

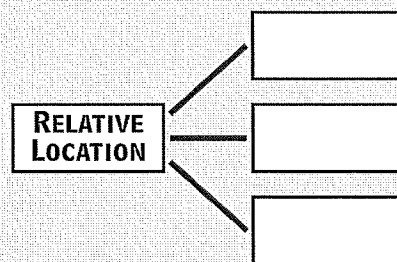
Importance of Distance and Relative Location

WHAT YOU WILL LEARN

How to describe locations in terms of relationships with other locations

READING STRATEGY

Create a chart like the one below. List three examples of the importance of relative location in your life.



TERMS TO KNOW

relative location, interdependence

Have you ever been lost? Or have you just not been sure about how to get somewhere you wanted to go?

From the specific spot where you stand on the earth, you are different directions and distances from many other spots on the earth. You may be 22 miles south of your home. At the same time you may be 150 miles northeast of the capital of your state. You may also be three feet from the front door of your favorite pizza place. Your location can, in fact, be compared to the location of any other spot on Earth. This is called **relative location**.

Distance and location affect your life in many ways. If you live eight miles from school, you must wake up earlier each morning than someone who lives eight blocks away. If you live 2,500 miles from the nearest volcano, you will be much less concerned about its latest eruption than someone who lives in the valley below it.

The story of Houston, Texas, is an example of the importance of distance and relative location. One of the greatest oil strikes in history took place near Houston in 1901. The Spindletop Field was the first great oil discovery in Texas. Within a few years Houston, Texas, was an important center for the oil industry. Why? Because Houston's relative location was near the early oil fields. It was also located near the Gulf of Mexico. This made it possible to ship oil and equipment by water. Many oil companies built plants near Houston to make products from oil. These products were then shipped to other parts of the country, and around the world by water. As a result, Houston became one of the largest ports in the United States.

Global Interdependence

Distance and relative location are important because we depend on people in other places for things we need. Depending on other people is called **interdependence**. We depend on them for certain goods and services, and they depend on us for others.

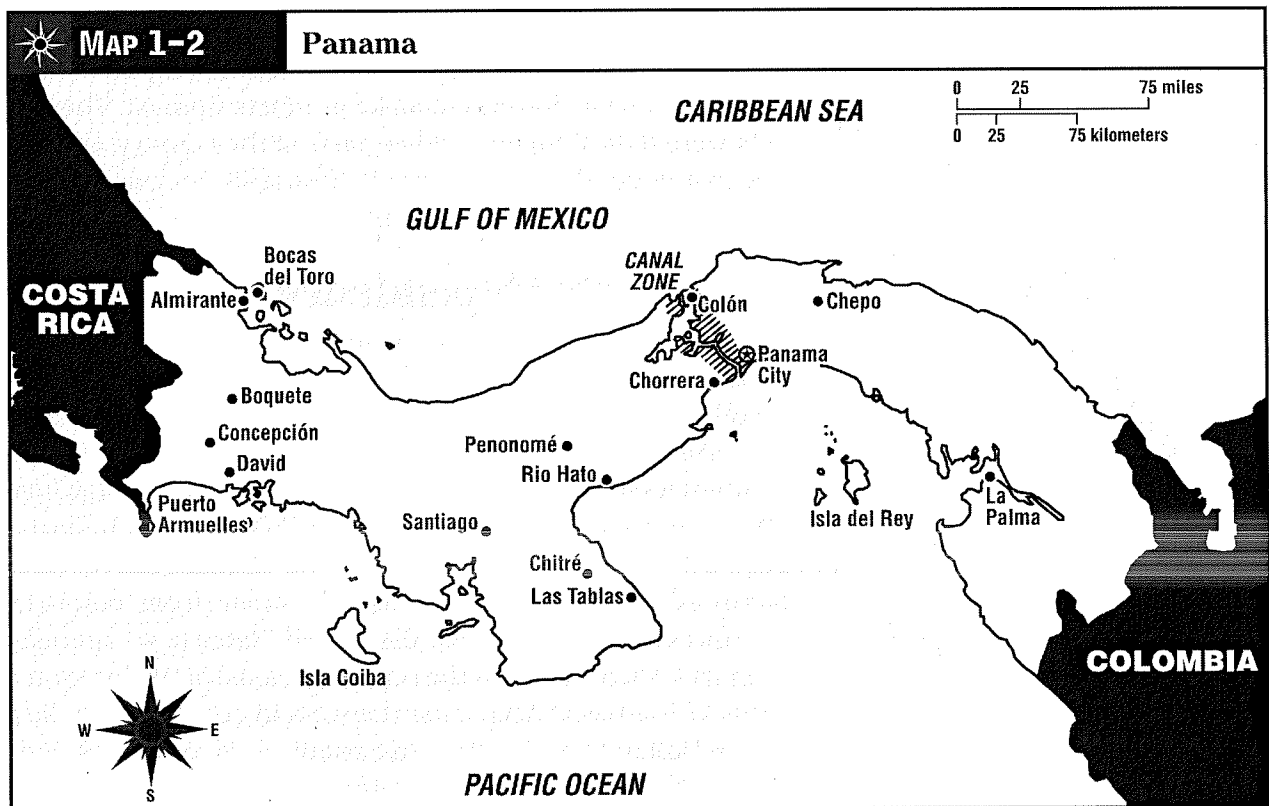
Interdependence links us together in the larger global community in many ways. For example, the United States imports and buys from other countries much of the oil that runs its cars and factories. A great deal of this oil comes from countries in Southwest Asia. This is why the United States is so interested in wars and other events in the region. Because of the location of oil fields in Southwest Asia, a war there could cut off the supply of oil to the United States. This could result in oil shortages and economic changes in the United States.

