.6154	2	0.1538	2	0.1538	1	0.0769
Non Migrant	43,625	23,257	0.5331	9,030	0.2070	7,888	0.1808	3,450	0.0791
Plan 504	1,201	591	0.4921	268	0.2231	229	0.1907	113	0.0941
Plan 504 w Accomm	167	73	0.4371	31	0.1856	42	0.2515	21	0.1257
Plan 504 w o Accomm	1,034	518	0.5010	237	0.2292	187	0.1809	92	0.0890

APPENDIX H—SAMPLE RATING FORM

ID	EXAMPLE_01	Example Domain 1 Panelist						
Procedural Round 3&4								
Directions:	For Each Round, In the column marked "Bookmark", indicate YOUR BOOKMARK PLACEMENT PAGE in the ordered item book. YELLOW AREA=BASIC, GREEN AREA=PROFICIENT, BLUE AREA=ADVANCED							
Warning:								
Item order	**Item ID**	**RND 3 Bookmark**	**RND 3 Level**	**RND 4 Bookmark**	**RND 4 Level**	**What knowledge and skills does this item measure?**	**Why is this item more difficult than the preceding item?**	**Rationale for placements outside shaded areas**
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APPENDIX I—EVALUATION FORM

Procedural Evaluation Form

OK CCRA SCI 11

The purpose of this evaluation form is to obtain your feedback about the Standard Setting process. Please complete the information below. Do not put your name on the form. We want your feedback to be confidential.

* Required

1. *

Please mark the appropriate circle for each statement
Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understood how to make the bookmark placements.					
I understood how to use the materials provided.					
I understood how to record my judgments.					
I thought the procedures made sense.					
I was sufficiently familiar with the assessment.					
I understood the differences between the performance levels.					

2. **What materials, information, or procedures were most influential in your placement of the cut scores? Why?** *

3. **Please provide any additional comments about the cut score placements.**

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Final Evaluation Form

OK CCRA SCI 11

The purpose of this evaluation form is to obtain your feedback about the Standard Setting process. Please complete the information below. Do not put your name on the form. We want your feedback to be confidential.

* Required

1. *

Mark only one oval per row.

	Male	Female
Gender:	◯	◯

2. *Mark only one oval per row.*

	White	Black	Hispanic	Asian	Pacific Islander	American Indian
Race / ethnicity:	◯	◯	◯	◯	◯	◯

3. **Area of expertise (check all that apply)**

Check all that apply.

- ☐ Students with Disabilities
- ☐ Students with Limited English Proficiency
- ☐ Economcally Disadvantaged Students
- ☐ Gifted and Talented Students
- ☐ General Education

4. *

Please rate the usefulness of each of the following
Mark only one oval per row.

	Not at all useful	Somewhat not useful	Neutral	Somewhat useful	Extremely useful
The opening session.					
Completing the practice test					
Completing the item map					
Discussions with other participants					
Impact data.					

5. *

Please rate the influence of the following when setting standards:
Mark only one oval per row.

	Not at all influential	Somewhat not influential	Neutral	Somewhat influential	Extremely influential
The Performance Level Definitions.					
My expectations of students.					
The difficulty of the test materials.					
My experience in the field.					
Discussions with other participants.					
Decisions of other participants.					
Impact data.					

6. **Please select the appropriate circle for each statement.** *

Mark only one oval per row.

	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I understood the goals of the standard setting meeting.	◯	◯	◯	◯	◯
The facilitator helped me understand the process.	◯	◯	◯	◯	◯
The materials contained the information needed to set standards.	◯	◯	◯	◯	◯
I understood how to use the impact data.	◯	◯	◯	◯	◯
I understood how the cut scores were calculated.	◯	◯	◯	◯	◯
The facilitator was able to provide answers to my questions.	◯	◯	◯	◯	◯
Sufficient time was allotted for training on the standard setting tasks.	◯	◯	◯	◯	◯
Sufficient time was allotted to complete the standard setting tasks	◯	◯	◯	◯	◯
The facilitator helped the standard setting process run smoothly.	◯	◯	◯	◯	◯
Overall, the standard setting process produced credible results.	◯	◯	◯	◯	◯

7. **Do you believe the final recommended cut score for each performance level was Too Low, Somewhat Low, About Right, Somewhat High, or Too High?** *

Mark only one oval per row.

	Too low	Somewhat low	About right	Somewhat high	Too high
Advanced / Proficient	◯	◯	◯	◯	◯
Proficient / Basic	◯	◯	◯	◯	◯
Basic / Below Basic	◯	◯	◯	◯	◯

8. **Please provide any additional comments about the standard setting process or suggestions as to how the training and process could be improved.**

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Google Forms

APPENDIX J—SAMPLE ITEM LIST FORM

ID	EXAMPLE_01		
DOMAIN	1		
Directions:	Enter your notes for knowledge / skills and rationale for increased difficulty in the columns below		
Item order	**Item ID**	**What knowledge and skills does this item measure?**	**Why is this item more difficult than the preceding item?**
1	586659-1		
2	592071		
3	592069		
4	586636		
5	586031		
6	586218		
7	593426		
8	586106		
9	586029		
10	594357		
11	586649		
12	586701		
13	586709		
14	586693		
15	586659-2		
16	594361		
17	586108		
18	594375		
19	594354		
20	591949		
21	593424		
22	586655		
23	586691		
24	586711		
25	586027		
26	594373		
27	592073		
28	586631		
29	586110		
30	594379		
31	586640		

APPENDIX K—NONDISCLOSURE FORM

Nondisclosure Agreement

CCRA – Science Standard Setting

June 5–6, 2019

The undersigned is an employee, contractor, assessment committee member, or person otherwise authorized to view secure state assessment materials. The undersigned hereby agrees to be bound to the terms of this agreement restricting the disclosure of said materials.

It is essential to the integrity of this item development project and testing program that all test items remain secure. To maintain this security, only authorized persons are permitted to view the test questions. With the exception of materials released by the Oklahoma State Department of Education for informational purposes, all test questions (draft or final) in hardcopy or electronic format and associated materials must be regarded as secure documents. As a result, such materials may not be reproduced, electronically transmitted, discussed, used in classroom instruction, or in any way released or distributed to unauthorized persons. All materials including items and item drafts must be returned at the end of the meeting.

I understand that I am responsible for test materials security. By breaching test materials security as described here, I am breaching professional testing ethics and may be subject to additional penalties under law.

Name: _____

Signature: _____

Date: _____

APPENDIX L—MEETING AGENDA

CCRA Science Content Standard Setting Meeting
June 5-6, 2019

Agenda—Day 1: Wednesday, June 5, 2019

8:15 am	Registration/Breakfast
9:00 am	Welcome and Introductions Review of Agenda and Materials Overview of the Standard Setting Process
9:45 am	Take the Test
10:15 am	Break
10:30 am	Split into Domain-Specific Groups Fill Out Item Map
11:15 am	Discuss PLDs and Describe Characteristics of "Borderline" Students
12:00 pm	Lunch in Hotel Restaurant
1:00 pm	Practice Round
1:30 pm	Readiness Discussion
2:15 pm	Training Evaluation
2:30 pm	Break
2:45 pm	Round 1
4:15 pm	Round 1 questions and discussions
5:00 pm	Adjourn

All times are approximate
Breaks will take place as needed

CCRA Science Content Standard Setting Meeting
June 5-6, 2019

Agenda—Day 2: Thursday, June 6, 2019

8:00 am	Breakfast and sign in
9:00 am	Introduction to Day 2
9:15 am	Round 2
10:15 am	Break
10:30 am	Reconvene as Single Group Review of PLDs and borderline definitions Round 3
12:00 pm	Lunch in Hotel Restaurant
1:00 pm	Round 4
2:15 pm	Break
3:00 pm	Round 4 questions and discussions
4:15 pm	Final Evaluation
4:30 pm	Adjourn

All times are approximate
Breaks will take place as needed

APPENDIX M—FINAL CUTPOINTS

Table M-1. 2019 OK Standard Setting Report: Final Cutpoints—CCRA Science

Performance Level	*Theta Cut*	*At %*	*At or Above %*
Below Basic		53.31%	100.00%
Basic	0.1684	20.70%	46.69%
Proficient	0.8021	18.08%	25.99%
Advanced	1.5289	7.91%	7.91%

APPENDIX P
2022 CCRA STANDARD SETTING REPORT

2022 Oklahoma Standard-Setting Report

US History

June 23–24, 2022—Oklahoma City, Oklahoma

Prepared by Cognia for the Oklahoma Department of Education

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Chapter 1. Overview of Standard-Setting Procedures

The purpose of this report is to summarize the activities involved in the standard-setting process for the Oklahoma College and Career Readiness Assessment (CCRA) in US History on behalf of the Oklahoma State Department of Education (SDE). The need for standard setting arises from the fact that this is a new assessment that was administered operationally for the first time in 2022. For such new assessments, performance standards must be set. The primary goal of the standard setting was to determine the knowledge, skills, and abilities (KSAs) that students must demonstrate to be classified into one of the performance levels (i.e., Advanced, Proficient, Basic, and Below Basic).

The standard-setting process used was the Item-Descriptor (ID) Matching method (Ferrara & Lewis, 2012; Cizek & Bunch, 2007). The ID Matching method was selected because it reduces cognitive burden on panelists as compared to other standard-setting methods that require probability judgments about hypothetical high- and low-performing students, and it most clearly translates content standards into performance categories as compared to other methods of standard setting (Cizek, Bunch, & Koons, 2004).

The standard-setting meeting was held from June 23rd through June 24th of 2022. In all, 11 panelists participated in the process and were organized into 3 tables of 3–4 panelists each plus a facilitator provided by Cognia.

This report is organized into three major sections, describing tasks completed prior to, during, and after the standard-setting meeting.

Chapter 2. Tasks Completed Prior to Standard Setting

2.1 Creation of Performance Level Descriptors

Oklahoma State Statute: Title 70. Schools, Chapter 22 – Testing and Assessment, Section 1210.541 – Student Performance Levels and Cut Scores – Accountability System mandates the adoption of "a series of student performance levels and the corresponding cut scores pursuant to the Oklahoma School Testing Program Act." The law states that performance levels must be labeled and defined as follows:

1. Advanced, which shall indicate that students demonstrate superior performance on challenging subject matter;
2. Proficient, which shall indicate that students demonstrate mastery over appropriate grade-level subject matter and that students are ready for the next grade, course, or level of education, as applicable;
3. Basic, which shall indicate that students demonstrate partial mastery of the essential knowledge and skills appropriate to their grade level or course; and
4. Below Basic, which shall indicate that students have not performed at least at the limited knowledge level.

The PLDs were drafted by Cognia and approved by SDE in early 2020. SDE reviewed the PLDs electronically. The Borderline PLDs, used in the standard-setting process, were created jointly between Cognia team members and SDE team members through a virtual meeting in June 2022. Dr. Steve Ferrara gave a presentation at the start of the meeting on the importance of Borderline PLDs and how to draft them. During the meeting, the PLDs drafted in 2020 were used as a reference document in the creation of the Borderline PLDs.

2.2 Preparation of Materials

The following materials were assembled for presentation to the panelists at the standard-setting meeting in paper or digital form (as indicated):

- Opening session and workshop facilitator PowerPoint slides
- PLDs (paper)
- Meeting agendas (paper)
- Nondisclosure forms (paper)
- Test booklets (paper)
- Cognia Standard-Setting Toolkit (digital) which included the following: Practice item booklet, integrated item map and ordered item booklet, readiness surveys, and judgment forms.
- Evaluation forms (paper)

The PowerPoint presentation used in the opening session was prepared and approved by the SDE and TAC prior to the meeting. The same PowerPoint presentation slide deck also included the workshop facilitator slides used during the main portion of the standard-setting meeting. A copy of the presentation is included in Appendix A. Copies of the meeting agenda, nondisclosure forms, PLDs, the Cognia Standard-Setting Toolkit, the readiness surveys, and the workshop evaluation form are included in Appendices B through G.

2.3 Preparation of the Standard-Setting Toolkit for use during the Meeting

This section provides details about the Cognia Standard-Setting Toolkit that panelists used to complete standard-setting activities during the meeting. In addition, the setup of the digital ordered item booklet with integrated item map is discussed.

The Cognia Standard-Setting Toolkit was developed, tested, and set up by Cognia prior to the meeting and included a digital ordered item booklet with integrated item map, judgement forms, and readiness surveys. During traditional paper-based standard setting meetings, panelists would be provided with an ordered item book where each page in the book represented a different item, and the items were sorted by difficulty. In addition, panelists would also use an item map which consisted of a list of items that correspond to the pages in the ordered item booklet. Finally, panelists would have paper-based judgement forms which included space for panelists to write notes and make their judgments.

The Cognia Standard-Setting Toolkit consisted of a digital interface that first presented the ordered item map view (i.e., a list of items separated by rows with the easiest item at the bottom and the most difficult at the top). From the initial screen panelists could easily toggle to the corresponding ordered item booklet view (i.e., viewing each item as a single page with the option to use navigation arrows to move ‘up’ or ‘down’ in the booklet to a more difficult or easier item). The ordered item booklet was created by sorting the items according to their item response theory (IRT)-based difficulty values (RP = .67 was used). A three-parameter logistic IRT model was used to calculate the RP67 values for dichotomous items.

Integrated judgement forms were available within both the item map and booklet view. The judgment forms provided space for users to note (1) the relevant knowledge, skills, and abilities (KSAs) needed to answer the item, (2) why the item is more difficult than the previous item, (3) item descriptor matches, and (4) cut placements. Any notes entered by the user in the item map view screen would remain in place when the user switched to the booklet view screen and vice versa. In addition to the above, the toolkit included the round-specific readiness surveys that panelists completed before undertaking each judgment round.

Additional details and screenshots of the Cognia Standard-Setting Toolkit are available in Appendix E.

2.4 Selection of Panelists

As emphasized in Cizek and Bunch (2007), regardless of the method used, the selection of panelists is an important factor in determining standard-setting outcomes and maximizing the validity of the standard-setting process. The guidance provided by *Standards for Educational and Psychological Testing* (AERA et al., 1999) states that "a sufficiently large and representative group of judges should be involved to provide reasonable assurance that results would not vary greatly if the process were repeated." Consistent with the above guidance and respecting practical considerations regarding the maximum size of a group that can be successfully managed, the goal was to recruit a standard-setting panel of 10–12 members representing different stakeholder groups to set standards for US History. Targets for the size and composition of the panel were also consistent with federal guidelines as described in *Standards and Assessment Peer Review Guidance: Information and examples for meeting requirements of the No Child Left Behind Act of 2001* (U.S. Department of Education, 2009).

The SDE selected panelists prior to the standard-setting meeting. The goal for panel selection was to include participants who are primarily teachers, but also to include school administrators, higher education personnel, and stakeholders from other interest groups. Moreover, to the extent possible, panelists were selected to reflect a balance of gender, race/ethnicity, and geographic location. Finally, panelists were selected who were familiar with the high school US History subject matter. A list of the panelists is included in Appendix H.

Chapter 3. Tasks Completed During the Standard-Setting Meeting

3.1 Overview of the ID Matching Method

The Item-Descriptor (ID) Matching method is appropriate for setting standards for standards-aligned assessments like the CCRA U.S. History assessment. Assessment programs around the world have used ID Matching (e.g., Delaware, Massachusetts, Maryland, Mississippi, New Mexico, New York, South Carolina, and West Virginia; the Chicago and Philadelphia Public Schools; and programs in Brazil, Germany, and Finland).

ID Matching has advantages over Bookmark, Angoff, and other standard-setting methods. Specifically, its cognitive-judgmental task requires that standard-setting panelists, who are typically classroom educators, undertake a judgmental task that they are well suited for—matching item knowledge and skill response demands with knowledge and skill expectations in performance level descriptors (PLDs). The Bookmark and other methods require panelists to make probability judgments—something that people in general do not do well (e.g., Murphy, 2002). In addition, panelists do not need to hold a hypothetical borderline student in mind when they match items to descriptors and recommend cut scores, so the cognitive load and complexity of ID Matching is more manageable.

