

How can we describe Utah's land?

# The Land We Call Home





## Chapter

## Become a Better Reader

## Learn to Preview

Good readers learn to preview the chapter before they read. Previewing teaches you about the type of text you are going to read. Previewing can help you know what to look for as you read.

In this chapter, you will preview different parts of text in each lesson. Preview to get an idea of what you will learn about Utah's geography.

# **LESSON (1)** Utah's Place in the World

## **Key Ideas**

- Geography is the study of the land, its people and places, and its environments.
- We can describe the location of a place using relative or absolute location.
- Latitude and longitude lines help us find the absolute location of places.
- Utah is part of two hemispheres, a continent, and a country.
- Maps have many tools to help us understand them.

## **Key Terms**

compass rose continent geography grid hemisphere latitude legend longitude

Become a Better Reader

Preview a Textbook

## What Is Geography?

The world. In this unit, we will learn about our state by studying its geography. *Geography* is the study of the land, water, plants, animals, and people of a place. It is also the study of where places are located on the Earth.

Geography affects where we live and how we live. In some parts of the state, we have tall mountains and forests. In other parts, we have flat deserts. We have rivers and lakes. If you travel to different parts of Utah, you will see how the land changes from place to place.

As we study our geography, we will learn about Utah's location in the United States. We will see how people in Utah are connected to people and places all over the world. We will also learn how people use and change the land.

Seen from space, the Earth looks like a big marble. Where on Earth is Utah? Our location has a lot to do with how we live. Get ready to zoom in and learn about our place in the world. **Can you point to the area where Utah is in this picture?** 

## Locating Places on the Earth

Pretend you meet some people from a different country. They want to visit Utah. Could you tell them how to find it? There are two ways you can describe a location.

Relative location describes where a place is in relation to other places or things. For example, Utah is between Idaho and Arizona. It is next to Colorado and Nevada. You could tell someone you live near the library or next to the school. You could tell them you live north of downtown. These are all relative locations.

Absolute location is the exact position of a place. Every place on Earth has an absolute location. We often use an address to tell an exact location. You might say, "I live at 28 East Main Street in Price, Utah." This tells your friends exactly where to find your house.

## Linking the Past to the Present

Over 1,000 years ago, the Chinese discovered that a swinging magnet always pointed north. This swinging magnet became the first compass. During the 1400s, Europeans improved the compass. Sailors who were miles away from shore used it to figure out direction. Today, many people use a GPS to find directions and locate places.

A compass is a tool that shows direction. It points to North. From there, you can figure out where South, East, and West are. To what directions do the signs in the picture point?

## Latitude and Longitude

Another way to describe an exact location is by using lines of latitude and longitude. These are the lines you see on a map or globe. The lines cross each other to form a grid.

You can use latitude and longitude to find a location anywhere on Earth. To start, you need to find two important lines. Look at the globe. Find the equator. It is the imaginary line that runs around the middle of the Earth.

Now find the prime meridian. It is the imaginary line that runs from the north pole to the south pole.

## Latitude Lines

Equator

30°

45°

90°

90°

75°

60°

45°

30°

120

30°

105°.

900

45°

75°

60°

60°

75°

15°

0°

15°

Lines drawn east-west (side to side) around the Earth are called *latitude* lines. Along latitude lines, you will find numbers. Each number has a tiny circle by it. This is the symbol for a degree. A degree is part of a circle or globe. The equator is at 0°. It is the longest latitude line. We measure latitude in degrees north or south of the equator. If the degree of latitude is high, we know that place is far away from the equator. Utah is located between 37° and 42° N

30°

0°

15°

latitude. The capital "N" shows that the latitude is north of the Equator. Utah is at about the same latitude as Spain and North Korea.

## **Longitude Lines**

Latitude lines give us only half the information we need. Lines of *longitude* give us the rest of the information. They tell us how far east or west a place is.

Lines of longitude run north-south (up and down). They are also measured in degrees, but they start from the prime meridian. Its longitude is 0°.

Other longitude lines tell us the distance east or west of the prime meridian. Utah is located between 109° and 114° W longitude. If you follow these lines on a map, you will find that they cross through Canada to the north. They go through Mexico and the Pacific Ocean to the south.



#### **A Quick Review**

Latitude Lines

- Run side to side
- Measure °N and °S of the equator

Longitude Lines

- Run up and down
- Measure °E and °W of the prime meridian

The Land We Call Home



Chapter 1

## **Utah's Absolute Location**

Now that you know about grids and the hemispheres, you can give Utah's exact location:

Utah is in the Northern Hemisphere between 37° and 42° N latitude. It is in the Western Hemisphere between 109° and 114° W longitude.

## Zoom in Closer!

Let's zoom in on the Western Hemisphere. Utah is part of one of the world's *continents*. These are large areas of land with oceans on many sides. Utah is on the continent of North America.

North America is divided into **countries**. Utah is in the country of the United States of America. Canada is the country to the north of us. Mexico is the country to the south of us.

Our country is divided into 50 states. Utah is one of them. Within our state there are counties, Indian reservations, cities, towns, farms, and ranches. What kind of community do you live in?



*Our* **country** *is the United States of America.* 



Our continent is North America.



Our state is Utah. What states are next to Utah?

The Land We Call Home

## Title:

## **Utah Cities and Towns**

The first thing to look for on a map is the title. It is usually at the top. It tells you what kind of information the map shows. What is the title of this map?



## Reading a Map

Maps are one of the tools geographers use to locate places. There are many kinds of maps. Can you think of some? Maybe you thought of a treasure map! Maybe you thought of the road maps your parents use on trips.

Maps help us know where we are. They help us get where we want to go. Look at this map of Utah. The boxes point to tools that help us read a map.

#### **Compass Rose:**

A map has a *compass rose* to show directions. The main directions are north, south, east, and west. These are called cardinal directions. In between those four points are four more points. These are the intermediate directions. They are northwest, southwest, northeast, and southeast.

#### Legend, or Key:

Mapmakers use symbols to keep things simple. The symbols can stand for cities, rivers, forests, and other things. The *legend*, or key, explains what the symbols mean. What is the symbol for the state capital on this map? For a large city? For a river?

#### **Scale of Miles:**

A scale of miles helps us measure the distance between places. One inch on the scale might stand for 50 miles on real land. On this map, one inch is equal to 50 miles.

#### Map Grid:

A grid helps us pinpoint a location. It shows us the latitude and longitude of a particular town or city. For example, place your left finger on 39° N latitude. Place your right finger between 112° and 113° W longitide. Drag your two fingers along those lines until they meet. What city do you hit?