Using Your Skills

A PRACTICING MAP SKILLS

Use Map 1-2: Panama below to decide whether each statement about relative location is true or false. Write *T* if the statement is true. Write *F* if the statement is false.

- _____ 1. Panama has water to the north and south.
- _____ 2. The country of Colombia is located to the west of Panama.
- _____ 3. The Caribbean Sea is located to the north of Panama.
- _____ 4. The Canal Zone is located in the central part of Panama.
- _____ 5. When a ship enters the Panama Canal at Colón, it is northwest of the other end of the canal at Panama City.
- _____ 6. Costa Rica is located northwest of Panama.
- _____ 7. According to this map, all parts of the Caribbean Sea are east of the Pacific Ocean.
- _____ 8. The city of Rio Hato is about 300 kilometers west of La Palma.

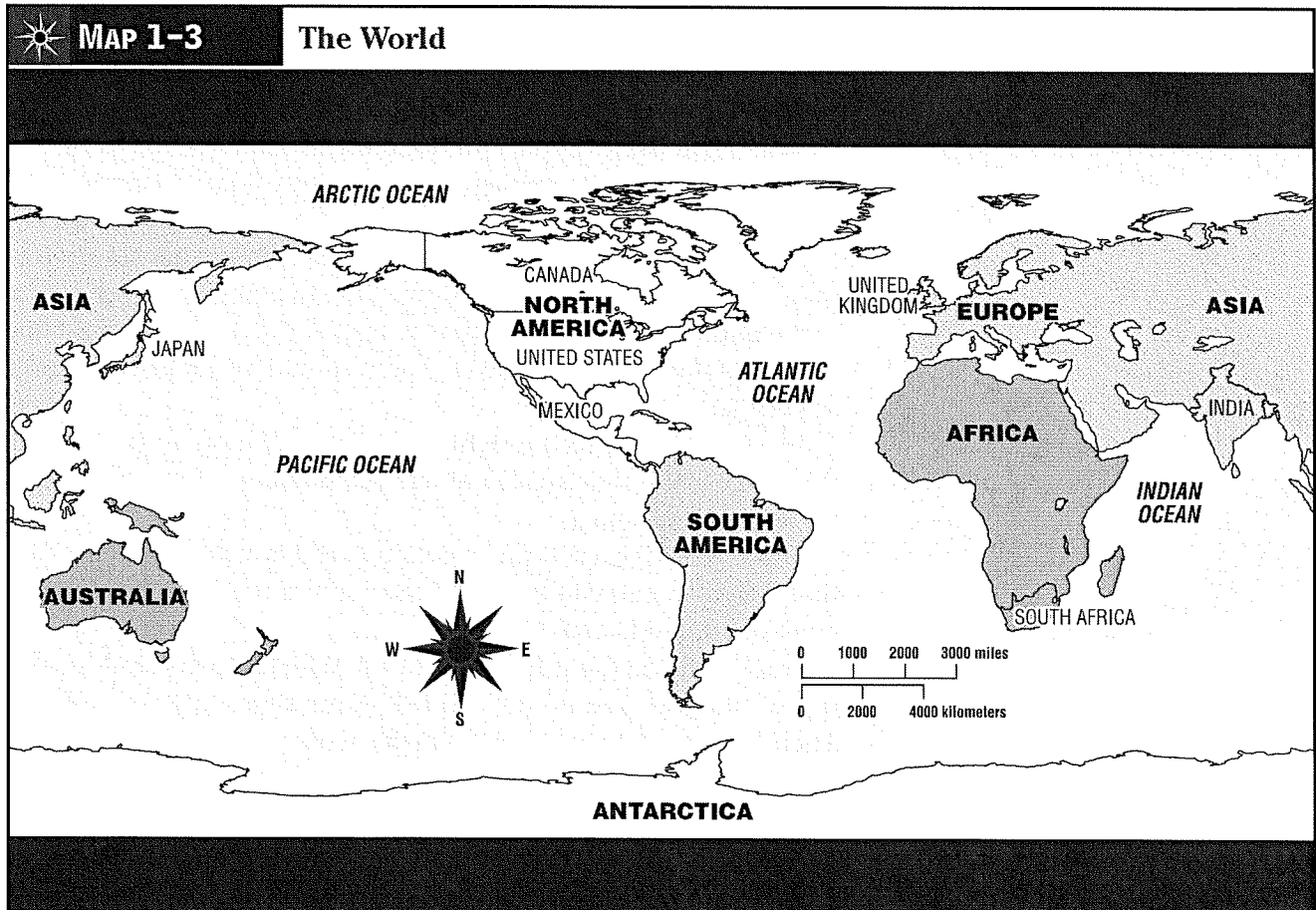


B PRACTICING MAP SKILLS

Use Map 1-3: The World below to answer the questions about relative location. Use intermediate directions where necessary.

1. Where is the United States located on this map?

2. What country is to the north of the United States? _____
3. What country is to the south of the United States? _____
4. What direction is South Africa from the United States? _____
5. What direction is Australia from the United States? _____
6. In what direction would you travel to go from Japan to the United States? _____
7. In what direction would you travel to go from India to the United Kingdom? _____



Lesson



Locating Places Using a Grid

WHAT YOU WILL LEARN

To locate places using grids

READING STRATEGY

Use a table like the one below to list the major elements of a map grid.

ELEMENTS OF MAP GRIDS

-
-
-

TERMS TO KNOW

grid, cell, index

Imagine that you have just landed on this planet. You have been told to find the center of government for the place where you landed. Someone hands you a map, points out your current location, and identifies the city where the center of government is located. You have heard of maps, but you have never seen one. On your planet, you simply enter your destination into a tracking device in your vehicle and the course is automatically programmed.

