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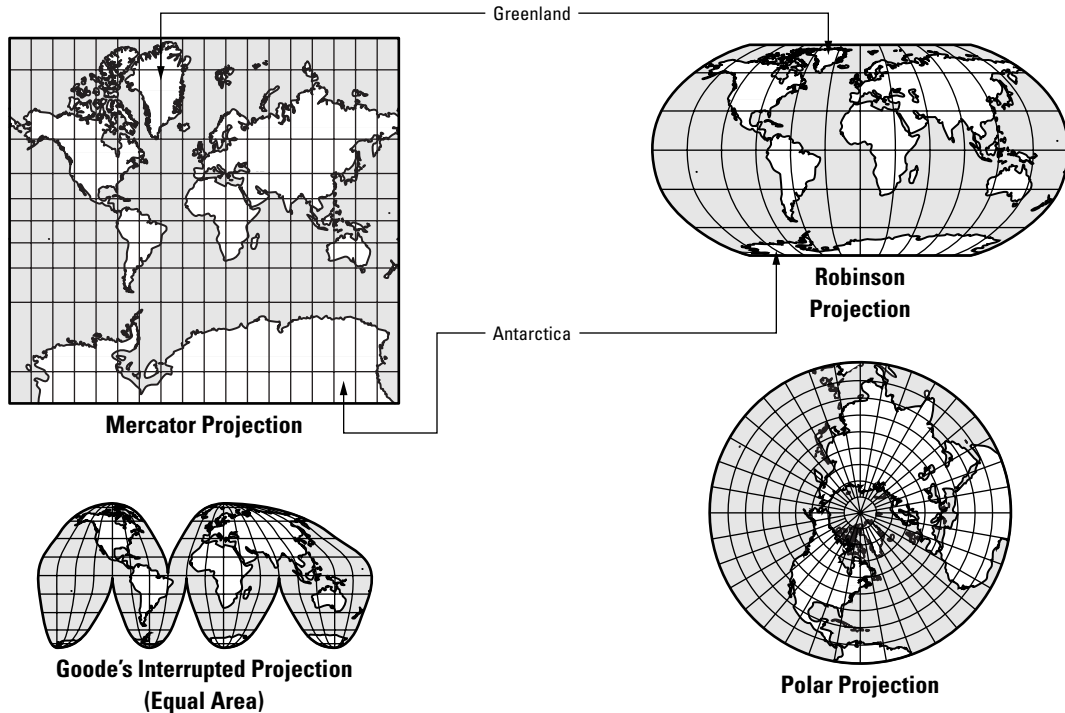
GEOGRAPHY SKILLS

GEOGRAPHICAL THEME: LOCATION

Understanding Projections

Because the earth is a sphere, the best model of the earth is a **globe**. On a globe, each continent and ocean can be shown proportionally—the correct size and at correct distance, in the correct direction, from the others. On flat surfaces, however, the curved surface of the earth must be mapped as though it were flat. To do this, mapmakers use a variety of **projections**.

A projection is a technique for giving each location on the earth a corresponding place on a flat surface. All projections distort the earth to some degree. That is why features of the earth look different on different kinds of maps. For instance, areas farthest from the equator, such as Greenland and Antarctica, sometimes appear “stretched.” Look at the four common projections shown below and answer the questions.



1. Which of the four projections shows only half of the world? _____
2. Compare the sizes of Greenland and Antarctica on the Mercator projection with the Robinson projection. _____
3. What would you consider the main drawback of Goode's Interrupted projection? _____
4. Why do you think that the Mercator projection is considered the best for plotting direction? _____

2

GEOGRAPHY SKILLS

Recognizing Latitude and Longitude

GEOGRAPHICAL THEME: LOCATION

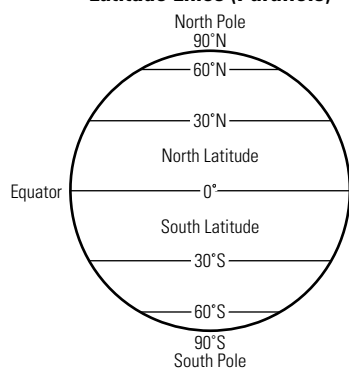
Most maps contain imaginary horizontal and vertical lines of measurement. Horizontal lines, running east and west, are called **latitude lines** or parallels. Vertical lines, running north and south, are called **longitude lines** or meridians. The lines are numbered in degrees (shown by the symbol $^{\circ}$).

