Chapter Science Investigation Name _____

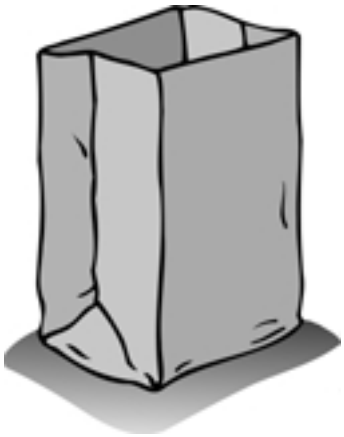
Investigating Light

What You Need

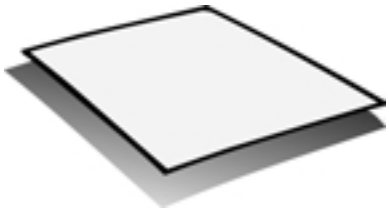
flashlight

aluminum foil

plastic wrap



brown paper bag



typing paper

waxed paper

Find Out

Do this activity to see what happens when light hits different kinds of objects.

Process Skills

Observing
Communicating
Predicting

Time

- one hour

What to Do

1. Hold up the aluminum foil and shine the flashlight onto it. **Observe** the light. **Record** what happens.

2. Repeat Step 1 with the plastic wrap, the brown paper bag, the waxed paper, and the typing paper.

3. Look around the room for other materials to test. **Predict** what will happen when you shine the light onto each material.

4. Shine the light onto them, **observe** the light, and **record** what happens.

Circle *Yes* or *No* to answer each of the questions.

Material	Light passed through	Some light passed through	No light passed through	Some light was reflected
aluminum foil	Yes No	Yes No	Yes No	Yes No
plastic wrap	Yes No	Yes No	Yes No	Yes No
brown paper bag	Yes No	Yes No	Yes No	Yes No
waxed paper	Yes No	Yes No	Yes No	Yes No
typing paper	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No
	Yes No	Yes No	Yes No	Yes No

Data will vary according to the intensity of the flashlight and the materials used.

Conclusions

1. Which materials allowed light to pass through? Which materials only allowed some light to pass through?

Plastic wrap allowed light to pass through. Students may find other materials that allow light to pass through. The waxed paper and typing paper allowed some light to pass through. Students may find other materials that allow only some light to pass through.

2. What happened when the light could not pass through some of the materials?

When the light cannot pass through, it makes shadows, or is reflected.

New Questions

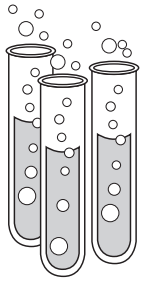
1. Which of the materials you tested would make the best window?

Answers will vary depending on the materials around the room that the students test. Many students will say plastic wrap.

2. Write a new question you have about light.

Accept all questions.

Name _____



ACTIVITY

Investigating Light

Record what happened when the light was shined into the first hole.

The light passed through the holes in each of the index cards.

Record what happened when the light was shined into the hole from the side.

When the light was shined from the side, the light did not pass through the cards.

Predict what will happen to the light when you move the cards, so that you cannot see straight through the holes.

Accept all reasonable predictions.

Record what happened when the cards were moved, so that you could not see straight through the holes.

When the cards were moved, students could not see the light through the holes.

Name _____

What Happened

1. What changed when you moved the cards?

Students couldn't see the light.

2. How did you make the light travel through the holes in all three cards at the same time?

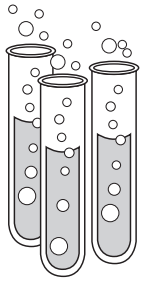
Placing the cards and holes in a straight line made the light travel through all three.

What If

Would you see any light if you shined the flashlight on index cards that did not have holes?

Most of the light would not be able to pass through the cards, but you would be able to see some light.

