

Organisms and Their Habitats



habitats



seasonal habitat change



planned habitat

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Table of Contents

Chapter 1	Where Are the Butterflies?	2
Chapter 2	What Are Some Plant Habitats?	6
Chapter 3	Plants Change with the Seasons	12
Chapter 4	What Do Plants Need to Grow?	16
Chapter 5	What Are Some Animal Habitats?	20
Chapter 6	Animals Change with the Seasons	28
Chapter 7	Plants and Animals Depend on Each Other.....	32
Chapter 8	Science in Action	38

Where Are the Butterflies?

It's almost Teacher Appreciation Day. Mrs. Carver's students have been thinking about doing something nice for their teacher. They know that she loves science and being outside. Mrs. Carver especially loves butterflies.

Their class spends a lot of time in the school's nature study area, the land lab. "I have an idea!" Corbin says. "We're going to the land lab on Friday. I'll bring my camera. We'll take pictures of butterflies and make them into a book!"



On Friday, the class heads to the land lab. Corbin has his camera in his pocket. The students walk through the field and then along the path in the woods. They see birds, squirrels, and rabbits. But no matter where they look, they cannot find any butterflies.

Corbin is confused. The area around his home is full of butterflies! He wonders if he can bring some to the land lab. He'll ask his dad for help.



Saturday morning, Corbin and his father gently catch some butterflies in a big net. They place them in a mesh container. Corbin puts some cotton balls soaked with sugar water inside. He knows butterflies like sweet liquids.

Corbin's dad drives them to the school, and they carry the butterfly containers to the land lab. Corbin lets the butterflies out into the field. He plans to bring some friends back on Sunday to take the pictures they need for Mrs. Carver's book.



When Corbin returns the next morning with his friends, they look everywhere. The butterflies are gone! Time is running out to make Mrs. Carver's gift. They have only two weeks left!

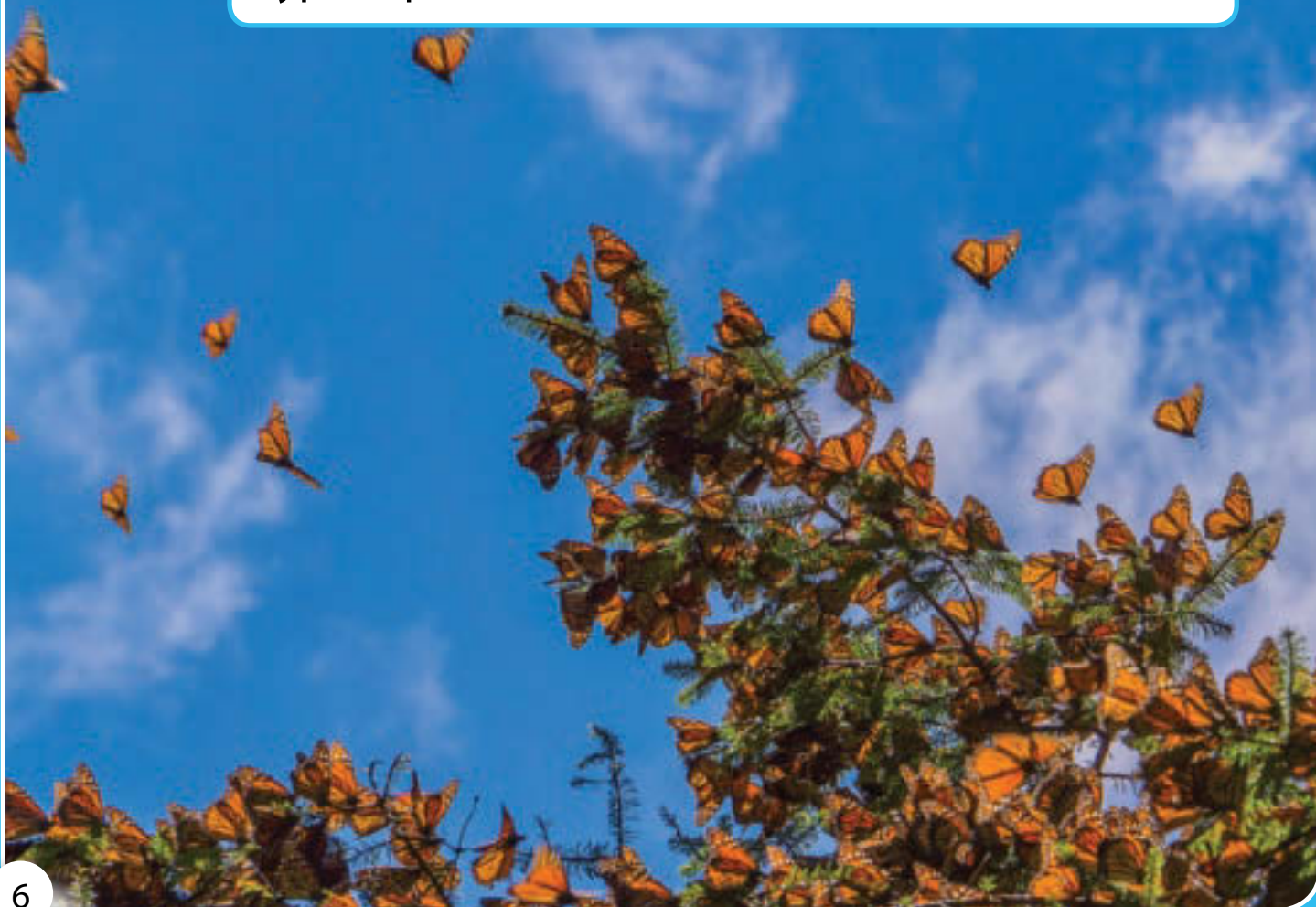
Corbin and his friends decide that they will go to the local library. They will read as much as they can about butterflies. Then maybe they can solve the mystery of the butterflies disappearing in time for Teacher Appreciation Day.



