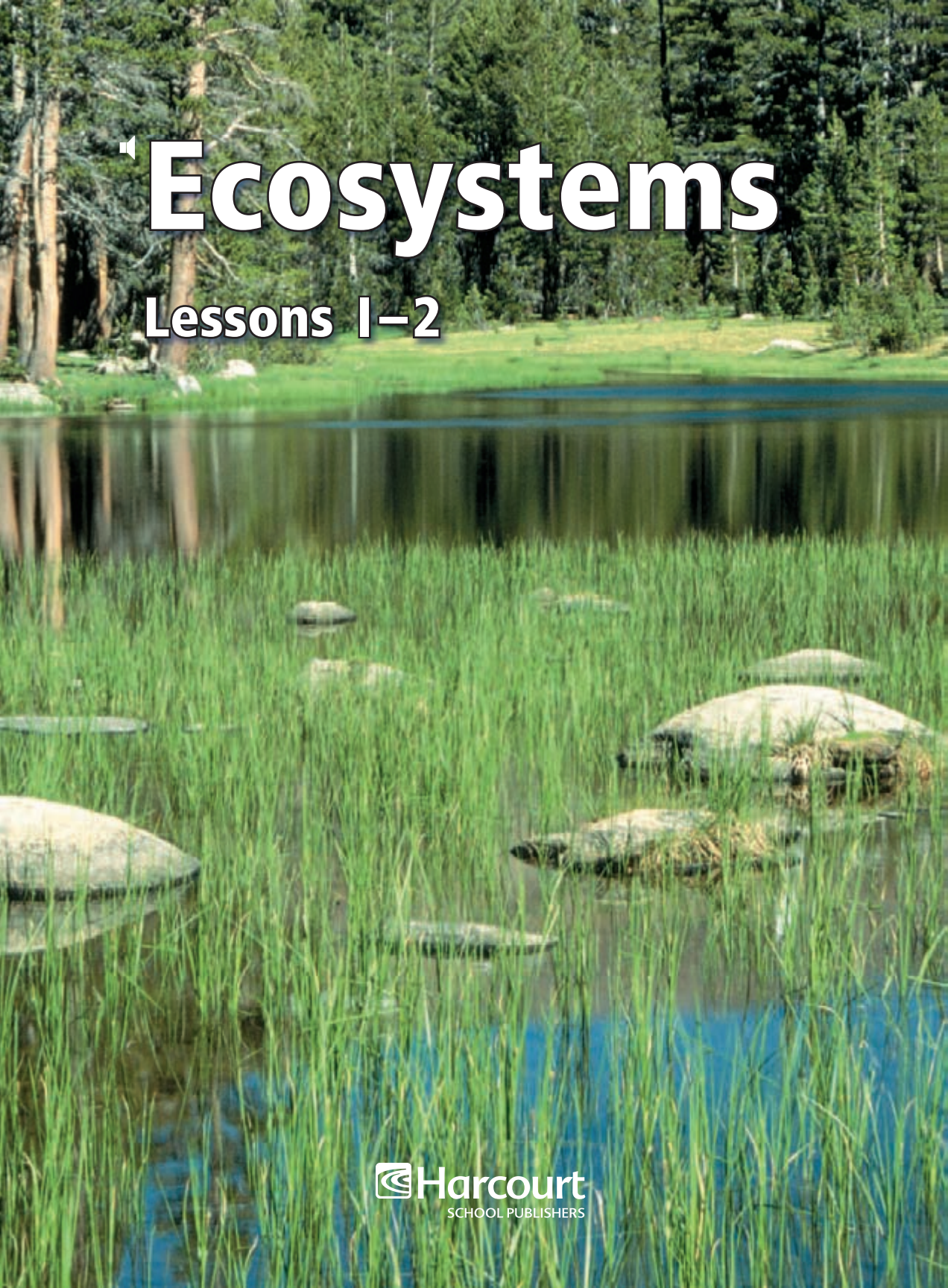




'Ecosystems

Lessons 1–2

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Ecosystems

Lessons 1–2

Lesson 1

What Makes Up an Ecosystem? 2

Lesson 2

What Affects Survival? 10



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What Makes Up an Ecosystem?

VOCABULARY

- ecosystem
- population
- community
- biome
- ecology



A pond is an **ecosystem** for these water birds.



This **population** of bees lives in a tree.



▶ This grassland is a **community** for many populations of animals.



