Natural Wonders of the World

A Reading A–Z Level Z1 Leveled Book
Word Count: 2,346

Connections

Writing

Write a letter to the author of this book that describes the natural wonder from the book that you would most like to visit, and why.

Science

Research a natural wonder not discussed in the book. Write a report that describes it and then compares it to a natural wonder from the book.

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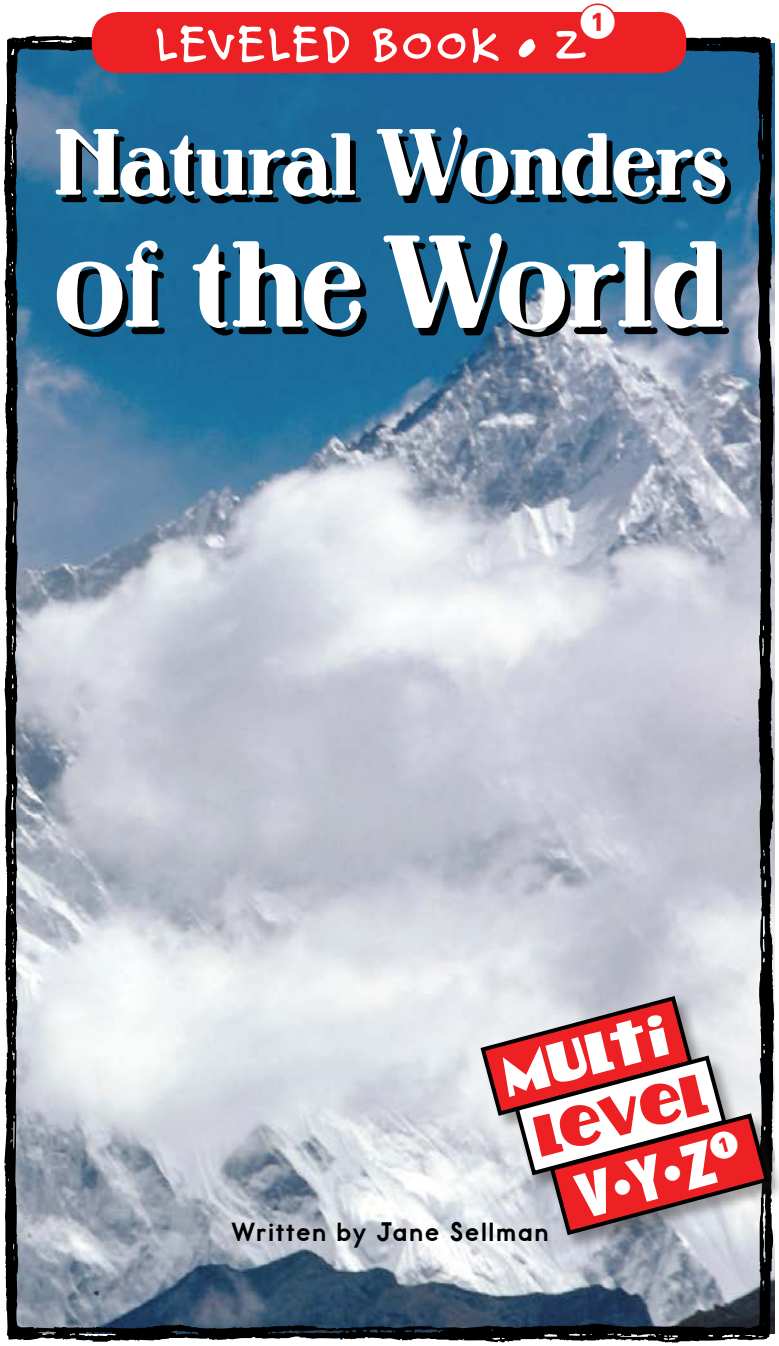

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Natural Wonders of the World

Written by Jane Sellman

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Focus Question

What are some characteristics of famous natural wonders?

Words to Know

cross section
dormant
fissure
glaciers
gorges
iridescent
landforms
monasteries
permafrost
plateau
polyps
Sherpa
species
stratigraphy
terrain

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Correlation

LEVEL Z1	
Fountas & Pinnell	W–X
Reading Recovery	N/A
DRA	60

Table of Contents

Arizona's Barringer Meteorite Crater shows how space rocks colliding with Earth create amazing landforms.