During standard setting using ID Matching, panelists use borderline PLDs as their guide to match items to performance level descriptors. The structure of the PLDs provides a general characterization of expected student knowledge and skill at each level and examples of the knowledge and skills that students at each achievement level can be expected to demonstrate. The ordering of items by their empirical difficulty facilitates the matching process. By matching test items to specific claims from the borderline Proficient PLD, for example, panelists identify the evidence in test items that supports the claims in that descriptor. Supporting the claims represented in the borderline Proficient PLD contributes to the validity of interpretations of student achievement, based on the PLDs, and to the overall validity argument that a student who achieves that level on the assessment has demonstrated adequate understanding of essential concepts with respect to the standards being measured. This logic applies to all cut scores and performance levels.

3.2 General Orientation and Panelist Training

Concerning panelist training, the *Standards for Educational and Psychological Testing* (AERA et al., 2014) states the following:

> Care must be taken to assure these persons understand what they are to do and that their judgments are as thoughtful and objective as possible. The process must be such that well-qualified participants can apply their knowledge and experience to reach meaningful and relevant judgments that accurately reflect their understandings and intentions. (p. 101)

The training of the panelists began with a general orientation session at the start of the standard-setting meeting. The purpose of the orientation was to ensure that all panelists received the same information about the need for and the goals of standard setting, and about their part in the process.

3.3 Becoming Familiar with the Test Items and Content

The first step after the opening session was for the panelists to take the US History test. The purpose of this step was to familiarize the panelists with the assessment and the test taking activities expected of students during administration. Once panelists completed the test, the answer key was distributed. At this point, panelists were encouraged to discuss any issues regarding items or scoring.

3.4 Use of the Standard-Setting Toolkit

Panelists were organized into tables such that each table included 3–4 panelists. Panelists used the provided laptop computers to securely access the Cognia Standard-Setting Toolkit. Within the digital tool, each panelist reviewed the domain-specific ordered item booklet item by item, considering the KSAs students needed to answer each one.

Panelists used the integrated ordered item booklet and judgment forms available within the Cognia Standard-Setting Toolkit to complete their judgments. The judgment form included space for the panelists to type in the KSAs required to answer each item correctly and to indicate why they believed each item was more difficult than the previous one. To ensure each panelist was comfortable using the provided laptop computers and understood the mechanics of data entry, Cognia Psychometricians Dr. Frank Padellaro, Dr. Robert Cook, and Dr. Robert Keller reviewed the technology the panelists would use to complete their judgment forms.

3.5 Review of Borderline Performance Level Descriptors

Before engaging in the judgment tasks, panelists reviewed the borderline PLDs. This important step was designed to ensure that panelists thoroughly understood the KSAs needed for students to be classified into performance levels (Below Basic, Basic, Proficient, and Advanced). The borderline PLDs are provided in Appendix D.

3.6 Judgment Rounds and Feedback

During the main portion of the standard-setting workshop, panelists completed a practice round followed by three consecutive rounds of judgments. After the completion of each judgment round, Cognia psychometricians calculated a variety of statistics which served various functions: feedback to panelists as part of the standard-setting process, reporting to Cognia and the SDE as intermediate evidence for the impact of panelists' judgments, and as quality control metrics. For each round, Cognia psychometricians calculated the median cut scores for the group based on their cut score recommendations, theta scale cut scores, the conditional standard error of measurement (SEM) for each of the cut scores, and impact data (i.e., the percentage of students in each performance level).

For each round, the overall cut points were determined by first calculating the median of the individual cut points obtained from each panelist, and then calculating the average of the RP67 thetas associated with the median OIB page number and the item just below it in the ordered item booklet. This calculation was repeated for each performance level cut point. The Mean Absolute Difference of the panelists' cut points indicates the extent to which judgments were consistent across panelists and reflects the level of

agreement among the ratings with each successive round of ratings. Conditional SEM characterizes the measurement precision for each of the scale cuts. Finally, impact data reflect the percentage of students across the state who would fall into each performance level category according to the total group median cut points. While these statistics were available, the only results revealed to panelists were those that were appropriate for the goals of the specific round. Results for panelist ratings across all rounds are displayed in Appendix I.

3.6.1 Modeling and Practice

To begin, the panelists completed a practice round of judgments. The purpose of the practice round was to familiarize the panelists with all the materials they would be using for the standard-setting process and become facile with the ID Matching judgments. Panelists used the provided laptop computers to access digital copies of the borderline PLDs and standards. In addition, panelists were provided with credentials to access the Cognia Standard-Setting Toolkit. Within the digital tool, panelists were presented with a practice ordered item book, which consisted of 6 items representing the range of difficulty on the test, as well as the integrated digital judgment forms.

The facilitator demonstrated how to navigate within the standard-setting tool and how to use the tool to make their judgments. Additionally, Cognia Psychometrician Dr. Frank Padellaro reviewed the technology panelists would use to complete their judgments, to ensure each panelist understood how to use the Cognia Standard-Setting tool. Then, beginning with the first ordered item and considering the skills and abilities needed to complete it, panelists were instructed to ask themselves two questions: (1) “What are the knowledge, skills, and abilities a student needs to respond to this item?” and (2) “Why is this item more difficult than the previous item?” Panelists considered each ordered item in turn, asking themselves the same two questions and assigning item descriptor matches (i.e., below basic, basic, proficient, advanced, or the threshold between two levels) to each item. The facilitator then led the panelists in a readiness discussion, asking panelists to share the reasoning behind their item descriptor matches with the group and assessing each panelist’s understanding of the judgment task and borderline PLDs.

At the end of the practice round, panelists completed the round one readiness survey (Appendix F). The readiness survey was designed to ascertain whether the panelists were comfortable moving ahead to the judgment task. Once all panelists completed the Round 1 Readiness Survey, Cognia psychometricians reviewed the responses to make sure panelists were ready to undertake the first round of judgments. In the event of any uncertainty (based on the survey responses), the specific information was relayed to the facilitator so that any questions or issues could be addressed before proceeding to the Round 1 judgments.

3.6.2 Round 1 Judgments and Results

In the first round, panelists worked individually with the borderline PLDs, the standard-setting tool, and the ordered item booklet (OIB). Beginning with the first ordered item and considering the skills and abilities needed to complete it, Panelists considered each ordered item in turn, asking themselves the same two questions and assigning item descriptor matches (i.e., below basic, basic, proficient, advanced, or threshold) to each item. They continued in this manner until they located a threshold region (a region in the item descriptor matches alternated between two performance levels), then placed their cut at the item

that marked the beginning of the region based on their judgments. Panelists then repeated the process for the other two cut points and used the integrated judgment forms to record their notes and judgments.

After the completion of round one, Cognia psychometricians calculated a variety of statistics as described previously. As a reminder, the Round 1 overall cut points were determined by first calculating the median of the individual cut points obtained from each panelist, and then calculating the average of the RP67 thetas associated with the median OIB page number and the item just below it in the ordered item booklet.

3.6.3 Round 2 Judgments and Results

The purpose of Round 2 was for panelists to discuss their Round 1 cut score recommendations and, if they determined it necessary, to revise their judgments. Prior to beginning their discussions, panelists were presented with the median cut scores based on their Round 1 judgments for each performance level cut score. The facilitator presented this information to the group using a projector and laptop and explained how to use it as they completed their discussions. The distribution of panelists' cut points was presented graphically, as histograms, in terms of location in the item map.

Panelists were then given the opportunity to share their individual rationales for their cut placements in terms of the necessary knowledge and skills for each classification. Panelists were asked to pay particular attention to how their individual judgments compared to those of other panelists in their room to assess whether they were unusually stringent or lenient within the group. They also were reminded to make their own independent judgments and that they did not have to agree with other panelist recommendations. Once the discussions were complete, panelists completed the round two readiness survey (Appendix F). The readiness survey was designed to ascertain whether the panelists were comfortable moving ahead to the second round of the judgment task. Once all panelists completed the Round 2 Readiness Survey, Cognia psychometricians reviewed the responses to make sure panelists were ready to undertake their second round of judgments. In the event of any uncertainty (based on the survey responses), the specific information was relayed to the facilitator so that any questions or issues could be addressed before proceeding to the Round 2 judgments.

Once all panelists indicated that they were ready to undertake the next round, they were given the opportunity to revise or retain their Round 1 judgments on the judgment forms within the digital tool. Panelists were told to place cut scores according to their individual best judgments; consensus among the panelists was not necessary. They were encouraged to listen to the points made by their colleagues but not to feel compelled to change their cut placements. When Round 2 judgments were complete, Cognia psychometricians calculated the statistics described previously and discussed the results with SDE staff. In addition, the results and associated impact data were presented to panelists at the conclusion of round 2.

3.6.4 Round 3 Judgments and Results

The purpose of Round 3 was for panelists to discuss their Round 2 cut score recommendations and, if necessary, to revise their judgments. Prior to beginning their discussions, panelists were presented with the median cut scores based on their Round 2 judgments as well as impact data for each performance level cut. The facilitator presented this information to the group using a projector and laptop and explained

how to use it as they completed their discussions. The distribution of panelists' cut points was presented graphically, as histograms, in terms of location in the ordered item booklet. The impact data was presented graphically in the form of a stacked bar chart.

Panelists were then given the opportunity to share their individual rationales for their cut score placements in terms of the necessary knowledge and skills for each classification. Panelists were asked to pay particular attention to how their individual judgments compared to those of other panelists in their room to assess whether they were unusually stringent or lenient within the group. Once the discussions were complete, panelists completed the round three readiness survey. The readiness survey was designed to ascertain whether the panelists were comfortable moving ahead to the second round of the judgment task. Once all panelists completed the Round 3 Readiness Survey, Cognia psychometricians reviewed the responses to make sure panelists were ready to undertake their second round of judgments. In the event of any uncertainty (based on the survey responses), the specific information was relayed to the facilitator so that any questions or issues could be addressed before proceeding to the Round 3 judgments.

Once all panelists indicated that they were ready to undertake the next round, they were given the opportunity to revise or retain their Round 2 judgments on the judgment forms within the digital tool. Panelists were told to place cuts according to their individual best judgments; consensus among the panelists was not necessary. They were encouraged to listen to the points made by their colleagues but not to feel compelled to change their cut placements. When Round 3 judgments were complete, Cognia psychometricians calculated the statistics described previously and discussed the results with SDE staff.

3.6.5 Workshop Evaluation

At the conclusion of the standard-setting meeting, panelists completed a final workshop evaluation form and gave their feedback on various aspects of the standard-setting meeting. Panelists indicated that they felt positive about how Cognia conducted the workshop and their final recommendations. Specifically, panelists expressed generally positive support for the workshop overall; workshop facilitation; training, practice, and the workshop process; the Cognia Standard-Setting tool; and other details in the standard-setting workshop process. When asked about panelists perceptions in final cut scores, as shown in Table 1 of Appendix J, all panelists indicated that they were satisfied with final group cut scores. A copy of the evaluation survey is available in Appendix G; the workshop evaluation results are available in Appendix J.

Chapter 4. Tasks Completed After the Standard-Setting Meeting

Upon conclusion of the standard-setting meeting, several important tasks were completed. These tasks centered on the following: reviewing the standard-setting process and addressing issues presented by the outcomes; presenting the results to the SDE; and making any final revisions or adjustments based on policy considerations, under direction of the SDE. Shortly after the standard-setting meeting, Cognia provided SDE with a standard-setting memo that included an overview of the standard-setting process, as well as the final recommended cut scores. A copy of the memo is available in Appendix K.

4.1 Analysis and Review of Panelists' Feedback

The standard-setting literature considers evaluation of the workshop and its results to be another product of the standard-setting process (e.g., Reckase and Chen, 2012), as it provides important validity evidence supporting the cut scores that are obtained. To provide evidence of the participants' views of the standard-setting process, panelists were asked to complete a questionnaire at the end of the meeting.

After the evaluation forms were completed, panelists' responses were reviewed. This review did not reveal any anomalies in the standard-setting process or indicate any reason that a particular panelist's data should not be included when the final cut points were calculated. In general, participants felt that the recommended cut points were appropriate and that their judgments were based on appropriate information and decision making. The results of the evaluations are presented in Appendix J.

4.2 Policy Adjustments

After all standard-setting activities had been completed and all materials reviewed, the SDE recommended no adjustments to the Round 3 cuts as recommended by panelists at the standard-setting meeting. The full set of cuts are shown in Appendix L were presented to the CEQA and approved for use assigning students to performance levels in the 2022–2023 Oklahoma US History assessments.

4.3 Preparation of Standard-Setting Report

Following the final compilation of standard-setting results, Cognia prepared this report, which documents the procedures and results of the 2022 standard-setting meeting that was held to establish performance standards for the assessment.

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Appendices

APPENDIX Q
PERFORMANCE LEVEL DISTRIBUTIONS

Table Q-1. Performance Level Distributions by Grade and Year*—ELA

Grade	Performance Level	% in Level 2022	% in Level 2021	% in Level 2019	% in Level 2018	% in Level 2018
3	1	40	44	31	34	30
	2	32	32	30	33	32
	3	23	21	29	27	31
	4	6	4	10	6	8
4	1	43	45	36	30	29
	2	33	33	33	34	34
	3	21	20	24	28	30
	4	2	2	6	7	7
5	1	26	31	25	23	21
	2	43	41	40	42	39
	3	23	21	27	22	28
	4	8	6	8	13	12
6	1	31	31	22	22	18
	2	43	44	42	40	41
	3	22	21	28	29	31
	4	4	4	8	9	9
7	1	44	46	35	32	34
	2	34	34	36	41	40
	3	16	15	21	20	20
	4	5	4	8	8	6
8	1	30	33	25	24	23
	2	42	43	43	43	42
	3	22	18	24	24	23
	4	6	6	9	9	11

**Tests were not administered in 2019-20 due to COVID-19.*

Table Q-2. Performance Level Distributions by Grade and Year*—Mathematics

Grade	Performance Level	% in Level 2022	% in Level 2021	% in Level 2019	% in Level 2018	% in Level 2018
3	1	33	35	24	24	21
	2	33	35	33	35	35
	3	22	20	26	26	27
	4	11	9	17	15	17
4	1	35	37	26	27	23
	2	32	35	36	37	36
	3	20	18	26	25	27
	4	13	10	12	11	14
5	1	32	37	24	25	22
	2	41	41	45	46	43
	3	18	15	19	20	23
	4	8	8	11	10	12
6	1	38	37	27	29	22
	2	40	42	43	43	42
	3	18	16	25	23	29
	4	5	5	6	5	6
7	1	48	55	38	34	35
	2	28	25	29	32	31
	3	20	17	26	26	27
	4	4	3	7	8	7
8	1	61	65	50	52	49
	2	23	21	30	28	28
	3	10	9	11	10	12
	4	6	5	10	10	11

**Tests were not administered in 2019-20 due to COVID-19.*

Table Q-3. Performance Level Distributions by Grade and Year*—Science

Grade	Performance Level	% in Level 2022	% in Level 2021	% in Level 2019	% in Level 2018	% in Level 2017
5	1	28	28	22	20	22
	2	34	40	40	39	35
	3	31	27	30	32	34
	4	7	5	8	9	9
8	1	48	45	39	40	38
	2	21	22	21	21	21
	3	24	26	31	29	30
	4	6	6	9	10	11
11	1	54	52	57	--	--
	2	21	24	20	--	--
	3	18	17	17	--	--
	4	8	6	7	--	--

