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World Geography

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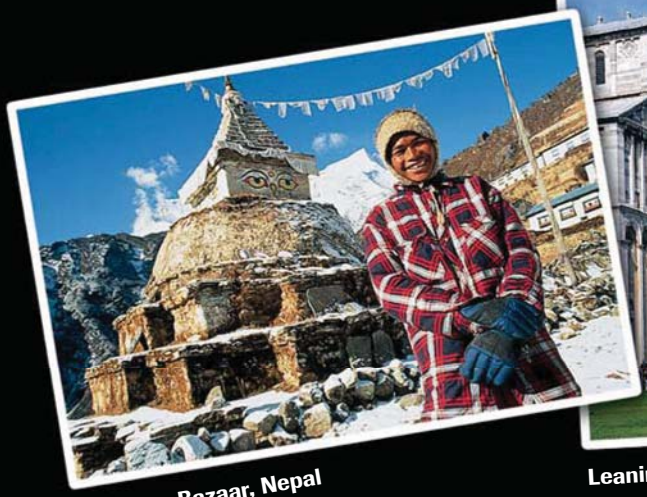

Namche Bazaar, Nepal

Leaning tower, Pisa, Italy

Masai warriors, Kenya

Volcano, Hawaii

World Geography

Daniel D. Arreola

Marci Smith Deal

James F. Petersen

Rickie Sanders

McDougal Littell

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Acknowledgments begin on page R66.

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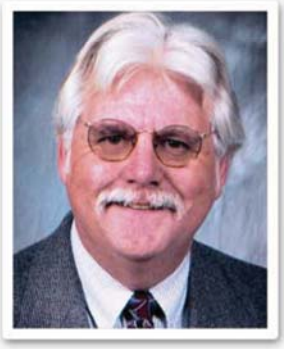
Senior Consultants

Daniel D. Arreola is Professor of Geography and an affiliate faculty member of the Center for Latin American Studies at Arizona State University. He has taught world regional geography for more than a decade at universities in Arizona and Texas. Dr. Arreola has published extensively on topics relating to the cultural geography of the Mexican-American borderlands. He is co-author of *The Mexican Border Cities: Landscape Anatomy and Place Personality* and author of *Tejano South Texas: A Mexican American Cultural Province.*

Marci Smith Deal is the K-12 Social Studies Curriculum Coordinator for Hurst-Euless-Bedford Independent School District in Texas. She received the 2000 Distinguished Geographer Award for the State of Texas, and was one of the honorees of the 2001 National Council for Geographic Education Distinguished Teacher Award. She has served as president for the Texas Council for Social Studies Supervisors and as vice-president for the Texas Council for Social Studies. She currently serves as a teacher consultant for National Geographic Society.



James F. Petersen is Professor of Geography at Southwest Texas State University. He served as president of the National Council for Geographic Education in 2000. As a charter member of the National Geographic Society's Alliance, Dr. Petersen has directed summer institutes and national conferences for teachers and educational organizations. He is the author of many articles on geographic education, as well as media/book reviews, textbooks, and curricular materials.

Rickie Sanders is Professor and Chair of Geography/Urban Studies at Temple University. She recently served on the team that directed the National Science Foundation/National Council for Geographic Education's "Finding A Way" project, which produced learning modules for integrating gender into geography classrooms. Dr. Sanders has received numerous awards for teaching, including the NCGE Distinguished Teaching Award and the Temple University Distinguished Teaching Award. She has numerous publications and is co-author of *Growing Up in America: An Atlas of Youth in the U.S.A.*

Consultants and Reviewers

Content Consultants

C. Cindy Fan
Department of Geography
UCLA
Los Angeles, California

Howard Johnson
Department of Physical and Earth Sciences
Jacksonville State University
Jacksonville, Alabama

Cheryl Johnson-Odim
Liberal Education Division
Columbia College
Chicago, Illinois

Charles Kovacik
Department of Geography
University of South Carolina
Columbia, South Carolina

Barbara McDade
Department of Geography
University of Florida
Gainesville, Florida

Inés Miyares
Department of Geography
Hunter College
New York City, New York

Joseph Stoltman
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Western Michigan University
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Department of Political Science and Geography
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Norfolk, Virginia

Multicultural Advisory Board

Betty Dean
Social Studies Consultant
Pearland, Texas

C. Cindy Fan
Department of Geography
UCLA
Los Angeles, California

Cheryl Johnson-Odim
Liberal Education Division
Columbia College
Chicago, Illinois

Barbara McDade
Department of Geography
University of Florida
Gainesville, Florida

Inés Miyares
Department of Geography
Hunter College
New York City, New York

Pat Payne
Office of Multicultural Education
Indianapolis Public Schools
Indianapolis, Indiana

Betto Ramirez
Region One Education Service Center
Edinburg, Texas

Jon Reyhner
Department of Education
Northern Arizona University
Flagstaff, Arizona

Teacher Consultants

The following educators reviewed manuscript or wrote classroom activities.

Deborah Althouse
Thomas J. Anderson High School
Southgate, Michigan

Jamie Berlin
South High School
Sheboygan, Wisconsin

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Hazelwood East High School
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East Troy High School
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National Cathedral School
Washington, D.C.

Robert Schutt
Detroit High School for the Fine and Performing Arts
Detroit, Michigan

Brenda Smith
Social Studies Instructional Supervisor
Colorado Springs School District #11
Colorado Springs, Colorado

Jody Smothers-Marcello
Sitka School District
Sitka, Alaska

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South Oak Cliff High School
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Grayslake High School
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Alice White
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Anne Woods
Orchard Farms High School
St. Charles, Missouri

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Langham Creek High School
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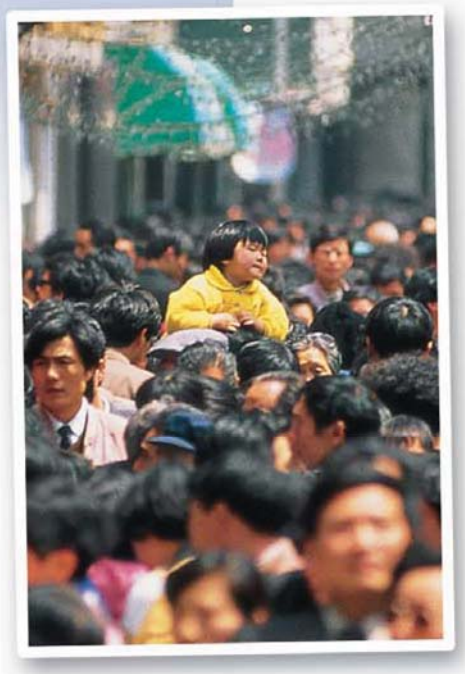
Unit 1

The Basics of Geography

Volcano in Costa Rica (p. 2)

Nanjing Road, Shanghai, China (p. 81)



For more information on the basics of geography . . .

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The United States and Canada

Unit 2

For more information on the United States and Canada . . .

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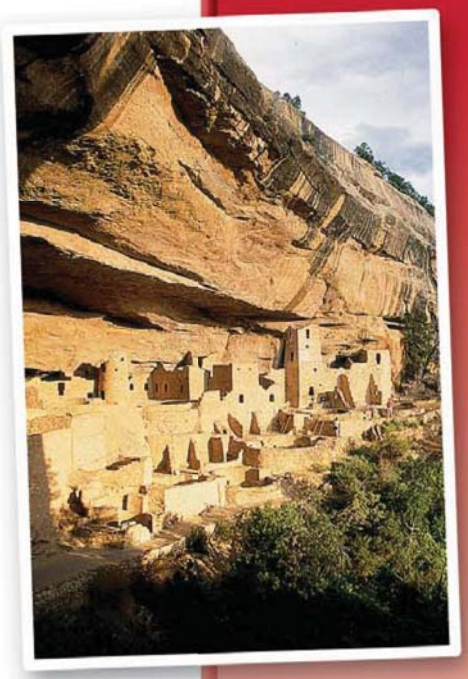
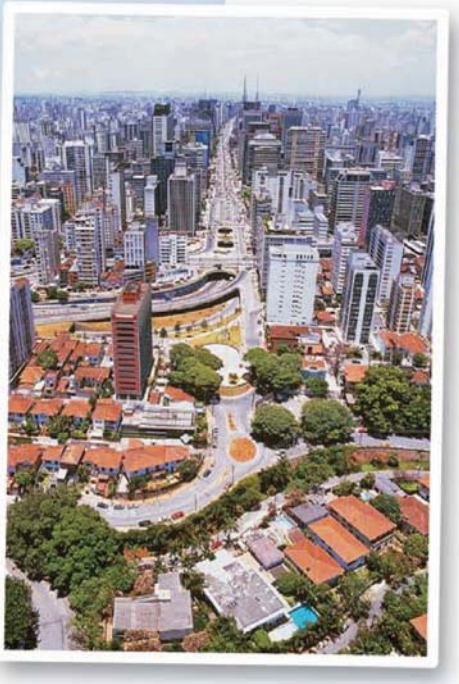


Mesa Verde National Park, Colorado (p. 135)

Parliament guards, Ottawa, Ontario (p. 158)

Unit 3 Latin America

Chacobo Indians on the Amazon River, Bolivia (p. 186)



São Paulo, Brazil (p. 251)

For more information on Latin America . . .

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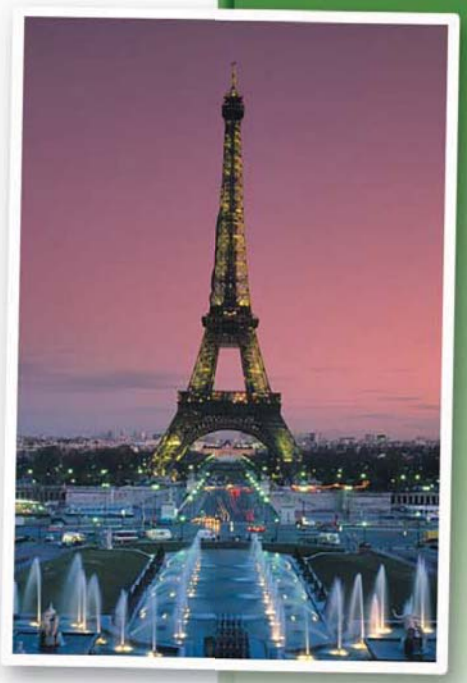
Unit 4 Europe

The Eiffel Tower, Paris, France (p. 259)



The Wetterhorn, Switzerland (p. 310)

For more information on Europe . . .
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Unit 5 Russia and the Republics

Frozen Lake Baikal, Russia
(p. 350)

St. Basil's Cathedral, Moscow, Russia
(p. 362)

For more information on Russia and the Republics . . .

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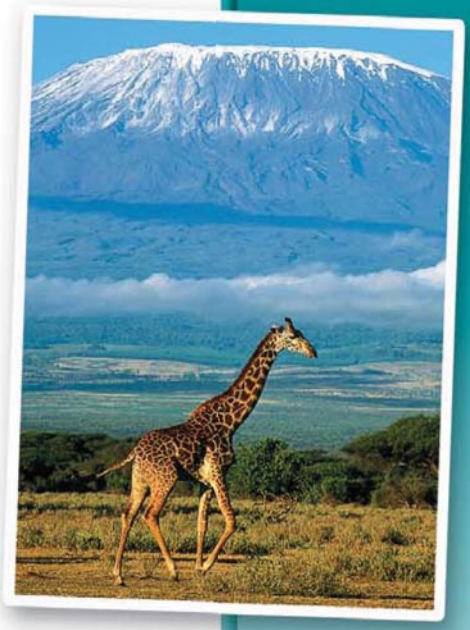
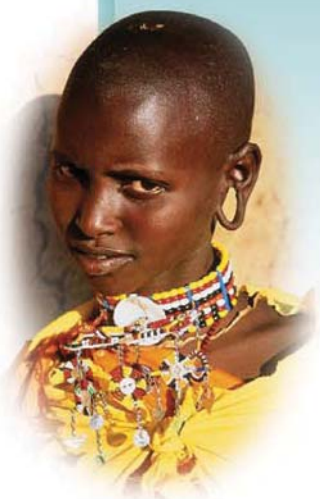
Unit 6 Africa



Mount Kilimanjaro, Tanzania (p. 399)

Masai Girl, Kenya (p. 434)



Sahara Desert, North Africa (p. 420)

For more information on Africa . . .

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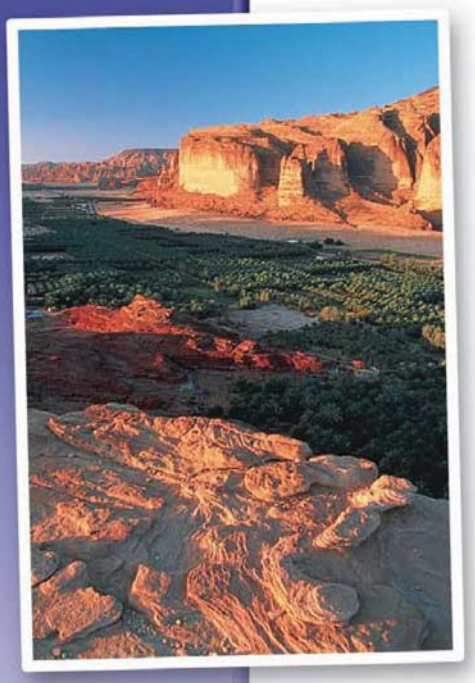
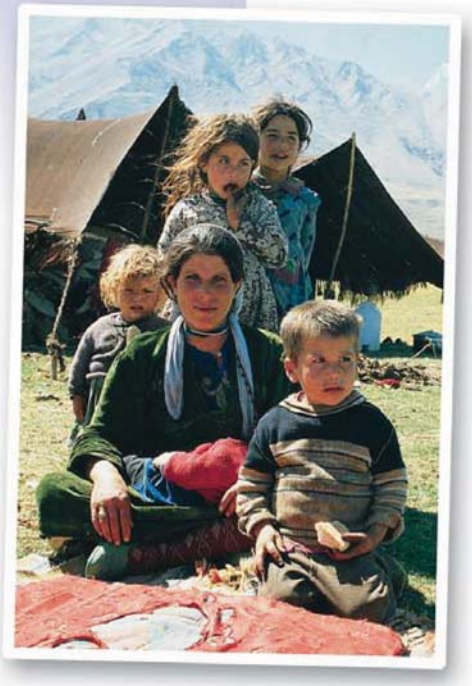
Unit 7 Southwest Asia



Oasis on caravan route from Yemen to Palestine (p. 475)

Kurdish family, Turkey (p. 476)



For more information on Southwest Asia . . .

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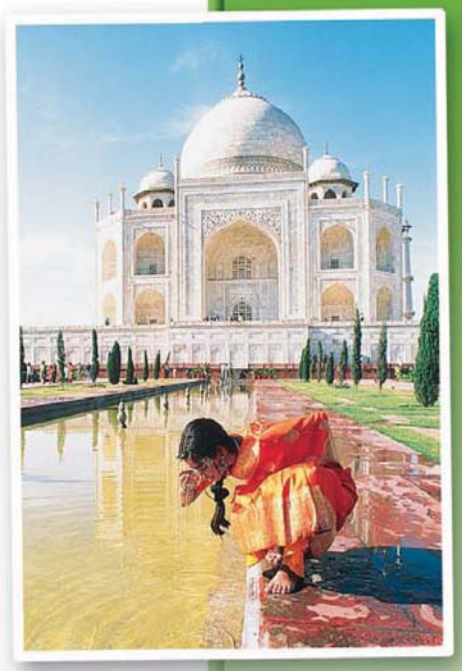
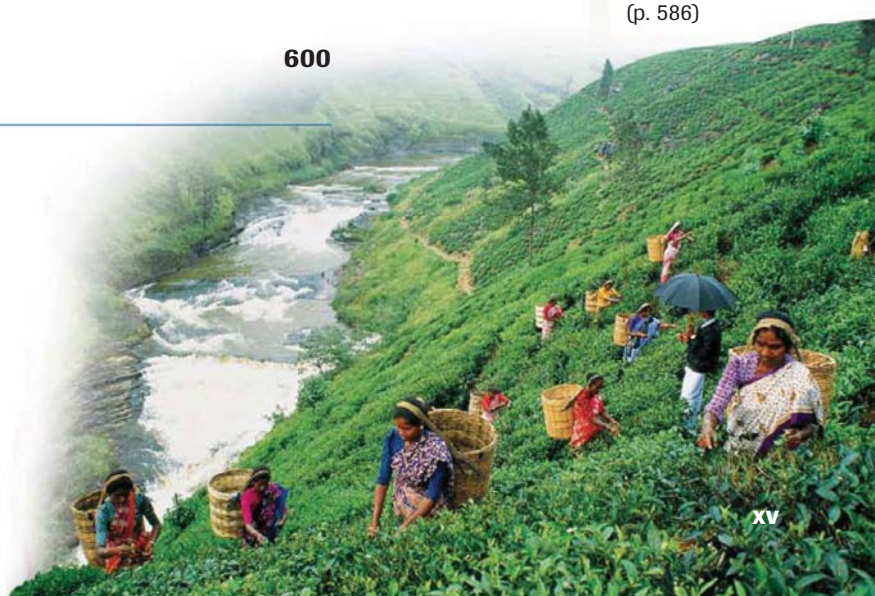
South Asia

Unit 8



Taj Mahal, Agra, India
(p. 538)

Tea Plantation, Sri Lanka
(p. 586)



For more information on South Asia . . .

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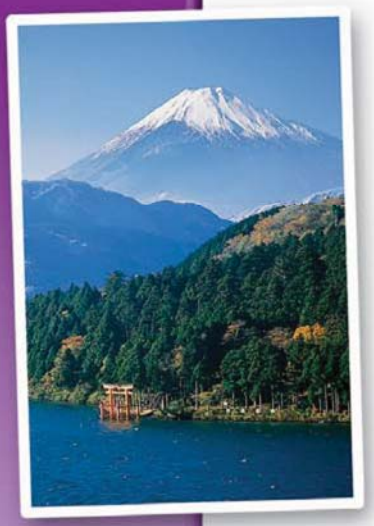
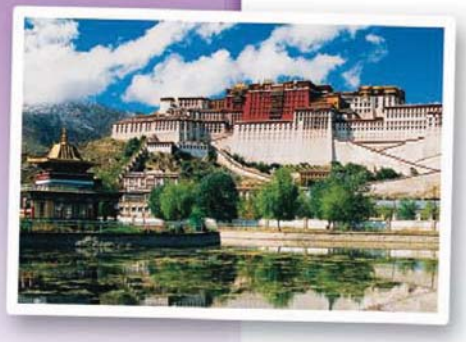
Unit 9 East Asia



Mount Fuji, Japan (p. 607)

Potala Palace, Tibet (p. 619)



Crowded urban street, Hong Kong (p. 668)

For more information on East Asia . . .

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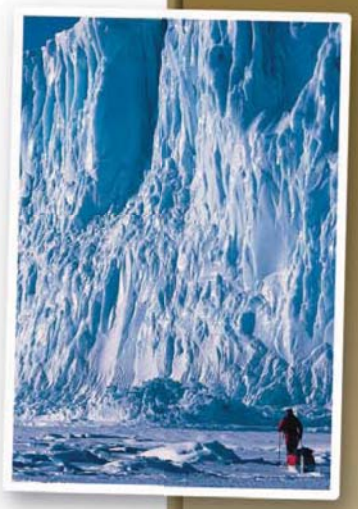
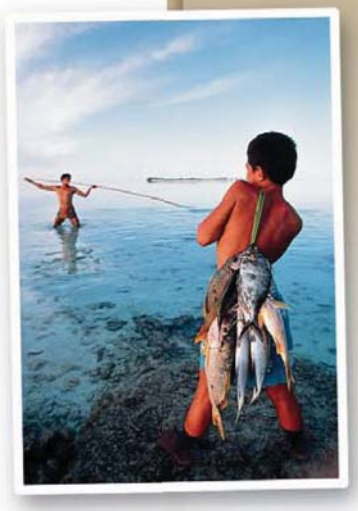
Unit 10 Southeast Asia, Oceania, and Antarctica



Ice Cliffs, Antarctica (p. 674)

Fishing on Cook Island (p. 714)



Uluru, or Ayers Rock, Australia (p. 729)

For more information on Southeast Asia, Oceania, and Antarctica . . .

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Features

Comparing Cultures

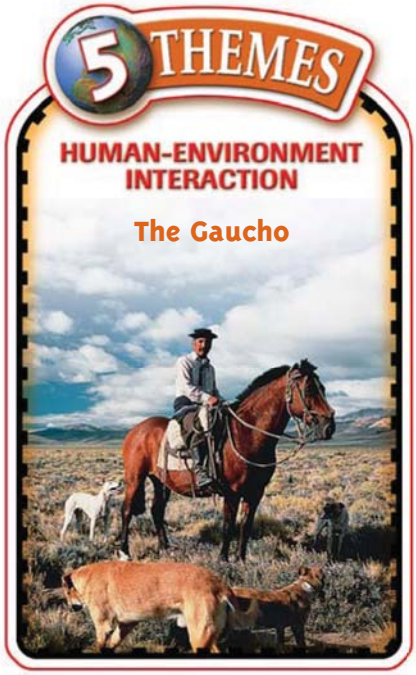
Disasters!

RAND McNALLY Map and Graph Skills

growing up in

Connect TO THE Issues

5 THEMES



Geography TODAY

Maps

RAND McNALLY WORLD ATLAS

Unit 1

Unit 2

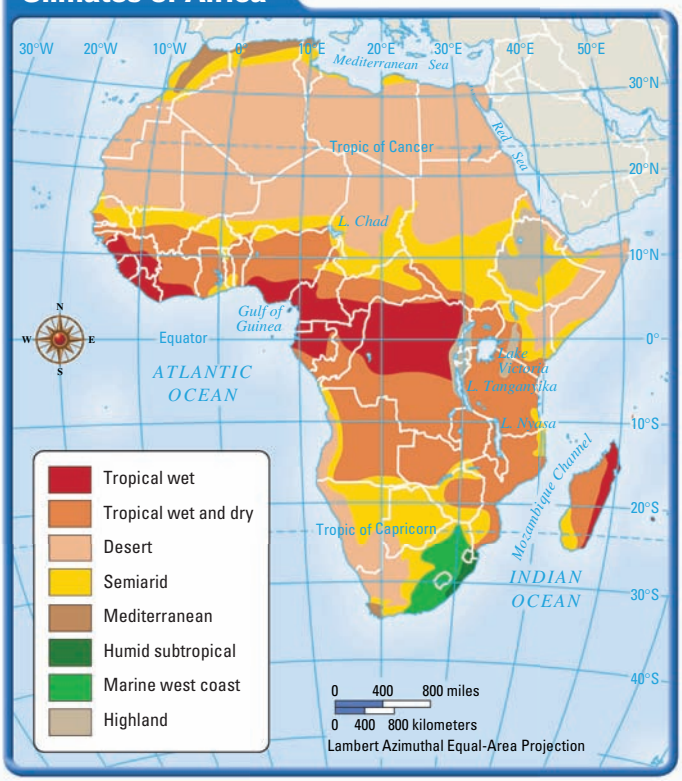
Unit 3

Unit 4

Unit 5

Unit 6

Climates of Africa

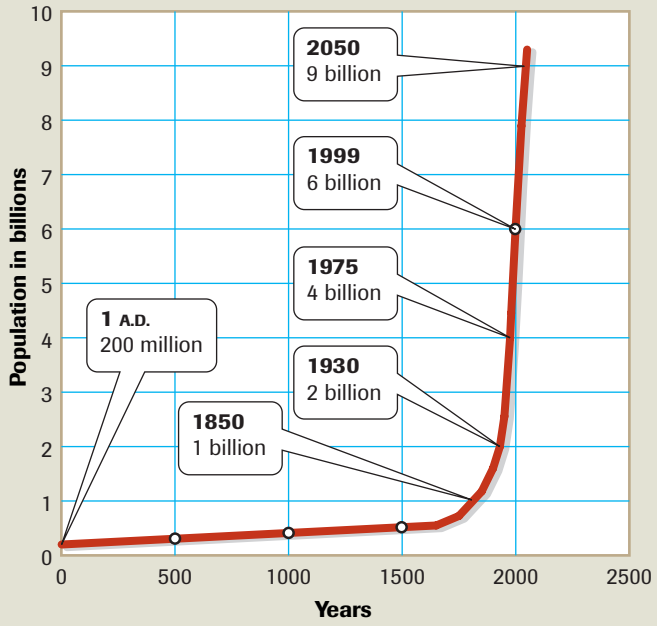


Maps

Graphs, Charts, and Tables

GRAPHS

World Population Growth



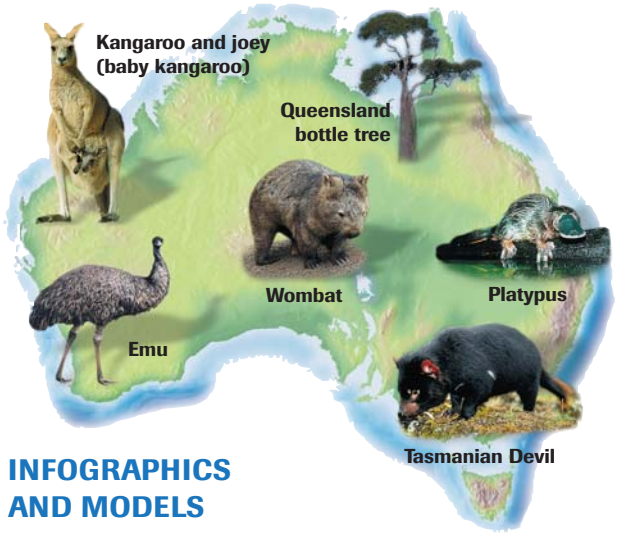
SOURCE: *The World Almanac*, 2000

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** How long did it take for the population to reach one billion?
2. **MAKING GENERALIZATIONS** How have the intervals between increases changed?

CHARTS AND TABLES

Infographics and Time Lines



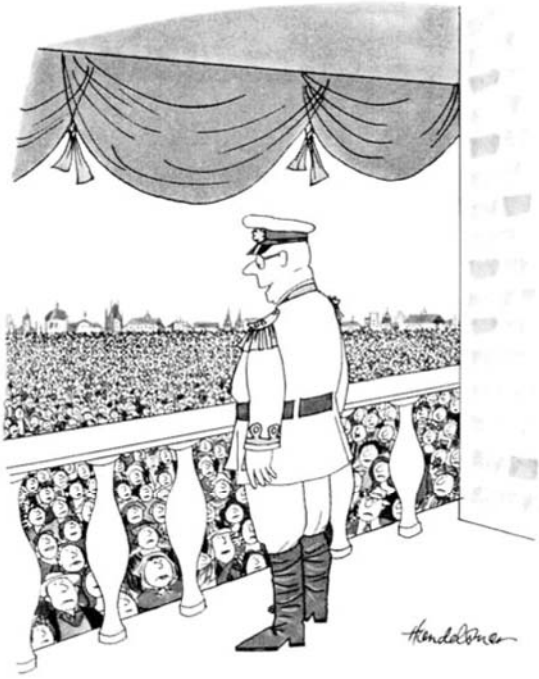
INFOGRAPHICS AND MODELS

TIME LINES

Primary Sources

Unit 2

Unit 3



"My goodness, if I'd known how badly you wanted democracy I'd have given it to you ages ago."

Unit 4

Unit 5

Unit 6

Primary Sources/Videos

Primary Sources *continued*

Unit 7

Unit 8

Unit 9

Unit 10

The Voyageur Experience in World Geography Videos

- **Unit 2** Canada: A Diverse Culture
- **Unit 3** Costa Rica: Ecotourism and Economic Development
- **Unit 4** Greece: Urbanization and the Environment
- **Unit 4** Italy: Natural Hazards and Disasters
- **Unit 5** Russia: Rebuilding a Nation
- **Unit 6** Kenya: National Identity and Unity
- **Unit 7** United Arab Emirates: Oil and Water Resources
- **Unit 8** India: Population and Resources
- **Unit 9** China: Food for a Billion Plus
- **Unit 10** Singapore: Industrialization and Migration

Strategies for Taking Standardized Tests

This section of the textbook helps you develop and practice the skills you need to study geography and to take standardized tests. Part 1, **Strategies for Studying Geography**, takes you through the features of the textbook and offers suggestions on how to use these features to improve your reading and study skills.

Part 2, **Test-Taking Strategies and Practice,** offers specific strategies for tackling many of the items you'll find on a standardized test. It gives tips for answering multiple-choice, constructed-response, extended-response, and document-based questions. In addition, it offers guidelines for analyzing primary and secondary sources, political cartoons, maps, charts, graphs, including population pyramids, and time lines. Each strategy is followed by a set of questions you can use for practice.

CONTENTS

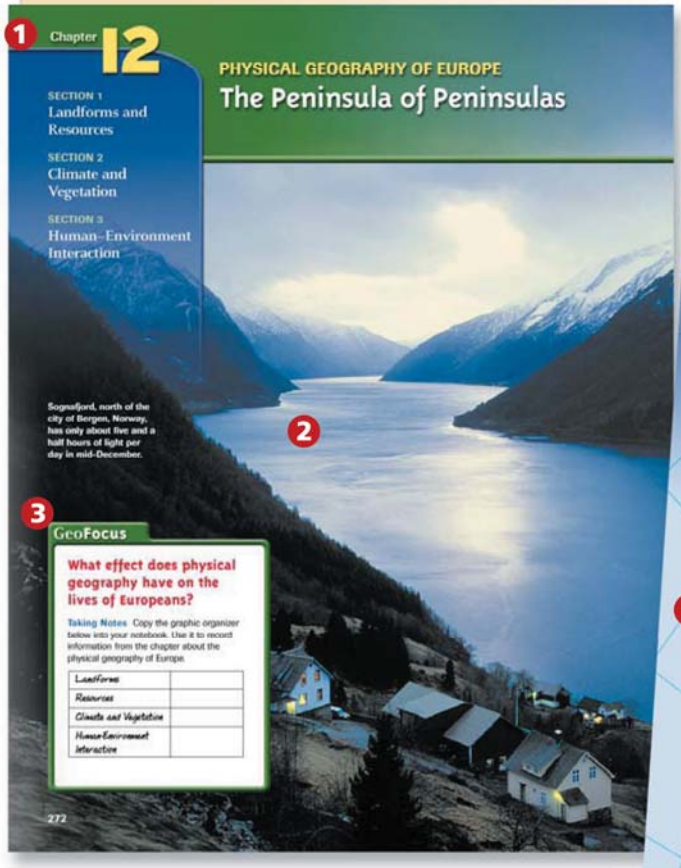
Part 1: Strategies for Studying Geography

Reading is the central skill in the effective study of geography or any other subject. You can improve your reading skills by using helpful techniques and by practicing. The better your reading skills are, the more you will remember what you read. Below you will find several strategies that involve built-in features of *World Geography.* Careful use of these strategies will help you learn and understand geography more effectively.

