How Do I Study Geography?

Geographers have tried to understand the best way to teach and learn about geography. In order to do this, geographers created the Five Themes of Geography. The themes acted as a guide for teaching the basic ideas about geography to students like yourself.

People who teach and study geography, though, thought that the Five Themes were too broad. In 1994, geographers created 18 national geography standards. These standards were more detailed about what should be taught and learned. The Six Essential Elements act as a bridge connecting the Five Themes with the standards.

These pages show you how the Five Themes are related to the Six Essential Elements and the 18 standards.

5 Themes of Geography

1 Location
   Location describes where something is. Absolute location describes a place’s exact position on the Earth’s surface. Relative location expresses where a place is in relation to another place.

2 Place
   Place describes the physical and human characteristics that make a location unique.

3 Regions
   Regions are areas that share common characteristics.

4 Movement
   Movement explains how and why people and things move and are connected.

5 Human-Environment Interaction
   Human-Environment Interaction describes the relationship between people and their environment.
### I. The World in Spatial Terms
Geographers look to see where a place is located. Location acts as a starting point to answer “Where Is It?” The location of a place helps you orient yourself as to where you are.

1. How to use maps and other tools
2. How to use mental maps to organize information
3. How to analyze the spatial organization of people, places, and environments

### II. Places and Regions
*Place* describes physical characteristics such as landforms, climate, and plant or animal life. It might also describe human characteristics, including language and way of life. Places can also be organized into regions. *Regions* are places united by one or more characteristics.

4. The physical and human characteristics of places
5. How people create regions to interpret Earth’s complexity
6. How culture and experience influence people’s perceptions of places and regions

### III. Physical Systems
Geographers study how physical systems, such as hurricanes, volcanoes, and glaciers, shape the surface of the Earth. They also look at how plants and animals depend upon one another and their surroundings for their survival.

7. The physical processes that shape Earth’s surface
8. The distribution of ecosystems on Earth’s surface
9. The characteristics, distribution, and migration of human populations
10. The complexity of Earth’s cultural mosaics
11. The patterns and networks of economic interdependence

### IV. Human Systems
People shape the world in which they live. They settle in certain places but not in others. An ongoing theme in geography is the movement of people, ideas, and goods.

12. The patterns of human settlement
13. The forces of cooperation and conflict
14. How human actions modify the physical environment

### V. Environment and Society
How does the relationship between people and their natural surroundings influence the way people live? Geographers study how people use the environment and how their actions affect the environment.

15. How physical systems affect human systems
16. The meaning, use, and distribution of resources
17. How to apply geography to interpret the past
18. How to apply geography to interpret the present and plan for the future
Throughout this text, you will discover how geography has shaped the course of events in United States history. Landforms, waterways, climate, and natural resources all have helped or hindered human activities. Usually people have learned either to adapt to their environments or to transform it to meet their needs. The resources in this handbook will help you get the most out of your textbook—and provide you with skills you will use for the rest of your life.

The study of geography is more than knowing a lot of facts about places. Rather, it has more to do with asking questions about the Earth, pursuing their answers, and solving problems. Thus, one of the most important geographic tools is inside your head: the ability to think geographically.
Globes and Maps

A globe is a scale model of the Earth. Because Earth is round, a globe presents the most accurate depiction of geographic information such as area, distance, and direction. However, globes show little close-up detail. A printed map is a symbolic representation of all or part of the planet. Unlike globes, maps can show small areas in great detail.

From 3-D to 2-D

Think about the surface of the Earth as the peel of an orange. To flatten the peel, you have to cut it like the globe shown here. To create maps that are not interrupted, mapmakers, or cartographers, use mathematical formulas to transfer information from the three-dimensional globe to the two-dimensional map. However, when the curves of a globe become straight lines on a map, distortion of size, shape, distance, or area occurs.

Great Circle Routes

A straight line of true direction—one that runs directly from west to east, for example—is not always the shortest distance between two points. This is due to the curvature of the Earth. To find the shortest distance, stretch a piece of string around a globe from one point to the other. The string will form part of a great circle, an imaginary line that follows the curve of the Earth. Ship captains and airline pilots use these great circle routes to reduce travel time and conserve fuel.

