

The Race Is On: student worksheet

Name _____

Class _____

1. Viscosity is _____

2. Use the charts below to record your predictions. In one column, rank the materials from fastest to slowest (fastest 1, slowest 4). Then estimate how long it will take each of the fluids to flow down the plane and record the time (in minutes and seconds) in the other column. Explain your predictions in the space provided.

Room Temperature -Trial 1		
Material	Rank	Est. Time
water		
canola oil		
liquid honey		
molasses & sand		
Explain your predictions		

Heated -Trial 2		
Material	Rank	Est. Time
water		
canola oil		
liquid honey		
molasses & sand		
Explain your predictions		

Cooled -Trial 3		
Material	Rank	Est. Time
water		
canola oil		
liquid honey		
molasses & sand		
Explain your predictions		

3. Record the data from the experiment in the charts below:

Room Temperature -Trial 1		
Material	Rank	Actual Time
water		
canola oil		
liquid honey		
molasses & sand		

Heated -Trial 2		
Material	Rank	Actual Time
water		
canola oil		
liquid honey		
molasses & sand		

Cooled -Trial 3		
Material	Rank	Actual Time
water		
canola oil		
liquid honey		
molasses & sand		

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4. What did you observe during the experiment?

5. How did changing the temperature of the three fluids change the viscosity?

6. How are the above materials similar to oil sands, natural gas, and crude oil?

7. In this experiment, what variable was changed to make this experiment similar to real-life transport of heavy oil or oil sands?

8. Choose one of the three materials and draw a bar graph using your results. Illustrate and label each trial separately.

Viscosity Bar Graph: Time vs. Temperature

