

SOLAR COLLECTORS

GRADE LEVEL

K - 2nd grade

OBJECTIVE

Students will learn that solar collectors absorb radiant energy, convert it into heat and hold the heat.

PURPOSE OF ACTIVITY

Identify Details
Apply Skills
Define

COGNITIVE LEVEL

Strategic Thinking
Extended Thinking
Skills and Concepts

CLASS TIME

30 minutes

MATERIALS

- Four plastic containers
- Black and white construction paper
- Water
- Four thermometers
- Plastic wrap
- Rubber bands
- Scissors

PROCEDURE

1. Cut two circles each of white and black construction paper to fit the bottom of the containers. Place the circles on the bottom of the containers and cover with 100 ml of cold water. Record the temperature of the water.
2. Cover one black and one white container with clear plastic wrap held in place with rubber bands.
3. Place the containers in a sunny place so that the sun is directly over the containers. Record the temperature of the water after 10 minutes.
4. Calculate and record the changes in temperature.

	WHITE NO COVER	BLACK NO COVER	WHITE WITH COVER	BLACK WITH COVER
Original Temperature				
Temperature After 10 Minutes				
Change in Temperature				

CRITICAL THINKING QUESTIONS


How does the color of the bottom of a glass affect how much solar energy is absorbed?

The color of the bottom of a glass affects how much solar energy is absorbed because different colors absorb different amounts of light. Dark colors, like black, absorb more light and heat than light colors, like white.

Why does a glass with a black bottom absorb more solar energy than a glass with a white bottom?

A glass with a black bottom absorbs more solar energy than a glass with a white bottom because black color absorbs all colors of light, while white reflects all colors of light.

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