The Morli

WHY IT'S IMPORTANT—

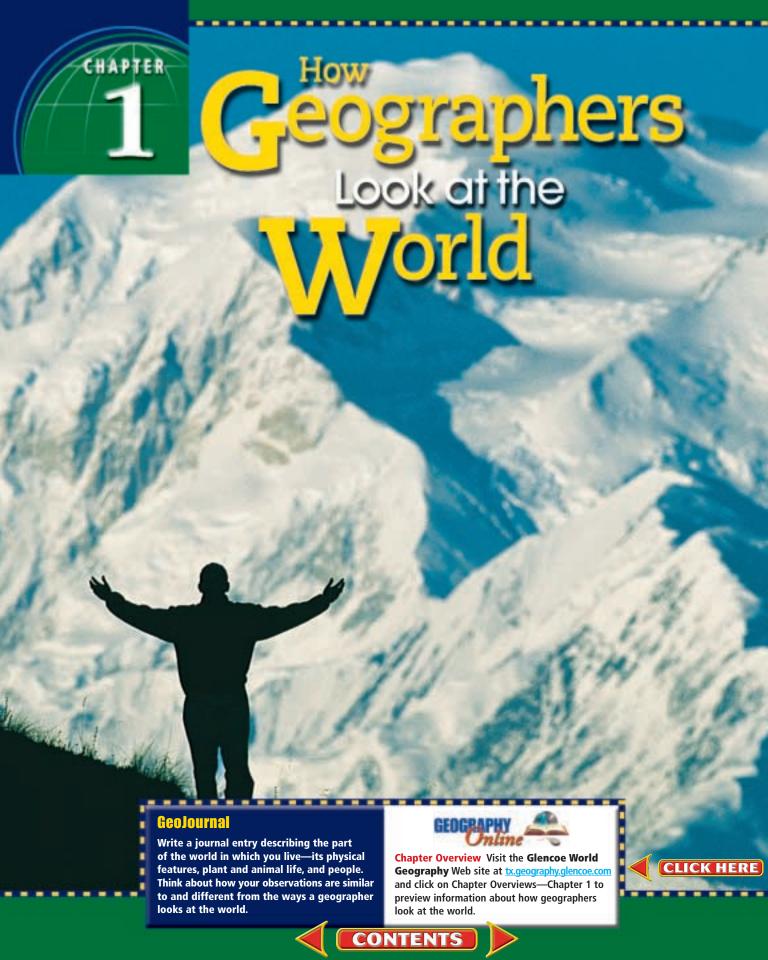
Entering the twenty-first century, the world is a much smaller place than it was at the time of your great-grandparents a hundred years ago. Advances in technology, communication, and transportation are responsible for much of this change. They have narrowed vast distances and made neighbors of the world's people. The Internet, for example, now puts you in immediate touch with people in other parts of the world. In the years to come, you and your generation—here and elsewhere—will be challenged to work together to use this and other technology to make the world a better place for everyone.

World Regions Video

To learn more about the physical and human geography of the world, view the *World Regions* video "Looking at the World."









Guide to Reading

Consider What You Know

Think about where your school is located and the ways in which a place's location can be described. How many different ways can you think of to describe your school's location to another person?

Read to Find Out

- What are the physical and human features geographers study?
- How do geographers describe the earth's features and their patterns?
- · How is geography used?

Terms to Know

- location
- absolute location
- hemisphere
- grid system
- relative location
- place
- region
- formal region
- functional region
- perceptual region
- ecosystem
- movement
- human-environment interaction

Places to Locate

- Equator
- North Pole
- South Pole
- Prime Meridian

Mt. McKinley, Alaska, United States

Exploring Geography



A Geographic View

Earth's Variety

A small planet in a modest solar system, a tumbling pebble in the cosmic stream, and yet ... [t]his home is built of many mansions, carved by wind and the fall of water, lush with living things beyond number, perfumed by salt spray and blossoms. Here cool in a cloak of mist or there steaming under a brazen sun, Earth's variety excites the senses and exalts the soul.