## LESSON **What Did You Learn?**

#### **Places to Locate**

Canada Equator Mexico North America Northern Hemisphere Prime Meridian United States of America Utah Western Hemisphere

#### **Lesson Review Activity**

Using a world map, work with a partner to find each of the Places to Locate. As you take turns pointing out each place, describe what you learned about it from the lesson.

# LESSON ② A Rich and Rugged Land

## **Key Ideas**

- Utah has many different landforms.
- Utah is rich with natural resources that people use.

## **Key Terms**

basin fossil fuel irrigate landform natural resource physical plateau reservoir

## Become a Better Reader

Preview Key Ideas

## Physical Geography

Il places have certain features that make them different from other places. Some of these are *physical* features. They have to do with the surface of the land. Forests, mountains, deserts, rivers, and lakes are physical features. In this chapter, we will learn about Utah's physical geography.

Places also have human features. These are things that people have made. We will learn about human features in the next chapters.



Colorful cliffs are part of the physical geography of Zion National Park. What physical features do you see in this picture?

## Landforms

If you took a balloon ride across our state, you would see that the land changes as you go. You would see three main types of *landforms*, or natural features of the land. They are mountains, basins, and plateaus. They are the result of powerful forces inside the Earth. They are also the result of wind and water wearing away the Earth's surface. What other landforms do you find in Utah?

"I love hiking and camping in the mountains. I also love visiting Stansbury Island in the Salt Flats with my Scout troop."

> — Mitchell Johnson, age 14

**Mountains** are high landforms with large bases and small peaks. A long line of mountains is called a mountain range.

When snow in the mountains melts, it fills **rivers** and **lakes**. Rivers and **streams** run down to the valleys. This provides water for people and farms. **Plateaus** are high, wide, flat areas of land. They often end with steep cliffs or mountains. From our balloon, they look like tables or wide steps many miles across. Over time, wind and water cut deep canyons and shapes into plateaus.

**Basins** are large, low, flat areas surrounded by mountains or high plateaus. They are shaped like huge bowls. About half of Utah is part of a large basin that stretches across several states. It is called the Great Basin. **Valleys** are smaller basins found between mountain ranges. Most cities, farms, and ranches are in basins and valleys.



The Virgin River flows through Washington County. Near Springdale, it tumbles through an area called the Narrows. If you hike the Narrows, prepare to get wet! Much of the hike goes right through the Virgin River.

"To put your hands in a river is to feel the chords that bind the earth together."

-Barry Lopez, writer

## **Rivers and Lakes**

It would take many pages to write down all of Utah's rivers and lakes. They can be magical places. Have you ever sat on the bank of a river and listened to the water run over the rocks?

Utah's biggest rivers are the Green River, the Colorado River, and the San Juan River. There are hundreds of other rivers, such as the Dirty Devil River, the Bear River, the Weber River, and the Jordan River.

Our two biggest lakes are the Great Salt Lake and Utah Lake. There are also hundreds of smaller lakes. Many of them are in the mountains. They include Fish Lake, Mirror Lake, Moon Lake, Silver Lake, Cecret (Secret) Lake, Puffer Lake, and Navajo Lake.

## The Story of a River

If these lakes and rivers could talk, they would have many stories to tell. Utah Lake might whisper that many years ago a group of Ute Indians lived near it. There were plenty of fish for them to catch. Emerald Lake might tell you why it is so cold. It comes from a melting glacier, or huge piece of ice.

Panguitch Lake is a Paiute Indian name for "water with plenty of fish." Posey Lake, Chepeta Lake, and Peteetneet Creek were all named after Ute Indian leaders.

The Colorado River might tell you it has had many names. One came from Mojave Indians, one from the Spanish, and one from people who came to Utah later.

The Green River has a similar story. It was first named Rio Verde. (That means "green river" in Spanish.) Shoshone Indians called it Seeds-kee-dee-agie, or "Prairie Hen River." Indians, Spanish explorers, fur trappers, U.S. explorers, farmers, miners, and railroad workers have all walked its banks.

The Great Salt Lake might tell you that people once thought it was part of the Pacific Ocean. They thought that because the water is salty like the ocean.



The Land We Call Home

## Natural Resources

**Natural resources** are things found in nature that people can use. A long time ago, Ute Indians lived in much of Utah. They used fresh water from lakes and mountain streams. Utah Lake was a rich source of fish. It was a rich source of food. There were tall grasses in the valleys and trees in the mountains. There were plenty of small animals to hunt. All of these things are natural resources.

People have always used what nature gives them. Some of Utah's natural resources include water, sun, soil, minerals, wind, and trees.

## Water

Water is one of our most important natural resources. We drink it, cook with it, and bathe in it. We catch fish from rivers and lakes. All living things need water, including the plants we grow.

Utah does not get much rain each year. If Utahns want to farm, they have to *irrigate*, or bring water to, their crops. Do you have a sprinkler system in your yard? If so, you are irrigating your lawn or garden.

People have built dams along rivers to control the flow of water. Behind the dams are *reservoirs*, which collect and store

water. Some dams use the power of rushing water to make electricity. (We will learn how this is done in Chapter 3.)

Today, more than 85 percent of the people live near the mountains. There is a lot more snow and rain there than in the valleys. The water runs down mountain streams into the valleys. From small farms to large factories, people need water to do what they do. Whatever we use our water for, we should always use it wisely.

Utah's crops cannot grow without water from rivers. Farmers and ranchers have to irrigate the land. Water is carried to farms and ranches in pipes or ditches. How is water brought to the fields in this picture?

"My favorite thing to do is to go fishing at Strawberry Reservoir to catch crawdads, trout, and salmon." — Christian Harden, age 12



## **Sunshine and Soil**

Have you ever taken a bite of fresh Utah corn? For many Utahns, this is the taste of summer. Have you picked out a plump red tomato from a farmers' market? These delicious foods come from two of our natural resources—sun and soil.

Utah gets plenty of sunshine for crops to grow. It has a long growing season. That is the part of the year when crops can grow.

Many areas also have rich soil. Our soil is rich today because of changes that happened a long time ago. During the ice ages, an ancient lake covered much of Utah. It was called Lake Bonneville. After a long time, the water cut a new huge river that drained to the Pacific Ocean. The water carried loose soil, gravel, and sand with it. Much of this was left along the Wasatch Front. (The Wasatch Front is the chain of towns and cities along the Wasatch Mountains. It stretches from Santaquin to Brigham City). That is why that area has some of the best soils and gravel in the state.