Latitude starts at 0° , known as the equator, where the earth is at its widest. There are 90 degrees north of the equator and 90 degrees south

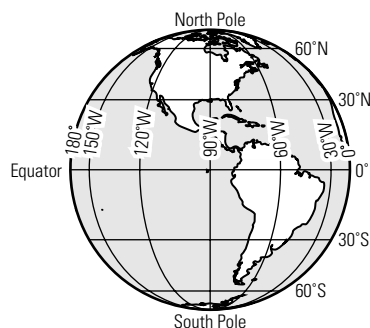
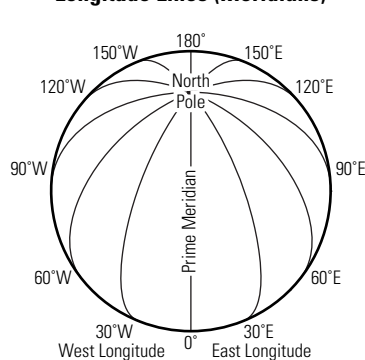
of it. Longitude starts at 0° , the Prime Meridian, and goes 180 degrees west and 180 degrees east.

Because latitude and longitude cross and form a grid, the use of these lines to locate places is called the grid system. Every place in the world has a single grid location—where its latitude and longitude intersect. Study the maps below and answer the questions.

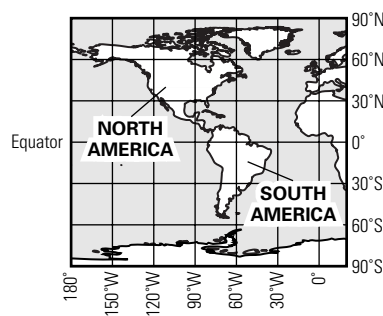
Latitude Lines (Parallels)



Longitude Lines (Meridians)



Latitude and Longitude Grid



North and South America

1. Find the Prime Meridian. What are the three continents through which it passes? _____

2. How many degrees separate the North Pole from the South Pole? _____

3. An airplane disappears from radar at 60° W and 30° S. Over which continent was it flying? _____

4. A ship signals distress from 45° S and 120° W. Mark the map titled “North and South America” at the approximate point where a ship might be found.