**Tests were not administered in 2019-20 due to COVID-19.*

APPENDIX R
CLASSICAL RELIABILITY

Table R-1. Subgroup Reliabilities Grade 3—ELA

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	24,138	51	29.13	10.02	0.90	3.13
Male	25,409	51	27.70	10.21	0.90	3.15
Hispanic or Latino	9,749	49	25.26	9.77	0.89	3.21
American Indian/Alaskan Native	5,525	50	28.23	9.60	0.89	3.16
Asian	1,205	50	31.11	10.23	0.91	3.04
Black/African American	3,905	49	23.73	9.66	0.89	3.22
Pacific Islander	218	48	23.37	8.85	0.87	3.23
White/Caucasian	22,295	51	30.42	9.91	0.90	3.09
Two or More Races	6,457	50	28.82	10.10	0.90	3.13
Economically Disadvantaged	28,307	51	25.82	9.79	0.89	3.20
Individual Education Program	8,877	50	21.85	9.56	0.89	3.22
Plan 504	1,012	50	29.31	9.35	0.89	3.14
English Language Learners	6,726	49	23.41	9.11	0.87	3.25

Table R-2. Subgroup Reliabilities Grade 4—ELA

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	23,634	52	30.27	10.22	0.91	3.08
Male	24,676	52	28.90	10.63	0.92	3.08
Hispanic or Latino	9,313	51	26.42	10.34	0.91	3.16
American Indian/Alaskan Native	5,479	52	29.17	10.11	0.91	3.10
Asian	1,196	51	32.73	10.06	0.91	2.99
Black/African American	3,868	51	24.25	10.05	0.90	3.18
Pacific Islander	254	49	24.84	10.03	0.90	3.17
White/Caucasian	22,008	52	31.74	10.05	0.91	3.03
Two or More Races	6,042	51	29.96	10.13	0.91	3.08
Economically Disadvantaged	27,374	51	26.93	10.22	0.91	3.15
Individual Education Program	8,849	51	21.65	10.10	0.90	3.17
Plan 504	1,189	52	30.31	9.59	0.90	3.10
English Language Learners	6,230	49	23.72	9.48	0.89	3.21

Table R-3. Subgroup Reliabilities Grade 5—ELA

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	21,368	55	36.66	9.88	0.90	3.07
Male	21,449	55	35.22	10.42	0.91	3.11
Hispanic or Latino	7,875	53	32.95	10.57	0.91	3.19
American Indian/Alaskan Native	5,035	54	35.46	9.66	0.90	3.13
Asian	884	55	39.30	9.96	0.91	2.94
Black/African American	3,360	55	29.69	10.66	0.91	3.25
Pacific Islander	182	53	30.70	10.61	0.91	3.27
White/Caucasian	19,933	55	38.09	9.38	0.90	3.01
Two or More Races	5,410	55	36.36	9.77	0.90	3.09
Economically Disadvantaged	23,551	55	33.12	10.35	0.91	3.19
Individual Education Program	4,403	54	28.08	11.59	0.92	3.23
Plan 504	1,237	54	36.16	9.44	0.89	3.10
English Language Learners	3,951	52	27.43	9.39	0.87	3.33

Table R-4. Subgroup Reliabilities Grade 6—ELA

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	24,310	52	30.43	9.78	0.90	3.08
Male	25,237	52	29.14	10.04	0.91	3.08
Hispanic or Latino	9,637	51	26.97	9.78	0.90	3.16
American Indian/Alaskan Native	5,692	51	29.14	9.46	0.89	3.12
Asian	1,132	52	33.23	10.15	0.92	2.94
Black/African American	3,937	52	25.11	9.57	0.89	3.19
Pacific Islander	216	45	22.53	9.10	0.88	3.19
White/Caucasian	22,712	51	31.74	9.61	0.90	3.02
Two or More Races	6,036	52	30.11	9.77	0.90	3.08
Economically Disadvantaged	27,634	51	27.19	9.63	0.89	3.16
Individual Education Program	8,371	50	21.39	9.02	0.87	3.21
Plan 504	1,492	50	30.16	9.07	0.88	3.09
English Language Learners	4,921	51	21.43	7.89	0.83	3.25

Table R-5. Subgroup Reliabilities Grade 7—ELA

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	24,858	51	28.37	9.35	0.88	3.20
Male	26,124	52	27.29	9.89	0.90	3.18
Hispanic or Latino	10,196	49	25.07	9.34	0.88	3.24
American Indian/Alaskan Native	6,024	49	27.40	9.17	0.88	3.23
Asian	1,069	50	31.49	10.23	0.91	3.05
Black/African American	4,138	49	23.66	9.06	0.87	3.25
Pacific Islander	196	41	21.94	8.65	0.86	3.28
White/Caucasian	23,096	52	29.75	9.43	0.89	3.15
Two or More Races	6,066	51	27.88	9.55	0.89	3.20
Economically Disadvantaged	28,374	50	25.38	9.29	0.88	3.24
Individual Education Program	8,118	50	19.66	8.33	0.85	3.23
Plan 504	1,531	48	27.95	9.29	0.88	3.20
English Language Learners	4,794	47	19.46	7.17	0.79	3.28

Table R-6. Subgroup Reliabilities Grade 8—ELA

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	23,145	56	34.59	8.43	0.85	3.29
Male	23,093	56	32.73	9.02	0.86	3.34
Hispanic or Latino	8,763	55	31.09	8.91	0.86	3.38
American Indian/Alaskan Native	5,376	55	33.23	8.37	0.84	3.32
Asian	1,006	56	37.97	9.14	0.88	3.19
Black/African American	3,513	55	29.48	8.88	0.85	3.40
Pacific Islander	174	49	29.84	8.46	0.84	3.43
White/Caucasian	21,683	56	35.27	8.32	0.85	3.26
Two or More Races	5,547	55	33.90	8.51	0.85	3.32
Economically Disadvantaged	24,333	56	31.53	8.68	0.85	3.36
Individual Education Program	4,046	52	25.96	8.91	0.85	3.43
Plan 504	1,480	54	32.91	8.48	0.85	3.34
English Language Learners	3,381	49	25.36	8.05	0.82	3.45

Table R-7. Subgroup Reliabilities Grade 3—Mathematics

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	24,114	50	31.32	10.44	0.92	2.91
Male	25,402	50	32.60	10.65	0.93	2.85
Hispanic or Latino	9,693	50	29.06	10.45	0.92	2.99
American Indian/Alaskan Native	5,538	50	31.87	10.22	0.92	2.90
Asian	1,205	50	35.57	10.44	0.93	2.68
Black/African American	3,904	50	25.17	10.28	0.91	3.08
Pacific Islander	218	50	24.01	9.57	0.89	3.11
White/Caucasian	22,313	50	34.38	9.89	0.92	2.79
Two or More Races	6,465	50	31.95	10.44	0.92	2.89
Economically Disadvantaged	28,285	50	29.28	10.48	0.92	2.99
Individual Education Program	8,924	50	26.40	10.72	0.92	3.06
Plan 504	1,007	50	33.18	9.82	0.91	2.87
English Language Learners	6,666	50	27.56	10.29	0.91	3.04

Table R-8. Subgroup Reliabilities Grade 4—Mathematics

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	23,609	50	28.80	10.20	0.91	2.98
Male	24,658	50	30.33	10.74	0.93	2.94
Hispanic or Latino	9,253	50	26.93	9.98	0.91	3.05
American Indian/Alaskan Native	5,484	50	29.05	10.01	0.91	2.99
Asian	1,196	50	34.63	10.11	0.93	2.76
Black/African American	3,866	50	22.63	9.42	0.89	3.10
Pacific Islander	253	48	24.56	9.81	0.90	3.08
White/Caucasian	22,025	50	31.87	10.22	0.92	2.90
Two or More Races	6,042	50	29.49	10.40	0.92	2.97
Economically Disadvantaged	27,354	50	26.83	10.07	0.91	3.05
Individual Education Program	8,871	50	23.50	9.99	0.90	3.09
Plan 504	1,191	50	30.25	10.15	0.92	2.96
English Language Learners	6,164	50	25.09	9.42	0.89	3.09

Table R-9. Subgroup Reliabilities Grade 5—Mathematics

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	23,654	50	27.18	10.13	0.91	2.99
Male	24,668	50	28.42	10.57	0.92	2.97
Hispanic or Latino	9,448	50	25.34	10.03	0.91	3.04
American Indian/Alaskan Native	5,607	50	27.17	9.76	0.91	3.01
Asian	1,083	50	32.87	10.94	0.93	2.79
Black/African American	3,816	50	21.39	8.92	0.88	3.09
Pacific Islander	232	46	23.49	9.21	0.89	3.07
White/Caucasian	21,991	50	29.98	10.16	0.92	2.93
Two or More Races	5,990	50	27.72	10.20	0.91	2.99
Economically Disadvantaged	27,382	50	25.01	9.75	0.90	3.05
Individual Education Program	8,587	50	21.09	9.10	0.88	3.10
Plan 504	1,363	50	28.46	9.93	0.91	2.99
English Language Learners	5,510	50	21.69	8.59	0.87	3.11

Table R-10. Subgroup Reliabilities Grade 6—Mathematics

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	24,242	50	25.02	9.16	0.89	3.07
Male	25,169	50	26.12	9.76	0.90	3.03
Hispanic or Latino	9,520	50	23.15	8.76	0.88	3.09
American Indian/Alaskan Native	5,694	50	24.88	8.90	0.88	3.07
Asian	1,130	50	31.08	10.37	0.92	2.86
Black/African American	3,926	50	19.99	8.00	0.85	3.12
Pacific Islander	217	46	20.12	8.31	0.86	3.07
White/Caucasian	22,703	50	27.61	9.46	0.90	3.01
Two or More Races	6,049	50	25.28	9.23	0.89	3.06
Economically Disadvantaged	27,551	50	22.98	8.69	0.87	3.10
Individual Education Program	8,375	49	18.80	7.90	0.84	3.12
Plan 504	1,490	50	25.51	9.09	0.89	3.06
English Language Learners	4,803	49	19.20	7.06	0.80	3.14

Table R-11. Subgroup Reliabilities Grade 7—Mathematics

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	24,783	50	20.15	8.98	0.88	3.07
Male	26,047	50	20.84	9.89	0.90	3.06
Hispanic or Latino	10,098	50	18.12	8.24	0.86	3.07
American Indian/Alaskan Native	6,019	50	19.82	8.77	0.88	3.08
Asian	1,068	50	27.12	11.53	0.93	2.96
Black/African American	4,140	50	16.02	7.08	0.82	3.03
Pacific Islander	197	43	16.95	7.33	0.83	3.06
White/Caucasian	23,066	50	22.41	9.86	0.90	3.07
Two or More Races	6,055	49	19.94	9.18	0.89	3.06
Economically Disadvantaged	28,264	50	18.05	8.14	0.86	3.06
Individual Education Program	8,107	49	14.72	6.33	0.77	3.02
Plan 504	1,524	50	20.33	9.25	0.89	3.07
English Language Learners	4,695	47	14.72	5.77	0.72	3.02

Table R-12. Subgroup Reliabilities Grade 8—Mathematics

Description	Number of Students	Raw Score			Alpha	Standard Error
		Maximum	Mean	Standard Deviation		
Female	24,904	50	21.80	9.30	0.89	3.13
Male	26,013	50	21.61	9.89	0.90	3.09
Hispanic or Latino	9,977	50	19.61	8.62	0.87	3.12
American Indian/Alaskan Native	5,915	50	20.90	8.95	0.88	3.12
Asian	1,100	50	29.48	11.97	0.94	2.90
Black/African American	3,915	49	17.44	7.73	0.84	3.10
Pacific Islander	206	43	19.17	7.79	0.84	3.16
White/Caucasian	23,559	50	23.24	9.83	0.90	3.11
Two or More Races	6,062	50	21.36	9.46	0.89	3.11
Economically Disadvantaged	27,560	50	19.34	8.39	0.86	3.12
Individual Education Program	7,997	50	15.39	6.46	0.77	3.07
Plan 504	1,615	49	21.29	9.27	0.89	3.12
English Language Learners	4,466	50	16.02	6.32	0.76	3.09

Table R-13. Subgroup Reliabilities Science (OSTP)—Grade 5

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	23,608	45	24.29	8.38	0.88	2.96
Male	24,634	45	24.54	8.72	0.89	2.94
Hispanic or Latino	9,438	45	21.95	8.07	0.86	3.01
American Indian/Alaskan Native	5,606	44	24.11	8.13	0.87	2.97
Asian	1,081	45	26.67	9.01	0.90	2.89
Black/African American	3,818	43	19.11	7.50	0.84	3.02
Pacific Islander	232	41	19.47	7.59	0.84	3.02
White/Caucasian	21,961	45	26.37	8.37	0.88	2.90
Two or More Races	5,957	45	24.65	8.40	0.88	2.95
Economically Disadvantaged	27,325	45	22.23	8.15	0.86	3.00
Individual Education Program	8,592	45	18.96	7.84	0.85	3.02
Plan 504	1,365	44	24.87	8.24	0.87	2.94
English Language Learners	5,506	42	18.50	6.60	0.79	3.05

Table R-14. Subgroup Reliabilities Science (OSTP)—Grade 8

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	24,837	48	23.84	8.32	0.85	3.22
Male	25,908	48	23.74	9.11	0.88	3.20
Hispanic or Latino	9,937	48	21.64	8.09	0.84	3.25
American Indian/Alaskan Native	5,900	47	23.11	8.27	0.85	3.24
Asian	1,098	48	28.76	9.84	0.90	3.04
Black/African American	3,896	47	19.74	7.61	0.82	3.27
Pacific Islander	205	41	19.24	7.39	0.81	3.25
White/Caucasian	23,487	48	25.37	8.77	0.87	3.18
Two or More Races	6,045	48	23.69	8.64	0.86	3.22
Economically Disadvantaged	27,438	48	21.84	8.09	0.84	3.26
Individual Education Program	7,978	46	18.00	6.98	0.78	3.26
Plan 504	1,606	46	23.64	8.61	0.86	3.22
English Language Learners	4,465	45	17.71	6.12	0.71	3.27

Table R-15. Subgroup Reliabilities Science (CCRA)—Grade 11

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	22,003	61	26.86	10.03	0.87	3.59
Male	22,134	62	27.80	11.60	0.91	3.57
Hispanic or Latino	7,640	61	24.74	9.80	0.87	3.58
American Indian/Alaskan Native	5,088	60	26.19	10.04	0.87	3.60
Asian	954	62	32.31	12.36	0.92	3.52
Black/African American	3,219	58	22.71	8.76	0.83	3.57
Pacific Islander	144	52	23.45	9.51	0.86	3.58
White/Caucasian	21,072	61	29.33	11.20	0.90	3.57
Two or More Races	4,496	61	27.29	10.72	0.89	3.58
Economically Disadvantaged	20,642	62	24.97	9.83	0.87	3.59
Individual Education Program	5,831	60	20.60	8.18	0.81	3.54
Plan 504	1,560	59	28.91	11.31	0.90	3.58
English Language Learners	2,239	55	19.35	6.47	0.70	3.53

Table R-16. Subgroup Reliabilities U.S. History (CCRA)—Grade 11

Description	Number of Students	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
Female	21,988	50	24.85	9.00	0.88	3.17
Male	22,155	50	26.07	10.29	0.91	3.12
Hispanic or Latino	7,677	50	23.43	9.13	0.88	3.18
American Indian/Alaskan Native	5,088	50	24.61	9.22	0.88	3.17
Asian	954	50	29.45	10.11	0.91	3.05
Black/African American	3,211	49	22.02	8.63	0.86	3.20
Pacific Islander	141	47	21.79	9.04	0.88	3.18
White/Caucasian	21,050	50	27.10	9.79	0.90	3.13
Two or More Races	4,486	50	25.41	9.67	0.89	3.15
Economically Disadvantaged	20,651	50	23.26	9.02	0.88	3.18
Individual Education Program	5,856	50	19.08	8.09	0.85	3.18
Plan 504	1,561	50	27.07	9.84	0.90	3.13
English Language Learners	2,273	45	17.95	6.97	0.79	3.19

