Habitats and the Environment

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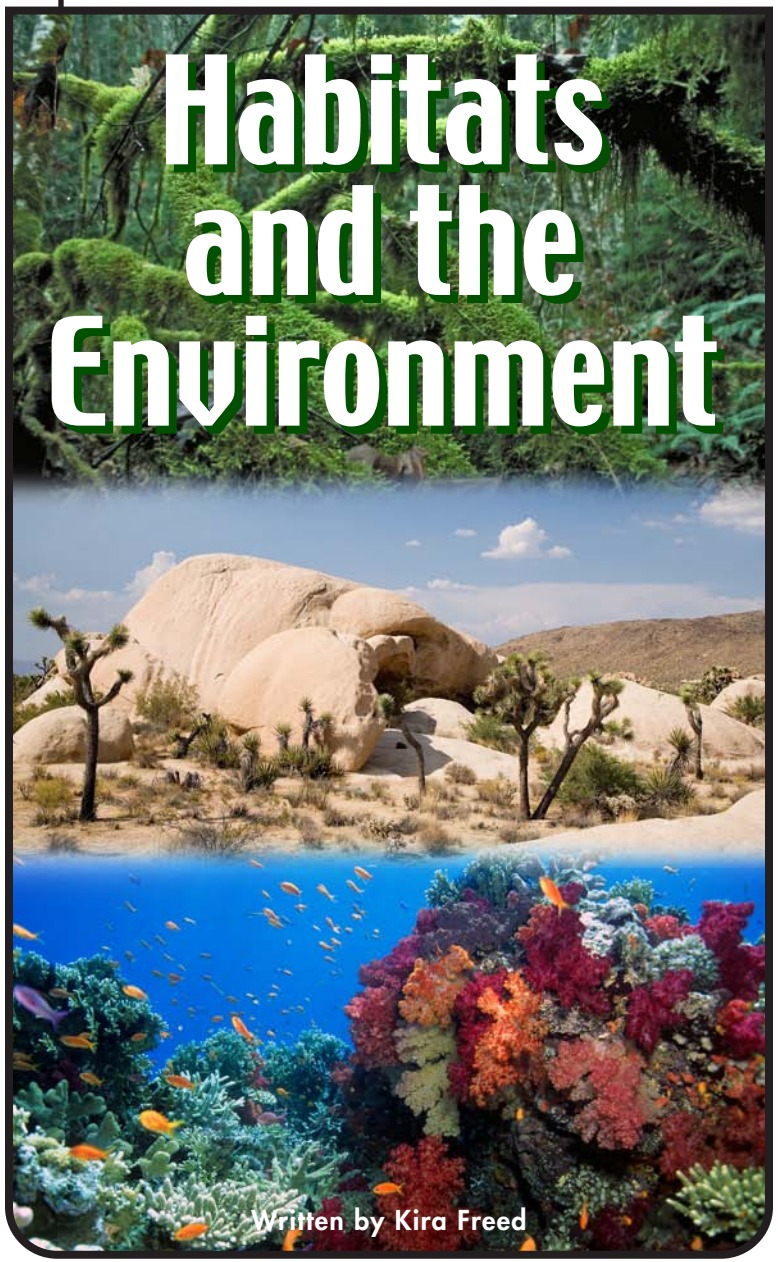

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Habitats and the Environment

Written by Kira Freed

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KEY ELEMENTS USED IN THIS BOOK
The Big Idea: Plants and animals, including humans, each live in a habitat. When a habitat changes, the organisms that live within it must either adapt or move out of it in order to survive. Only those organisms that successfully adapt will survive and pass their genes to future generations within the habitat. Human activity can have considerable effects on natural habitats. Taking action to protect a habitat from harmful changes could provide a healthy and sustainable environment for many species in the future.
Key words: adaptation, atmosphere, building block, climate, elevation, environment, equator, erosion, habitat, hibernate, latitude, polar, pollution, savanna, shelter, survive, tundra, weather **Key comprehension skills:** Compare and contrast *Other suitable comprehension skills:* Cause and effect; classify information; main idea and details; identify facts; elements of a genre; interpret graphs, charts, and diagrams **Key reading strategy:** Ask and answer questions *Other suitable reading strategies:* Connect to prior knowledge; summarize; visualize; using a table of contents and headings; using a glossary and bold terms