—Stuart Franklin, "Celebrations of Earth," National Geographic, January 2000



How would you describe the world around you? Would it be in terms of people, places, things, or all of these? Geography is the study of the earth's physical features and the living things—humans, animals, and plants—that inhabit the planet. Geography looks at where all of these elements are located and how they relate to one another. In this section you will gain an understanding of what geography is and why it is important to study it.

The Elements of Geography

The root of the word *geography* is an ancient Greek word meaning "earth description." Geographers are specialists who describe the earth's physical and human features and the interactions of people, places, and environments. They not only describe but also search for patterns in these features and interactions, seeking to explain how and why they exist or occur. For example, geographers may study volcanoes and why they erupt, or they may analyze a city's location



in relation to climate, landscape, and available transportation. In their work, geographers consider:

- The world in spatial terms (location)
- Places and regions
- Physical systems
- Human systems
- Environment and society
- The uses of geography

The World in Spatial Terms

Spatial relations refer to the links that places and people have to one another because of their locations. For geographers, **location**, or a specific place on the earth, is a reference point in the same way that dates are reference points for historians.

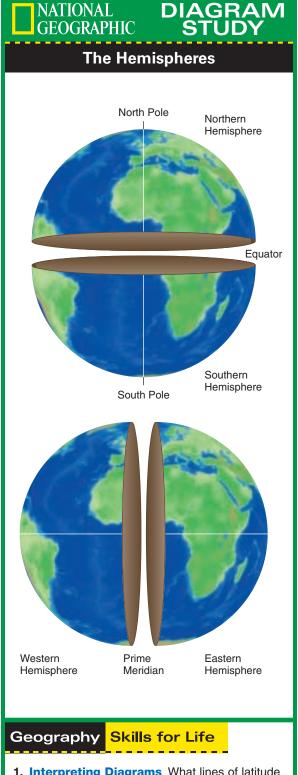
Absolute Location

One way of locating a place is by describing its absolute location—the exact spot at which the place is found on the globe. To determine absolute location, geographers use a network of imaginary lines around the earth. The **Equator**, the line circling the earth midway between the **North** and **South Poles**, divides the earth into **hemispheres**, or two halves (Northern and Southern). The **Prime Meridian**, the 0° north-south line that runs through Greenwich, England, and the 180° north-south line running through the mid-Pacific Ocean also divide the earth into hemispheres (Eastern and Western).

The Equator, the Prime Meridian (also called the Meridian of Greenwich), and other lines of latitude and longitude cross one another to form a pattern called a **grid system**. Using the grid, you can name the absolute, or precise, location of any place on Earth. This location is generally stated in terms of *latitude*, degrees north or south of the Equator, and *longitude*, degrees east or west of the Prime Meridian. For example, Dallas, Texas, is located at latitude 32°N (north) and longitude 96°W (west).

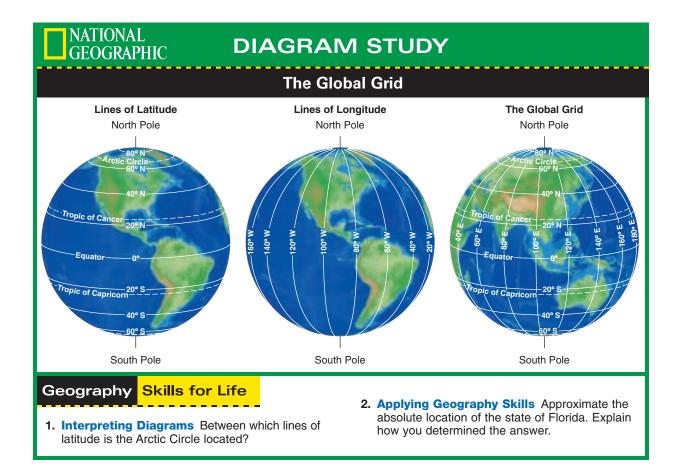
Relative Location

Although absolute location is useful, most people locate a place in relation to other places, or by its **relative location**. For example, New Orleans is located near the mouth of the Mississippi River. Knowing the relative location of a place helps you orient yourself in space and develop an awareness of the world around you.



