Ice Melting Blocks Teacher's Notes

Main Topic	Energy
Subtopic	Heat Energy
Learning Level	Middle
Technology Level	Low
Activity Type	Student

Description: Observe heat transfer from two different materials as ice cubes melt.

Required Equipment	Ice Melting Blocks with O-rings, ice cubes
Optional Equipment	Infrared Thermometer

Educational Objectives

- Observe what happens when ice is placed on blocks made of two different materials.

Concept Overview

Heat can be transferred by conduction, convection, or radiation. In this experiment, students will discover the different rates at which materials can conduct heat. Aluminum is a better conductor of heat than high-density foam.

Procedure with answers:

1. Touch both blocks. Which feels warmer? *(The foam block will feel warmer.)*
2. Predict which block will cause ice to melt faster.
3. Place the O-rings on the blocks to prevent water from flowing off. Place an ice cube on each block.
4. Observe the rates at which the ice cubes melt. Which material is conducting heat into the ice faster? *(The aluminum block will melt ice much faster than the foam block.)*
5. After a few minutes, remove the ice and water, and touch the blocks again. Explain what you observe. *(The aluminum block feels even cooler now, and it is cooler. Energy stored as heat inside the block was transferred to the ice when it melted. Now the block has less thermal energy than before.)*
6. Explain why the aluminum block felt different at the beginning of the experiment. Was it a different temperature? *(The aluminum block felt cool at the beginning for the same reason that it melted the ice faster. It is better at conducting heat away from your hand, and makes your skin feel cool.)*

Lab Tips

An infrared thermometer is useful for measuring the surface temperature of each block. At the beginning of the experiment, they should be the same temperature.

Ice Melting Blocks

Name: _____

Class: _____

Goal:

Observe what happens when ice is placed on blocks made of two different materials.

Materials:

Black aluminum block, Black foam block, two O-rings, two ice cubes

Procedure:

1. Touch both blocks. Which feels warmer? _____

2. Predict which block will cause ice to melt faster. _____

3. Place the O-rings on the blocks to prevent water from flowing off. Place an ice cube on each block.

4. Observe the rates at which the ice cubes melt. Which material is conducting heat into the ice faster? _____

5. After a few minutes, remove the ice and water, and touch the blocks again. Explain what you observe.

6. Explain why the aluminum block felt different at the beginning of the experiment. Was it a different temperature?