Preview Chapters Before You Read

Each chapter begins with a one-page introduction. Study this introductory material to help you get ready to read.

1. Read the chapter and section titles. These provide a brief outline of what will be covered in the chapter.
2. Study the chapter-opening photograph. It often illustrates a major theme of the chapter. Regional human geography chapters open with a map rather than a photograph. Examine the map to get an idea of the location and size of the region discussed in the chapter.
3. Read the **GeoFocus** question and activity. These items will help focus your reading of the chapter.



Preview Sections Before You Read

Each chapter consists of three, four, or five sections. Depending on the chapter, these sections focus on particular aspects of physical or human geography. Use the section openers to help you prepare to read.

1. Study the points under the **Main Ideas** heading. These identify the major topics discussed in the section.
2. Preview the **Places & Terms** list. It will give you an idea of the locations and concepts you will read about in the section.
3. Read the **Connect to the Issues** feature. This feature connects the section content to one of the major geographic issues covered in each unit of *World Geography.*
4. Skim through the section and look at the maps and illustrations. They will give you a quick visual overview of the section content.
5. Notice the structure of the section. **Blue** heads label the major topics covered in the section; **green** subheads signal smaller topics within these major topics. Together, these heads provide you with a quick outline of the section.

Use Active Reading Strategies as You Read

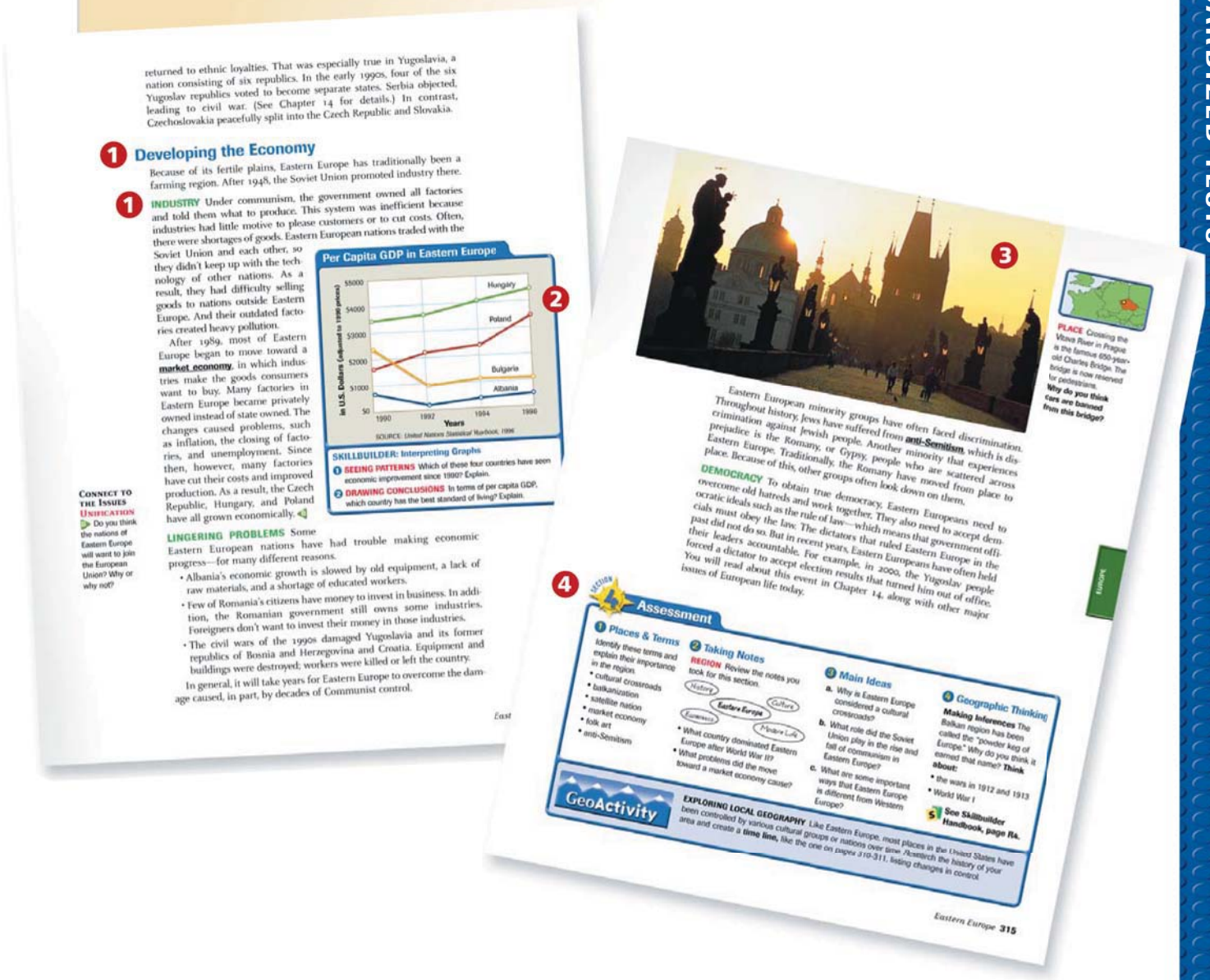
Now you are ready to read the chapter. Read one section at a time, from beginning to end.

1. Ask and answer questions as you read. Look for the **Geographic Thinking** and **Connect to the Issues** questions in the margin. Answering these questions will show whether you understand what you have just read.
2. Try to visualize the places, events, activities, and people you read about. Studying the pictures and any illustrated features will help you do this.
3. Read to build your vocabulary. Look for the **boldfaced, underlined** terms in the text and note their meaning.
4. Study the **Background** notes in the margin for additional information on the section content.

Review and Summarize What You Have Read

When you finish reading a section, review and summarize what you have read. If necessary, go back and reread information that was not clear the first time through.

1. Reread the blue heads and green subheads for a quick summary of the major points covered in the section.
2. Study any charts, graphs, or maps. These visual materials usually provide a condensed version of information in the section.
3. Review the visuals—photographs, charts, graphs, maps, and time lines—and any illustrated features, and note how they relate to the section content.
4. Complete all the questions in the **Section Assessment.** They will help you think critically about what you have just read.



returned to ethnic loyalties. That was especially true in Yugoslavia, a nation consisting of six republics. In the early 1990s, four of the six Yugoslav republics voted to become separate states. Serbia objected, leading to civil war. (See Chapter 14 for details.) In contrast, Czechoslovakia peacefully split into the Czech Republic and Slovakia.

1 Developing the Economy

Because of its fertile plains, Eastern Europe has traditionally been a farming region. After 1948, the Soviet Union promoted industry there.

INDUSTRY Under communism, the government owned all factories and told them what to produce. This system was inefficient because industries had little motive to please customers or to cut costs. Often, there were shortages of goods. Eastern European nations traded with the Soviet Union and each other, so they didn't keep up with the technology of other nations. As a result, they had difficulty selling goods to nations outside Eastern Europe. And their outdated factories created heavy pollution.

After 1989, most of Eastern Europe began to move toward a **market economy**, in which industries make the goods consumers want to buy. Many factories in Eastern Europe became privately owned instead of state owned. The changes caused problems, such as inflation, the closing of factories, and unemployment. Since then, however, many factories have cut their costs and improved production. As a result, the Czech Republic, Hungary, and Poland have all grown economically.

Per Capita GDP in Eastern Europe

SOURCE: United Nations Statistical Yearbook, 1996

SKILLBUILDER: Interpreting Graphs

1. **SEEING PATTERNS** Which of these four countries have seen economic improvement since 1990? Explain.
2. **DRAWING CONCLUSIONS** In terms of per capita GDP, which country has the best standard of living? Explain.

CONNECT TO THE ISSUES
UNIFICATION
Do you think the nations of Eastern Europe will want to join the European Union? Why or why not?

LINGERING PROBLEMS Some Eastern European nations have had trouble making economic progress—for many different reasons.

- Albania's economic growth is slowed by old equipment, a lack of raw materials, and a shortage of educated workers.
- Few of Romania's citizens have money to invest in business. In addition, the Romanian government still owns some industries. Foreigners don't want to invest their money in those industries.
- The civil wars of the 1990s damaged Yugoslavia and its former republics of Bosnia and Herzegovina and Croatia. Equipment and buildings were destroyed; workers were killed or left the country.

In general, it will take years for Eastern Europe to overcome the damage caused, in part, by decades of Communist control.

East

Eastern European minority groups have often faced discrimination. Throughout history, Jews have suffered from **anti-Semitism**, which is discrimination against Jewish people. Another minority that experiences prejudice is the Romany, or Gypsy, people who are scattered across Eastern Europe. Traditionally, the Romany have moved from place to place. Because of this, other groups often look down on them.

DEMOCRACY To obtain true democracy, Eastern Europeans need to overcome old hatreds and work together. They also need to accept democratic ideals such as the rule of law—which means that government officials must obey the law. The dictators that ruled Eastern Europe in the past did not do so. But in recent years, Eastern Europeans have often held their leaders accountable. For example, in 2000, the Yugoslav people forced a dictator to accept election results that turned him out of office. You will read about this event in Chapter 14, along with other major issues of European life today.

PLACE Crossing the Vltava River in Prague is the famous 650-year-old Charles Bridge. The bridge is now reserved for pedestrians. **Why do you think cars are banned from this bridge?**

4 Assessment

1 Places & Terms
Identify these terms and explain their importance in the region.
- cultural crossroads
- balkanization
- satellite nation
- market economy
- folk art
- anti-Semitism

2 Taking Notes
REGION Review the notes you took for this section.
- What country dominated Eastern Europe after World War II?
- What problems did the move toward a market economy cause?

3 Main Ideas
a. Why is Eastern Europe considered a cultural crossroads?
b. What role did the Soviet Union play in the rise and fall of communism in Eastern Europe?
c. What are some important ways that Eastern Europe is different from Western Europe?

4 Geographic Thinking
Making Inferences The Balkan region has been called the "powder keg of Europe." Why do you think it earned that name? **Think about:**
- the wars in 1912 and 1913
- World War I

See Skillbuilder Handbook, page R4.

GeoActivity
EXPLORING LOCAL GEOGRAPHY Like Eastern Europe, most places in the United States have been controlled by various cultural groups or nations over time. Research the history of your area and create a **time line,** like the one on pages 310-311, listing changes in control.

Eastern Europe 315

Part 2: Test-Taking Strategies and Practice

Improve your test-taking skills by practicing the strategies discussed in this section. Read the tips on the left-hand page. Then apply them to the practice items on the right-hand page.

Multiple Choice

A multiple-choice question consists of a stem and a set of choices. The stem is usually in the form of a question or an incomplete sentence. One of the choices correctly answers the question or completes the sentence.

1. Read the stem carefully and try to answer the question or complete the sentence without looking at the choices.
2. Pay close attention to key words in the stem. They may direct you toward the correct answer.
3. Read each choice with the stem. Don't jump to conclusions about the correct answer until you've read all the choices.
4. Think carefully about questions that include *All of the above* among the choices.
5. After reading all of the choices, eliminate any that you know are incorrect.
6. Use modifiers to help narrow your choices further.
7. Look for the best answer among the remaining choices.

answers: 1 (C), 2 (D), 3 (C)

stem

1 Which of the following statements *best* characterizes the economies of the Arabian Peninsula nations?

Best is a key word here. It means you should look not just for a true statement but for the most important true statement.

choices

A Their economies depend on subsistence agriculture.

B A lack of water has kept their economies from growing.

C Income from oil exports dominates their economies.

D Almost all goods are sold in traditional marketplaces called *souks*.

2 Which of the following is a cause of the continuing conflict in the Balkans?

A The desire of different ethnic groups to control the same land

B The attempt by Serbia to dominate Yugoslavia

C The opposition of many Serbs to the breakup of Yugoslavia

D All of the above

If you select this answer, be sure that all the choices are correct.

3 Japan is an example of a global economy because

A it became an international economic powerhouse in the 1820s.

B all of its people work in international business.

C it imports natural resources from other countries and sells manufactured goods around the globe.

D it rapidly industrialized after World War II.

You can eliminate **A** if you remember that Japan remained relatively isolated from the West until 1853 when U.S. Commodore Perry arrived.

Absolute words, such as *all, never, always, every,* and *only,* often signal an incorrect choice.

Both **C** and **D** describe facts. Only **C**, however, fits the definition of a global economy. Therefore, **C** is the best answer.

Directions: Read the following questions and choose the *best* answer from the four choices.

1 Which of the following was a result of the migration of Europeans to North America?

A Native Americans were displaced.

B The United States became a "nation of immigrants."

C Plants, animals, and diseases moved between the Eastern and Western hemispheres.

D All of the above

2 Which of the following is *not* an effect of the rapid destruction of rain forests in Latin America and other parts of the world?

A The temperature of the atmosphere is rising.

B Plants and animals are becoming extinct.

C More oxygen is building up in the atmosphere.

D The earth's biodiversity is being reduced.

3 After the Soviet Union collapsed in 1991 and Russia changed from a command economy to a market economy, economic control over the production of goods and services began to shift from

A the central government to private businesses.

B local workers to workers from abroad.

C the legislature to the banks.

D regional governments to the national government.

4 The Bantu migrations in Africa resulted in

A the spread of Bantu languages and culture.

B the end of the international slave trade.

C the colonization of Africa by numerous European nations.

D an AIDS epidemic in Africa.

Primary Sources

Primary sources are materials produced by people who traveled to the places they describe or who took part in or witnessed the events they portray. Letters, diaries, speeches, newspaper and magazine articles, travelogues, and autobiographies are all primary sources. So, too, are legal documents, such as wills, deeds, and financial records.

1. Look at the source line and identify the author. Consider what qualifies the author to write about the places or events discussed in the passage.
2. Skim the document to form an idea of what it is about.
3. Note special punctuation. Ellipses indicate that words or sentences have been removed from the original passage.
4. Carefully read the passage and distinguish between facts and the author's opinions. (Note that the author's use of a metaphor, *like layers in a slice of cake*, conveys a clear image of the land to the reader who cannot see Hadar in person.)
5. Consider for whom the author was writing. The intended audience may influence what and how an author writes.
6. Before rereading the passage, skim the questions to identify the information you need to find.

In 1974, the oldest and most well-preserved skeleton of an erect-walking human ancestor was found in Ethiopia. Paleoanthropologist Donald Johanson, who named the skeleton Lucy, describes the geography of the remote Afar desert region where Lucy was found. The region is rich with geological and paleontological information. Eventually, Johanson and his colleagues discovered the bones of at least 13 ancient individuals, now known as the First Family, in this desert area.

2 At Hadar, which is a wasteland of bare rock, gravel and sand, the fossils that one finds are almost all exposed on the surface of the
3 ground. Hadar is . . . an ancient lake bed now dry and filled with sediments that record the history of past geological events. You can trace volcanic-ash falls there, deposits of mud and silt washed down from distant mountains, episodes of volcanic dust, more mud, and so on. Those events reveal themselves like layers in a slice of 4 cake in the gullies of new young rivers that recently have cut through the lake bed here and there. It seldom rains at Hadar, but when it does it comes in an overpowering gush—six months' worth overnight. The soil, which is bare of vegetation, cannot hold all that water. It roars down the gullies, cutting back their sides and bringing more fossils into view.

1 —Donald Johanson, *Lucy: The Beginnings of Humankind*

1 Johanson's description is very detailed because he took several field expeditions to Hadar looking for fossils.

5 Although the author is a scientist, he wrote this book for a general audience to explain the work and the excitement of finding fossils.

6 **1** Now a wasteland of bare rock, gravel, and sand, Hadar was once a

A volcano.

B mountain chain.

C lake bed.

D river.

2 The author most likely describes Hadar and its geological history for which of the following reasons?

A Because knowing about the area's geological past might help to locate and identify fossils

B To illustrate how the area's current climate and geography reveal its past geological events

C To explain why fossils are found on the surface of the ground at Hadar

D All of the above

answers: 1 (C), 2 (D)

Directions: Read the following excerpt from a letter written by the Spanish conquistador Hernán Cortés in which he describes the Aztec capital city. Use the passage and your knowledge of world geography to answer the questions.

The Aztec Capital: The Great City of Tenochtitlán in Mexico

The great city of Tenochtitlán is built in the midst of this salt lake, and it is two leagues from the heart of the city to any point on the mainland. Four causeways lead to it, all made by hand and some twelve feet wide. The city itself is as large as Seville or Córdova. The principal streets are very broad and straight, the majority of them being of beaten earth, but a few and at least half the smaller thoroughfares are waterways along which they pass in their canoes. Moreover, even the principal streets have openings at regular distances so that the water can freely pass from one to another, and these openings which are very broad are spanned by great bridges of huge beams, very stoutly put together, so firm indeed that over many of them ten horsemen can ride at once.

—Hernán Cortés, in a letter to the King of Spain

Excerpt from "The Second Letter of Hernán Cortés," from *Five Letters of Hernán Cortés,* 1519–1526, translated by J. Bayard Morris (New York: W. W. Norton and Company, Inc.). Norton Paperback Edition published in 1969, reissued in 1991. Reprinted by permission of W. W. Norton and Company, Inc.

1 Which of the following statements *best* describes the location of Tenochtitlán?

A It was built on a peninsula, and all of its roads were waterways.

B It was built next to a lake, which the people crossed over by ferry boats.

C It was built on an island connected to the mainland by four hand-built causeways.

D It was built on the mainland with several bridges connecting it to an island in the nearby salt lake.

2 The letter contains the information that the Aztec citizens and the Spanish conquistadors traveled around the city by

A canoe and horse.

B canoe only.

C foot only.

D wagons and foot.

3 Which of the following statements reveals that Cortés admires the city of Tenochtitlán and its builders?

A "The city itself is as large as Seville or Córdova."

B "These openings . . . are spanned by great bridges of huge beams, very stoutly put together."

C "The principal streets are very broad and straight."

D All of the above

4 Eventually, Cortés and the Spanish destroyed most of Tenochtitlán. On its ruins, they built what became the present-day city of

A Seville.

B Baja.

C Mexico City.

D Tijuana.

Secondary Sources

Secondary sources are descriptions of places, people, cultures, and events. Usually, secondary sources are made by people who are not directly involved in the event or living in the place being described or discussed. The most common types of written secondary sources are textbooks, reference books, some magazine and newspaper articles, and biographies. A secondary source often combines information from several primary sources.

1. Read the title to preview the content of the passage.
2. Look at the source line to learn more about the document and its origin. (The spelling of the word *organized* indicates that the magazine is probably from Great Britain.)
3. Look for topic sentences. Ask yourself what the main idea is.
4. As you read, use context clues to guess at the meaning of difficult or unfamiliar words. (You can use the description of crime in the rest of the passage to understand that the word *pervasiveness* most likely means "being everywhere" or "existing throughout.")
5. Read actively by asking and answering questions about the passage.
6. Before rereading the passage, skim the questions to identify the information you need to find.

answers: 1 (C), 2 (D)

1 Organized Crime in Russia

3 This highlights the key feature of Russian criminality: its 4 pervasiveness. "Organised crime usually deals with [minor] economic issues . . . [but] in Russia it's the mainstream," notes Toby Latta of Control Risks, a London security [firm]. Russian criminality reaches the highest levels of government—is, indeed, often indistinguishable from it. And it affects the humblest activity. Buy a jar of coffee? More likely than not, you are feeding organised crime: according to a grumbling Nestlé, most coffee sold in Russia has evaded full import duties. Give money to a beggar? He will have paid the local mafia for his spot on the street. Build a factory? You will pay one lot of bureaucrats to get it going, another to keep it running. In Russia, organised crime and corruption are everywhere. 3

3 The last sentence restates the main idea.

2 Excerpt from "Russian Organised Crime," from *The Economist,* August 28, 1999. Copyright © 1998 The Economist. Reprinted by permission.

You might ask: What makes organized crime in Russia different from organized crime in other countries? Are crime and corruption in all levels of society new to Russian culture? 5

6

1 What is the main idea of this passage?

A The Russian economy is in a depression.

B The Russian government is ineffective.

C Organized crime operates in all areas of the Russian economy.

D Russia is on the verge of collapse.

2 Which of the following conclusions can you draw from this passage?

A Anyone who wants to start a business in Russia may have to pay the mafia first.

B The Russian government loses money because some import taxes are not paid.

C The Russian mafia operates within the government.

D All of the above

Directions: Use the passage about Mohandas K. Gandhi's work for social reform in India and your knowledge of world geography to answer the questions below.

Gandhi's Work in the 1920s

Gandhi's understanding of economic relations was shot through with emphasis originating in Hindu tradition, such as the duty of the wealthy to extend charity. . . . But in the 1920s he was forced to confront very precisely some of the aspects of India's social order which were rooted in Hindu tradition. . . .

His primary social concern at this time was the problem of untouchability, the rejection of a whole group of the poorest and most menial in society as a result of Hindu ideas of hierarchy. . . . Now, as he travelled widely, he saw in harsh practice the power of this social division, and the poverty and degradation it caused. . . .

Personal example was one of Gandhi's strategies to end untouchability. He mixed freely with [the "untouchables"], as everybody knew; he ate with them. . . . But Gandhi did not expect everyone to go this far. For most caste Hindus the obligation was to treat the untouchables as a caste *within* Hindu society, affording them citizens' rights. They should be allowed to use wells, roads and public transport, attend schools and enter temples, though conventions prohibiting marriage or meals with them would remain.

—Judith M. Brown, *Gandhi: Prisoner of Hope*

1 In Hindu tradition, there are four main classes in the social hierarchy known as the caste system. You can tell from the passage that the "untouchables" are

A the highest social group.

B the lowest social group.

C priests and scholars.

D merchants, traders, and farmers.

2 As the passage explains, Gandhi broke with Hindu tradition by

A trying to convert the poorest people to Islam.

B extending charity to the poorest people.

C spending time with the poorest people.

D rejecting the poorest people.

3 According to the author, which of the following ideas did Gandhi promote?

A Citizens' rights for members of the lowest caste

B Intermarriage among members of low and high castes

C Abolishing the caste system altogether

D Scholarships for members of the lowest caste

4 You can infer from the last paragraph that low caste Indians in the 1920s were *not* usually allowed to

A use public wells.

B ride on public buses.

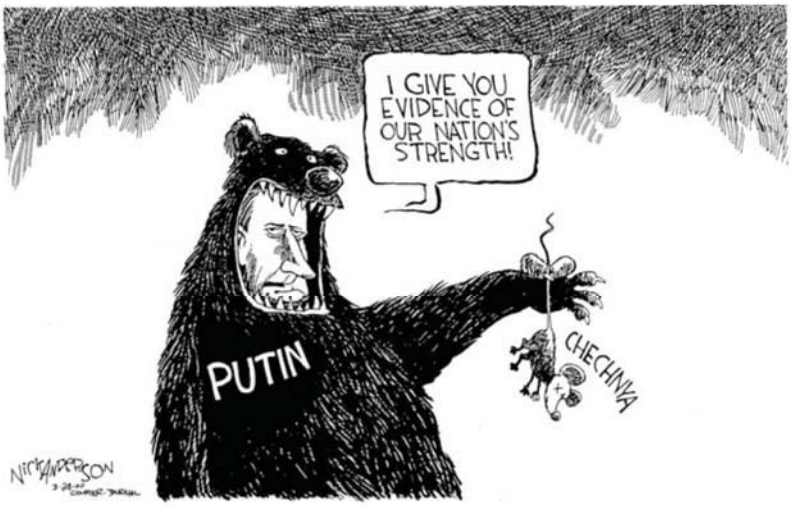
C attend schools.

D All of the above

Political Cartoons

Political cartoons are drawings made to express a point of view on political issues of the day. Cartoonists use words, symbols, and such artistic styles as caricature—exaggerating a person's physical features—to get their message across.

1. Identify the subject of the cartoon. Titles, captions, and labels are often clues to the subject matter. (The subject here is Chechnya's fight for independence from Russia.)
2. Identify the main characters in the cartoon. (The main character is Russian President Vladimir Putin.)
3. Note the symbols—ideas and images that stand for something else—used in the cartoon. (The bear is an often-used symbol of Russia.)
4. Study labels and other written information in the cartoon.
5. Analyze the point of view. How cartoonists use caricature often shows how they feel.
6. Interpret the cartoonist's message.



5 Putin represents the Russian government and army. The exaggeration of Putin's nose makes him appear ridiculous.

3 Drawing Chechnya as a mouse exaggerates the difference in size of Chechnya compared to Russia.

1 Chechnya is portrayed as a mouse because

A it is so much smaller and less powerful than Russia.

B the region has no natural resources.

C its rebel leaders lack courage and the will to fight.

D the region produces so much cheese.

2 Which of the following statements best represents the cartoonist's point of view?

A Russia should maintain firm control of Chechnya.

B Chechnya is not important to Russia.

C Russia is a military powerhouse and should be feared by other countries.

D Russia used more military might than necessary in fighting the rebellion in Chechnya.

answers: 1 (A), 2 (D)

Directions: Use the political cartoon and your knowledge of geography to answer the questions below.

1 The cartoonist has drawn the "Berlin Mall," to refer to the

A main shopping district in the center of Berlin.

B seat of city government in East Germany.

C Berlin Wall, which divided the city of Berlin into democratic and communist sections.

D World War II division of Germany.

2 What does the "Berlin Mall" most likely stand for in the cartoon?

A the European Union

B Western capitalism

C Eastern philosophy

D Soviet communism

3 The cartoonist is implying that

A free-market countries and corporations looked for new markets in Berlin.

B the people of former communist countries in Europe were eager to buy products not previously available to them.

C the fall of the Berlin Wall changed economics and politics in Europe.

D All of the above

4 The father's statement to his son implies that this Berlin site

A was recently built on the site of an old market.

B is very different from what it used to be.

C is the only shopping area located in Berlin.

D All of the above.

Charts

Charts present information in a visual form. Geography textbooks use several types of charts, including tables, flow charts, Venn diagrams, and infographics. The type of chart most commonly found in standardized tests is the table, which organizes information in columns and rows for easy viewing.

1. Read the title to identify the broad subject of the chart.
2. Read the column and row headings and any other labels. The headings and labels will provide more details on the subject of the chart.
3. Compare and contrast the information from column to column and row to row.
4. Try to draw conclusions from the information in the chart. Ask yourself: What trends or patterns does the chart show?
5. Read the questions and then study the chart again.

answers: 1 (B), 2 (A)

1 Adult Literacy Rates in South Asia by Gender, 2003

2

Country	Male	Female	Total
Bangladesh	54%	32%	43%
Bhutan*	56%	28%	42%
India	70%	48%	59%
Maldives	97%	97%	97%
Nepal	63%	28%	46%
Pakistan	60%	31%	46%
Sri Lanka	95%	90%	92%

*1995 estimate

Source: CIA, *The World Fact Book 2003*

3 Compare and contrast the literacy rates of males and females in each country.

4 Based on the data in this chart, you might conclude that males in most of these countries receive more education than females.

5

1 What is the general pattern in the literacy rates for males and females of this region?

A The rates for males and females are similar.

B The rates for males are generally much higher than those for females.

C The rates for females are generally much higher than those for males.

D The rates for both sexes are extremely low in all the countries.

2 One observation that you can make about the literacy rate in these countries is that the

A higher the female literacy rate is, the higher the total literacy rate is.

B higher the literacy rate, the less interest females have in reading and writing.

C literacy rate in mountainous countries is higher than the rate in island countries.

D lower the total literacy rate is, the higher the female literacy rate is.

Directions: Use the chart and your knowledge of world geography to answer the questions below.

Comparison of European, American, and Japanese Workers' Hours

Country	Scheduled Weekly Hours	Number of Annual Days Off/Holidays	Annual Hours Worked
Germany	39	42	1,708
Netherlands	40	43.5	1,740
Austria	39.3	38	1,751
France	39	34	1,771
Italy	40	39	1,776
United Kingdom	39	33	1,778
Sweden	40	37	1,792
United States	40	22	1,912
Portugal	45	36	2,025
Japan	44	23.5	2,116

Source: "Comparison of European, American, and Japanese Workers' Hours," from *Hammond New Century World Atlas*. Copyright © 2000 by Hammond World Atlas Corporation. All rights reserved. Reprinted by permission.

1 People are scheduled to work the most hours annually in

A the United States.

B Portugal.

C Germany.

D Japan.

2 If Germany has a five-day work week, the Germans' time off equals how many work weeks?

A More than 2 work weeks

B More than 4 work weeks

C More than 6 work weeks

D More than 8 work weeks

3 People have the least number of holidays and days off work in

A the United States.

B Portugal.

C the United Kingdom.

D Japan.

4 Compared to the Americans and Japanese, Europeans work

A fewer hours per week.

B fewer days per year.

C more hours per week.

D more days per year.

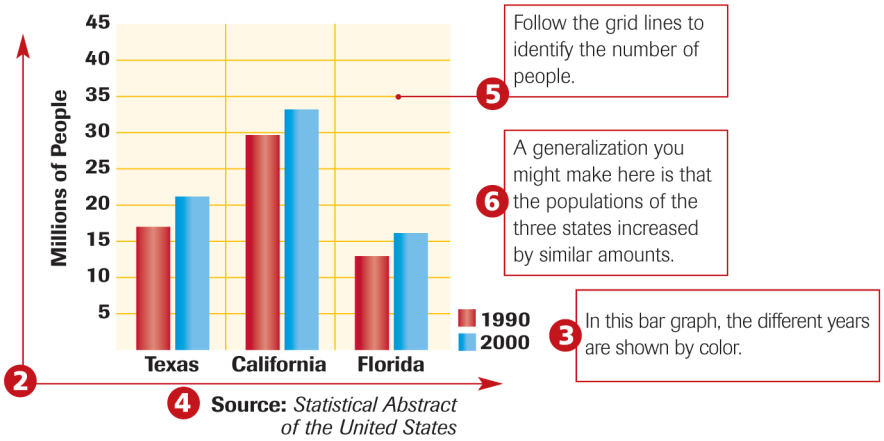
Line and Bar Graphs

Graphs show statistics in a visual form. Line graphs are particularly useful for showing changes over time. Bar graphs make it easy to compare numbers or sets of numbers.

