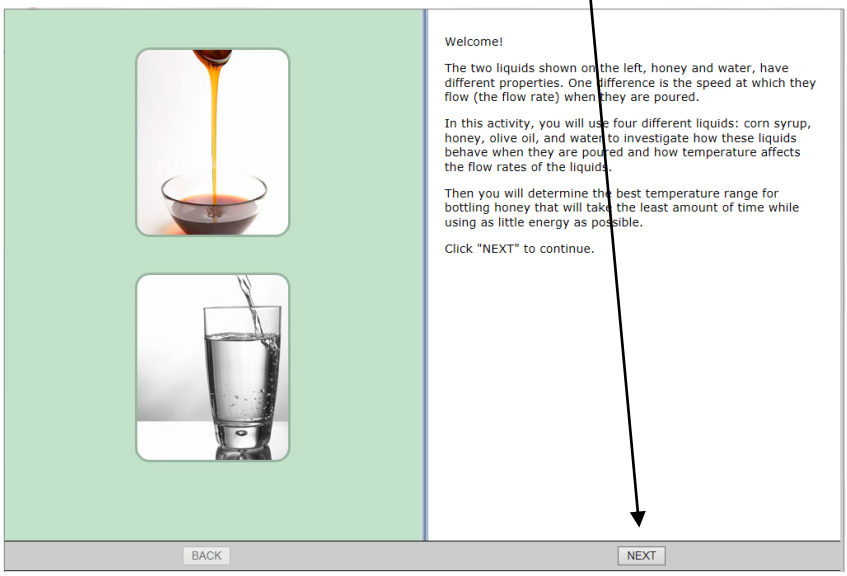
Student Activity Guide for NAEP Interactive Science Task: Bottling Honey

http://www.nationsreportcard.gov/science_2009/ict_tasks.asp

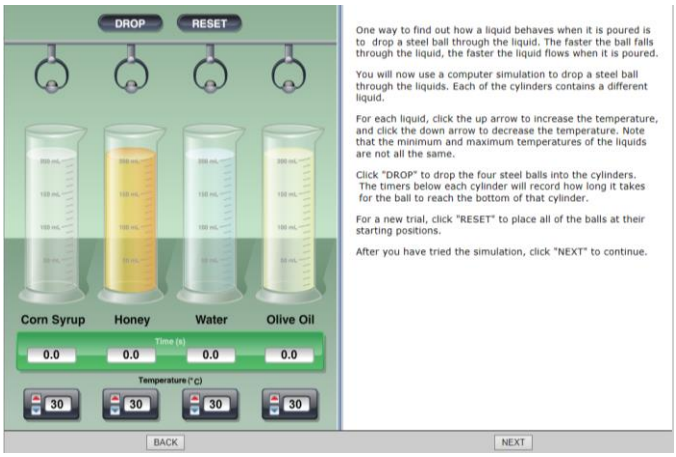
Select “Take this task” under Bottling Honey.

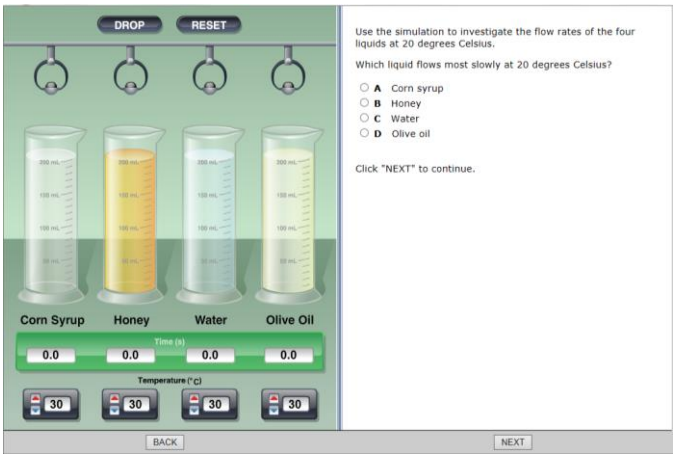
In this task, you will investigate how four different liquids behave when they are poured and how temperature affects the flow rates of the liquids. Then you will determine the best temperature range for bottling honey that will take the least amount of time while using as little energy as possible.