The idea of a great circle route is an important difference between globes and maps. A round globe accurately shows a great circle route, as indicated on the map below. However, as shown on the flat map, the great circle distance (dotted line) between Tokyo and Los Angeles appears to be far longer than the true direction distance (solid line). In fact, the great circle distance is 345 miles (555 km) shorter.

Answers

1. globe: scale model of the Earth; map: symbolic representation of all or part of the planet; cartographer: mapmakers; great circle route: routes that follow the great circle along the curve of the Earth
2. Size, shape, distance, or area becomes distorted.
3. Globes present the most accurate depiction of geographic information such as area, distance, and direction, but do not show close-up detail. Maps are symbolic representations of all or part of the planet and can show areas in great detail. Both show information about places on the Earth.
Projections

To create maps, cartographers project the round Earth onto a flat surface—making a map projection. Distance, shape, direction, or size may be distorted by a projection. As a result, the purpose of the map usually dictates which projection is used. There are many kinds of map projections, some with general names and some named for the cartographers who developed them. Three basic categories of map projections are shown here: planar, cylindrical, and conic.

Planar Projection

A planar projection shows the Earth centered in such a way that a straight line coming from the center to any other point represents the shortest distance. Also known as an azimuthal projection, it is most accurate at its center. As a result, it is often used for maps of the Poles.

Cylindrical Projection

A cylindrical projection is based on the projection of the globe onto a cylinder. This projection is most accurate near the Equator, but shapes and distances are distorted near the Poles.

Conic Projection

A conic projection comes from placing a cone over part of a globe. Conic projections are best suited for showing limited east-west areas that are not too far from the Equator. For these uses, a conic projection can indicate distances and directions fairly accurately.

Activity: Creating a Graphic Organizer

Visual/Spatial To help students remember the several different categories and examples of maps discussed in this section, guide them in creating a graphic organizer entitled “Types of Maps.” Branching this main head should be three boxes labeled “Political,” “Physical,” and “Special-Purpose.” Have students complete the organizer by taking notes on each of the different types of maps.
Common Map Projections

Each type of map projection has advantages and some degree of inaccuracy. Four of the most common projections are shown here.

Winkel Tripel Projection

Most general reference world maps are the Winkel Tripel projection. It provides a good balance between the size and shape of land areas as they are shown on the map. Even the polar areas are depicted with little distortion of size and shape.

Robinson Projection

The Robinson projection has minor distortions. The sizes and shapes near the eastern and western edges of the map are accurate, and outlines of the continents appear much as they do on the globe. However, the polar areas are flattened.

Goode’s Interrupted Equal-Area Projection

An interrupted projection resembles a globe that has been cut apart and laid flat. Goode’s Interrupted Equal-Area projection shows the true size and shape of Earth’s landmasses, but distances are generally distorted.

Mercator Projection

The Mercator projection increasingly distorts size and distance as it moves away from the Equator. However, Mercator projections do accurately show true directions and the shapes of landmasses, making these maps useful for sea travel.

Critical Thinking

Comparing and Contrasting
Ask students to cover the text and look at the selected projections. Ask: What is one similarity and one difference between the Winkel Tripel Projection and the Goode’s Interrupted Equal-Area Projection? (similarity: both show all of the continents; difference: Goode’s projection splits Antarctica into four pieces, while the Winkel Tripel projection does not.)

Reading Strategy

Analyzing Text Structure
Have students read the selected captions. Ask: How is the information structured in these captions? (Both captions propose a benefit of the projection, followed by a drawback.)

Practicing SKILLS

1. Explain the significance of: map projection, planar, cylindrical, conic, interrupted projection.
2. How does a cartographer determine which map projection to use?
3. How is Goode’s Interrupted Equal-Area projection different from the Mercator projection?
4. Which of the four common projections described above is the best one to use when showing the entire world? Why?
5. Use a Venn diagram like the one below to identify the similarities and differences between the Winkel Tripel and Mercator projections.

