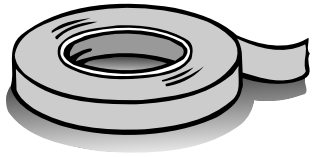
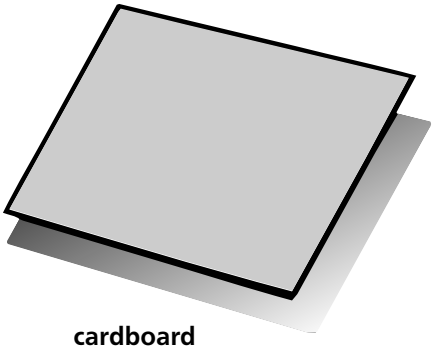
Chapter Science Investigation Name _____

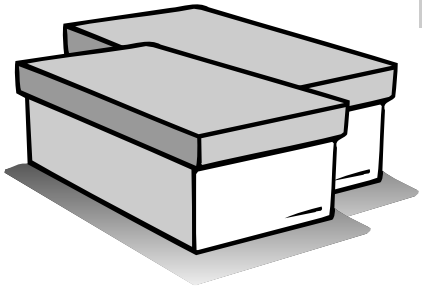
Growing Toward Light

What You Need


scissors


masking tape


cardboard


two shoe boxes with lids


three germinated bean seeds

Find Out

Do this activity to observe how a plant species has adapted.

Process Skills

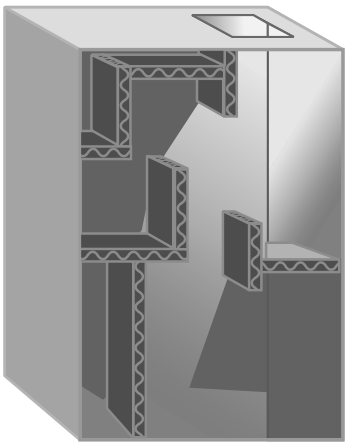
Controlling Variables
Hypothesizing
Observing
Communicating
Experimenting

Time

- 20 minutes one or two weeks before starting the investigation
- 10 minutes once a week for three weeks

What to Do

1. Plant the bean seeds in potting soil in separate pots two weeks before starting this investigation. Put the pots in a sunny place, and water them each day.



2. Use the cardboard and tape to make a maze inside one shoe box, as shown. Cut a hole somewhere in the box, making sure there is enough room for some light to reach the plant when you first put it in the box. Do not put the first barrier right on top of the plant.

3. Put one plant in the maze shoe box. Place the box lid on the box. Put the second plant in the shoe box with no light holes. Place the box lid on the box. Leave the third plant on a plate. Put all three plants near a sunny window, but not in direct sunlight.

4. **Write a hypothesis** about how light will affect the plants.

5. **Observe** the plants after three days, and **record** your observations.

6. **Observe** and **record** the changes in the plants each week.

Hypothesis: _____

_____

_____

Growth of Bean Plants			
Time	**Plant with No Light**	**Plant in Maze Box**	**Plant in Sunlight**
After Three Days			
End of Week 1			
End of Week 2			
End of Week 3			

Conclusions

1. How did the plants grow as time went on?

2. Why did the plants grow as they did?

3. How does the way the bean plants grew help them to survive?

New Questions

1. Can living organisms adapt to all changes?

2. Write a new question you have about living things.

Name _____

ACTIVITY

Moving Water Through Plants

What did you **observe** as you watched the water rising in the paper towel? What did you **observe** as you watched the water rising in the glass tube? How long did it take for each? **Record** your observations in the chart below.

	Observations	**Time**
Glass Tube		
Paper Towel		

Name _____

Conclusions

1. How long did it take for the water to rise in the glass tube?

2. How long did it take for the water to rise in the paper towel?

3. Which plant is like the paper towel and which one is like the glass tube?

Asking New Questions

1. Why do you think mosses are small and grow close to the ground?

2. Do you think trees absorb water like the paper towel or like the glass tube? Why?

Name _____

ACTIVITY

Investigating Vertebrates

Record your observations from the animal photos in the table below.

Animal	Length	Color	Body Parts	Outer Covering

How do you think each animal moves?

What type of environment do you think each animal needs?

Name _____

Conclusions


Based upon your observations, how could you **classify** the different animals?


What body parts help each of the animals move?


What is the smallest animal? The largest?

Asking New Questions


What are the major differences you observed among fish, amphibians, and reptiles?


What are the major differences you observed between birds and mammals?

Name _____

ACTIVITY

Animal Behavior

Where did the earthworms move? **Record** your observations in the chart.

Earthworms	Where They Moved on the Paper	Where They Moved Under the Box

Name _____

Conclusions

1. Where did the earthworms move after one or two hours?

2. Did all of the earthworms move to the same location?

3. Compare the positions of the earthworms under the box and on the paper after one hour.

Asking New Questions

1. Why do you think the earthworms reacted the way they did?

2. Can you **explain** how this behavior might be an example of instinct?