- 1. Interpreting Diagrams What lines of latitude and longitude divide the globe into hemispheres?
- 2. Applying Geography Skills In which hemispheres do you live?





Places and Regions

A place is a particular space with physical and human meaning. Every place on Earth has its own unique characteristics, determined by the surrounding environment and the people who live there. One task of geographers is to understand and explain how places are similar to and different from one another. To interpret the earth's complexity, geographers often group places into regions, or areas united by specific factors. The defining factors of a region may be physical, such as soil type, vegetation, river systems, and climate. A region may also have human factors that help define it. These may include language, religion, cultural traditions, forms of government, and trade networks.

Geographers identify three types of regions: formal, functional, and perceptual. A **formal**, or uniform, **region** is defined by a common characteristic, such as a product produced there. The Corn Belt—the Iowa-Illinois area in the United States—is a formal region because corn is its major crop. A

functional region is a central place and the surrounding area linked to it, for example, by a highway system. Metropolitan areas such as Los Angeles and Tokyo are functional regions. A perceptual region is defined by popular feelings and images rather than by objective data. For, example, the term "heartland" refers to a central area in which traditional values are believed to predominate.

Physical Systems

In their work geographers analyze how certain natural phenomena, such as volcanoes, hurricanes, and floods, shape the earth's surface. The earth's systems are endlessly fascinating.

Every astronaut loves to take pictures of the Earth. To me, that's the best part of flying in space.

Rick Searfoss, quoted in "Geographica," National Geographic, November 1996



Geographers look at how physical features interact with plant and animal life to create, support, or change ecosystems. An **ecosystem** is a community of plants and animals that depend upon one another, and their surroundings, for survival.

Human Systems

Geographers also examine how people shape the world—how they settle the earth, form societies, and create permanent features. A recurring theme in geography is the ongoing movement of people, goods, and ideas. For example, migrants entering a longestablished society usually bring different ideas and practices that may transform that society's traditional culture. In studying human systems, geographers also look at how people compete or cooperate to change or control aspects of the earth to meet their needs.

Environment and Society

Human-environment interaction, or the study of the interrelationship between people and their physical environment, is another theme of geography. Geographers examine the ways people use their environment, how and why they have changed it, and what consequences result from these changes. In some cases the physical environ-

ment affects human activities. For example, mountains and deserts often pose barriers to human movement. In other instances human activities, such as building a dam, cause changes in the physical environment. By understanding how the earth's physical features and processes shape and are shaped by human activity, geographers help societies make informed decisions.

The Uses of Geography

Geography can provide insight into how physical features and living things developed in the past. It can also interpret present-day trends to plan for future needs. Governments, businesses, and individuals use geographic information in planning and decision making. Data on physical features and processes can determine whether a site is suitable for human habitation or has resources worth developing. Geographic information on human activities, such as population trends, can help planners decide whether to build new schools or highways in a particular place. Geographic information helps determine where to locate fire stations and shopping malls. As geographers learn more about the relationships among people, places, and the environment, their knowledge can help us plan and build a better future.



SECTION

A S S E S S M E N T

Checking for Understanding

- 1. **Define** location, absolute location, hemisphere, grid system, relative location, place, region, formal region, functional region, perceptual region, ecosystem, movement, human-environment interaction.
- 2. Main Ideas In a web diagram, list six elements in the study of geography (hint: use the headings in this section). Then explain how each is applied.



Critical Thinking

- 3. Categorizing Information Consider the physical and human factors that constitute a region. Identify the differences among formal, functional, and perceptual regions.
- 4. Drawing Conclusions How might geographers' knowledge of human systems benefit people?
- 5. Making Generalizations Explain how knowing about the geography of a particular city might influence your decision to move there.