Table R-17. Reliabilities by Reporting Category—ELA Grade 3

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	19	20	10.57	4.14	0.78	1.94
2	7	8	3.72	1.92	0.61	1.19
3	12	12	7.08	2.84	0.71	1.53
4	6	6	3.90	1.47	0.51	1.03
5	6	6	3.13	1.59	0.51	1.12

Table R-18. Reliabilities by Reporting Category—ELA Grade 4

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	16	16	9.18	3.51	0.76	1.73
2	11	13	5.85	2.71	0.67	1.55
3	11	11	7.44	2.71	0.76	1.34
4	6	6	3.47	1.56	0.49	1.11
5	6	6	3.62	1.71	0.64	1.03

Table R-19. Reliabilities by Reporting Category—ELA Grade 5

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	16	16	10.71	3.43	0.76	1.67
2	11	11	7.09	2.49	0.70	1.36
3	10	10	7.20	2.18	0.70	1.20
4	6	6	4.67	1.32	0.54	0.90
5	7	7	4.11	1.81	0.57	1.18

Table R-20. Reliabilities by Reporting Category—ELA Grade 6

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	19	19	11.61	3.94	0.77	1.88
2	10	12	5.68	2.41	0.65	1.43
3	9	9	5.94	2.30	0.72	1.22
4	6	6	3.33	1.61	0.56	1.07
5	6	6	3.22	1.53	0.50	1.09

Table R-21. Reliabilities by Reporting Category—ELA Grade 7

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	17	19	9.25	3.67	0.72	1.94
2	11	11	6.39	2.71	0.71	1.47
3	8	8	4.81	1.99	0.64	1.20
4	6	6	2.75	1.36	0.36	1.09
5	8	8	4.63	1.86	0.53	1.27

Table R-22. Reliabilities by Reporting Category—ELA Grade 8

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	14	14	7.42	2.64	0.59	1.70
2	14	14	8.45	2.81	0.67	1.61
3	9	9	6.77	1.87	0.63	1.14
4	7	7	4.17	1.55	0.42	1.18
5	6	6	2.84	1.30	0.29	1.10

Table R-23. Reliabilities by Reporting Category—Mathematics Grade 3

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	23	23	16.11	5.22	0.87	1.85
2	7	7	4.89	1.58	0.55	1.06
3	14	14	7.32	3.13	0.72	1.64
4	6	6	3.66	1.92	0.74	0.97

Table R-24. Reliabilities by Reporting Category—Mathematics Grade 4

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	22	22	12.67	5.29	0.87	1.93
2	8	8	5.30	1.94	0.68	1.10
3	14	14	7.80	3.11	0.73	1.62
4	6	6	3.81	1.51	0.52	1.05

Table R-25. Reliabilities by Reporting Category—Mathematics Grade 5

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	22	22	12.66	5.05	0.85	1.94
2	9	9	5.36	2.40	0.74	1.24
3	13	13	6.55	2.72	0.69	1.53
4	6	6	3.24	1.65	0.59	1.05

Table R-26. Reliabilities by Reporting Category—Mathematics Grade 6

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	20	20	10.87	4.14	0.78	1.93
2	12	12	5.98	2.76	0.71	1.49
3	11	11	5.28	2.26	0.59	1.45
4	7	7	3.46	1.75	0.60	1.11

Table R-27. Reliabilities by Reporting Category—Mathematics Grade 7

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	10	10	4.47	2.71	0.75	1.34
2	14	14	5.67	2.90	0.68	1.64
3	16	16	5.62	3.24	0.71	1.73
4	10	10	4.76	2.19	0.63	1.34

Table R-28. Reliabilities by Reporting Category—Mathematics Grade 8

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	9	9	4.31	2.38	0.71	1.28
2	22	22	8.79	4.36	0.78	2.05
3	11	11	4.87	2.69	0.71	1.45
4	8	8	3.74	1.78	0.50	1.26

Table R-29. Reliabilities by Reporting Category—Science (OSTP) Grade 5

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	15	15	7.38	3.03	0.66	1.76
2	12	12	6.65	2.64	0.67	1.52
3	18	18	10.38	4.00	0.80	1.80

Table R-30. Reliabilities by Reporting Category—Science (OSTP) Grade 8

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	15	16	7.21	3.29	0.67	1.88
2	12	13	7.50	2.77	0.65	1.64
3	18	19	9.08	3.88	0.73	2.02

Table R-31. Reliabilities by Reporting Category—Science (CCRA) Grade 11

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	30	31	13.74	6.05	0.83	2.52
2	30	31	13.59	5.42	0.78	2.54

Table R-32. Reliabilities by Reporting Category—U.S. History (CCRA) Grade 11

Reporting Category	Number of Items	Raw Score		Standard Deviation	Alpha	Standard Error
		Maximum	Mean			
1	25	25	13.08	5.22	0.82	2.21
2	25	25	12.39	4.95	0.79	2.24

APPENDIX S

DECISION ACCURACY AND CONSISTENCY RESULTS

Table S-1. Summary of Decision Accuracy and Consistency Results by Content Area and Grade—Conditional on Cutpoint

Content Area	Grade	Below Basic / Basic			Basic / Proficient			Proficient / Advanced		
		Accuracy (consistency)	False		Accuracy (consistency)	False		Accuracy (consistency)	False	
			Positive	Negative		Positive	Negative		Positive	Negative
ELA	3	0.92(0.88)	0.05	0.03	0.92(0.88)	0.04	0.05	0.96(0.94)	0.03	0.01
	4	0.92(0.89)	0.04	0.04	0.91(0.88)	0.03	0.05	0.98(0.97)	0.02	0.00
	5	0.93(0.90)	0.04	0.03	0.91(0.88)	0.04	0.04	0.96(0.94)	0.03	0.02
	6	0.92(0.89)	0.04	0.03	0.92(0.88)	0.04	0.04	0.97(0.96)	0.02	0.01
	7	0.92(0.88)	0.04	0.04	0.91(0.88)	0.03	0.05	0.95(0.94)	0.05	0.00
	8	0.92(0.89)	0.04	0.03	0.9(0.85)	0.05	0.05	0.94(0.93)	0.05	0.00
Mathematics	3	0.93(0.90)	0.04	0.03	0.92(0.89)	0.05	0.04	0.95(0.93)	0.03	0.02
	4	0.93(0.90)	0.04	0.03	0.92(0.89)	0.04	0.04	0.95(0.93)	0.03	0.02
	5	0.92(0.90)	0.05	0.02	0.92(0.89)	0.05	0.03	0.96(0.94)	0.02	0.02
	6	0.92(0.89)	0.05	0.03	0.93(0.90)	0.03	0.04	0.97(0.96)	0.03	0.01
	7	0.91(0.88)	0.05	0.04	0.92(0.89)	0.04	0.04	0.97(0.96)	0.02	0.01
	8	0.92(0.89)	0.04	0.04	0.94(0.91)	0.03	0.04	0.96(0.94)	0.03	0.02
Science	5	0.93(0.90)	0.03	0.04	0.91(0.87)	0.05	0.04	0.96(0.94)	0.03	0.02
	8	0.91(0.87)	0.05	0.04	0.91(0.88)	0.04	0.05	0.96(0.94)	0.03	0.01
	11	0.93(0.90)	0.04	0.03	0.93(0.90)	0.03	0.04	0.95(0.93)	0.03	0.02

APPENDIX T
SAMPLE REPORTS

STUDENT/FAMILY REPORT
OKLAHOMA SCHOOL TESTING PROGRAM

USING THIS REPORT TO MEET WITH YOUR STUDENT'S TEACHER OR SCHOOL

As your student's first teacher, you are a critical part of their education. It is important to remember that your student's strengths, abilities and potential cannot be measured by a single test score. Each student grows at different rates both physically and academically. State tests help gauge how your student is growing in the knowledge and skills outlined in the Oklahoma Academic Standards. State test results, when combined with other information (i.e., report card grades, teacher feedback, classroom performance and local tests) can help you and the teacher understand where your student is making progress and where they may need extra support. Ask your student's teachers and/or school:

- Where is my student excelling? How can I support this success?
- What do you think is giving my student the most trouble? How can I help my student improve in this area?
- What can I do to help my student with upcoming work?
- What curriculum and learning experiences do you provide to support my student?

OKLAHOMA STATE DEPARTMENT OF EDUCATION (OSDE) RESOURCES

The **OSTP Parent Portal** - is an interactive web-based tool you can use to access information about your student's OSTP results. *(Note: You will need your student's state ID (STN) number and date of birth to set up an account. Your student's state ID (STN) number is located on the front of this report.).* https://okparentportal.emetric.net/login

The **OSDE Family Guides** page provides links to grade-level guides that illustrate what is expected of students at each grade level in different content areas, along with activities families can do at home to further support their student's learning. https://sde.ok.gov/oklahoma-family-guides

The **OSDE Family Engagement** page is home to tools and resources that support partnerships between families and schools. https://sde.ok.gov/families

The **OSDE Assessment Guidance** page provides information and guidance on interpreting and using data from student assessments. https://sde.ok.gov/assessment-guidance

The **Oklahoma School Testing Program (OSTP)** material page provides more information about the state tests your student took such as Parent, Student, Teacher Guides (PSTGs) and testing blueprints. https://sde.ok.gov/assessment-material

GLOSSARY OF TERMS

Performance Level: Reflect overall performance and are determined by where a student's OPI score falls within a defined range for each academic area. Oklahoma reports four performance levels: **Below Basic**, **Basic**, **Proficient**, or **Advanced**.

Performance by Category: Represent groups of similar student skills assessed within each grade and subject. For example, performance categories reported for grades 3-8 mathematics include Numbers and Operations, Algebraic Reasoning and Algebra, Geometry and Measurement, and Data and Probability. Each performance category uses an indicator to show student performance on the subset of items associated with the category. These indicators are **Below Standard**, **At/Near Standard** and **Above Standard**.

ADDITIONAL RESOURCES AND INFORMATION

Office of Assessment
Phone: (405) 521-3341

Office of Special Education
Phone: (405) 521-3351

Office of Curriculum and Instruction
Phone: (405) 521-4287

Grade 5

Student:	FIRST126 M LASTNAME126
Local ID:	D00000126
State ID:	D00000126
Birth Date:	12/29/2009
School:	Demonstration School 2
District:	Demonstration District A
Code:	DEMONA-DE2

Dear Family,

This report showcases your student's performance on the spring 2021 Oklahoma School Testing Program (OSTP) Tests in key academic areas. State test results, when combined with other information - (i.e. homework, classwork, report card grades and local assessments), can help you and the teacher work together to support your student's growth.

Your student's score report helps you know:
- how your student performed in each academic area
- where your student is doing well and where they may need additional support
- how your student performed compared to others, and
- how you can support your student at home and at school

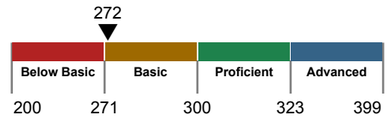
If you have any questions, please contact your local school or the Office of Assessment at https://sde.ok.gov/office-assessments.

Sincerely,

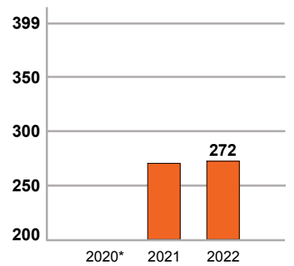
Joy Hofmeister
State Superintendent of Public Instruction

English Language Arts

272
Basic



First126 demonstrates partial readiness in ELA for the next grade or course and may need additional support.

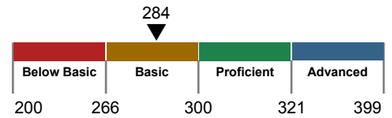


First126's ELA performance over time

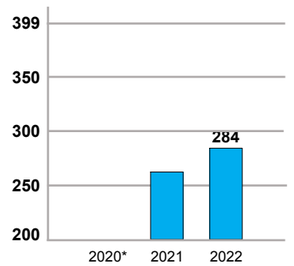
*Score not available

Mathematics

284
Basic



First126 demonstrates partial readiness in Mathematics for the next grade or course and may need additional support.

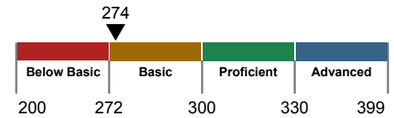


First126's Mathematics performance over time

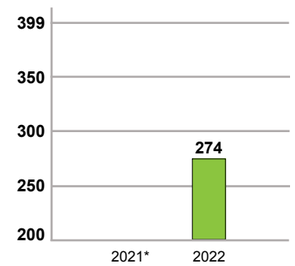
*Score not available

Science

274
Basic



First126 demonstrates partial readiness in Science for the next grade or course and may need additional support.



First126's Science performance over time

*No data available as Science is tested in grades 5 and 8 only.

English Language Arts (ELA) ▶ BASIC

- sometimes chooses the best summary of the text and at times are able to differentiate main ideas from details.
- compare and contrast some details in literary and nonfiction/informational texts to classify genres.
- identify the paraphrase of an original text some of the time.
- compare and contrast texts and ideas within or between simple texts.
- identify some literary elements, literary devices, author's purpose, point of view, or accuracy of facts.
- engage in a recursive writing process to create basic written works.
- use predictable vocabulary to create simple written works for various purposes and audiences and applies a basic organizational structure that fits the writing task.
- use vocabulary knowledge and resources to interpret simple text through word parts, word relationships, or context clues.
- identify and apply some rules of grammar and mechanics.
- locate, record, and organize basic information on a topic in order to present findings.

First126's ELA Performance by Reporting Category

Points Earned / Points Possible | **Ways to Support First126**

10 / 16 — **Reading/Writing Process ▶ Below Standard**
- Help your student use details from the stories or articles they are reading to relate what the text says (for example, details about how the main idea shapes the story, sequence of events, facts and opinions being stated, etc.).
- Help your student write and refine their writing (e.g., write a letter to address a local issue, ask for information, describe an object or event or share an opinion).

8 / 11 — **Critical Reading/Writing ▶ Below Standard**
- Ask your student what they learned from reading and how they can use this in real life. Have them read the most interesting or useful sections of a passage aloud.
- Help your student identify and write about topics that interest them in a poem, letter, or story and then talk about how they could make their writing better.

3 / 10 — **Vocabulary ▶ Below Standard**
- Model learning new words by using them in conversations with your student.
- Help your student keep an "Interesting Words" notebook. Have them use references to write a brief description and draw a picture to represent each word. Use their words in conversations and writing.

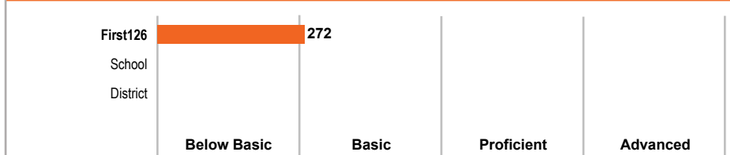
4 / 6 — **Language ▶ Below Standard**
- Help your student to identify and correct mistakes in their own writing or to notice mistakes in other people's writing.

4 / 7 — **Research ▶ Below Standard**
- Encourage your student to create questions on topics they would like to know more about such as space, an animal or a career and discuss where to find information to answer their questions.

1 / 4 — **Writing Composite Score ▶ Below Standard**
- Encourage your student to write on a daily basis (e.g., journaling, keeping a diary).
- Discuss ways to expand writing by including details and examples.

For more information on supporting your student, please visit the OSDE Family Guides found at https://sde.ok.gov/oklahoma-family-guides.

ELA Performance Compared to School and District



Your student's Lexile score: **740L**

The **Lexile measure** provides a score that describes the level at which your student can comfortably read challenging text and also describes the complexity of texts, taking into account such features as vocabulary and sentence complexity. This measure, along with consideration of your student's interests and experiences, is helpful in finding texts for independent reading. For more information on Lexile measures, please visit https://sde.ok.gov/lexiles.