What Are Some Plant Habitats?

As Corbin and his friends read about butterflies, they learn that butterflies need plants for food. They need plants for shelter. They need plants to reproduce. Butterflies are found only in places where the specific plants that they need also live.

For example, adult monarch butterflies eat nectar from flowers for food. The monarchs gather in certain types of trees when they travel long distances. Young monarch caterpillars eat only one type of plant, called milkweed.



Butterflies live in habitats all around the world. A habitat is the place where an organism lives. Habitats can be very different from place to place. The different habitats that butterflies live in have many different types of plants. Corbin wants to learn about different habitats.

A tropical forest is a warm, rainy habitat. The trees are very tall. Their leafy tops form a thick layer that shades the ground below. The plants near the ground often have large leaves so that they can get as much light as possible. Some plants in tropical forests don't even grow in soil. They grow on other plants!

Forest treetops
shade the ground
below.



These tropical forest plants
grow on tree branches.

Not all forest habitats are warm and wet year-round. Some forests have trees that lose their leaves in cooler weather. These trees grow new leaves again in the spring. There are many shapes of leaves. Nuts grow on some of the trees. They drop to the forest floor and make a tasty meal for animals. The oak tree's leaves change color in the fall.



oak leaves



hickory trees



hickory nuts

Plants live in desert habitats, too. Deserts are dry places. These plants do not need much water to survive, but they need some. Some desert plants have long roots to find water deep underground. Others have short roots that spread out close to the surface of the sandy soil. These roots can quickly soak up water from a rare rainfall.



This cactus is a desert plant. It stores water in its stem. All cacti have flowers and fruit. The flowers attract insects, including butterflies.

The Joshua tree is another desert plant. Its flowers attract moths.



Another kind of plant habitat is a prairie. Prairies are flat areas with few trees. They are filled with grasses. Grass leaves are long and slim. Grass roots can take in a lot of water. Grasses can grow up to ten feet tall!

Prairies also have herbs, small plants that often have showy flowers. Their bright flowers attract butterflies and other insects. Milkweed is one type of prairie plant. It is the only plant where monarch butterflies lay their eggs.



Think about the plants around your home. Are they tall or short? Are they skinny or thick? Do they have flowers or fruit? Plants can be very different. But all plants live where they do because they can get the air, water and sunlight they need there. They also provide food and shelter for butterflies and other living things in each type of habitat.