As you examine the map, you notice that there are lines running vertically and horizontally on the map. You also notice many symbols, colors, and words on the map. You are fairly certain that the words tell the names of places, but you are not certain what all the labels and symbols mean. You need something that will tell you about where the center of government is located.

Using Map Grids

The something you need to help you find the center of government in this new place is called a **grid**. A grid is a set of vertical and horizontal lines used to identify locations on a map. An alpha-numeric grid uses letters and numbers around the edges of the map to label the areas marked off by the lines. Look at Figure 1-4 at the top of the next page for an example of an alpha-numeric grid.

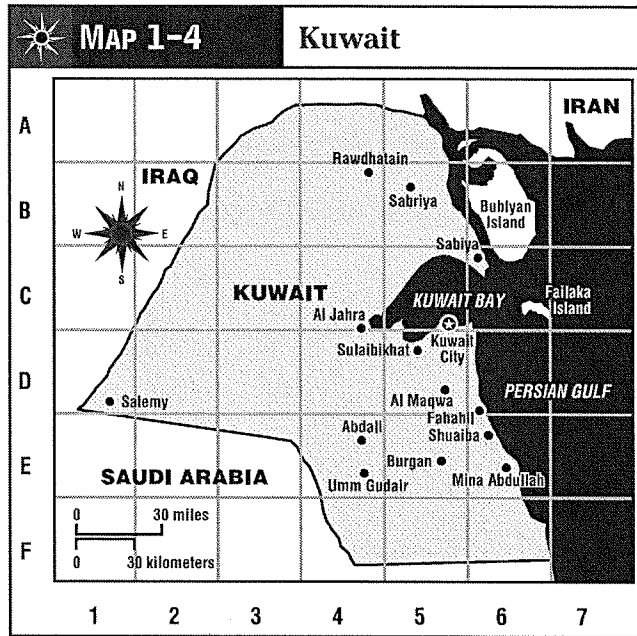
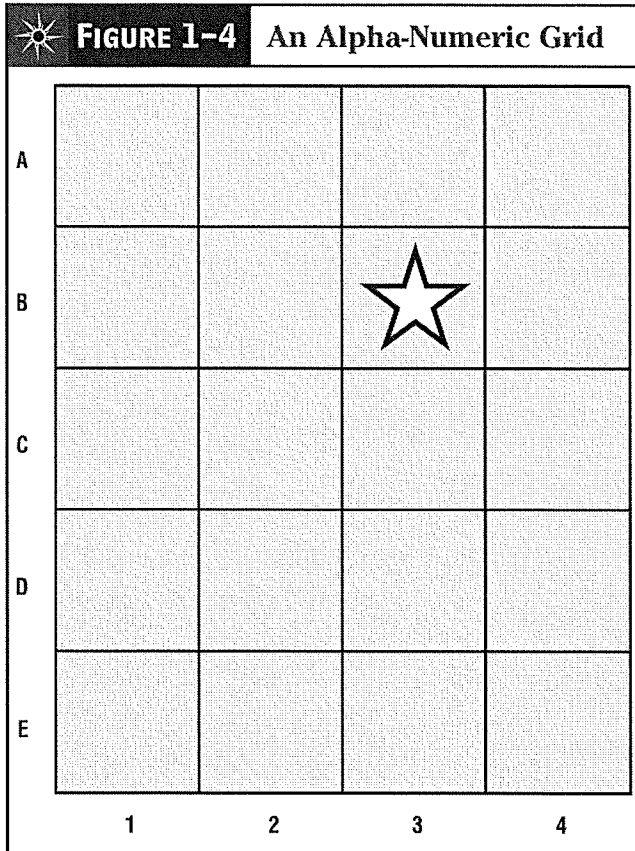
Place your left index finger on the letter *B* on the left side of the grid. Place your right index finger on the number *3* at the bottom of the grid. Move your left finger straight across and your right finger straight up until they meet. There should be a star in the box at your fingertips.

The four spaces to the right of the letter *B* form a *row*. We call this row *B*. The four spaces above the number *3* form a *column*. We call this column *3*.

The area where a row and a column meet is called a **cell**. Notice that only one cell can be at the area where row *B* and column *3* meet. We call this cell *B-3*.

Practice using the grid in Figure 1-4. Which cell is closer to the top of the grid, cell *A-1* or cell *E-4*? Now draw a star in cell *C-2*. Then draw a circle in cell *A-4*. Finally, write your name in cell *D-1*. You should be able to draw a straight line through all four cells on the grid that have something in them.

Many cities and towns are described as being built on a grid. This means that horizontal and vertical streets and roads cross



Index for Map 1-4

Abdali	E-4
Al Jahra	D-4
Al Maqwa	D-5
Burgan	E-5
Fahahil	E-6
Kuwait City	C-5, D-5
Mina Abdullah	E-6
_____	B-4
_____	C-6
_____	B-5
_____	D-1
_____	E-6
_____	D-5
_____	E-4

each other to form a grid. The names of the streets and roads are used to locate places in the city or town. For example, the high school may be located at the intersection of Main Street and Third Avenue. Or the post office is located on Sunset Boulevard between Fifth Avenue and Sixth Avenue. Is your town or city built on a grid?

Using a Grid Index

Mapmakers often use a grid to help us find places on maps. We use letters and numbers to identify cells on the map in which specific places are located. The grid is used with an **index**. The names of places on the map are listed in alphabetical order in the index. Following each name is the letter and number of the cell in which that place can be found.

Look at Map 1-4 and its index. Notice that the index is not complete. Use the map to help you fill in the name of the missing city for each cell number. Be sure you spell the name of each city correctly.

Using Your Skills

A REVIEWING KEY TERMS

Match each term at left with its meaning.