1. Read the title to identify the broad subject of the graph.
2. Study the labels on the vertical and horizontal axes to see the kinds of information presented in the graph. Note the intervals between amounts and between dates.
3. Study any keys or legends.
4. Look at the source line and evaluate the reliability of the information in the graph. Federal and state government statistics, as well as those from universities, tend to be reliable.
5. Study the information in the graph and note any trends.
6. Draw conclusions and make generalizations based on these trends.
7. Read the questions carefully and then study the graph again.

answers: 1 (A), 2 (B)

1 Three Fastest Growing States in the United States, 1990–2000



7 1 The population of Texas increased between 1990 and 2000 by about —

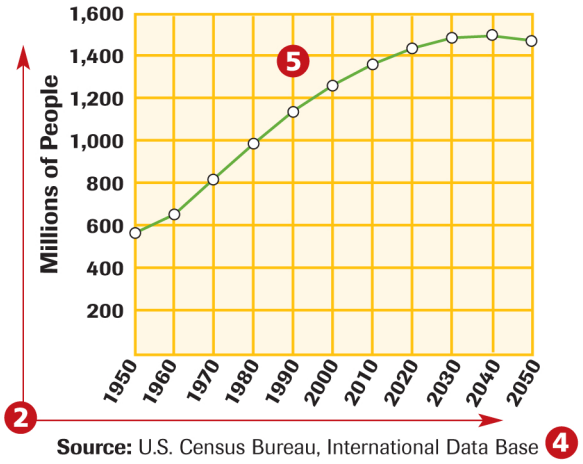
A 4 million

B 8 million

C 10 million

D 100,000

1 Projected Population Growth in China, 1950 to 2050



7 1 What is expected to happen to China's population after the year 2040?

A It will decline sharply.

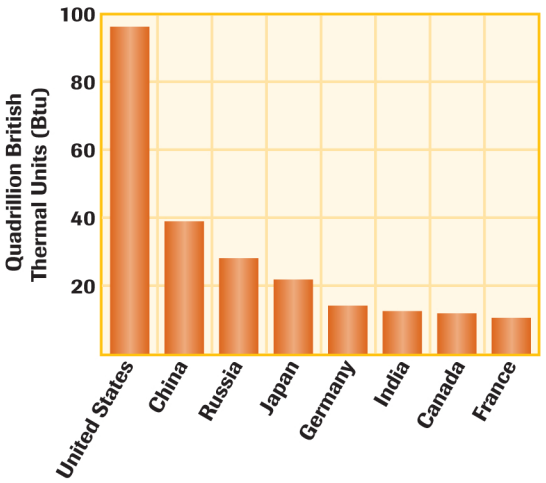
B It will begin to decline slowly.

C It will continue to increase slowly.

D It will increase very sharply.

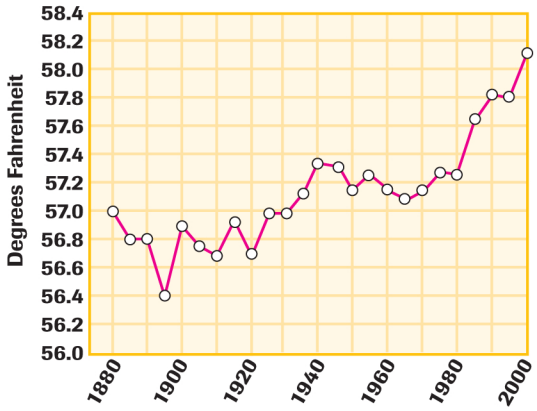
Directions: Use the graphs and your knowledge of world geography to answer the questions below.

World's Major Energy Consumers, 2001



Source: Energy Information Administration

Global Average Temperatures, 1880–2000



Source: Goddard Institute for Space Studies

1 Which of the following statements is true according to the graph?

A All of the countries consume about the same amount of energy.

B The country with the largest area consumes the most energy.

C The United States consumes the most energy.

D The country with the largest population consumes the most energy.

2 Which of the following statements is *not* accurate?

A The United States consumes more energy than China, Russia, and Japan combined.

B The five top energy consumers are all large countries.

C India consumes more energy than France.

D Japan consumes more energy than India.

3 What has been the general trend in the global average temperature since 1960?

A It has been rising every five years.

B It has been decreasing.

C It has risen and fallen, but overall it has risen.

D It has stayed fairly steady.

4 Which of the following statements accurately reflects information in the graph?

A Global average temperatures go up and down over time.

B The temperature has not changed by more than one degree in any 20-year period.

C It is difficult to make long-term climate predictions from this graph alone.

D All of the above

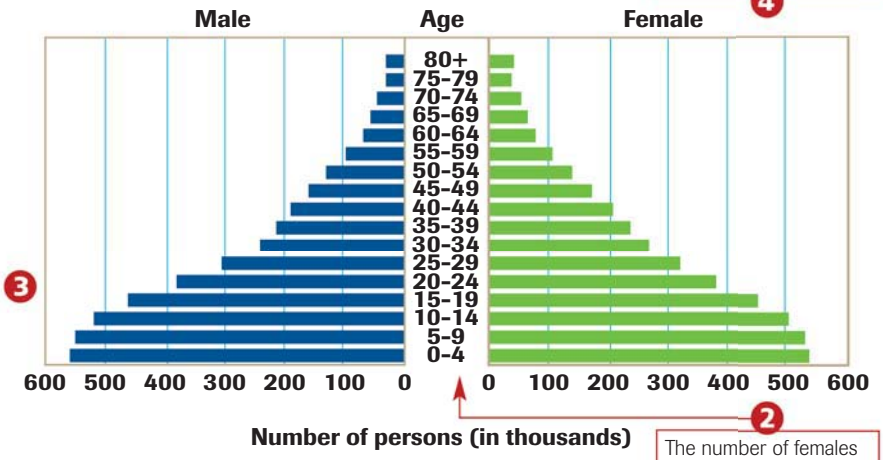
Population Pyramids

A population pyramid is a type of graph that shows the gender and age distribution of a population. It is useful in showing patterns in these and other categories, such as ethnicity. The size of one age group compared to another may have important economic, social, and political consequences. For example, if the number of working-age adults in a country is small, the labor pool might be small.

1. Read the title to identify the population that the graph represents.
2. Study the age groups labeled along the vertical axis in the center of the pyramid. Each horizontal bar represents the size of an age-and-gender group. Note that the intervals between the numbers along the base of the pyramid identify the size of each age-gender group.
3. Compare the sizes of the gender groups and note any patterns. Then compare the sizes of the age groups and note any patterns.
4. Draw conclusions and make generalizations based on the patterns you see.
5. Read the questions carefully and then refer to the graph again to answer them.

answers: 1 (B), 2 (C)

1 Population Pyramid for Bolivia, 2000



A generalization you might make here is that the population is not evenly distributed. The very young age groups greatly outnumber the older age groups.

The number of females aged 5–9, for example, is about 530,000.

Source: U.S. Census Bureau, International Data Base

1 Most Bolivians are

A between the ages of 35 and 39.

B below the age of 40.

C between the ages of 45 and 49.

D older than 59.

2 Which statement *best* characterizes the gender distribution of Bolivia's population?

A Males greatly outnumber females.

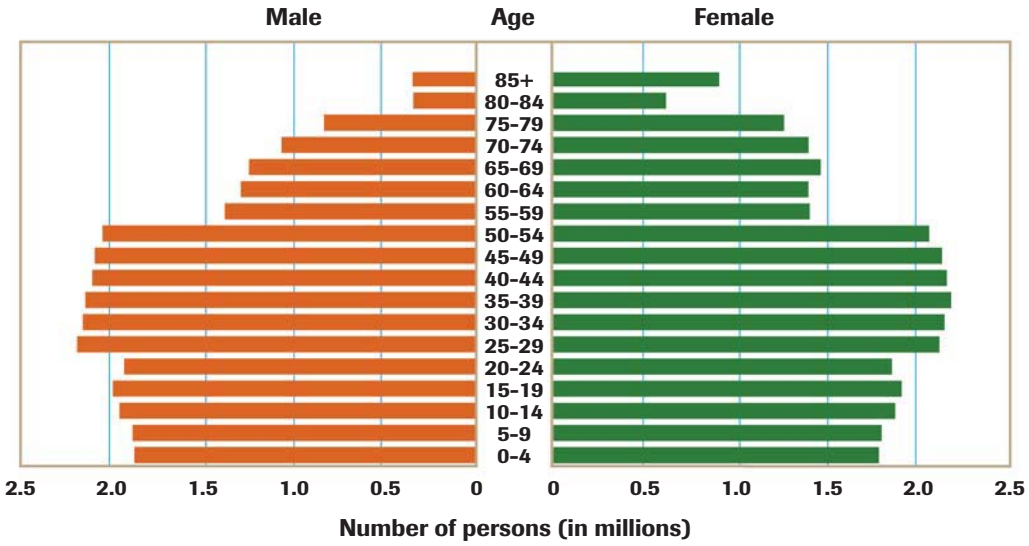
B Females greatly outnumber males.

C The population has about an equal number of males and females.

D Females outnumber males in the youngest age groups.

Directions: Use the graph and your knowledge of world geography to answer the questions below.

Population Pyramid for France, 2000



Source: U.S. Census Bureau, International Data Base

1 The largest age group in France is composed of people

A from 10 to 24 years of age.

B under 10 years of age.

C from 25 to 54 years of age.

D 55 years of age and over.

2 Which statement *best* characterizes the population distribution between the genders in France?

A Males outnumber females in all age groups.

B Females outnumber males in all age groups.

C The genders are roughly equal except in the youngest age group.

D As the population ages, it changes from slightly more males to more females.

3 Which statement accurately reflects the information in this graph?

A French women live longer than French men.

B French men live longer than French women.

C Very few French people live past the age of 54.

D There are fewer French teenagers than any other age group.

4 Which of the following conclusions can you draw from this graph?

A Large families are common in France.

B France has a high infant mortality rate.

C There was a "baby boom" in France after 1945.

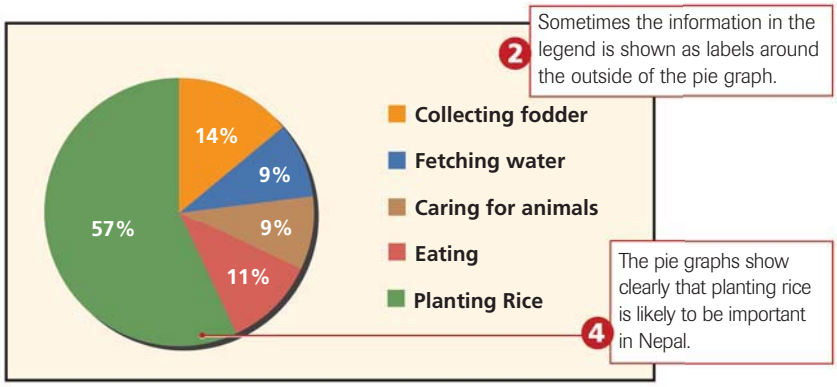
D France has a labor shortage.

Pie Graphs

A pie, or circle, graph shows relationships among the parts of a whole. These parts look like slices of a pie. The size of each slice is proportional to the percentage of the whole that it represents.

1. Read the title and identify the broad subject of the pie graph.
2. Look at the legend to see what each of the slices of the pie represents.
3. Read the source line and note the origin of the data shown in the pie graph.
4. Compare the slices of the pie, and try to make generalizations and draw conclusions from your comparisons.
5. Read the questions carefully and review difficult terms.
6. Think carefully about questions that have *not* in the stem.
7. Eliminate choices that you know are wrong.

1 Typical Growing Season Work Day for 10-Year-Old Girl in Rural Nepal



2 Sometimes the information in the legend is shown as labels around the outside of the pie graph.

4 The pie graphs show clearly that planting rice is likely to be important in Nepal.

3 **Source:** Adapted from "A working day in the life of a 10-year old girl in Nepal," from *Listening to Smaller Voices* by Victoria Johnson, Joanna Hill, and Edda Ivan-Smith. Copyright © 1995 by ActionAid Nepal. Reprinted by permission.

1 A typical 10-year-old girl in rural Nepal spends the greatest percentage of her time

A planting rice.

B eating.

C collecting fodder. 5

D fetching water.

5 The word *fodder* refers to feed for livestock. It is usually coarsely chopped straw or hay.

2 Which of the following is 6 *not* a conclusion you can draw from the information in this pie graph?

A Young girls spend no time raising animals in rural Nepal.

B During the growing season, children in rural Nepal do farm chores most of the day.

C Rice is an important part of the diet in Nepal.

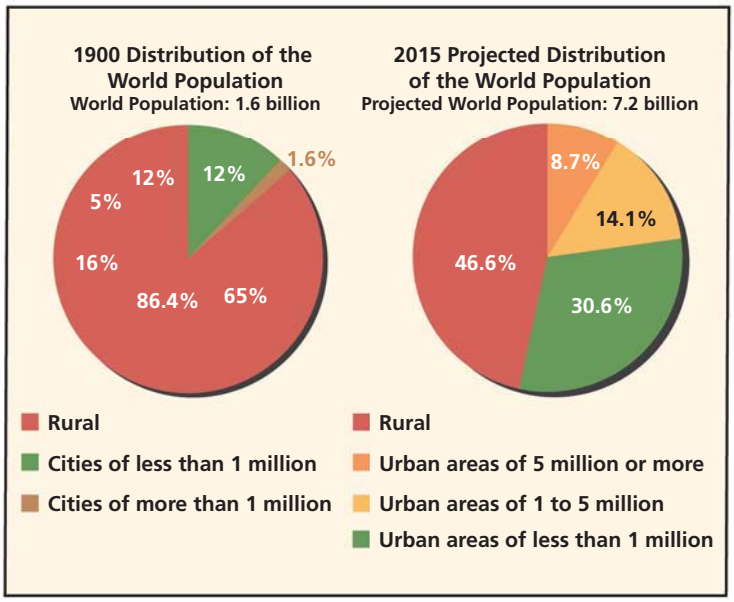
D Children in Nepal do not attend school during the growing season.

7 You can eliminate **B** because the pie graph shows they do spend most of their day doing farm chores.

answers: 1 (A), 2 (A)

Directions: Use the pie graphs and your knowledge of world geography to answer the questions below.

Trends in World Urbanization, 1900 and 2015



Source: "Trends in World Urbanization," from *Introduction to Geography,* Sixth Edition by Arthur Getis, Judith Getis, and Jerome D. Fellman. Copyright © 1998 by McGraw-Hill Companies, Inc. Reprinted by permission.

1 In 1900, most people of the world lived in

A cities of more than one million people.

B cities of less than one million people.

C suburban areas.

D rural areas.

2 Which of the following statements *best* describes the projected change in the distribution of people in 2015?

A The same number of people will live in urban as live in rural areas.

B The largest percentage of people will live in urban areas of over one million people.

C More people will live in urban than in rural areas.

D Forty percent of people will live in urban areas of all sizes.

3 The percentage of people living in rural areas in 2015, as compared to the percentage in 1900, is projected to decline by approximately

A 10 percentage points.

B 20 percentage points.

C 40 percentage points.

D 60 percentage points.

4 The current rise in the number of cities and the lifestyle changes that result from it are called

A land-use patterns.

B urbanization.

C industrialization.

D suburbanization.

Political Maps

Political maps show features on the earth's surface that are created by humans. Included on a political map may be the location of cities, states, provinces, territories, or countries. There also may be some physical features, such as rivers, seas, oceans, and lakes. You can use these features to show an area's shape and size and where it is located on the earth's surface. You can also look at its location in relation to other areas, and how all of these physical facts might affect a place in ways such as its economy or population.

1. Read the title to determine the subject and purpose of the map.
2. Review the map labels, which reveal specific features that further illustrate the subject and purpose of the map.
3. Study the legend to find the meaning of the symbols used on the map.
4. Look at the lines of latitude and longitude. This grid makes locating places easier.
5. Use the compass rose to determine directions on the map.
6. Use the scale to measure the actual distances between places shown on the map.
7. Read the questions and then carefully study the map to determine the answers.

1 Kenya: Political

2 Map scales typically show distances in both miles and kilometers.

3 Instead of a compass rose, some maps have a North arrow.

1 About how far is Mombasa from the capital of Kenya?

A About 100 miles

B About 200 miles

C About 300 miles

D About 400 miles

2 The country that borders Kenya on the south is

A Somalia.

B Tanzania.

C Ethiopia.

D Uganda.

answers: 1 (C), 2 (B)

Directions: Use the map and your knowledge of world geography to answer the questions below.

Mexico: Political

1 Which statement *best* describes the location of the capital of Mexico?

A It is located on the Gulf of Mexico.

B It is located on the Pacific Ocean.

C It is located near the U.S.-Mexico border.

D It is centrally located within the country.

2 Which of the following countries does *not* share a border with Mexico?

A Honduras

B Belize

C Guatemala

D The United States

3 Mexico is bordered on the north by

A Louisiana and Texas.

B California, Arizona, New Mexico, and Texas.

C Arizona, New Mexico, and Texas.

D only Texas.

4 The popular resort cities of Acapulco, Puerto Vallarta, and Cancún all have in common their location

A on the Pacific Ocean.

B on a coast.

C north of the Tropic of Cancer.

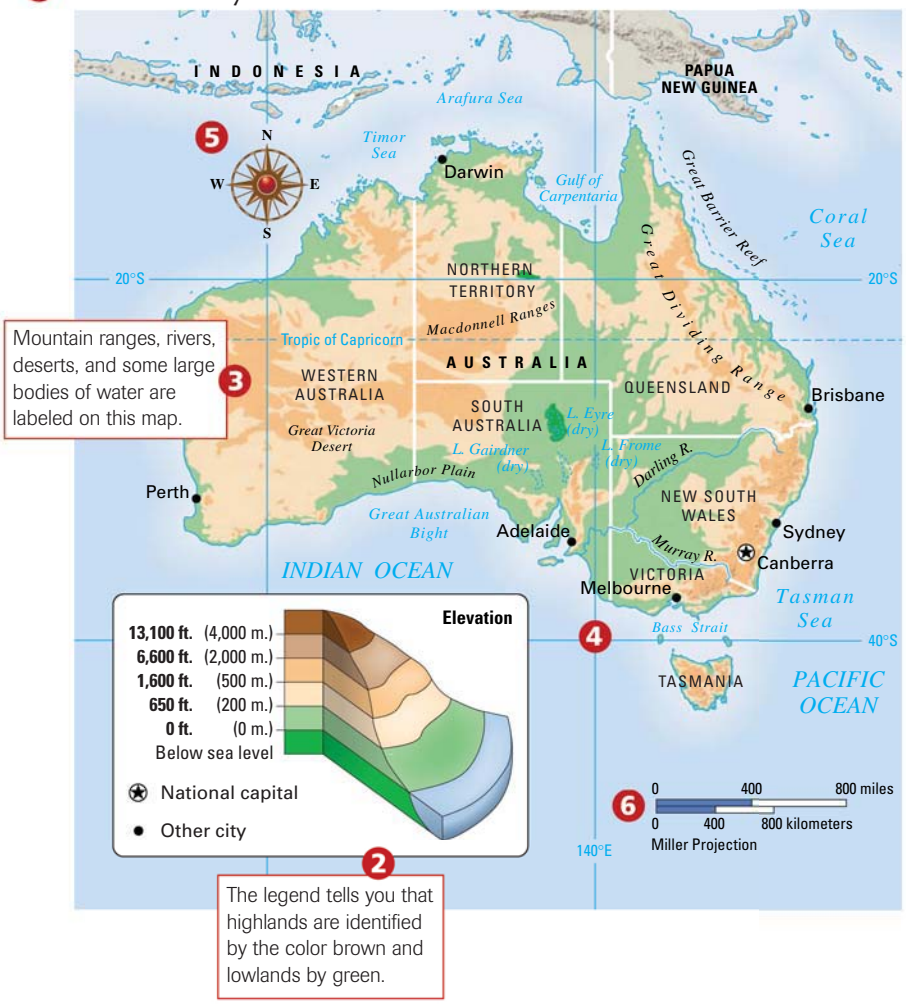
D in the interior of the country.

Physical Maps

Physical maps show the landforms and bodies of water in a specific area. They use color, shading, or contour lines to indicate elevation or altitude, which is also called relief. Many maps combine features of both physical and political maps—that is, they show physical characteristics as well as political boundaries.

1. Read the title to determine the area shown on the map.
2. Study the legend to find the meaning of the colors used on the map. Typically, different colors are used to indicate levels of elevation. Match the legend colors to places on the map.
3. Review the labels on the map to see what physical features are shown.
4. Look at the lines of latitude and longitude. You can use this grid to identify the location of physical features.
5. Use the compass rose to determine directions on the map.
6. Use the scale to measure the actual distances between places shown on the map.
7. Read the questions and then carefully study the map to determine the answers.

1 Australia: Physical



Mountain ranges, rivers, deserts, and some large bodies of water are labeled on this map.

The legend tells you that highlands are identified by the color brown and lowlands by green.

1 South Australia, Victoria, and New South Wales contain mostly

A mountains.

B plateaus.

C lowlands.

D deserts.

2 Where is the Great Barrier Reef located?

A Along the Nullarbor Plain

B In the Great Australian Bight

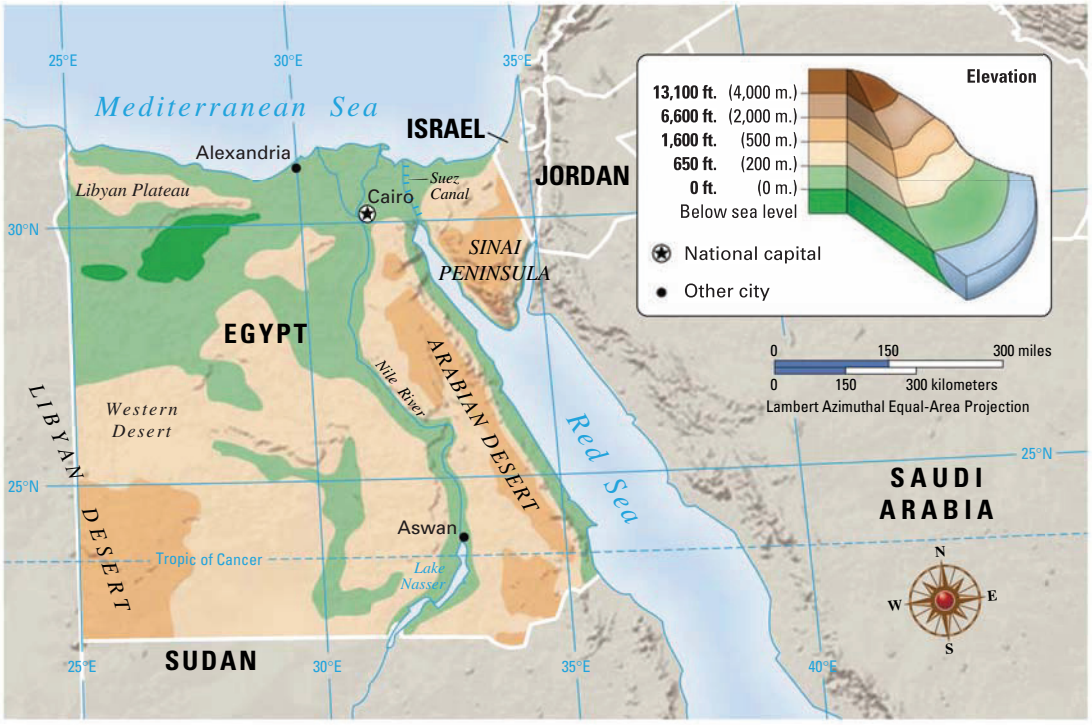
C In the Coral Sea

D Near the Great Victoria Desert

answers: 1 (C), 2 (C)

Directions: Use the map and your knowledge of world geography to answer the questions below.

Egypt: Physical



1 The location of Egypt's capital is approximately

A 30°N 31°E.

B 30°S 31°W.

C 25°N 33°E.

D 25°S 33°W.

2 The physical feature that dominates Egypt's landscape is

A mountains.

B deserts.

C mesas.

D lakes.

3 Which of the following statements *best* characterizes the Nile River?

A It is the longest river in Egypt.

B It extends the full length of the country.

C It is one of the few rivers in Egypt.

D All of the above

4 Which of the following conclusions can you draw from this map?

A Egypt has a well-distributed water supply.

B Agriculture is important in Egypt's southwest area.

C Much of Egypt has a dry climate.

D All of Egypt is sparsely populated.

Thematic Maps

A thematic map, or special-purpose map, focuses on a particular topic. The location of state parks, a country's natural resources, the vegetation of a region, voting patterns, migration routes, and economic activities are all topics you might see illustrated on a thematic map.

1. Read the title to determine the subject and purpose of the map.
2. Examine the labels on the map to find more detailed information on the map's subject and purpose.
3. Study the legend to find the meaning of the symbols and colors used on the map.
4. Look at the symbols and colors on the map, and try to identify patterns.
5. Read the questions and then carefully study the map to determine the answers.

1 Ethnic Diversity in the Former Yugoslavia

3 The map and legend show you nine distinct ethnic groups that reside in the former Yugoslavia, which is now eight republics or provinces.

4 This map is a visual tool that might help you understand the ethnic and religious conflicts in Bosnia.

5

1 According to the map, which of the following ethnic groups live in Bosnia and Herzegovina?

A Croats, Macedonians, and Slovenes

B Serbs, Albanians, and Hungarians

C Bulgarians, Italians, and Albanians

D Croats, Serbs, and Muslims

2 The former Yugoslavia did *not* include

A Kosovo.

B Slovenia.

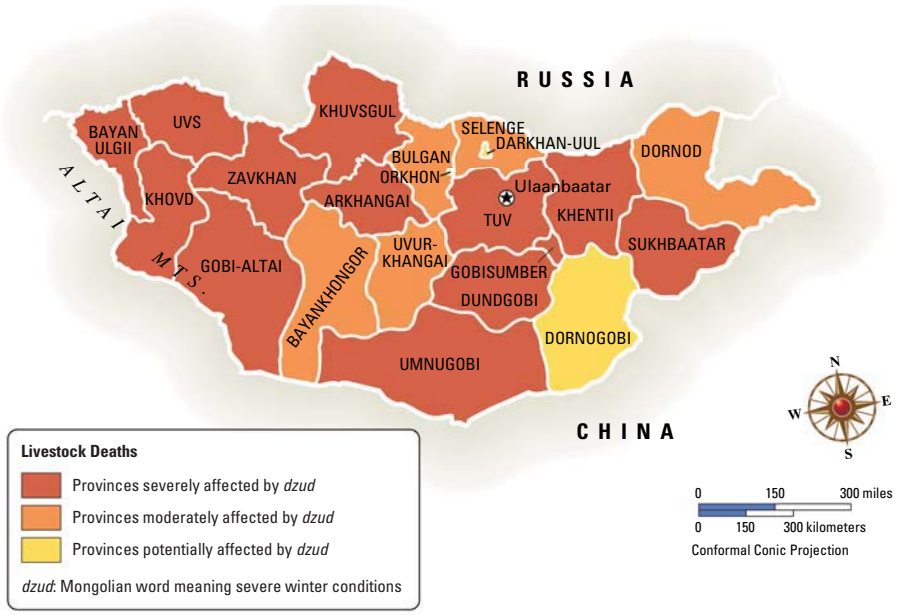
C Romania.

D Croatia.

answers: 1 (D), 2 (C)

Directions: Use the map and your knowledge of world geography to answer the questions below.

The Mongolian *Dzud* and Livestock Deaths



Source: United Nations

1 How many provinces in Mongolia were severely affected by *dzud*, the winter weather conditions?

A Over half

B One third

C All of them

D None of them

2 Which of the following province's livestock losses were only potentially affected by *dzud*?

A Zavkhan

B Dornod

C Dornogobi

D Uvur-Khangai

3 One of the reasons a record of livestock deaths is important to Mongolia is that

A there are not many livestock in the country.

B raising livestock is the basis of the Mongolian economy.

C the livestock deaths are unusual because the climate tends to be moderate.

D the country is shifting from a managed-style economy to a free-market economy.

4 This map is most likely of the *greatest* use to

A the Mongolian government and international relief agencies.

B mapmakers and elementary schools.

C the Chinese and the Russian governments.

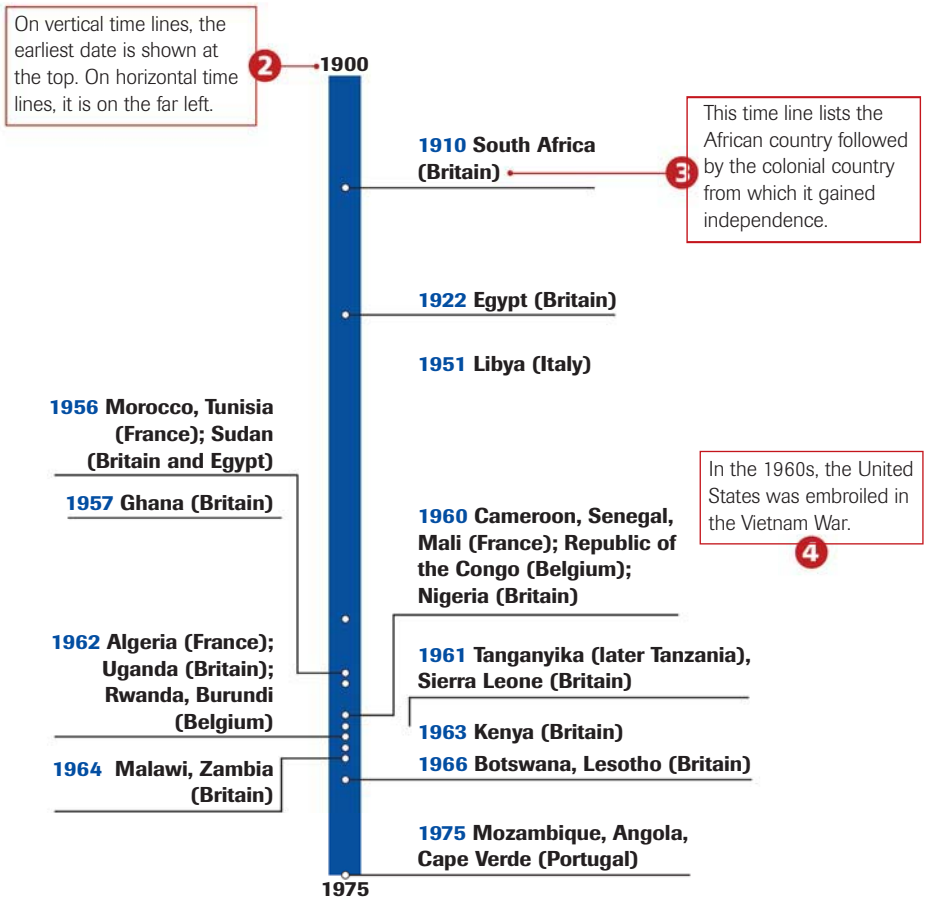
D Mongolian religious organizations.