Answers

1. map projection: projecting image of earth onto a flat surface to make a map, different projections have their advantages/disadvantages. planar: shows shortest distance between points, most often used for maps of the Poles; cylindrical: most accurate near the Equator; conic: best for limited east-west areas not too far from the Equator; interrupted projection: shows true size and shape of Earth but distorts distances
2. by deciding what it will be used for to determine the least distortion
3. Goode distorts distances while showing the true size and shape. Mercator distorts size and distances but shows true directions.
4. Winkel Tripel, because it distorts the size and shape of landmasses the least.
5. Both show all continents with little to no distortion of shape. Mercator shows true direction, but distorts land size and distance. Winkel Tripel shows little size distortion.
Determining Location

Geography is often said to begin with the question: Where? The basic tool for answering the question is location. Lines on globes and maps provide information that can help you locate places. These lines cross one another forming a pattern called a grid system, which helps you find exact places on the Earth’s surface.

A hemisphere is one of the halves into which the Earth is divided. Geographers divide the Earth into hemispheres to help them classify and describe places on Earth. Most places are located in two of the four hemispheres.

Latitude

Lines of latitude, or parallels, circle the Earth parallel to the Equator and measure the distance north or south of the Equator in degrees. The Equator is measured at 0° latitude, while the Poles lie at latitudes 90°N (north) and 90°S (south). Parallels north of the Equator are called north latitude. Parallels south of the Equator are called south latitude.

Longitude

Lines of longitude, or meridians, circle the Earth from Pole to Pole. These lines measure distance east or west of the Prime Meridian at 0° longitude. Meridians east of the Prime Meridian are known as east latitude. Meridians west of the Prime Meridian are known as west longitude. The 180° meridian on the opposite side of the Earth is called the International Date Line.

The Global Grid

Every place has a global address, or absolute location. You can identify the absolute location of a place by naming the latitude and longitude lines that cross exactly at that place. For example, Tokyo, Japan, is located at 36°N latitude and 140°E longitude. For more precise readings, each degree is further divided into 60 units called minutes.

Hands-On Chapter Project

Creating a Global Treasure Hunt

Directions Organize students into teams and have each team choose 10 places on Earth to research and study. Students may choose places that are well known or unfamiliar. However, all places should be on land and located at least 50 miles (80 km) from each other. Tell students to make a list of 8–10 interesting facts about each place.

Putting It Together Tell students to “bury” their treasure in each of the locations. Then have students use the facts they learned about the place to create clues for a Treasure Atlas. Clues will be locations, that, when followed, will lead to the buried treasure. The correct response to each clue will be a place name and coordinates that can be easily looked up. Clues should be written on index cards. Students should list all the clues with their answers on a separate sheet of paper. Each correct answer earns another clue to a new location, eventually leading to the buried treasure, so remind students to make sure their clues follow a logical route.
Northern and Southern Hemispheres

The diagram below shows that the Equator divides the Earth into the Northern and Southern Hemispheres. Everything north of the Equator is in the **Northern Hemisphere**. Everything south of the Equator is in the **Southern Hemisphere**.

![Diagram of Northern and Southern Hemispheres](image)

Eastern and Western Hemispheres

The Prime Meridian and the International Date Line divide the Earth into the Eastern and Western Hemispheres. Everything east of the Prime Meridian for 180° is in the **Eastern Hemisphere**. Everything west of the Prime Meridian for 180° is in the **Western Hemisphere**.

![Diagram of Eastern and Western Hemispheres](image)

**Practicing SKILLS**

1. **Explain** the significance of: location, grid system, hemisphere, Northern Hemisphere, Southern Hemisphere, Eastern Hemisphere, Western Hemisphere, latitude, longitude, Prime Meridian, absolute location.
2. **Why** do all maps label the Equator 0° latitude and the Prime Meridian 0° longitude?
3. **Which** lines of latitude and longitude divide the Earth into hemispheres?
4. **Using** the Reference Atlas maps, fill in a chart like the one below by writing the latitude and longitude of three world cities. Have a partner try to identify the cities.
5. **Use** a chart like the one below to identify the continents in each hemisphere. Some may be in more than one hemisphere.