Mathematics ▶ BASIC

- estimate and solve division problems with remainders and solve real-world problems with addition and subtraction.
- recognize basic equivalent decimals and fractions, represent whole numbers, and compare and order fractions or decimals.
- add and subtract decimals and fractions with like denominators.
- describe simple patterns of change and identify ordered pairs on a coordinate plane.
- evaluate simple equivalent numerical expressions or equations.
- describe and classify geometric figures.
- solve simple volume and perimeter problems.
- choose an appropriate instrument to measure objects and read and analyze the length of objects.
- read and analyze the measure of angles.
- read simple graphs.

Points Earned / Points Possible | **Ways to Support First126**

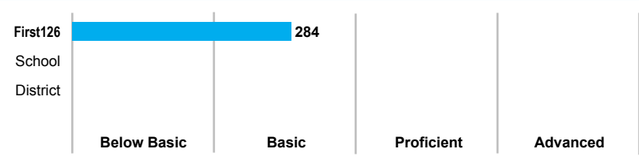
14 / 22

5 / 9

6 / 13

4 / 6

For more information on supporting your student, please visit the OSDE Family Guides found at https://sde.ok.gov/oklahoma-family-guides.



Your student's Quantile score: **760Q**

The **Quantile measure** provides a score that describes your student's level of mathematical ability and the difficulty of a skill or concept as it relates to other mathematical skills and concepts your student is learning. The score shows your student's readiness for instruction regarding a particular mathematical skill or concept. For more information on Quantile measures, please visit https://sde.ok.gov/quantiles.

Science ▶ BASIC

- identify basic models to represent common features of matter and/or energy, ecosystems and/or Earth's system.
- recognize scale, proportion, quantity or patterns when performing basic computations with data as it pertains to distribution of water on Earth, conservation of matter and/or Earth's relationship with the sun, moon and stars.
- identify evidence, data or models to distinguish relationships between an object and Earth's gravity, how basic scale and proportion affect the brightness of the sun and other stars or how plants use air and water.
- observe or measure phenomena to recognize patterns of materials.
- identify basic relationships when mixing substances within an investigation framework.

Points Earned / Points Possible | **Ways to Support First126**

6 / 15

6 / 12

7 / 18

For more information on supporting your student, please visit the OSDE Family Guides found at https://sde.ok.gov/oklahoma-family-guides.

Spring 21-22 OSTP Grade 5

LASTNAME126, FIRST126 M.

State ID: D00000126
Birth Date: 12/29/2009
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	272	Basic
Math	284	Basic
Science	274	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME143, FIRST143 M.

State ID: D00000143
Birth Date: 05/13/2009
Gender: F
Grade: 5

Subject	Score	Performance Level
ELA	287	Basic*
Math	282	Basic
Science	262	Below Basic

Demonstration School 2
Demonstration District A

*ELA/Reading read-aloud accommodation used.

Spring 21-22 OSTP Grade 5

LASTNAME160, FIRST160 M.

State ID: D00000160
Birth Date: 05/28/2009
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	272	Basic
Math	266	Basic
Science	280	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME177, FIRST177 M.

State ID: D00000177
Birth Date: 02/05/2009
Gender: F
Grade: 5

Subject	Score	Performance Level
ELA	276	Basic
Math	253	Below Basic
Science	292	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME186, FIRST186 M.

State ID: D00000186
Birth Date: 03/27/2009
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	294	Basic
Math	311	Proficient
Science	303	Proficient

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME187, FIRST187 M.

State ID: D00000187
Birth Date: 03/26/2010
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	202	Below Basic
Math	209	Below Basic
Science	266	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME213, FIRST213 M.

State ID: D00000213
Birth Date: 08/19/2009
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	314	Proficient
Math	301	Proficient
Science	289	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME220, FIRST220

State ID: D00000220
Birth Date: 12/17/2008
Gender: M
Grade: 5

Subject	Score	Performance Level
ELA	261	Below Basic
Math	271	Basic
Science	274	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME242, FIRST242 M.

State ID: D00000242
Birth Date: 04/16/2009
Gender: F
Grade: 5

Subject	Score	Performance Level
ELA	246	Below Basic
Math	287	Basic
Science	258	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 OSTP Grade 5

LASTNAME291, FIRST291 M.

State ID: D00000291
Birth Date: 09/23/2009
Gender: F
Grade: 5

Subject	Score	Performance Level
ELA	283	Basic
Math	289	Basic
Science	277	Basic

Demonstration School 2
Demonstration District A

STUDENT/FAMILY REPORT
COLLEGE and CAREER READINESS ASSESSMENT

Grade 11

Student: FIRST114 M LASTNAME114
Local ID: D00000114
State ID: D00000114
Birth Date: 08/15/2003
School: Demonstration School 2
District: Demonstration District A
Code: DEMONA-DE2

Dear Family,

This report showcases your student's performance on the spring 2022 College and Career Readiness Assessment (CCRA) Tests in key academic areas. State test results, when combined with other information (i.e., homework, classwork, report card grades and local assessments), can help you and the teacher work together to support your student's growth.

Your student's score report helps you know:

- how your student performed in each academic area
- where your student is doing well and where they may need additional support
- how your student performed compared to others, and
- how you can support your student at home and at school

If you have any questions, please contact your local school or the Office of Assessment at https://sde.ok.gov/office-assessments.

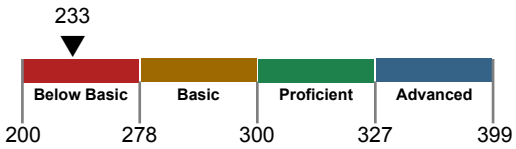
Sincerely,

Joy Hofmeister
State Superintendent of Public Instruction

Science

233

Below Basic

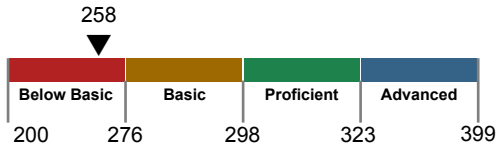


First114 demonstrates partial readiness in Science for the next grade or course and may need targeted support to bring them to grade level.

U.S. History

258

Below Basic



First114 demonstrates partial readiness in U.S. History for the next grade or course and may need targeted support to bring them to grade level.

Science ▶ BELOW BASIC

Students scoring **Below Basic** may need targeted support in developing skills and abilities to bring them to grade level. Students scoring below basic may:

- Use basic patterns and models to identify and describe components between or within systems related to the energy of motion and the structure and properties of matter, and the relationships between energy and matter.
- Use simple mathematical models and conduct investigations to produce data or use provided data to support explanations or claims about the conservation of energy and matter during chemical reactions, the effects of different type of interactions, definitions of energy, conservation of energy and energy transfer within a system and/or system model, and how matter affects wave properties.
- Evaluate the validity and/or reliability of a simple claim about the effects of electromagnetic radiation on matter from a published source.
- Identify and describe basic relationships and construct explanations based on evidence from a variety of sources about patterns relating to the structure and properties of matter and chemical reactions; and define energy and matter to design solutions around defining and delimiting engineering problems and interdependence of science, engineering, and technology.
- Identify or describe basic components or relationships among components within systems and system models related to structure, function, growth and/or development of organisms, organization of matter and energy flow in organisms, cycles of matter and energy transfer in ecosystems, or energy in chemistry processes.
- Conduct investigations to produce data; use provided data to support explanations or claims about the stability related to structure and function of organisms, interdependent relationships in ecosystems at different scales, the cycling of matter and flow of energy among organisms in an ecosystem, the effect variation of traits has in a population, patterns that show evidence of common ancestry and diversity, natural selection, or adaptation.
- Ask questions to identify relationships about the effect of structure and function on inheritance of traits; or describe arguments based on evidence as students communicate understanding of stability and change in ecosystem dynamics, function and resilience, the cause and effect relationships of social interactions, group behaviors, adaptation, and variation of traits.
- Identify and describe basic relationships based on evidence of the cause and effect relationships in natural selection, adaptation, and how the structure of DNA determines protein structure and impacts the function of the cell; or identify and describe explanations from evidence for how matter and energy is organized, cycled, and transferred within an organism or ecosystem.

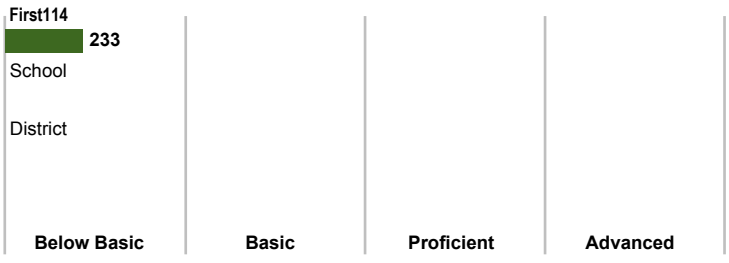
Performance by Reporting Category

Points Earned / Points Possible

10 / 31 **Physical Science ▶ Below Standard**

7 / 31 **Life Science ▶ Below Standard**

Performance Compared to School and District



U.S. History ▶ BELOW BASIC

Students scoring **Below Basic** may need targeted support in developing skills and abilities to bring them to grade level. Students scoring below basic may:

- Inconsistently apply social studies content knowledge in order to make connections between, and partially understand, how eras and events throughout United States history have influenced subsequent eras.
- Partially analyze how post-Reconstruction civil rights struggles, westward expansion, immigration, and American Indians were impacted by federal policy from 1865 to the 1920s.
- Partially evaluate how the American Industrial Revolution, the Progressive Movement, and the impact of key individuals transformed the United States from the 1870s to the 1920s.
- Partially describe the causes and effects of the United States developing into a world power through foreign and domestic policies from 1890 to 1920.
- Partially identify the factors that transformed the American government, economy, and society during the 1920s and 1930s.
- Summarize some of the major causes, events, and effects of the United States' involvement in World War II, from 1933 to 1946, transformed the nation, including the Nuremberg Trials.
- Partially describes the economic, political, and social effects of containment of Communism and Cold War from 1945 to 1975.
- Partially examine how the domestic events and policies, including various civil rights movements, transformed the United States from 1945 to 1975.
- Identify the impact of United States' foreign and domestic policy both at home and abroad from 1977 to 2001.
- Partially apply critical thinking skills, demonstrating an inconsistent ability to comprehend, interpret, evaluate, and utilize primary and secondary sources.

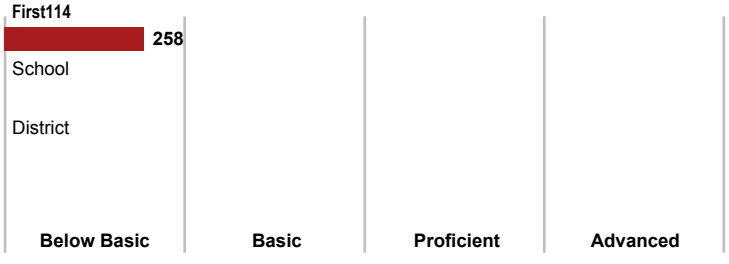
Performance by Reporting Category

Points Earned / Points Possible

9 / 25

9 / 25

Performance Compared to School and District



STUDENT/FAMILY REPORT
COLLEGE and CAREER READINESS ASSESSMENT

USING THIS REPORT TO MEET WITH YOUR STUDENT'S TEACHER OR SCHOOL

As your student's first teacher, you are a critical part of their education. It is important to remember that your student's strengths, abilities and potential cannot be measured by a single test score. Each student grows at different rates both physically and academically. State tests help gauge how your student is growing in the knowledge and skills outlined in the Oklahoma Academic Standards. State test results, when combined with other information (i.e., report card grades, teacher feedback, classroom performance and local tests), can help you and the teacher understand where your student is making progress and where they may need extra support. Ask your student's teachers and/or school:

- Where is my student excelling? How can I support this success?
- What do you think is giving my student the most trouble? How can I help my student improve in this area?
- What can I do to help my student with upcoming work?
- What curriculum and learning experiences do you provide to support my student?

OKLAHOMA STATE DEPARTMENT OF EDUCATION (OSDE) RESOURCES

The **OSTP Parent Portal** - is an interactive web-based tool you can use to access information about your student's OSTP results. *(Note: You will need your student's state ID [STN] number and date of birth to set up an account. Your student's state ID [STN] number is located on the front of this report.)* https://okparentportal.emetric.net/login

The **OSDE Graduation Resources** page provides links and tools you can use to help answer questions you may have about graduation requirements and career and college readiness. https://sde.ok.gov/achieving-classroom-excellence-resources

The **OSDE Family Engagement** page is home to tools and resources that support partnerships between families and schools. https://sde.ok.gov/families

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GLOSSARY OF TERMS

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ADDITIONAL RESOURCES AND INFORMATION

Office of Assessment
Phone: (405) 521-3341

Office of Special Education
Phone: (405) 521-3351

Office of Curriculum and Instruction
Phone: (405) 521-4287

OKLAHOMA Education

Spring 21-22 CCRA Grade 11

LASTNAME114, FIRST114 M.

State ID: D00000114
Birth Date: 08/15/2003
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	233	Below Basic
U.S. History	258	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME207, FIRST207 M.

State ID: D00000207
Birth Date: 12/30/2003
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	287	Basic
U.S. History	273	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME15, FIRST15 M.

State ID: D00000015
Birth Date: 04/23/2004
Gender: M
Grade: 11

Subject	Score	Performance Level
Science	258	Below Basic
U.S. History	254	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME209, FIRST209 M.

State ID: D00000209
Birth Date: 07/29/2003
Gender: M
Grade: 11

Subject	Score	Performance Level
Science	258	Below Basic
U.S. History	265	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME182, FIRST182 M.

State ID: D00000182
Birth Date: 04/23/2004
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	223	Below Basic
U.S. History	258	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME273, FIRST273

State ID: D00000273
Birth Date: 03/02/2004
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	240	Below Basic
U.S. History	289	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME189, FIRST189 M.

State ID: D00000189
Birth Date: 01/04/2003
Gender: M
Grade: 11

Subject	Score	Performance Level
Science	DNA	Did Not Attempt
U.S. History	304	Proficient

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME303, FIRST303 M.

State ID: D00000303
Birth Date: 11/16/2003
Gender: M
Grade: 11

Subject	Score	Performance Level
Science	299	Basic
U.S. History	280	Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME200, FIRST200

State ID: D00000200
Birth Date: 10/30/2003
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	292	Basic
U.S. History	267	Below Basic

Demonstration School 2
Demonstration District A

Spring 21-22 CCRA Grade 11

LASTNAME304, FIRST304

State ID: D00000304
Birth Date: 07/30/2003
Gender: F
Grade: 11

Subject	Score	Performance Level
Science	210	Below Basic
U.S. History	254	Below Basic

Demonstration School 2
Demonstration District A

APPENDIX U
PROCESSING AND REPORTING
BUSINESS REQUIREMENTS

Reporting Business Requirements

155952 – OSTP 2022 Oklahoma (Grade 3-8: Math, ELA, Science)

158952 – CCRA 2022 Oklahoma (Grade 11: Science, US History)

Spring Testing 2022

Version Number	Date	Updated Content Description	Updated By Name
1.0	2/15/22	Initial Document	Woreen Bogle
1.1	2/22/22	Incorporate edits from Cognia PgM	Woreen Bogle
1.2	3/15/22	Incorporate edits from SDE	Woreen Bogle
1.5	3/21/22	CR item excluded from RSA calculations	Woreen Bogle
1.6	3/29/22	CCRA Student Reports will be printed and shipped to Districts	Woreen Bogle
1.7	4/28/22	Added Addendum regarding CCRA exempt students	Woreen Bogle
1.8	6/15/22	SDE decided not report state aggregations on the student report	Woreen Bogle

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I. Overview

This document describes the Reporting requirements for the Spring 2022 assessments in Oklahoma. Assessments being administered by Cognia in Oklahoma are the Oklahoma School Testing Program (OSTP) and the College and Career Readiness Assessment (CCRA).