- | | |
|-----------------|---|
| _____ 1. cell | a. an alphabetical list of places on a map, with cell numbers |
| _____ 2. row | b. a set of lines used to identify locations on a map |
| _____ 3. column | c. the space where a row and column meet |
| _____ 4. grid | d. a set of spaces that goes across a map |
| _____ 5. index | e. a set of spaces that goes up and down a map |

B PRACTICING MAP SKILLS

Use Map 1-5: London, England to answer these questions.

1. What is located in cell B-3?

2. What is located in cell C-2?

3. What is located in cells F-2, F-3, F-4, F-5, E-5, D-5, and C-5?

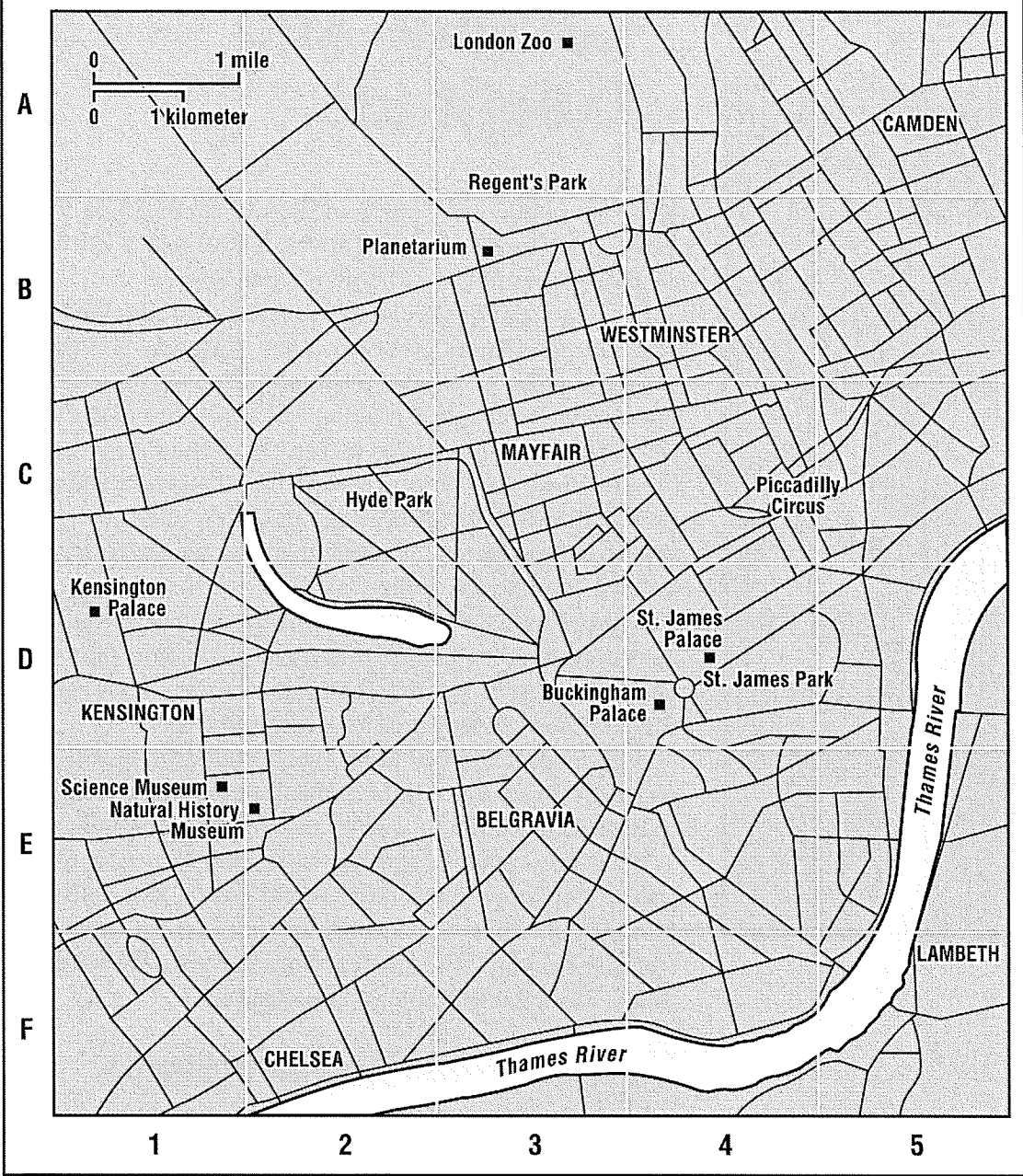
4. What is located in cells B-3 and B-4?

5. About how many miles is it from the London Zoo to the Planetarium?

6. About how many miles is it from Buckingham Palace to Kensington Palace?

7. Complete the following index for the map of London. Remember that all names in an index are in alphabetical order. If there is more than one possible answer for a cell, see which answer will fit in alphabetical order.

MAP 1-5 London, England



Index

..... E-3 A-3
..... D-4 C-3
..... A-5 E-2
..... F-2 C-4
..... D-1 E-1
..... F-5	

Lesson

4

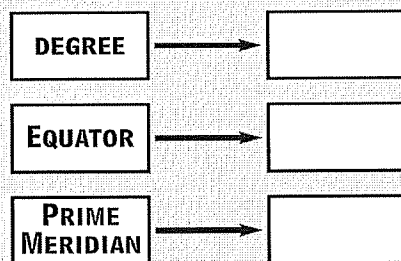
Introduction to Latitude and Longitude

WHAT YOU WILL LEARN

To understand the concepts of latitude and longitude

READING STRATEGY

Create a chart like the one below listing the importance of each of the terms in using latitude and longitude.



TERMS TO KNOW

absolute location, latitude, longitude, degree, Equator, Prime Meridian

Do you know how ships measured their speed long ago? Do you know why a ship's speed is given today in knots rather than miles per hour or kilometers per hour?