Analyzing Diagrams

6. Location Study the diagram of the hemispheres on page 20. In which hemispheres is Africa located?

Applying Geography

7. Relative Location Write a paragraph that describes the relative location of your school in at least five ways. In what instances might relative location be more useful than absolute location? In what instances might absolute location be more useful?



Guide to Reading

Consider What You Know

People use different types of maps when they need to move from place to place or learn where something is located. What kinds of maps have you used and for what purposes?

Read to Find Out

- What are the major branches of geography and the topics each branch studies?
- What research methods do geographers use at work?
- How is geography related to other subject areas?
- What kinds of geographic careers are available today?

Terms to Know

- physical geography
- human geography
- meteorology
- cartography
- geographic information systems (GIS)

The Geographer's **Craft**



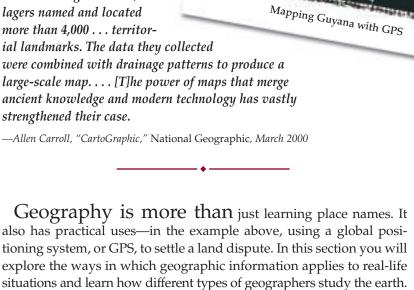
A Geographic View

The Power of Maps

Guyana [in 1966] . . . agreed to give Indians title to lands traditionally recognized as theirs. But in 1982 a tally of "village lands" using out-of-date maps reduced Indian holdings to a few fragments.... Local Earth Observation turned Indian villagers into digital mappers. Armed with handheld [GPS] . . . units that determine location using satellites, villagers named and located more than 4,000 . . . territor-

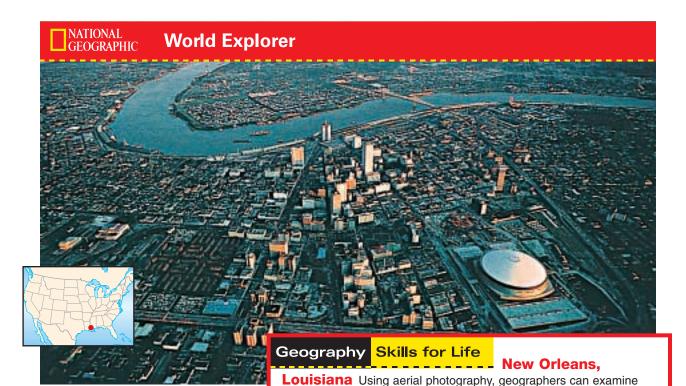
ial landmarks. The data they collected were combined with drainage patterns to produce a large-scale map. . . . [T]he power of maps that merge ancient knowledge and modern technology has vastly strengthened their case.

—Allen Carroll, "CartoGraphic," National Geographic, March 2000



Branches of Geography

Geography is a discipline that covers a broad range of topics. To make their work easier, geographers divide their subject area into different branches. Two major branches are physical geography and human



shown in this photograph?

geography. Physical geography focuses on the study of the earth's physical features. It looks at climate, land, water, plants, and ani-

mal life in terms of their relationships to one another and to humans. Human geography, or cultural geography, is the study of human activities and their relationship to the cultural and physical environments. It concentrates on political, economic, and cultural factors, such as population density, urban development, economic production, and ethnicity.

Physical geography and human geography are further divided into smaller subject areas. Examples are meteorology, the study of weather and weather forecasting, and historical geography, the study of places and human activities over time and the various geographic factors that have shaped them.

Geographers at Work

Geographers use specialized research methods in their work. These methods include direct observation, mapping, interviewing, statistics, and the use of technology.

Direct Observation

Place How would you describe New Orleans based on the features

how large cities affect the physical environment.

Geographers use direct observation in studying the earth and the patterns of human activities that take place on its surface. They will often visit a region to gather specific information about the region and its geographic features. Geographers also employ remote sensing to study the earth, using aerial photographs and satellite images. For example, geographers may use aerial photographs or satellite images to locate mineral deposits or to determine the size of freshwater sources. They also might observe a forest that has been damaged by air pollution.