Our sunshine and soil help people grow their own food in gardens. They also help farmers make a living.



Utah granite



Utah is one of the top 10 states in the nation for natural gas production.



Coal is Utah's state rock. Over 95 percent of the electricity Utahns use is made by burning coal.

## Minerals

Over 600 minerals are found in Utah. Iron, copper, gold, silver, lead, salt, limestone, zinc, and magnesium are some examples.

Utah produces more copper than any other metal. We use it to make coins; pipes; and parts for computers, televisions, and air conditioners. Copper is also used for parts in cars, boats, airplanes, and railroad engines. Our gold and silver are used to make coins, jewelry, serving trays, utensils, pitchers, picture frames, trophies, and fillings for teeth.

Utah has a great supply of salt. Most of it is used to make soft water and to put on icy roads. The salt we use on our food comes from other places.

Utah has large beds of sandstone, limestone, and quartz. These are used for building. We also have oil shale and tar sand. Sand and gravel are used for landscaping, building highways, and making concrete. Utah granite is used to make monuments, buildings, and kitchen countertops.

Minerals are useful to us in many ways. But chemicals used in mining can pollute the water and soil. If forests are cleared for mines, animals lose their homes. We must be careful how we get our minerals.

## **Fossil Fuels**

Over millions of years, *fossil fuels* were formed here. Heat and pressure slowly turned dead plants and animals into resources. Fossil fuels include coal and oil.

Coal is found in more than half of our counties. People used to burn it to heat houses and run steam trains. Today, it is mainly used to produce electricity. Oil is made into fuel to heat houses and run cars, trucks, and planes.

Using coal and oil pollutes the air. People are working to find cleaner forms of energy. They are making fuels from grasses, corn, wheat, barley, soybeans, and vegetable oil.

## Gases

Natural gas is found in Utah. It is used to heat homes and businesses. It burns cleaner than coal and oil. People want more cars and trucks that run on natural gas and other fuels.

## Wind

If you have ever played outside on a windy day, you know that wind can be powerful. Wind is a resource people can use. We can use it to make electricity or to pump water out of the ground.

To capture the power of the wind, we build windmills, or turbines. The blades are connected to a machine. As the blades spin in the wind, the machine creates electricity.

When there are many windmills in one place, it is called a wind farm. Power companies now use wind farms as a source of electricity.

In Utah, a wind farm is located at the mouth of Spanish Fork Canyon. Near Milford, people are planning to build a wind farm with more than 150 windmills. The Navajo Reservation has more than 900 windmills. A windmill at Cyprus High School supplies enough electricity for two classrooms. Students helped install it. They spend their science time studying how it works. The city of Lehi is helping people build windmills in their yards. Maybe someday a windmill in your backyard will help supply electricity for your house.

Wind is a clean way to make power. It does not pollute the air or water, and it will never run out.

> Windmills on a wind farm can be as tall as 250 feet.

WIND POWER

#### **Renewable and Non-Renewable Resources**

We will run out of fossil fuels someday, but we will never run out of wind. It is **renewable**. That means it will keep coming back. The sun and trees are renewable resources. So are the air we breathe and the water we drink.

Other resources are **non-renewable**. When these resources are used up, they will be gone forever. They could take millions of years to come back. We may not always have oil or minerals if we do not use them wisely.



## Trees

Trees are amazing resources. They make the air cleaner to breathe. Their shade helps keep us cool. The sound of their leaves moving in the wind is like music.

More than 200 different kinds of trees grow in Utah. In the Wasatch Mountains, there are spruce, fir, scrub oak, maple, and aspen trees. In southern Utah, there are forests of ponderosa pine, spruce, and fir. Forests of lodgepole pine grow in the Uinta Mountains.

People have planted trees along streets in cities and towns. They plant them in their yards for shade and beauty.

Trees are important for more than their beauty. People have used wood to make fence posts, railroad ties, tables, chairs, and telephone poles. Today, we use wood to build houses and buildings. Wood from ash trees is used as handles for hammers, saws, and other tools. Wood from quaking aspens is used to make boxes and matches.

The timber business is strong in Uintah, Garfield, Kane, Summit, Grand, and San Juan Counties. We have to be careful about how many trees we cut down. We also have to be careful how we cut them. We want to make sure they will grow back.



#### **Utah's Natural Resources**



## LESSON 🕗 What Did You Learn?

#### **Places to Locate**

Alpine Colorado River Great Basin Great Salt Lake Green River Lehi Rocky Mountains San Juan River

Spanish Fork Canyon Uinta Mountains Utah Lake Wasatch Mountains

#### **Lesson Review Activity**

Study the list of the Places to Locate. Consider what type of place each one is. Organize the Places to Locate into related groups. You decide what to label your groups to make each place fit in a group.

# LESSON ③ Our Climate

## **Key Ideas**

- Many factors affect Utah's moderate climate.
- Climate is affected by the four stages of the water cycle.
- The three main cloud types are signs of different kinds of weather.

## **Key Terms**

climate condense desert elevation evaporate moderate precipitation temperature

## Become a Better Reader

Preview Headings

## Utah's Climate

f you had a pair of snowshoes, would you use them more in Logan or Moab? Would you need a raincoat more in Fillmore or in Kamas? If you know about the location and climate of each place, you can answer these questions. Climate is an important part of a place.

*Climate* describes the pattern of weather in a place year after year. There are three things that affect our climate:

**Distance from the equator:** Find Utah on a map or globe. It is not too close to the equator, where it is hot all year. It is not too close to either the north or south pole, where it is cold all year. Utah has four different seasons—spring, summer, fall, and winter. This is called a *moderate* climate.



The sun shines more directly on places near the equator. These places have hotter climates. Places far from the equator do not get as much direct sun. They are usually cold most of the year. The places in between have both hot and cold weather.

Distance from large bodies of water: Large bodies of water change temperature more slowly than the air does. (*Temperature* is the degree of heat.) The warm air above a warm ocean drifts over the nearby land, warming that air as well. That is why places along the Pacific Ocean have a milder, wetter climate. Utah is more likely to have big changes in temperature because it is far away from an ocean.

Within Utah, the largest body of water is the Great Salt Lake. Northern Utah gets more rain and snow because of the lake. This is called the lake effect. Study the diagram below to see how it works.



The Great Salt Lake causes lake-effect snow. Sometimes the weather report for Salt Lake City will say six inches of snow are coming. But the reporter warns that if the lake effect kicks in, it might be 10 to 12 inches!