A. Points of Contact

Title	Name
Client Services Lead Program Manager	Elizabeth Garcia
Client Services Senior Program Manager	Taylor Grondin
Client Services Program Manager	Robin Petrowicz

B. Changes from 20-21

Due to COVID-19, the OK OSTP and CCRA assessments were cancelled in Spring 2020. Changes were made to reporting in 2021 as a result of the cancellation. In 2022 some of these changes will be reverted to 18-19 requirements:

1. There are no paper Spanish tests
2. Parent Portal will have cleaned 2021 and 2022 data available for Preliminary Reporting. SDE will provide a file to Cognia containing the Old STN, New STN, TestUSerID for the 2021 administration. Cognia will rerun data files and handoff to eMetric for loading into the portal.
3. Genre will not be reported in 2022.
4. Student score comparison to state scaled score averages will NOT be reported on the student report. This is the same as 20-21.
5. The performance level for the writing composition score will be reported on the student report. It was removed in 20-21.
6. Class will not be reported on the student report.
7. There will be a standard setting in 2022 for US History. Therefore, scaled scores and performance levels will be reported for US History after standard setting.
8. In addition to student results labels for CCRA, there will be a combined subjects student report for CCRA. Science and US History will be reported on one report.
9. US History results will be added to the CCRA student results labels.
10. The Ranking file will not be produced for US History.
11. 1 common writing prompt will be administered on grade 5 forms and a different common writing prompt will be administered on grade 8 ELA forms.
12. Driven to Read has been removed from the requirements. This is no longer required in OK.
13. US History will be added to the media redacted file, the parent portal, and the data portals.
14. Data from all schools that participate in CCRA and/or OSTP are included in the student results data file to SDE.
15. WAVE is now the Accountability Reporting Application (ARA)
16. There is a Constructed Response (CR) item assigned to a standard used in RSA reporting. However, due to the timing of RSA reporting and scoring, the item will not be included in the RSA calculation. There are sufficient points remaining to do the calculation.

C. Contract File Layouts and other documentation

1) Data File Layouts and Schema Documentation Files

a) OKXXXX_StudentResultsLayout.xlsx
b) OSTPXXXXeMetricReportingTransfer.xlsx-used for both OSTP and CCRA results
c) OSTPXXXXeMetricSummaryDataTransfer.xlsx-used for both OSTP and CCRA results
d) OK_MediaRedacted_Layout_21-22.xlsx
e) OKXXXXRosterOutboundSchemaDocumentation.xlsx
f) OSTPXXXXStudentLabelsSchemaDocumentation.xlsx
g) CCRAXXXXStudentLabelsSchemaDocumentation.xlsx
h) OSTPXXXXStudentReportSchemaDocumentation.xlsx
i) CCRAXXXXStudentReportSchemaDocumentation.xlsx
j) OKStudentDataDefinitions.xlsx
k) DemographicOverlayLayout.xlsx
l) eMetricPostAdminTransfer.xlsx
m) Pre-ID layout

Where XXXX is the academic year

D. Risks

A major risk to the 2022 administration of the OSTP and CCRA assessments is the effects of COVID-19.

Due to COVID-19 the 2020 administration of the Oklahoma assessments were cancelled. COVID-19 continues to be a threat to participation in assessments.

All stakeholders shall be notified of any risks associated to their responsible area's and be engaged as necessary.

II. General Information

A. Assessments

The CCRA testing window begins on April 4, 2022. The window for paper testers concludes on April 15, 2022. The online testing window concludes on April 22, 2022. The OSTP testing window begins April 20, 2022. The window for paper testers concludes on May 3, 2022. The online testing window concludes on May 17, 2022.

Overview

		Operational	
OSTP	03 04 06 07	ELA, Math	Online Operational (in English) Online Breach (in English) Online Spanish (Math and Science only) Paper Operational (in English) Paper Breach (in English)
	05 08	ELA, Math, Science	
CCRA	11	Science	Online Operational (in English) Online Breach (in English) Online Spanish Paper Operational (in English) Paper Breach (in English)
CCRA	11	US History	Online (in English) Paper (in English) Online Spanish Online Breach (in English) Paper Breach in (in English)

B. Reporting Phases

See the Reporting Schedule for specific dates included in each phase.

1) Pre-ID – This is the period before the test administration window begins
   a) Using the Pre-ID file from SDE Cognia produces Pre-administration labels.
   b) Pre-administration labels are provided only for those students indicating a Paper based test
   c) A pre-administration label is produced for each subject a student is expected to take depending on the student's grade.
   d) Cognia provides eMetric with a data file of students that are identified as taking their tests online. The data are provided according to the OKStudentDataDefinitions file layout.
   e) Pre-ID data is used to populate Outbound Rosters which accompany the pre-administration labels.
2) Expedited Reporting – This is the period after the test administration but before the Preliminary Reporting period.
   Cognia provides eMetric with the OSTPXXXXeMetricReportingTransfer data file populated with only the Grade 3 Reading results. This is to satisfy the early Reading Sufficiency Act (RSA) reporting requirement.
3) Preliminary Reporting
   a) Cognia provides the SDE with preliminary student data files.
   b) Cognia provides eMetric with preliminary student results data. Parent Portal to have 2021 and 2022 data.
4) Final Reporting - The period following state cleanup and receipt of the Demographic Overlay file and final SSC files from SDE
   a) Cognia will provide SDE with the final state student results data files for OSTP and CCRA

b) Cognia will provide eMetric with the final data to populate Data Interaction and the Parent Portal
c) Cognia reporting team will provide Psychometrics data support for the Technical Report and Data Forensics deliverables.

C. Receivables

Both CCRA and OSTP data are included in the same file for each receivable below.

Receivable	Received from	Description	Method of Delivery
Pre-ID file	SDE	ARA and Non-ARA student data	sftp
Post Admin Extract	eMetric	Student Post-test data	Database backup
Demographic Overlay	SDE	Student Demographic file to be used as the source of student demographic information for students with a verified student ID. The source is the ARA file.	sftp
Student Status Code	SDE	Lists tests to be invalidated	sftp

D. Deliverables

Contract	Deliverable	File Layout	Method of Delivery	Recipient
		PRE-TEST ADMINISTRATION		
OSTP CCRA	Mock PreID Student File	OKStudentDataDefinitions	sftp	eMetric
OSTP CCRA	Outbound Roster	N/A	Printed/shipped	Schools
OSTP CCRA	Reporting Test Deck	eMetricReportingTransfer; eMetricSummaryTransfer	sftp	eMetric
		EXPEDITED REPORTING		
OSTP	Student Results Data Grade 3 RSA	eMetricReportingTransfer	Sftp	eMetric
		PRELIMINARY REPORTING		
OSTP CCRA	State Student Results (one file)	StudentResultsLayout	sftp	SDE
CCRA	Participation data file (US History)	StudentResultsLayout	sftp	SDE
OSTP CCRA	Points Possible table	eMetricReportingTransfer	Sftp	eMetric
OSTP CCRA	Student Results Data File (excluding USH)	eMetricReportingTransfer	sftp	eMetric
OSTP CCRA	Summary Data File (a file per grade) CCRA-Science only	eMetricSummaryTransfer	sftp	eMetric
		FINAL REPORTING		
OSTP CCRA	Student Results Data File	eMetricReportingTransfer	sftp	eMetric
OSTP CCRA	Summary Data File (one file per grade)	eMetricSummaryTransfer	sftp	eMetric
OSTP CCRA	Points Possible table	eMetricSummaryTransfer	sftp	eMetric

Contract	Deliverable	File Layout	Method of Delivery	Recipient
OSTP CCRA	Media Redacted file (one file)	OK_Media_Redacted_Layout	sftp	SDE
OSTP	Individual Student Reports	N/A	printed pdf	Shipped to Districts
CCRA	Individual Student Reports	N/A	printed pdf	Shipped to Districts
OSTP CCRA	Student Results Labels	N/A	printed pdf	Shipped to Districts
OSTP CCRA	Student Results Data File	StudentResultsLayout	sftp	SDE

III. Pre-Assessment Processing

Pre-Assessment activities are completed prior to the testing window. Using the pre-ID data, provided by SDE, Cognia produces and ships test administration labels and the Outbound rosters to districts.

A. Student Roster and Test Data Preparation

Pre-ID data is received from the SDE to prepare for the test administration. The Pre-ID data contains student information, including demographics, and program information for students eligible to take the assessments. The source of the pre-ID from the SDE is the Accountability Reporting Application, the Student Information System in Oklahoma.

The SDE shares Student Information with the State of Texas, in the district of Texhoma, district code 70I061, located in Texas for grades three and four. The Oklahoma Student Information System includes the students located in Texas for Public School Funding purposes. The Students in the State of Texas are not included in any reporting or rostering activities.

1) Student information is provided by SDE in the ARA file. Student data not available in the ARA are provided by the districts in separate data files to Cognia directly. The data from the non-ARA districts is provided in a different layout from the ARA data.
2) Students in Grades 03 and 04, in the School District of Texhoma (70I061) Texhoma Elementary School (105) are removed from data to handed off to iCore and eMetric. These students do not take OK assessments.
3) Students in Texhoma district in grades 5-8 are expected to take OK assessments.
4) Cognia provides the final Pre-ID data to eMetric prior to the test administration window
5) Cognia provides data for student test booklet labels to the iCore distribution group. These labels are printed and shipped to the district for all students taking paper tests
6) Data from the Pre-ID files are used to produce the Outbound Rosters. These rosters are printed and shipped along with the pre-administration labels districts and schools.

IV. Post Test Assessment Administration

The Testing window is closed prior to processing and reporting. The commencement of the testing window initiates the following activities to report test results.

A. Preliminary and Expedited Reporting

1) eMetric provides the post testing data to Cognia in the post admin extract layout.
2) Cognia Reporting team provides Psychometrics with data to support Scaling and Equating.
3) Cognia Reporting team provides Psychometrics with student level data for Grade 3 ELA. Psychometrics uses Grade 3 Reading items in Standards 2 and 4 to determine if a student achieves the RSA requirement. An indicator is provided back to the reporting team to indicate that the student achieves or does not achieve the requirement. The technical report each year provides additional details about the Psychometrics for Grade 3 RSA.
4) Due to the timing of RSA reporting, any CR items within these standards will not be included in the RSA calculations.
5) During expedited reporting, key verification will be done for all grades and subjects. During this period only machine scores are available. Adjudication is also done for TEIs to ensure correct scoring of these items. Psychometrics and Content Development work together in this effort. This is done prior to reporting.
6) For Preliminary Reporting, machine scores and hand scores are available.

B. Clean Up Window

1) The SDE will perform post-test clean-up of Student Participation and Demographic record modifications using the preliminary data from Cognia
2) The following steps define the process to be followed:
   a) Specific fields will be identified as editable
   b) FAY/NFAY is a snapshot of the status at the time of delivery of the final cleanup file from the SDE
   c) After cleanup by SDE, the updated GRF is returned to Cognia reporting team.
3) The eMetric Reporting Portal will have a note to direct users to SDE's Accountability Systems for a more accurate student status

C. Student Data Processing

1) Student IDs are provided by the SDE whenever possible. In the event the state does not provide a Student ID for a test, Cognia will assign a unique test ID for processing purposes
   a) If the Student ID is blank, Cognia creates a unique number using the eMetric ID. It Is stored as the booklet number. The Student ID remains blank.
   b) All created IDs will be a ten-digit number which may not begin with 0 (zero) or "100".
2) Student data from the Overlay datafile are used for reporting student demographic data if the student has a valid verified student ID that links to the Overlay file.

D. Test Data

1) Every imported test record must be associated with a student record
2) Test Mode is captured in all test records as 1: Online or 2: Paper
3) Duplicate test records are merged/resolved prior to reporting:

a) All attempted duplicate records are reviewed and updated accordingly based on SDE feedback as necessary
b) In the event the student has a test record with no items attempted, Cognia does not suppress any records unless specifically directed to do so as part of the duplicate resolution

E. Scan Paper Delivery and Data Denotation

Each Paper Booklet is scanned and delivered immediately to the Cognia Reporting team. At the time of receipt, the reporting team performs procedures to accurately identify discrepancies in the data. The data is handed off in the agreed upon format specified in the Scan Delivery Layout and Scanning Specifications document.

1) Any and all discrepancies with the Scan File are resolved accordingly.
2) The reporting team provides a report of all discrepancies back to the Scanning department for research and/or re-scanning

F. Data Validation

1) The Date of Birth field is set to blank if the value does not pass the 6 numeric value validation of (mmddyy).
2) All non-Alpha characters are set to blank for First Name, MI and DOB fields where there are non-Alpha characters in the fields
3) SDE may provide information on any unresolved test data records that have no student association
4) Ethnicity is reported as selected
   a) If Hispanic/Latino ethnicity is selected, the record is reported as Hispanic/Latino regardless of any additional ethnicity value selected
   b) If more than one ethnicity is selected and none of them Hispanic/Latino, the ethnicity is reported as Two or More Races
      i) Valid Ethnicity Values include:
         (1) Black/African American
         (2) American Indian/Alaska Native
         (3) Hispanic/Latino
         (4) Asian
         (5) Pacific Islander
         (6) White/Caucasian
         (7) Two or More Races

G. Blank Books

1) Records are suppressed from reporting if all the following fields are blank:
   a) First Name
   b) Last Name
   c) Bubbled Student ID
   d) Student Label
   e) All item responses

H. Login Discrepancy

1) A comparison is made between the location where a label was sent and where the label is returned from. A login discrepancy occurs if these are different locations.
2) In the event of a login discrepancy, the Label location is used
   a) Schools/Districts can resolve during the clean-up period allowed

I. Spanish Tests

1) There are no paper Spanish Tests in 21-22. All Spanish tests are available online only. Spanish tests are available in grades 3-8 and CCRA.

J. Void Bubble

1) Preliminary reporting includes Void (that are not invalidated) records
2) For final reporting, all remaining VOID booklets will be suppressed.

K. Paper Booklet/Test Identity

1. If a label exists, label always trumps bubbled information.
   If a valid label exists and the barcode matched to label data, assign State ID that was assigned to the barcode.

   Apply demographic data from label data.

   - Name, DOB, District Student ID

2. If a label does not exist, and Bubbled State Student ID links to Overlay
   - And School matches
   - And the first 3 characters of bubbled Lname and Fname (or the inversion of Names) matches.
     (Note: blank data indicates no conflict)

3. If a label does not exist, and Bubbled State Student ID links to Overlay
   - And the first 3 characters of bubbled Lname and Fname (or the inversion of Names) matches.
     (Note: blank data indicates no conflict)

4. Bubbled LocalID link to District Student ID in Overlay
   - And school matches
   - And first name and last name matches

5. Bubbled State Student ID link to District Student ID in Overlay
   - And school matches
   - And first name and last name matches

6. Apply overlay demographic data when assigned **state ID and school** matched
7. SDE will participate in resolution of any unidentified book or student

L. Overlay Data

1) The Demographic Overlay file is provided by the SDE to Cognia for reporting purposes
   a) The demographic overlay file is the most up-to-date demographic information submitted by available in the student information systems
   b) If a Student ID is not unique within a school, the Program Manager will be notified for research and resolution
   c) A file will be delivered to the Program Manager with all requested resolutions
   d) Demographics available in the Demographic Overlay file will be used in reporting a student if the Student ID exists in the Demographic Overlay file and has been verified. Otherwise, the demographics provided in the testing platform will be used.
   2) A student record will be created for students without tests but are present in the Demographic Overlay file. A student may be built out more than once if they have a record in the Demographic Overlay file at multiple schools. Tests records will be built out for each occurrence in the Overlay where the Student ID and School Combination does not exist in the Test Result.