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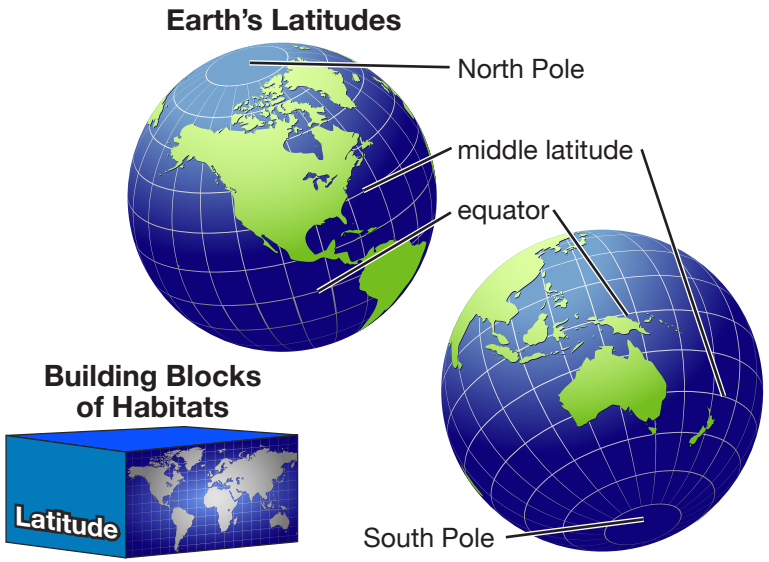
Introduction

Can you imagine a wild polar bear in Hawaii? How about a palm tree at the South Pole? You may know that these things do not happen. But do you know why not?

A **habitat** has the food, water, air, and shelter a living thing needs. Habitats have many parts that work together. As you read, you will learn why the pictures on this page could not be real.

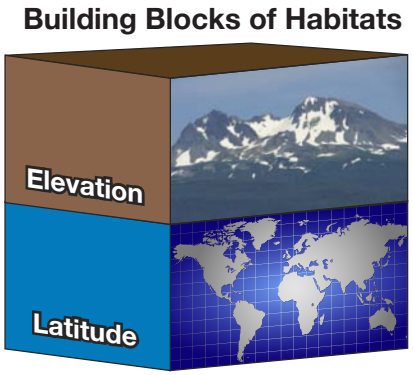
What's wrong with these photos?



The Building Blocks of Habitats

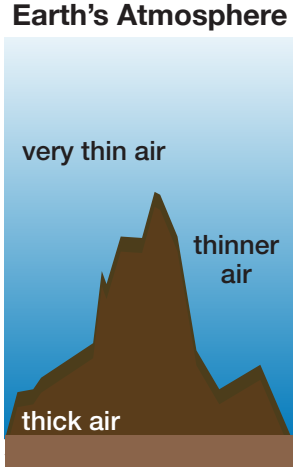
Earth has many habitats. To know why, let's learn about the building blocks of habitats.

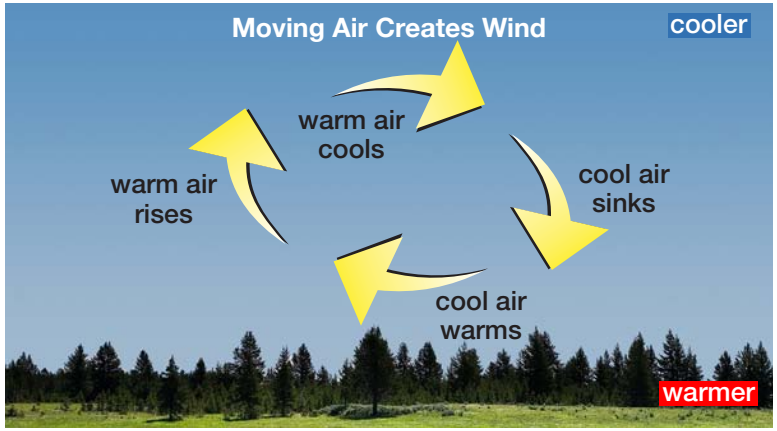
The first building block is **latitude**. Latitude measures how far a place is from the equator. The Sun warms latitudes near the equator more. The Sun warms latitudes near the North Pole and South Pole less.



The second building block of habitats is **elevation**. Elevation is how high or low a place is. The Sun warms low places more than high places. Why is that?