Mapping

Making and using maps are basic activities of geographers. Geographic specialists who make and design maps are known as cartographers; their area of work, known as cartography, involves studying and making maps.

Many geographic research findings can be shown on maps better than they can be explained

in written text. Cartographers select complicated pieces of information about an area and present them in a more understandable form on a map. In this way they easily can show the location, features, patterns, and relationships of people, places, and things. In addition, maps allow a visual comparison between places and regions. For example, a geographer might compare population density maps of two counties in order to determine where to build new schools.

Interviewing

To answer a geographic question, geographers often must go beyond mere observation. In many cases geographers want to find out how people think or feel about certain places. They also may want to examine the ways in which people's beliefs and attitudes have led to changes in the physical environment. This kind of information is obtained by interviewing. Geographers choose a particular group of people for study. Instead of contacting everyone in that group, however, geographers talk to a carefully chosen sample whose answers represent the whole group.

Statistics

Some of the information that geographers use is numerical. Temperature and rainfall data point to a region's climate, for example. Geographers use computers to organize this information and present it in clear, understandable ways. They also analyze the data to find patterns and trends. For example, census data can be studied to learn about rates of population growth; the age, ethnic, and gender makeup of the population; and income levels. After identifying these patterns and trends, geographers use statistical tests to see whether their ideas are valid.

Technology

Geographers often use scientific instruments in their work. They especially depend on advanced technological tools, such as satellites and computers. Satellites orbiting the earth carry remote sensors, high-tech cameras, and radar that gather data and images related to the earth's environment, weather, human settlement patterns, and vegetation. Geographic information systems (GIS) are computer tools that process and organize data and

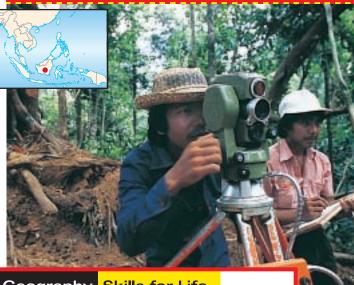
satellite images with other pieces of information gathered by geographers and other scientists. GIS technology is valuable to urban planners, retailers, and local government officials who use this technology to help them determine where to build roads, stores, and parks.

The development of computer technology has also transformed the process of mapmaking. Allen Carroll, chief cartographer of the National Geographic Society, describes the changes in cartography as "revolutions in mapping." Technology has created

 $m{66}\ldots$ computers that store vast archives of map data and render lines with superhuman precision, software programs that turn maps into analytical tools, satellite imagery that combines photographic beauty with cartographic precision, global electronic networks that enable maps to stream across our ever shrinking globe. Allen Carroll, National Geographic

Atlas of the World, 1999

NATIONAL World Explorer **GEOGRAPHIC**



Geography **Skills for Life**

Indonesian Surveyors These surveyors are helping plan a road in Borneo, Indonesia. Human-Environment Interaction How do geographers play a part in our everyday lives?

Today, most cartographers rely on computers and computer software to make maps. Each type of data on a map is kept as a separate "layer" in the map's digital files. This method allows cartographers to make and change maps more quickly and easily.

Geography and Other **Disciplines**

Geographers study both the physical and human features of the earth and also analyze the patterns and relationships among geography and other disciplines. Studying subjects such as history, government, sociology, and economics helps geographers to understand how each of these subjects affects and is affected by geography.

History and Government

Geographers use history to help them understand what places looked like in the past. For example, geographers might want to know how Boston, Massachusetts, looked during the colonial years. They might also wish to look at the changes that have occurred in Boston

over the past two centuries. Geographers may begin by gathering information about time periods in the city's history. This information could be used to answer such geographic questions as: How have human activities changed the natural vegetation in the area? Are the waterways different than they were in the past? Answers to these questions can help people make better decisions and plans for the future.