Long ago, each ship carried a piece of wood fastened to a rope. The rope had knots tied in it. Each knot was a certain distance from the next. To measure the ship's speed, the piece of wood was thrown overboard. It pulled the rope out behind it. The faster the ship was going, the faster the rope went out. Someone counted how many knots passed over the side of the ship in a certain length of time. If seven knots were pulled out, the ship was said to be traveling at a speed of seven knots. Today, one knot is about 1.15 miles per hour.

Ships of long ago had to keep track of their speed on long voyages because they had no other way to tell how far they had traveled. Ships often became lost. For example, a storm might blow them far away from where they wanted to go.

What people needed was a way to tell exactly where they were on the earth's surface—their **absolute location**. They also needed to be able to find their way to any other absolute location.

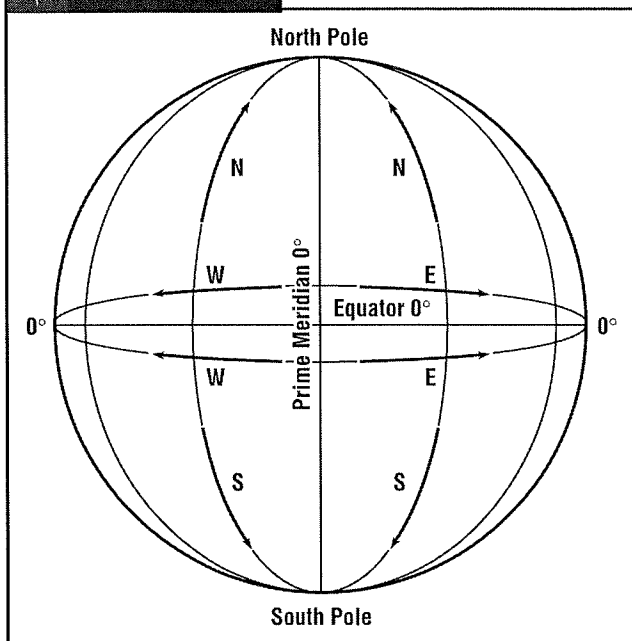
What they needed was a grid system that covered the entire earth. You know that a grid is made up of two sets of lines that cross each other. A grid system that covered the whole earth would let anyone find any location on Earth. We have such a grid today. We call it **latitude** and **longitude**.

Using Latitude and Longitude

Latitude lines, called *parallels*, run east and west around the earth. Longitude lines, called *meridians*, run north and south. Latitude and longitude are measured in **degrees**. The shape of the earth is a sphere. It is 360 degrees around a sphere. Each degree of latitude or longitude is 1/360th of the distance around the earth. The symbol for degree is °.

The starting point for measuring degrees of latitude is the **Equator**. The Equator is a line of latitude. It divides the earth into two equal parts. The Equator runs east and west all the way around the world, halfway between the North and South Poles. Figure 1-5 shows that the Equator is at zero degrees (0°) latitude. When we give the latitude of a place, we must state whether the place is north or south of the Equator. For example, the North

FIGURE 1-5 Latitude and Longitude



Pole is at 90° north latitude. If we said only that a place was at 90° latitude, we would not know if the place was the North Pole or the South Pole.

The starting point for measuring longitude is called the **Prime Meridian**. Meridian is another name for a longitude line. The earth does not have an east pole and a west pole. Therefore, some point had to be chosen as the starting point for measuring longitude. Through international agreement, Greenwich, England, was chosen as this place. All longitude is measured from the Prime Meridian that runs from the North and South Poles through Greenwich, England.

Figure 1-5 shows the Prime Meridian is at 0° longitude. When we give the longitude of a place, we must state whether the place is east or west of the Prime Meridian.

Lines of latitude run all the way around the earth, but lines of longitude do not. On the other side of the earth from the Prime Meridian is the line of longitude marked 180°. This line is the ending point for measuring longitude. The area west of the Prime Meridian and 180° is west longitude. The United States is located west of the Prime Meridian.

Latitude and longitude are determined by measuring the angle between the Equator or Prime Meridian and any point on Earth. Look at Figure 1-6 and find the Equator. Now find the line 10° north of the Equator. The angle between the Equator, the center of the earth, and this line is 10°.

Now look at Figure 1-7 and find the Prime Meridian. Now find the line 10° west of the Prime Meridian. The angle between the Prime Meridian, the center of the earth, and this line is 10°.

FIGURE 1-6 Lines of Latitude

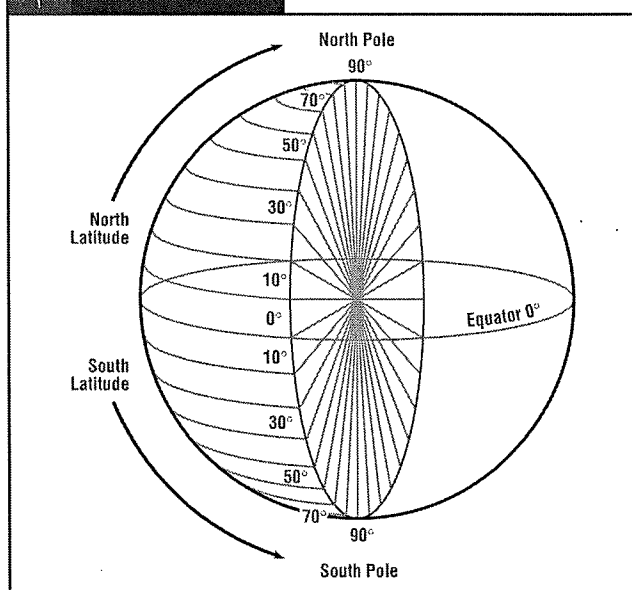
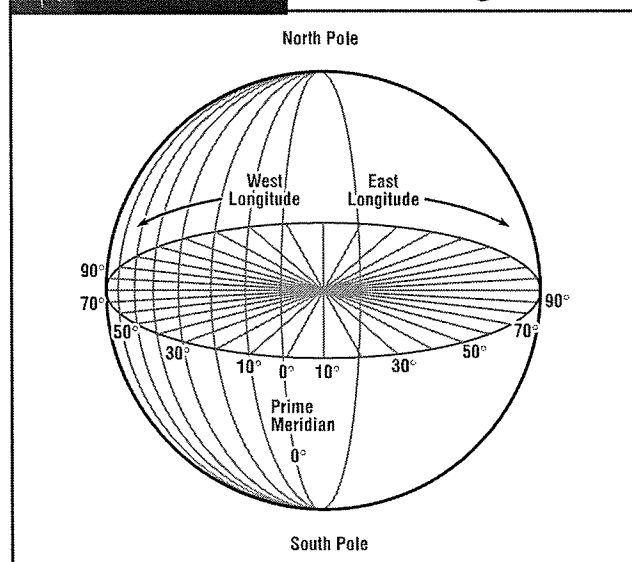