3

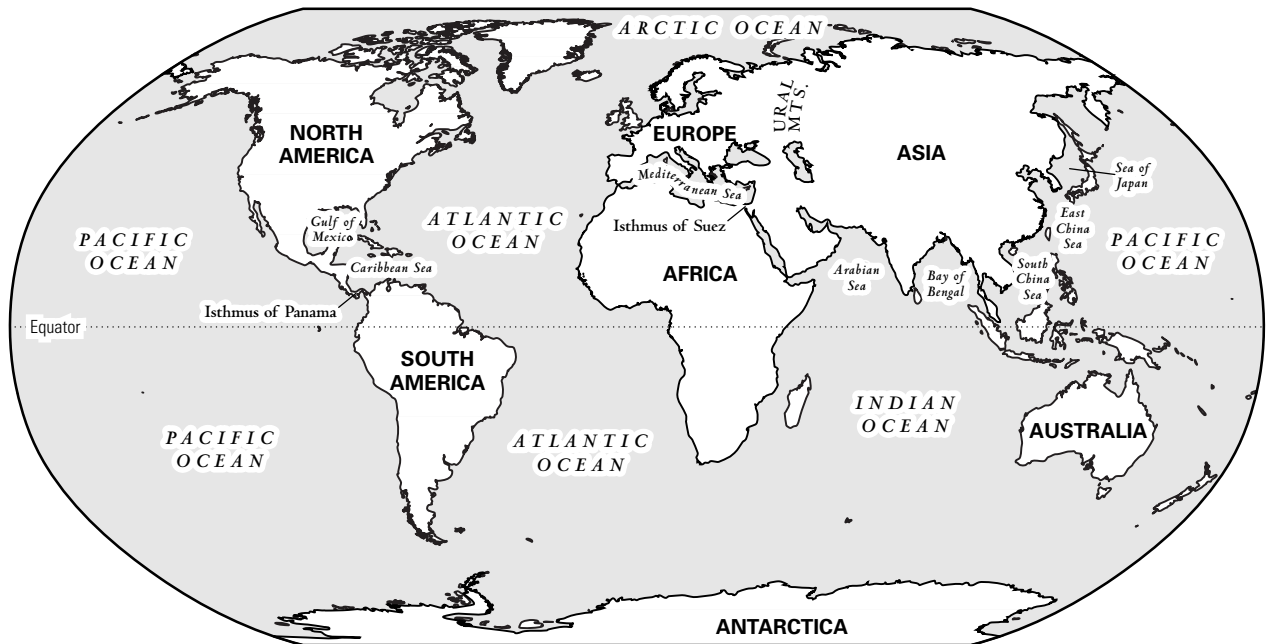
GEOGRAPHY SKILLS

Recognizing Continents and Oceans

GEOGRAPHICAL THEME: REGION

The largest land masses on earth are called **continents**. Two of these continents—Australia and Antarctica—are not connected to other land masses. The continents of North and South America are connected to each other by a narrow piece of land called an isthmus. Europe and Asia, however, share one large land mass. The line that divides them is not as well defined as the borders defining the other continents.

Most of the earth—71 percent of its surface—is covered by salt water. Large sections of this body of water are called **oceans**. The four main oceans are the Atlantic, Pacific, Arctic, and Indian Oceans. Smaller bodies of water are called **seas**, as in the South China Sea and Arabian Sea. Study the map below and answer the questions.



1. What are the seven continents? _____
2. Where is most of the earth's land mass—north or south of the equator? _____
3. Which ocean would you cross traveling from Australia to Africa? _____
4. What sea lies between Africa and Europe? _____

4

GEOGRAPHY SKILLS

GEOGRAPHICAL THEME: REGION

Recognizing Hemispheres

Mapmakers sometimes draw the earth as though they were seeing it from high above the North Pole, the South Pole, or the equator. When they do this, they show only one-half of the earth's surface, or one **hemisphere**. The word comes

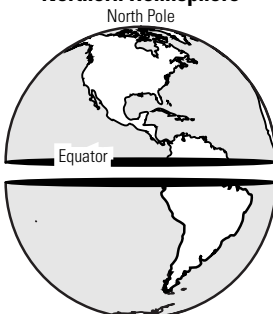
from *hemi*, meaning half, and *sphere*, meaning ball or globe.

Four hemispheres are typically used on maps—the Northern, Southern, Western, and Eastern Hemispheres. These hemispheres are shown below.