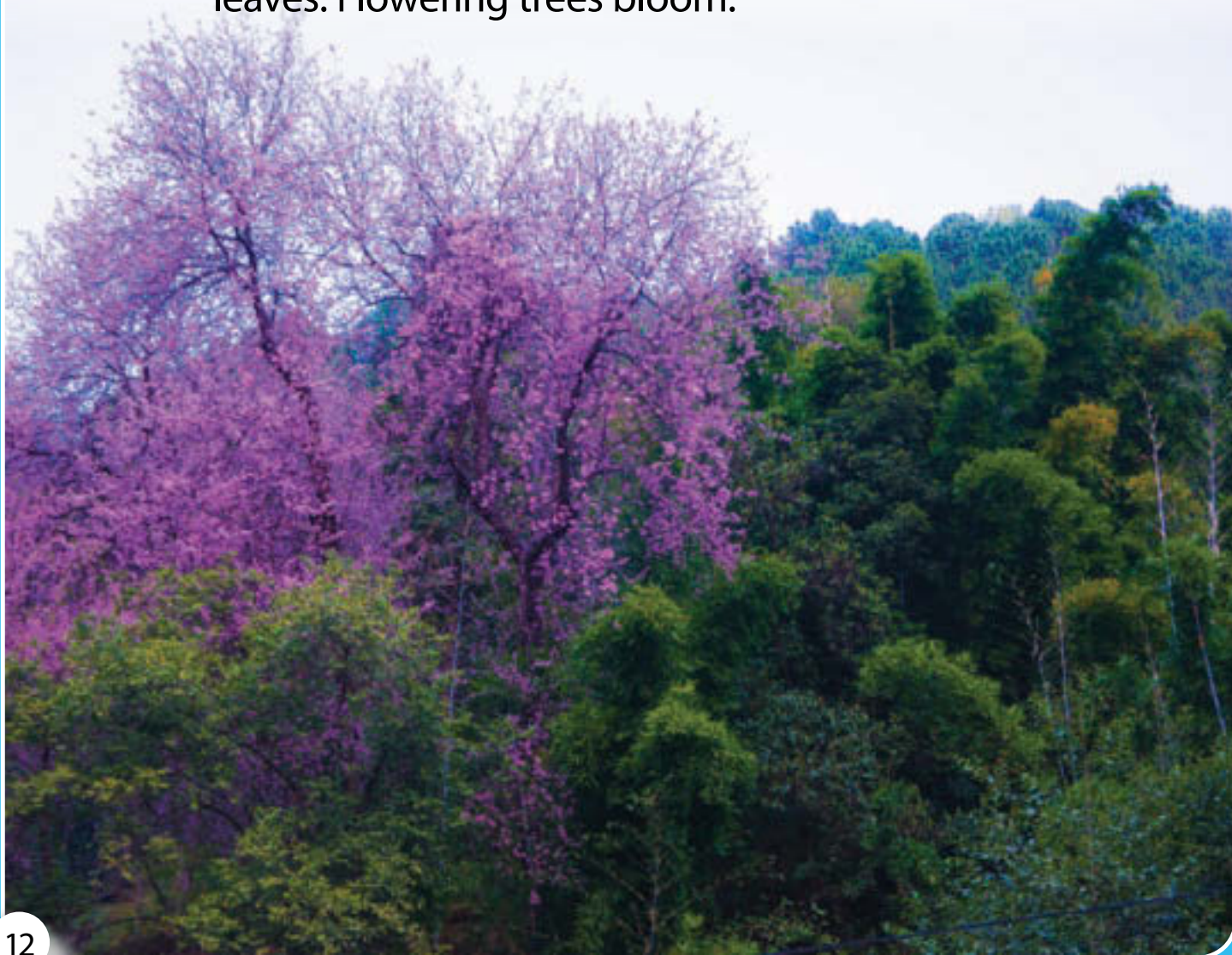
Corbin wonders if the plants that grow in the land lab are the right kind for butterflies.



Plants Change with the Seasons

Plant habitats differ from place to place. But a single habitat can change, too. These changes happen over time in a pattern called seasons. Plants respond to the changes that different seasons bring.

In spring, the weather warms. There is more daylight. Leaf buds grow on the branches of trees. New plants sprout through the soil. A sticky material called sap begins to move from plant roots into the stems and leaves. Flowering trees bloom.



In summer, the days are long and warm. Plants soak up the sunlight and make food. Food gives plants the energy they need to grow. Many flowers bloom. Fruits and seeds develop. Trees fill with leaves.



Plants provide more food for animals in the summer.



This tomato plant is starting to grow fruit.

The season after summer is called *autumn* or *fall*. In fall, days become shorter again. There is less daylight each day. The shorter days and cooler temperatures cause plants to make less food. The leaves on trees change color in the fall. Flowers stop blooming.

Fall is also when some fruits and seeds ripen.

They soon fall to the ground.

Apples ripen in fall.



In winter, the days are very short, and the temperatures are cooler. In places where winter is cold, plants stop growing. Their leaves, flowers, and fruit have fallen off. Plants no longer make food in the winter. Grasses turn brown in the winter because they aren't making food.



What Do Plants Need to Grow?

Plants live in many different places. Plants come in all shapes and sizes, too. Some have flowers. Some make fruit. Some have tough, brown stems. Others have stems that are soft and green.

All plants need five things to survive, though. They need air, water, sunlight, nutrients, and room to grow. Plants live where they can get the amount of air, water, sunlight, nutrients, and space that they need. If these needs are not met, plants cannot grow.