Introduction

What makes something a natural wonder? A wonder is a natural structure so amazing and beautiful that it makes you ponder how it was formed. Natural wonders are **landforms** that have been created by nature, not by humans. Some of these wonders are created within a person's lifetime, while others form over the course of millions of years to become the wonders that they are. Our planet is home to many natural wonders. In this book, we will learn about five of them:

- A layered canyon carved by a river
- A young volcano that covered a village
- A breathtaking waterfall
- An immense coral reef
- A towering mountain

Grand Canyon

Between five and six million years ago, the Colorado River wound through a large **plateau** (pla-TOE). Over time, the river removed small pieces of the plateau as it flowed to the sea. This process is called water erosion (e-RO-zhun). The speed and volume of the water are two factors that determine how much soil and rock is carried away.

Different kinds of rocks also factor into water erosion. Some rocks, such as limestone, sandstone, and shale, are soft and break easily, while other rocks, such as granite, slate, and schist, are hard and resist breakage. In the Grand Canyon, the Colorado River carried pieces of softer rock downstream, leaving behind the harder rocks. Over millions of years, this process carved deep canyons in the rocks.

The Colorado River slowly carved the rock of the Grand Canyon into the wondrous structure we see today.

The layers of rocks that form the Canyon walls show geologists what happened in the area over a period of two billion years.

These rocks make up the layers in the Canyon walls. The top of the Canyon, where most visitors enjoy their first view, is the youngest layer of the Canyon and called the Kaibab Formation. The bottom layer, near the river, is the oldest. Scattered rocks located at the bottom of the Canyon date back as long ago as two billion years, during the Precambrian time—the oldest geologic age on Earth.

The Grand Canyon is a great place to study geology and the Earth's history, because the rock layers are so easy to see and reach. Geologists often visit the site. One of the first geologists to visit was John Newberry, who traveled to the Canyon in 1858. Newberry was the first scientist to record the Canyon's layers. He produced the first **cross section** of the Canyon and identified the **stratigraphy**, or rock layers, although he was not the first to see it.

Rattling Reptiles

More than 47 different kinds of reptiles live in the Grand Canyon. While most of these reptiles are harmless, visitors should keep an eye out for snakes. Although they rarely bite humans, the Grand Canyon rattlesnake and the diamondback rattlesnake are venomous.

In the winter, rattlesnakes hibernate in dens. Hundreds of rattlesnakes may live in one den. This is one of the only times rattlers live together. In the spring when the weather warms up, the snakes come out of their dens and go their separate ways.

In late summer, females give birth to live babies. The babies only stay in the area where they were born for about seven to ten days. Then they shed their first baby skin, add their first rattle, and move on in search of food.

As a rattlesnake grows, it sheds its skin at least once a year, adding a new rattle to its tail with each shed. A mature diamondback may grow to be 2 meters (about 6.5 ft) long and weigh up to 6.8 kilograms (15 lb). Rattlers can live to be 25 years old.

Native Americans lived in and around the Grand Canyon for more than 4,000 years before European explorers arrived. These early groups of people hunted local animals and gathered edible plants for centuries before settling down to build villages in and around the Canyon. By 1150, most of the original tribes had moved away. Only the Havasupai people remained. Some of them still live and work in the Canyon. Every year, millions of people travel to Grand Canyon National Park to hike, raft, and see this majestic wonder of nature.

Havasu Falls on the Havasupai Reservation is an example of how water continues to carve the western Grand Canyon.

Paricutín

Many of nature's creations are millions of years old. They began forming long before humans lived on Earth. Other creations have formed in modern eras. The Paricutín (pah-ree-koo-TEEN) volcano in Mexico is one such recent formation. In fact, it formed in a little more than nine years.

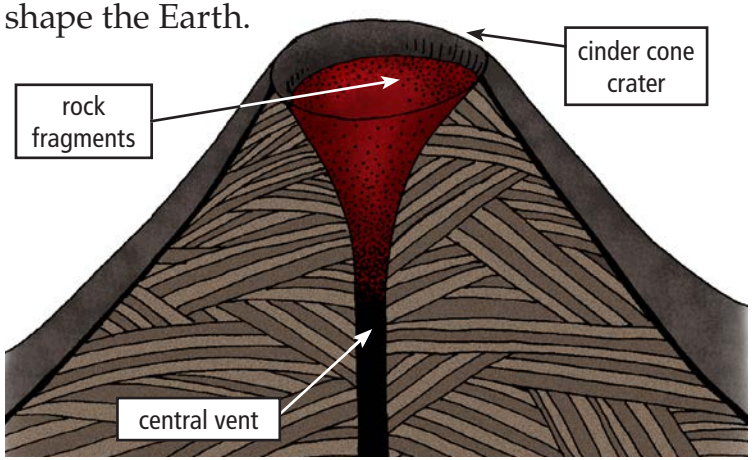
Paricutín began forming in 1943 in a field. A farmer named Dionisio Pulido discovered a **fissure** (FISH-ur), or opening in the ground, in his cornfield. The crack was about 1.8 meters (6 ft) long. Soon more fissures appeared. Black smoke came from the holes, and ash piled up on the ground, forming a cone. In about 12 hours, the cone had grown to 10 meters (33 ft) high, and after a day, it had grown to 50 meters (164 ft). The volcano continued to grow, reaching a height of 100 meters (328 ft) in just a week. The brand new volcano grabbed the attention of news organizations all over the world. Producers from Hollywood even made a film in Mexico using the volcano as a backdrop, giving many of the villagers temporary employment.