▶ The climate is much the same within this forest **biome**.



▶ By studying **ecology**, we can learn more about ecosystems.



READING FOCUS SKILL

MAIN IDEA AND DETAILS

The **main idea** is what the text is mostly about.

Details tell more about the main idea.

- ▶ The main idea is that living and nonliving things are parts of ecosystems. Look for details about ecosystems.

▶ Individuals and Populations

An **ecosystem** has in it many living and nonliving things. It holds all the things from one *area*, or place. Nonliving things are water, air, sun, and soil. Each living thing is an *individual*. It is just one of its kind.

- ▶ Individuals of the same kind often live in the same area. This group of individuals is called a **population**.



Name a kind of population that may live in a meadow.



▶ This individual water lily is part of a population of water lilies.



Many populations make a community in this cold taiga ecosystem.

Communities

A group of populations may live in the same place. This is called a **community**.

There are many communities in Death Valley National Park. This is a very hot, dry place. There are about 1,000 populations of plants here. There are five populations of bats here. There are also three populations of rabbits.

A different place would have different communities. A tidal pool has certain kinds of plants and animals. These animals and plants are not found in a desert.



 What are groups of populations that live in the same place called?

Nonliving Parts

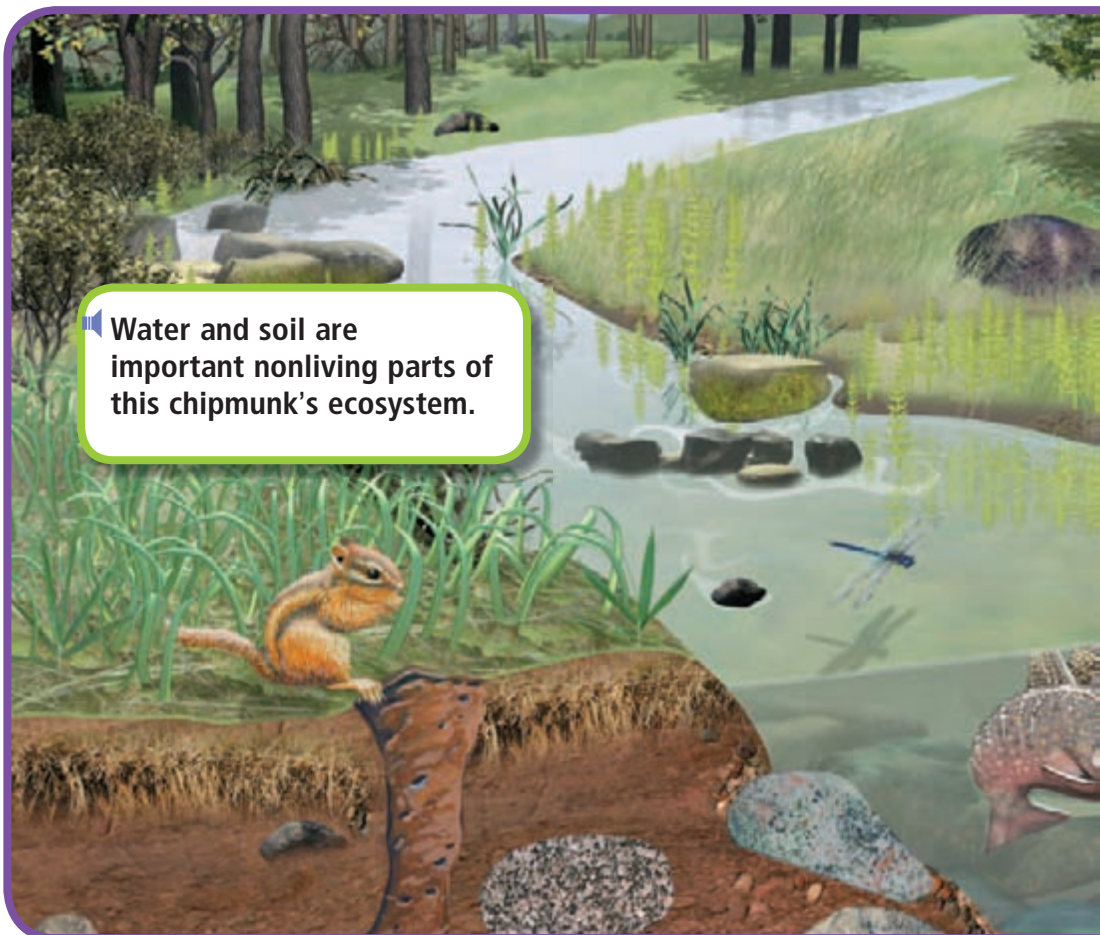
Plants and animals need nonliving things to survive. They need water, soil, sunlight, and air. These must be parts of their ecosystem.