#### **The Lake Effect**

Northern Utah gets lake-effect rain and snow. A lake effect is when a body of water gives the land around it a more moist and moderate climate. It does not get quite as hot or cold as other places, but it often gets more rain and snow.





Climate is the general pattern of weather, year after year. Weather is what we get each day. Each day's weather can be sunny or rainy, warm or cold, windy or calm. Elevation Elevation Sea Level

The higher the land is above sea level, the cooler the air is. Mountains are cooler than low deserts.

Elevation: Climate also depends on how high the land is above sea level. This is called *elevation*. Have you ever hiked on a mountain trail and felt cooler as you climbed higher? Have you seen high mountains covered with snow, even when it is warm in the valley below? The higher you go, the colder the air gets. That is why the mountains and the northern part of the state have cooler temperatures. The rest of Utah has warmer temperatures.

"I love the colors of leaves on the trees in the fall that cover the sides of the mountains."

Kings Peak is the highest point in the state. It rises to 13,528 feet above sea level. —Alex Johnson, age 12

ever i filit i viter man

## **Three Climates**

**Climates in Utah** 

As a whole, Utah is known as a *desert*. That is because on average it gets less than 10 inches of rain per year. However, just like its landforms, Utah's climate varies as you move around the state.

**Desert climates** occur in the desert areas. Very little rain falls there.

**Steppe climates** are dry, but grasses and shrubs grow. The Great Basin, where most of Utah's people live, has this climate.

**Mountain climates** are cooler because they have higher elevation. There is enough rain in the mountains to support forests.



Which type of climate does most of Utah have? Which type is least common in Utah?

#### **The Rain Shadow**

There is another way that elevation affects our climate. Mountain ranges have two sides. The winds carry the air toward one side. As the air rises over the mountains, it cools. Clouds form, and rain falls. This side of the mountain is green and lush from all the rain.

As the air moves down the other side of the mountain, it warms up. It dries out. This side of the mountain does not get the clouds and rain. It is called the rain shadow. The land in the rain shadow is dry.

Utah is in the rain shadow of two mountain ranges. Most of Utah's weather comes from the west and moves east. Our storms come from the Pacific Ocean. Before they reach us, they have to cross the coastal ranges and the Sierra Nevada. As the moist air rises over these mountains, most of it falls as rain. By the time the air reaches Utah, it is dry.



## Spotlight on Science



# Amazing Water

Water plays a big role in climate. We all know there is water in rivers, lakes, and oceans. It can also be found under the ground. Water that seeps into the soil and rock layers under the ground is called groundwater. It fills up our wells and springs. Water also exists in trees and other plants.

Water can take the form of drizzling rain, rushing waterfalls, or drifting clouds. It changes as it moves from land, to air, to bodies of water. Let's follow water through its cycle of change.

**Evaporation: It all starts with heat from the sun.** As the sun heats water, the water *evaporates.* That means it turns into vapor, or steam. The vapor rises into the air. Have you ever noticed a puddle that was there one day and gone the next? Where did the water go? It evaporated. Can you see the word *vapor* in *evaporate*?

**Condensation:** When the water vapor in the air gets cold, it *condenses* (gets thicker) and turns back into liquid. You have seen this happen when you pour a glass of cold water on a hot day. Drops of water form on the outside of the glass. It also happens to the cool mirror in the bathroom when you take a hot shower.

As water condenses, clouds form. As more water condenses, the clouds get heavier.

**Precipitation:** Pretty soon the air can no longer hold all that water. The water falls to the ground as rain, hail, sleet, or snow. This is called *precipitation*. The type of precipitation is based on the temperature.

**Collection:** The falling water collects where it lands. It may fall in the rivers, lakes, and oceans. It may sink into the earth and become groundwater. Water that flows off the surface is called runoff. In time, it flows into the ocean or the Great Salt Lake. Then the cycle starts all over again.





What steps of the water cycle have you observed? How does the cycle affect your life?



## **Read a Climograph**

A climograph shows two things at once. It shows average temperature. It also shows average precipitation. Study the climograph and answer the questions.



Source: http://drought.unl.edu

LOOK	THINK	DECIDE
How can you tell which part of the climograph shows temperature and which part shows precipitation?	Why do you think temperature changes in one direction while precipitation changes in the other?	How might this information be useful to you? To a meteorologist (weather person)?

## Spotlight on Science



## **Clouds and Weather Patterns**

How do you decide what to wear each morning? Do you look outdoors and see what the atmosphere is doing? Do you look for clouds, rain, or snow?

Clouds are an important part of weather. There are three main types of clouds: stratus, cumulus, and cirrus. Each type is found with different types of weather.





## **Stratus Clouds**

Stratus clouds are the closest to the ground. At about 6,500 feet, they can produce rain, drizzle, snow, or mist.

## **Cumulus Clouds –**

Cumulus clouds are puffy and white. Often they are flat on the bottom and rise up like huge pieces of cotton. They form up to 20,000 feet above the ground. Cumulus clouds usually mean fair weather. But they sometimes grow very large and become thunderheads. As these clouds gather, they create thunder and lightning and produce rain and hail.



## **Cirrus Clouds**

Cirrus clouds are thin, curly, wispy clouds. They form 25,000 to 40,000 feet above the ground. They are so high that the water droplets freeze into ice crystals. Cirrus clouds generally signal an incoming storm or a change in weather.

Temperature is what determines what type of precipitation will fall. Scientists who study weather are called meteorologists. Each day, they gather facts (data) about the weather. They look for patterns. Patterns help us know what to expect next. They help us predict the weather. At 32°, rain will change to snow. Winter storms usually blow in from the North. Summer storms usually blow in from the South. An air-pressure reading 30° or higher usually signals good weather. A reading below 30° signals a change in the weather.

## LESSON **3** What Did You Learn?

## **Places to Locate**

equator Great Salt Lake north pole Pacific Ocean Sierra Nevada south pole

#### **Lesson Review Activity**

Write a few sentences for each of the Places to Locate. The sentences should explain the effect the place has on weather or climate.

The Land We Call Home

# LESSON ( Utah's Regions

## **Key Ideas**

- Regions are places that have something in common.
- Utah is part of three land regions: Rocky Mountains, Great Basin, and Colorado Plateau.
- Utah's three main environments are forests, deserts, and wetlands.

