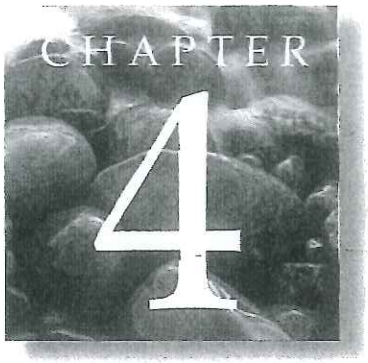


The Living Earth

Plants and animals live together in ecosystems. In an ecosystem, every plant and animal is important. In the picture, the berry provides food for the bird. Inside the berry is a seed. First, the bird eats the berry. Then, the bird will drop the seed. The seed may grow into a new plant that will feed other birds. In this chapter you will learn more about how plants and animals live together in an ecosystem.

What is it?

- It is a living part of an ecosystem.
- It uses other living things for food.
- It eats plants and animals.

LESSON 1

What Is an Ecosystem?

Every living thing on Earth is a part of an **ecosystem**. An ecosystem is a community of plants and animals in an area. One example of an ecosystem is a forest. Another example of an ecosystem is a stream. There are millions of ecosystems on Earth.

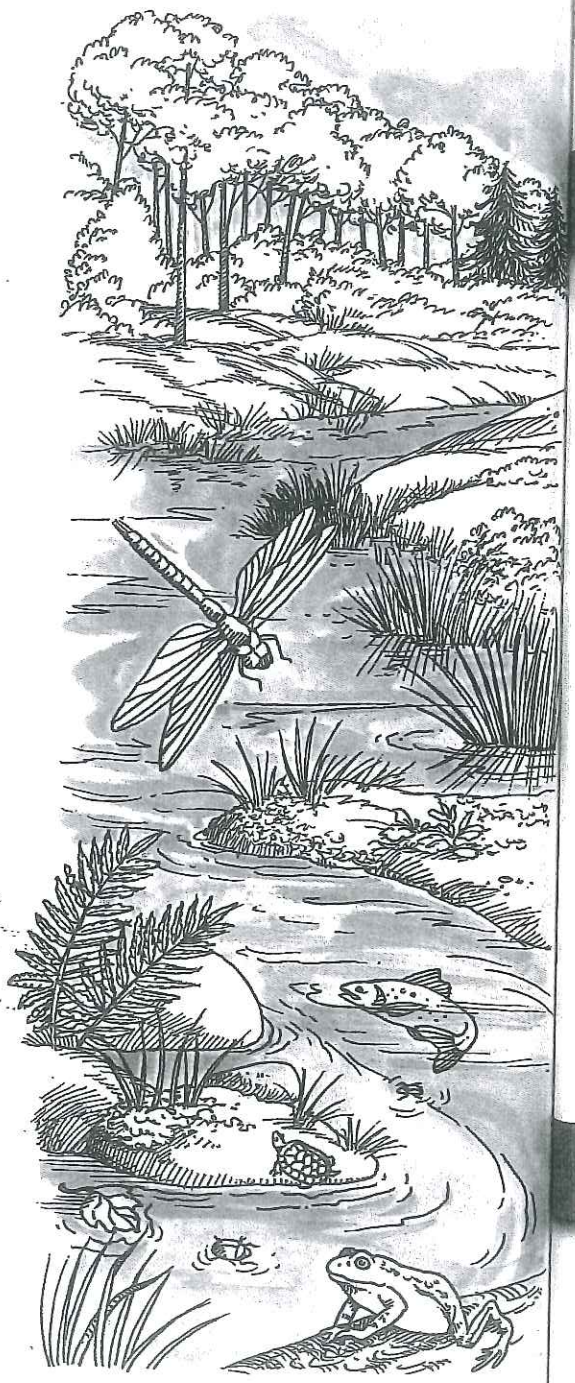
Every ecosystem has things that are **nonliving**, or not alive. Two nonliving things in a forest ecosystem are soil and air. Two nonliving things in a stream ecosystem are rocks and water. Other nonliving things in ecosystems are rain and sunlight. Nonliving things are important to the living plants and animals in the ecosystem.