Read the information on each screen. Select “NEXT” when you have finished reading the information on the screen. Screen shots of each screen are on this worksheet.



This task comes from the National Assessment of Educational Progress (NAEP), commonly referred to as “the Nation’s Report Card.” NAEP is the largest nationally representative and continuing assessment of what America’s students know and can do in various subject subjects. For more information, go to http://www.nationsreportcard.gov/.



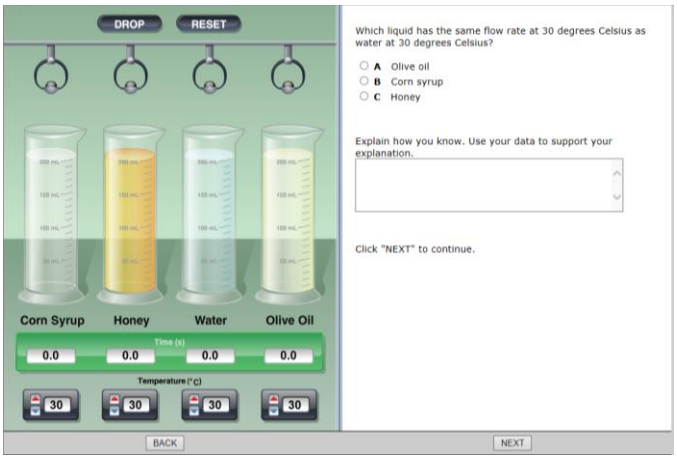


When there is a question, write your answer on this worksheet, not on the computer screen. If you answer directly on the computer, your answer will not be saved. You do not need to answer anything directly on the computer. After answering, select "NEXT" to continue.

Question 1

Which liquid flows most slowly at 20 degrees Celsius?

A. Corn syrup
B. Honey
C. Water
D. Olive oil



Question 2

Which liquid has the same flow rate at 30 degrees Celsius as water as 30 degrees Celsius?

A. Olive oil
B. Corn syrup
C. Honey

Explain how you know. Use your data to support your explanation.

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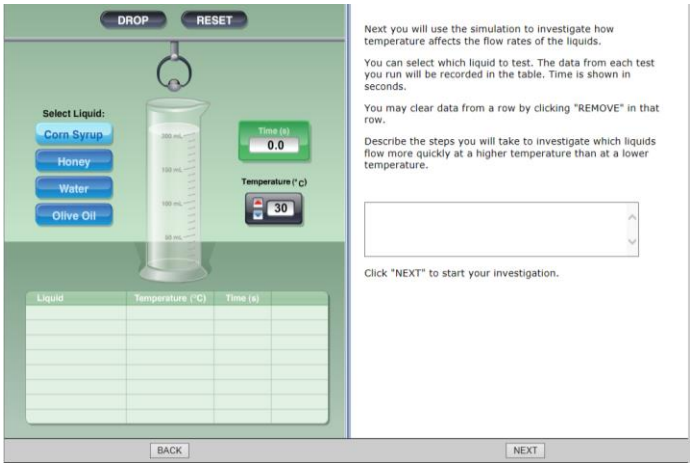

Question 3

Describe the steps you will take to investigate which liquids flow more quickly at a higher temperature than at a lower temperature.

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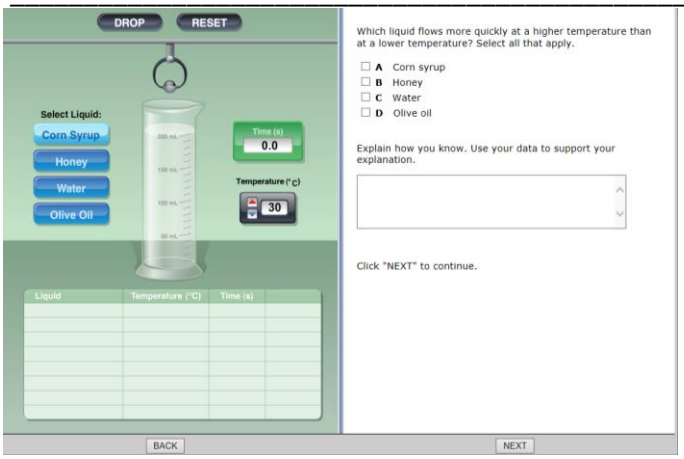

Question 4

Which liquid flows more quickly at a higher temperature than at a lower temperature? Select all that apply.