## **Key Terms**

adapt environment gorge region sediment wetlands

Become a Better Reader

Preview Images

## What Are Regions?

Three students from Utah were asked to describe the land where they lived. Here is what they wrote:

## Diego wrote,

I look out at pine trees and high mountains. The mountains are covered with snow. We ski the "greatest snow on Earth!" In the summer, we ride bikes down mountain trails. There are lakes and rivers for fishing.

## Kate wrote,

The land here is mostly flat. There are homes, buildings, and freeways. The summers are hot—over 100°! But we get snow in the winter, too. There is a big salty lake. The land seems thirsty sometimes.

## Sasha wrote,

We have high cliffs and deep canyons. The rocks and dirt around us are red. It gets really hot in the summer. Lizards and snakes live here.

Which description of Utah is correct? They all are! As you have learned, Utah is not all the same. There are three basic areas that share common features. We call these areas *regions*.

## **Utah's Land Regions**

Can you guess what feature land regions have in common? That's right—landforms. Each region is made up of one main type of land, but it may contain others. The Rocky Mountains, Great Basin, and Colorado Plateau make up our three land regions.



As you can see, the three land regions go beyond Utah's borders. In which region do you live? What is the land like outside your window?

## **Many Kinds of Regions**

A region is made up of places that have something in common. Land regions are not the only type of region. Some regions have coal in the ground. Some have soil that is good for corn or wheat. There might be a region in a city where people speak a different language. This is a cultural region.

A region can be big or small. A whole continent can be a region. Your neighborhood can be a region. You can live in many regions at the same time. For example, a skiing region might also be a mining region.



When you learned about Utah's climate, you studied this circle graph. Compare the circle graph to the map of land regions. Can you match each region to its type of climate?

# The Rocky Mountain Region



The Wasatch and Uinta mountains are part of the larger Rocky Mountain Range. hat do you think of when you think of the Rocky Mountains? Tall jagged peaks? Ski slopes? Do you think of meadows full of wildflowers? The smell of pine trees?

Our tallest mountains are the Wasatch and Uinta mountains. They are part of a larger range called the Rocky Mountains. The Rockies run from Alaska all the way to New Mexico.

Most of the mountains are covered with forests. The forests shelter many wild animals. There are hundreds of small lakes, streams, campgrounds, and hiking trails. People love to drive along the mountain roads to look at the views.

If you have been to Bear Lake or Rockport, you have been to the Rocky Mountain region. People like to water ski there. Fishing in Deer Creek Reservoir is another fun thing people do.

"I love seeing animals like deer, squirrels, rabbits, and birds on Mount Olympus."

> — Ian Johnson, age 8

The Rocky Mountains get more rain and snow than other part of the state. In the summer, the temperatures are cooler. People from the valleys go to the mountains to beat the heat. Afternoon thunderstorms often roll in.

Mountains are an important source of water for the valleys below. When the snow melts in the spring, it runs into streams. The streams flow into rivers, lakes, and reservoirs.

Visitors come to the Rocky Mountains for vacation. They ski and snowboard the "greatest snow on Earth." Some Utahns earn a living by working in the hotels, restaurants, and shops.



## A Day in the Life of Diego

My name is Diego. I live on a ranch in Heber City. On the way to school I pass by beautiful trees. In the fall, the aspen leaves shake in the wind. In the winter, we put on our boots or snowshoes. We go skiing at Sundance or Park City. In the spring and summer, wildflowers grow along the road. My friend and I like to count the hawks we see.

Next summer my uncle is going to teach me how to fish the Provo River. I am learning to tie my own flies. Every night I look up at a sky full of stars. It is very quiet here.





# The Great Basin Region

here are some mountains in the Great Basin, but most of the land is flat. It is like the bottom of a smooth bowl, or basin. That is what gives this region its name.

Most of the Great Basin is hot and dry. It is one of the driest deserts in the United States. But that does not mean there is no water at all. The Great Salt Lake and Utah Lake are in the Great Basin region. Mountain streams run down into the lakes.

You might think a desert is never cold, but there are some "cold deserts." The Great Basin is one of them. The temperature there goes way up in the summer and way down in the winter. It can even get below freezing. Snow is common in cold deserts.

Most of Utah's people live in the Great Basin. Our biggest cities and towns are there. Salt Lake City is the largest city.

"If there is magic on this earth it lies in water, and nowhere is water so beautiful as in the desert, for nowhere else is it so scarce.... In the desert each drop is precious."

> - Edward Abbey, author and naturalist



Salt Lake City, our state capital, is in the Great Basin. There are many opportunities there. You can listen to the Utah Symphony or the Mormon Tabernacle Choir. High school students can go to jazz concerts for free. You can watch the dancers of Ballet West or actors at the Grand Theatre. Why would so many people live in such a dry desert? They live on the edges of the basin near the mountains. There the land is flat, which makes good places for cities and farms. It is near the mountains, whose streams supply water.

The Great Salt Lake is Utah's largest body of water. Why is it so salty? Three major rivers and many small streams flow into the lake. They carry in salt and other minerals. However, there are no rivers to carry the salt out. The lake is saltier than any of the oceans.



## A Day in the Life of Kate

I'm Kate, and I'm from Delta. I look out across flat land that stretches for many miles. I feel free in these wide open spaces! After school I help water the plants in our yard. We plant things that need only a little bit of water. I love to look at the shapes

of the cactus plants. My friend and I are making a list of the different plants growing near our town. So far we have 100!

In the summer it is so hot, but when I run, the air feels cool. I try to catch lizards, but they are too fast. They dart under the rocks where it is cooler.



# The Colorado Plateau Region

s we travel south and east in Utah, the land becomes high, flat, and rocky. This broad land is called the Colorado Plateau. It is the largest land region in Utah.

Over millions of years, wind and rain have carved wonderful rock formations. Colorful cliffs rise a thousand feet above the valley floor. They stretch for hundreds of miles. This ancient land holds coal, oil, shale, and natural gas.

The Colorado and Green rivers have cut deep canyons and gorges through the region. These major rivers go all the way to the ocean. *Gorges* are narrow valleys with steep walls and streams running through them.

This is the driest region in Utah. Very little rain falls, so water is important here.

All five of Utah's national parks are in the Colorado Plateau region. Visitors come from around the world to explore their beauty. We will read more about the national parks in Chapter 3.

This is Balanced Rock in Arches National Park. What natural forces might have shaped the land this way?



Biking is a fun thing to do in the Colorado Plateau region.

## Why Are the Rocks Red?

The Colorado Plateau is made up of layers of rock called sedimentary rock. For a long time, most of Utah was under water. Shallow seas covered it. Rivers flowed into the seas, carrying sand, mud, and small pebbles. These things are called **sediments**.