Time Lines

A time line is a type of chart that lists events in the order in which they occurred. In other words, time lines are a visual method of showing what happened when.

1. Read the title to discover the subject of the time line.
2. Identify the time period covered by the time line by noting the earliest and latest dates shown.
3. Read the events and their dates in sequence. Notice the intervals between events.
4. Use your knowledge of history to develop a fuller picture of the events listed in the time line. For example, place the events in a broader context by considering what was happening elsewhere in the world.
5. Use the information you have gathered from these strategies to answer the questions.

1 Dates of Independence for Selected African Countries



5

1 Which of the following colonial powers is *not* shown on the time line as freeing one of its colonies in 1960?

A France

B Belgium

C Britain

D Portugal

2 You can infer from the information on the time line that French is most likely an important second language in

A Egypt.

B Morocco.

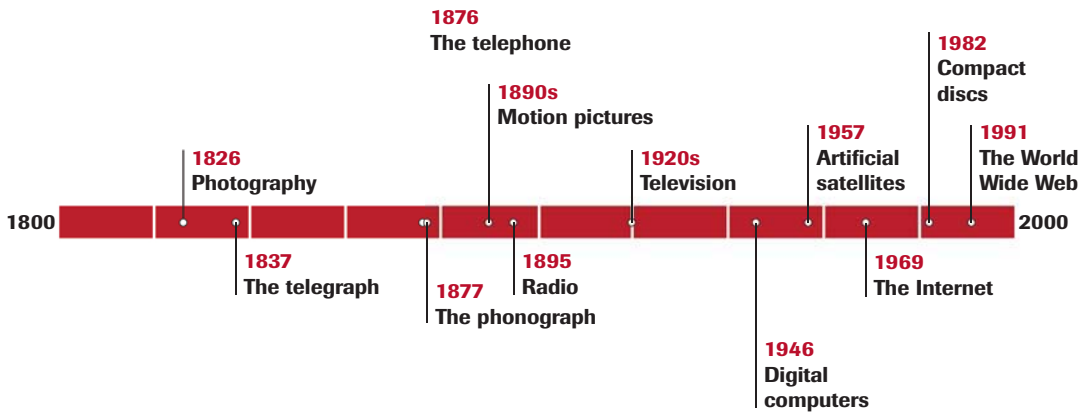
C Sierra Leone.

D Angola.

answers: 1 (D), 2 (B)

Directions: Use the time line and your knowledge of world geography to answer the questions below.

Milestones in World Communication



1 Two inventions of the 1800s that made long-distance communication possible were

A motion pictures and compact discs.

B television and the Internet.

C the telegraph and the telephone.

D the phonograph and artificial satellites.

2 About how many years after the introduction of photography were motion pictures invented?

A 34 years

B 64 years

C 94 years

D 124 years

3 The Internet followed the introduction of the digital computer by about

A 1 decade.

B 2 decades.

C 3 decades.

D 4 decades.

4 A design company has offices in Tokyo, Madrid, and Los Angeles. Which medium would the designers most likely use to share visual and written information almost instantly?

A Telegraph

B Television

C Compact discs

D The World Wide Web

Constructed Response

Constructed-response questions focus on various kinds of documents, including short passages, excerpts, cartoons, charts, graphs, maps, posters, and photographs. Each document is usually accompanied by a series of questions. These questions call for short answers that, for the most part, can be found directly in the document. Some answers, however, require knowledge of the subject addressed in the document.

1. Read the title of the document to discover the subject addressed in the questions.
2. Study and analyze the document. Take notes on what you see or read.
3. Read the questions and then examine the document again to locate the answers.
4. Carefully write your answers. Unless the directions say otherwise, your answers need not be complete sentences.

1 Size of Counties in the United States

Grounded in 19th-century ways of life, small-town America reproduced itself across a continent. Examine the counties on a map of the United States, and you will find these basic units of American self-government remarkably uniform in size across the country's eastern half. That is no coincidence; they were commonly drawn just big enough for any farmer in his horse-drawn wagon to reach the county seat and return home in a day—about a 20-mile round-trip. Out West, when the open spaces finally became too great and counties were laid off to larger scale, people devised novel ways to cope with distance; the German settlers in the Texas Hill Country built midget "Sunday houses" in town so that the necessary day-trip to church could be lengthened into two.

—Griffin Smith, Jr., "Small-Town America"

This document is an excerpt from a magazine article. 2

3 **1** According to the author, the size of counties in the eastern half of the United States is based upon what?

4 *the distance that a farmer in a horse-drawn wagon could cover in making a round-trip to the county seat in one day*

2 Why did the German settlers in the Texas Hill Country build midget "Sunday houses"?

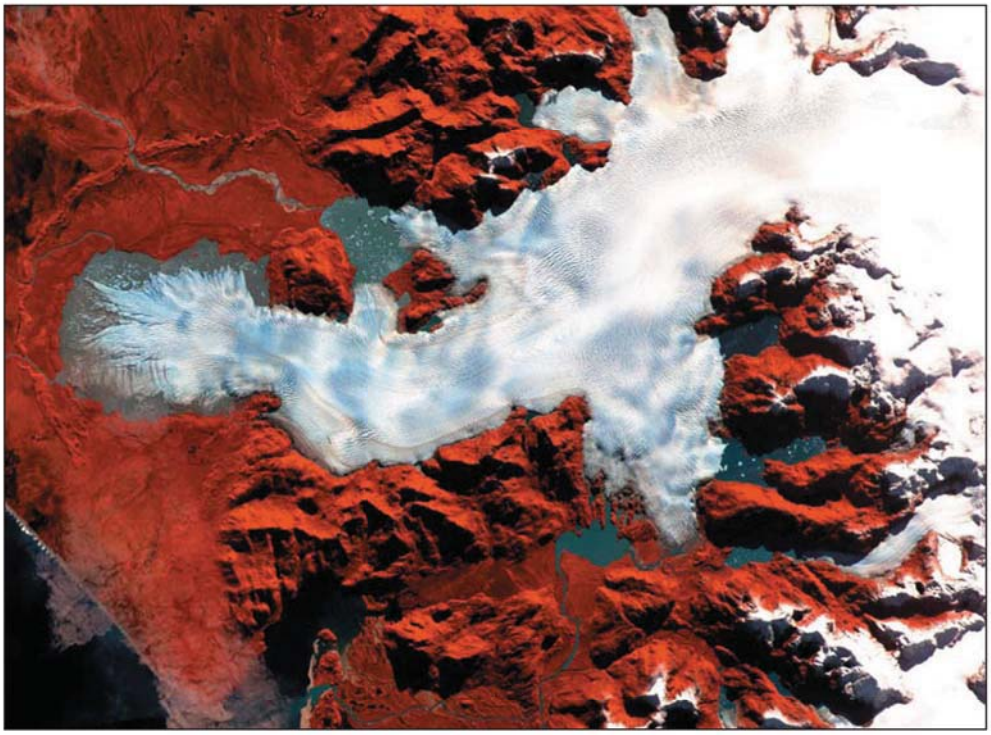
Because the counties out West were larger, the trip to town took two days, so to attend church, they built small houses to stay in overnight.

3 What 20th-century developments in transportation in the United States changed the way Americans coped with the distances described by the author?

the development of the automobile and a national highway system

Directions: Use the satellite image below and your knowledge of world geography to answer the following questions. Your answers need not be complete sentences.

Satellite Image: Glacier in Patagonia, Chile, May 2, 2000



Satellite image: NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan ASTER Science Team

Image acquired 440 miles above Earth's surface by NASA *Terra* spacecraft over the North Patagonia Ice Sheet near latitude 47°S, longitude 73°W, covering an area of 36 by 30 kilometers.

The satellite image is relayed to scientists who are studying most of the world's 16,000 glaciers. By comparing these new, more detailed images with older ones, scientists have found that the glaciers in Patagonia are melting. Some have receded as much as one mile in the past 13 years. Here, vegetation is shown in red and the glacier in white. The semicircular gray area around the spoon-like end of the glacier is a terminal moraine, which shows that the glacier was once larger than it is now.

1 What does the satellite image taken over Patagonia, Chile, show clearly?

2 What is the significance of the semicircular terminal moraine shown on the image?

3 How might satellite images help geographers and climatologists study global changes in climate?

Extended Response

Extended-response questions, like constructed-response questions, usually focus on one type of document. However, they are more complex and require more time to complete than typical short-answer constructed-response questions. Some extended-response questions ask you to present information from the document in a different form. Others ask you to write an essay or report or some other extended piece of writing. Sometimes you are required to apply your knowledge of geography to information contained in the document.

1. Read the title of the document to get an idea of the subject.
2. Study and analyze the document.
3. Carefully read each extended-response question.
4. If the question calls for a drawing, such as a diagram, graph, or chart, make a rough sketch on scrap paper first. Then make a final copy of your drawing on the answer sheet.
5. If the question requires an essay, jot down your ideas in outline form. Use this outline to write your answer.

1 Causes of Death in Developed and Developing Countries, 1993

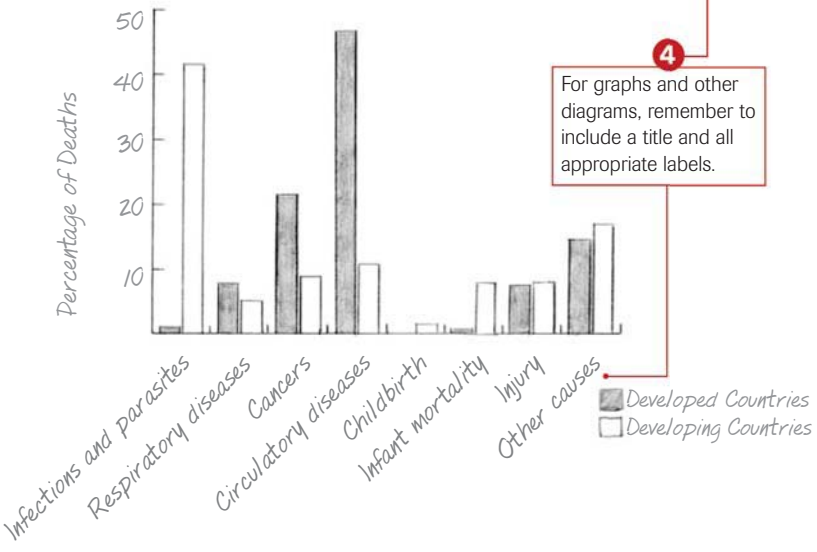
2

Cause	Developed countries (percentage of deaths)	Developing countries (percentage of deaths)
Infections and parasites	1.2	41.5
Respiratory diseases	7.8	5.0
Cancers	21.6	8.9
Circulatory diseases	46.7	10.7
Childbirth	0	1.3
Infant mortality	0.7	7.9
Injury	7.5	7.9
Other causes	14.5	16.8

Source: "Causes of Death, 1993," from *Oxford Atlas of World History,* edited by Patrick K. O'Brien. Copyright © 1999 by Oxford University Press. All rights reserved. Reprinted by permission of Oxford University Press.

3 **1** Use the information in the chart to create a bar graph showing the causes of death in developed and developing countries.

answer: *Causes of Death in Developed and Developing Countries, 1993*



4 For graphs and other diagrams, remember to include a title and all appropriate labels.

3 **2** Write a short essay summarizing what the chart and graph show about the major causes of death in developed and developing countries. Give a possible explanation for the data.

5 **Essay Rubric** The best essays will point out that infections and parasites claim the most lives in developing countries, whereas circulatory diseases and cancers are the main killers in developed countries. Poor sanitation and a lack of access to health care might account for the high death rate from infections and parasites in developing countries. In developed countries, a longer life expectancy as well as a fatty diet, smoking, and a lack of exercise might be factors in the high incidence of circulatory diseases and cancers.

Directions: Use the following passage and your knowledge of world geography to answer the questions below.

Subregions of Canada

Canada and the United States share a similar history and culture. Canada's location in the northern latitudes, however, has affected its population distribution and its economic growth in ways that make the country different from the United States.

1 The chart below lists the four subregions of Canada. Complete the chart by briefly describing the population and economic activities of each subregion. (Note that some of the answers have been written for you.)

Subregion	Population	Economic activities
Atlantic Provinces	small population due to rugged terrain and severe weather; most people living in coastal cities	logging, fishing, mining
Core Provinces—Quebec and Ontario		agriculture, mining, manufacturing
Prairie Provinces	populated by diverse immigrant groups	
Pacific Province and the Territories		logging, mining, and hydroelectric production in British Columbia; mining, fishing, and logging in territories

2 In a short essay, compare and contrast population distribution in Canada with population distribution in the United States. Note any similarities between subregions of Canada and subregions of the United States, and describe the outstanding differences.

Document-Based Questions

A document-based question (DBQ) requires you to analyze and interpret a variety of documents. These documents often are accompanied by short-answer questions. You use these answers and information from the documents to write an essay on a specified subject.

1. Read the "Context" section to get a sense of the issue addressed in the question.
2. Read the "Task" section and note the action words. This will help you understand exactly what the essay question requires.
3. Study and analyze each document. Consider what connection the documents have to the essay question. Take notes on your ideas.
4. Read and answer the document-specific questions. Think about how these questions connect to the essay topic.

Introduction

1. **Context:** In recent years, population densities in the urban areas of the United States have been falling. This is due, in large part, to urban sprawl—widespread low-density urban development, such as strip malls, large office buildings, and housing subdivisions, in areas well beyond city boundaries.
2. **Task:** Define the term *urban sprawl* and explain why this recent development has become an issue of concern, particularly in the Sunbelt states.

Part 1: Short Answer

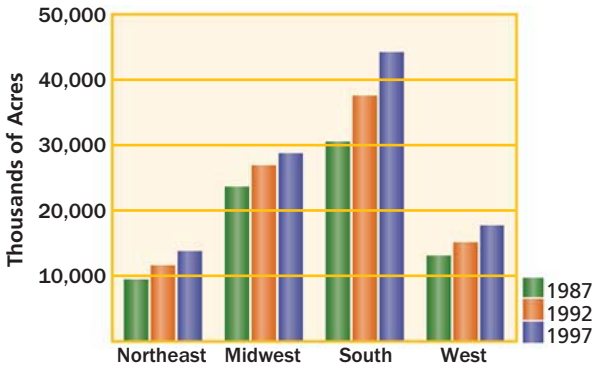
Study each document carefully and answer the questions that follow.

3. **Document 1: Urban Sprawl in Nashville, Tennessee**

4. **How does this photograph illustrate urban sprawl?**

The photograph shows low-density urban development well beyond city boundaries—a huge single-family housing subdivision butting up against the mountains.

Document 2: Developed Land in the United States



Source: *Statistical Abstract of the United States*

What trends does the bar graph show?

The area of developed land is increasing in all regions of the United States, but particularly in the South.

Document 3: The Impact of Sprawl in the United States

Sprawl increases traffic.	Sprawl lengthens trips and forces people to drive more.
Sprawl increases pollution.	As sprawl increases, people rely more and more on cars and driving. Cars are a major source of air pollution.
Sprawl increases the risk of flooding.	Developments sometimes are built on floodplains and in wetland areas.
Sprawl consumes parks, farms, and open space.	Over one million acres of parks, farms, and open space are developed each year to accommodate sprawl.
Sprawl drains the tax coffers.	Sprawl requires millions of tax dollars for new infrastructure. These tax dollars could be spent on improving existing communities.
Sprawl overcrowds schools	Sprawl puts more children in suburban schools, causing overcrowding.

Source: The Sierra Club

What is the environmental impact of the sprawl-related increase in traffic?

The increase in traffic causes an increase in air pollution.

Part 2: Essay

5 Using information from the documents, your answers to the questions in Part 1, and your knowledge of world geography, write an essay that defines the term *urban sprawl* and explains why this recent development has become an issue of concern, particularly in the Sunbelt states.

5 Carefully read the essay question. Then write an outline for your essay.

6 Write your essay. Be sure that it has an introductory paragraph that introduces your argument, main body paragraphs that explain it, and a concluding paragraph that restates your position. In your essay, include quotations or details from specific documents to support your ideas. Add other supporting facts or details that you know from your study of world geography.

6 **Essay Rubric** The best essays will point out that urban sprawl involves widespread low-density urban development (such as strip malls, large office buildings, and housing subdivisions) in areas well beyond city boundaries (Document 1). They will go on to mention that this largely unplanned and uncontrolled development is cause for concern for several reasons. These include increased traffic and related air pollution, increased risk of flooding, increased costs to government, and school overcrowding (Document 3). They will conclude by pointing out that the rapid increase in the amount of developed land in the South indicates that urban sprawl is of particular concern in the Sunbelt states (Document 2).

Introduction

Context: For more than 2,500 years, the city of Istanbul has been a center of civilization and a place of passage, where languages, crafts, goods, and necessities have exchanged hands and enriched the cultures of the world. It began as Byzantium and was later known as Constantinople. Istanbul today is the commercial center of Turkey. It has a population of over 8 million people.

Task: Discuss how the Istanbul of today is like and unlike the Constantinople of the 1300s. Discuss its role as a crossroads that connects vastly different cultures. Explain how the unique location of Istanbul is important to its development as a world port.

Part 1: Short Answer

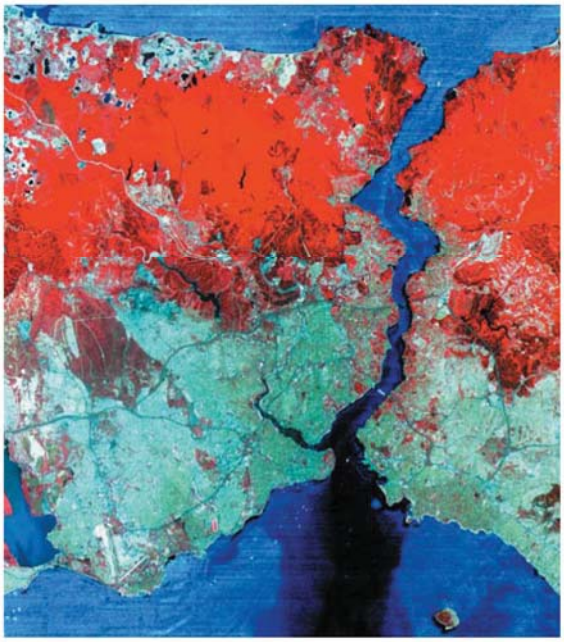
Study each document carefully and answer the questions that follow.

Document 1: Constantinople, Center of Trade and Travel in the 1300s

> [Constantinople] is enormous in size, and in two parts separated by a great river. . . . The part of the city on the eastern bank of the river is called Istanbul. . . . Its bazaars and streets are spacious and paved with flagstones; each bazaar has gates which are closed upon it at night, and the majority of the artisans and sellers in them are women. The city lies at the foot of a hill which projects about nine miles into the sea. . . . Round this hill runs the city-wall, which is very strong and cannot be taken by assault from the sea front. Within its circuit there [are] about thirteen inhabited villages. The principal church is in the midst of this part of the city. The second part, on the western bank of the river . . . is reserved to the Frankish Christians who dwell there. They are of different kinds, including Genoese, Venetians, Romans and people of France. . . . They are all men of commerce and their harbour is one of the largest in the world; I saw there about a hundred galleys and other large ships.
>
> —Excerpt from *The Adventures of Ibn Battuta: A Muslim Traveler of the 14th Century,* translated and edited by Ross W. Dunn (Berkeley: University of California Press, 1989), page 3. Reprinted by permission of the University of California Press.

What are three of the characteristics of Constantinople described by Ibn Battúta that might explain its long history as a major commercial, cultural, religious, and political center to the world?

Document 2: Istanbul, Turkey, June 16, 2000, Satellite Image



The urban areas appear blue-green; vegetation appears red; water, blue. Istanbul is divided by the Bosporus Strait, which is a deep, twisting waterway, about 19 miles long, and about 800 yards wide at places. The city is a major port for Europe and Asia.

NASA/GSFC/MITI/ERSDAC/JAROS, and U.S./Japan ASTER Science Team

What geographic factors explain the growth of Istanbul into a large city?

Document 3: Number of Ships Traveling the Bosporus, 1995–2000

Years	Tankers	Total Passages	Monthly Average	Daily Average
1995	unknown	46,954	3,912	128
1996	4,248	49,952	4,162	137
1997	4,303	50,942	4,245	142
1998	5,142	49,304	4,109	137
1999	4,452	47,906	3,992	133
2000	4,937	48,079	4,007	134

Source: "Number of Ships Traveling the Bosporus," from the Turkish Maritime Pilots' Association Web site. Reprinted by permission of the Turkish Maritime Pilots Association.

How does the chart show that Istanbul is a major port?

Part 2: Essay

Using information from the documents, your answers to the questions in Part 1, and your knowledge of world geography, write an essay that discusses how the Istanbul of today is like and unlike the Constantinople of the 1300s. Discuss its role as a crossroads that connects vastly different cultures. Explain how the unique location of Istanbul is important to its development as a world port.

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Complete Legend for Physical and Political Maps

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Lake


Salt Lake


Seasonal Lake

River

\ Waterfall

Canal

△ Mountain Peak

▲ Highest Mountain Peak

Cities

■ **Los Angeles** City over 1,000,000 population

▣ **Calgary** City of 250,000 to 1,000,000 population

• Haifa City under 250,000 population

★ *Paris* National Capital

★ **Vancouver** Secondary Capital (State, Province, or Territory)

Type Styles Used to Name Features

CHINA Country

ONTARIO State, Province, or Territory

PUERTO RICO (U.S.) Possession

ATLANTIC OCEAN Ocean or Sea

Alps Physical Feature

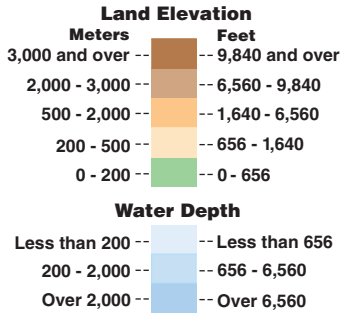
Borneo Island

Boundaries


International Boundary


Secondary Boundary

Land Elevation and Water Depths



ATLAS


ARCTIC OCEAN
NORTH AMERICA
SOUTH AMERICA
ATLANTIC OCEAN
PACIFIC OCEAN
PACIFIC OCEAN
Greenland
Baffin Island
Baffin Bay
Jan Mayen
Arctic Circle
Iceland
Faroe Is.
British Isles
London
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Mackenzie
Yukon
Mt. McKinley △ 20,320 Ft 6,194m
Aleutian Islands
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Rocky Mountains
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Cape Hatteras
Los Angeles
Colorado
Mississippi
Azores
Iberian Peninsula
Atlas Mts.
Canary Islands
Midway Is.
Tropic of Cancer
Baja California
Gulf of Mexico
Hawaiian Islands
Yucatan Peninsula
Cuba
Hispaniola
Puerto Rico
Jamaica
Caribbean Sea
Cape Verde Islands
Cape Verde
Niger
Trinidad
Orinoco
Palmyra
Equator
Kiribati
Galapagos Islands
Amazon
Amazon Basin
Andes
Marquesas Is.
Samoa Islands
Mato Grosso Plateau
St. Helena
Cook Islands
Tonga Is.
Tahiti
Tropic of Capricorn
Rio de Janeiro
Easter Island
Parana
△ Mt. Aconcagua 22,831 Ft 6,959m
Buenos Aires
Archipiélago Juan Fernández
Chatham Is.
Patagonia
Falkland Is.
South Georgia
Tierra del Fuego
Cape Horn
South Sandwich Is.
South Orkney Is.
South Shetland Is.
Antarctic Circle
Antarctic Peninsula
Weddell Sea
Ross Sea
Marie Byrd Land
△ Vinson Massif 16,066 Ft 4,897m
N
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
Copyright by Rand McNally & Co.
Robinson Projection


ARCTIC OCEAN
Spitsbergen
Franz Josef Land
North Cape
Novaya Zemlya
Scandinavian Peninsula
Yenisey
Lena
Ob'
Ural Mts.
Siberia
EUROPE
Volga
Moscow
North Sea
Don
Aral Sea
Altai Mts.
Amur
Sea of Okhotsk
Bering Sea
Kamchatka Peninsula
Sakhalin
Alps
Balkan Peninsula
Black Sea
Caucasus
Mt. Elbrus
18,510 Ft.
5,642m
Caspian Sea
ASIA
Gobi Desert
Hokkaidō
Honshū
Sea of Japan
Sardinia
Pamir
Beijing
Sicily
Crete
Cyprus
Mediterranean Sea
Zagros Mts.
Indus
Plateau of Tibet
Himalayas
Mt. Everest
29,035 Ft.
8,850m
Huang
Yangtze
East China Sea
Kyūshū
Cairo
Ganges
PACIFIC
Tropic of Cancer
Sahara Desert
Arabian Peninsula
Taiwan
Mariana Islands
Wake Island
Hainan Island
Mumbai
(Bombay)
Deccan Plateau
Mekong
South China Sea
Luzon
Guam
AFRICA
Nile
Red Sea
Arabian Sea
Bay of Bengal
Sahel
Socotra
Lakshadweep
Mindanao
Palau Islands
Caroline Islands
Marshall Islands
OCEAN
Ethiopian Plateau
Sri Lanka
Malay Peninsula
Gulf of Guinea
Congo
Congo Basin
Rift Valley
Maldive Islands
Borneo
Celebes
Equator
Kilimanjaro
19,340 Ft.
5,895m
Seychelles
Sumatra
New Guinea
Solomon Islands
Java
Timor
INDIAN
Cocos Island
Zambezi
Madagascar
Coral Sea
New Hebrides
Fiji Is.
New Caledonia
Great Sandy Desert
Mauritius
Reunion
Kalahari Desert
Tropic of Capricorn
AUSTRALIA
Great Dividing Range
Darling
OCEAN
Cape Town
Cape of Good Hope
Cape Leeuwin
Sydney
North Island
Aoraki
(Mt. Cook)
12,316 Ft.
3,754m
Tasmania
South Island
Kerguelen Islands
SOUTHERN OCEAN
Antarctic Circle
Queen Maud Land
Enderby Land
Wilkes Land
Victoria Land
ANTARCTICA
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560


ARCTIC OCEAN
Baffin Bay
GREENLAND (Den.)
Arctic Circle
ICELAND
FARDE IS. (Den.)
RUSSIA
ALASKA
Yukon (U.S.)
Anchorage
Hudson Bay
CANADA
Aleutian Islands
Vancouver
Newfoundland
UNITED KINGDOM
IRELAND
London
Missouri
Montréal
Ottawa
FRANCE
Chicago
UNITED STATES
New York
Washington D.C.
Madrid
PORTUGAL
SPAIN
Azores (Port.)
Los Angeles
Colorado
Mississippi
Casablanca
MOROCCO
Houston
MIDWAY IS. (U.S.)
Gulf of Mexico
ATLANTIC
Canary Islands (Sp.)
Tropic of Cancer
MEXICO
BAHAMAS
Hawaiian Islands (U.S.)
Mexico City
CUBA
HAITI
DOM. REP.
PUERTO RICO (U.S.)
CAPE VERDE
MAURITANIA
MALI
BELIZE
JAMAICA
Caribbean Sea
SENEGAL
GUAT.
HOND.
EL. SAL.
NIC.
GAMBIA
Niger
BURK. FASO
PACIFIC
Caracas
TRINIDAD AND TOBAGO
GUINEA-BISSAU
GUINEA
COSTA RICA
VENEZUELA
GUYANA
PANAMA
SIERRA LEONE
COTE D'IVOIRE
GHANA
SURINAME
FRENCH GUIANA
LIBERIA
COLOMBIA
Equator
Galapagos Islands (Ecuador)
ECUADOR
Amazon
KIRIBATI
PERU
BRAZIL
OCEAN
OCEAN
Lima
SAMOA
AMERICAN SAMOA
COOK ISLANDS (N.Z.)
TONGA
FRENCH POLYNESIA
ST. HELENA (U.K.)
BOLIVIA
Tropic of Capricorn
Rio de Janeiro
PARAGUAY
Easter Island (Chile)
ARGENTINA
Santiago
URUGUAY
Buenos Aires
CHILE
N
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
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Robinson Projection
FALKLAND IS. (U.K.)
South Georgia (U.K.)
South Orkney Is. (U.K.)
South Shetland Is. (U.K.)
Antarctic Circle
Weddell Sea


ARCTIC OCEAN
Franz Josef Land
Spitsbergen (Nor.)
Novaya Zemlya
Yenisey
Lena
Ob'
RUSSIA
NORWAY
FINLAND
SWEDEN
EST.
LAT.
LITH.
North Sea
Moscow
Volga
Novosibirsk
Sea of Okhotsk
Bering Sea
BELARUS
POLAND
GERMANY
UKRAINE
KAZAKHSTAN
MONGOLIA
ROM.
Black Sea
Rome
ITALY
BUL.
GREECE
TURKEY
Caucasus Mts.
GEO.
ARM.
AZER.
UZBEKISTAN
KYRG.
TURKMENISTAN
TAJIK.
Beijing
NORTH KOREA
Sea of Japan
SOUTH KOREA
JAPAN
Tokyo
Crete
Mediterranean Sea
TUNISIA
CYPRUS
SYRIA
LEB.
ISRAEL
IRAQ
IRAN
AFGHANISTAN
CHINA
Cairo
JORDAN
KUWAIT
PAKISTAN
Shanghai
ALGERIA
LIBYA
EGYPT
SAUDI ARABIA
QATAR
U.A.E.
NEPAL
Ganges
Chang Jiang (Yangtze)
Kolkata (Calcutta)
BHU.
Guangzhou
TAIWAN
PACIFIC OCEAN
Tropic of Cancer
Red Sea
OMAN
Mumbai (Bombay)
INDIA
MYANMAR
LAOS
NORTHERN MARIANA ISLANDS (U.S.)
WAKE ISLAND (U.S.)
NIGER
Nile
ERITREA
YEMEN
Arabian Sea
Bay of Bengal
THAILAND
South China Sea
PHILIPPINES
GUAM (U.S.)
Bangkok
CAMBODIA
VIETNAM
CHAD
SUDAN
Addis Ababa
DJIBOUTI
NIGERIA
Lagos
CENTRAL AFRICAN REPUBLIC
ETHIOPIA
SRI LANKA
PALAU
FED. STATES OF MICRONESIA
MARSHALL ISLANDS
CAMEROON
EQUATORIAL GUINEA
Congo
UGANDA
KENYA
SOMALIA
MALDIVES
BRUNEI
MALAYSIA
SINGAPORE
Borneo
New Guinea
Equator
GABON
RWANDA
REP. OF CONGO
DEM. REP. OF CONGO
BURUNDI
Sumatra
Jakarta
INDONESIA
PAPUA NEW GUINEA
SOLOMON ISLANDS
SEYCHELLES
TANZANIA
Java
EAST TIMOR
INDIAN OCEAN
COMOROS
Darwin
ANGOLA
ZAMBIA
MALAWI
MOZAMBIQUE
Coral Sea
VANUATU
FIJI
NEW CALEDONIA (Fr.)
NAMIBIA
ZIMBABWE
MADAGASCAR
MAURITIUS
REUNION (Fr.)
Tropic of Capricorn
BOTSWANA
AUSTRALIA
SWAZILAND
SOUTH AFRICA
LESOTHO
Darling
Perth
Sydney
Cape Town
Melbourne
NEW ZEALAND
Wellington
Tasmania
Kerguelen Islands (Fr.)
SOUTHERN OCEAN
Antarctic Circle
ANTARCTICA
National Capital
Major Cities