Northern Hemisphere

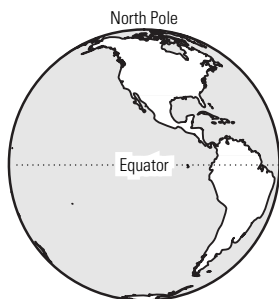


Northern Hemisphere



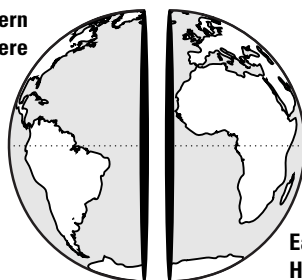
Southern Hemisphere

Southern Hemisphere

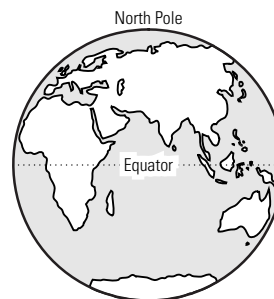


Western Hemisphere

Western Hemisphere



Eastern Hemisphere



Eastern Hemisphere

1. What geographical line separates the Northern and Southern Hemispheres? _____
2. What two hemispheres are separated by an imaginary line that runs north and south through the Atlantic Ocean? _____
3. Which continents lie mostly or completely in the Northern Hemisphere? _____

4. Which two continents lie partly in the Western Hemisphere and partly in the Eastern Hemisphere? _____

5

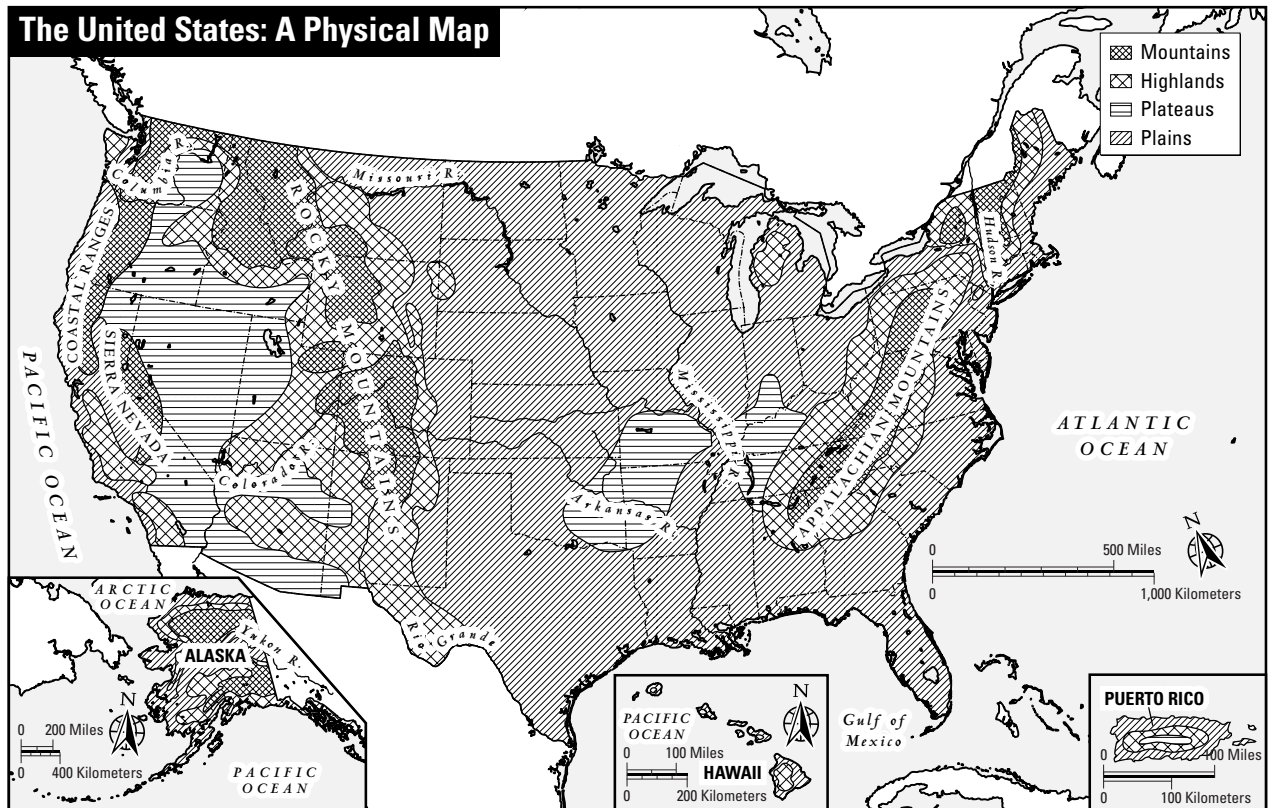
GEOGRAPHY SKILLS

GEOGRAPHICAL THEME: PLACE

Reading Physical Maps

Physical maps represent the large natural features of a place. They show **landforms**, such as mountains and plains, and **bodies of water**, such as rivers and lakes. Some physical maps show the distribution of climate or vegetation.

