Reading Essentials in Science

HABITATS

A Mountain Home

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For the Teacher

HABITATS

A Mountain Home

Genre

Expository

Text Features

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Chapter Titles	Glossary	Experiments	Maps
Photographs	Illustrations	Captions	Diagrams

Organizational Patterns

Concept/Definition	Description	Cause and Effect

Vocabulary

alpine zone	altitude	chain	climate
coniferous	crest	deciduous	foothills
graze	habitat	hibernate	hot spring
lava	migrate	native	organism
peak	plateau	predator	prey
range	reproduction	rodent	shrub
slope	tectonic plate	tuft	

Overview

Mountains are formed from the movement of the Earth's crust. There are five main types of mountains—fold, fault-block, dome, volcanic, and plateau. Mountains can grow to one tall peak or become part of a range. When ranges join, they become a mountain chain. Over time, mountains are worn down by erosion.

As you climb a mountain, the climate and landscape change. The foothills and lower slopes support a variety of environments, such as grasslands, rain forests, and deciduous forests. The middle slopes have a cooler climate that's ideal for coniferous forests. The upper slopes near the mountain peak are cold, dry, and windy. The air is thin. No trees grow here, but hearty ground plants and other organisms tough it out. Different plants and animals make their homes on the lower, middle, and upper slopes of a mountain. A few of the organisms found at each level are described.

Mountains provide valuable resources for people. Construction, farming, mining, and tourism have changed mountain habitats, threatening the life of the plants, animals, and people that live there. Mountain Partnership is one organization that works to preserve mountain habitats. However, a true partnership between all humans and mountains is necessary to protect the mountain habitat and the life that depends on it.

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CHAPTER 1

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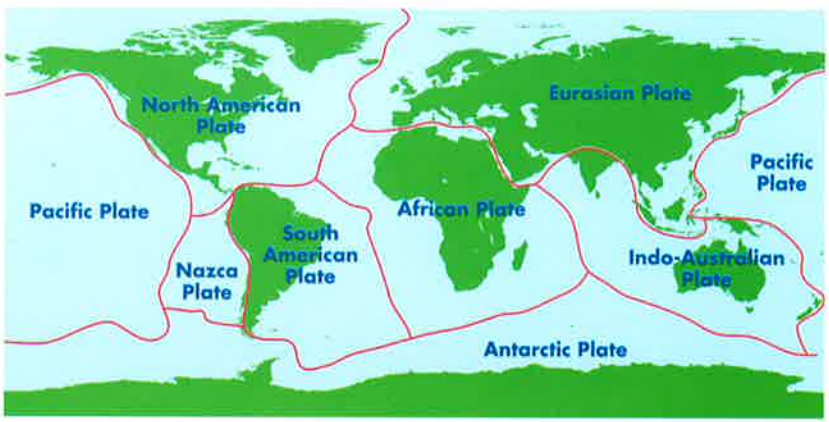
Mountain Life

You've probably climbed many hills in your life, but have you ever climbed a mountain? What's the difference? Both hills and mountains are areas of land that rise above the surrounding land. Mountains, however, are usually taller than 1000 feet.

Mountains can be found on all seven continents. They make up one-fifth of the Earth's landscape and are home to one-tenth of the world's population. More than half of the people in the world depend on the water that flows down mountainsides. So if you ever get the chance to climb a mountain, make sure to stop and appreciate it.

A Mountain Is Born

Mountains are formed from the movement of the Earth's crust. This crust is made of pieces called **tectonic plates**. These plates move slowly at about the same rate that your fingernails grow (1/4 inch to 4 inches a year).



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Most mountains are formed when these moving plates interact with one another.

When two tectonic plates press against each other, pressure builds. Eventually the land is lifted and folds upward. This creates fold mountains. The Appalachian Mountains, Rocky Mountains, and Andes Mountains are fold mountains.