180°
150°
120°
90°
60°
30°
75°
60°
45°
30°
15°
0°
15°
30°
Arctic
Tropic of Cancer
Equator
Tropic of Capricorn
Antarctic Circle
Vancouver
Montréal
Chicago
New York
Los Angeles
Houston
Mexico City
Caracas
Rio de Janeiro
Buenos Aires
London
Madrid
ATLANTIC
OCEAN
PACIFIC
OCEAN
N
TROPICAL
Hot with Rain All Year
Hot with Seasonal Rain
DRY
Desert
Some Rain
MODERATE (RAINY WINTER)
Hot, Dry Summer
Hot, Humid Summer
Mild, Rainy Summer
CONTINENTAL (SNOWY WINTER)
Long, Warm, Humid Summer
Short, Cool, Humid Summer
Very Short, Cool, Humid Summer
POLAR
Tundra – Very Cold and Dry
Ice Cap
HIGHLANDS
Varies with Altitude
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
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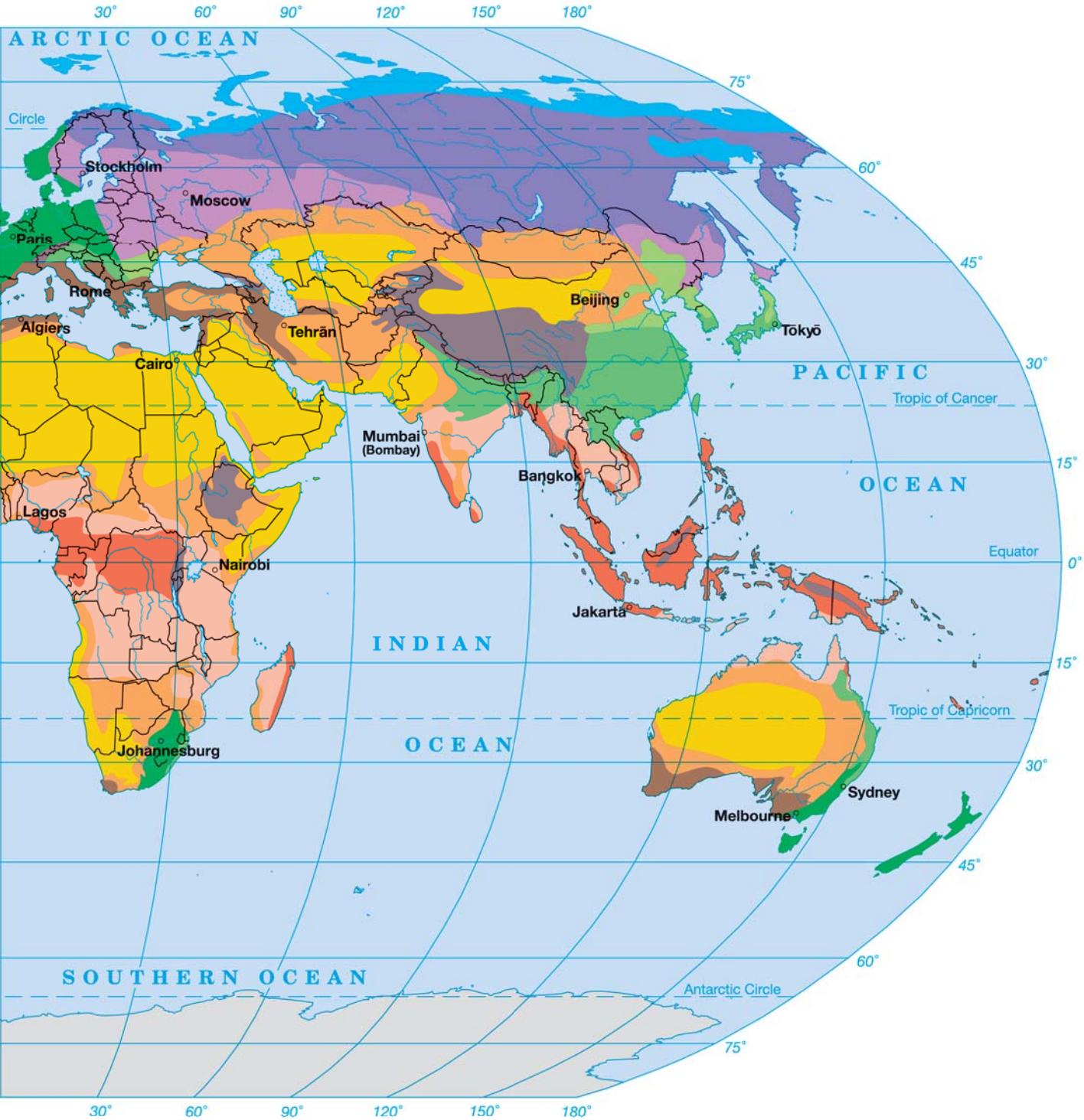
Robinson Projection


30°
60°
90°
120°
150°
180°
ARCTIC OCEAN
75°
Circle
60°
Stockholm
Moscow
Paris
45°
Rome
Beijing
Algiers
Tehrān
Tōkyō
30°
Cairo
PACIFIC
Tropic of Cancer
Mumbai
(Bombay)
15°
Bangkok
OCEAN
Lagos
Equator
0°
Nairobi
Jakartā
INDIAN
15°
Tropic of Capricorn
OCEAN
Johannesburg
30°
Sydney
Melbourne
45°
60°
SOUTHERN OCEAN
Antarctic Circle
75°
30°
60°
90°
120°
150°
180°


180°
150°
120°
90°
60°
30°
75°
60°
45°
30°
15°
0°
15°
30°
75°
Arctic
Tropic of Cancer
Equator
Tropic of Capricorn
Antarctic Circle
Vancouver
Montréal
Chicago
New York
Los Angeles
Houston
Mexico City
Caracas
Rio de Janeiro
Buenos Aires
London
Madrid
ATLANTIC
OCEAN
PACIFIC
OCEAN
N
Forest
Swamp
Crop and Woodland
Cropland
Crop and Grazing Land
Grassland
Desert
Tundra
Barren
Urban
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
Copyright by Rand McNally & Co.
Robinson Projection


30°
60°
90°
120°
150°
180°
ARCTIC OCEAN
75°
Circle
60°
Stockholm
Moscow
Paris
45°
Rome
Beijing
Algiers
Tehrān
Tōkyō
Cairo
30°
PACIFIC
Tropic of Cancer
Mumbai
(Bombay)
15°
Bangkok
OCEAN
Lagos
Equator
0°
Nairobi
Jakartā
INDIAN
15°
Tropic of Capricorn
OCEAN
Johannesburg
30°
Sydney
Melbourne
45°
60°
SOUTHERN OCEAN
Antarctic Circle
75°
30°
60°
90°
120°
150°
180°


180°
150°
120°
90°
60°
30°
75°
60°
45°
30°
15°
0°
15°
30°
75°
Arctic
Tropic of Cancer
Equator
Tropic of Capricorn
Antarctic Circle
Vancouver
Montréal
Chicago
New York
Los Angeles
Houston
Mexico City
Caracas
Rio de Janeiro
Buenos Aires
London
Madrid
ATLANTIC
OCEAN
PACIFIC
OCEAN
N
Per square mile
(per square kilometer)
Under 2 (Under 1)
2-60 (1-25)
60-125 (25-50)
125-250 (50-100)
Over 250 (Over 100)
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
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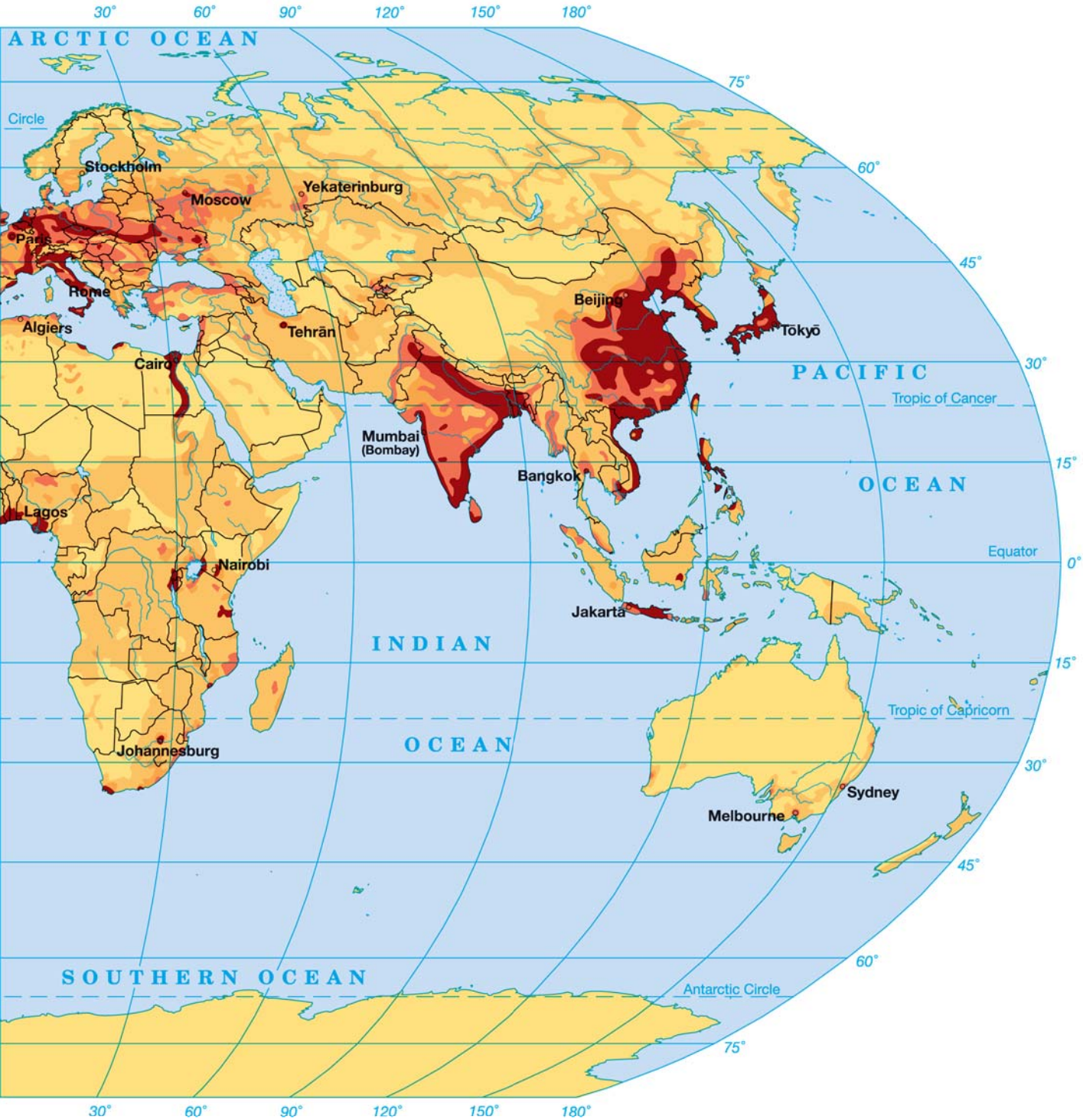
Robinson Projection


30°
60°
90°
120°
150°
180°
ARCTIC OCEAN
75°
Circle
60°
Stockholm
Moscow
Yekaterinburg
45°
Paris
Rome
Beijing
Algiers
Tehrān
Tōkyō
Cairo
30°
PACIFIC
Tropic of Cancer
Mumbai
(Bombay)
15°
Bangkok
OCEAN
Lagos
Equator
0°
Nairobi
Jakarta
INDIAN
15°
Tropic of Capricorn
OCEAN
Johannesburg
30°
Sydney
Melbourne
45°
60°
SOUTHERN OCEAN
Antarctic Circle
75°
30°
60°
90°
120°
150°
180°


180°
150°
120°
90°
60°
30°
75°
60°
45°
30°
15°
0°
15°
30°
75°
Arctic
Tropic of Cancer
Equator
Tropic of Capricorn
Antarctic Circle
Vancouver
Montréal
Chicago
New York
Los Angeles
Houston
Mexico City
Caracas
Rio de Janeiro
Buenos Aires
London
Madrid
ATLANTIC
OCEAN
PACIFIC
OCEAN
N
Little or no activity
Nomadic Herding
Hunting, Forestry, Subsistence Farming
Forestry
Agriculture
Stock Raising
Manufacturing, Commerce
Fishing
0 1000 2000 Miles
0 1000 2000 3000 Kilometers
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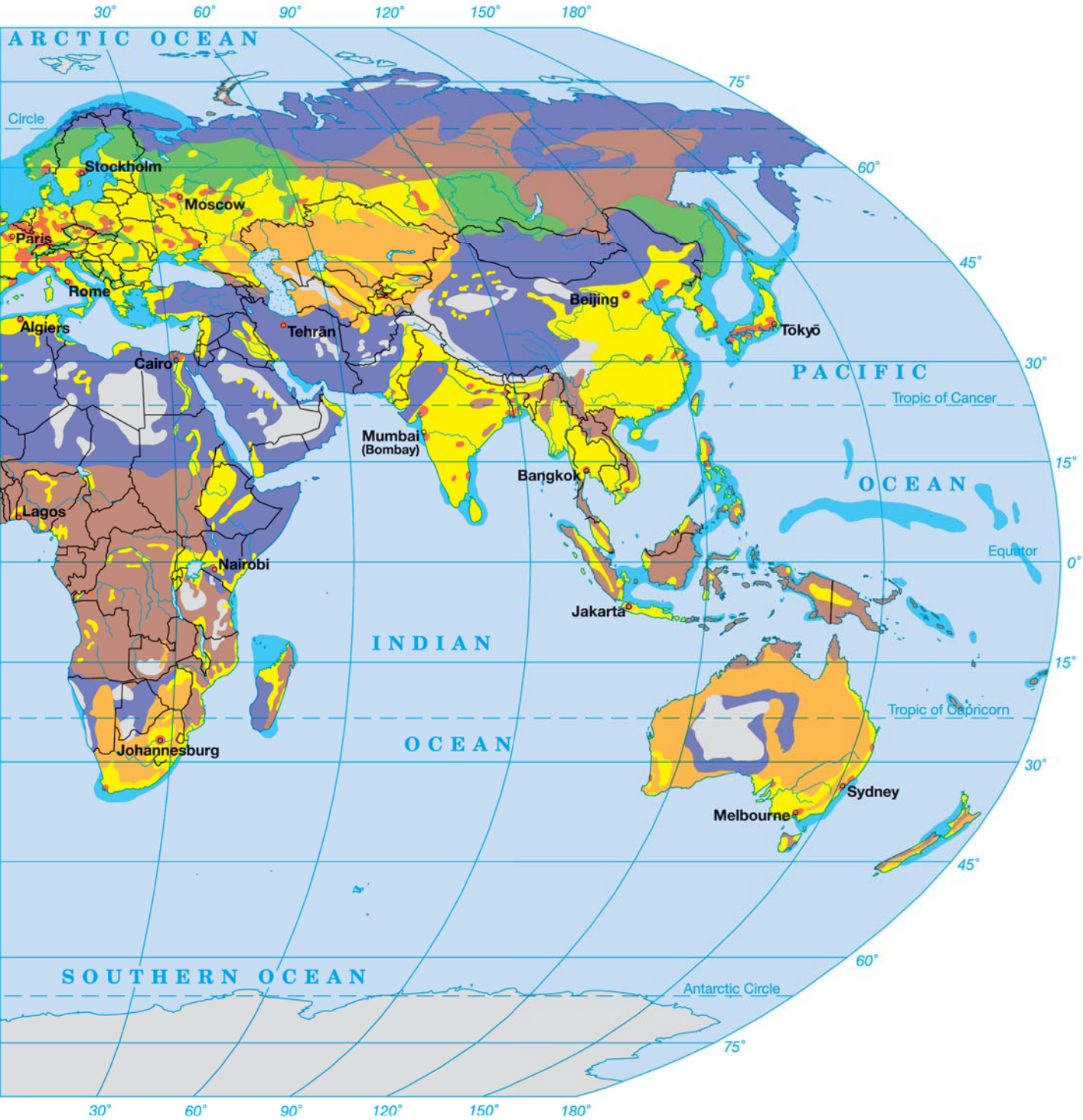
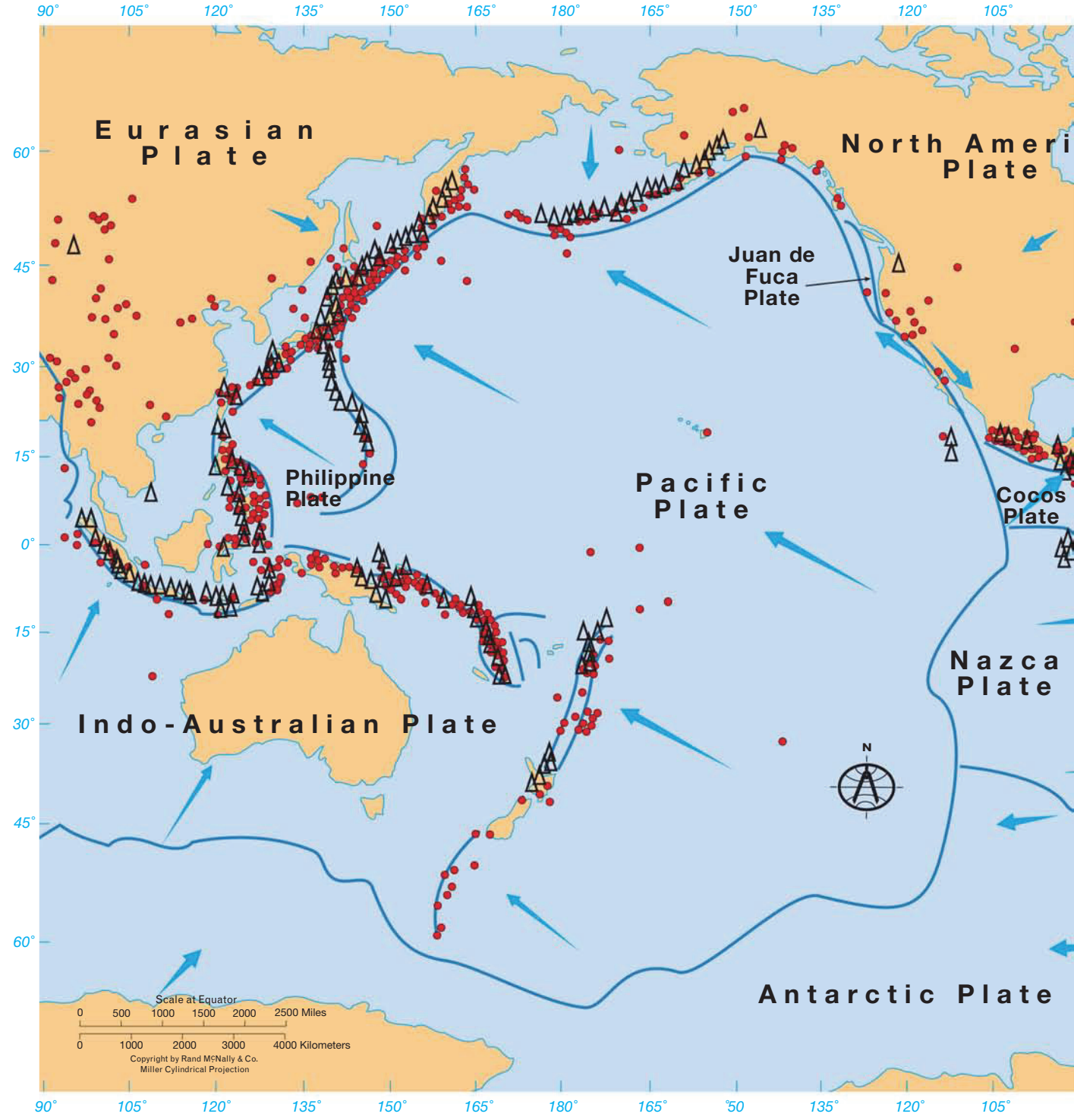
Robinson Projection


30°
60°
90°
120°
150°
180°
ARCTIC OCEAN
75°
Circle
60°
Stockholm
Moscow
Paris
45°
Rome
Beijing
Algiers
Tehrān
Tōkyō
30°
Cairo
PACIFIC
Tropic of Cancer
Mumbai
(Bombay)
15°
Bangkok
OCEAN
Lagos
Equator
0°
Nairobi
Jakartā
INDIAN
15°
Tropic of Capricorn
OCEAN
Johannesburg
30°
Sydney
Melbourne
45°
60°
SOUTHERN OCEAN
Antarctic Circle
75°
30°
60°
90°
120°
150°
180°


90° 105° 120° 135° 150° 165° 180° 165° 150° 135° 120° 105°
60°
45°
30°
15°
0°
15°
30°
45°
60°
Eurasian Plate
North Ameri Plate
Juan de Fuca Plate
Philippine Plate
Pacific Plate
Cocos Plate
Nazca Plate
Indo-Australian Plate
Antarctic Plate
N
Scale at Equator
0 500 1000 1500 2000 2500 Miles
0 1000 2000 3000 4000 Kilometers
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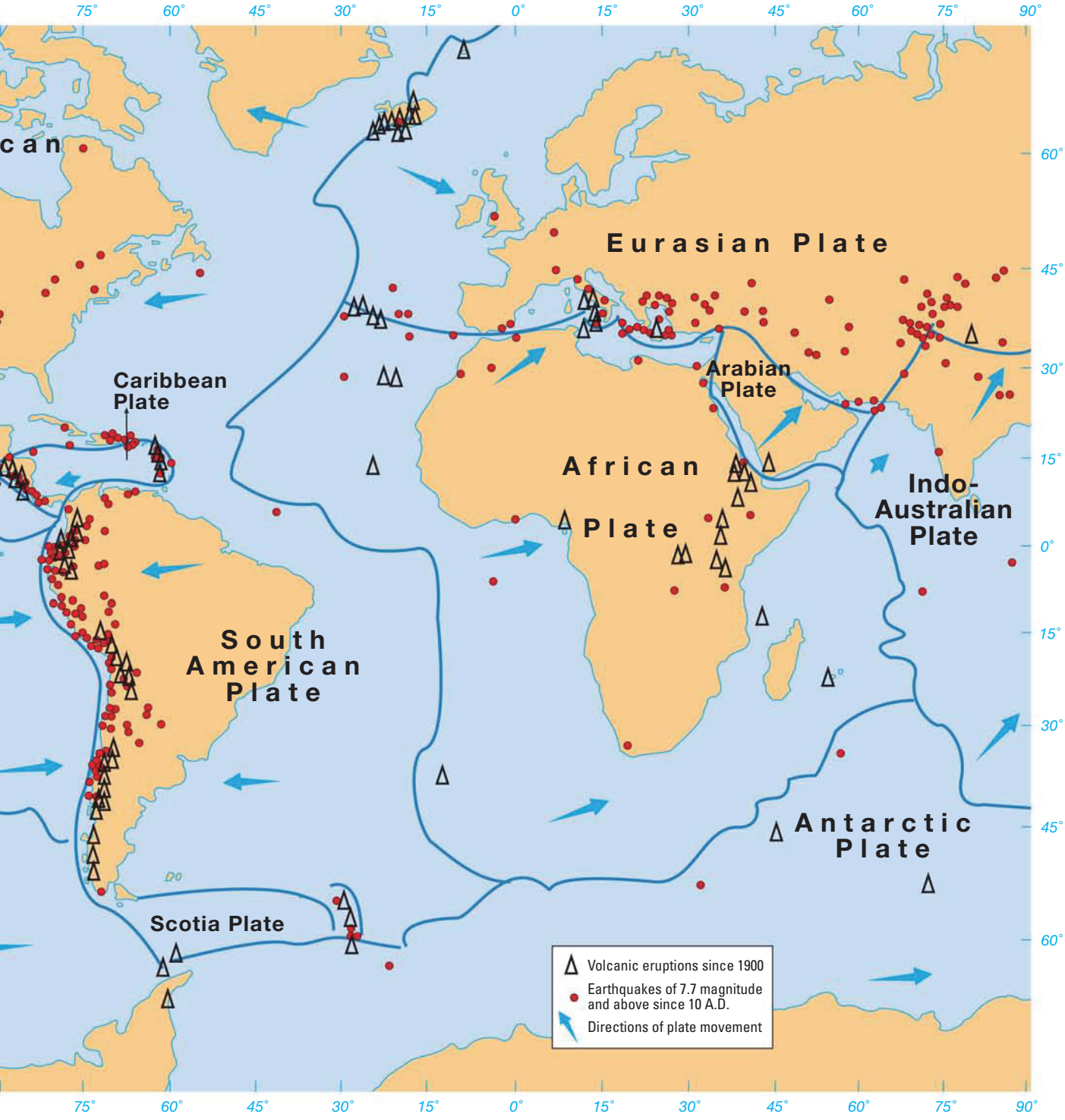
Miller Cylindrical Projection


75° 60° 45° 30° 15° 0° 15° 30° 45° 60° 75° 90°
60°
45°
30°
15°
0°
15°
30°
45°
60°
Eurasian Plate
Arabian Plate
Caribbean Plate
African Plate
Indo-Australian Plate
South American Plate
Antarctic Plate
Scotia Plate
Volcanic eruptions since 1900
Earthquakes of 7.7 magnitude and above since 10 A.D.
Directions of plate movement


11pm
Midnight
1 am
2 am
3 am
4 am
5 am
6 am
7 am
8 am
9 am
10 am
Anchorage
Edmonton
NORTH AMERICA
Montreal
Chicago
New York
Los Angeles
Mexico City
Caracas
Dakar
SOUTH AMERICA
Lima
Rio de Janeiro
Buenos Aires
Auckland
INTERNATIONAL DATE LINE
Nonstandard time zones


am
Noon
1 pm
2 pm
3 pm
4 pm
5 pm
6 pm
7 pm
8 pm
9 pm
10 pm
PRIME MERIDIAN
Stockholm
Moscow
Yekaterinburg
Novosibirsk
London
EUROPE
Paris
Rome
Madrid
ASIA
Beijing
Tehran
Tōkyō
Cairo
Mumbai
(Bombay)
Bangkok
AFRICA
Lagos
Nairobi
Johannesburg
AUSTRALIA
Sydney
N
Scale at Equator
0 1000 2000 3000 4000 Miles
0 1000 2000 3000 4000 5000 6000 Kilometers
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Mercator Projection
am
Noon
1 pm
2 pm
3 pm
4 pm
5 pm
6 pm
7 pm
8 pm
9 pm
10 pm


WASHINGTON
OREGON
CALIFORNIA
NEVADA
IDAHO
MONTANA
WYOMING
UTAH
COLORADO
ARIZONA
NEW MEXICO
NORTH DAKOTA
SOUTH DAKOTA
NEBRASKA
KANSAS
OKLAHOMA
TEXAS
ALBERTA
SASKATCHEWAN
MANITOBA
BRITISH COLUMBIA
YUKON
NORTHWEST TERRITORIES
CANADA
MEXICO
PACIFIC OCEAN
ARCTIC OCEAN
Rocky Mountains
Great Plains
Sierra Nevada
Cascade Range
Coast Ranges
Columbia Plateau
Great Basin
Colorado Plateau
Mojave Desert
Central Valley
Harney Basin
Great Salt Lake
Great Divide Basin
Flaming Gorge Res.
Wasatch Range
Uinta Mts.
Front Range
Black Hills
Badlands
Llano Estacado
Edwards Plateau
Stockton Plateau
Brooks Range
Alaska Range
Aleutian Islands
Alaska Peninsula
Bering Sea
Gulf of Alaska
Seattle
Portland
Spokane
San Francisco
Los Angeles
Phoenix
Denver
Dallas
Anchorage
Fairbanks
Juneau
Valdez
Nome
Point Barrow
Prudhoe Bay
Kodiak Island
Kenai Pen.
Bristol Bay
Mt. Rainier 14,410 Ft. 4,392m
Mt. Saint Helens 8,364 Ft. 2,549m
Mt. Hood 11,239 Ft. 3,426m
Olympic Mts. Mt. Olympus 7,965 Ft. 2,428m
Mt. McLoughlin 9,495 Ft. 2,894m
Mt. Shasta 14,162 Ft. 4,317m
Mt. Whitney 14,494 Ft. 4,418m
Death Valley
Telescope Peak 11,050 Ft. 3,368m
Lake Tahoe
Shasta Lake
Pyramid Lake
Lake Mead
Grand Canyon
Humphreys Peak 12,633 Ft. 3,851m
Wheeler Peak 13,064 Ft. 3,982m
Granite Peak 12,799 Ft. 3,901m
Borah Peak 12,662 Ft. 3,859m
Grand Teton 13,770 Ft. 4,197m
Cloud Peak 13,167 Ft. 4,013m
Harney Peak 7,242 Ft. 2,207m
Kings Peak 13,528 Ft. 4,123m
Longs Peak 14,255 Ft. 4,345m
Mt. Elbert 14,433 Ft. 4,399m
Pikes Pk. 14,110 Ft. 4,301m
Wheeler Peak 13,161 Ft. 4,011m
Mt. Taylor 11,301 Ft. 3,445m
Baldy Peak 11,404 Ft. 3,476m
Guadalupe Pk. 8,749 Ft. 2,667m
Emory Peak 7,825 Ft. 2,385m
Mt. McKinley 20,320 Ft. 6,194m
Cape Flattery
Cape Blanco
Cape Mendocino
Point Arguello
Channel Islands
Salton Sea
Lake Powell
Lake Texoma
Padre Island
Columbia
Snake
Colorado
Rio Grande
Missouri
Yellowstone
Salmon River Mountains
Clark Fork
Bitterroot Range
Flathead Lake
Fort Peck Lake
Lake Sakakawea
Lake Oahe
Lake Francis Case
American Falls Res.
Pecos
Brazos
Canadian
Arkansas
Red
Niobrara
North Loup
North Platte
South Platte
Platte
Republican
Smoky Hill
Cimarron
Nueces
Hawaii
Oahu
Honolulu
Maui
Kauai
Molokai
Lanai
Kahoolawe
Niihau
Kalaheo
Wahiawa
Hilo
Mauna Kea 13,796 Ft. 4,205m
Mauna Loa 13,679 Ft. 4,169m
HAWAII
PACIFIC OCEAN
Hawaiian Islands
Kauai Channel
0 50 Miles
0 50 Kilometers
0 100 200 300 Miles
0 200 400 Kilometers
© RMcN.