M. Test and Overlay Variable reconciliation

1) Set the IEP value in the test record to 0 if Student IEP from the Overlay file is not set to ‘1’ for students that link to the Overlay file or ‘Y’ for students whose data is coming from the test record.
   a. If Student IEP is ‘1’ or ‘Y’ and test IEP is ‘1’ then test IEP remains set to ‘1’.
   b. If Student IEP is ‘0’ or ‘N’ and test IEP is ‘1’ then test IEP is set to ‘0’.
   c. If Student IEP is ‘1’ or ‘Y’ and test IEP is not ‘1’ then test IEP is set to ‘2’.
2) Set test Plan504 as follows:
   a. If Student Plan504 is ‘1’ or ‘Y’ and test Plan504 is ‘1’ then test Plan504 remains set to ‘1’.
   b. If Student Plan504 is ‘0’ or ‘N’ and test Plan504 is ‘1’ then test Plan504 is set to ‘0’.
   c. If Student Plan504 is ‘1’ or ‘Y’ and test Plan504 is not ‘1’ then test Plan504 is set to ‘2’.
3) Set Test ELL as follows:
   a. If Student ELL is ‘1’ or ‘Y’ and test ELL is ‘1’ then test ELL remains set to ‘1’.
   b. If Student ELL is ‘0’ or ‘N’ and test ELL is ‘1’ then test ELL is set to ‘0’.
   c. If Student ELL is ‘1’ or ‘Y’ and test ELL is not ‘1’ then test ELL is set to ‘2’.

N. Demographic Cleanup

1) NFAY is not available in Preliminary Reporting. SDE will update during the cleanup period and provide back to Cognia.
2) Grade
   a. Student Grade is provided by SDE in the Overlay file
   b. Where Student Grade is not available, the Student Grade is set to the Tested Grade

O. Duplicate Processing

Multiple Choice duplicate test items are identified when there is more than one record with the same verified Student ID. A record is attempted when five or more MC/PMC/TEI responses to any item(s) has been recorded. All duplicate records with less than five responses will be suppressed from reporting.

1) For all online test duplicate records in which there are five or more MC/PMC/TEI responses, the test record with the earliest Start Date will be used where there is a valid participation status
   a) All records with a greater Start Date will be flagged as 'Do Not Report-Duplicate'
2) For all paper test duplicate records in which there are five or more MC/PMC/TEI responses, all paper tests will be reported in Preliminary Reporting and SDE will resolve all paper duplicates for Final Reporting.
3) For all test duplicate records where there are five or more MC/PMC/TEI responses on the Online test and five or more MC/PMC/TEI responses on the Paper test, the Online test will be the record of source
   a) The duplicated Paper test will be flagged as 'Do Not Report – Duplicate'
4) For duplicate online tests with less than five MC/PMC/TEI responses, the test with the lower TestDate will be reported. The other test will be suppressed from reporting.
5) For all test duplicate records where there are two or more Paper records with less than five MC/PMC/TEI responses, the Paper record with the earliest Bubbled valid Test Date will be the record of source
   a) In the event of all duplicate paper tests that do not have a Bubbled Test Date, the Booklet number with the lowest sequence number will be the source of record
6) For duplicate cases with online and paper records with less than five MC/PMC/TEI responses, the online record is reported. The paper record is suppressed from reporting.
7) Any duplicates not resolved are included in the data reported to eMetric. These duplicates are included in aggregations based on the participation status of the test and the schooltype.

P. Merge Tests

1) If we have more than one Writing booklet and one ELA booklet for the same student,
   a) If the writing scores are the same, the writing score associated with the lower booklet number is merged with the ELA booklet
   b) If the scores are different between the Writing booklets, the ELA test will be reported without a Writing score. A "B" will be reported instead of a Writing score in Preliminary Reporting. SDE will decide which Writing score to merge with the ELA test for Final Reporting.
   c) If the Writing booklets are from different grades, merge the Writing booklet with the grade that matches the ELA grade.
2) If we have multiple ELA booklets and one Writing booklet for the same student, all ELA tests are reported with the same Writing score from the Writing booklet
3) If we have an ELA booklet with no associated Writing booklet, the Writing score is reported as "B" for Blank.
4) If we have a Writing booklet with no matching ELA booklet, an ELA booklet is built out with blank ELA item responses.

Q. Processing Scoring Data

Scoring division will provide Reporting Services with the scores from all tests.

1) Each score record will be associated with a Booklet ID or a Test ID
   a) If a score record is received without an associated Test or Booklet ID, resolution will be attempted with the Scoring Division
2) Every score record will contain a valid score value
   a) A validation of score values will be performed
      i) Multiple Choice responses must be a valid value to be considered attempted
         (1) Valid values will be A, B, C, D or F, G, H, J, blank and * for items with multiple response when only one should be given
         (2) Blank values will not be considered a response attempt
      ii) Technology Enhanced Items will be administered online only and scored based on the scoring rubric
      iii) Multiple Part Selected Response Items will be combined when each part has a valid response attempt
         (1) Valid values will be A, B, C, D or F, G, H, J or blank
         (2) The two parts will be combined for a final response
      iv) Writing Composition Score will be based on a single holistic rubric
         (1) Responses are 30% double scored, with a score range of 1-4. A 3rd score is required if scores are non-adjacent, or non-scorable codes do not match; the third score will be human scored. A final score is then calculated
      v) Constructed response scores will be provided in ELA in grades 3,4,6, and 7.
   b) Score validation for each individual score is captured as follows:

Raw Data Value	Description	Reported Value	Point Value
1-4 (per scorer)	Score	Final score	1-4
I	Illegible/Incomprehensible	I	0
F	Language Other than English	L	0
B, R	Blank response/ refusal	N	0
O	Off Topic	O	0

3) All unresolved scoring records will be included in a report to the Scoring Division, as well as the Program Manager for research and resolution
4) All scoring records will be resolved prior to reporting

V. Student Participation and Exclusions

A. Test Attempt Rules

1) Test Attempted indicates that a student has answered a minimum of five (5) operational MC/PMC/TEIs test item(s) within a content area, regardless number of sessions
   a) Each of the five items must not be indicated as flawed or otherwise not scorable
   b) Items not able to be converted to Braille must be identified and excluded from attempted rules

2) In grades 5 and 8 English Language Arts (ELA) tests even if the writing composition is present, the student would still need to have attempted at least five operational multiple-choice test items to be considered meeting attemptedness
3) If the student meets attemptedness for ELA, then the student meets attemptedness for RSA in grade 3.
4) If the student doesn't meet test attemptedness then the test is reported with a Did Not Attempt status
5) If there is no valid attempt, the record will use the Participation Status guidelines

B. Test Design

Each test will be delivered Online or Paper. Operational items will be included in Raw Score. Raw score items will be a single common block across all forms.

Grade	Subject	Form(s)	Items included in Raw Score	Item Types
03-05	Mathematics	Paper Operational Paper Breach	If countstowardsstudentscore=Yes in NTS	Selected response items (Single part) only. (Grade 4 and 5 TEIs)
06-08	Mathematics	Online Operational: A1 Online Breach Paper Operational Paper Breach Online Spanish	If countstowardsstudentscore=Yes in NTS	Selected response items (Single part) and TEIs.
03-08	ELA	Paper/Online Operational Paper/Online Breach Online Spanish	If countstowardsstudentscore=Yes in NTS	A Writing Composition is present at grades 5 and 8. All other items are selected response items (Single or Multiple parts and TEIs).
05	Science	Paper Operational Paper Breach	If countstowardsstudentscore=Yes in NTS	Selected response items (Single part) and TEIs
08	Science	Online Operational Online Breach Online Spanish Paper Operational Paper Breach	If countstowardsstudentscore=Yes in NTS	Selected response items (Single or Multiple parts) and TEIs.
11	Science	Online Operational Online Breach Online Spanish Paper Operational Paper Breach	If countstowardsstudentscore=Yes in NTS	Selected response items (Single or Multiple parts) and TEIs.
11	US History	Online Paper Online English with Spanish TTS	If countstowardsstudentscore=Yes in NTS	Selected response items (Single or Multiple parts) and TEIs.

1) Item Reporting Categories
   a) Standards will be reported for all content areas
   b) ELA Tests for grade 5 and 8 will have writing subtest information reported
   c) Minimum item counts
      i) Any content area attempt will be considered to have attempted all standards
      ii) If less than 6 points are included in a standard, the student score will not be reported within that category
      iii) All Item Reporting Categories are defined by Content Design and Development. The reporting categories are mapped and found in the CDD Test Delivery Blueprints
      iv) The Primary Standard in NTS is the source of the Reporting Category.
      v) Writing Prompt is its own category. Suppression rule is not applied since the number of points is less than 6.
2) Braille Item Content
   a) Paper Braille tests will be transcribed onto an answer booklet
      i) Paper Braille tests will be identified with the IEP Braille accommodation
   b) Any test items that are not able to be transcribed Braille will be identified
      i) School year 2021-2022 tests will not contain any items required to be excluded for Braille

C. Not Tested Reasons

Not Tested Reasons are supplied by the SDE in the Student Status Code file or is flagged in iTester for online testers or the scannable for paper testers. Throughout the reporting cycles Cognia receives updated versions of the SSC.

1) If a student test record is assigned more than one Not Tested reason, the following hierarchy will be applied to assign only one status to a student test record:
   a) Did Not Attempt
   b) No Longer Enrolled
   c) State Alternate Testing (OAAP)
2) If a student has participated and has a valid attempt, any Not Tested Reason indicated is ignored.

D. Student Participation Status

Student Participation Status reflects the participation of the test assessment performed by an individual student. Valid Participation Status values are provided by the SDE.

1) If a student has more than one of the below statuses, the Participation Status for each subject is set based on the following hierarchy:
   a) Void, not invalidated (preliminary reporting only)
   b) Emergency Exemption
   c) Do Not Report
   d) Do Not Report – Duplicate
      (*May be set by Reporting*)
   e) Invalidated Test

f) Invalidated Breach Tests
(*Breach tests without an Operational test that have been Invalidated will be set by reporting*)
g) Low Grade Invalidation
(*set by Reporting, not by the SDE*)
h) State Alternate Testing (OAAP)
i) No Longer Enrolled

2) If the student does not have any valid test attempt and none of the above apply, the test record is reported with a status of Did Not Attempt.

VI. Calculations

A. Participation Status Summary

1) Student Level Calculations will be summarized by Participation Status
2) Raw scores are only produced and available in datafiles and do not appear on any Printed reports (Points Possible will be provided for each subcategory)

Description	MP Part Status	Item Scores *(Reports)*	OPI Score *(Reports)*	Performance Level *(Reports)*	Data File Raw Scores	Data File Item Scores	Data File OPI Score	Data File Performance Level	Data File Student Status Code
Valid Participant	Z	ü	ü	ü	ü	ü	ü	ü	
Did Not Attempt	A								DNA
Emergency Exemption	D								EE
Do Not Report	E*								DNR
Invalidated (Breach)	F								INV
No Longer Enrolled	G*								NLE
State Alternate Testing (OAAP)	I*								OAAP
Do Not Report- Duplicate	L*								DNR-D
Invalidated Breach	M								INV-B
Low Grade Invalidation	V								INV-G
Voided Booklet	X[1]								VOID

***** *Student records only appear in the State results file. They do not appear in online or paper reports.*
[1] *Voided booklets will be provided in Preliminary Reporting State results datafile only and will not appear in Final Reporting*

B. Demographic Reporting

A student may have differing demographic information associated with each test record with a reported Student Status Code. However, only one student report (OSTP) and one student label are generated for a unique student in a given school and tested grade. One of the tests will be selected, according to the below selection hierarchy, to be the associated demographics for all tests reported for that student in the eMetric data files, Student Report (OSTP), and Student Labels.

Selection Hierarchy

1. Blank Student Status Code (Valid Participant).

2. Last Name is NOT null or blank.NO
3. First Name is NOT null or blank.
4. Class Name is provided.
5. Most recent Test
6. Largest Test ID value.

See Specific Reporting Rules section for demographics per report.

C. Scoring Items

1) Open response scores are reported for only non-flawed items
2) Reading Sufficiency Act
   a) Reading Sufficiency Act https://sde.ok.gov/sites/ok.gov.sde/files/documents/files/RSA%20Statutes-508C%20to%20508F.pdf
   b) Operational items in Standards 2 (Reading/Writing Process) and Standards 4 (Vocabulary) on the Grade 3 ELA test are used to determine whether a student meets the RSA requirement or not.
   c) The RSA score is applied in Psychometrics and is based on a theta cut. Further information is provided in the Technical Report.
3) Lexile/Quantile
   a) Scores are assigned based on the student's earned OSTP scale score given grade and subject specific values from the MetaMetrics lookup provided by SDE
   b) Lexile scores are reported based on the ELA scaled score when applicable

OSTP ELA_Lexile Conversion Table.xlsx

   c) Quantile scores are reported based on the Math scaled score when applicable

OSTP Math_Quantile Conversion Table.xlsx

4) Writing Scores
   a) Cut points are psychometrically determined making them consistent with other Reporting Categories and similarly interpretable
   b) Performance level is determined based on a psychometric scale method
   c) Final Score
      i) If Scorer 1 score=Scorer 2 score, then the final score is set to either.
      ii) If Scorer 1 score is adjacent to Scorer 2 score, then the final score is the higher of the 2 scores.
      iii) If Scorer 1 and Scorer 2 both assign the same non-scorable codes, that value is the final trait score
      iv) Otherwise, the final trait score is the third score or non-scorable value
   d) Final Composite Score for grades 5 and 8 is calculated as follows:
      i) Grade 5 is calculated as 5 times the final score, divided by 4
         (1) The grade 5 score is rounded to the nearest whole value
         (2) Possible score values 0, 1, 3, 4 or 5. These values are used for Psychometrics.
         (3) Reports contain the scores in the range 1-4.

ii) Grade 8 is calculated as 7 times the final score, divided by 4
(1) The grade 8 score is rounded to the nearest whole value
(2) Possible score values 0, 2, 4, 5 or 7. These values are used for Psychometrics
(3) Reports contain the scores in the range 1-4.

e) Raw Score is calculated as a sum of the final calculated writing score and the operational multiple-choice raw score and used to get the final scale score and performance level

5) Reporting Category Scores
a) Only calculated from Common, non-flawed items
b) Each Percent value is rounded to the nearest whole number
c) The Reporting Category associated with the Writing is reported using the final score.

D. Performance Levels

1) Performance Levels are assigned based on the Scale Scores by grade and subject
2) Four Performance Levels
a) Performance Level 1: Below Basic
b) Performance Level 2: Basic
c) Performance Level 3: Proficient
d) Performance Level 4: Advanced

E. Aggregate Calculations

1) Enrolled number of students (TotalN) includes students with the following participation status:
a) Valid Participant (Partstatus=Z)
b) Did Not Attempt (Partstatus=A)
c) Emergency Exemption (Partstatus=D)
d) Invalidated (Breach) (Partstatus=M)
e) State Alternative Assessment (OAAP) (Partstatus=I)
2) The number tested only includes Valid Participant status
3) Aggregations include Valid Participants. However, school inclusion rules also apply:
a) The 3rd character of the district code is used to determine the school inclusion rules for aggregations.
b) Schools whose district codes contain B or P are not included in the State Summary.
c) Other Placement students are not included in Class, School or District aggregations. Other Placement students are identified in the Student Status Code file from SDE.
4) Standards Summary only include Valid Participant who meet school inclusion rules only and do not include Braille tests if there are items that cannot be brailled.
5) All Valid Participants are included for Performance Levels and scaled score aggregations at the Class, School, District and State levels based on school inclusion rules.

VII. Specific Reporting Rules

1) School information is taken from the iCore database.