A church steeple is all that remains visible after volcanic debris covered the town of Paricutín.

The people of Paricutín hoped that their village would be spared, but after a few months, the cone had grown so large that the slow-moving lava started to reach their town. The villagers from Paricutín and four other towns had to evacuate, leaving behind their homes and farms. Over a nine-year period, lava and ash eventually covered the entire village of Paricutín and most of the nearby town of San Juan. Eventually, all that was left of Paricutín was the church steeple rising out of the black rock as a reminder of nature's power.

Volcanoes such as Paricutín are called *cinder cones* or *scoria*. They are the simplest type of volcano because they appear suddenly, erupt, and then go **dormant** for decades or centuries. Cinder cones are formed when lava, which is under pressure inside the Earth, shoots out from a central vent in the ground. As the lava explodes into the air, it cools and breaks into small pieces that harden and fall as rocks and ash, or cinders, around the central vent to form a cone. The longer the volcano is active, the taller the cone becomes. Most cinder cones have a bowl-shaped crater at the top.

Because Paricutín is a young volcano, scientists have been able to observe its growth since it first appeared. The volcano stands about 424 meters (1,391 ft) tall and covers 26 square kilometers (10 sq mi). Its development has allowed scientists to better comprehend the powerful forces that shape the Earth.



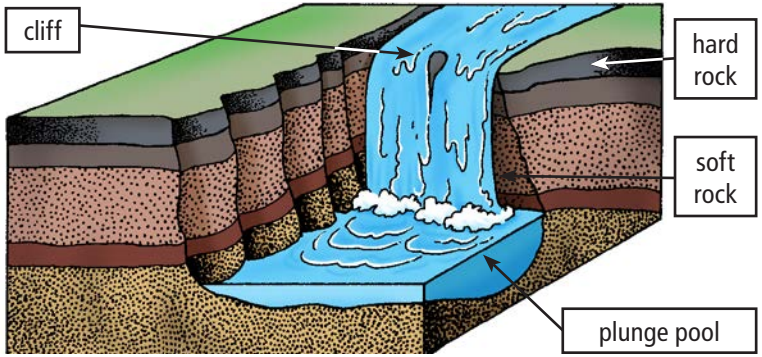
Victoria Falls, like the Grand Canyon, was formed by water.

Victoria Falls

Victoria Falls is the largest mass of falling water on the planet. The water descends 108 meters (354 ft) into a deep pool. The people of Zambia call the Falls *Mosi-oa-Tunya* (MOH-see wah TOON-yah) (the smoke that thunders). It's a perfect name. The thunder refers to the booming sound created by the water crashing over the basalt **gorges** of the Falls into the pool below. The smoke refers to the water vapor that comes up from the bottom of the Falls. The **iridescent** vapor can be seen from as far away as 20 kilometers (12 mi).

Victoria Falls is located on the Zambezi River along the border between Zambia and Zimbabwe in Africa. The Falls began forming millions of years ago when a small fissure in the rock appeared across the path of the river. The crack was caused when parts of the earth shifted about 150 million years ago. Over the years, the water eroded away the soft sandstone and formed a cliff over which the river now falls. The pool into which the water falls is called a *plunge pool.*

The Scottish explorer David Livingstone visited the Falls in 1855. He was probably the first person from outside of Africa to see the wondrous formations. He named the Falls after Queen Victoria of England. But many people prefer the more accurate name Mosi-oa-Tunya, since it describes what visitors see and hear when they visit. The Falls is now part of two national parks, one in Zambia and one in Zimbabwe, that draw close to two million visitors each year.



