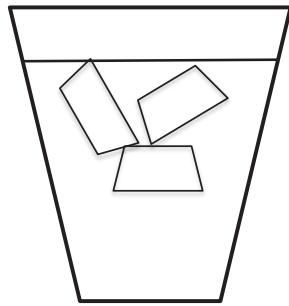


Checkout Questions

Lab 17. Rate of Energy Transfer

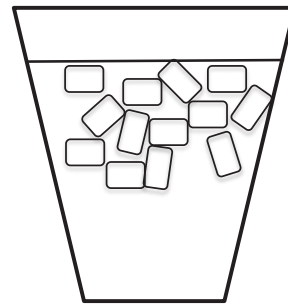
How Does the Surface Area of a Substance Affect the Rate at Which Thermal Energy Is Transferred From One Substance to Another?

1. Denise was conducting an investigation on how long it would take ice to melt. She decided to test ice cubes versus crushed ice. She put 500 ml of 25°C water into two cups, and then she put 200 g of ice into each cup. One cup had ice cubes and the other cup had small crushed ice. She recorded the time it took for the ice in each cup to melt; the setup and results are shown below.



200 g cubed ice before melting

Time to melt: 14 minutes

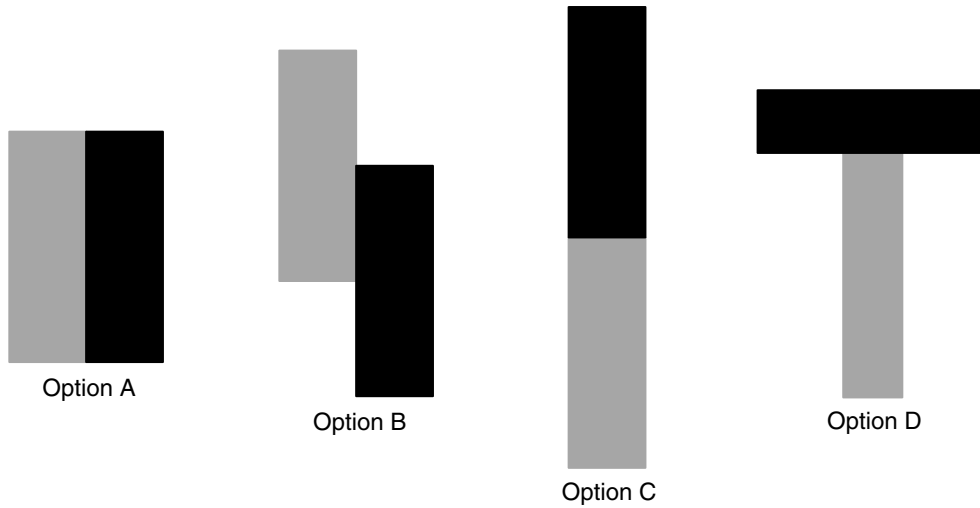


200 g crushed ice before melting

Time to melt: 9 minutes

Use what you know about energy transfer to explain the results that Denise obtained.

2. An engineer needs to put a hot piece of metal and a cold piece of metal together in a way that makes them reach their equilibrium temperature the fastest. Below are four options that she has come up with; in each option, the gray bar is hot and the black bar is cold. Which option would you recommend?



Explain why you chose that option to recommend to the engineer.

3. It is more important for scientists to make observations than inferences.
- I agree with this statement.
 - I disagree with this statement.

Explain your answer, using an example from your investigation on energy transfer.

4. Different scientists may use different procedures to investigate the same question.
 - a. I agree with this statement.
 - b. I disagree with this statement.

Explain your answer, using an example from your investigation on energy transfer.

5. Understanding how systems work is an important aspect of science and engineering. Use an example from your investigation about energy transfer to help explain why it is important to track how energy and matter move into, out of, and within systems.

6. Scientists often study the structure of objects because the structure can provide useful clues about the function of that object. Explain why it is important for scientists to understand the connection between structure and function, using an example from your investigation on energy transfer.