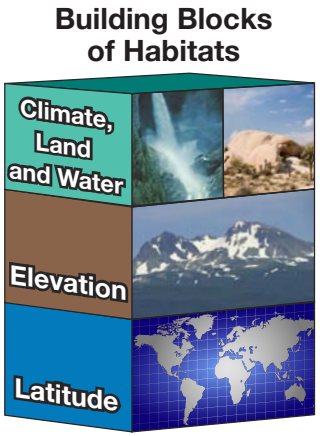
The air around Earth is the **atmosphere**. It is like a blanket of air. The blanket is thick close to the ground, so it holds in more heat. The blanket is thin at high elevations, so it holds in less heat.





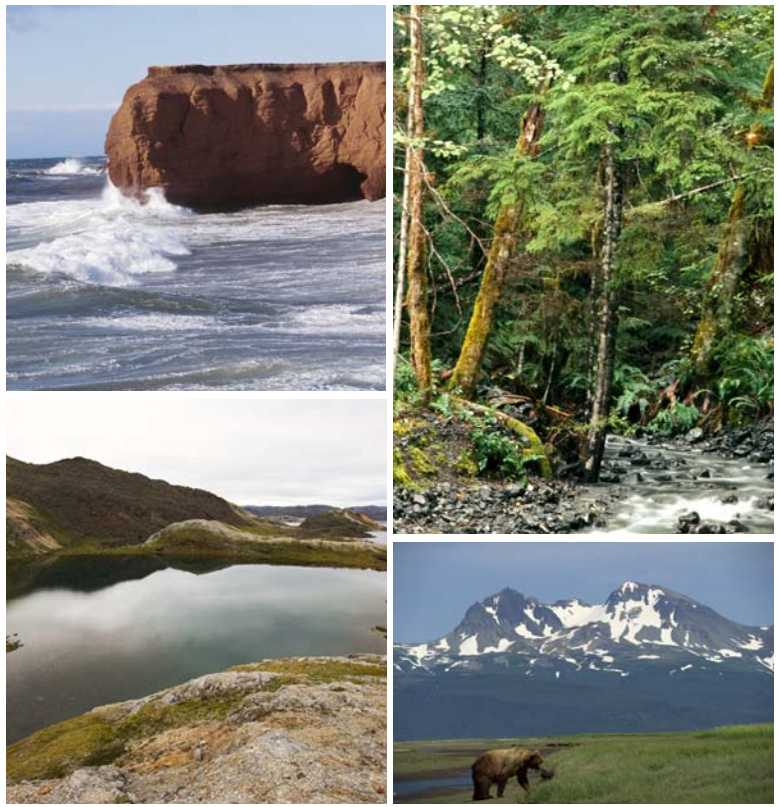
WOWSER!

The North Pole never gets dark in the middle of summer (in June). The Sun never rises in the middle of winter (in December). At the South Pole, winter (in June) is completely dark. Summer (in December) is light but not bright.

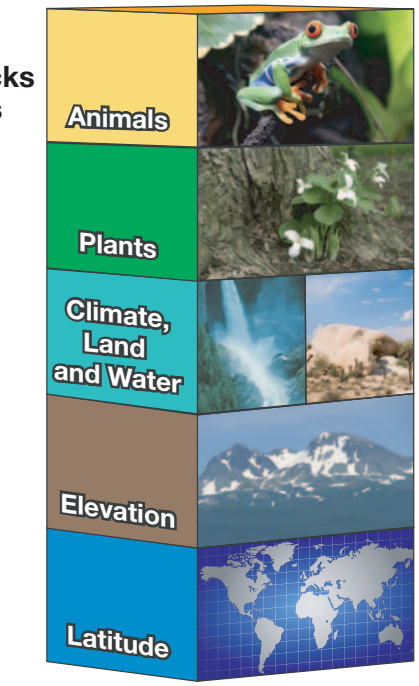


Climate is half of the third building block of habitats. Climate is weather over many, many years. Temperature, wind, and water in the air are all part of climate. Different places on Earth have different climates.

The other half of this habitat block is water and land. Almost three-fourths of Earth's surface is water. Most of the water is in oceans. Other water is in lakes, streams, and underground. Earth's land is different from place to place.



Earth has many kinds of land and water.



All these building blocks control what plants can grow in a place. And because plants are food for many animals, the plants control what animals can live in a place. So plants and animals are the last two building blocks of habitats. All the building blocks make Earth's many different habitats.

Surviving in Habitats

Living things **survive** best in habitats where they have everything they need. Living things need food, water, and shelter. They also need room, safety, and a place to have and raise babies.