Victoria Falls Fun Facts

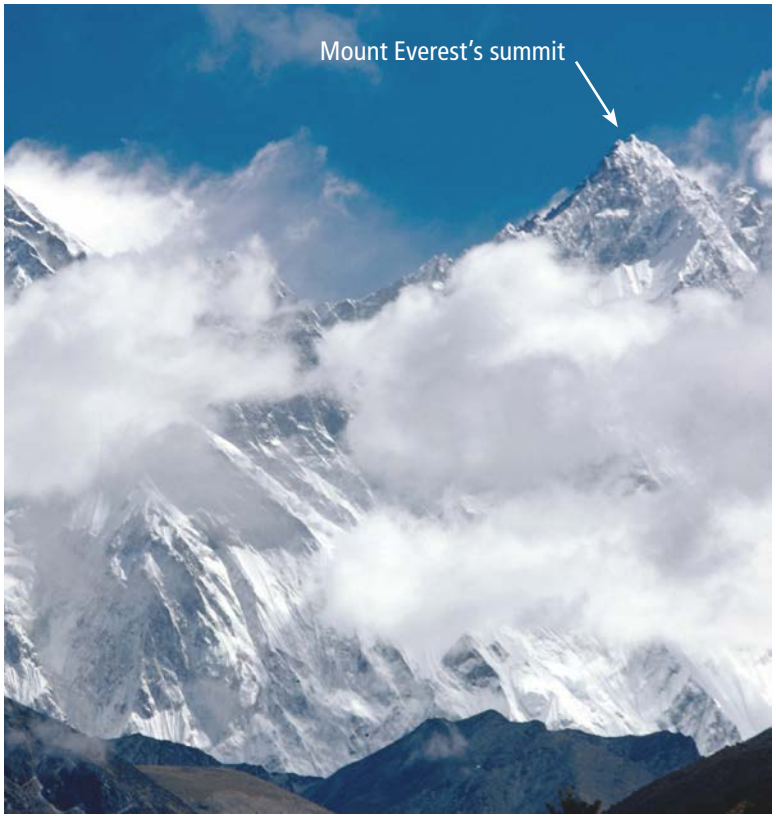
- Victoria Falls is actually divided into six waterfalls: Devil's Cataract, Armchair Falls, Horseshoe Falls, Main Falls, Rainbow Falls, and the Eastern Cataract.
- A bridge at the Falls is a popular site for bungee jumping.
- During a full moon, the park stays open late so people can enjoy the rainbow that is made when moonlight shines through the water vapor.
- People go rafting and kayaking on the water below the Falls. They can even surf on the rapids below.

Mount Everest

Mount Everest, named for Welsh surveyor and geologist Sir George Everest, is the tallest mountain in the world and one of the most spectacular sites on Earth. Called "Forehead in the Sky" by the Nepali people and "Goddess of the Valley" by the Tibetan people, this magnificent landform in the Himalayan Mountains reaches a height of 8,850 meters (29,035 ft) and lies on the border between Nepal and Tibetan China, overlooking the Plateau of Tibet.

The snowcapped Himalayas might appear old, but they are actually quite young for mountains. The mountains began to form between twenty-five and thirty million years ago when two parts of Earth's crust collided. Over time, the pressure of the two parts rubbing against each other caused the ground to crumble and rise above the sea. Since Mount Everest is a young mountain, its peaks are still jagged and steep. They haven't yet been eroded and smoothed down by endless years of weathering.

Although Mount Everest is beautiful to look at, the conditions on the mountain are harsh. The average temperature is about -36°C (-33°F) and can drop to -60°C (-76°F) in January. Even in July, the warmest month, the temperature only reaches -19°C (-2°F). It never gets above freezing, and as a result, there are **glaciers** and **permafrost** at the top of the mountain. Because of its elevation, storms can arrive unexpectedly and cause temperatures to plummet.



Storms dump more snow on Mount Everest every year.

The extreme conditions on Mount Everest make it difficult for animals and plants to survive. One of the only animals that can live on the mountain is the wild yak, which eats the few grasses that grow in the high elevations. This large animal can weigh more than 454 kilograms (1,000 lb) and grow up to 1.8 meters (6 ft) tall. One of the reasons the yak is able to survive is because its blood can absorb more oxygen than the blood of other animals. This adaptation is a lifesaver on Mount Everest, where the air contains little oxygen. The yak also has a dense undercoat of soft hair and a shaggy outer coat that reaches almost to the ground. This double-layered coat helps the animal stay warm.