Climate is made up by nonliving parts of an ecosystem.

The amount of sunlight in an ecosystem is one part.

The amount of rain is another part. Different patterns of temperature change are another part.

A large area with similar climates and ecosystems is called a **biome**. Deserts and rain forests are biomes.



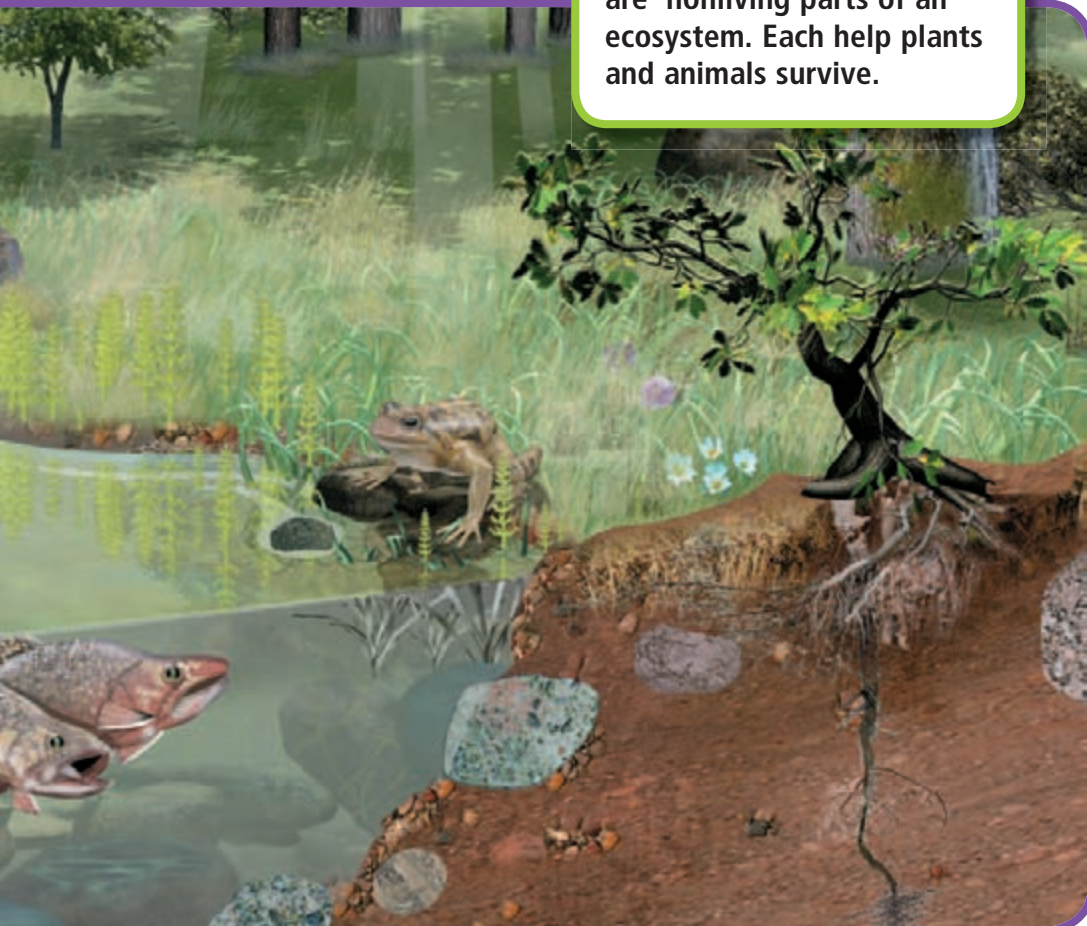
Nonliving parts of an ecosystem change. These changes affect the things that live there. A change to very little rain may cause plants to die. Too much rain may cause a flood.

Soil is a nonliving part of an ecosystem. Rich soil helps plants grow.



What nonliving parts of an ecosystem are needed for survival?

Sunlight, water, and soil are nonliving parts of an ecosystem. Each help plants and animals survive.