Every ecosystem has living things in it. For example, a forest ecosystem can have bears, foxes, rabbits, and many other animals. The trees and other plants are also part of a forest ecosystem. A stream ecosystem can have fish, frogs, insects, and many other animals. The plants that grow in the stream are also part of the stream ecosystem.

An ecosystem can be large or small. An ocean is a very large ecosystem. It is made up of the living animals and plants and the nonliving water. An old log on the ground is a very small ecosystem. It is made up of the nonliving log and the living things, such as insects, that make the log their home.

Earth has many different ecosystems. A forest ecosystem is different from a desert ecosystem. A mountain ecosystem is different from a lake ecosystem. But all ecosystems are the same in one important way. Every ecosystem gives the living things in it what they need to live. Ecosystems are the homes for all living things on Earth.

A Stream Ecosystem



A.

Write True if the sentence is true. Write False if the sentence is false.

_____ 1. An ecosystem is a community of plants and animals in an area.

_____ 2. Every ecosystem includes both living and nonliving things.

_____ 3. All ecosystems are equal in size.

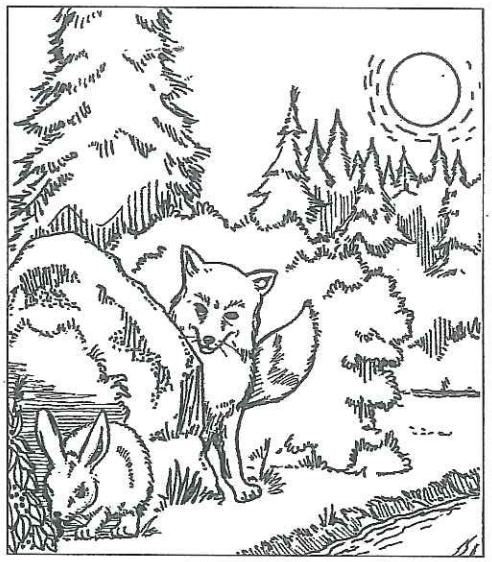
_____ 4. There are many different kinds of ecosystems.

B.

Look at the picture of the forest ecosystem. Write the living and nonliving things shown in the picture.

Living Things in a Forest Ecosystem

1. _____
2. _____
3. _____
4. _____



Nonliving Things in a Forest Ecosystem

1. _____
2. _____
3. _____
4. _____

C.

Write one or more sentences to answer the questions.

Could a robin from a forest ecosystem live in a desert ecosystem? Why or why not?

_____

_____

_____

_____

LESSON 2

What Lives in an Ecosystem?

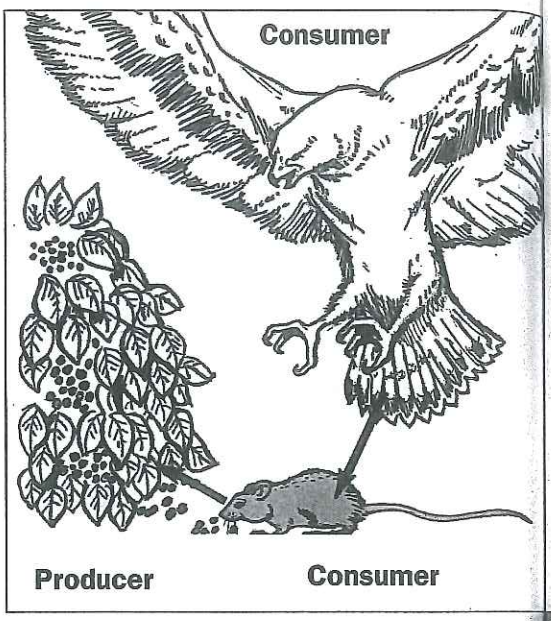
Every ecosystem on Earth has movement in it. Think about a forest ecosystem. A tree grows. A mouse runs across the forest floor. An eagle soars through the sky. All of this movement means that there is energy in the ecosystem. Living things get their energy in different ways.