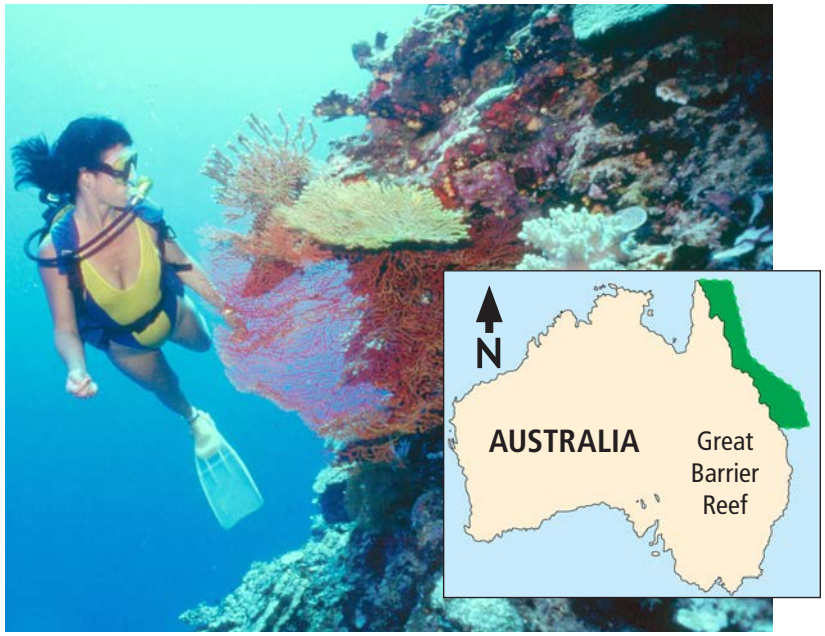
Wild yak grazing

The people who originally settled in the Himalayan Mountains believed that gods and demons made their homes in the peaks. The people believed the mountain was sacred and built **monasteries** at its base. As a result, no one attempted to climb Mount Everest until British and other European explorers arrived in the early 1900s. The earliest climbers quickly learned about the harsh conditions on the mountain—freezing temperatures, powerful winds, changing weather, and rough **terrain**.

Mountaineers Hillary and Norgay accept awards recognizing their achievement.

Despite all the obstacles, experienced and inexperienced mountaineers alike continued to come to Mount Everest, hoping to be the first to make it to the top. No one was successful until 1953, when Sir Edmund Hillary (a beekeeper from New Zealand) and Tenzing Norgay (a **Sherpa** from Nepal) became the first men to successfully climb the mountain. It was Hillary's second attempt to make it to the summit. Since then, many climbers from all over the world have risked their lives to get to the top of the "Forehead in the Sky."

The yeti (YEH-tee), or Abominable (a-BOM-in-a-bal) Snowman, is a legend of Mount Everest and the Himalayas. Sherpas tell stories about seeing large footprints and gnawed yak bones in the mountains. Hillary's team took what was said to be a yeti scalp and skins to Europe and the United States, where scientists agreed that the scalp was from a goat and the skins were from a bear. To this day, no one has been able to prove the existence of the yeti.

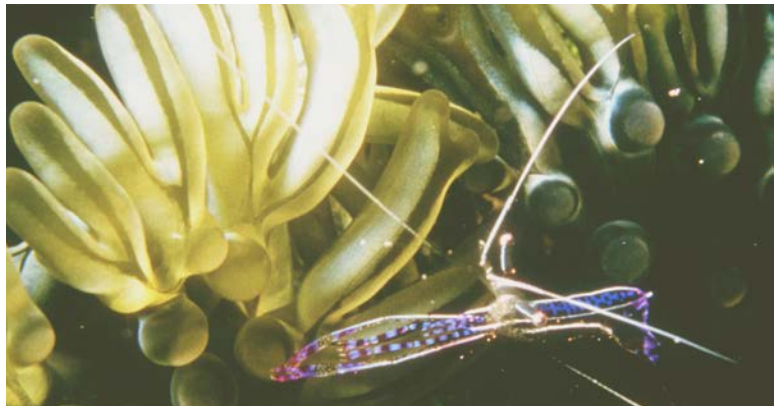


A diver explores coral formations on the Great Barrier Reef.

Great Barrier Reef

The Great Barrier Reef—really a collection of more than three thousand reefs—is more than 2,300 kilometers (1,429 mi) long. It parallels the coast of Queensland in the northeast of Australia and is full of enchanting sea creatures, from sea turtles, sea slugs, and urchins to dolphins, whales, and sharks. More than two hundred **species** of birds and reptiles inhabit the reef system.