Ecosystems

Each **ecosystem** has its own living and nonliving parts. A desert ecosystem has cactus plants. It has spiders and lots of sunlight. It has very little rain. A forest ecosystem has different plants and animals. It has different amounts of rain and sun.

 An ecosystem can be large, like a desert. It can be small, like the space under a rock. Each ecosystem has living and nonliving parts. Each has climate. The climate may be cool and wet. Or, it may be warm and dry.



🔊 **Ecology** is the study of ecosystems. Ecologists study the living and nonliving parts of an ecosystem. They look at how these parts affect one another. They look at how plants help animals. They look at how animals help plants. They look at ways living things depend on nonliving things in an ecosystem.

🔊  What are two things that ecology tells us about?



🔊 Moose survive well in a forest ecosystem.

🔊 Review



Complete this **main idea** statement.

- 🔊 1. An _____ is an area and every living and nonliving thing in it.

🔊 Complete these **detail** statements.

- 🔊 2. A _____ is a group of the same kind of a thing living in one place.
- 🔊 3. Populations of different things in the same place make a _____ .
- 🔊 4. Two examples of a _____ are a rain forest and a desert.

VOCABULARY

- adaptation
- accommodation

What Affects Survival?



This insect's body parts are an **adaptation**. It blends in to look like part of a tree.



People make **accommodations** in cold weather. They wear different clothes to stay warm.



READING FOCUS SKILL

MAIN IDEA AND DETAILS

The **main idea** is what the text is mostly about.

Details tell more about the main idea.

- ▶ The main idea is that living things change when their ecosystems change. Read what living things do when their ecosystems change.

▶ **Adaptation and Accommodation**

Ecosystems change. They become hotter and drier. They become cooler or wetter. The plants and animals that live there must change, too. If they cannot change, they must move to a new place. If not, they will die.

- ▶ An adaptation is a body part or behavior. **Adaptations** help living things survive in a particular ecosystem. Heavy fur is an adaptation. It protects a bear from the cold.



▶ A hummingbird's beak is an adaptation. It helps the bird reach into a flower for food.





■ If bears' habitats are taken away to build homes, bears will look for food near homes.

■ Adaptations are also behaviors. Some animals migrate in winter. They go where it is warmer. Some animals *hibernate*. They sleep all winter. Animals are born knowing how to do these things.

■ Other times, animals learn new things to survive. Some animals have learned new ways to get food. Some bears go to places where people are. They find food people leave behind. This change in behavior is an **accommodation**. It helps the bears survive.



Name an adaptation.



■ In California bears getting food from trash cans is a problem.

Tropical Rain Forests

In a rain forest, tall trees block the sun from plants below. Little sun reaches plants on the ground. Many plants near the ground have large leaves. This helps them get as much sun as possible. Without large leaves, these plants would not grow well. They might die.

 Some rain forest plants have vines. This helps them reach sunlight. Other leaves have grooves. These help rain water run off quickly. Otherwise, too much rain could break them.



 An orchid's roots are an adaptation. They let the orchid grow on high branches. Then it can get more sun.



|| This bird's beak is an adaptation. It helps the bird get food from the ends of tree branches.

|| *Camouflage* [KAM•uh•flazh] helps some animals hide. They have a color or shape that helps them look like their surroundings. Many rain forest lizards are green. Their color helps them blend in. This make it harder for predators to find them.

|| Camouflage also helps some predators. Snakes in a rain forest blend in with vines and leaves. They can get close to prey and not be seen. Then it is easier for them to catch food.