Some plants need a lot of water. They live in wet places. Some plants don't need much water at all. They can live in dry places, like deserts. Different types of the plants live in the places where they can get just the right amount of water.

Different plants also need different amounts of sunlight. Some must live in shady environments. Some need bright, direct sunlight. Different types of plants live where they can get just the right amount of sunlight.

Plants of the tropical forest floor grow in the shade of the taller trees.



Plants in a desert habitat need little water. They can survive in hot, bright sunlight.

Farmer Max grows sunflowers outside the town where Corbin lives. She farms sunflowers for their fruits. She plants rows of seeds once the weather is warm enough in the spring. The seeds will start to grow into plants if they get enough air, sunlight, nutrients, and water.



All spring and summer, the sunflowers use water, air, and sunlight to grow bigger and bigger.

Farmer Max told Corbin about the monarch butterflies that travel to their area. She said that the butterflies fly through their area on their way to the northeast in the spring.



Sometimes the butterflies stop and get nectar from the sunflowers. This gives the butterflies energy to fly farther north.

These monarch butterflies are just stopping for a quick meal.



In fall, the days get shorter and colder. Many outdoor plants will die off without enough sunlight and heat. Farmer Max watches her sunflowers. When the heads of the flowers tilt down and start to turn brown, it is time to harvest the fruits.



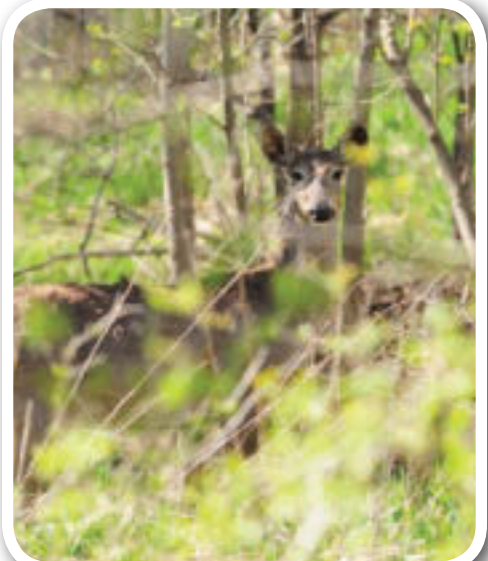
The kernels in these sunflowers could end up as a tasty snack for you.

What Are Some Animal Habitats?

Corbin now knows that plants live in habitats around the world. These habitats include forests, deserts, prairies, mountains, and oceans. Animals live in these habitats, too. Like plants, different animals live in different places. They live where they can get the air, food, water, and shelter they need. They live where they can survive and grow. What kind of habitat does this bighorn sheep live in?



Some animals live in forests where trees lose their leaves in the fall. Birds and squirrels make nests in the trees. They find food on the forest floor. Deer eat leaves from the plants. They blend with the habitat when danger is near. Rabbits, raccoons, and insects live in these forests, too. Many types of birds nest in forest trees.