FIGURE 1-7 Lines of Longitude



Using Your Skills

A REVIEWING KEY TERMS

Explain the meaning of each of the following terms.

1. degree

2. latitude

3. longitude

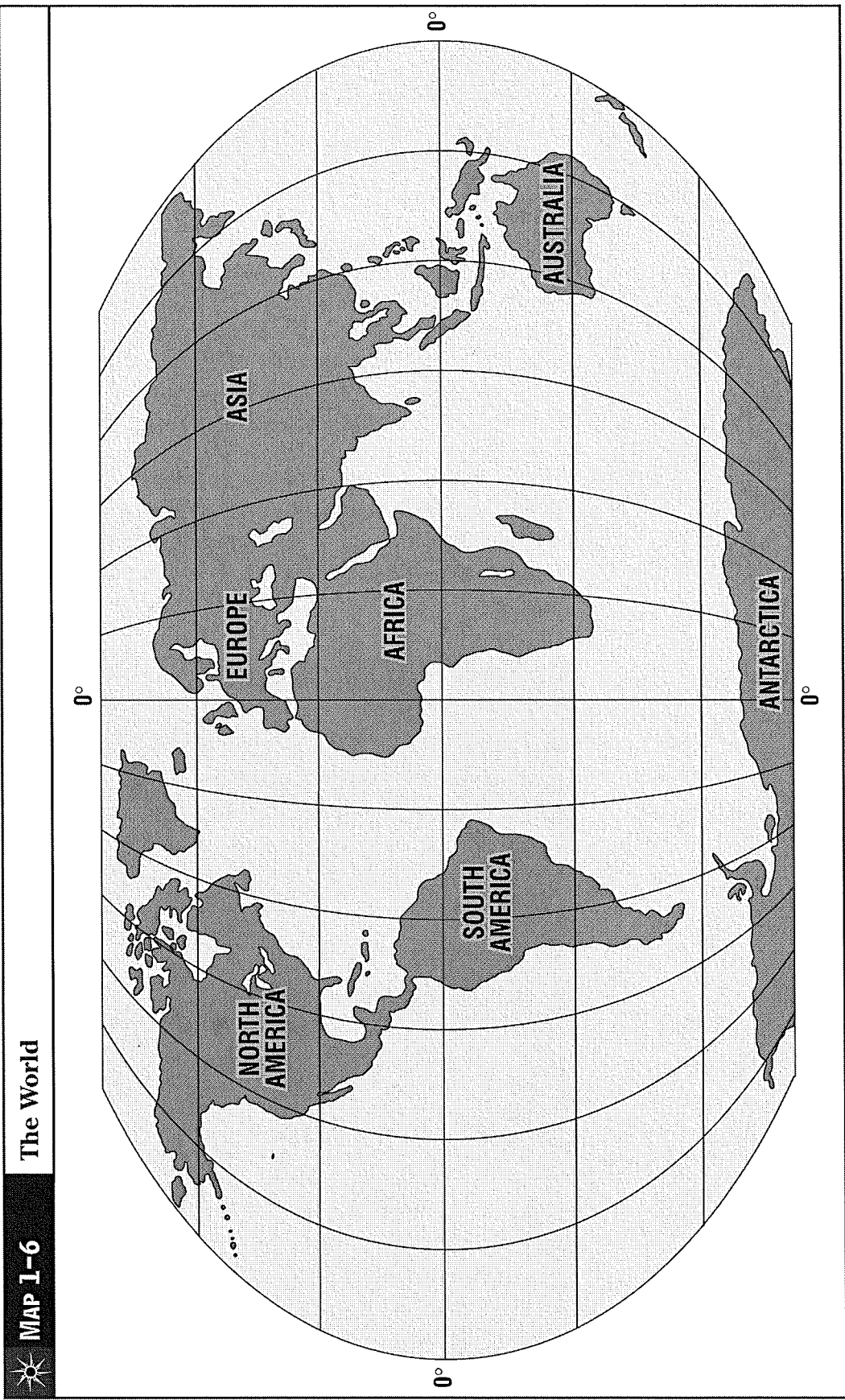
4. Equator

5. Prime Meridian

B PRACTICING MAP SKILLS

Follow the directions to complete Map 1-6: The World.

1. Find the line of latitude that is the Equator. Write Equator on the line.
2. Find the line of longitude that is the Prime Meridian. Write Prime Meridian on the line.
3. The lines of latitude and longitude shown on the map are spaced 30° apart. Find the first latitude line north of the Equator. Label the line 30°N . Find the first latitude line south of the Equator. Label the line 30°S . Now label the rest of the latitude lines correctly.
4. Find the first longitude line east of the Prime Meridian. Label the line 30°E . Find the first longitude line west of the Prime Meridian. Label the line 30°W . Now label the rest of the longitude lines correctly.