CANADA
ONTARIO
QUEBEC
NEW BRUNSWICK
MAINE
Mt. Katahdin 5,268 Ft. △1,606m
Moosehead Lake
Kennebec
St. Lawrence
Montréal
Lake Winnipeg
Lake of the Woods
Lake Nipigon
Isle Royale
Lake Superior
Keweenaw Peninsula
Whitefish Point
Great Lakes
Upper Peninsula
MINNESOTA
MICHIGAN
Green Bay
Georgian Bay
Bruce Peninsula
Lake Huron
Saginaw Bay
Lake Champlain
VERMONT
White Mts.
△Mt. Washington 6,288 Ft. 1,917m
Adirondack Mountains
Green Mts.
NEW HAMPSHIRE
Gulf of Maine
Minneapolis
Minnesota
Chippewa
WISCONSIN
Lake Winnebago
Wisconsin
Lake Michigan
Muskegon
Lower Peninsula
Grand
Toronto
Lake Ontario
NEW YORK
Niagara Falls
Catskill Mts.
Hudson
Connecticut
MASS.
Boston
Cape Cod
Nantucket Island
CONNECTICUT
R.I.
Detroit
Lake Erie
Allegheny Plateau
PENNSYLVANIA
Long Island
New York
IOWA
Iowa
Des Moines
Chicago
Maumee
Susquehanna
Philadelphia
NEW JERSEY
Mississippi
Illinois
INDIANA
OHIO
Scioto
Ohio
Allegheny Mountains
Delaware Bay
DELAWARE
MARYLAND
Washington D.C.
ATLANTIC OCEAN
STATES
ILLINOIS
WEST VIRGINIA
Kansas
Lake of the Ozarks
Missouri
St. Louis
White
Wabash
Ohio
James
VIRGINIA
Chesapeake Bay
MISSOURI
Green
KENTUCKY
Lake Cumberland
Cumberland
Roanoke
Albemarle Sound
Flint Hills
Neosho
Ozark Plateau
Cumberland Plateau
Mt. Mitchell 6,684 Ft. △2,037m
Appalachian Mts.
Blue Ridge
Piedmont
NORTH CAROLINA
Cape Hatteras
Pamlico Sound
Cape Lookout
Boston Mts.
White
Kentucky Lake
Mississippi
TENNESSEE
Arkansas
Ouachita Mts.
ARKANSAS
Tennessee
Clarks Hill Lake
Atlanta
SOUTH CAROLINA
Pee Dee
Santee
Cape Fear
Coastal Plain
Savannah
Sea Islands
Ouachita
Yazoo
Tombigbee
MISSISSIPPI
ALABAMA
GEORGIA
Altamaha
Sabine
Pearl
Alabama
Chattahoochee
Flint
Sam Rayburn Res.
Toledo Bend Res.
Red
Trinity
LOUISIANA
Suwannee
Cape San Blas
Apalachee Bay
New Orleans
Houston
Atchafalaya Bay
Mississippi Delta
Cape Canaveral
Tampa Bay
FLORIDA
Lake Okeechobee
The Everglades
Miami
Cape Sable
Florida Keys
GULF OF MEXICO
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
0 100 200 300 Miles
0 100 200 300 400 Kilometers
Copyright by Rand McNally & Co.
Albers Conic Equal Area Projection
N
67°
66°
19°
18°
ATLANTIC OCEAN
San Juan
Arecibo
Mayagüez
Ponce
Caguas
PUERTO RICO (U.S.)
0 25 50 Miles
0 25 50 Kilometers
Caribbean Sea
© RMcN.
95°
90°
85°
80°
75°
70°
50°
45°
40°
35°
30°
25°


Bellingham
Seattle
Olympia
Tacoma
WASHINGTON
Yakima
Kennewick
Spokane
Coeur d'Alene
Lewiston
Portland
Salem
Corvallis
Eugene
Pendleton
Bend
OREGON
Medford
Klamath Falls
Eureka
Sacramento
Santa Rosa
Oakland
San Francisco
San Jose
Stockton
Modesto
Monterey
Fresno
CALIFORNIA
Bakersfield
Santa Barbara
Los Angeles
Long Beach
San Bernardino
Riverside
San Diego
Tijuana
Las Vegas
Reno
Carson City
Lake Tahoe
NEVADA
Winnemucca
Humboldt
Elko
Ely
Pyramid Lake
Shasta Lake
Goose Lake
Nampa
Boise
Idaho Falls
Twin Falls
Pocatello
IDAHO
Missoula
Helena
Butte
Great Falls
Bozeman
Billings
Miles City
MONTANA
Flathead Lake
Fort Peck Lake
Minot
Grand Forks
Bismarck
Fargo
NORTH DAKOTA
Aberdeen
Pierre
Rapid City
SOUTH DAKOTA
Sioux Falls
Lake Oahe
Lake Francis Case
Sheridan
Casper
Rock Springs
Laramie
Cheyenne
WYOMING
Scottsbluff
Norfolk
North Platte
Grand Island
Lincoln
NEBRASKA
Logan
Ogden
Salt Lake City
Provo
Great Salt Lake
UTAH
Fort Collins
Boulder
Denver
Colorado Springs
Pueblo
Grand Junction
Moab
Cedar City
St. George
Durango
COLORADO
Salina
Hutchinson
Wichita
Dodge City
KANSAS
Farmington
Gallup
Santa Fe
Albuquerque
Clovis
Roswell
Alamogordo
Las Cruces
Hobbs
NEW MEXICO
Flagstaff
Prescott
Phoenix
Yuma
Tucson
Nogales
ARIZONA
Enid
Stillwater
Oklahoma City
Amarillo
Lawton
OKLAHOMA
Wichita Falls
Lubbock
Midland
Odessa
San Angelo
Waco
Dallas
Fort Worth
TEXAS
Austin
Del Rio
San Antonio
Laredo
Corpus Christi
McAllen
Brownsville
MEXICO
Lake Mead
Lake Powell
Lake Texoma
Salton Sea
Colorado
Green
Gila
Salt
Rio Grande
Pecos
Brazos
Canadian
Red
Arkansas
Smoky Hill
Platte
South Platte
North Platte
Republican
Niobrara
Yellowstone
Yellowstone Lake
Missouri
Milk
Powder
Snake
Salmon
Columbia
Kansas
Nueces
Lake Manitoba
Winnipeg
MANITOBA
SASKATCHEWAN
ALBERTA
BRITISH COLUMBIA
CANADA
PACIFIC OCEAN
ARCTIC OCEAN
Barrow
Beaufort Sea
Chukchi Sea
Arctic Circle
Kotzebue
Bering Strait
RUSSIA
Nome
Saint Lawrence Island
ALASKA
Yukon
Alaska Pipeline
Fairbanks
Kuskokwim
Bethel
Anchorage
Valdez
Seward
Gulf of Alaska
Kodiak
Juneau
Sitka
Whitehorse
YUKON
NORTHWEST TERRITORIES
Chihuahua
Bering Sea
Aleutian Islands
Dutch Harbor
0 100 200 300 Miles
0 200 400 Kilometers
Niihau
Kauai
Kalaheo
Kauai Channel
Oahu
Wahiawa
Honolulu
Molokai
Lanai
Maui
Kahoolawe
Hawaiian Islands
Hawaii
Hilo
Mauna Kea 13,796 Ft. 4,205m
Mauna Loa 13,679 Ft. 4,169m
0 50 Miles
0 50 Kilometers
HAWAII
PACIFIC OCEAN


National Capital
Secondary Capital (State, Province, or Territory)
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
0 100 200 300 Miles
0 100 200 300 400 Kilometers
Copyright by Rand McNally & Co.
Albers Conic Equal Area Projection
ATLANTIC OCEAN
GULF OF MEXICO
Caribbean Sea
PUERTO RICO (U.S.)
San Juan
Arecibo
Mayagüez
Ponce
Caguas
0 25 50 Miles
0 25 50 Kilometers
© RMcN.
MINNESOTA
WISCONSIN
MICHIGAN
IOWA
ILLINOIS
INDIANA
OHIO
PENNSYLVANIA
NEW YORK
MAINE
VERMONT
NEW HAMPSHIRE
MASSACHUSETTS
CONNECTICUT
R.I.
NEW JERSEY
DELAWARE
MARYLAND
WEST VIRGINIA
VIRGINIA
KENTUCKY
TENNESSEE
NORTH CAROLINA
SOUTH CAROLINA
GEORGIA
FLORIDA
ALABAMA
MISSISSIPPI
LOUISIANA
ARKANSAS
MISSOURI
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Lake Ontario
Lake Champlain
Gulf of Maine
Chesapeake Bay
Delaware Bay
Albemarle Sound
Pamlico Sound
Ontario
Québec
New Brunswick
Montréal
Ottawa
Toronto
Chicago
Detroit
Cleveland
Pittsburgh
New York
Philadelphia
Boston
Baltimore
Washington D.C.
Virginia Beach
Atlanta
Charlotte
Nashville
Memphis
Louisville
Indianapolis
Columbus
Cincinnati
Kansas City
St. Louis
Minneapolis
St. Paul
Milwaukee
Houston
New Orleans
Dallas
Miami
Jacksonville
Tampa
Orlando
Buffalo
Albany
Hartford
Providence
Portland
Augusta
Bangor
Newark
Trenton
Wilmington
Dover
Annapolis
Richmond
Norfolk
Roanoke
Raleigh
Durham
Greensboro
Winston-Salem
Charleston
Columbia
Savannah
Birmingham
Montgomery
Mobile
Pensacola
Tallahassee
Gainesville
Daytona Beach
West Palm Beach
Fort Lauderdale
Key West
Fort Myers
Lakeland
St. Petersburg
Tallahassee
Baton Rouge
Lafayette
Lake Charles
Beaumont
Galveston
Shreveport
Monroe
Jackson
Hattiesburg
Gulfport
Little Rock
Fort Smith
Pine Bluff
Texarkana
Tulsa
Fayetteville
Jonesboro
Springfield
Cape Girardeau
Kansas City
Topeka
Jefferson City
Columbia
Emporia
Omaha
Des Moines
Davenport
Moline
Peoria
Bloomington
Decatur
Springfield
Terre Haute
Evansville
Owensboro
Frankfort
Lexington
Huntington
Charleston
Clarksville
Knoxville
Johnson City
Asheville
Greenville
Chattanooga
Huntsville
Tuscaloosa
Athens
Macon
Columbus
Albany
Dothan
Augusta
Savannah
Wilmington
Sioux City
Waterloo
Dubuque
Cedar Rapids
Rockford
Aurora
Gary
South Bend
Fort Wayne
Lima
Akron
Youngstown
Erie
Oil City
Scranton
Allentown
Harrisburg
Pittsburgh
Binghamton
Syracuse
Rochester
Watertown
Burlington
Montpelier
Concord
Manchester
Worcester
Bridgeport
Long Island
Nantucket Island
Duluth
Marquette
Sault Ste. Marie
Traverse City
Saginaw
Flint
Lansing
Ann Arbor
Grand Rapids
Kalamazoo
Racine
Madison
Green Bay
Appleton
OshKosh
Sheboygan
Eau Claire
Mankato
Rochester
St. Cloud
International Falls
Isle Royale
Lake of the Woods
Lake Nipigon
Lake Winnipeg
Georgian Bay
St. Lawrence
Moosehead Lake
Connecticut
Hudson
Susquehanna
Ohio
Wabash
Illinois
Mississippi
Missouri
Arkansas
Ouachita
Red
Tombigbee
Chattahoochee
Altamaha
Kentucky Lake
Cumberland
Toledo Bend Res.
Sam Rayburn Res.
Trinity
Okeechobee
95°
90°
85°
80°
75°
70°
50°
45°
40°
35°
30°
25°
19°
18°
67°
66°


ASIA
RUSSIA
North Pole
ARCTIC OCEAN
Arctic Circle
Bering Sea
Bering Strait
Point Hope
Point Barrow
Beaufort Sea
Prudhoe Bay
Cape Bathurst
Queen Elizabeth Islands
Ellesmere Island
GREENLAND (Denmark)
Norwegian Sea
ICELAND
Baffin Bay
Ice Cap
Cape Adair
Baffin Island
Cape Farvel
Aleutian Islands
Alaska Peninsula
Brooks Range
U.S.
Yukon
Kuskokwim
Mt. McKinley 20,320 Ft. 6,194m
Alaska Range
Anchorage
Mt. Logan 19,551 Ft. 5,959m
Gulf of Alaska
Banks Island
Victoria Island
Devon Island
Great Bear Lake
Great Slave Lake
Mackenzie
Whitehorse
Foxe Basin
Cape Mercy
Péninsule d'Ungava
Hudson Bay
Churchill
Peace
Lake Athabasca
CANADA
Nelson
Canadian Shield
James Bay
Albany
Newfoundland
Gulf of St. Lawrence
Queen Charlotte Islands
Vancouver Island
Coast Mountains
Rocky Mountains
Edmonton
Saskatchewan
Lake Winnipeg
Great Lakes
St. Lawrence
Montréal
Ottawa
Vancouver
Columbia
Cascade Range
Cape Blanco
Cape Mendocino
Lake Superior
Lake Michigan
Lake Huron
Lake Erie
Ontario
Niagara Falls
Cape Cod
New York
Appalachian Mts.
Great Plains
Missouri
Chicago
Snake
Great Salt Lake
Great Basin
UNITED STATES
Washington D.C.
Coast Ranges
Sierra Nevada
Mt. Whitney 14,494 Ft. 4,418m
Denver
Arkansas
Colorado
Colorado Plateau
Ozark Plateau
Ohio
Red
Mississippi
Coastal Plain
Cape Hatteras
BERMUDA (U.K.)
Los Angeles
Tropic of Cancer
Gulf of California
Baja California
Sierra Madre Occidental
Sierra Madre Oriental
Rio Grande
Houston
Cape Canaveral
BAHAMAS
The Everglades
Miami
GULF OF MEXICO
MEXICO
Cabo San Lucas
Havana
CUBA
DOMINICAN REPUBLIC
HAITI
PUERTO RICO (U.S.)
Mexico City
Gulf of Campeche
Yucatán Peninsula
JAMAICA
BELIZE
GUATEMALA
HONDURAS
CARIBBEAN SEA
NICARAGUA
EL SALVADOR
Lago de Nicaragua
COSTA RICA
PANAMA
Golfo de Panamá
VENEZUELA
COLOMBIA
SOUTH AMERICA
BRAZIL
PACIFIC OCEAN
ATLANTIC OCEAN
Equator
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection


North Pole
ARCTIC OCEAN
ASIA
RUSSIA
Arctic Circle
Bering Strait
Bering Sea
Aleutian Islands
U.S.
Yukon
Fairbanks
Anchorage
Valdez
Gulf of Alaska
Prudhoe Bay
Beaufort Sea
Queen Elizabeth Islands
Ellesmere Island
Devon Island
Banks Island
Victoria Island
Baffin Bay
Baffin Island
GREENLAND (Denmark)
Godthab
ICELAND
Reykjavik
Arctic Circle
Mackenzie
Great Bear Lake
Great Slave Lake
Whitehorse
Yellowknife
Juneau
Peace
Hudson Bay
CANADA
Nelson
Edmonton
Calgary
Saskatoon
Saskatchewan
Lake Winnipeg
Regina
Winnipeg
Thunder Bay
Lake Superior
Victoria
Vancouver
Seattle
Columbia
Portland
Spokane
Missouri
Billings
Minneapolis
Milwaukee
Detroit
Lake Michigan
Lake Huron
Lake Erie
Cleveland
Toronto
Lake Ontario
Ottawa
Montréal
Québec
St. Lawrence
Gulf of St. Lawrence
Saint John
Halifax
Boston
New York
Philadelphia
Washington D.C.
Norfolk
Newfoundland
St. John's
Great Salt Lake
Sacramento
San Francisco
Las Vegas
Los Angeles
San Diego
Tijuana
Colorado
Denver
Arkansas
Kansas City
Omaha
Chicago
Indianapolis
Cincinnati
St. Louis
Ohio
Nashville
Charlotte
Atlanta
Albuquerque
Oklahoma City
Red
Memphis
Mississippi
Phoenix
Dallas
Houston
Jacksonville
BERMUDA (U.K.)
ATLANTIC OCEAN
Tropic of Cancer
Ciudad Juárez
Hermosillo
Gulf of California
MEXICO
Chihuahua
Rio Grande
San Antonio
New Orleans
Tampa
Miami
BAHAMAS
Nassau
Culiacán
Torreón
Monterrey
GULF OF MEXICO
Havana
CUBA
DOMINICAN REPUBLIC
PUERTO RICO (U.S.)
San Luis Potosí
Guadalajara
León
Mérida
Cancún
JAMAICA
Kingston
HAITI
Port-au-Prince
Santo Domingo
Mexico City
Puebla
Veracruz
Acapulco
BELIZE
Belmopan
GUATEMALA
HONDURAS
Tegucigalpa
Guatemala City
San Salvador
EL SALVADOR
NICARAGUA
Lago de Nicaragua
Managua
CARIBBEAN SEA
Caracas
VENEZUELA
Panama City
COSTA RICA
San José
PANAMA
Golfo de Panamá
COLOMBIA
Bogotá
SOUTH AMERICA
BRAZIL
PACIFIC OCEAN
PACIFIC OCEAN
Equator
National Capital
Secondary Capital (State, Province, or Territory)
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers
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Lambert Azimuthal Equal Area Projection


GULF OF MEXICO
NORTH AMERICA
CUBA
Greater Antilles
HAITI
DOMINICAN REPUBLIC
JAMAICA
PUERTO RICO (U.S.)
Lesser Antilles
CARIBBEAN SEA
ATLANTIC OCEAN
BELIZE
Gulf of Honduras
MEXICO
HONDURAS
GUATEMALA
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA
Gulf of Panama
Cristóbal Colón Peak 18,948 Ft. 5,775m
Caracas
TRINIDAD AND TOBAGO
Llanos
Orinoco
VENEZUELA
GUYANA
SURINAME
FRENCH GUIANA
Cape Orange
Magdalena
Bogotá
COLOMBIA
Galapagos Islands (Ec.)
ECUADOR
Chimborazo 20,703 Ft. 6,310m
Putumayo
Japurá
Negro
Amazon
Manaus
Ilha de Marajó
Belém
Equator
Amazon Basin
Tapajós
Tocantins
Juruá
Madeira
Selvas
BRAZIL
Andes
PERU
Ucayali
Mt. Huascarán 22,133 Ft. 6,746m
Lima
Recife
Mato Grosso Plateau
Mt. Illampu 21,066 Ft. 6,421m
Lake Titicaca
BOLIVIA
Brasília
São Francisco
Serra do Espinhaço
Cordillera Oriental
Mt. Sajama 21,463 Ft. 6,542m
Gran Chaco
Paraná
PARAGUAY
São Paulo
Rio de Janeiro
Tropic of Capricorn
Atacama Desert
Isla San Ambrosio (Chile)
Isla San Felix (Chile)
Mt. Ojos del Salado 22,615 Ft. 6,893m
Andes
CHILE
ARGENTINA
Paraná
PACIFIC OCEAN
Archipiélago Juan Fernández (Chile)
Mt. Aconcagua 22,831 Ft. 6,959m
Santiago
URUGUAY
Buenos Aires
Pampas
Río de la Plata
N
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
San Matías Gulf
Península Valdés
Chiloé
Patagonia
San Jorge Gulf
Point Medanoso
Grand Bay
FALKLAND ISLANDS (U.K.)
West Falkland
East Falkland
Strait of Magellan
Tierra del Fuego
Cape Horn
South Georgia (U.K.)
Drake Passage
South Sandwich Islands (U.K.)
South Shetland Islands (U.K.)
South Orkney Islands (U.K.)
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection


GULF OF MEXICO
NORTH AMERICA
MEXICO
BELIZE
GUATEMALA
HONDURAS
EL SALVADOR
NICARAGUA
COSTA RICA
PANAMA
Havana
CUBA
HAITI
DOMINICAN REPUBLIC
JAMAICA
PUERTO RICO (U.S.)
Lesser Antilles
CARIBBEAN SEA
ATLANTIC OCEAN
TRINIDAD AND TOBAGO
Barranquilla
Cartagena
Maracaibo
Barquisimeto
Caracas
Valencia
Orinoco
Ciudad Guayana
Cúcuta
Bucaramanga
Magdalena
VENEZUELA
Georgetown
GUYANA
Paramaribo
Cayenne
SURINAME
FRENCH GUIANA
Medellín
Bogotá
Cali
COLOMBIA
Macapá
Galapagos Islands (Ec.)
Quito
ECUADOR
Guayaquil
Putumayo
Japurá
Negro
Manaus
Amazon
Santarém
Belém
São Luis
Fortaleza
Iquitos
Amazon
Tapajós
Tocantins
Imperatriz
Teresina
Natal
Juruá
Madeira
BRAZIL
Chiclayo
Trujillo
Ucayali
Pôrto Velho
Recife
Maceió
PERU
Lima
Feira de Santana
Aracaju
Salvador
Cusco
Lake Titicaca
BOLIVIA
Cuiabá
Goiânia
Brasília
Arequipa
La Paz
Cochabamba
Santa Cruz
Montes Claros
Suere
Uberlândia
Belo Horizonte
Campo Grande
Vitória
Paraná
Campinas
Rio de Janeiro
PARAGUAY
Tropic of Capricorn
Antofagasta
São Paulo
Salta
Asunción
Isla San Ambrosio (Chile)
San Miguel de Tucumán
Curitiba
Isla San Felix (Chile)
Caxias do Sul
Pôrto Alegre
Parana
Córdoba
Santa Fe
Rosario
URUGUAY
Archipiélago Juan Fernández (Chile)
Valparaíso
Mendoza
Santiago
Buenos Aires
La Plata
Montevideo
Río de la Plata
PACIFIC OCEAN
Concepción
Bahía Blanca
Mar del Plata
CHILE
ARGENTINA
Chiloé
Archipiélago de los Chonos
Comodoro Rivadavia
ATLANTIC OCEAN
FALKLAND ISLANDS (U.K.)
West Falkland
East Falkland
Strait of Magellan
Punta Arenas
Tierra del Fuego
South Georgia (U.K.)
South Sandwich Islands (U.K.)
Drake Passage
South Shetland Islands (U.K.)
South Orkney Islands (U.K.)
Equator
National Capital
Secondary Capital (State, Province, or Territory)
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection
N


Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
0 100 200 300 400 Miles
0 200 400 600 Kilometers
Copyright by Rand McNally & Co.
Lambert Conformal Conic Projection
ATLANTIC OCEAN
NORWEGIAN SEA
NORTH SEA
BALTIC SEA
Gulf of Bothnia
Arctic Circle
ICELAND
Horn
Fontur
Surtsey
FAROE ISLANDS (Den.)
Lofoten Islands
Kebnekaise 6,926 Ft. 2,111m
Scandinavian Peninsula
NORWAY
SWEDEN
Galdhopiggen 8,100 Ft. 2,469m
Glama
Kjølen
Dalälven
Umeälven
Lapland
Stockholm
Vänern
Vättern
Öland
Skagerrak
DENMARK
Bornholm (Den.)
RUSSIA
Hebrides
Orkney Islands
Grampian Mts.
Cheviot Hills
UNITED KINGDOM
IRELAND
Irish Sea
St. George's Channel
Great Britain
Thames
London
NETHERLANDS
Elbe
Berlin
Oder
Northern Europe
GERMANY
POLAND
Wisła
English Channel
Strait of Dover
BELGIUM
Rhine
LUX.
Paris
Paris Basin
Seine
Loire
Bohemian Forest
CZECH REPUBLIC
Black Forest
SLOVAKIA
Danube
FRANCE
Saône
Jura
SWITZERLAND
LIECH.
AUSTRIA
HUNGARY
Great Hungarian Plain
Bay of Biscay
Dordogne
Massif Central
Rhône
Mt. Blanc 15,771 Ft. 4,809m
Alps
SLOVENIA
Drava
Po
CROATIA
Cantabrian Mts.
Pyrenees
Douro
Duero
Ebro
Iberian Mts.
Iberian Peninsula
Tagus
ANDORRA
MONACO
BOSNIA AND HERZEGOVINA
Dinaric Alps
Balkan
SERBIA AND MONTENEGRO
Lisbon
PORTUGAL
SPAIN
Sierra Morena
Corsica (Fr.)
Apennines
SAN MARINO
ADRIATIC SEA
Rome
ITALY
ALBANIA
MACEDONIA
Pindus Mts.
Balearic Islands
Minorca
Majorca
Ibiza
Sardinia (It.)
Vesuvius 4,190 Ft. 1,277m
Strait of Gibraltar
GIBRALTAR (U.K.)
TYRRHENIAN SEA
Mt. Etna 10,902 Ft. 3,323m
Sicily
IONIAN SEA
MEDITERRANEAN SEA
Algiers
AFRICA
ALGERIA
MOROCCO
TUNISIA
MALTA
60°
30°
20°
10°
0°
10°
20°
30°
40°
50°
20°
10°
0°
10°
20°


Murmansk
Kola Peninsula
Pomoy
WHITE SEA
Timan Ridge
Pechora
Mezen
Northern Dvina
Onega
Lake Onega
Lake Ladoga
Helsinki
Gulf of Finland
FINLAND
ESTONIA
Lake Peipus
Rybinsk Res.
Sukhona
Northern Urals (Uplands)
Ural Mountains
Ob'
Irtysh
Kama
RUSSIA
Moscow
Valdai Hills
Oka
LATVIA
LITHUANIA
Central Russian Upland
Don
Khopër
Ural
KAZAKHSTAN
Caspian Depression
Aral Sea
Syr Darya
Amu Darya
UZBEKISTAN
TURKMENISTAN
Neman
BELARUS
Pripyat
Dnieper Lowland
Kiev
UKRAINE
Donets Basin
Volga
Dniester
Carpathian Mts.
MOLDOVA
ROMANIA
Transylvanian Alps
Danube
Sea of Azov
Crimean Peninsula
Caucasus
Mt. Elbrus
18,510 Ft.
5,642m
GEORGIA
ARMENIA
AZERBAIJA
AZER.
BLACK SEA
CASPIAN SEA
Baku
Tehran
IRAN
Peninsula
BULGARIA
Istanbul
TURKEY
Mt. Olympus
9,570 Ft.
2,917m
AEGEAN SEA
GREECE
Rhodes
Crete
NORTH CYPRUS
CYPRUS
SYRIA
LEBANON
IRAQ
Euphrates
Tigris
ASIA
80°
70°
60°
50°
40°
30°


RUSSIA
ASIA
FINLAND
Oulu
Murmansk
WHITE SEA
Arkhangel'sk
Northern Dvina
Pechora
Syktyvkar
Petrozavodsk
Lake Onega
Lake Ladoga
Helsinki
Gulf of Finland
St. Petersburg
Cherepovets
Rybinsk Res.
Tallinn
ESTONIA
Lake Peipus
Yaroslavl'
Tver'
Nizhniy Novgorod
Kirov
Perm'
Izhevsk
Kazan'
Ufa
Samara
Riga
LATVIA
Moscow
Oka
Ryazan'
Penza
Tula
Vitsyebsk
Vilnius
Minsk
BELARUS
Bryansk
Lipetsk
Saratov
Homyel'
Voronezh
Ural
KAZAKHSTAN
Syr Darya
Aral Sea
Volgograd
Chernobyl
Kiev
Kharkiv
Luhans'k
Volga
Astrakhan'
UZBEKISTAN
Amu Darya
L'viv
Vinnytsya
UKRAINE
Dnieper
Dnipro-petrovs'k
Donets'k
Rostov
Dniester
Kryvyy Rih
Zaporizhzhya
Mariupol'
CASPIAN SEA
TURKMENISTAN
Ashgabat
MOLDOVA
Iaşi
Chişinău
Odesa
Sea of Azov
Krasnodar
Stavropol'
Cluj-Napoca
ROMANIA
Galati
Simferopol'
Sevastopol'
Groznyy
GEORGIA
Tbilisi
Baku
AZERBAIJAN
ARMENIA
Yerevan
AZER.
BLACK SEA
Craiova
Bucharest
Danube
BULGARIA
Varna
Sofia
Plovdiv
Istanbul
Thessaloniki
Ankara
TURKEY
Tehran
IRAN
AEGEAN SEA
GREECE
Athens
Crete
SYRIA
IRAQ
Baghdad
Euphrates
Tigris
NORTH CYPRUS
Nicosia
CYPRUS
Beirut
LEBANON
MEDITERRANEAN SEA
30°
40°
50°
60°
70°
80°