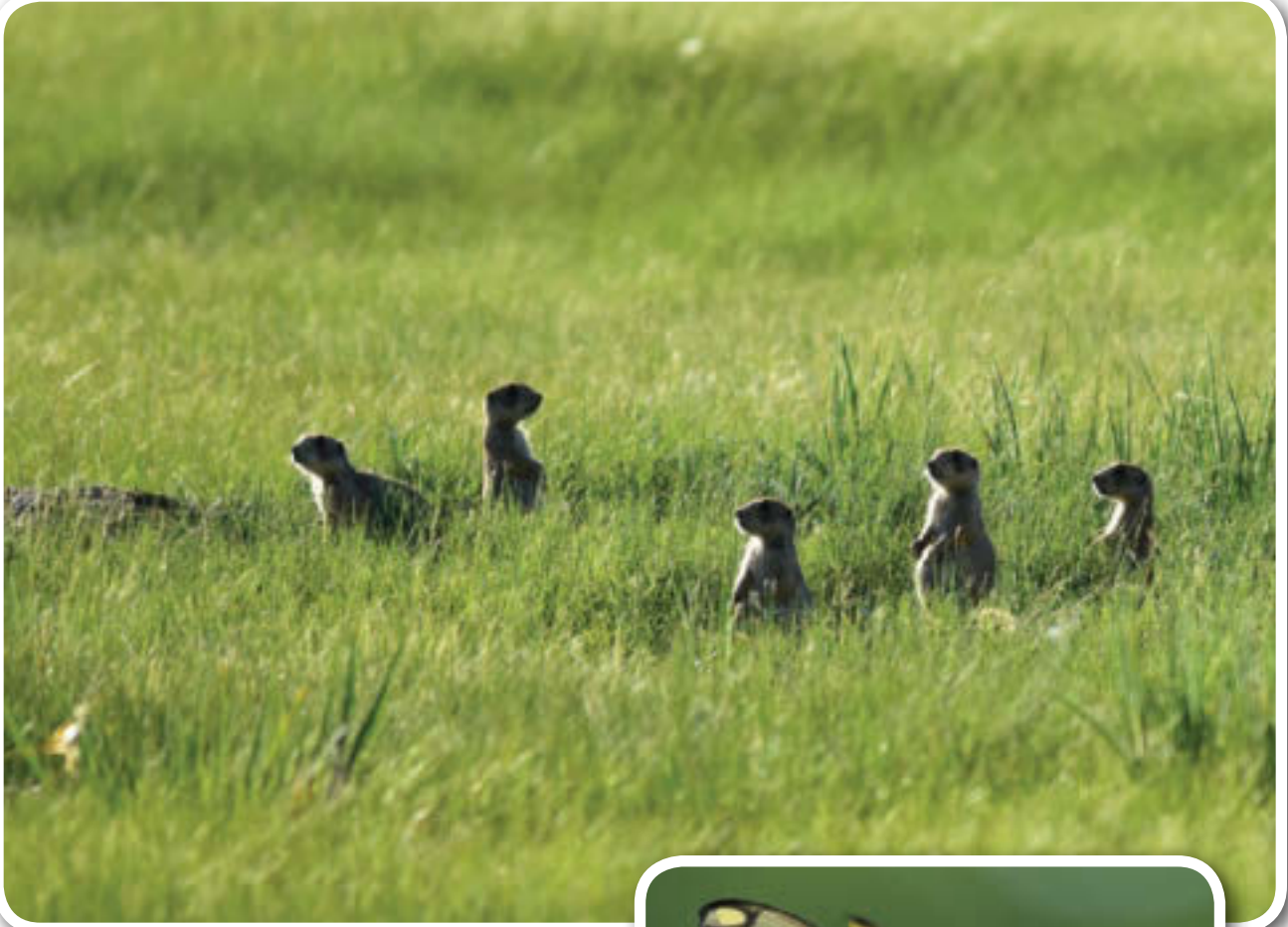


Many animals live in tropical forests. Tropical forests are warm and wet. Worms live in the wet soil in these forests. They get food from the dead leaves. Moles dig burrows under the wet ground. They eat insects that live under the ground.

The key near this giant blue earthworm lets you notice how big the worm is.



Can you guess where a prairie dog lives? If you said in a prairie, then you're right! Prairie dogs live in tunnels under the ground. Their burrows provide homes for other prairie animals, like toads and jackrabbits.



Butterflies live in lots of different habitats. Many live in prairies. They get food from wildflowers. They lay their eggs on the plants. When the caterpillars hatch, they eat the plants, too.



Deserts and tundras are very dry habitats. Deserts can be very hot. Tundras can stay very cold. These habitats have few trees. Lizards and scorpions are two kinds of desert animals. Lizards have scales on their feet. The scales protect them from the hot sand. Scorpions hunt at night when it is cooler.



The arctic hare also lives in a dry, cold place, the tundra. The hare has thick fur to keep it warm. Its fur is white in winter and brown in summer. It can hide from danger more easily.



Not all animals live on land. Many live in water. Some animals live in fresh water. Fresh water is water that is not salty. Lakes, rivers, and streams are freshwater habitats.

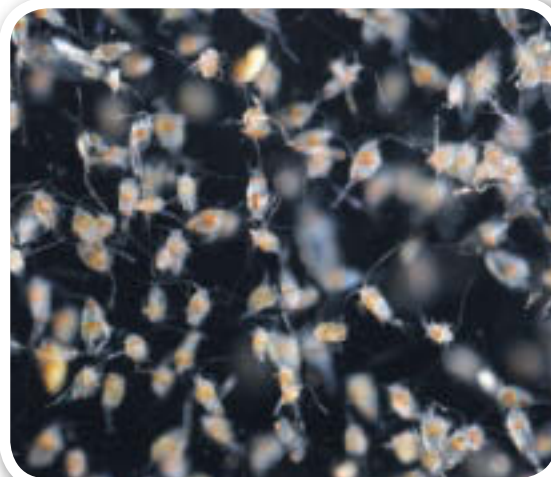
Many kinds of fish live in fresh water. They have body parts that help them move in the water. They get oxygen that is in the water, too. A flowing stream is the habitat for this trout.



Mussels are freshwater animals, too. They have shells that form in many shapes and colors. Special body parts help them remove tiny bits of food from the water. Freshwater mussels live in lake, river, and stream habitats.