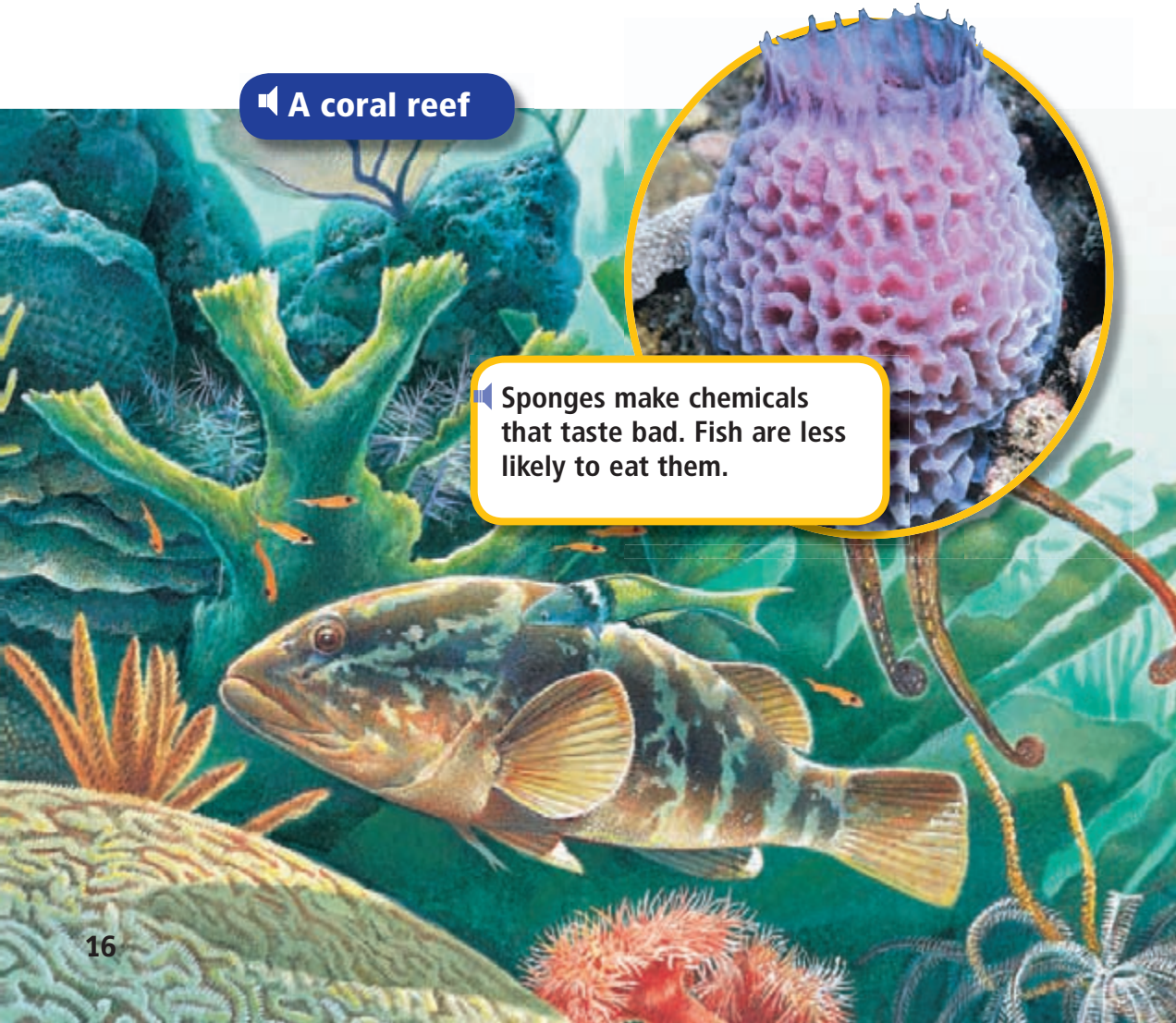


|| **How does camouflage help some animals in rain forest survive?**

Coral Reefs

Coral reefs are living things. They are made of many small organisms. Populations of hundreds of living things live on or around reefs. The plants and animals that live on coral reefs have made adaptations. These adaptations help them survive on the reef. Many animals on coral reefs have camouflage. Their color helps them hide.

 Small reef fish swim in *schools*, or large groups. This adaptation protects the small fish. A predator doesn't know which fish to hunt.



 A coral reef

 Sponges make chemicals that taste bad. Fish are less likely to eat them.

🔊 Coral is also adapted to its environment. A coral reef is made of many tiny coral animals. Coral cannot move around. They eat plankton when it comes by them in the water.

🔊 Coral also need algae to survive. Algae inside the coral help feed it. Algae share food with the coral. The coral gives the algae a home. The coral also give off carbon dioxide. The algae need this to make food.



What adaptation in behavior helps small fish in a coral reef survive?



🔊 A clownfish lives with anemones. Their sting helps keep prey away.