Plants use sunlight to make their own food. They use this food to get energy to live and grow. Because they make food, they are called **producers**. Producers are the living things in an ecosystem that make food.

Unlike plants, animals in an ecosystem cannot make their own food. They have to eat other living things to get their energy. **Consumers** are living things in an ecosystem that eat other living things for food. There are three kinds of consumers. Consumers that eat only plants are called **herbivores**. Consumers that eat only animals are called **carnivores**. Consumers that eat both plants and animals are called **omnivores**.

There are also **decomposers** in an ecosystem. Decomposers are tiny living things that get their energy by eating dead plants and animals.

Producers, consumers, and decomposers all work together in an ecosystem. A plant gets energy by making food. A mouse gets energy by eating the plant. An eagle gets energy by eating the mouse. A decomposer gets energy by eating the eagle after it dies. This movement of energy as food through an ecosystem is called the **food chain**. The food chain shows that all of the living things in an ecosystem need one another.



The plant is a producer in a forest ecosystem. The mouse and the eagle are consumers.

A.

Write the word or words that best complete each sentence.

consumers decomposers food chain producers

1. Living things in an ecosystem that make their own food are called _____.
2. Living things in an ecosystem that eat other living things are called _____.
3. Living things in an ecosystem that eat dead plants and animals are called _____.
4. The movement of energy as food through an ecosystem is called the _____.

B.

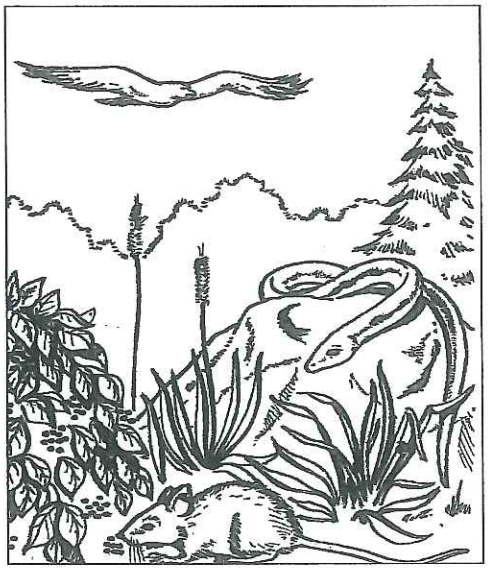
Look at the picture of the forest ecosystem. Use it to complete each list.

Producers in a Forest Ecosystem

1. _____
2. _____
3. _____

Consumers in a Forest Ecosystem

1. _____
2. _____
3. _____



C.

Look at the picture of the ecosystem above. Use it to answer the question.

The bird is a carnivore that eats animals to live. But it needs plants to live, too. How do you explain this?

_____

_____

LESSON 3

How Do Living Things Compete?

When you play a game, you **compete**, or try to win. Living things in an ecosystem compete, too. Each living thing competes to win what it needs to live. Competing with other living things is called **competition**. There is competition in every ecosystem on Earth.

Plants compete with other plants. For example, plants need water to live and grow. They compete with one another to win the water. Some plant roots grow down under the ground where there is water. Other plants try to win water by growing big leaves that catch rain. Plants also compete for other things they need, such as sunlight.

Animals in an ecosystem compete, too. They compete for food. For example, a fox needs to eat small animals, like mice, to live. Other foxes may try to eat the same mice. So to win, a fox has to be better at catching mice than other foxes. An owl might also want to eat the mice. The foxes might win by catching mice that an owl can't catch. Every animal does its best to win the food it needs to stay alive.

Besides food, animals compete for other things. They compete for water. They compete for the best places to live. They compete to see who will be the leader of their group.