All of this material then settled on the bottom of the seas in many layers. When the seas dried up, the area became dry land. Then, for thousands of years, winds blew hundreds of feet of sand onto the rock layers. This formed the bright red colors of the cliffs we see today.

## A Day in the Life of Sasha

I'm Sasha. My family lives in Moab. On my way to school, I walk in orange-red sand. I look at red and orange cliffs. In the morning, the sun shines on them. They look like they are on fire! My mom says there is no other place like it.

This summer we're going to raft the Colorado River. The best part is when we hit the rapids. The white water sprays everywhere!

We don't get much rain, but

there might be thunderstorms today. I could come home drenched! We have seen chuckwalla on our walk home. Once my brother saw a snake.



## Spotlight on Science

# 

Three land regions mean three types of environments for plants and animals. An *environment* is the setting in which something lives. Your environment is everything that surrounds you.

## **Forests**

In the cool forest, you can smell the leaves and trees. You can hear woodpeckers drilling into tree trunks. A hummingbird whizzes by. Listen to the squirrels chattering! A deer raises its head, munching a leaf. Fish rise to the surface of a cold lake.

Forests are found in the mountains of Utah. On the lower slopes, there are oak, sagebrush, and aspen trees. These trees lose their leaves in the fall. Higher up, there are pine, spruce, hemlock and fir trees. The higher trees keep their leaves all year round.

## Deserts

The flat deserts are so hot and dry. How could anything live there? Plants and animals have **adapted** to the harsh land. That means they have changed their ways in order to survive there. The desert tortoise moves slowly across the sand. Prairie dogs dig holes under the ground, where it is cooler. Lizards, snakes, and insects hide between rocks and under plants.

Animals live in the cold deserts as well. Their summers are hot, but their winters are cold. Bison, badgers, bald eagles, coyotes, gopher snakes, antelopes, jackrabbits, and mule deer live in the cold deserts.

Plants have adapted to life in the desert, too. Cacti, sagebrush, Joshua trees, and juniper trees can

grow with very little water. In the cold desert, you can find sego lillies, bitterbrush, grasses, and rabbitbrush.

## Wetlands

You may not think that wetlands and Utah go together. But there are close to 600,000 acres of wetlands in Utah. *Wetlands* are found along the banks of rivers, lakes, ponds, and streams. These are areas where water collects and keeps the soil wet. Utah's largest wetlands are around the Great Salt Lake. We also have wetlands in the high Uintas and around Lake Powell.

Bullrush and cattails grow in swamps, marshes, and bogs. Frogs, brine shrimp, and fish live there. Each year, millions of birds visit, nest, and feed at our wetlands. They include the snowy egret, great blue heron, cinnamon teal, pelican, and black-necked stilt. Wetlands are important. When there is rain, they help to control flooding. They keep the level of groundwater healthy. They also help keep our waters clean.

> Sandhill cranes like to come to Utah each winter. They come from colder places like Canada and Alaska. They have been seen at the Great Salt Lake.

## LESSON 4 What Did You Learn?

#### **Places to Locate**

Colorado Plateau region Delta Great Basin region Great Salt Lake Heber City Lake Powell Moab Rocky Mountain region Uinta Mountains Wasatch Mountains

#### **Lesson Review Activity**

Use a map of Utah to help you find each of the Places to Locate. Then sort the places into lists according to Utah's three land regions. Within each list, describe how the places in the region show the region's landforms.

# LESSON (B) Forces of Nature

## **Key Ideas**

- There are many forces of nature that shape the land over time.
- Rocks continually change as they move through the rock cycle.
- Fossils are marks or remains of ancient plants and animals, and they are clues to the past.
- Much of Utah was once covered by ancient Lake Bonneville.

## Shaping the Land

Utah's land has not always been the way it is now. It is the result of powerful forces moving inside the Earth. Rain and wind have also changed the land. These changes took millions of years, and they have not stopped. Our land is still changing. It will always change. Let's learn about the forces that shape our land.

The rocks at Goblin Valley look like works of art. The artists were wind, water, and time.

#### **Key Terms**

earthquake erosion fault fossil glacier inference organism seismic

## Become a Better Reader

Preview Key Terms



Erosion from wind, water, and ice formed the pillars of Bryce Canyon. They are known as hoodoos.

## **Erosion**

Some change is very slow. Over a long time, wind, water, ice, and heat wear away the earth's surface. They cause sediment to move. This is called *erosion*. For example, wind might blow sediment into a river. A flood might move rocks and soil to new places. Melting ice might carry sediment to a new place. Mountains, plateaus, and basins were formed by erosion.

## **Pressure Under the Ground**

Over thousands of years, natural forces lifted the Rocky Mountains. Pressure from the ocean floors caused flat areas to buckle. In other places, it caused the land to rise into peaks and cliffs. This shifting and moving is called *seismic* activity.

As the land was lifted, the weak spots in the earth folded and cracked. These cracks are called *faults*. Other parts of Utah were squeezed up into high plateaus. Then erosion cut beautiful cliffs and canyons in the rock. As the canyons got deeper, the color of the rocks showed. The canyons of southern Utah were formed this way.



## Spotlight on Science



# Rocks, Minerals, and Soils

## **Rocks Are Made of Minerals**

We live in a rocky world. Rocks are everywhere! Minerals are the building blocks from which rocks are made. Like so many things in our world, rocks have a cycle. They are constantly changing, moving through the cycle. They change by erosion, weathering, heat, and pressure. Weathering is when larger rocks break down or change appearance. It happens just from being outside for a long time. Have you ever noticed that rocks at the bottom of a river are smooth? Over time, they have been worn down by water.

To learn the types of rocks, we can look at appearance, colors, shape, hardness, texture, crystal pattern, and, in some cases, smell. We can also identify a rock by the minerals from which it is made.

## **Types of Rocks**

There are three types of rocks: sedimentary, igneous, and metamorphic. The type depends on where the rock is in the rock cycle. It depends on how much heat and pressure have been applied.



Sandstone is an example of sedimentary rock.

**SEDIMENTARY:** Rocks are broken down into small particles called sediment. Sediments may not stay in one place very long. Erosion might cause them to move. The sediments collect in layers. Over time, these layers build up.

Sometimes the minerals in the sediment dissolve in the water. They create a "cement" that binds the layers together. As this happens, a solid rock is formed.