Below is a physical map showing major landforms in the United States. These landforms vary in **elevation** or relief, meaning height above sea level. Study this map carefully, and answer the questions that follow.



1. What four types of landforms does this map represent? _____

2. Which landform does **not** appear in Alaska? _____

3. Which region of the United States has no mountains? _____

4. Based on the map, in which direction would you expect each of the following rivers to flow: the Missouri River, the Colorado River, the Rio Grande? _____

6

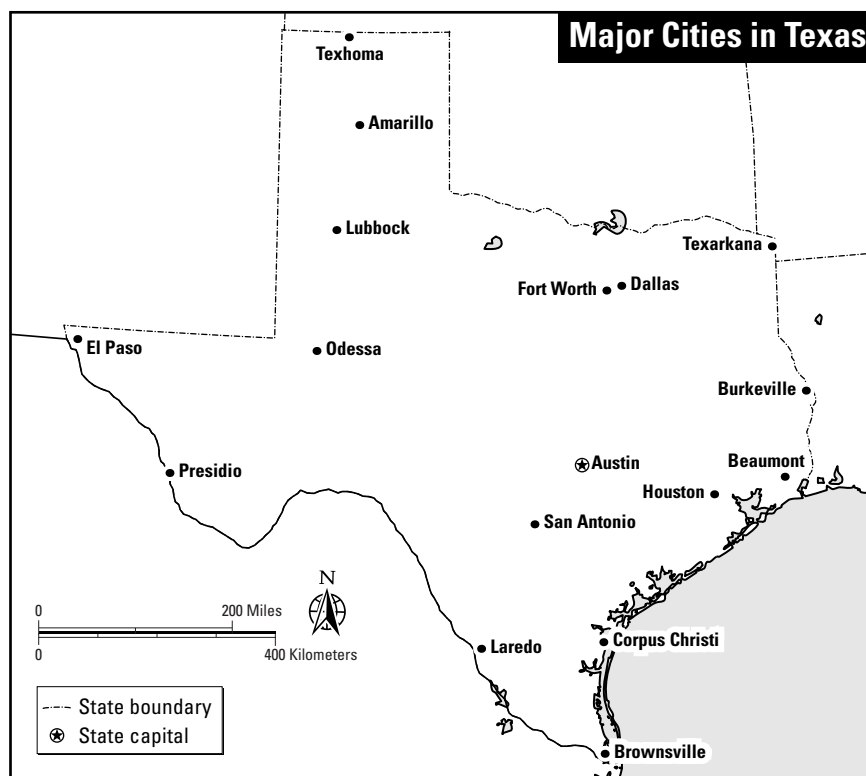
GEOGRAPHY SKILLS

Using Scales and
the Compass Rose

GEOGRAPHICAL THEME: MOVEMENT

The **scale** of a map helps you determine the actual size or length of any features or of any distance between two points. It is a ratio between a unit of length on a map and a unit of distance on the earth. Typically, a scale shows a length of line and indicates the number of miles or kilometers that length represents on the map. A map that covers 1,000 miles in one inch has a scale of 1:1,000.

The compass rose is a pointed symbol that shows a map's orientation on the globe. It is usually placed on an area of the map near one edge, away from map details that could make the device difficult to find. On maps showing both water and land, the compass rose is usually placed on the water. The compass rose may show all four cardinal directions—N, S, E, W—or just one, north. Study the maps below and answer the questions.



