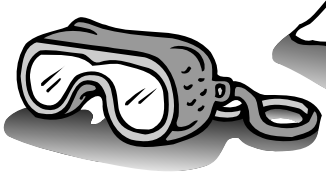
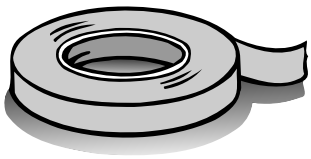
Chapter Science Investigation Name _____

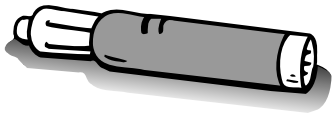
Watching for Erosion

What You Need


safety goggles

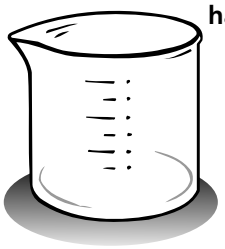

1 kg fine sand


masking tape


marking pen


hair dryer

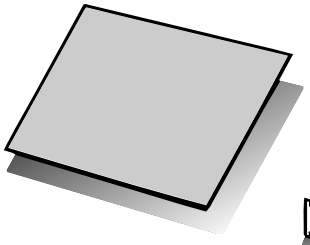
1 kg local soil

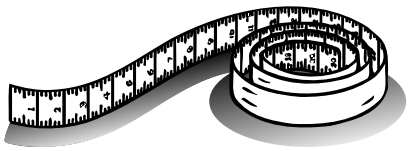

500-mL beaker

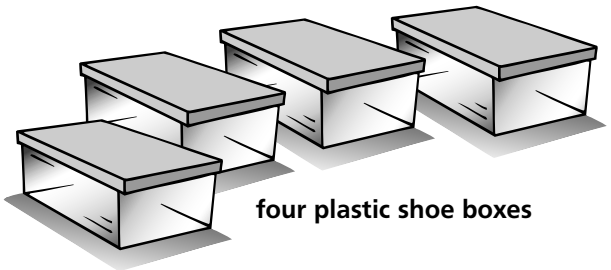

sprinkling can


water


timer


cardboard


meter tape


four plastic shoe boxes

Find Out

Do this activity to find out how natural forces such as water and wind contribute to erosion.

Process Skills

Communicating
Measuring
Observing
Inferring

Time

- One hour the first day
- 20 minutes two days later
- 10 minutes one week after that

What to Do

1. Using the masking tape, label the boxes A, B, C, and D.
2. **Measure** 500 mL of soil into boxes A and B, and 500 mL of sand into boxes C and D.
3. Sprinkle only enough water to moisten the soil in boxes B and D.
4. Tape cardboard to one end of box A.

Safety! ***Wear your safety goggles.***

5. Hold the hair dryer at an angle of about 45° 20 cm from the end of box A without the cardboard. Direct a stream of air into the box for one minute. **Record** your observation.
6. Repeat Steps 4–5 for boxes B, C, and D.
7. **Record** what happens.
8. Let the boxes dry for two days. Smooth out the surface in each box and repeat Steps 3–7. This time increase the force of the "wind" by holding the hair dryer 10 cm from each box.
9. Sprinkle 300 mL of water on boxes B and D.
10. **Record** what happened.
11. Smooth out the surface in each box and pour 300 mL of water on boxes B and D all at once.
12. **Record** your observations.
13. Set boxes B and D in a warm place. Do not disturb the boxes. After a week, **record** how the soil and sand in each box look.

Wind and Water Erosion				
Conditions	**Box A soil**	**Box B soil and water**	**Box C sand**	**Box D sand and water**
Wind 20 cm from box				
Wind 10 cm from box				
Water sprinkled on box				
Water dumped on box				
After settling				

Conclusions

1. Were the dry soil and dry sand affected differently by the wind? If so, how?

2. How did the effects of the wind differ between wet and dry soil and sand?

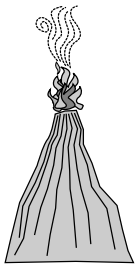
3. How did changing the force of the wind affect the soil and sand?

New Questions

1. How do different types of weather affect soils?

2. Which probably causes more damage to soil, a light steady rain or a downpour? Why?

3. Write a new question you have about erosion.



Name _____

ACTIVITY

Ice Power

Make a bar graph to **record** your **observations.**

Name _____

Conclusions

1. What happened to the water in the freezer?

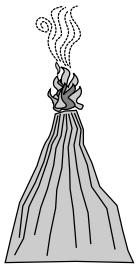
2. Which jar contained the greater volume of matter?

3. What kind of weathering have you **simulated?**

Asking New Questions

1. **Predict** what will happen if you fill a jar to the top with water and put the closed jar outside on a very cold night.

2. If you need to freeze something, should you fill the container to the top? Why or why not?



Name _____

ACTIVITY

Eroding with Water

Write a **hypothesis** about how water will affect your mound.

Draw a picture of what the mound looks like before you pour water on it.

What did you **observe** after you slowly poured 10 mL of water on top of the mound?

Draw another picture of what the mound looked like after you slowly poured water on it.

Name _____

Conclusions

1. What effect did the water have on the mound of soil?

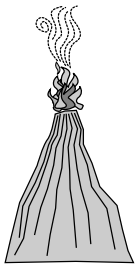
2. How did the shape of the mound change?

3. What does the water in the cylinder **represent** on Earth?

Asking New Questions

1. If you pour the water out quickly, what do you think will happen to the mound? Try this.

2. Where can you find examples of water causing erosion around your school?



Name _____

ACTIVITY

Making an Earthquake

Draw your 3-story building.

What happened to your building during the earthquake?
Draw pictures to show the building or **write** a description.

Name _____

Conclusions

1. How did the building change as you moved the pan at different speeds?

2. What happened to your building after you stopped moving the pan?

Asking New Questions

1. How could you design your building differently to decrease the amount of damage during the simulated earthquake?

2. Do you think you would feel an earthquake more on the top floor of a building or in the basement?