A. Student Results Label(s)

1) Student Results Labels are printed, packed and shipped to each District for dissemination to each School separated by tested Grade
2) Student Results Labels is created for each student and include all subjects tested at that particular school
3) If a student has subjects at different schools, results for the subjects are reported back to the school where the test was taken
4) When printed there will be 10 labels per page
5) Student Results Labels are grouped by tested Grade, tested District and School and ordered alphabetically by Student Last Name, FirstName, MiddleName, Student ID (STN)
6) If the First and Last Name are both blank, No Name Provided is set as the student's name.
7) The sort is done so that No Name Provided are sorted to the top of each pack.
8) Labels are printed one per student per school with results from all tests taken at that school
9) Demographics that are not consistent between reported subjects with not tested reasons are reported based on the selection hierarchy presented in the Demographic Reporting above. The following demographic fields are taken from the selected test record after application of the selection hierarchy, if necessary.
    i) First Name, Last Name MI
    ii) Gender
    iii) Date of Birth
    iv) Student ID
    v) Student Grade

B. OSTP Student Report

1) Student Reports are printed, packed and shipped to each District for dissemination to each School separated by tested Grade
2) Reports are printed in color on 11 x 17 paper and folded in the middle
3) Student Reports are created for each participating student
4) Student name is formatted as FIRSTNAME MI LASTNAME
5) Packs are grouped by tested Grade, tested District and School and cpicode.
6) Within packs the reports are ordered alphabetically by Student Last Name, Student First Name, MI, Student ID. No Name Provided are sorted as to appear at the top of the pack
7) Report templates for grades 3, 4, 6 and 7 include ELA and Mathematics results
8) Report templates for grades 5 and 8 include ELA, Mathematics and Science results
9) Students that do not test in a subject related to their Grade tested receive text "No Score Available" instead of the subject results display on the front page.
10) Historical Scores:
    a) Science scores are displayed for current year results only. Due to Science only being tested in grades 5 and 8, prior year results are always unavailable.
    b) 3 years' worth of scores are reported for ELA and Math where available. The current year and 2 previous years. In the reports for Spring 2022, the years will be 2022, 2021, and 2020.

c) Years with no available data are left blank on the graph and an * on the year indicates Score Not Available
d) 2020 will not have data available due to the cancellation of the administration. Therefore, 2020 will be marked with the * indicating Score Not Available.

11) Reading Sufficiency Act
a) Grade 3 ELA students that have met the RSA standard will have on the following text on their report: "Sophia HAS MET the Reading Sufficiency Act (RSA) criteria based on Standard 2.0 (Reading and Writing Process) and 4.0 (vocabulary) and is eligible for automatic promotion to 4th grade. For more information about RSA, please visit: https://sde.ok.gov/parents-reading-sufficiency"
b) Grade 3 ELA students that have not met the RSA standard will have the following text on their report: "Sophia HAS NOT MET the Reading Sufficiency Act (RSA) criteria based on Standard 2.0 (Reading and Writing Process) and 4.0 (Vocabulary). Please visit with Sophia's school regarding promotion or retention options. For more information about RSA, please visit https://sde.ok.gov/parents-reading-sufficiency"
12) In the absence of a Student First Name, the first name is replaced with "Your student" or "your student"
13) If a student has tested different subjects in different schools, a student report is sent to each testing school with the results for the subject taken at that school.
14) Reporting Category performance is reported for both subjects.
a) The points earned by the student in each reporting category is reported along with the total possible points for the reporting category. This is formatted as earned points/total possible points.
b) The performance level for each reporting category is reported
c) The Reporting Category Performance levels are: Below Standard, At/Near Standard and Above Standard

C. CCRA Student Report

1) Student Reports are collated by testing school. A school pdf is created containing all Student Report PDFs for students being reported to that school.
2) The school PDFs are handed off to eMetric to be made available in the Portal for downloading.
3) Student Reports are created for students with any participation status
4) Reports are printed in color on 8 ½ x 11 paper
5) If a student has tested different subjects in different schools, a student report is sent to each testing school with the results for the subject taken at that school.
6) Within the school pdf the reports are ordered alphabetically by Student Last Name, Student First Name, MI, Student ID. No Name Provided are sorted as to appear at the beginning of the school pdf
7) Student name is formatted as FIRSTNAME MI LASTNAME
8) In the absence of a Student First Name, the first name is replaced with "Your student" or "your student" wherever first name alone appears on the report
9) Only current year results are reported on the student report
10) The student's earned scaled score and performance level for Science and US History are reported on the front page
11) On the back page the performance level descriptor associated with the earned performance level is printed for both subjects
12) Reporting Category performance is reported for both subjects.

a) The points earned by the student in each reporting category is reported along with the total possible points for the reporting category. This is formatted as earned points/total possible points.
b) The performance level for each reporting category is reported
c) The Reporting Category Performance levels are: Below Standard, At/Near Standard and Above Standard

13) Students that do not test in a subject receive text “No Score Available” instead of the subject results display on the front page. There is no reported performance level and no reported reporting category information on the back page. The comparison graphs are blank on the back page.

D. Datafile Deliverables

1) Student Results Datafiles are provided to SDE in a comma delimited format (csv) format.
   a) The file contains students with their Student Status Code or results for each subject that they are eligible for based on tested grade.
   b) Demographics reported for students are either from the Demographic Overlay file provided by SDE if the student has a validated student ID or from the test records as described above.
   c) Rows in the data file represent students’ test records
   d) Naming convention for the data files to SDE OSTPXXXXStudentResultsRelease[i].csv and CCRAXXXXStudentResultsRelease[i].csv
   e) Where XXXX=academic year, i=1,2,3 etc.
   f) WR_FinalScore is the final score. Final score is determined after all scores are available and arbitration is complete if necessary.
   g) R1 score is the score given by scorer 1
   h) R2 score is the score given by scorer 2
   i) R3 score is the arbitrated score, if necessary.
2) Student Results Datafile is provided to eMetric
   a) eMetricReportingTransfer layout. The following tables contain the students’ results:
      i) StudentData
      ii) StudentScores
      iii) Datafiles provided to eMetric only contain student records where status is Valid, Did Not Attempt, Emergency Exemption, Invalidated (Breach), Invalidated Breach and Low-Grade Invalidation.
   b) eMetricSummary data file is provided to eMetric for both Preliminary and Final Reporting.
3) Student results data files and participation data files will follow the same layout. Participation data files to SDE will not have item and performance data populated. Demographics, form, accommodation information will be populated.
4) For Expedited Grade 3 RSA reporting, the RSA flag in the StudentScores table to eMetric is populated for tested students and students with the low grade invalidation participation statuses only. In final reporting, the RSA flag is only populated for tested students.
5) Summary Data is provided to eMetric to aid in their quality assurance process. The following files are posted to the ftp site for eMetric:
   a) eMetricSummaryDataTransfer

   i) Summary
   ii) SummaryLookup
6) CCRA Rankings Summary- **Not being produced as of 2022**.
   a) Includes US History Field Test Rankings
   b) Calculations only include valid participants (Partstatus=Z)
   c) Redaction applies to Rankings with less than 10 valid participants (Partstatus=Z)
   d) The file is in comma separated variables (CSV) format
   e) The files follow school inclusion rules.
   f) Percentile Rank will be calculated based on percent of raw score average for the test and each subscore at the school and district level.
      i) Reporder 0 represents the ranking based on the overall raw score average for the entity
      ii) Reporders 1 and 2 represent the ranking based on the average subscore for each reporting category.
   g) Districts will receive slice files that include the district ranking as well as the rankings of all the schools in the district.
   h) SDE will receive a file that includes all district and school ranking information.

7) Media Redacted

Redaction is a general term describing the process of expunging sensitive data from the records prior to disclosure in a way that meets established disclosure requirements applicable to the specific data disclosure occurrence (e.g., removing or obscuring PII from published reports to meet federal, state, and local privacy laws as well as organizational data disclosure policies). (See disclosure limitation method for more information about specific techniques that can be used for data redaction.)[1]

1) Cognia provides a Media Redacted Datafile to the SDE
   a) The file is in comma separated file format (csv)
   b) All grades are included in one file
   c) The naming convention for the file is OKXXXMediaRedacted.csv where XXXX is the academic year.
2) The Media Redacted file provides the number of students in each reporting category performance level and the percent to total
3) In an effort to minimize the identification of any individual student, the count and percent of values are redacted and masked with *** if the count is <10
4) Each file is sorted by tested Grade, CountyName, District, School, Subject, Reporting Category and Reporting Subcategory
5) Each file contains the tested Grade, County Name, District or School Code (as the OrganizationID), District or School Name and Administration Year, Subject, Reporting Category and Reporting Subcategory
6) Each file contains the Total Count, Valid Count and Percent to Valid Count Total of each Performance Level by Reporting Category
7) Each Reporting Category contains the Valid Count and Percent to Total for each Performance Level by Reporting Subcategory
   a) If Total Count value and/or Valid Count value is < 10 then redact all Performance Level Count values and associated Percent values from Report Category Count and Percent, including Total Count and/or Valid Count
8) If Total Count and/or Valid Count value is ≥ 10 AND One Performance Level Count value is < 4

a) Redact where Performance Level Count value is <4 and associated Percent values from Report Category Count and Percent
b) Redact one additional random Performance Level Count value and associated Percent value from Report Category Count and Percent

9) If Total Count and/or Valid Count value is ≥ 10 AND more than one Performance Level Count value is < 4
   a) Redact all Performance Level Count values <4 and associated Percent values from Report Category Count and Percent
10) If Performance Level Percent = 100%
   a) Redact where Performance Level Percent is 100% and associated Count value from Reported Category Count and Percent
   b) Redact one additional random Performance Level Percent <100% and associated Count value from Reported Category Count and Percent
11) If the Sum of two Performance Level Count values = Valid Count value
   a) Redact one of the Performance Level Count values and associated Percent values from Reported Category Count and Percent
   b) Redact one additional random Performance Level Count value equal to 0 and associated Percent value from Report Category Count and Percent

1 https://studentprivacy.ed.gov/glossary

VIII. Content Design and Development

A. Assessment Content

1) CD provides Reporting with the Test Content delivery blueprint, both External/Public Blueprint and District Aggregate Reporting and Internal Target Blueprint which contains the following:
   a) Reporting Category
   b) Assessable Standards
   c) Target Number of Clusters
   d) Target Points
   e) Percent of Total on Test
2) Reference Reporting Categories is mapped as follows

Gradect	Subject	Content Standard	Reporting Category	Student Report Display
3	OSTP Math	N	Number & Operations	Number & Operations
3	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
3	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
3	OSTP Math	D	Data & Probability	Data & Probability
3	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
3	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
3	OSTP ELA	4	Vocabulary	Vocabulary
3	OSTP ELA	5	Language	Language
3	OSTP ELA	6	Research	Research

Gradect	Subject	Content Standard	Reporting Category	Student Report Display
4	OSTP Math	N	Number & Operations	Number & Operations
4	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
4	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
4	OSTP Math	D	Data & Probability	Data & Probability
4	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
4	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
4	OSTP ELA	4	Vocabulary	Vocabulary
4	OSTP ELA	5	Language	Language
4	OSTP ELA	6	Research	Research
5	OSTP Math	N	Number & Operations	Number & Operations
5	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
5	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
5	OSTP Math	D	Data & Probability	Data & Probability
5	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
5	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
5	OSTP ELA	4	Vocabulary	Vocabulary
5	OSTP ELA	5	Language	Language
5	OSTP ELA	6	Research	Research
5	OSTP ELA	Writing Prompt	Writing Composite Score	Writing Composite Score
5	OSTP Science	PS1.1, PS1.2, PS1.3, PS1.4	Physical Science	Physical Science
5	OSTP Science	LS1.1, LS2.1, LS2.2, PS3.1	Life Science	Life Science
5	OSTP Science	ESS1.1, ESS1.2, ESS2.1, ESS2.2, PS2.1	Earth & Space Science	Earth & Space Science
6	OSTP Math	N	Number & Operations	Number & Operations
6	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
6	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
6	OSTP Math	D	Data & Probability	Data & Probability
6	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
6	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
6	OSTP ELA	4	Vocabulary	Vocabulary
6	OSTP ELA	5	Language	Language

Gradect	Subject	Content Standard	Reporting Category	Student Report Display
6	OSTP ELA	6	Research	Research
7	OSTP Math	N	Number & Operations	Number & Operations
7	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
7	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
7	OSTP Math	D	Data & Probability	Data & Probability
7	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
7	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
7	OSTP ELA	4	Vocabulary	Vocabulary
7	OSTP ELA	5	Language	Language
7	OSTP ELA	6	Research	Research
8	OSTP Math	N	Number & Operations	Number & Operations
8	OSTP Math	A	Algebraic Reasoning	Algebraic Reasoning & Algebra
8	OSTP Math	GM	Geometry & Measurement	Geometry & Measurement
8	OSTP Math	D	Data & Probability	Data & Probability
8	OSTP ELA	2	Reading/Writing Process	Reading & Writing Process
8	OSTP ELA	3	Critical Reading/Writing	Critical Reading & Writing
8	OSTP ELA	4	Vocabulary	Vocabulary
8	OSTP ELA	5	Language	Language
8	OSTP ELA	6	Research	Research
8	OSTP ELA	Writing Prompt	Writing Composite Score	Writing Composite Score
8	OSTP Science	PS1.5, PS1.6, PS2.1, PS2.2, PS4.1, PS4.2	Physical Science	Physical Science
8	OSTP Science	LS1.7, LS4.1, LS4.2	Life Science	Life Science
8	OSTP Science	ESS1.4, ESS2.1, ESS2.2, ESS2.3, ESS3.1, ESS3.2, ESS3.4	Earth & Space Science	Earth & Space Science
11	CCRA Science	PS1-1, PS1-2, PS1-5, PS1-7, PS2-5, PS3-1, PS3-2, PS3-3, PS3-4, PS4-1, PS4-4	Physical Science	Physical Science
11	CCRA Science	LS1-1, LS1-2, LS1-3, LS1-4, LS1-5, LS1-6, LS1-7, LS2-1, LS2-2, LS2-3,	Life Science	Life Science

Gradect	Subject	Content Standard	Reporting Category	Student Report Display
		LS2-4, LS2-5, LS2-6, LS2-8, LS3-1, LS3-2, LS3-3, LS4-1, LS4-2, LS4-3, LS4-4, LS4-5		
11	CCRA US History	1.2.A, 1.3.A, 1.3.D, 2.1.A, 2.1.B, 2.1.D, 2.1.E, 2.1.G, 2.2.B, 2.3.B, 3.1.A, 3.1.B, 3.1.C, 3.2.A, 3.2.B, 4.1.A, 4.1.D, 4.1.E, 4.2.A, 4.2.B, 4.2.D, 4.3.C, 5.1.B, 5.2, 5.3, 6.1.A, 6.1.B, 6.1.C, 6.1.D, 6.2.A, 6.2.B, 6.2.C, 6.4, 7.2.D, 8.1, 8.2, 8.3, 8.4, 8.5.A	US History	US History
11	CCRA US History	1.1, 1.2.B, 1.2.C, 1.3.B, 1.3.C, 2.1.C, 2.1.F, 2.2.A, 2.2.C, 2.3.A, 2.3.C, 3.1.D, 3.2.C, 3.2.D, 4.1.B, 4.1.C, 4.2.C, 4.3.A, 4.3.B, 5.1.A, 5.1.C, 6.3,	Civics	Civics

Gradect	Subject	Content Standard	Reporting Category	Student Report Display
		7.1.A, 7.1.B, 7.1.C, 7.2.A, 7.2.B, 7.2.C, 7.2.E, 7.2.F, 8.5.B, 8.6		

IX. Shipping Product Code Summary

A. Reporting Products

Reporting Products is provided to iCore to identify the products that will be shipped to the client.

Contract Code	Description	Report For	Grade(s)	Report Subtype	Content Code	Qty
155952	OSTP Student Labels	1	03-08	03	00	1
158952	CCRA Student Labels	1	11	03	00	1
155952	OSTP Student Report	1	03-08	02	00	1
158952	CCRA Student Report	1	11	02	00	1

X. Appendix

XI. Addenda

(4/28/22): SDE has provided a list of grade 12 students who are exempt from CCRA. Their test records are to be suppressed from all phases of reporting.