<table>
<thead>
<tr>
<th>Hemisphere</th>
<th>Continents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Northern</td>
<td></td>
</tr>
<tr>
<td>Southern</td>
<td></td>
</tr>
<tr>
<td>Eastern</td>
<td></td>
</tr>
<tr>
<td>Western</td>
<td></td>
</tr>
</tbody>
</table>

**Answers**

1. Location: a specific place on Earth; grid system: pattern formed as the lines of latitude and longitude cross one another; hemisphere: half of a sphere or globe; Northern Hemisphere: everything north of the Equator; Southern Hemisphere: everything south of the Equator; Eastern Hemisphere: everything east of the Prime Meridian for 180°; Western Hemisphere: everything west of the Prime Meridian for 180°
2. They are where the division between north/south (N/S) and east/west (E/W) occur, respectively.
3. Equator and Prime Meridian
4. Answers will vary according to cities chosen.
5. Northern: North America, Asia, Europe, Africa; Eastern: Asia, Europe, Africa, Australia; Southern: Antarctica, Australia, South America, Africa; Western: North America, South America

**Skill Practice**

**Visual Literacy** Point out that most people probably are not used to seeing the globe from these angles. **Ask:** What view do these illustrations show? (the globe viewed from the top and the bottom)

**Ask:** How do you generally view the globe? (from the side, along the Equator)

If students still struggle to understand the difference between these views, use an actual globe to show them the view reflected in the illustration.

**Critical Thinking**

**Detecting Bias** **Ask:** Since planet Earth has no true top or bottom, why do globes show Europe on the top half of Earth? (early map makers and explorers were from Europe)
Reading a Map

In addition to latitude and longitude, maps feature other important tools to help you interpret the information they contain. Learning to use these map tools will help you read the symbolic language of maps more easily.

**Title**

The title tells you what kind of information the map is showing.

**Key**

The key lists and explains the symbols, colors, and lines used on the map. The key is sometimes called a legend.

**Scale Bar**

The scale bar shows the relationship between map measurements and actual distances on the Earth. By laying a ruler along the scale bar, you can calculate how many miles or kilometers are represented per inch or centimeter. The map projection used to create the map is often listed near the scale bar.

**Compass Rose**

The compass rose indicates directions. The four cardinal directions—north, south, east, and west—are usually indicated with arrows or the points of a star. The intermediate directions—northeast, northwest, southeast, and southwest—may also be shown.

**Cities**

Cities are represented by a dot. Sometimes the relative sizes of cities are shown using dots of different sizes.

**Capitals**

National capitals are often represented by a star within a circle.

**Boundary Lines**

On political maps of large areas, boundary lines highlight the borders between different countries or states.

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**Skill Practice**

**Using Geography Skills** Have students use the scale bar on the map to calculate the distance in kilometers between Paris and Stockholm. First, have students use a ruler to measure the distance between the cities on the map in centimeters (4.5 cm). Then, have students measure the map’s scale in centimeters. (600 km = 1.7 cm)

**Ask:** How can you use this to find the distance between Paris and Stockholm? (set up a proportion:

\[
\frac{600 \text{ km}}{1.7 \text{ cm}} = \frac{x}{4 \text{ cm}}
\]

\[
x = \frac{600 \text{ km} \times 4 \text{ cm}}{1.7 \text{ cm}}
\]

\[x = 1,412 \text{ km} \]

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**Reading Strategy**

**Reading Maps** Ask: According to the map, what is the capital of Russia? (St. Petersburg) **Ask:** What major city is located southeast of Vienna? (Budapest) 

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**Contrasting** Have students use an Internet mapping Web site to help them understand scale. Tell students to find a particular location, such as their school or home address. Then have them use the map’s zoom function to help visualize the benefits of increasing and decreasing scale when viewing a location. **Ask:** To find the nearest lake, would you use a distant or a close view? (distant view) **Ask:** What view would show the names of neighboring streets? (closer view) Point out that a distant view corresponds to an increase in scale: it allows you to view a wider area but you cannot see much detail. Conversely, a close view corresponds to a decrease in scale: detail is increased, but the size of the area is diminished.
Using Scale

All maps are drawn to a certain scale. Scale is a consistent, proportional relationship between the measurements shown on the map and the measurement of the Earth’s surface.