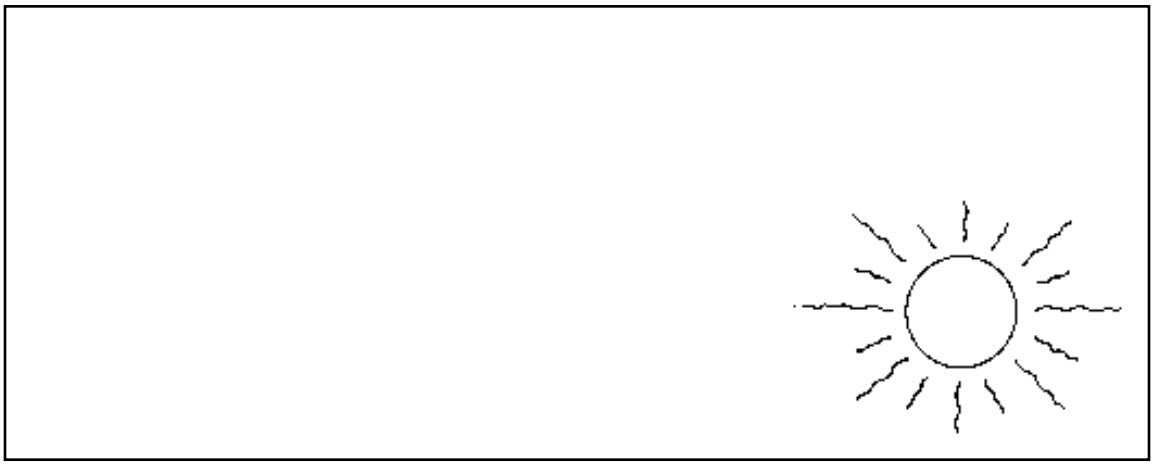
Name _____



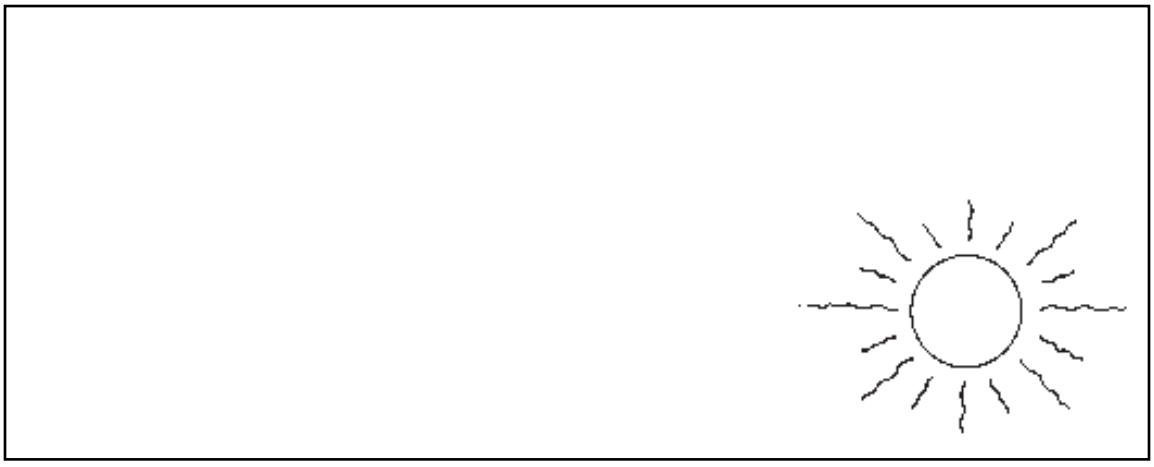
ACTIVITY

Using the Sun's Heat

Draw your foil mitten.



Draw your paper mitten.



Circle the mitten you predict will feel warmer in the sunlight.

Foil Paper

Students should circle one answer. Accept all predictions.

Name _____

What Happened

1. Which of your hands felt warmer?

the hand with the paper mitten

2. Why is this so?

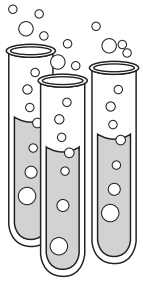
The hand with the paper mitten felt warmer than the hand with the foil mitten because the foil reflects more light than the paper. The paper absorbs more light than the foil.

What If

What would happen if you used plastic wrap instead of aluminum foil?

The plastic wrap would absorb more light than the aluminum foil.