Some animals sleep during the day and come out at night. In this way, they don't have to compete as much with daytime animals. This gives them a better chance of winning. It's another way living things compete in an ecosystem.

The foxes and owl compete for the mouse.

A.

Write True if the sentence is true. Write False if the sentence is false.

_____ 1. Living things in an ecosystem compete.

_____ 2. Plants compete with other plants for water.

_____ 3. Foxes and owls work together to catch food.

_____ 4. Some animals come out at night so that they don't have to compete with daytime animals.

B.

Write a sentence to answer each question.

1. What are two things plants compete for in an ecosystem?

_____

_____

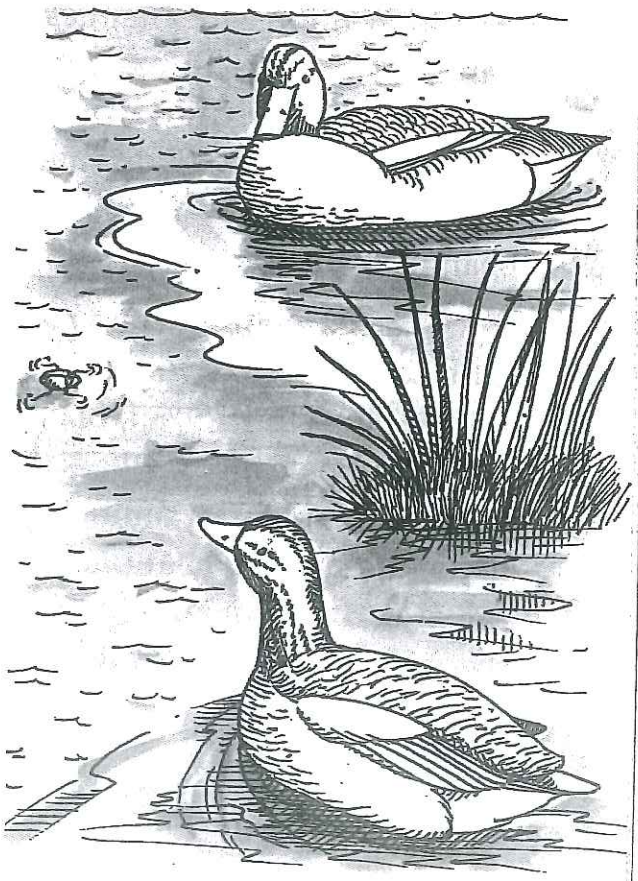
2. What are two things animals compete for in an ecosystem?

_____

_____

C.

Look at the picture. Then write a sentence to answer each question.



1. What example of competition does the picture show?

_____

_____

_____

_____

2. How will one animal win the competition?

_____

_____

_____

_____

LESSON 4

How Do Ecosystems Change?

Ecosystems are always changing. It is easy to see some of these changes. Think about a forest ecosystem. You can see deer run and leaves fall from the trees. You can see water flow and birds fly. All of these things are changes in a forest ecosystem.

Ecosystems also change in much slower ways. Very important changes often happen slowly. For example, wind might blow new seeds into a desert ecosystem. Over time, the seeds may grow. Then, there is a new kind of plant in the desert ecosystem. Over many years, the new kind of plant may spread all over the desert. It would be a slow, but important, change in the desert ecosystem.

Other important changes in an ecosystem happen quickly. A forest fire can burn much of a forest. Or a stream flowing through the forest might flood. Many plants and animals would be killed. In just a few days, there is a very important change in the forest ecosystem.

So ecosystems change both slowly and quickly. Either way, changes in an ecosystem affect the living things in it. Some plants and animals live through the change. Others die. Sometimes, all of one kind of plant or animal are killed by a change in the ecosystem. That plant or animal is then called **extinct**. An animal or a plant is extinct when there are none of its kind left on Earth.