Small-Scale Maps A small-scale map, like this political map of France, can show a large area but little detail. Note that the scale bar on this map indicates that about 1 inch is equal to 200 miles.

Large-Scale Maps A large-scale map, like this map of Paris, can show a small area with a great amount of detail. Study the scale bar. Note that the map measurements correspond to much smaller distances than on the map of France.

Absolute and Relative Location

As you learned on page GH6, absolute location is the exact point where a line of latitude crosses a line of longitude. Another way to indicate location is by relative location, or the location of one place in relation to another. To find relative location, find a reference point—a location you already know—on a map. Then look in the appropriate direction for the new location. For example, locate Paris (your reference point) on the map of France above. The relative location of Lyon can be described as southeast of Paris.

Practicing SKILLS

1. Explain the significance of: key, compass rose, cardinal directions, intermediate directions, scale bar, scale, relative location.
2. Describe the elements of a map that help you interpret the information displayed on the map.
3. How does the scale bar help you determine distances on the Earth’s surface?
4. Describe the relative location of your school in two different ways.
5. Use a Venn diagram to identify the similarities and differences of small-scale maps and large-scale maps.

Answers

1. key: lists and explains symbols, colors, and lines on map; compass rose: indicates direction; cardinal directions: north, south, east, and west; intermediate directions: northeast, northwest, southeast, and southwest; scale bar: shows relationship between map measurements and actual distances on Earth; scale: consistent, proportional relationship between measurements shown on map and measurement of Earth’s surface; relative location: location of one place in relation to another
2. title tells kind of information shown on map; key lists and explains symbols, colors, and lines used on map; scale bar shows relationship between map measurements and actual distances on Earth; compass rose indicates direction
3. shows the relationship between map measurements and actual distances
4. Answers will vary according to school.
5. Small scale shows large areas but little detail. Large scale shows small area with great detail. Both show location.
Physical Maps

A physical map shows the location and the topography, or shape of the Earth's physical features. A study of a country's physical features often helps to explain the historical development of the country. For example, mountains may be barriers to transportation, and rivers and streams can provide access into the interior of a country.

Water Features
Physical maps show rivers, streams, lakes, and other water features.

Landforms
Physical maps may show landforms such as mountains, plains, plateaus, and valleys.

Relief
Physical maps use shading and texture to show general relief—the differences in elevation, or height, of landforms.

Practicing SKILLS

1. Explain the significance of: physical map, topography, relief, elevation.
2. Complete a table like the one to the right to explain what you can learn from the map about each of the physical features listed.

<table>
<thead>
<tr>
<th>Physical Feature</th>
<th>What You Can Learn from the Map</th>
</tr>
</thead>
<tbody>
<tr>
<td>Davis Mountains</td>
<td></td>
</tr>
<tr>
<td>Red River</td>
<td></td>
</tr>
<tr>
<td>Gulf Coastal Plains</td>
<td></td>
</tr>
</tbody>
</table>

Answers
1. physical map: shows location and topography of Earth's physical features; topography: shape of Earth's physical features; relief: difference in elevation of landforms; elevation: height
2. Davis Mountains: location, elevation, length; Red River: location, length, route; Gulf Coastal Plains: location, elevation, length
Political Maps

A political map shows the boundaries and locations of political units such as countries, states, counties, cities, and towns. Many features depicted on a political map are human-made, or determined by humans rather than by nature. Political maps can show the networks and links that exist within and between political units.

Human-Made Features
Political maps show human-made features such as boundaries, capitals, cities, roads, highways, and railroads.

Physical Features
Political maps may show some physical features such as relief, rivers, and mountains.

Nonsubject Area
Areas surrounding the subject area of the map are usually a different color to set them apart. They are labeled to give you a context for the area you are studying.