Plants and animals in a habitat depend on each other. Every part of a habitat is important.

A swallow uses the hole in a tree for a nest.

A bee carries pollen from one flower to another.

ADAPTATIONS

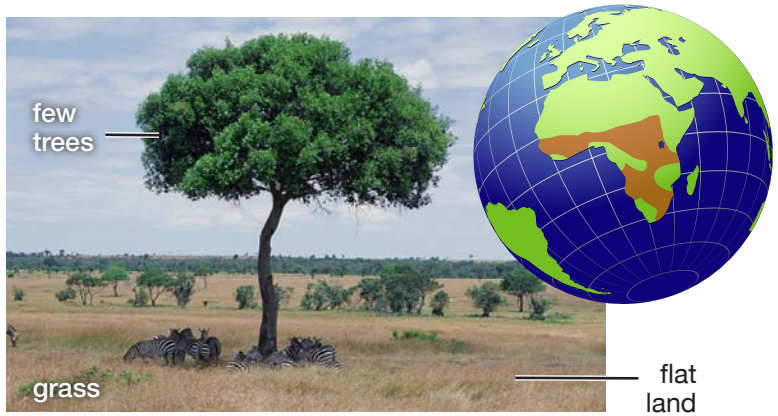
Behaviors	Body Parts
	
This flower smells like rotten meat. Flies come because they like the smell. The flies carry the flower's pollen to other flowers.	The bottom plant in this picture grows mostly in shade. It has big leaves to soak up lots of sunlight.
	
Musk oxen stand in a close circle to protect their young.	A giant anteater has a long snout. Its snout helps the anteater find and eat insects.

All living things have **adaptations** to survive in their habitat. Some adaptations are helpful body parts. Other adaptations are helpful actions.

Three of Earth's Habitats

Earth's **environment** is made of living and non-living parts, all over the world. The environment is made of lots of different habitats. Let's learn about three different habitats. The first habitat is a savanna in Africa. A savanna is a grassland near the equator at a low elevation. The climate is hot, and it is also dry most of the year. Heavy rain falls in the summer.

African Savanna



Zebras and wildebeests stand in groups to stay safe from lions.

These trees store water in their trunks as a special adaptation for the dry savanna. The water helps them survive during dry months.

It is too dry here for most trees to grow. A few trees grow far from one another so they can drink up the water that falls around them.

Animals on a savanna do not have many places to hide. Zebras live in large groups to help them stay safe. Small animals hide under the ground. Cheetahs run fast to catch their food. Lions use their senses.

Next, we will visit a forest in a middle latitude. This habitat is farther from the equator, so it is not as hot as a savanna. The climate changes more in different seasons, and winters are cold. Many trees in this forest drop their leaves in winter. Dropping leaves is an adaptation that saves energy. As the weather warms up again in spring, the trees grow new leaves.

Canada geese migrate south to spend winter in warmer areas.

This squirrel is saving food for the winter.

Pine trees keep their needles in the winter.

Animals in this forest have adaptations to survive the cold winters. Geese go to warm places to find food. Some animals save food to eat in winter. Other animals **hibernate** in winter.

Now we will visit a polar habitat in the north of Canada. This habitat is called the tundra. Snow and ice cover the land for much of the year.

Plants grow in places where the snow melts. Plants grow close to the ground to be safe from strong winds. The tundra does not have many trees. Deep roots will not grow in frozen ground.

Many low-growing tundra plants are brightly colored in autumn.

Caribou live in the tundra during the summer but leave in winter.

Many animals leave for the winter. The animals that stay in winter have adaptations to help them survive the cold. Moose have thick fur to keep them warm. Seals and whales have lots of fat to keep them warm in cold water. Some small animals stay under the ground or leave in winter.