Lesson

5

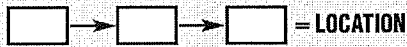
Finding Places Using Latitude and Longitude

WHAT YOU WILL LEARN

To locate places using latitude and longitude

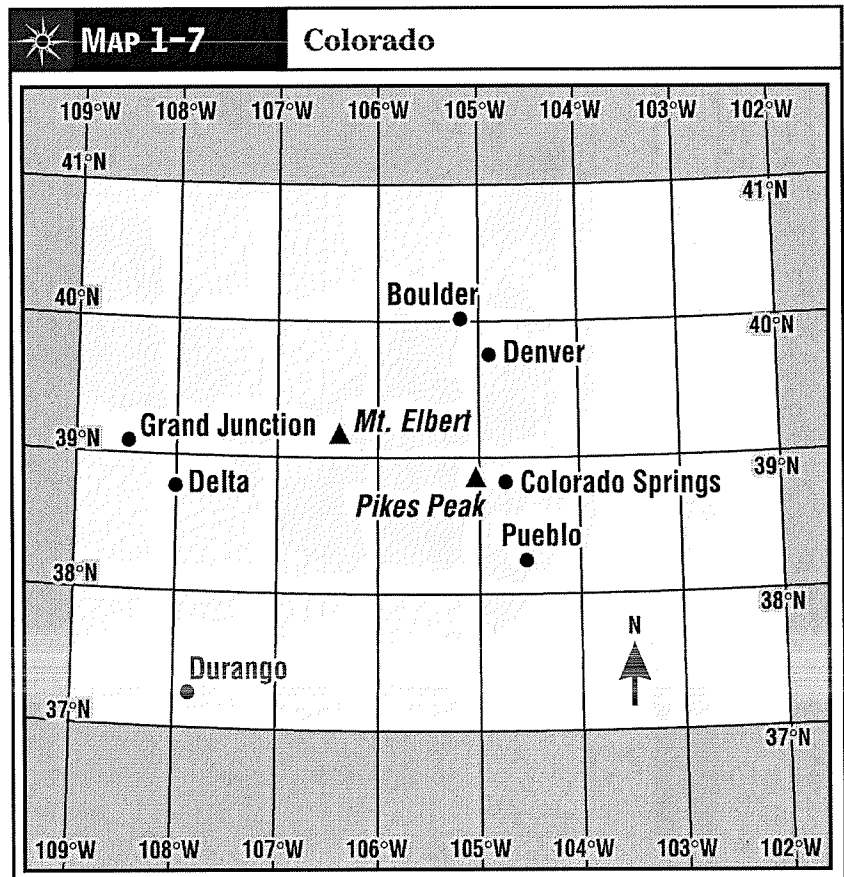
READING STRATEGY

Create a flowchart like the one below to explain how to find a place using latitude and longitude.



Finding places using latitude and longitude is just like using a grid, as you learned about in Lesson 3. Look at Map 1-7. Notice that each degree of latitude and longitude is shown. Find the line for 40°N latitude. What city is located at this latitude? What line of longitude is closest to this city? We say that Boulder is located at about 40°N latitude, 105°W longitude. Remember that when we write the location of a place using latitude and longitude, latitude is always written first.

Now look at the city of Delta. What line of latitude is closest to Delta? What line of longitude runs through Delta? We say that Delta is located at about 39°N latitude, 108°W longitude. This is Delta's absolute location. What is the absolute location of Durango?



Using Your Skills

A PRACTICING MAP SKILLS

Answer these questions about Map 1-7: Colorado.

1. Which line of latitude runs near Pikes Peak? _____
2. Which line of longitude runs near Pikes Peak? _____
3. Write the location of Pikes Peak using latitude and longitude.

4. Which line of latitude runs nearest Pueblo? _____
5. Which line of longitude is closest to Pueblo? _____
6. Write the location of Pueblo using latitude and longitude.

7. What city is near 39°N latitude, 105°W longitude? _____
8. What city is located at about 39°N latitude, midway between 108° and 109°W longitude?

9. Which line of longitude is at Colorado's eastern border? _____
10. Which line of latitude runs nearest Mt. Elbert? _____

B PRACTICING MAP SKILLS

Use a map of your state that includes lines of latitude and longitude to complete the following activities.

1. Write the approximate location of your city using latitude and longitude.

2. Write the approximate location of your state capital using latitude and longitude.

3. Select a popular recreation area in your state, such as a national park, national forest, or large lake. Write the name of this recreation area and its approximate location latitude and longitude.

G PRACTICING MAP SKILLS

Use Map 1-8: Africa to answer the following questions. Be sure always to begin counting degrees of latitude from the Equator and degrees of longitude from the Prime Meridian.

1. What body of water is located at 0° latitude, 0° longitude?

2. What body of water is located between 30°N and 40°N latitude?

3. What city is located near 30°S latitude, 30°E longitude?

4. In what country do the lines of 10°N latitude, 0° longitude cross?

5. In what country do the lines of 10°S latitude and 20°E longitude cross?

6. Write the approximate location of Cairo, Egypt, using latitude and longitude. (Remember that the lines of latitude and longitude on this map are spaced 10° apart. Give locations to the nearest degree.)