Oceans are saltwater habitats. Plankton are tiny living organisms that drift with the water. Plankton are too small to be seen without a microscope. Some make their own food. Some eat other plankton. They are also food for other ocean animals, including whales.



Animals in oceans can be very small or very large. Whales are some of the largest ocean animals. The blue whale is giant. It can be as big as two or three school buses!



Sea stars live in the ocean, too. They have body parts that help them move across the ocean floor. Another body part sucks up food in one swoop! There are many shapes, sizes, and colors of sea stars.



This chapter describes only a few animals that live in Earth's many habitats. Did you know that there are over eight million different kinds of animals on Earth? How can scientists group them?

You can group animals by their body covering. You can group them by what they eat. You can also group animals by whether they have a backbone. Mammals, fish, amphibians, and reptiles are some animals that have backbones. Animals that don't have backbones include insects, snails, and coral.



Which of these animals have backbones? Which animals do not? Do you have a backbone?

Animals Change with the Seasons

Plants change with the seasons. They sprout, bud, grow, and rest. Many animals respond to the seasons, too. Their bodies may change. The way they act may change, as well.

Spring is when many animals find a mate. A little while later, baby animals are born or hatched. This is a good time of year for animals to have young. Temperatures are warmer. There is more food available.



During the summer, the days are long and warm. Young animals grow and learn how to survive. Animals that live underground come out of their dens to find food. Leaves, fruits, and seeds are plentiful. There is food for meat-eating animals to catch and eat. Some animals shed their thick coats in summer. Summer is when baby animals grow the most.



A baby deer grows quickly over the summer.



A red fox sheds its heavy winter coat.



Garter snakes come out from underground to find food.

Animals can sense the changes in fall. They can tell that the days are getting shorter. They can feel the temperatures getting cooler. Some animals begin to prepare their winter homes. They gather and store food. Squirrels stay in the same habitat year-round. They bury nuts to eat over the winter.



Other animals move to a warmer place. Monarch butterflies cannot survive a cold winter. Instead, they travel south where the weather is warmer. This journey can be thousands of miles. The butterflies gather on trees to rest along the way. Monarch butterflies gather together in large groups as they travel when the seasons change.



Winter is cold in many places. Animals that don't move to another place must find a way to stay warm. Some animals spend the winter in dens and burrows under the ground. They spend most days resting and sleeping. Their bodies do not use much energy. This means that they also do not need much food. Many bears rest in dens during the winter.



Plants and Animals Depend on Each Other

Plants and animals live together in habitats. They share the same space. They share some of the same resources. Many plants and animals depend on each other to survive. Some plants cannot make new, young plants without the help of animals. Many animals would not have food or shelter if it weren't for plants.

How might trees help this frog survive?



Many plants depend on animals to help them make new plants. Insects such as bees and butterflies land on flowers. They pick up a sticky powder called pollen. Then they carry the pollen to another flower. The plant uses this pollen to reproduce.

Larger animals carry fruits or seeds on their bodies. They can stick to an animal's fur. Squirrels bury seeds or fruits and forget about them. Some animals also eat plants and fruits from plants. Then they leave the seeds in their droppings.

Can you see the pollen on the butterfly's body?



These burrs have seeds inside. They stick to animal fur.

Many animals depend on berries, buds, leaves, or fruits from plants for food. Birds, frogs, raccoons, and apes are some animals that use plants for shelter. Some animals climb trees for safety.



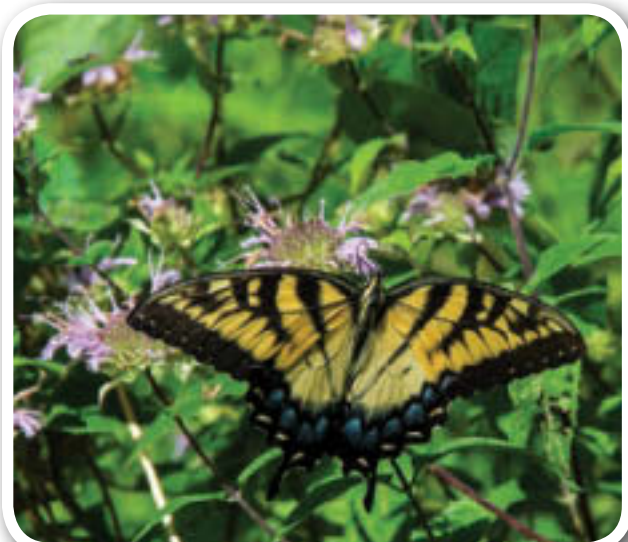
Plants provide shelter for butterflies. They also provide food. Butterflies drink a sweet nectar that flowers produce. Caterpillars hatch on plants and eat the leaves while they grow.