ATLANTIC OCEAN
EUROPE
ASIA
Mediterranean Sea
Black Sea
Caspian Sea
Red Sea
Persian Gulf
Gulf of Sidra
Gulf of Guinea
Gulf of Aden
Strait of Gibraltar
Mozambique Channel
INDIAN OCEAN
ATLANTIC OCEAN
Equator
Tropic of Cancer
Tropic of Capricorn
Algiers
Cairo
Dakar
Lagos
Kinshasa
Nairobi
Johannesburg
Khartoum
Tripoli
Cape Town
Cape of Good Hope
Cape Agulhas
Cape Sainte-Marie
Cape Ambre
Barra Point
Cape Verde
Cape Gwardafuy
Socotra (Yem.)
Azores (Port.)
Madeira Islands (Port.)
Canary Islands (Spain)
Ascension (St. Helena)
St. Helena (U.K.)
Tristan da Cunha Group (St. Helena)
Prince Edward Islands (S. Af.)
Crozet Islands (Fr.)
Aral Sea
Lake Victoria
Lake Chad
Lake Nasser
Lake Tana
Lake Turkana
Lake Tanganyika
Lake Kariba
Lake Nyasa
Lake Volta
Victoria Falls
Great Rift Valley
Ethiopian Plateau
Nubian Desert
Libyan Desert
Great Eastern Desert
Great Western Desert
Atlas Mountains
Aïr (Mts.)
Tibesti Massif
Ennedi
Jos Plateau
Bié Plateau
Kalahari Desert
Namib Desert
Serengeti Plain
Masai Steppe
Kilimanjaro 19,340 Ft. 5,895m
Mt. Koussi 11,204 Ft. 3,415m
Tahat 9,541 Ft. 2,908m
Mt. Cameroon 13,451 Ft. 4,100m
Mt. Kenya 17,058 Ft. 5,199m
Ahaggar Mts.
Qattara Depression
Libyan Desert
Sahara Desert
Congo Basin
As Sudd
Mountain Nile
Blue Nile
White Nile
Nile
Niger
Congo
Ubangi
Uele
Kasai
Kwango
Cuanza
Cunene
Okavango
Zambezi
Limpopo
Vaal
Orange
Drakensberg
Mayotte (Fr.)
Zanzibar
Reunion (Fr.)
Lambert Azimuthal Equal Area Projection
Copyright by Rand McNally & Co.
Land Elevation
Meters
Feet
3,000 9,840
2,000 6,560
500 1,640
200 656
0 0
Water Depth
0 0
200 656
2,000 6,560
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers


ATLANTIC OCEAN
EUROPE
ASIA
INDIAN OCEAN
Mediterranean Sea
Black Sea
Caspian Sea
Red Sea
Persian Gulf
Gulf of Aden
Gulf of Sidra
Strait of Gibraltar
Tropic of Cancer
Tropic of Capricorn
Equator
FRANCE
SPAIN
PORTUGAL
ITALY
GREECE
TURKEY
ROMANIA
UKRAINE
RUSSIA
BELARUS
KAZ.
UZBEKISTAN
TURKMENISTAN
GEORGIA
ARM.
AZER.
CYPRUS
SYRIA
LEBANON
ISRAEL
IRAQ
IRAN
JORDAN
KUWAIT
QATAR
U.A.E.
SAUDI ARABIA
OMAN
YEMEN
Madrid
Rome
Athens
Riyadh
Aral Sea
Azores (Port.)
Madeira Islands (Port.)
Canary Islands (Spain)
Socotra (Yem.)
Ascension (St. Helena)
St. Helena (U.K.)
Tristan da Cunha Group (St. Helena)
Prince Edward Islands (S. Af.)
Crozet Islands (Fr.)
Mozambique Channel
MOROCCO
Rabat
Casablanca
Marrakech
WESTERN SAHARA (MOROCCO)
El Aaiún
ALGERIA
Algiers
Oran
Qacentina
In Salah
Tamanrasset
Ghardaia
TUNISIA
Tunis
MALTA
LIBYA
Tripoli
Sabhā
Banghāzī
Alexandria
EGYPT
Cairo
Suez
Asyut
Aswan
Lake Nasser
Nile
Port Sudan
MAURITANIA
Nouakchott
CAPE VERDE
MALI
Timbuktu
Gao
NIGER
Agadez
CHAD
Lake Chad
Abéché
N'Djamena
SUDAN
Omdurman
Khartoum
Blue Nile
Lake Tana
ERITREA
Asmara
DJIBOUTI
Djibouti
ETHIOPIA
Addis Ababa
Dire Dawa
SOMALIA
Mogadishu
Waw
Mountain Nile
Lake Turkana
KENYA
Nairobi
Mombasa
Dodoma
TANZANIA
Dar es Salaam
SEYCHELLES
COMOROS
Mayotte (Fr.)
Antsiranana
Antananarivo
MAURITIUS
Reunion (Fr.)
MADAGASCAR
Fianarantsoa
Beira
MOZAMBIQUE
Lake Nyasa
Lilongwe
MALAWI
Lubumbashi
Kolwezi
Ndola
ZAMBIA
Lusaka
Lake Kariba
Zambezi
ZIMBABWE
Harare
Okavango
BOTSWANA
NAMIBIA
Windhoek
Gaborone
Limpopo
Pretoria
Johannesburg
Maputo
SWAZILAND
LESOTHO
Maseru
Orange
Durban
SOUTH AFRICA
Cape Town
Port Elizabeth
Lobito
Huambo
ANGOLA
Luanda
Kinshasa
Brazzaville
Mbuji-Mayi
DEM. REP. OF CONGO
Kisangani
Kigali
RWANDA
Bujumbura
BURUNDI
Lake Tanganyika
Kampala
UGANDA
Lake Victoria
Bangui
CENTRAL AFRICAN REPUBLIC
Uele
Ubangi
Congo
REP. OF CONGO
Libreville
GABON
Douala
Yaoundé
CAMEROON
Malabo
EQUATORIAL GUINEA
SAO TOME AND PRINCIPE
Lagos
Abuja
Kano
NIGERIA
Niger
Benue
BENIN
TOGO
Cotonou
Accra
GHANA
Lake Volta
COTE D'IVOIRE
Abidjan
LIBERIA
Monrovia
SIERRA LEONE
Freetown
Conakry
GUINEA
GUINEA-BISSAU
Bamako
BURKINA FASO
Ouagadougou
Niamey
GAMBIA
SENEGAL
Dakar
Sénégal
Niger
N
National Capital
Secondary Capital (State, Province, or Territory)
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometers
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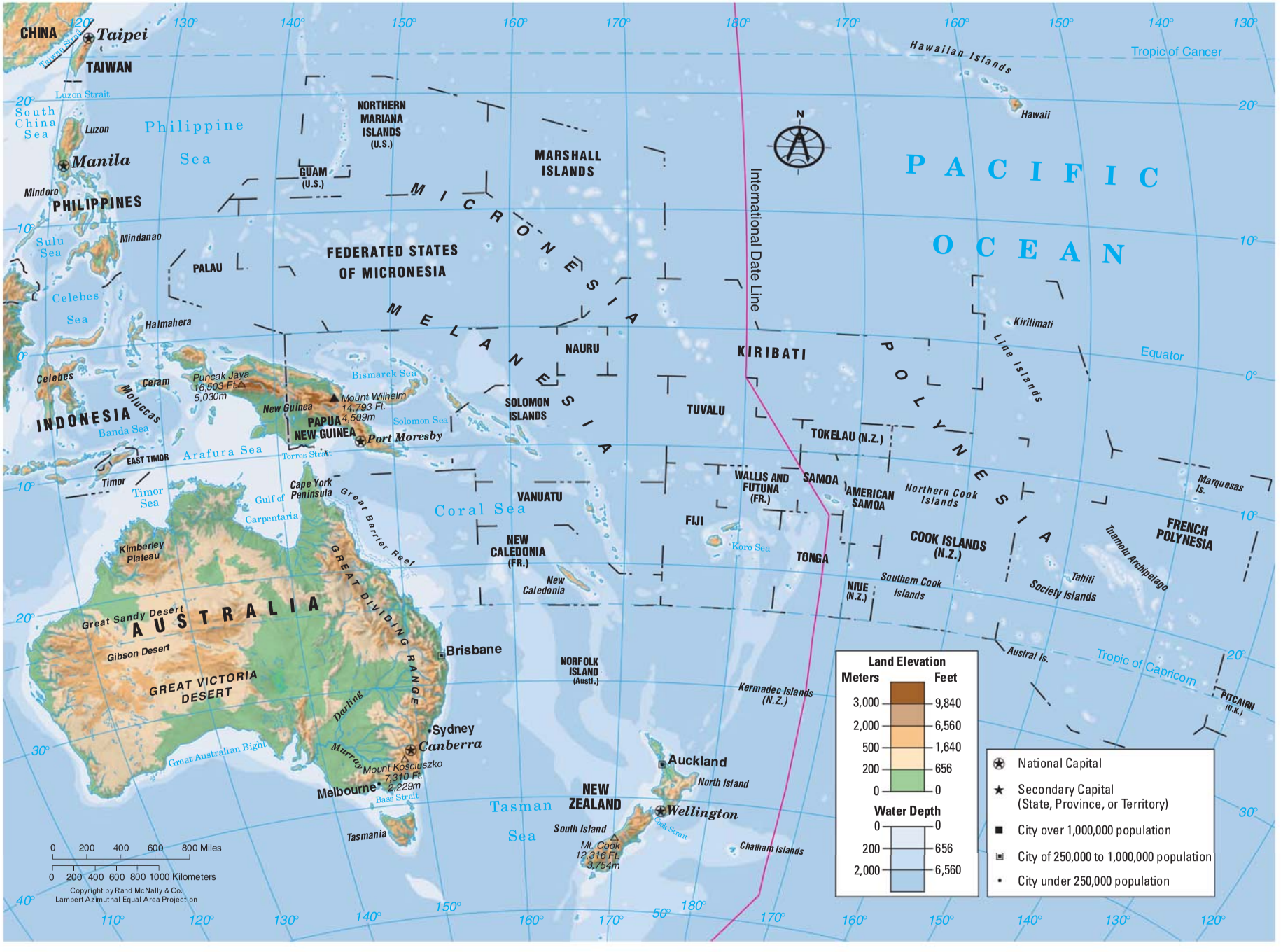
Lambert Azimuthal Equal Area Projection

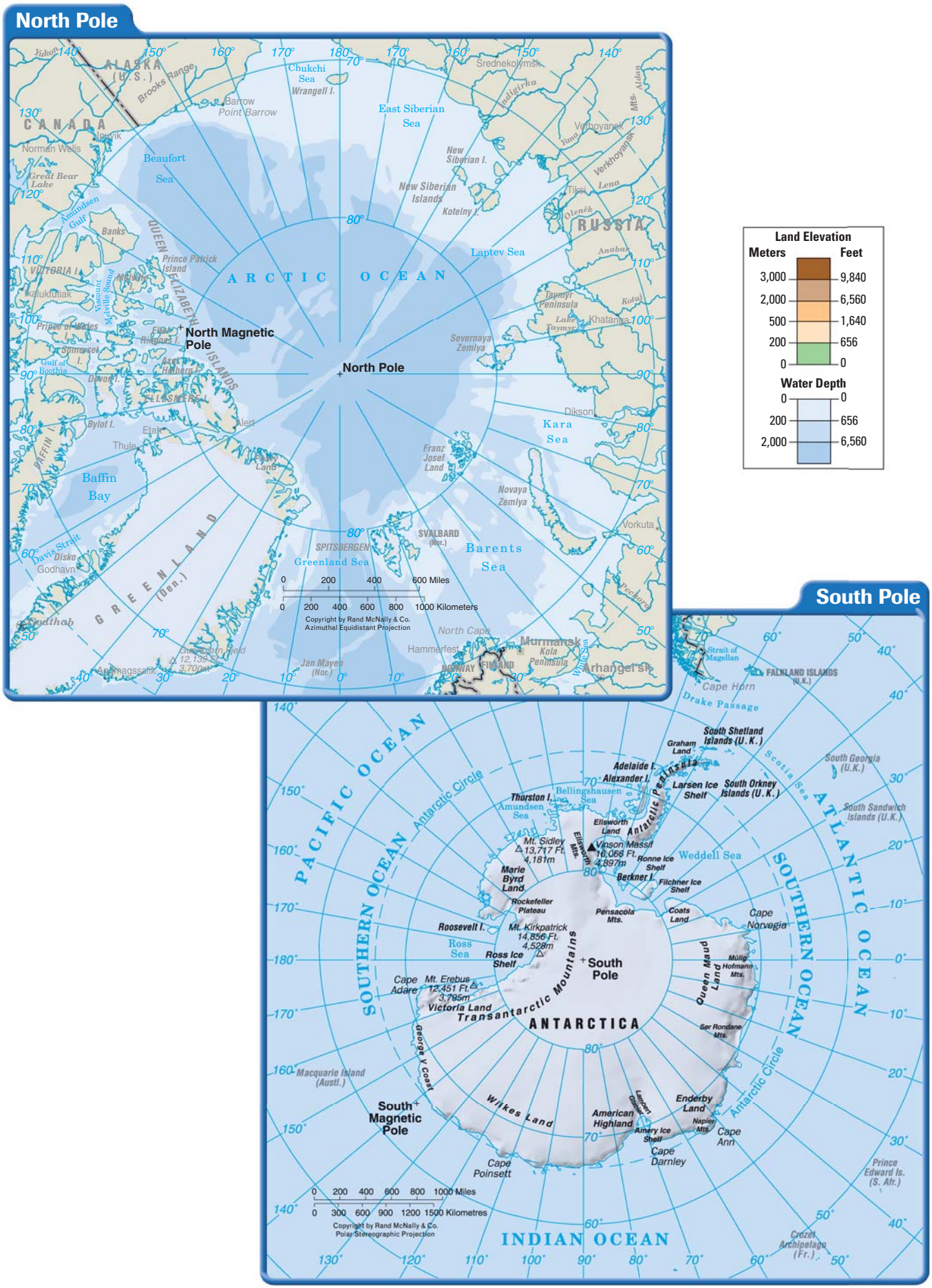

ATLANTIC OCEAN
ARCTIC OCEAN
Arctic Circle
Barents Sea
Kara Sea
Severnaya Zemlya
Novaya Zemlya
Yamal Pen.
ICELAND
FAROE ISLANDS (Den.)
IRELAND
UNITED KINGDOM
London
North Sea
NORWAY
SWEDEN
FINLAND
DENMARK
PORTUGAL
SPAIN
GIBRALTAR (U.K.)
MOROCCO
ALGERIA
TUNISIA
FRANCE
ANDORRA
MONACO
GERMANY
POLAND
BELARUS
ESTONIA
LATVIA
LITH.
CZECH REP.
AUSTRIA
SLOVAKIA
HUNGARY
SWITZ.
LIECHT.
SLOVENIA
CROATIA
BOSNIA AND HERZ.
SERBIA
MONTE.
ITALY
ROMANIA
MOLD.
UKRAINE
BULGARIA
MACED.
GREECE
Moscow
Volga
Ural Mountains
Ob
West Siberian Lowland
Yenisey
Novosibirsk
Irtysh
Ishim
Astana
Caspian Depression
Caucasus
Black Sea
Mediterranean Sea
Caspian Sea
Aral Sea
KAZAKHSTAN
Syr Darya
Lake Balkhash
Ankara
TURKEY
Mount Ararat 16,946 Ft. 5,166m
GEORGIA
ARM.
AZER.
Ust-Urt Plateau
UZBEKISTAN
Kara Kum (Desert)
Amu Darya
TURKMENISTAN
KYRGYZSTAN
Tian Shan
Tarim Basin
Altun Shan
Kunlun Mts.
TAJIKISTAN
Pamirs
K2 (Qogir Feng) 28,250 Ft. 8,611m
Hindu Kush
AFGHANISTAN
HIMALAYA MTS.
Mt. Everest 29,035 Ft. 8,850m
N. CYPRUS
CYPRUS
LEBANON
SYRIA
ISRAEL
JORDAN
LIBYA
EGYPT
Cairo
Nile
Suez Can.
IRAQ
Euphrates
Tigris
Tehran
Dasht-e Kavir
IRAN
Zagros Mts.
An-Nafud
SAUDI ARABIA
KUWAIT
Persian Gulf
BAHRAIN
QATAR
U.A.E.
Arabian Peninsula
Rub Al-Khali
OMAN
YEMEN
Gulf of Oman
Red Sea
CHAD
SUDAN
ERITREA
DJIBOUTI
ETHIOPIA
Gulf of Aden
Socotra (Yem.)
PAKISTAN
Indus
New Delhi
Great Indian Desert
Ganges
NEPAL
INDIA
Mumbai (Bombay)
Godavari
Deccan Plateau
Western Ghats
Eastern Ghats
Bay of Bengal
Arabian Sea
Lakshadweep (India)
SRI LANKA
MALDIVES
INDIAN OCEAN
DEM. REP. OF THE CONGO (ZAIRE)
UGANDA
RWANDA
BURUNDI
KENYA
SOMALIA
TANZANIA
ZAMBIA
MALAWI
MOZAMBIQUE
N
0 200 400 600 800 Miles
0 200 400 600 800 1000 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection
10°
20°
30°
40°
50°
60°
70°
80°
0°


Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
Arctic Circle
Laptev Sea
New Siberian Islands
East Siberian Sea
Bering Sea
Aleutian Islands (U.S.)
Taymyr Peninsula
Indigirka
Kolyma
Verkhoyansk Mts.
Lena
Central Siberian Uplands
Kamchatka Peninsula
Sea of Okhotsk
RUSSIA
Siberia
Stanovoy Range
Amur
Angara
Lake Baikal
Sayan Mountains
Greater Khingan Range
Sikhote-Alin Mts.
Tatar Strait
Sakhalin
Kuril Islands
Hokkaido
Honshu
Tokyo
Sea of Japan
PACIFIC OCEAN
Tropic of Cancer
Mt. Fuji
12,388 ft
3,776m
JAPAN
NORTH KOREA
SOUTH KOREA
Shikoku
Kyushu
MONGOLIA
Altai Mts.
Gobi Desert
Beijing
Yellow Sea
Qilian Shan
Huang
Shanghai
East China Sea
CHINA
Qinling Shandi
Chang (Yangtze)
NORTHERN MARIANA ISLANDS (U.S.)
GUAM (U.S.)
TAIWAN
Taiwan Strait
Philippine Sea
FEDERATED STATES OF MICRONESIA
BHUTAN
Brahmaputra
Xi
Luzon Strait
Luzon
Irrawaddy
Salween
Red
Gulf of Tonkin
Hainan Island
BNGL
MYANMAR
LAOS
PHILIPPINES
South China Sea
Manila
Mekong
THAILAND
Bangkok
VIETNAM
CAMBODIA
Mindanao
PALAU
Equator
Sulu Sea
Andaman Islands (India)
Andaman Sea
Gulf of Thailand
Celebes Sea
New Guinea
PAPUA NEW GUINEA
Moluccas
MALAY PENINSULA
MALAYSIA
BRUNEI
MALAYSIA
Nicobar Islands (India)
Str. of Malacca
Singapore
Celebes
Ceram
Banda Sea
Borneo
Arafura Sea
Coral Sea
Sumatra
Greater Sunda Islands
INDONESIA
Java Sea
EAST TIMOR
Timor
Gulf of Carpentaria
AUSTRALIA
Timor Sea
Jakarta
Java
90°
100°
110°
120°
130°
140°
150°
70°
60°
50°
40°
30°
170°
180°
20°
10°
0°
10°
20°


ATLANTIC OCEAN
ARCTIC OCEAN
Arctic Circle
Barents Sea
Norwegian Sea
North Sea
Baltic Sea
Black Sea
Caspian Sea
Aral Sea
Kara Sea
Mediterranean Sea
Adriatic Sea
Red Sea
Persian Gulf
Gulf of Oman
Gulf of Aden
Arabian Sea
Bay of Bengal
INDIAN OCEAN
ICELAND
FAROE ISLANDS (Den.)
SVALBARD (Nor.)
Spitsbergen
Franz Josef Land
Severnaya Zemlya
Novaya Zemlya
IRELAND
UNITED KINGDOM
London
NORWAY
SWEDEN
FINLAND
DENMARK
Paris
FRANCE
SPAIN
PORTUGAL
GIBRALTAR (U.K.)
MOROCCO
ALGERIA
TUNISIA
LIBYA
EGYPT
CHAD
SUDAN
ERITREA
ETHIOPIA
DJIBOUTI
SOMALIA
KENYA
UGANDA
RWANDA
BURUNDI
TANZANIA
ZAMBIA
MALAWI
MOZAMBIQUE
DEM. REP. OF THE CONGO (ZAIRE)
GERMANY
POLAND
BELARUS
LITH.
LATVIA
ESTONIA
Moscow
Kiev
UKRAINE
MOLDOVA
ROMANIA
HUNGARY
AUSTRIA
SLOVAKIA
CZECH REP.
SWITZ.
LIECHT.
SLOVENIA
CROATIA
BOSN. HERZEGOVINA
SERBIA AND MONT.
ALBANIA
MACED.
BULGARIA
GREECE
ITALY
Volga
Pechora
Ob'
Yenisey
Irtysh
Tobol
Lena
RUSSIA
Yekaterinburg
Chelyabinsk
Novosibirsk
Omsk
Barnaul
Semipalatinsk
Öskemen
Astana
Karaganda
KAZAKHSTAN
Lake Balkhash
Syr Darya
Bishkek
Almaty
Ürümqi
KYRGYZSTAN
UZBEKISTAN
Tashkent
TURKMENISTAN
Baku
TAJIKISTAN
Dushanbe
Kabul
AFGHANISTAN
Islamabad
Lahore
Amritsar
PAKISTAN
Delhi
New Delhi
Indus
Ganges
Brahmaputra
NEPAL
Kathmandu
Karachi
Hyderabad
Kanpur
Ahmadabad
INDIA
Nagpur
Kolkata (Calcutta)
Mumbai (Bombay)
Godavari
Hyderabad
Bangalore
Chennai (Madras)
Lakshadweep (India)
Colombo
SRI LANKA
MALDIVES
Istanbul
Izmir
Ankara
TURKEY
GEORGIA
Tbilisi
ARM.
Yerevan
AZER.
N. CYPRUS
CYPRUS
LEBANON
Damascus
SYRIA
ISRAEL
Amman
JORDAN
Euphrates
Tigris
IRAQ
Baghdad
Tabriz
Tehran
Mashhad
IRAN
Eşfahān
Kuwait
KUWAIT
SAUDI ARABIA
Riyadh
Jiddah
BAHRAIN
QATAR
Abu Dhabi
U.A.E.
Muscat
OMAN
YEMEN
Sanaa
Socotra (Yem.)
Cairo
Nile
Blue Nile
N
0 200 400 600 800 Miles
0 200 400 600 800 1000 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection
10°
20°
30°
40°
50°
60°
70°
80°


National Capital
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
PACIFIC OCEAN
Bering Sea
East Siberian Sea
Laptev Sea
Sea of Okhotsk
Sea of Japan
East China Sea
Yellow Sea
South China Sea
Philippine Sea
Celebes Sea
Sulu Sea
Java Sea
Timor Sea
Arafura Sea
Coral Sea
Banda Sea
Andaman Sea
Gulf of Thailand
Gulf of Tonkin
Gulf of Carpentaria
Luzon Strait
Taiwan Strait
Equator
Tropic of Cancer
ALEUTIAN ISLANDS (U.S.)
NORTHERN MARIANA ISLANDS (U.S.)
GUAM (U.S.)
FEDERATED STATES OF MICRONESIA
PALAU
PAPUA NEW GUINEA
New Siberian Islands
Anadyr
Palana
Kamchatka Peninsula
Petropavlovsk-Kamchatskiy
Magadan
Yana
Lena
Yakutsk
Sakhalin
Kuril Islands
Khabarovsk
Amur
Hokkaido
Sapporo
Vladivostok
Honshu
Tokyo
Nagoya
Osaka
Shikoku
Kyushu
JAPAN
Angara
Krasnoyarsk
Lake Baikal
Chita
Irkutsk
Enisej
Qiqihar
Harbin
Ulaanbaatar
MONGOLIA
Changchun
Shenyang
Beijing
Tianjin
NORTH KOREA
Seoul
SOUTH KOREA
Pusan
Jinan
Taiyuan
Huang
Lanzhou
Xi'an
Nanjing
Shanghai
Wuhan
Hangzhou
CHINA
Chengdu
Chongqing
Chang (Yangtze)
Fuzhou
Taipei
TAIWAN
Kaohsiung
Lhasa
Guiyang
Guangzhou
Hong Kong
Kunming
Nanning
BHUTAN
Brahmaputra
BNGL.
Dhaka
Chittagong
MYANMAR
Hanoi
Hainan Island
LAOS
Vientiane
Mekong
Da Nang
Yangon
THAILAND
Bangkok
VIETNAM
CAMBODIA
Phnom Penh
Ho Chi Minh City
Luzon
PHILIPPINES
Manila
Samar
Cebu
Mindanao
Davao
Andaman Islands (India)
Nicobar Islands (India)
Medan
MALAYSIA
Kuala Lumpur
Singapore
Bandar Seri Begawan
BRUNEI
Borneo
Sumatra
Palembang
Banjarmasin
Celebes
Manado
Ceram
New Guinea
Jakarta
Java
Bandung
Surabaya
INDONESIA
EAST TIMOR
Timor
AUSTRALIA
10°
0°
20°
30°
40°
50°
60°
70°
90°
100°
110°
120°
130°
140°
150°
170°
180°


CHINA
Taipei
TAIWAN
Taiwan Strait
Luzon Strait
South China Sea
Luzon
Philippine Sea
Manila
Mindoro
PHILIPPINES
Sulu Sea
Mindanao
Celebes Sea
Halmahera
Celebes
Ceram
Moluccas
INDONESIA
Banda Sea
EAST TIMOR
Timor
Timor Sea
Arafura Sea
Gulf of Carpentaria
Cape York Peninsula
Great Barrier Reef
Kimberley Plateau
Great Sandy Desert
AUSTRALIA
Gibson Desert
GREAT VICTORIA DESERT
Great Australian Bight
GREAT DIVIDING RANGE
Darling
Murray
Brisbane
Sydney
Canberra
Mount Kosciuszko
7,310 Ft.
2,229m
Melbourne
Bass Strait
Tasmania
Tasman Sea
NEW ZEALAND
South Island
Mt. Cook
12,316 Ft.
3,754m
Cook Strait
North Island
Auckland
Wellington
Chatham Islands
Kermadec Islands (N.Z.)
NORFOLK ISLAND (Austl.)
NEW CALEDONIA (FR.)
New Caledonia
Coral Sea
VANUATU
Torres Strait
Puncak Jaya
16,503 Ft.
5,030m
New Guinea
PAPUA NEW GUINEA
Port Moresby
Mount Wilhelm
14,793 Ft.
4,509m
Bismarck Sea
Solomon Sea
SOLOMON ISLANDS
NAURU
FEDERATED STATES OF MICRONESIA
PALAU
NORTHERN MARIANA ISLANDS (U.S.)
GUAM (U.S.)
MARSHALL ISLANDS
MICRONESIA
MELANESIA
POLYNESIA
International Date Line
KIRIBATI
Kiritimati
Line Islands
Equator
TUVALU
TOKELAU (N.Z.)
WALLIS AND FUTUNA (FR.)
SAMOA
AMERICAN SAMOA
Northern Cook Islands
FIJI
Koro Sea
TONGA
COOK ISLANDS (N.Z.)
Southern Cook Islands
NIUE (N.Z.)
Tahiti
Society Islands
Tuamotu Archipelago
FRENCH POLYNESIA
Marquesas Is.
Austral Is.
Tropic of Capricorn
PITCAIRN (U.K.)
Hawaiian Islands
Hawaii
Tropic of Cancer
PACIFIC OCEAN
N
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
National Capital
Secondary Capital (State, Province, or Territory)
City over 1,000,000 population
City of 250,000 to 1,000,000 population
City under 250,000 population
0 200 400 600 800 Miles
0 200 400 600 800 1000 Kilometers
Copyright by Rand McNally & Co.
Lambert Azimuthal Equal Area Projection


North Pole
ALASKA (U.S.)
CANADA
RUSSIA
ARCTIC OCEAN
North Magnetic Pole
North Pole
Chukchi Sea
Wrangell I.
East Siberian Sea
Laptev Sea
Beaufort Sea
New Siberian I.
New Siberian Islands
Kotelny I.
Barrow
Point Barrow
Prudhoe Bay
Fairbanks
Whitehorse
Yellowknife
Norman Wells
Great Bear Lake
Inuvik
Tuktoyaktuk
Kaluktutiak
Victoria I.
Banks I.
Prince Patrick Island
Melville I.
Prince of Wales I.
Somerset I.
Gulf of Boothia
Devon I.
Ellesmere I.
Axel Heiberg I.
Ellef Ringnes I.
Amundsen Gulf
Queen Elizabeth Islands
Baffin I.
Bylot I.
Pond Inlet
Alert
Eteh
Thule
Baffin Bay
Davis Strait
Disko
Godhavn
GREENLAND (Den.)
Nuuk
Greenland Sea
Jan Mayen (Nor.)
SVALBARD (Nor.)
SPITSBERGEN
Barents Sea
Franz Josef Land
Severnaya Zemlya
Novaya Zemlya
Kara Sea
Taymyr Peninsula
Lake Taymyr
Khatanga
Tiksi
Verkhoyansk
Verkhoyanek
Srednekolymsk
Yakutsk
Anabar
Olenëk
Lena
Yana
Indigirka
Kolyma
Mts. Aldan
Dikson
Vorkuta
Pechora
Kola Peninsula
Murmansk
Arhangel'sk
White Sea
North Cape
Hammerfest
NORWAY
FINLAND
Greenland Ice Cap
Angmagssalik
Land Elevation
Meters
Feet
3,000
9,840
2,000
6,560
500
1,640
200
656
0
0
Water Depth
0
0
200
656
2,000
6,560
0 200 400 600 Miles
0 200 400 600 800 1000 Kilometers
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Azimuthal Equidistant Projection
South Pole
PACIFIC OCEAN
SOUTHERN OCEAN
ATLANTIC OCEAN
INDIAN OCEAN
ANTARCTICA
Antarctic Circle
South Pole
South Magnetic Pole
Transantarctic Mountains
Victoria Land
Ross Sea
Ross Ice Shelf
Roosevelt I.
Mt. Kirkpatrick 14,856 Ft. 4,528m
Mt. Erebus 12,451 Ft. 3,795m
Cape Adare
Marie Byrd Land
Rockefeller Plateau
Mt. Sidley 13,717 Ft. 4,181m
Ellsworth Land
Ellsworth Mts.
Vinson Massif 16,066 Ft. 4,897m
Thurston I.
Amundsen Sea
Bellingshausen Sea
Adelaide I.
Alexander I.
Antarctic Peninsula
Graham Land
Larsen Ice Shelf
Ronne Ice Shelf
Berkner I.
Filchner Ice Shelf
Weddell Sea
Coats Land
Pensacola Mts.
Cape Norvegia
Queen Maud Land
Müllig Hofmann Mts.
Ser Rondane Mts.
Enderby Land
Napier Mts.
Cape Ann
Amery Ice Shelf
American Highland
Lambert Glacier
Cape Darnley
Wilkes Land
Cape Poinsett
Georgy V Coast
Macquarie Island (Austl.)
Cape Horn
Drake Passage
Strait of Magellan
FALKLAND ISLANDS (U.K.)
South Shetland Islands (U.K.)
South Orkney Islands (U.K.)
Scotia Sea
South Georgia (U.K.)
South Sandwich Islands (U.K.)
Crozet Archipelago (Fr.)
Prince Edward Is. (S. Afr.)
0 200 400 600 800 1000 Miles
0 300 600 900 1200 1500 Kilometres
Copyright by Rand McNally & Co.
Polar Stereographic Projection

Unit 1

The Basics of Geography

The earth is a unique planet capable of supporting a wide variety of life forms. Human beings adapt and alter the environments on earth.