A. Corn syrup
B. Honey
C. Water
D. Olive oil

Explain how you know. Use your data to support your explanation.

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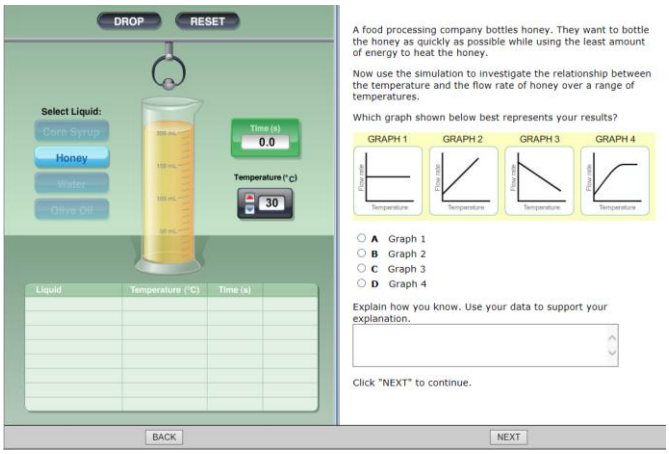
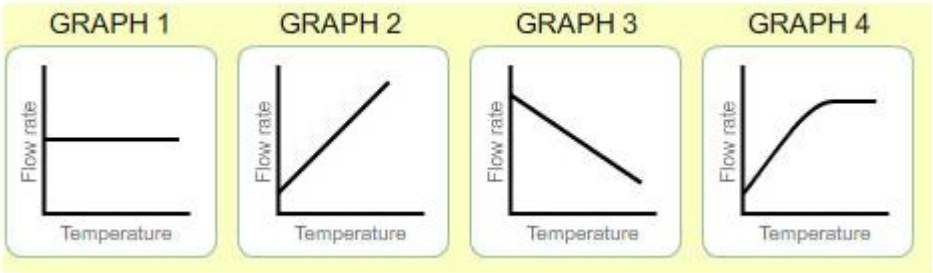


Question 5

Which graph shown below best represents your results?



A. Graph 1
B. Graph 2
C. Graph 3
D. Graph 4

Explain how you know. Use your data to support your explanation.

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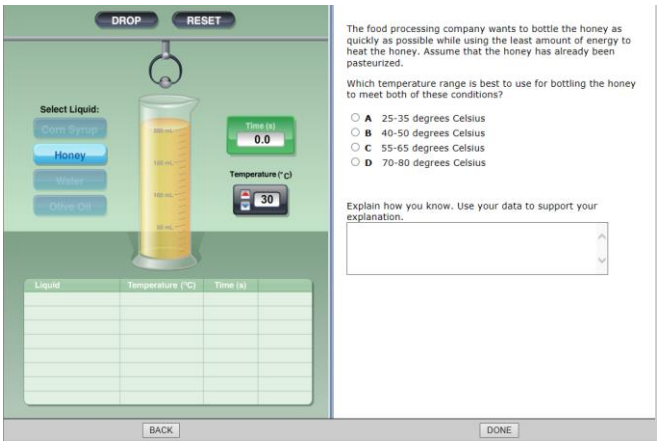

Question 6

Which temperature range is best to use for bottling the honey to meet both of these conditions?

A. 25-35 degrees Celsius
B. 40-50 degrees Celsius
C. 55-65 degrees Celsius
D. 70-80 degrees Celsius

Explain how you know. Use your data to support your explanation.

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