You have read a lot about many different types of plants, animals, and their habitats. Corbin has, too! He now knows that butterflies depend on certain plants for food. He knows butterflies cannot live in a habitat where those types of plants do not grow. Corbin also knows that for the right plants to grow and attract butterflies, the plants also must get what they need in their habitats.



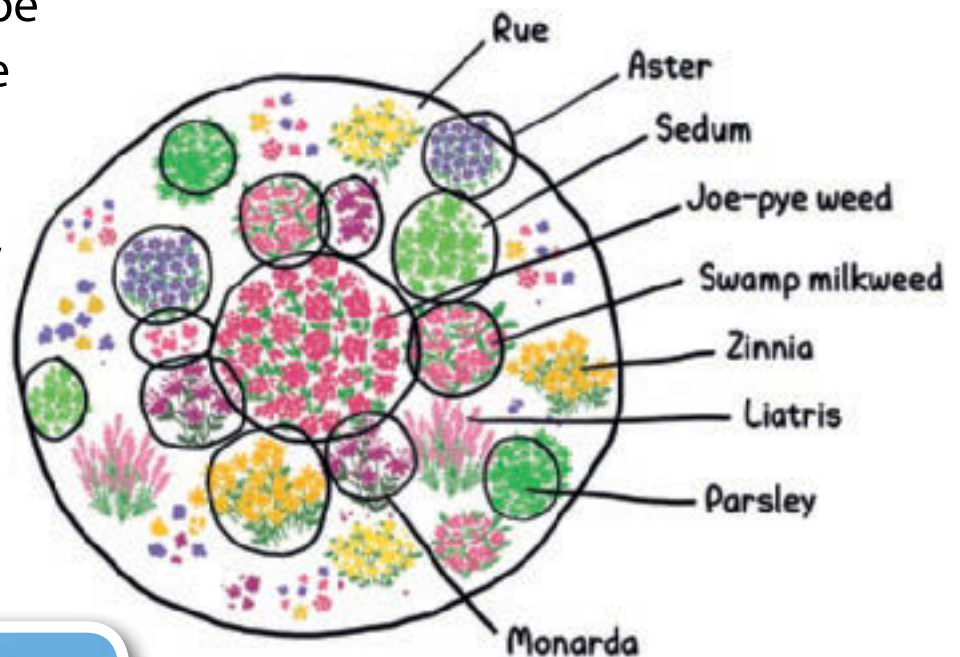
Corbin and his friends discovered in the library that caterpillars like violets and milkweed. The caterpillars get energy from eating the plants. The group discovered that butterflies like a lot of flowers with nectar. The butterflies need a lot of food as they migrate. Each flower bed the butterflies stop at is a place to rest and get food. This gives Corbin an idea! What if the class added flowering plants to the land lab to attract butterflies? This could make a nice gift for Mrs. Carver, even better than a picture book.



Corbin shares his idea with his classmates. They want butterflies to live at the land lab someday.

The students secretly meet with their principal. They get permission to plant a butterfly area in the land lab. They want butterflies to return there year after year. They will choose wildflowers that grow naturally year after year in this particular habitat, too.

On their next trip to the land lab, Mrs. Carver's students surprise her with their plan. They show her their list of plants and where they will plant them. They also present her with the sign that will be placed among the flowers. It says, "Mrs. Carver's Butterfly Garden."



Butterfly Garden Plan



Science in Action

A Visit with a Naturalist

Mrs. Carver loves the plan for a butterfly habitat that Corbin and his classmates made for her. They discuss how they will create the habitat. They talk about how they must choose plants that are right for the habitat area. They discuss how the plants will make it a home for butterflies and other animals. Do they want it to look like a garden, or do they want to plant a more natural meadow? They want to make the place as much like a natural habitat as they can.



It is also important to protect natural habitats. Learning about habitats is the first step in protecting them.

Tomorrow, the class will visit a nature center. They will meet a naturalist. The naturalist will show the students how to observe living things in their habitats.

When scientists make observations, they use tools and their senses to collect and record information. Observations help scientists understand and protect living things.



When the students arrive at the nature center, they meet the naturalist named Ms. Maddox. Ms. Maddox takes them into the woods. She shows them different ways to observe living things. They use hand lenses to look at insects under a fallen log. They watch a robin build a nest in a nearby tree. They see squirrels digging for nuts and seeds. They use small shovels to find worms in the soil.

