

## Learning About Your Environment Teachers Guide

### Introduction

*Learning About Your Environment* is an activity book that introduces basic environmental science concepts to elementary and upper elementary school students through engaging word games and other activities. The book stresses the importance of protecting and saving our natural resources and offers tips on how to do so. Concepts include natural resources in the ecosystem, the interrelationship between living and nonliving things, the greenhouse effect, and ways to save energy and prevent pollution.

This presentation guide provides vocabulary, questions for discussion, some extended activities, and an experiment.

### Vocabulary

*Acid rain:* Rainwater containing dissolved gases emitted from automobiles, power plants, and industry.

*Ecosystem:* The relationship among living things and natural resources in a particular geographical area.

*Environment:* The combination of physical, chemical, and biological factors that act on an ecosystem.

*Greenbelt:* Parkland, farmland, or open space surrounding a community.

*Greenhouse effect:* The build-up of carbon dioxide in the atmosphere, which may contribute to global warming and climate changes.

*Hazardous waste:* Refuse that causes physical, chemical, or biological damage.

*Ozone layer:* The part of the stratosphere that absorbs harmful infrared radiation given off by the sun.

*Pollution:* Contamination from harmful waste.

*Radon:* A naturally created radioactive gas.

*Recycle:* To reprocess a substance such as paper, water, or metal for reuse.

## LESSON DEVELOPMENT

### Cover Page

*Ask students the following questions.*

1. Why should we be concerned about our environment and the earth?
2. How can learning about the environment help us save the earth?
3. What would happen if everyone in your neighborhood threw garbage in the streets, opened fire hydrants, burned all their leaves, and never cleaned up the neighborhood?

### Discussion

Have the children explain what would happen if we didn't take care of the environment. Emphasize how difficult, unsafe, and unpleasant their own neighborhood would become if this happened. Then use the concept of a neighborhood as a microcosm, and extend the discussion to the earth itself, being sure to point out that if we really try, we can make a difference in keeping the earth healthier and protected.

## Page 2: Our Environment

Ask students the following questions.

1. What is a good definition of environment?
2. What are some of the things that make up our environment?

### Activity

Get the children to see how many other words they can make out of the letters in the word *environment*.

## Pages 3 & 4: Interrelationships in the Environment

Ask students the following questions.

1. Why are the sun and its energy essential for life?
2. What story can you create to explain the scene on page 3?
3. What does the earth's environment provide?
4. Why are these things essential for life?

### Going Further

Have students conduct an environmental inventory of their neighborhoods and report their results to the class.

## Page 5: Natural Resources

Ask students the following questions.

1. What natural resources do we need in order to survive?
2. What additional natural resources can you name?
3. How are these resources used?

### Discussion

Natural resources are products and features of the earth that support life. These resources include land, water, plants, animals, minerals, and air. People use natural resources as food, fuel, and raw materials for the production of finished goods. Resources that can be recycled through the food chain are termed *renewable*; resources such as coal, oil, and natural gas are *nonrenewable* because once they are removed from the earth they cannot be restored.

## Page 6: Balance of Nature

Ask students the following questions.

1. Why is it important to keep a balance in nature?
2. What can happen if the balance is upset?

### Discussion

The *balance of nature* is the tendency for the numbers of organisms in a given community to remain unchanged. Under natural conditions, this balance may be temporarily upset, but the normal feeding habits of the organisms in the community soon restore it.

### Experiment: Exploring the Balance of Nature

#### *Materials*

- Water and water pitcher
- Fine sand
- Adhesive tape for labels
- 7 1-qt. mason jars with lids
- 24 elodea plants\*
- 24 snails\*
- \*Available at variety or pet stores

#### *Procedures*

1. Label the jars 1 through 7.
2. Put about 1" of sand in the bottom of each jar, and fill with water to 2" from the top.

3. Place the plants and the snails in the jars as follows: Jar #1: 5 plants, 1 snail; Jar #2: 4 plants, 2 snails; Jar #3: 3 plants, 3 snails; Jar #4: 2 plants, 4 snails; Jar #5: 1 plant, 5 snails; Jar #6: 4 plants only; Jar #7: 4 snails only.
4. Screw the lids on the jars and place them where they will get light but not direct sun.
5. Check the jars twice a day, and record the numbers of living and dead plants and snails and the clarity of the water.