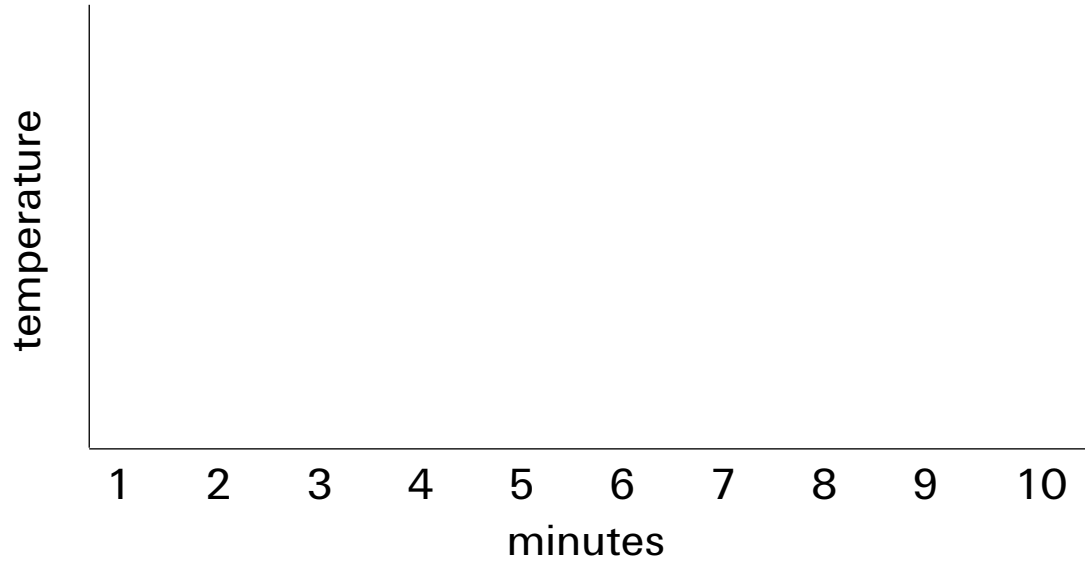
Name _____



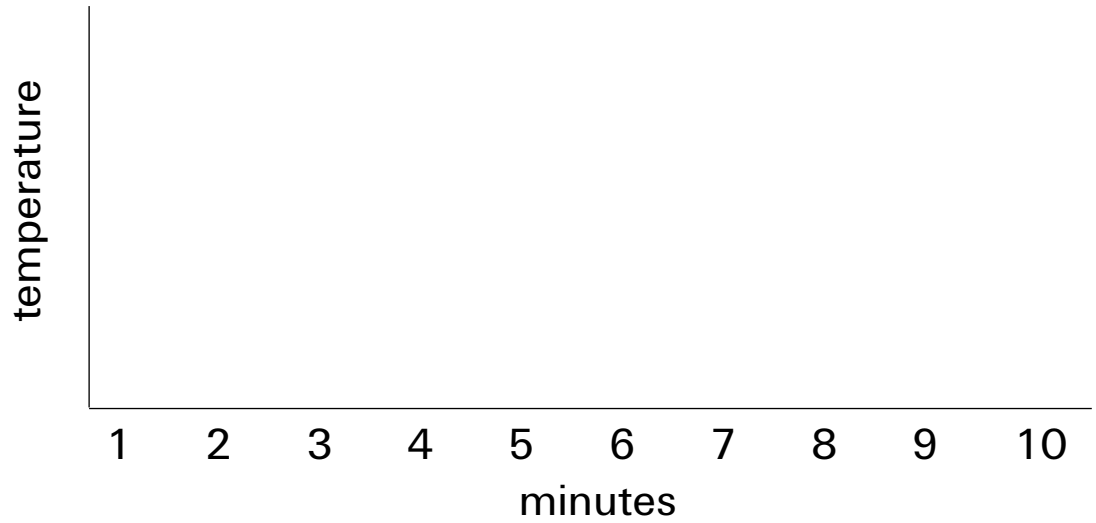
ACTIVITY

Observing Heat Transfer

Make a graph to show how the temperature in cup A changed.



Make a graph to show how the temperature in cup B changed.



Student graphs will vary but should be based on their measurements.

Name _____

What Happened

1. How did the temperature in cup A and cup B change?

The temperature in cup A increased. The temperature in cup B decreased.

2. Why do you think the temperatures changed?

because heat moves from warm places to cooler places

What If

Would an ice cube melt faster if left out in the open air or put into a cup of warm water?

An ice cube would melt faster in a cup of warm water.