7. Write the approximate location of Kigali, Rwanda, using latitude and longitude.

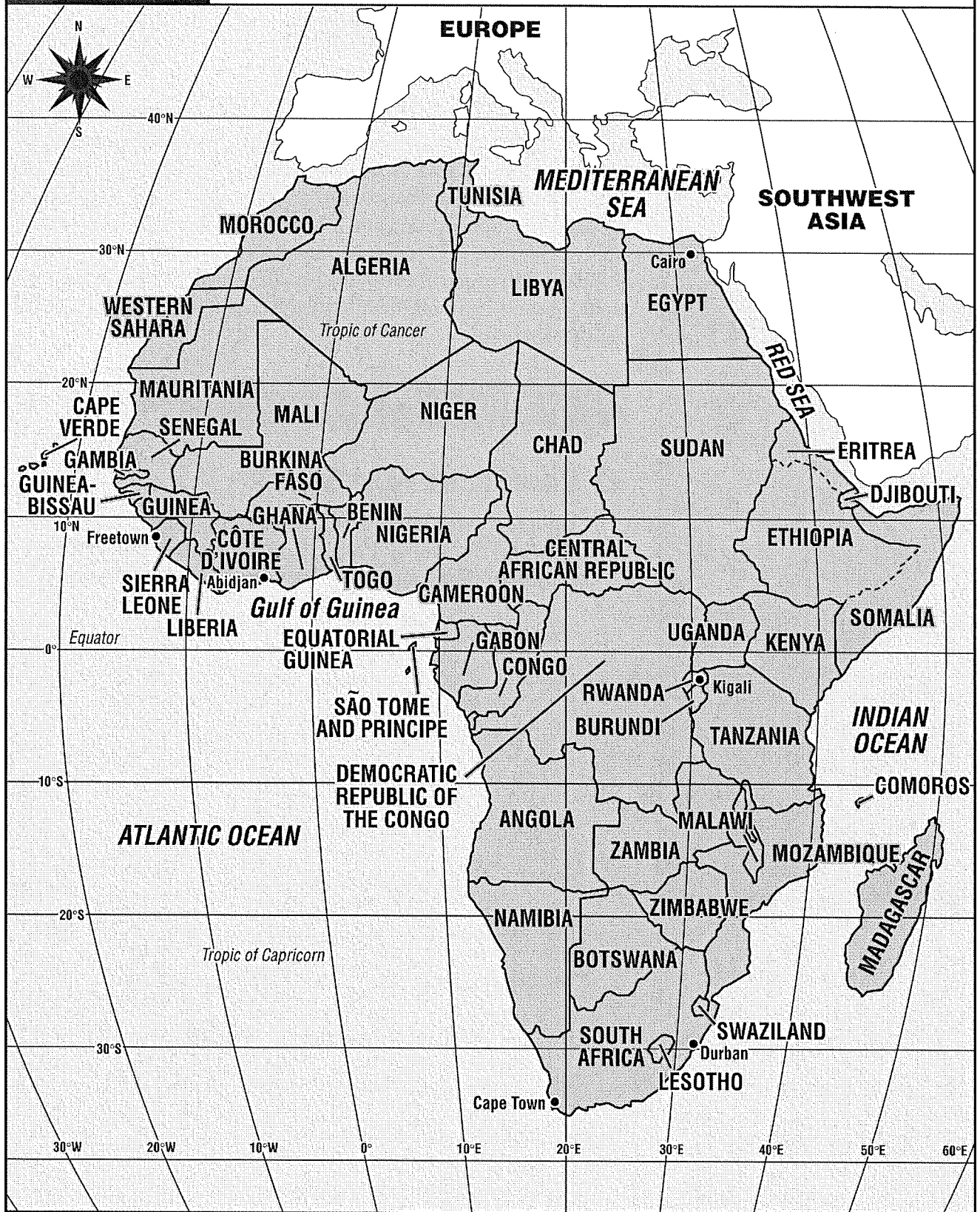
8. Write the approximate location of Cape Town, South Africa, using latitude and longitude.

9. Write the approximate location of Abidjan, Côte d'Ivoire, using latitude and longitude.

10. Write the approximate location of Freetown, Sierra Leone, using latitude and longitude.

MAP 1-8

Africa



Lesson

6

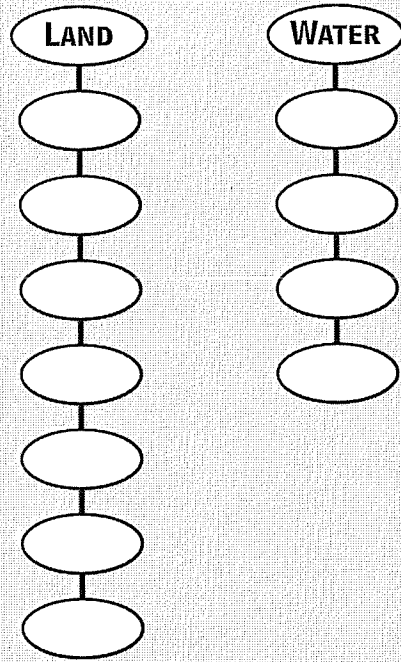
Locating Continents and Oceans

WHAT YOU WILL LEARN

To locate major landmasses and bodies of water in many parts of the world

READING STRATEGY

Create a diagram like the one below to list the world's continents and oceans.



The surface of the earth is covered with land and water. The land is divided into seven continents: North America, South America, Europe, Asia, Africa, Australia, and Antarctica. The continents are divided into more than 190 countries. The water is divided into four oceans and a number of seas. The four oceans are the Atlantic, Pacific, Indian, and Arctic.

Before you proceed with this lesson, you should study the locations of the seven continents, major countries, and four oceans on a world map.

Using Your Skills

A PRACTICING MAP SKILLS

The continents and oceans are labeled with letters on Map 1-9: The World: Physical. Write the name of each continent or ocean beside the correct letter below.

1. A _____
2. B _____
3. C _____
4. D _____
5. E _____
6. F _____
7. G _____
8. H _____
9. I _____
10. J _____
11. K _____
12. L _____
13. M _____