The jar in which the plants and snails live longest is closest to being in balance.

### **Page 7: Natural Disturbances**

*Ask students the following questions.*

1. What damage can be caused by the natural disturbances shown here?
2. What other natural disturbances can you name?
3. Why is advance warning of natural disturbances important?

### Discussion

Have the children distinguish between human-caused disasters and natural disturbances such as earthquakes, hurricanes, tornadoes, tidal waves, and droughts.

### **Pages 8 & 9: Environmental Hazards**

*Ask students the following questions.*

1. Where did you put the danger symbols?
2. Why do you consider these things hazardous?
3. What are other hazards that might be found in a neighborhood?

### Discussion

Discuss in greater detail the dangers listed on these pages, pointing out specific ways they can be cleaned up.

### **Page 10: Effects of Pollution**

*Ask students the following questions.*

1. Why are the four things on this page receiving attention in the news?
2. What is happening in each of these four pictures?

### Going Further

Ask the children to bring in newspaper and magazine articles about environmental issues. (Make sure they include the title and date of each publication, together with the page numbers of the articles.)

### **Page 11: Environmental Waste**

*Ask students the following questions.*

1. What does each of these pictures show?
2. What is the main message of this page?

### Discussion

Explain to the students that *resource recovery* is possible for many materials. This entails waste products such as paper, glass, plastics, and garbage being reprocessed into usable forms.

### **Page 12: Dangers of Pollution**

*Ask students the following questions.*

1. What are the three pollution hazards shown on this page?
2. In what ways can pollution be harmful to health?
3. How does pollution destroy plants?
4. What happens when water is polluted?

## Discussion

Pollution contaminates natural resources such as air and water, causing disease in people, animals, and plants.

### **Page 13: Help Stop Pollution and Waste**

*Ask students the following questions.*

1. What can people do to save the earth?
2. How can you get other people to help?

### Going Further

Have the children develop their own conservation pledge. Explain that conservation begins with each person's individual efforts, and that if we all do our part, we will make a difference. Some practical suggestions for the children: practice the "three Rs" of reuse, recycling, and reducing waste; use biodegradable products; and get involved in local neighborhood clean-up projects.

### **Pages 14 & 15: Save Our Environment Game**

*Ask students the following questions.*

1. Based on this game, what would you say are some things people can do to help save the environment?
2. What other things would you add to this group?
3. What are *you* doing to help?
4. Is the United States the only place where pollution is a problem?
5. Who causes pollution?
6. Who can help stop it?

### Activity: Making Recycled Paper

#### *Materials*

Stack of newspapers	Small plastic pail
2 gallons warm water	Rolling pin
Large dishpan	1/2 cup liquid bleach
Hand mixer	2 old towels
2 pieces of window screen, each about 8" x 10"	

#### *Procedures*

1. Tear 10 or more sheets of newspaper into 1" squares and put them in the pail with 1 gallon of water.
2. Soak for 5 minutes and then use the hand mixer to blend the bleach into the newspaper mixture.
3. Pour the mixture through one of the screens. Some pulp will remain on top of the screen; place that in the dishpan and discard the rest.
4. Add 1 gallon of water to the pulp in the dishpan and mix thoroughly.
5. Dip one of the screens into the dishpan and cover it evenly with the pulp, letting the excess water drain through.
6. Cover the pulp with the second screen and gently roll with the rolling pin.
7. After most of the water has been squeezed out, separate the two screens and peel off the wet paper. Place it on a towel to dry. You now have recycled paper!

### **Page 16: Review Word Search**

*Ask students the following:* What does each of the words in the list mean?

### Activity

Have the children design creative projects to motivate people to help save the environment. Projects could include making posters or cartoons; writing songs, poems, plays, or stories; creating reading lists; and taking photographs and organizing them into an exhibit. Perhaps these projects can become part of an environmental education program.