NATIONAL CHART STUDY			
Jobs in Geography			
Geography Field	Description	Applications/Careers	
Physical Geographer	Studies Earth's features and the geographic forces shaping them	Forecasting weather, tracing causes and effects of pollution, conserving wilderness areas	
Human Geographer	Analyzes human aspects of culture— population, language, ethnicity, religion, government	Developing cultural policies for international organizations, such as the United Nations	
Economic Geographer	Examines human economic activities and their relationship to the environment	Urban planning, focus- ing on the location of industries or transpor- tation routes	
Regional Geographer	Studies geographic features of a particular place or region	Assisting government and business in making decisions related to a region	
Environmental Specialist	Focuses on the two-way interaction between humans and the physical environment	Advising government and business on ways of protecting the environment	
Geographic Educator	Teaches about geography	Teaching geography at all educational levels; serving as consultant to business and government	

Geography Skills for Life

- 1. Interpreting Charts What does a human geographer study?
- 2. Applying Geography Skills How might human geographers studying the effects of population growth gather information for their research?

Geographers study political science to help them see how people in different places are governed. They look at how political boundaries have formed and how they have been changed. Geographers are interested in how the natural environment has influenced political decisions and how governments change natural environments. For example, the Egyptian government, helped by financing from abroad, built the massive



Aswan High Dam on the Nile River. The dam altered the surface of the earth in profound ways and so has had an impact on the region's people.

Culture

Human geographers use the tools of sociology and anthropology to understand the culture of societies throughout the world. They study the relationships between the physical environment and social structures. They examine people's ways of life in different parts of the world. Human geographers also seek to understand how the activities of different groups affect their physical environments and how the environment affects culture groups differently.

Economics

Geographers use economics to help them understand how the locations of resources affect the ways people make, transport, and use goods, and how and where services are provided.



Student Web Activity Visit the Glencoe World Geography Web site at tx.geography.glencoe.com and click on Student Web Activities—Chapter 1 for an activity about careers in geography.

Geographers are interested in how locations are chosen for various economic activities, such as farming, mining, manufacturing, and selling. A desirable location usually includes plentiful resources and good transportation routes. Geographers are also interested in the interdependence of people's economic activities throughout the world. New developments in communications and transportation make the movement of information and goods faster and more efficient than ever before. A business can operate globally without depending on any one specific place to fill all of its needs.

Geography as a Career

Although people trained in geography are in great demand in the workforce, many of them do not have geographer as a job title. Geography skills are useful in so many different situations that geographers have more than a hundred different job titles. Geographers often combine the study of geography with other areas of study. For example, a salesperson must know the geographic characteristics of the region in which he or she is selling products. Also, a travel agent must have some knowledge of other places in order to plan trips for clients. Still, as the chart on page 26 shows, because geography itself has many specialized fields, there are many different kinds of geographers.



Critical Thinking

3. Predicting Consequences What might happen if an economic geographer did not interview citizens when preparing a city transportation plan?

- 4. Making Inferences What kinds of geographers might be employed by a manufacturing company?
- 5. Making Generalizations How does the study of other disciplines help geographers in their work as countries become increasingly interdependent?

Analyzing Maps

6. Place Study the map of the United States in the Reference Atlas on pages RA6-RA7. What kinds of information can you learn from this map? How does the information on this map differ from the map on pages RA8-RA9?

Applying Geography

7. Research Methods As a geographer working on a plan for a new community center, what research methods would you use? Explain your choices in a paragraph.



1. Define physical geography, human geography, meteorology,

Checking for Understanding

cartography, geographic information systems (GIS).

2. Main Ideas Copy the table below on your paper, and fill in the ways geographers study the earth and use geography.

Geography Branches	
Geography Methods	
Other Disciplines	
Jobs in Geography	



Understanding Graphs

raphs are visual representations of statistical data. Large amounts of information can be condensed when presented in graphs. Studying graphs allows readers to see relationships clearly.