Differentiated Instruction
Gifted and Talented
Political maps change more rapidly than physical maps. Have interested students select an area and research how political maps of this area have changed over time. Students may be interested to learn how their own state or region has changed politically, or they may wish to study another area. Have students create a presentation of their findings.

Critical Thinking
Comparing and Contrasting
Ask: When you fly in an airplane and look down at the ground, what human-made features can you see? (roads, buildings, farms, dams, some lakes, railroads)
Ask: What human-made features can you not see? (boundaries, capital designation)

Practicing SKILLS
1. Explain the significance of: political map, human-made.
2. What types of information would you find on a political map that would not appear on a physical map?
3. Complete a table like the one to the right to explain what you can learn from the map about each of the human-made features listed.

Answers
1. political map: shows boundaries and locations of political units such as countries, states, counties, cities, and towns; human-made: determined by humans rather than nature
2. capitals, cities, roads, highways, railroads
3. Austin: location, that it is the capital city of Texas; El Paso: location; Texas state boundary: what states border Texas, what river forms its southern border
Thematic Maps
Maps that emphasize a single idea or a particular kind of information about an area are called thematic maps. There are many kinds of thematic maps, each designed to serve a different need. This textbook includes thematic maps that show exploration and trade, migration of peoples, economic activities, and war and political conflicts.

Qualitative Maps
Maps that use colors, symbols, lines, or dots to show information related to a specific idea are called qualitative maps. Such maps are often used to depict historical information. For example, the qualitative map below shows the spread of farming in Latin America over time.

Flow-Line Maps
Maps that illustrate the movement of people, animals, goods, and ideas, as well as physical processes like hurricanes and glaciers, are called flow-line maps. Arrows are usually used to represent the flow and direction of movement. The flow-line map below shows the movement of Slavic peoples throughout Europe.

Additional Support

Teacher Tip
Collaborative Learning
Ask students if they have difficulty distinguishing one color from another on the map above. If so, these students may benefit from other resources, such as maps that make distinctions using shading or symbols rather than color.

Activity: Collaborative Learning
Making Thematic Maps
Divide the class into several groups. Each group will research a theme that interests them and create a thematic map to present to the class. Themes may be national (for example, a U.S. map showing the location of roller coasters or professional football stadiums) or local (for example, a city map displaying the location of public libraries or city parks). After groups choose their themes, each group should designate tasks (research, drawing maps, creating the presentation) among themselves so that each group member participates. Schedule a period for all the groups to present their maps to the class.
Geographic Information Systems

Modern technology has changed the ways maps are made. Most cartographers use computers with software programs called geographic information systems (GIS). A GIS is designed to accept data from different sources—maps, satellite images, printed text, and statistics. The GIS converts the data into a digital code, which arranges it in a database. Cartographers then program the GIS to process the data and produce maps. With GIS, each kind of information on a map is saved as a separate electronic layer.

1. The first layer of information in a GIS pinpoints the area of interest. This allows the user to see, in detail, the area he or she needs to study. In this case, the area of study is a 5 mile (8 km) radius around Christ Hospital in Jersey City, New Jersey.

2. Additional layers of information are added based on the problem or issue being studied. In this case, hospital administrators want to find out about the population living in neighborhoods near the hospital so they can offer the community what it needs. A second layer showing African Americans who live within the 5 mile (8 km) radius has been added to the GIS.

3. Complex information can be presented using more than one layer. For example, the hospital's surrounding neighborhoods include other groups in addition to African Americans. A third layer showing whites who live within the 5 mile (8 km) radius has been added to the GIS. Administrators can now use this information to help them make decisions about staffing and services associated with the hospital.

Skills Practice

Visual Literacy

Ask: How could you make GIS maps without a computer? (You could draw the data on transparencies, and layer the transparencies.)

Assess

Summarizing

Have students work in pairs to make study cards for the Geography Handbook. Students can use main headings and subheadings to organize the section material. When the cards are finished, have students take turns testing each other on what they have learned.