Ms. Maddox shows the class how to record their observations in a notebook. They write the date and time. They write notes about what they see. They draw pictures, too.



Next, the naturalist takes them to a wetland habitat. They hear a bullfrog calling from a wet pond. They spot a red-winged blackbird clinging to a reed. They see an egret using its long beak to hunt for fish in the shallow water. They watch a dragonfly land on a flower. The students count the animals they see. They record these observations in their notebooks, too.



The class goes into a building at the nature center. Students will spend some time there comparing what they recorded in their notebooks. The sign on the front of the building says "Audubon Center."

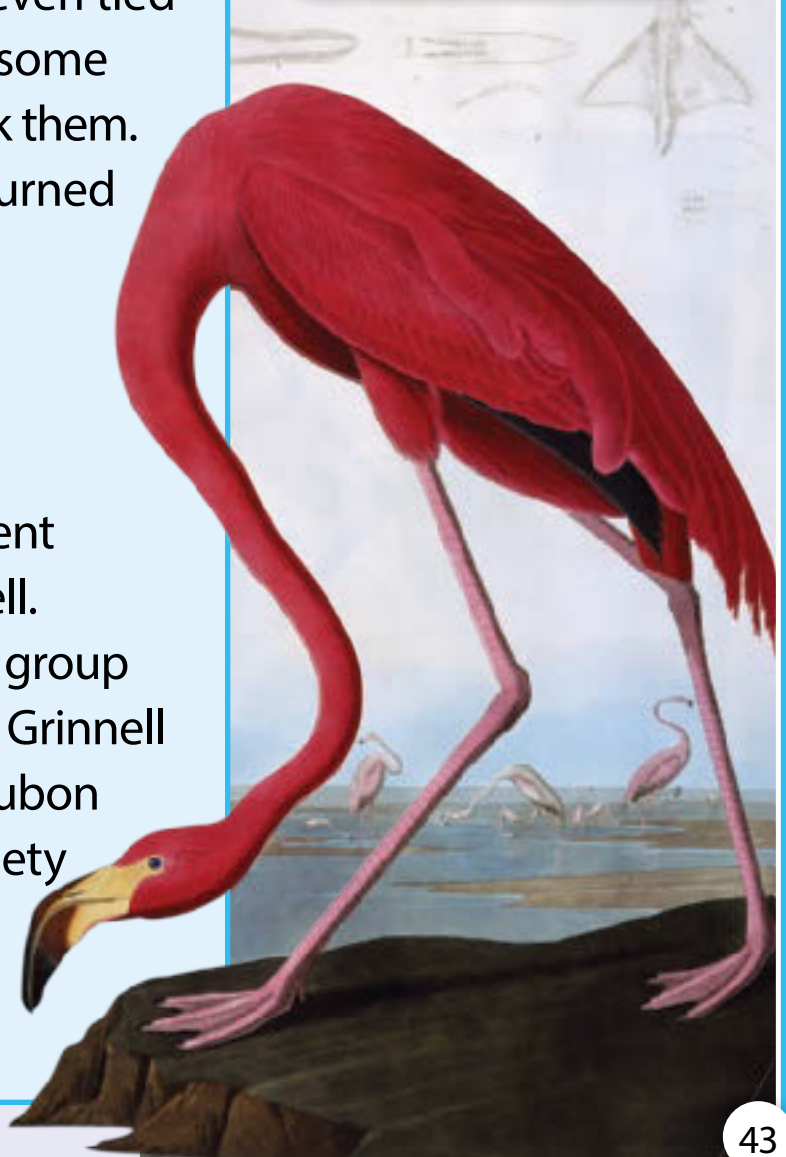
Ms. Maddox asks, "Does anyone know why this place is called an Audubon center?" Then she explains. The name on the building refers to a naturalist named John James Audubon. This nature center is part of a big organization of many nature centers named after Mr. Audubon. The students also discover that learning about John James Audubon is what made Ms. Maddox want to become a naturalist!

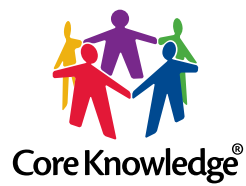


John James Audubon

John James Audubon was a naturalist and painter. He lived during the time when the United States of America was a new country. He spent a lot of time observing birds in their natural habitats. Audubon made paintings of the birds in their habitats. He even tied strings around the legs of some birds so that he could track them. He found that the birds returned to the same place year after year.

Lucy Bakewell Audubon, Audubon's wife, was a teacher. She taught a student named George Bird Grinnell. Grinnell went on to form a group to study and protect birds. Grinnell named the group the Audubon Society. The Audubon Society still studies and protects birds, their habitats, and other wildlife.





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