1. How many miles are shown on the scale? How many kilometers? _____
2. About how many miles is Odessa from Fort Worth? How many kilometers? _____
3. In what direction would you travel to reach Texhoma from Odessa? _____
4. In what direction would you travel to reach Presidio from El Paso? _____

7

GEOGRAPHY SKILLS

Interpreting Lines, Labels, and Symbols

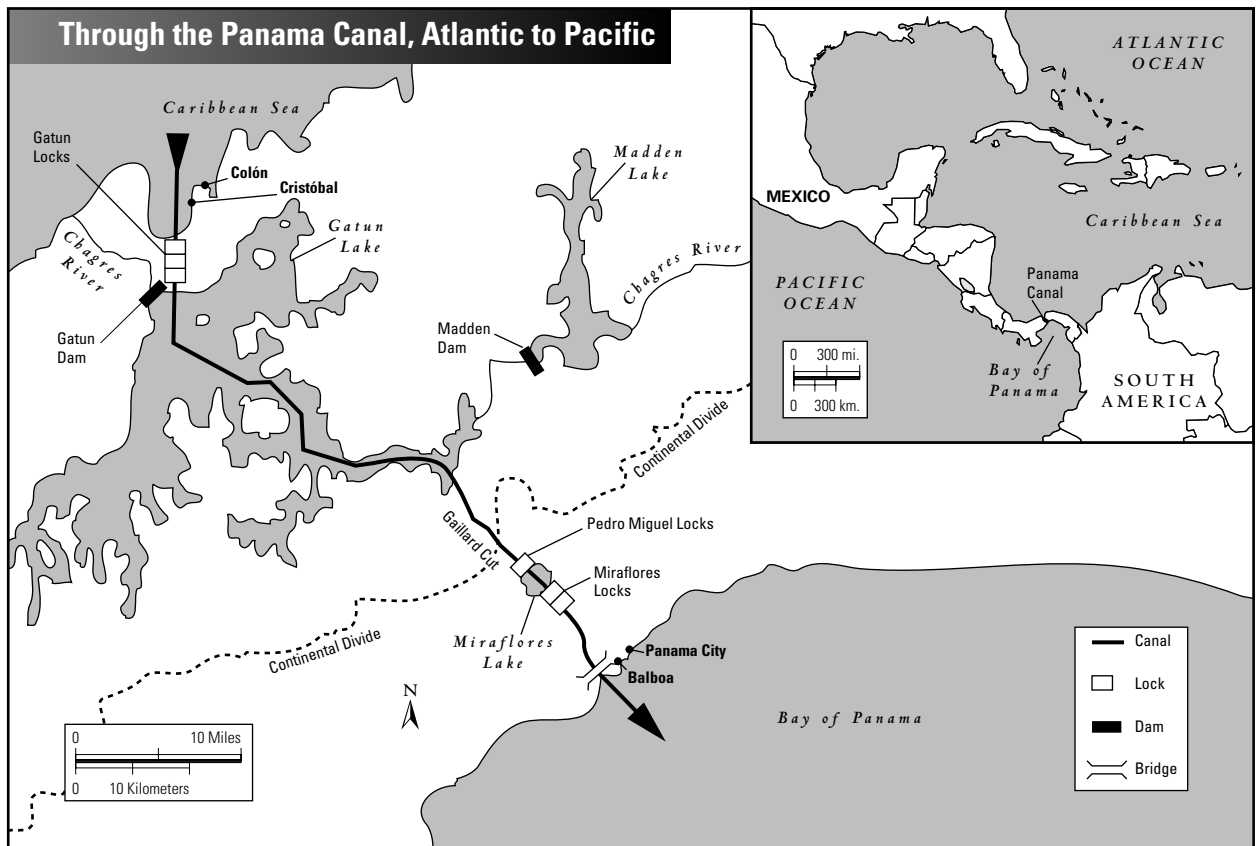
GEOGRAPHICAL THEME: HUMAN-ENVIRONMENT INTERACTION

Maps show more than just size and direction. They also define borders of cities, regions, states, and countries. They can be used to depict historical events, to demonstrate how geography has influenced history, and to illustrate human interaction with the environment.