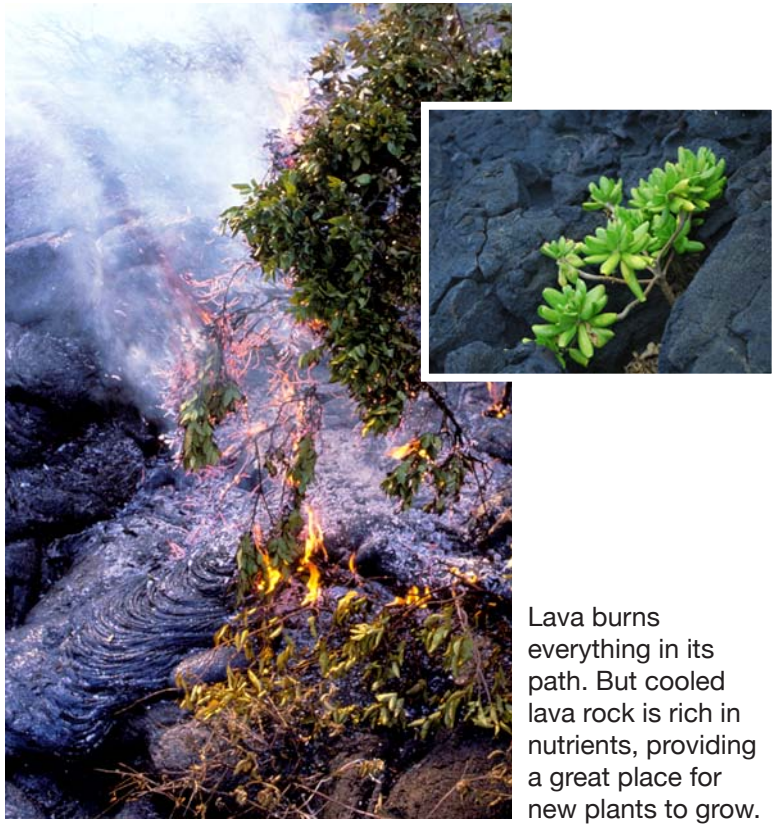
Changing Habitats

Many things can change habitats. Animals are one thing that can change habitats. Beavers build dams across streams. The dams cause the streams to flood. The water makes new habitats for frogs, turtles, and other animals.

Earthworms dig tunnels in the ground. The tunnels let air into the ground. The air helps plants to grow better.

beaver dam

earthworms in soil



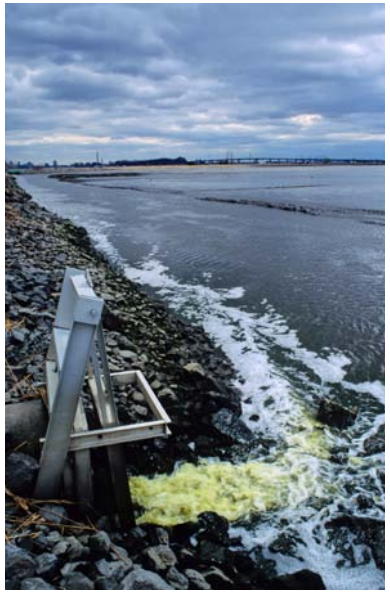
Lava burns everything in its path. But cooled lava rock is rich in nutrients, providing a great place for new plants to grow.

Fires, floods, weather, and other things in nature change habitats, too. Lava from a volcano destroys everything in its path, but it also makes a new habitat. Big storms can destroy an island, or make a new one.

People also change habitats. They cut down forests for wood and to make farms. Sometimes people build cities that cover land with concrete and buildings.

You can change the habitat in your own backyard. A garden brings new animals. A bird feeder brings many kinds of birds.

Cutting down trees destroys animals' homes.




Pollution from factory pipes and erosion can change nearby water enough to kill fish and other animals.

People also change habitats by causing **pollution**. When people throw away phones and many other things, bad chemicals get into the ground and water.

Erosion hurts habitats, too. When people cut down forests, their roots no longer hold the ground together. Rain can wash away the soil.

Conclusion

In this book, you learned about the building blocks of habitats. You also learned how all the things in a habitat belong together. Now you know why the pictures on page 4 could not be real.

Each of Earth's habitats is a system. Each habitat is a home for the plants and animals that live there. When the habitat is upset, living things have a hard time surviving.

What can you do to help the balance of Earth's habitats?

Glossary

adaptations changes in an organism or species that allow it to survive better in its environment (p. 11)

atmosphere a layer of gases surrounding a planet, star, or moon (p. 6)

climate the weather conditions in an area over a long period of time (p. 7)

elevation the height of land above sea level (p. 6)

environment all the living and non-living parts of Earth (p. 12)

erosion the gradual wearing away of rock or soil by water, wind, or ice (p. 21)

habitat the place in which a plant or animal lives and receives what it needs to survive (p. 4)

hibernate to go into a state of deep sleep, often during winter (p. 15)

latitude a measure of how far a place is from the equator (p. 5)

pollution harmful material in the air, in water, or on the ground (p. 21)

survive to stay alive; to continue to exist (p. 10)

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