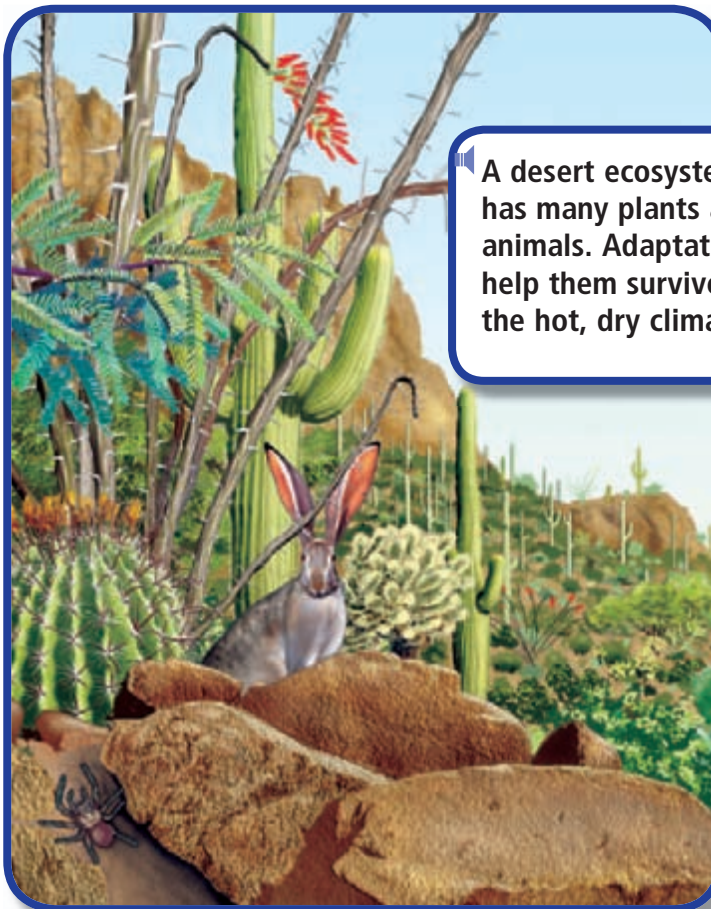


🔊 This crab uses seaweed and small shells as camouflage.

Deserts

It is hard for plants and animals to survive in a desert. In a desert, many animals use camouflage. Light brown colors help animals hide. Light colors also help keep them cool.

Many desert animals stay out of the sun. When temperatures are highest, they sleep. Many sleep in the daytime. Some sleep under rocks. Others sleep in burrows under the ground. At night, the air is cooler. Then these animals come out and hunt for food.



A desert ecosystem has many plants and animals. Adaptations help them survive in the hot, dry climate.

Most desert plants have spines. Having spines, not leaves, helps desert plants save water. Spines also keep animals from eating the plants.

Another adaptation helps cactus plants. They have roots that are close to the top of the ground. The roots can take in rain water quickly.



What kinds of adaptations help desert plants live?



This bird nests in a cactus. The cactus spines keep predators away.

Review



Complete this **main idea** statement.

- 1. When _____ change, the plants and animals in them will change, move, or die.

Complete these **detail** statements.

- 2. Animals with adaptations for a rain forest probably would not survive in a _____ .
- 3. _____ help animals survive.
- 4. Some animals use _____ to hide.

GLOSSARY

-  **accommodation** (uh•kahm•uh•DAY•shuhn) A learned behavior that helps the individual members of a species survive.
-  **adaptation** (a•duhp•TAY•shuhn) A body part or behavior that helps an organism survive.
-  **biome** (BY•ohm) A large area that has a similar climate and similar ecosystems in all parts of it.
-  **community** (kuh•MYOON•uh•tee) All the populations of organisms living in an environment.
-  **ecology** (ee•KAHL•uh•jee) The study of ecosystems.
-  **ecosystem** (EE•koh•sis•tuhm) A community of living things and the community's physical environment.
-  **population** (pahp•yoo•LAY•shuhn) All the individuals of one kind living in the same environment.
- taiga** (TY•guh) Moist, subarctic forest dominated by conifers such as spruce and fir; begins where the tundra ends.

Think About the Reading

-  **1.** Would you like to learn more about ecosystems? Where can you go to find out more?
-  **2.** Do you know what kind of animal populations are in your community? How can you find out?

Hands-On Activity

You learned about ecosystems and communities. You learned how animals use adaptation to survive.

-  **1.** Draw a picture of an ecosystem near your home.
-  **2.** Tell how plants or animals in this ecosystem survive with adaptation.

School-Home Connection

Visit a park with someone in your family. What kinds of plants and animals live here? Point out at least two different populations that live in this ecosystem. Tell your family about them.