Such information found on a map comes from a reading of its various lines, labels, and symbols.

Lines of various widths indicate land boundaries,

types of roads and waterways, and routes of movement. **Labels** are words on a map that identify such things as cities, states, countries, continents, and bodies of water. **Symbols** are decorative objects such as large circles, dots, stars, and bursts used to identify an area's special features—cities, battle sites, resources, and the like. Study the map below and answer the questions.



1. What locks do you see on the map? _____
2. What dams do you see? _____
3. What two bodies of water does the canal connect? _____
4. What direction does a ship travel through the canal from Colón to Balboa? _____

8

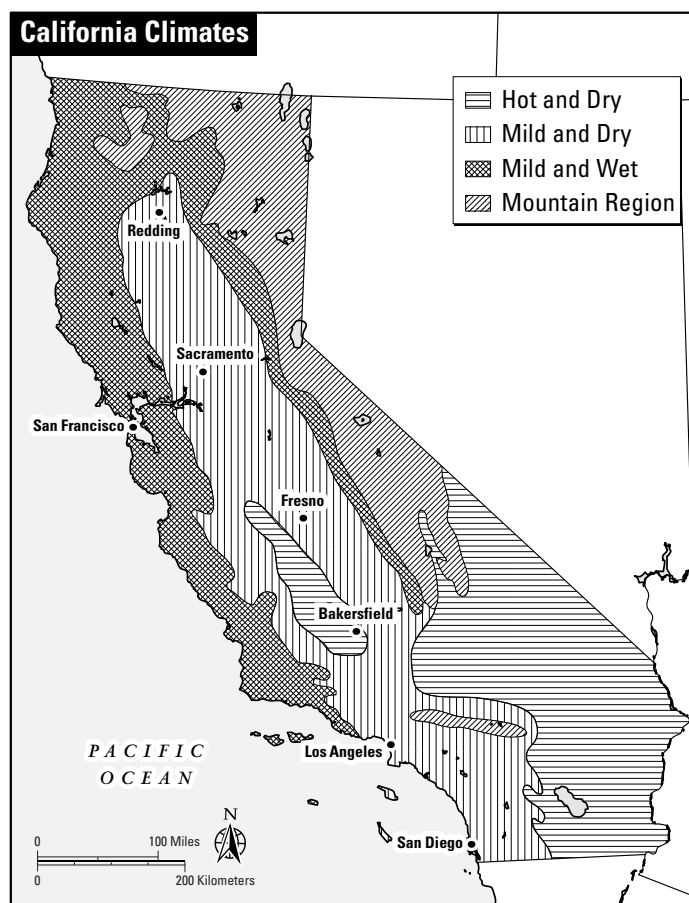
GEOGRAPHY SKILLS

Understanding Legends (Keys)

GEOGRAPHICAL THEME: HUMAN-ENVIRONMENT INTERACTION

The lines and symbols that appear on a map often need further explanation. For this reason, a legend, also known as a key, is often used. A **legend** is a small table within a map that explains what some symbols and lines mean.

A legend is also used to indicate the meaning of any colored areas on a map. For black-and-white maps, patterns such as diagonal lines, large and small dot fields, and cross-hatching are commonly used to show separate regions within a particular boundary. The legend reproduces a sampling of the pattern or color and then identifies what it stands for. Study the map and answer the questions.



1. What are the four main weather patterns represented in the legend? _____

2. Which parts of California are the driest? _____
3. Which parts of California probably receive the most precipitation (rain or snow)? _____

4. What is the main difference between the climate of San Francisco and the climate of Los Angeles, according to this map? _____