Three types of sedimentary rock are found in Utah:

- Sandstone (made up of tiny pieces of sand and sediment)
- Conglomerate (a mix of small particles and larger pieces)
- Shale (clay that has hardened due to extreme pressure)

**IGNEOUS:** Igneous rocks form when melted rock (called magma) rises from inside the Earth and cools. If the magma cools beneath the surface, the cooling takes many years. The igneous rocks that form beneath the surface may have crystals in it.

If the magma cools on the surface, it cools more quickly. The rocks formed may have bubbles or be very smooth, like glass.

There are four common igneous rocks in Utah:

- Obsidian (a smooth, black rock that American Indians used to make spears and arrowheads)
- Granite (commonly used as a building material)
- Pumice (which floats because of air pockets inside of it)
- Basalt (a heavy rock that contains iron; it also may contain air holes, but it will not float; many people use basalt in their yards)



*Pumice, obsidian. and basalt are igneous rocks.* 



Schist is an example of metamorphic rock.

**METAMORPHIC:** Metamorphic rocks have been changed inside the Earth by extreme heat and pressure. These rocks may contain crystals. Sometimes the crystals are called gems because of their value. Rubies, sapphires, and garnets are found in metamorphic rocks.

Three examples of metamorphic rocks are found in Utah:

- Marble (starts out as limestone, but becomes harder as heat and pressure cause the crystals to shift)
- Gneiss (begins as granite, but under the heat and pressure the crystals line up and give it a banded look)
- Schist (This begins as clay sediments, and erosion moves them to the bottom of a lake or shallow sea. As pressure builds, the clay becomes shale. As heat is added, it becomes slate. With more heat and pressure, it forms mica. The final step is schist.)

## From Weathered Rocks to Soils

When rocks break down and plants die, their minerals return to the soil. In this way, weathered rock and plant remains create soil. As new plants grow, they get some of the water and minerals they need from the soil. The slow cycle begins again.

## Spotlight on Science

While Utah's land was being formed, many animals lived here. Many of these animals are now extinct. They no longer live anywhere on Earth. How could we possibly know about creatures that lived millions of years ago? Some of the most important clues are fossils. A *fossil* is a mark or the remains of an ancient plant or animal.

ABBAULTUN

## **How Do Fossils Form?**

There are different types of fossils based on how they are formed:

**Impressions** show the outline of a living thing. Impressions are created when thin plants and small animals die in sediment. As they rot, they leave behind a dark print of the organism. An **organism** is a tiny living thing. Plants, leaves, feathers, and fish often become impressions.

**Molds and casts** are impressions made by larger organisms. When an organism dies and is covered with sediment, its body slowly breaks down. A hole, or mold, is left in its place. If the hole is filled with sediment, it produces a cast. The cast looks like the original organism on the outside.

**Traces** are impressions that show traces of activity. These include footprints, teeth marks, tracks, and tail prints. How does a trace become a fossil? An impression must be left in soft sediment. Then the sediment hardens. It is preserved (kept the same) after being quickly covered with more sediment.

**Mineral replacements** form from hard body parts, such as bones, teeth, claws, or shells. These are also called petrified fossils. Over time, more and more sediment buries the remains. The bone slowly dissolves. Water filled with minerals seeps in. It replaces the bone with a rock-like material. The fossil has the same shape and size as the object but the color of the minerals. It is harder and heavier than the original.



This trilobite fossil was found in Millard County. Trilobites lived hundreds of millions of years ago.

**Amber** can preserve an organism whole. For example, an insect might have been trapped in tree sap. The sap slowly turns into amber, and the organism is preserved. Entire animals have also been preserved by being frozen or stuck in sticky tar pits.

## Major Fossil Sites in Utah



CLEVELAND-LLOYD DINOSAUR QUARRY Utah is a great place to hunt for all kinds of fossils. Which of these sites is closest to where you live?

**Making Inferences** 

Do you like mysteries and detective work? We use fossils to make inferences about life in the past. An *inference* is a conclusion you reach after studying the facts and thinking.

Fossils can be compared to one another and to organisms of today. This information can be used to make inferences about the past.

In 1992, the bones of a meat-eating dinosaur were found north of Arches National Park. The Utahraptor was about the size of a large polar bear. Its slashing claws were about 15 inches long. You can see its bones at the College of Eastern Utah in Price.





Where can scientists store thousands of dinosaur bones from Utah's quarries? Underneath the tall metal bleachers of Brigham Young University's football stadium, of course!

MOAB'S MILL CANYON

**ANTOTION** 



Lava once flowed over land in Dixie National Forest near St. George. These rocks were made from lava.

## Volcanoes

For hundreds of years, Utah was covered by volcanoes. A volcano is a mountain with a crater, or hole. Lava or hot gasses come up through the hole from the Earth's crust.

Volcanoes spread ashes and lava in many places. Sometimes volcanoes leave behind metals and minerals. That is how copper, gold, and silver came to be in the Oquirrh Mountains.

In some areas, volcanoes under the ground lifted pieces of the Earth's crust. They did not break through the surface. This created areas with scattered mountains. The La Sal, Abajo, and Henry mountains were formed this way.

There are no active volcanoes in Utah today. However, you can see craters and dried-up lava in parts of our state.

## **Ancient Seas and Sandstorms**

For millions of years, shallow seas covered Utah. Sediments of sands, shells, and pebbles drifted to the bottom of the seas. In time, heat and pressure forced the sediments together. They became hard rock.

As time passed, more layers of sediment were laid down. They turned into thick layers of limestone and sandstone rock. These are important building stones today.

After the ancient seas dried up, Utah became dry. It was drier than ever before. For thousands of years, sand blew across the Colorado Plateau region. The desert sands were pressed into mountains. These sandstone mountains are in the five national parks and other areas.





Glaciers once covered much of our continent. As they moved and melted, they slowly shaped the land.

## **Climate Change**

Over millions of years, Utah's climate has changed. Long ago, the land we call Utah was covered by warm shallow seas. The seas came and went over and over again. During this time, our oil, gas, and coal were formed.

Millions of years later, the climate warmed. The seas dried up, and sand covered the land. Dinosaurs walked on the land we call Utah. They lived here for millions of years. Then they disappeared.

The Earth continued to shift and move. Then the last ice age changed the land. Big masses of snow and ice formed. These are called *glaciers*. Glaciers covered much of North America. They covered the Wasatch and Uinta Mountains. The rest of Utah was not covered with ice, but it was very cold.

Over millions of years, the climate warmed. The glaciers melted. The melting snow and ice left basins full of water. Some of these are the cold mountain lakes we know today.