A reef is a chain, or range, of rocks that lies at or near the surface of the water. The Great Barrier Reef is the largest system of coral reefs in the world and is made up of more than 400 different kinds of coral.


The life and death of coral polyps are responsible for the formation of coral reefs such as the Great Barrier Reef.

Coral reefs are found in all tropical oceans of the world, but none of them are as large as the Great Barrier Reef. Most established coral reefs are between 5,000 and 10,000 years old. Many experts agree that the most recent growth of the Great Barrier Reef began between 6,000 and 8,000 years ago, near the end of the last ice age.

At first glance, the Great Barrier Reef might look like a rock, but it's not. It's made from the outer skeletons of millions of animals called **polyps**, which are related to anemones and jellyfish. As the polyps die, new ones grow on top of the old skeletons. The many layers of skeletons form the limestone base of a coral reef. Other kinds of plants and animals also help make up the Reef, such as algae, sponges, and shellfish. The Reef's beautiful colors come from the different types of algae, but the tiny polyp is responsible for most of this natural wonder's structure.

Reefs are living organisms made out of some animals, and they supply food and shelter for other animals. They are sensitive to temperature changes in the ocean. Thousands of species live on the reef, including 1,625 kinds of fish, more than 30 kinds of marine mammals, 500 kinds of seaweed, and 6 kinds of marine turtles. The Reef is also an important breeding area for animals, including birds, sea turtles, and several endangered species, such as the humpback whale, the large green sea turtle, and the dugong, or sea cow.

As one of the most interesting and beautiful places on Earth, the Reef is a popular destination for groups of scientists, scuba divers, and tourists. In 1981, it was listed as a World Heritage Site by UNESCO, a division of the United Nations that focuses on education, science, and cultures of the world. Environmentalists are working with all of these groups to protect the Reef so future generations can learn from it and enjoy its beauty. Additionally, multiple institutions and universities are performing research at the Reef to learn how they can help protect it.

Wonders Everywhere

From east to west and north to south, from the highest places to the lowest, natural wonders are everywhere. Whether they were formed millions

of years ago or within the span of a lifetime, they are all unique. These amazing landforms are some of the most breathtaking places on Earth. Travelers, scientists, and adventure seekers will continue to visit these special places for generations to come for both study and recreation.

The Grand Canyon, Paricutín, Mount Everest, Victoria Falls, and Great Barrier Reef are only five of the many wonders that surround us. Other famous natural wonders include:

- The Northern Lights, or aurora borealis, a light show that brightens up the skies in the Northern Hemisphere
- The Barringer Meteorite Crater, a massive hole in the Arizona desert that is almost a mile wide and 174 meters (570 ft) deep
- Ayers Rock, the world's largest solid rock, rising 862.5 meters (2,830 ft) above sea level in Uluru, Australia
- Ha Long Bay, Gulf of Tonkin, Vietnam, a large bay that contains more than 1,600 limestone islands
- Eisriesenwelt (ICE-reez-on-veldt) Cave, Austria, the largest ice cave in the world, 42 kilometers (26 mi) inside a mountain

Glossary

cross section *(n.)* an image that shows how the inside of something would look if a straight cut were made all the way through it (p. 6)

dormant *(adj.)* inactive but able to become active again (p. 11)

fissure *(n.)* a long, narrow opening or crack (p. 9)

glaciers *(n.)* large bodies of accumulated ice and compacted snow that are found year-round and that slowly move downhill (p. 16)

gorges *(n.)* long, deep valleys surrounded by higher land (p. 12)

iridescent *(adj.)* having shining colors that vary when viewed in different lights or from different angles (p. 12)

landforms *(n.)* natural formations on Earth's surface, such as valleys, plateaus, mountains, plains, or hills (p. 4)

monasteries *(n.)* groups of buildings where monks or nuns live and worship (p. 17)

permafrost *(n.)* a layer of soil in a cold region that stays frozen all year long (p. 16)

plateau *(n.)* a large raised area of flat land (p. 5)

polyps *(n.)* small sea invertebrates, such as coral, that have tube-like bodies and tentacled mouths (p. 20)

Sherpa *(n.)* a member of a cultural group of people living in the Himalayas who often work as mountain climbers' guides (p. 18)

species *(n.)* a group of living things that are physically similar and can reproduce (p. 19)

stratigraphy *(n.)* the arrangement of rock and earth layers in geologic formations (p. 6)

terrain *(n.)* the natural features of a piece of land; ground (p. 17)

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