Practice

Learning the Skill

The three main types of graphs present numerical information. Line graphs record changes in data over time. The vertical axis (y-axis) shows units of measurement, and the horizontal axis (x-axis) shows intervals of time. Bar graphs use bars of different lengths to compare different quantities. Circle graphs show the relationship of parts to a whole as percentages. To understand a graph:

- Read the graph title to identify the subject.
- Study the labels to understand the numerical information presented.
- Study the information presented and the use of colors and patterns.
- Compare the lines, bars, or segments, and look for relationships in order to draw conclusions.

Practicing the Skill

Study the graphs to answer these questions.

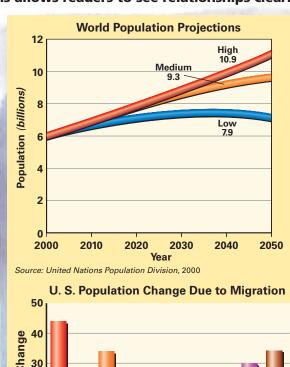
- **1. Line graph** What is the difference in population between the low and high projections?
- 2. Bar graph In which decade did migration cause the least change in population?
- **3. Circle graph** What percent of immigrants to the United States in the 1990s came from Europe?
- 4. What general population trends do the three graphs show?

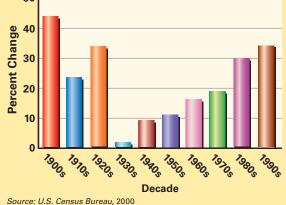


Take a poll of your classmates about a geographical topic. Design and draw a graph using the data. Consider geographic features, distributions, and relationships.

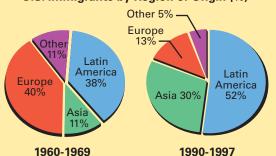


The Glencoe Skillbuilder Interactive Workbook, Level 2 provides instruction and practice in key social studies skills.





U.S. Immigrants by Region of Origin (%)



Source: U.S. Immigration and Naturalization Service, 1999











SUMMARY & STUDY GUIDE

SECTION 1

Terms to Know

- location
- absolute location
- hemisphere
- grid system
- relative location
- place
- region
- formal region
- functional region
- · perceptual region
- ecosystem
- movement
- human-environment interaction

Exploring Geography (pp. 19-22)

Kev Points

- Geographers study the earth's physical and human features and their interrelationships.
- Geographers use absolute and relative locations as reference points.
- Geographers identify three types of regions formal, functional, and perceptual.
- Geography contributes knowledge about the relationships among human activities, the earth's physical systems, and the environment in order to develop a better future.

Organizing Your Notes

Create an outline using the format below to help you organize information about how geographers study the earth.

Exploring Geography

I. Elements of Geography
A. World in spatial terms
1. Absolute location

SECTION 2

Terms to Know

- physical geography
- human geography
- meteorology
- cartography
- geographic information systems (GIS)

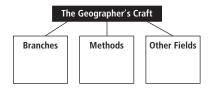
The Geographer's Craft (pp. 23-27)

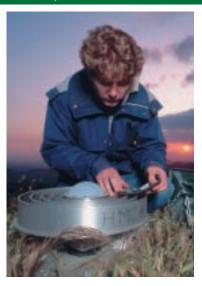
Key Points

- Geographers use special research skills, such as direct observation, mapping, interviewing, statistics, and technology.
- Studying other social sciences helps geographers analyze the patterns and relationships among these different fields.
- Geographers can specialize and may work in government, business, science, planning, or education.

Organizing Your Notes

Use a graphic organizer like the one below to help you organize your notes for this section.





A scientist uses a global positioning system.

CHAPTER

ASSESSMENT & ACTIVITIES

Reviewing Key Terms

Write the key term that best completes each of the following sentences. Refer to the Terms to Know in the Summary & Study Guide on page 29.

- 1. Plants and animals depend on one another in a(n) ______.
- 2. Geographers use a(n) _____ formed by lines of latitude and longitude to determine
- 3. ______ is the study of the human aspects of geography.
- has boundaries determined **4.** A(n) ___ by a common characteristic.
- 5. Another name for mapmaking is ___
- 6. _____ is expressed in relation to other places.
- 7. Computer tools that process data and satellite images with other pieces of geographic information are called _
- _ focuses on the study of the earth's physical features.