Most changes in ecosystems do not cause living things to become extinct. Most changes are much smaller. They are just part of life in an ecosystem, where things are always changing.

This stream has flooded. The flood will change the forest ecosystem.

A.

Write True if the sentence is true. Write False if the sentence is false.

_____ 1. Ecosystems are always changing.

_____ 2. Ecosystems change both slowly and quickly.

_____ 3. Plants and animals always live through changes in an ecosystem.

_____ 4. A living thing is extinct when there are only a few of its kind left on Earth.

_____ 5. Most changes in ecosystems cause living things to become extinct.

B.

Read each sentence. Write Slow if the sentence tells about a slow change to an ecosystem. Write Fast if the sentence tells about a fast change to an ecosystem.

_____ 1. A fox eats a rabbit.

_____ 2. A forest fire happens.

_____ 3. A stream floods in the forest.

_____ 4. A new type of seed begins to grow.

_____ 5. A baby wolf grows up.

_____ 6. A snake eats a mouse.

C.

Write one or more sentences to answer the question.

How might an erupting volcano make a kind of plant extinct?

LESSON 5

How Do People Change Ecosystems?

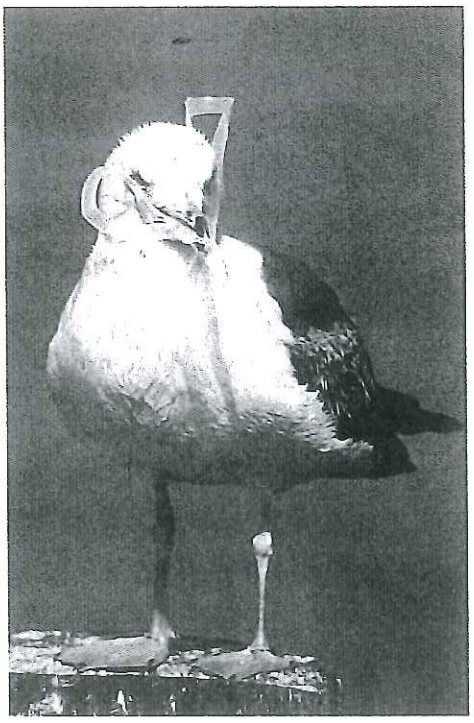
Ecosystems change by themselves. Plants and animals are born, grow, and die. Streams flow. It rains a lot, and then the rain stops. All of these changes are natural parts of ecosystems.

But some of the biggest changes in ecosystems are made by people. Think about your community. There may have been a forest ecosystem where buildings now stand. There may have been fields with tall grass or a desert with cactus plants. People changed the ecosystem to make room for buildings. In doing so, they may have destroyed the ecosystem.

People are changing this forest ecosystem to make room for a road.

Of course, people don't always destroy ecosystems. They can change ecosystems without destroying them. For example, if people build a road through a forest, the forest ecosystem is changed. Trees are cut down to make room for the road. The noise from cars driving on the road may scare some animals. The forest ecosystem is different, but not destroyed.

People have also changed ecosystems by adding **pollution**. Pollution is harmful waste that can hurt an ecosystem. Air pollution from cars and factories hurts plants and animals. Land pollution, such as trash and litter, also hurts living things. Water pollution kills many living things in lakes, rivers, streams, and oceans.



Pollution can hurt animals.

Not all of the changes people make to ecosystems are harmful. Many people help ecosystems, for example, by planting new trees. But sadly, people have hurt ecosystems more than they have helped them.

A.

Write the missing word or words in each sentence.

1. Some of the biggest _____ in an ecosystem are made by people.
   (plants, animals, changes)
2. If people build a road through a forest, the noise from cars on the road may _____ some animals.
   (scare, help, feed)
3. Harmful waste that can hurt an ecosystem is called _____.
   (community, building, pollution)
4. Air pollution from factories and _____ has hurt living things.
   (plants, cars, rivers)
5. One way to help an ecosystem is to _____ new trees.
   (pollute, cut down, plant)

B.