Close

Identifying

Ask: What are the four main types of maps? (physical, political, qualitative, and flow-line)

Answers

1. thematic map: emphasizes a single idea or particular kind of information about an area; qualitative map: uses colors, symbols, lines, or dots to show information related to a specific idea; flow-line map: illustrates movement of people, animals, goods, and ideas, as well as physical processes like hurricanes and glaciers

2. qualitative

3. flow-line

4. by allowing information to be stored and displayed on separate electronic layers

5. Answers will vary. Note that most maps in the text are qualitative maps; most climate maps are qualitative and flow-line.
As you read about the history of the United States, you will encounter the terms listed below. Many of the terms are pictured in the diagram.

**absolute location** exact location of a place on the earth described by global coordinates

**basin** area of land drained by a given river and its branches; area of land surrounded by lands of higher elevations

**bay** part of a large body of water that extends into a shoreline, generally smaller than a gulf

**canyon** deep and narrow valley with steep walls

**cape** point of land that extends into a river, lake, or ocean

**channel** wide strait or waterway between two landmasses that lie close to each other; deep part of a river or other waterway

**cliff** steep, high wall of rock, earth, or ice

**continent** one of the seven large landmasses on the earth

**cultural feature** characteristic that humans have created in a place, such as language, religion, housing, and settlement pattern

**delta** flat, low-lying land built up from soil carried downstream by a river and deposited at its mouth

**divide** stretch of high land that separates river systems

**downstream** direction in which a river or stream flows from its source to its mouth

**elevation** height of land above sea level

**Equator** imaginary line that runs around the earth halfway between the North and South Poles; used as the starting point to measure degrees of north and south latitude

**glacier** large, thick body of slowly moving ice

**gulf** part of a large body of water that extends into a shoreline, generally larger and more deeply indented than a bay

**harbor** a sheltered place along a shoreline where ships can anchor safely

**highland** elevated land area such as a hill, mountain, or plateau

**hill** elevated land with sloping sides and rounded summit; generally smaller than a mountain

**island** land area, smaller than a continent, completely surrounded by water

**isthmus** narrow stretch of land connecting two larger land areas

**lake** a large inland body of water

**latitude** distance north or south of the Equator, measured in degrees

**longitude** distance east or west of the Prime Meridian, measured in degrees

**lowland** land, usually level, at a low elevation

**map** drawing of the earth shown on a flat surface

**meridian** one of many lines on the global grid running from the North Pole to the South Pole; used to measure degrees of longitude
**mesa** broad, flat-topped landform with steep sides; smaller than a plateau

**mountain** land with steep sides that rises sharply (1,000 feet or more) from surrounding land; generally larger and more rugged than a hill

**mountain peak** pointed top of a mountain

**mountain range** a series of connected mountains

**mouth** (of a river) place where a stream or river flows into a larger body of water

**ocean** one of the four major bodies of salt water that surround the continents

**ocean current** stream of either cold or warm water that moves in a definite direction through an ocean

**parallel** one of many lines on the global grid that circle the earth north or south of the Equator; used to measure degrees of latitude

**peninsula** body of land jutting into a lake or ocean, surrounded on three sides by water

**physical feature** characteristic of a place occurring naturally, such as a landform, body of water, climate pattern, or resource

**plain** area of level land, usually at a low elevation and often covered with grasses

**plateau** large area of flat or rolling land at a high elevation, about 300–3,000 feet high

**Prime Meridian** line of the global grid running from the North Pole to the South Pole at Greenwich, England; starting point for measuring degrees of east and west longitude

**relief** changes in elevation over a given area of land

**river** large natural stream of water that runs through the land

**sea** large body of water completely or partly surrounded by land

**seacoast** land lying next to a sea or ocean

**sea level** position on land level with surface of nearby ocean or sea

**sound** body of water between a coastline and one or more islands off the coast

**source** (of a river) place where a river or stream begins, often in highlands

**strait** narrow stretch of water joining two larger bodies of water

**tributary** small river or stream that flows into a larger river or stream; a branch of the river

**upstream** direction opposite the flow of a river; toward the source of a river or stream

**valley** area of low land between hills or mountains

**volcano** mountain created as ash or liquid rock erupts from inside the earth