Fold Mountains

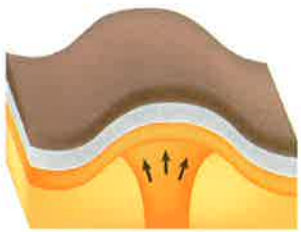


Fault-block mountains are formed when two tectonic plates pull apart and layers of rock in the plates break. When the two sides of the crack, or fault, move back together, large blocks of rock are forced upward, forming fault-block mountains. The Sierra Nevada and the Grand Tetons are fault-block mountains.

Fault-Block Mountains



When hot melted rock called *magma* pushes against the Earth's crust, dome mountains can form. As the magma hardens into rock, it bulges upward. The land above becomes a dome-shaped mountain. The Black Hills and the Adirondack Mountains are dome mountains.



Dome Mountains

If magma finds a path to the surface of the Earth, volcanic mountains can form. When erupting **lava** cools and hardens, it builds mountains. Each time a volcanic mountain erupts, it changes shape. The longest mountain **chain** on Earth, the Mid-Atlantic Ridge, is made up of volcanic islands. Mount Fuji in Japan is also a volcanic mountain.



Volcanic Mountains

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Another Type of Mountain

One type of mountain is not formed from the movement of the Earth's plates. Plateau mountains are carved out of high, flat areas of land called **plateaus**. Over time, wind and water wear down the land, forming **peaks** and valleys. The Catskill Mountains are an example of plateau mountains.

Inquire and Investigate
The Formation of Fold Mountains

Question: How do fold mountains form?
Answer the question: I think that fold mountains form when _____.

Form a hypothesis: Fold mountains form when _____.

Test the Hypothesis

Materials

- 4 pieces of different-colored modeling clay (about 2-inch blocks)

Procedure

- Flatten each piece of clay. Place the flattened pieces on top of one another and roll out the entire lump of clay into a rectangle. Each color represents a different layer of rock in the Earth's plate.
- Grasp the rectangle at the short ends. Gently, but firmly, push inward until the clay folds.

Observations: The rectangle bends, creating folds in the center.

Conclusions: Fold mountains form when two tectonic plates push against each other and the land is lifted up and folds.

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Growing and Changing

Just like people, mountains grow and change. Some grow to just one tall peak. Others become part of a group, or **range**, of mountains. The Rocky Mountain range in North America is almost 3000 miles long. The Andes Mountains are a range in South America that is more than 4000 miles long.

When ranges join together, they become a mountain chain. The Rockies and the Andes form a chain known as the Cordilleras.

Young mountains tend to have sharp peaks and deep valleys. The Adirondacks, Himalayas, and Carpathians are young mountains. In fact, they're so young that they're still growing.

The tallest mountains in the world are in the Himalayan range. Mount Everest stands at more than 29,000 feet. K2 reaches 28,250 feet. Kangchenjunga is right behind at 28,169 feet.





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Scientist of Significance

Ardito Desio was an Italian explorer and scientist who climbed many tall peaks to study and measure mountains. He spent much of his early life traveling around the world exploring harsh, difficult lands like Antarctica.

When he was in his 50s, Desio was surprised when another scientist claimed that K2, not Mount Everest, was the tallest mountain on Earth. Desio decided to set the record straight. He organized trips to both mountains to measure their heights. Two of his group members became the first to reach the top of K2's highest peak. Desio's teams used traditional measuring methods as well as new Global Positioning Systems (GPS) technology. GPS uses satellites in space to gather and record information. Desio's expeditions confirmed that Everest is indeed the tallest mountain on Earth.

Desio continued to explore as much of the world as he could until he died in 2001 at age 104.

Over time, water and wind wear down mountains. Older mountains have lower, more rounded tops. The Appalachian Mountains are one of the oldest ranges in the world. Once they stood at nearly 20,000 feet. Now the highest peaks are only 6000 to 7000 feet tall.



K2 climbing team led by Ardito Desio (fourth from right)

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More Than One Mountain Habitat

Mountains provide homes for many **organisms**. This home is called a **habitat**. A habitat has to meet all of an organism's needs. It must provide food, water, shelter, and a place for **reproduction**. A mountain actually has several habitats. As you climb a mountain **slope**, the **climate** and landscape change. This means that the plants and animals living on the slope change too. Let's explore the mountain habitats.