List three ways that people have changed ecosystems.

1. _____
2. _____
3. _____

C.

Write one or more sentences to answer the question.

Imagine that water pollution from a new factory kills all the small fish in a lake. What might this do to the rest of the lake ecosystem?

_____

_____

_____

_____

LESSON 6

How Can People Protect Ecosystems?

People have changed ecosystems all over Earth. In many places, entire ecosystems have been destroyed to make room for buildings. In many other places, pollution has damaged ecosystems.

But people have also worked hard to protect ecosystems. One way people protect ecosystems is by making **nature preserves**. Nature preserves are special parks where plants and animals live. These are not the kinds of parks with slides and swings. In nature preserves, nature is left alone. The ecosystems in nature preserves are protected from some of the changes people cause.

You can also help protect ecosystems. How? Since pollution hurts ecosystems, you can help by trying not to pollute. The best way to do this is by following "the three R's." The three R's stand for **reduce**, **reuse**, and **recycle**.

To **reduce** means to use less of things that can cause pollution. For example, instead of using paper napkins, you can use cloth napkins that can be washed. This will lower the number of paper napkins that people throw away.

To **reuse** means to use things over and over again instead of throwing them away. For example, you can reuse a shopping bag many times. You can take it back to the store instead of throwing it away.

To **recycle** means to use old things to make new things. Old metal cans are melted down and used to make new metal cans. Old newspapers are used to make new paper.

Nature preserves are an important way to protect ecosystems.

A.

Write a sentence to answer each question.

1. What is a nature preserve?

_____

_____

2. Why do people make nature preserves?

_____

_____

3. What do "the three R's" stand for?

_____

_____

4. How does following "the three R's" help protect ecosystems?

_____

_____

B.

Read each statement. Write reduce, reuse, or recycle to tell what the statement describes.

_____ 1. Students work together to collect aluminum cans in the community.

_____ 2. A student keeps her rock collection in an old shoe box.

_____ 3. A student carries his lunch in a lunch box instead of paper bags.

C.

Write one or more sentences to answer the question.

Why do you think people like to visit nature preserves and see ecosystems that are not polluted?

_____

_____

TEST CHAPTER 4

Darken the circle next to the correct answer.

1. Every living thing on Earth is part of
   Ⓐ a desert.
   Ⓑ an ocean.
   Ⓒ an ecosystem.
   Ⓓ a forest.

2. How many ecosystems are there on Earth?
   Ⓐ one
   Ⓑ two
   Ⓒ hundreds
   Ⓓ millions

3. Living things that use energy from sunlight to make their own food are called
   Ⓐ producers.
   Ⓑ consumers.
   Ⓒ decomposers.
   Ⓓ herbivores.

4. What is the movement of energy as food through an ecosystem called?
   Ⓐ competition
   Ⓑ herbivore
   Ⓒ food chain
   Ⓓ nature preserve

5. Plants in an ecosystem compete for
   Ⓐ water and sunlight.
   Ⓑ food and nests.
   Ⓒ herbivores.
   Ⓓ carnivores.

6. If an animal is extinct, how many are left on Earth?
   Ⓐ none
   Ⓑ one
   Ⓒ a few
   Ⓓ hundreds

7. Harmful waste that can hurt an ecosystem is called
   Ⓐ a decomposer.
   Ⓑ energy.
   Ⓒ the food chain.
   Ⓓ pollution.

8. A special place where nature is protected is called
   Ⓐ an herbivore.
   Ⓑ an ecosystem.
   Ⓒ a nature preserve.
   Ⓓ a forest.

9. To use washable plates instead of paper plates is to
   Ⓐ reduce.
   Ⓑ reuse.
   Ⓒ return.
   Ⓓ recycle.

10. To use a shopping bag over and over again is to
    Ⓐ reduce.
    Ⓑ reuse.
    Ⓒ return.
    Ⓓ recycle.