Our climate is still changing. Some of the changes today may be caused by people. We will read about how people change the land in Chapter 3.

## The Global Warming Debate

Today, the average temperature of the Earth is rising. Could this be another natural change? Many scientists believe people's actions are changing our climate.

There are gases in the air that work like a greenhouse. They keep the planet warm. Some "greenhouse gases" are a danger. Many scientists say the oil, gas, and coal we burn for fuel have put too many greenhouse gases into the air. That is why the Earth is getting warmer. Other scientists say these changes could be from different greenhouse gases.

Scientists also disagree about what will happen if the Earth keeps getting warmer. Many say life on our planet could change. Polar animals may lose their environments. The oceans may rise and flood cities. There might be less rainfall in some areas.

One thing is certain: humans are polluting the Earth. What can you do to reduce greenhouse gases?

# Case Study: Ancient Lake Bonneville

Long ago, the weather in Utah was much colder than it is now. The snow and ice just kept piling up. Long, thick layers covered the mountains in the north.

Then slowly the climate got warmer. The glaciers began to melt. As they melted, they began to move. They took dirt and rocks with them. They carved canyons and valleys in Utah's mountains. This kind of erosion created Little Cottonwood Canyon, near Salt Lake City.

The water ran down the canyons into a growing lake. It was called Lake Bonneville. The huge lake

spread over the Great Basin. It spread through canyons and surrounding valleys. It covered much of western Utah. It was over 1,000 feet deep!

After a long time, the water overflowed into what is now Idaho. It joined the Snake and Columbia rivers. From there it rolled to the Pacific Ocean.

The lake was still here, but it was not as deep. Its waves washed against the sides of the Wasatch Mountains. They formed a bench, or terrace. Look at the benches today. You can see where the shoreline of this ancient lake once was.

Mountain streams flowed down to the lake. They carried loads of sediment. As the streams entered the lake, they slowed down. They spread out. They dropped the rich mountain soil and gravel they carried. These areas now have some of the best soil in the state.

The climate continued to change. In time, Lake Bonneville dried up. The Great Salt Lake, Utah Lake, and Sevier Lake are all that is left of the ancient lake today.



## Slides, Avalanches, and Floods

Some changes to the Earth happen fast. There are mudslides, rockslides, avalanches, floods, and earthquakes. They remind us that the Earth is still changing.

Mudslides and floods cause the most damage in Utah today. Mudslides come after a lot of melting snow or rain. Mountain clay gets so wet it breaks loose. It slides into the valley. If there is a stream in the valley, the mud acts as a dam. Water floods out over the land.

Floods occur when the water in a river or lake is so high it spills over its banks. This can happen in the spring, when snow melts quickly. It can also happen when there is a huge rainstorm. In a flash flood, a wall of water can come roaring through a dry riverbed.

Floods can destroy crops and ruin houses. They can carve canyons and move dirt and rocks.



Floods can shape the land. In this picture from 1909, City Creek floods onto streets in Salt Lake City.

## **Earthquakes**

Earthquakes also change the land quickly. Utah has over 700 earthquakes each year. Most of them are too small to feel. In an *earthquake*, the ground shakes and quakes. This is caused by the sudden release of energy stored in rocks under the ground. Earthquakes and other seismic activity often happen near fault lines.

The biggest earthquake in Utah was in 1934. It happened in the Hansel Valley. Other large earthquakes have been near Ogden, Santaquin, St. George, Tremonton, Logan, and Marysvale.



An earthquake in the 1960s destroyed homes. Does your class practice earthquake safety at school?

## **LESSON 5** What Did You Learn?

#### **Places to Locate**

Abajo Mountains Great Salt Lake Henry Mountains La Sal Mountains Oquirrh Mountains Sevier Lake Uinta Mountains Wasatch Mountains

#### **Lesson Review Activity**

For each of the Places to Locate, describe the forces of nature that played a part in its creation.



## **Study Different Maps**

Maps are like pictures. They say a lot with a few words. Maps are important tools of geography, and they have many purposes.

Although maps may show different information, they usually have some common features: a title, a compass rose, a scale of miles, a legend (or key) to explain what symbols mean, and a grid. Study this map of Utah and the map on page 10 to complete the following activity.

- **1.** What title would you give to each map?
- 2. What do the legends (keys) show for each map?
- **3.** Write a few sentences describing the important pieces of information you learned from each map.

Flip through the pages of *Utah, Our Home* and find at least three examples of maps. Be sure to find three different kinds of maps. Write where you found each map and the information that each map gives. Compare your list with a classmate's. Which maps did you find most helpful? What did you learn about Utah from the maps you found?



## Become a Better Reader

## Learn to Preview

Good readers preview the text before they read. Previewing helps you become familiar with a book before you read it. This helps you to better understand what you read. It might even make you more interested in what you are about to read.

You learned to preview a textbook and all its parts. Use what you learned to preview Chapter 2. As you preview, think about the main ideas of the chapter. Write three predictions of what you think you will learn in Chapter 2. Share your predictions with a partner. Explain how you came up with your predictions. After reading the chapter, revisit your predictions to see if you were right!

## Technology Tie-In

## **Use Web Resources to Create**

Using the Trading Card option at BigHugeLabs.com, or a similar feature from another site, create trading cards to highlight different ways we can describe Utah's land. If the web resources are not available, create the cards on a computer or by hand. For example, you might create a card for some of Utah's natural resources.

For each card, you will need to find a picture on the Internet or draw one. Each card will also need a title and a short description about how it helps describe Utah's land. Be sure to include the most important facts on the card. Compare your cards with a friend's. How are they similar? How are they different?

## **Review What You Read**

## Lesson 1

Chapter

- **1.** What do we learn by studying geography?
- 2. How can we describe the location of a place?
- **3.** What tools help us find the absolute location of a place?
- **4.** How might you describe Utah's place in the world?
- 5. Describe each of the tools that help us read a map.

## Lesson 2

- **6.** List and describe four landforms found in Utah.
- **7.** List four of Utah's natural resources and tell how people use them.

## Lesson 3

- **8.** What factors affect Utah's climate?
- **9.** Explain the four stages of the water cycle.
- **10.** List and describe the three main cloud types.

## Lesson 4

- **11.** What makes a region?
- **12.** Name Utah's land regions and what defines each one.
- **13.** List and describe Utah's three main environments.

## Lesson 5:

- **14.** What forces of nature shaped Utah's land over time?
- **15.** List and describe each stage of the rock cycle.
- **16.** What clues tell us there was once a Lake Bonneville?