1. How do geographers determine

2. What are the three types of regions identified by geogra-

3. Why do geographers study human systems and humanenvironment relationships? 4. What are two ways that every

place on the earth can be

the locations of places?

Reviewing Facts

SECTION 1

phers?

NATIONAL GEOGRAPHIC

Locating Places

The World: Physical Geography

Match the letters on the map with the places and physical features of the earth. Write your answers on a sheet of paper.

- 1. North America
- 2. South America
- 3. Africa
- 4. Asia

- 5. Europe
- 6. Antarctica
- 7. Australia
- 8. Atlantic Ocean
- 9. Indian Ocean
- 10. Pacific Ocean

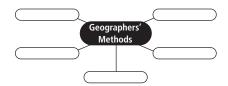
SECTION 2

located?

- **5.** How do physical and human geography differ?
- **6.** What research methods do geographers use?
- 7. What other subjects do geographers study?

Critical Thinking

- 1. Summarizing the Main Idea How do geographers use the elements of geography to study the earth?
- 2. Making Inferences What subjects might you study in order to become an urban planner? Explain.
- 3. Predicting Consequences Consider the many ways that technology has affected the way people live and work. Then imagine that you have become a geographer of the future. How do you think technology will change the way you work?
- **4. Categorizing Information** Use a web diagram like the one below to show five methods of geographic research.









Self-Check Quiz Visit the Glencoe World

Geography Web site at tx.geography.glencoe.com and click on Self-Check Quizzes-Chapter 1 to prepare for the Chapter Test.

Thinking Like a Geographer

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Imagine that you are an urban planner. What kinds of data might you want to assemble in order to plan a location for a new school? What methods would you use to collect the data? How would you use the data to determine the location for the school?

Problem-Solving Activity

Contemporary Issues Case Study Look at newspapers and magazines to identify one of the following issues:

- a local issue that involves land use.
- a local issue that involves economic development.
- a national issue that involves water resources.

Choose one issue, and research to learn more about its history, the various points of view surrounding the issue, and the final outcome. Use this information to prepare an outline. Then write an essay describing the influence of physical and human geography on the issue.

GeoJournal

Descriptive Writing Refer to the entry you wrote in your GeoJournal and the information in this chapter. Then imagine you are a physical geographer and write a paragraph describing another part of the earth's surface. For example, if you live in a plains area, describe how the geography of the mountains or the seashore would be different from your location. Include as many concrete details as you can to describe the physical and human geography of the place you chose.

Technology Activity Using the Internet for Research

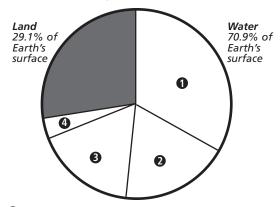
Search the Internet for Web sites that provide information about geography to the public. Sponsors may include government agencies, scientific organizations, or special-interest magazines. Prepare a list of the five best sites, write a brief description of the kinds of information each one contains, and explain why you included it.



TAKS Test Practice

Use the circle graph below and your knowledge of geography to answer questions 1 and 2.

EARTH'S LAND AND WATER



- 1 Pacific Ocean 64,169,000 sq. mi. (166,241,000 sq. km)
- 2 Atlantic Ocean 33,411,00 sq. mi. (86,557,000 sq. km)
- 3 Indian Ocean 28,342,800 sq. mi. (73,427,000 sq. km)
- Arctic Ocean 3.661,200 sq. mi. (9.485,000 sq. km)
- 1. Which ocean covers the smallest area of the earth's surface?

C Pacific **A** Atlantic **B** Indian D Arctic

2. Which ocean covers about as much of the earth's surface as land does?

F Indian H Arctic **G** Pacific I Atlantic



Study the information shown on the circle graph for the areas of the earth covered by land and by oceans. Then

compare the relative sizes of the different graph segments. By comparing the segments you will be able to determine the correct answers.