PHYSICAL GEOGRAPHY Internal and external forces constantly change the earth's surface. Here the volcano Arenal, located in Costa Rica, spews molten rock that will cool and alter the land.

GeoData

PHYSICAL GEOGRAPHY The earth is not round but is slightly flattened at the poles.

PHYSICAL GEOGRAPHY The total distance from the highest point on earth, Mt. Everest (29,035 ft.), to the lowest point on earth, Mariana Trench (35,840 ft. below sea level), is just over 12 miles.

HUMAN GEOGRAPHY The world's population growth in 1999 was an additional 84 million people, or about 230,000 people per day.

For more information on physical and human geography . . .

RESEARCH LINKS
CLASSZONE.COM

HUMAN GEOGRAPHY Pictured here is Adnan Nevic, the child officially identified by the United Nations as the six billionth person on earth. He was born on October 12, 1999, in Sarajevo, Bosnia.

Chapter

PHYSICAL GEOGRAPHY
Looking at the Earth

Road Map

Heat Sensing Scan

Satellite Image

Seneca Falls, New York, is represented in a road map, a heat sensing (thermal) scan, and a satellite image.

GeoFocus

How do geographers view the world?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information about the work of geographers and the themes of geography.

5 Themes:
Tools:

The Five Themes of Geography

Main Ideas

- Geographers view the world in terms of the use of space.
- Geographers study the world by looking at location, place, region, movement, and human-environment interaction.

Places & Terms

geography
absolute location
relative location
hemisphere
equator
prime meridian
latitude
longitude

A HUMAN PERSPECTIVE Between 1838 and 1842, Captain Charles Wilkes led an American expedition to the South Pacific and Antarctica. At one stop at a South Sea island, a friendly islander drew a map on the wooden deck planks of the ship. To Wilkes's amazement, the map accurately showed the location of the Tuamotu Archipelago—a chain of about 80 coral islands that stretches more than 1,000 miles across the South Pacific. The islander relied on personal experience sailing in the area and a mental map to accurately show the positions of the islands.

The Geographer's Perspective

Maps like the one that the islander drew are important tools in geography. The word *geography* comes from the Greek word *geographia,* which means "to describe the earth." Geographers study the world in a different way than do other social scientists. Historians look at events over time. Geographers, on the other hand, view the world by looking at the use of space on the earth and the interactions that take place there. They look for patterns and connections between people and the land that they live on. **Geography,** then, is the study of the distribution and interaction of physical and human features on the earth.

METHODS OF GEOGRAPHY Geographers use a variety of tools to study the use of space on earth. The most common one is a map. Maps are visual representations of a portion of the earth. Maps do not have to be written down to be useful. Since people began roaming the earth, they have created mental maps—maps that they carry in their minds. You use a mental map every day as you go to and from school.

The maps that you are probably most familiar with appear in printed form, such as in road atlases and books. In recent years, more maps have appeared in electronic media such as CD-ROMs and on the Internet.

Geographers also use photographs to gain visual evidence about a place. They organize information into charts, graphs, or tables to learn about geographic patterns and to understand changes over time. They may also construct scale models to make study of the real world easier. Sometimes they use graphic models to illustrate an idea.

Other basic tools used by geographers are the five themes of geography, which also describe patterns and connections in the use of space. These themes organize information about geography into five distinct categories, shown at right. These themes are important to geographic study. They help the geographer to describe the use of space.

The Five Themes

Location
Where is it?

Place
What is it like?

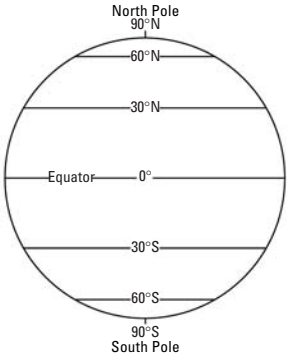
Region
How are places similar or different?

Movement
How do people, goods, and ideas move from one location to another?

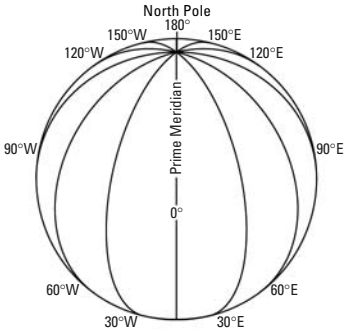
Human-Environment Interaction
How do people relate to the physical world?

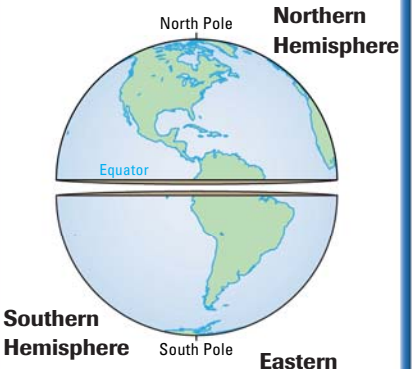
The Geographic Grid

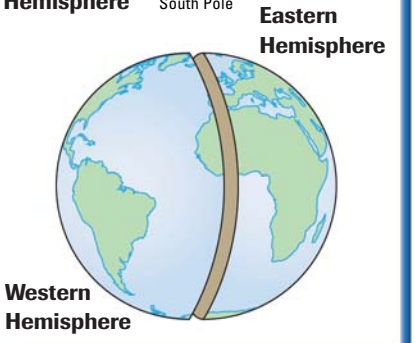
Latitude Lines (Parallels)



Longitude Lines (Meridians)







SKILLBUILDER: Interpreting Graphics

1. **LOCATION** In which two hemispheres is the United States located?
2. **LOCATION** How many degrees of latitude are there?

Theme: Location

The geographic question "Where is it?" refers to location. Geographers describe location in two ways. **Absolute location** is the exact place on earth where a geographic feature, such as a city, is found. **Relative location** describes a place in comparison to other places around it.

ABSOLUTE LOCATION To describe absolute location, geographers use a grid system of imaginary lines for precisely locating places on the earth's surface. (See the diagram at left.) Earth is divided into two equal halves. Each half of the globe is called a **hemisphere.** Because the earth is round, a hemisphere can be north and south, or east and west. The **equator** is the imaginary line that divides the north and south halves. The **prime meridian** is the imaginary line dividing the earth east and west. Sometimes this line is called the Greenwich meridian (GREHN•ich muh•RIHD•ee•uhn) line because the line runs through Greenwich, England. A

Geographic Thinking

Making Comparisons
A How is the equator different from the prime meridian?

LATITUDE LINES To locate places north or south, geographers use a set of imaginary lines that run parallel to the equator. These lines are called **latitude** lines. The equator is designated as the zero-degree line for latitude. Lines north of the equator are called north latitude lines, and lines south of the equator are called south latitude lines.

LONGITUDE LINES To complete the grid system, geographers use a set of imaginary lines that go around the earth over the poles. These lines, called **longitude** lines, mark positions in the east and west hemispheres. The prime meridian is the zero-degree line for longitude.

Each site on the earth can have only one absolute location. To find an absolute location using the grid system, you need to find the point where the latitude and longitude lines cross. For example, the absolute location of Melbourne, Australia, is 37° South latitude, 145° East longitude. To see how latitude and longitude lines cross and to learn more about absolute location, see page 17 in the Geography Skills Handbook.

RELATIVE LOCATION Relative location describes how a place is related to its surrounding environment. For example, you may tell a person that the library is three blocks west of the park. This helps the person find the library—if he or she knows where the park is located. Using relative location may help you become familiar with the specific characteristics of a place. Learning that Cairo, Egypt, is located near the mouth of the Nile River in Africa, for example, tells you something about Cairo, the Nile River, and even Africa itself.

PLACE Rio de Janeiro, once the capital of Brazil, lies on the western shore of Guanabara Bay. **How would location on a bay affect the economy of a city?**

Theme: Place

The question "What is it like?" refers to place. Place includes the physical features and cultural characteristics of a location. All locations on earth have physical features that set them apart, such as climate, landforms, and vegetation. Other features are the product of humans interacting with the environment, such as by building dams, highways, or houses. Still others are the result of humans interacting with animals or with each other. In the photograph above, you can see place features of Rio de Janeiro. Since a location's culture and its use of space may change over time, the description of a place may also change.

Theme: Region

The question "How are places similar or different?" refers to region. A region is an area of the earth's surface with similar characteristics. Regions usually have more than one characteristic that unifies them. These may include physical, political, economic, or cultural characteristics. For example, the Sunbelt in the southern United States is a physical region. Geographers categorize regions in three ways: formal, functional, and perceptual regions.

Geographic Thinking

Using the Atlas Refer to the U.S. map on pages A8–A9. What states might be included in the Sunbelt?

FORMAL REGIONS A formal region is defined by a limited number of related characteristics. For example, the Sahel region of Africa is a desert area characterized by specific climate, vegetation, and land use patterns. In this textbook, the regions you'll explore generally are defined by continental area and by similar cultural styles. The following are considered formal regions:

- The United States and Canada
- Latin America
- Europe
- Russia and the Republics
- Africa
- Southwest Asia
- South Asia
- East Asia
- Southeast Asia, Oceania, and Antarctica

FUNCTIONAL REGIONS A functional region is organized around a set of interactions and connections between places. Usually a functional region is characterized by a hub, or central place, and links to that central place. For example, a city and its suburbs may form a functional region. Highways, commuter railroads, subways, and bus lines move people from the suburbs to the city for jobs and other activities. Because the city and its suburbs are connected by a great deal of movement back and forth, they form a functional region.

Geographic Thinking

Seeing Patterns How might areas within a city form a functional region?

PERCEPTUAL REGIONS A perceptual region is a region in which people perceive, or see, the characteristics of the region in the same way. However, the set of characteristics may not be precisely the same for all people. For example, although many people are familiar with the region called the American Midwest, they sometimes differ on how that region is defined. Some people believe the Midwest begins in Ohio. Others believe the region begins in the middle of Illinois.

Theme: Human–Environment Interaction

The question "How do people relate to the physical world?" refers to the relationship between humans and their environment. People learn to use what the environment offers them and to change that environment to meet their needs. They also learn to live with aspects of the environment that they cannot control, such as climate.

People living in similar environments do not respond to them in the same way. For example, some people view a hot, sunny climate near a body of water as ideal for recreational activities. Others may see this as an opportunity for raising citrus, olives, or grapes. Human beings work to alter their environments to make them better places or to provide needed goods. People may drain swamps or dig irrigation ditches to grow crops in a particular environment. Sometimes the alterations create new problems, such as pollution. As you study geography, you will learn about many ways humans interact with their environment.

HUMAN–ENVIRONMENT INTERACTION Neighbors and friends use sandbags to hold back floodwaters during the Great Mississippi Flood of 1993.
In what ways do floods alter the landscape?

Theme: Movement

The question "How do people, goods, and ideas move from one location to another?" refers to movement. Geographers are interested in the ways people, goods, and ideas move from place to place. Think about the clothing you wear, the music you listen to, or the places you go for entertainment. All of these things involve movement from one place to another. Geographers analyze movement by looking at three types of distance: linear distance, time distance, and psychological distance.

LINEAR DISTANCE AND TIME DISTANCE Linear distance simply means how far across the earth a person, an idea, or a product travels. Physical geography can affect linear distance by forcing a shift in a route to avoid impassable land or water.

Time distance is the amount of time it takes for a person, an idea, or a product to travel. Modern inventions have shortened time distances. For example, in the 1800s, pioneers traveled up to six months to reach California. Today you can get there by airplane from almost any U.S. location in under six hours. With the use of the Internet, ideas can travel around the world in seconds. D

Geographic Thinking

Seeing Patterns
D How do interstate highways affect linear distance and time distance?

PSYCHOLOGICAL DISTANCE Psychological distance refers to the way people view distance. When you were younger, some locations seemed very far away. As you grew older, the distance to these locations probably seemed to shrink. Studies show that, as we become familiar with a place, we think it is closer than it actually is. Less familiar places seem to be further away. Psychological distance may influence decisions about many different human activities.

Across the world, people make important choices based on linear distance, time distance, and psychological distance. These choices make up patterns that geographers can study. In the next section, you'll read about the tools they use to study these patterns.

SECTION 1 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- geography
- hemisphere
- equator
- prime meridian
- latitude
- longitude

2 Taking Notes

REGION Review the notes you took for this section.

5 Themes:

- What is a region?
- What are three types of regions?

3 Main Ideas

a. What are the five themes of geography?

b. How is place different from location?

c. Why do geographers study human-environment interaction?

4 Geographic Thinking

Making Generalizations
How is the study of geography different from the study of history? **Think about:**

- use of space on earth
- relationships between people and the environment

See Skillbuilder Handbook, page R6.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Using the five themes of geography, develop a **brochure** describing your community. Use pictures or sketches, maps, and other data to complete your descriptions.

2 The Geographer's Tools

Main Ideas

- Geographers use two- and three-dimensional tools to learn about the earth.
- Geographers use computer-assisted technology to study the use of the earth's surface.

Places & Terms

globe
map
cartographer
map projection
topographic map
Landsat
Geographic Information Systems (GIS)

A HUMAN PERSPECTIVE At noon on a sunny midsummer day, sometime around 255 B.C., Eratosthenes drove a stake into the ground at the mouth of the Nile River in Alexandria, Egypt. He then noted the angle of the shadow cast by the stake. Meanwhile at Syene (modern-day Aswan, Egypt), another person drove a stake into the ground—but it cast no shadow. Using the angle of the first shadow and the distance between Syene and Alexandria, Eratosthenes calculated the circumference of the earth. By today's measurements, he was off by about 15 percent, but he was remarkably accurate considering the simple tools he used. Eratosthenes was one of the earliest geographers to use tools and critical thinking to measure and describe the earth.

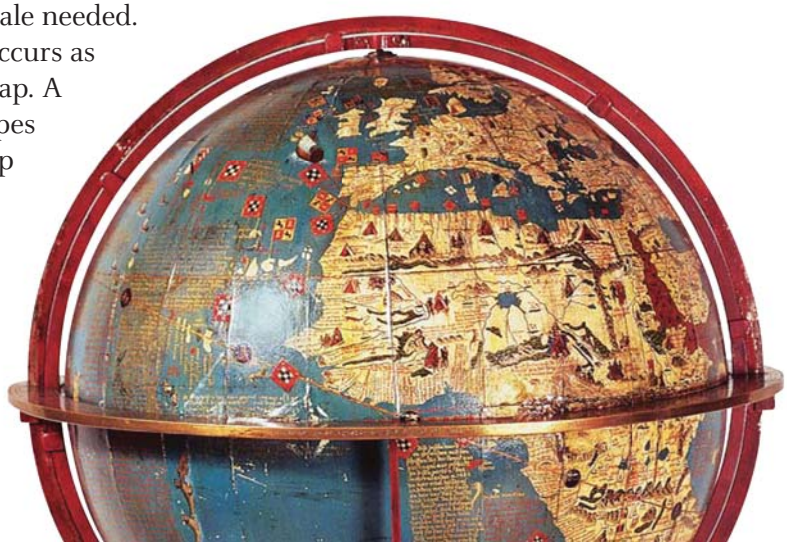
Maps and Globes

A geographer's tools include maps, globes, and data that can be displayed in a variety of ways. The oldest known map is a Babylonian clay tablet created about 2,500 years ago. The tablet is about four inches high and shows the Babylonian world surrounded by water. Over the centuries, mapmaking evolved into a very complex task. However, a map's function has remained the same—to show locations of places, landforms, and bodies of water, and where they are in relation to other parts of the earth.

TWO OR THREE DIMENSIONS A **globe** is a three-dimensional representation of the earth. It provides a way to view the earth as it travels through space. But since the earth is a sphere, we can see only one half of it at any time. For certain tasks, globes are not very practical because they are not easily portable.

People often prefer to use **maps,** which are two-dimensional graphic representations of selected parts of the earth's surface. Maps are easily portable and can be drawn to any scale needed. The disadvantage of a map is that distortion occurs as the earth's surface is flattened to create the map. A **cartographer,** or mapmaker, reduces some types of distortion by using different types of map projections. A **map projection** is a way of drawing Earth's surface by presenting a round Earth on flat paper. To learn more about map projections, see the Geography Skills Handbook, pages 18–19.

This globe, created circa 1492, is turned to show Africa and Europe.



TYPES OF MAPS The three types of maps are general reference maps, thematic maps, and navigational maps. One kind of general reference map is called a **topographic map,** which is a representation of natural and man-made features on the earth. Thematic maps emphasize specific kinds of information, such as climate or population density. Sailors and pilots use the third type of map—navigation maps. You can learn more about using different maps in the Geography Skills Handbook, pages 20–23.

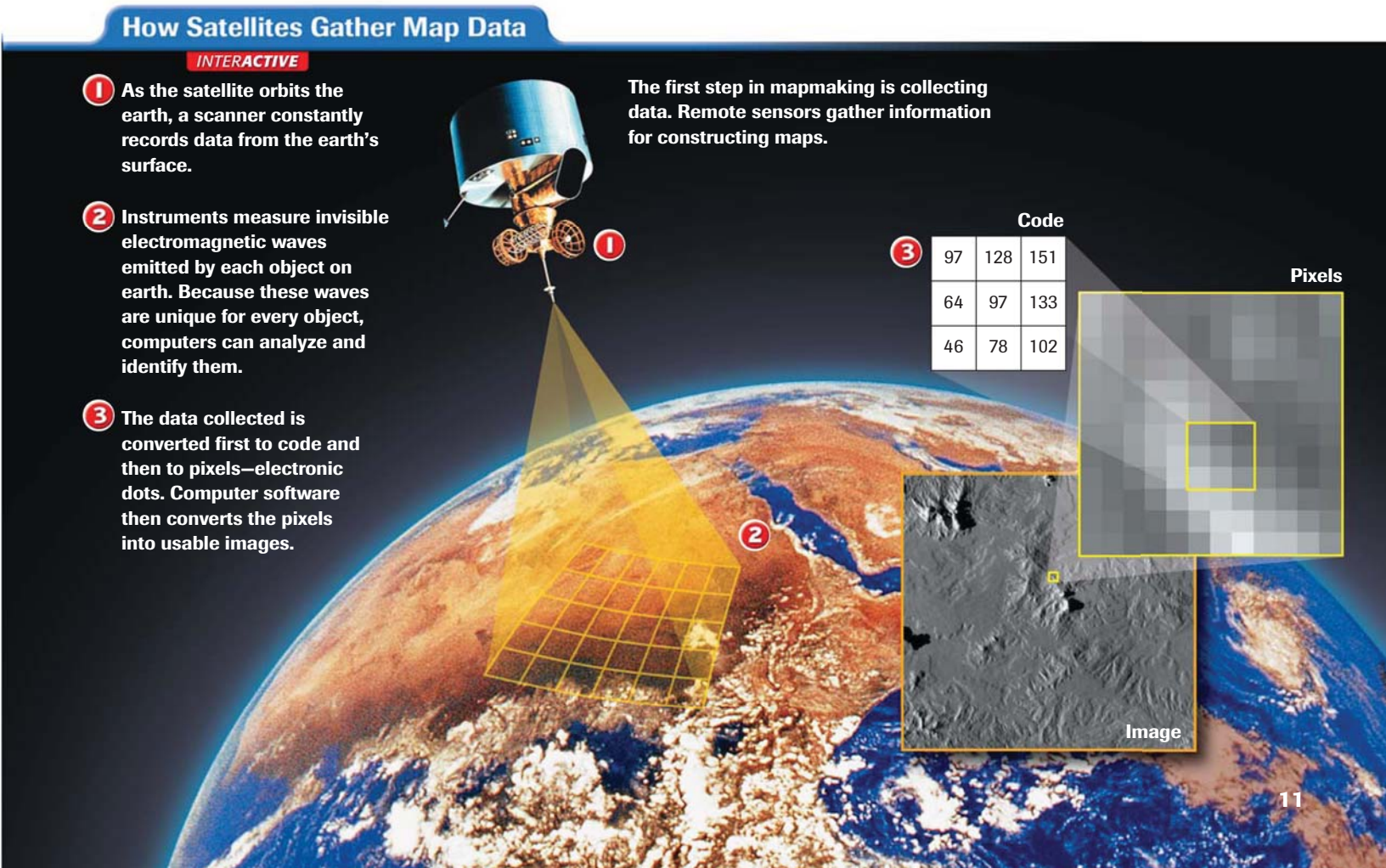
BACKGROUND Navigational maps, often referred to as charts, help their users to plot a course through air or water.

The Science of Mapmaking

A cartographer decides what type of map to create by considering how the map will be used. Keeping that purpose in mind, he or she then determines how much detail to show and what size the map should be.

SURVEYING The first step in making a map is to complete a field survey. Surveyors observe, measure, and record what they see in a specific area. Today, most mapping is done by remote sensing, the gathering of geographic information from a distance by an instrument that is not physically in contact with the mapping site. These data are gathered primarily by aerial photography or by satellites.

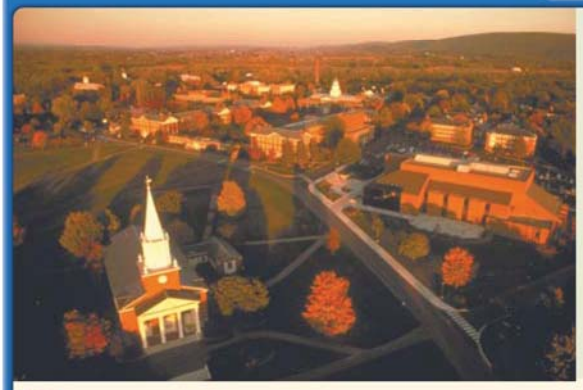
The data gathered includes information such as elevation, differences in land cover, and variations in temperature. This information is recorded and converted to a gray image. Cartographers then use these data and computer software to construct maps. See the illustration below to learn more about satellite surveying.



SATELLITES Today, geographers rely heavily on satellites to provide geographic data. Two of the best-known satellites are Landsat and GOES. **Landsat** is actually a series of satellites that orbit more than 100 miles above Earth. Each time a satellite makes an orbit, it picks up data in an area 115 miles wide. Landsat can scan the entire Earth in 16 days.

Geostationary Operational Environment Satellite (GOES) is a weather satellite. This satellite flies in orbit in sync with Earth's rotation. By doing so, it always views the same area. It gathers images of atmospheric conditions that are useful in forecasting the weather.

Geographic Information Systems

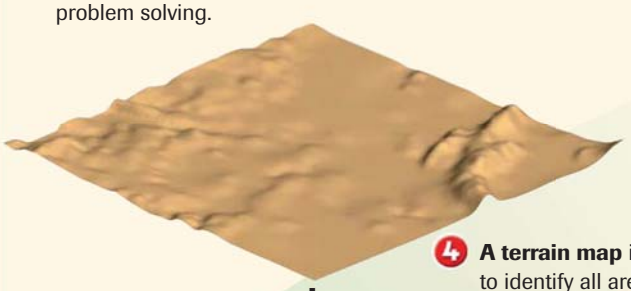


Geographic Information Systems (GIS) allow geographers to solve problems by combining geographic information about a location from several sources.

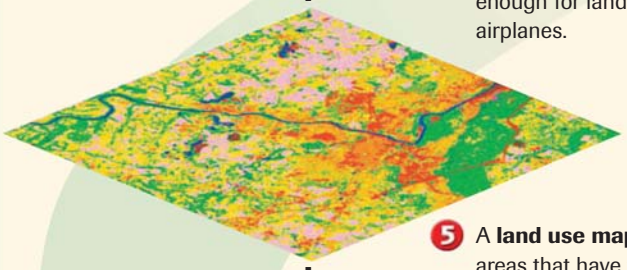
1. A question or problem is posed. An example is, "In what general area near this town might an airport be located?" A section of land is identified for problem solving.

2. Computer databases hold geographic information about the location.

3. The user selects layers of information that answer the question "What geographic characteristics are important for a good airport site?"



4. **A terrain map** is selected to identify all areas flat enough for landing airplanes.



5. A **land use map** shows areas that have few homes.

7. The layers of information are combined to create a **composite map** showing possible sites for the airport.

6. The **base map** shows where roads are located so that the airport can be reached and safety concerns are handled.

GEOGRAPHIC INFORMATION SYSTEMS The newest tool in the geographer's toolbox is **Geographic Information Systems (GIS).** GIS stores information about the world in a digital database. GIS has the ability to combine information from a variety of sources and display it in ways that allow the user to visualize the use of space in different ways.

When using the system, geographers must look at a problem and decide what types of geographic information would help them solve the problem. The information could include maps, aerial photographs, satellite images, or other data. Next, they select the appropriate layers of information. Then, GIS creates a composite map combining the information. Study the diagram on page 12 to learn more about the way GIS works.

GLOBAL POSITIONING SYSTEM (GPS) A familiar tool of geographers is GPS or Global Positioning System. It was originally developed to help military forces know exactly where they were on the earth's surface. The system uses a series of 24 satellites called Navstars, which beam information to the earth. The exact position—latitude, longitude, altitude, and time—is displayed on a hand–held receiver. Hikers, explorers, sailors, and drivers use GPS devices to determine location. They are also used to track animals. A

Geographers use a variety of other tools including photographs, cross sections, models, cartograms, and population pyramids. These tools help geographers to visualize and display information for analysis. They are looking for patterns and connections in the data they find. You will learn how to use these tools in the Geography Skills Handbook, which follows, and in the Map and Graph Skills pages in this book.

MOVEMENT Scientists use a GPS device to track this black bear in Minnesota. **What other uses could be found for a GPS device?**

Geographic Thinking

Making Comparisons
A How might the military use both GOES and GPS?

SECTION 2 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- globe
- map
- cartographer
- map projection
- topographic map
- GIS

2 Taking Notes

REGION Review the notes you took for this section.

Tools:

- How would a globe show a region differently than a map?
- How does GIS aid in understanding a region?

3 Main Ideas

a. What are the three basic types of maps?

b. What are some geographers' tools in addition to maps and globes?

c. How does a cartographer decide which type of map is needed?

4 Geographic Thinking

Making Generalizations
How does modern technology help geographers? **Think about:**

- digital information
- satellite images

See Skillbuilder Handbook, page R6.

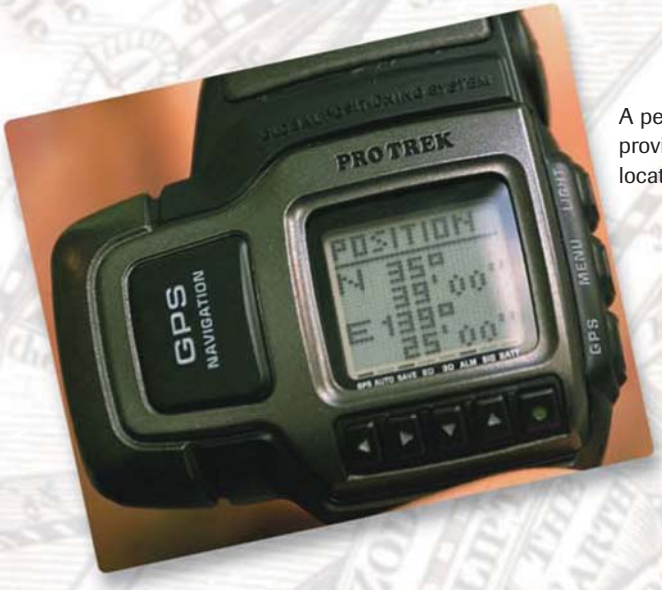
GeoActivity

MAKING COMPARISONS Choose a place on the earth and in an atlas, and find three maps that show the place in three different ways. Create a **chart** that lists the similarities and differences in the way the place is shown on the three maps.

This handbook covers the basic map skills and information that geographers rely on as they investigate the world—and the skills you will need as you study geography.

Finding Location

Mapmaking depends on surveying the earth's surface. Until recently, that activity could only happen on land or sea. Today, aerial photography and satellite imaging are the most popular ways to gather data.



A personal **GPS** device provides the absolute location to the user.

Magnetic compasses introduced by the Chinese around the 1100s helped to accurately determine direction.

Nigerian surveyors use a **theodolite,** a type of surveying instrument. It precisely measures angles and distances on the earth.

Reading a Map

Most maps have these elements, which are necessary to read and understand them.

1. **TITLE** The title explains the subject of the map and gives you an idea of what information the map conveys.
2. **COMPASS ROSE** The compass rose shows you the north (N), south (S), east (E), and west (W) directions on the map. Sometimes only north is indicated.
3. **LABELS** Labels are words or phrases that explain features on the map.
4. **LEGEND** A legend or key lists and explains the symbols and use of color on the map.
5. **LINES OF LATITUDE** These are imaginary lines that measure distance north or south of the equator.
6. **LINES OF LONGITUDE** These are imaginary lines that measure distance east or west of the prime meridian.
7. **SCALE** A scale shows the ratio between a unit of length on the map and a unit of distance on the earth.
8. **SYMBOLS** Symbols represent such items as capital cities, economic activities, or natural resources. Check the map legend for more details.
9. **COLORS** Colors represent a variety of information on a map. The map legend indicates what the colors mean.

Scale

A geographer decides what scale to use by determining how much detail to show. If many details are needed, a large scale is used. If fewer details are needed, a small scale is used.

Ratio Scale
This shows the ratio of distance on the map compared to real earth measurement. Here, 1 inch on the map equals 30,000,000 inches (500 miles) in actual distance on the earth.

Bar Scale
This bar shows the ratio of distance on the map to distance on the earth. Here, 1 inch equals 500 miles.

EASTERN UNITED STATES
Scale: 1:30,000,000
1"= 500 miles

0 250 500 miles
0 250 500 kilometers
Azimuthal Equidistant Projection

Small Scale
A small scale map shows a large area but without much detail. A small scale is used to see relative location in a region or between regions.

WASHINGTON, D.C., METRO AREA
Scale: 1:3,000,000
1"= 50 miles

0 25 50 miles
0 25 50 kilometers
Albers Equal-Area Projection

Large Scale
A large scale map shows a small area with much more detail. A large scale is used to see relative location within a region.

WASHINGTON, D.C.
Scale: 1:62,500
1"= 1 mile

0 .5 1 mile
0 .5 1 kilometer
Albers Equal-Area Projection

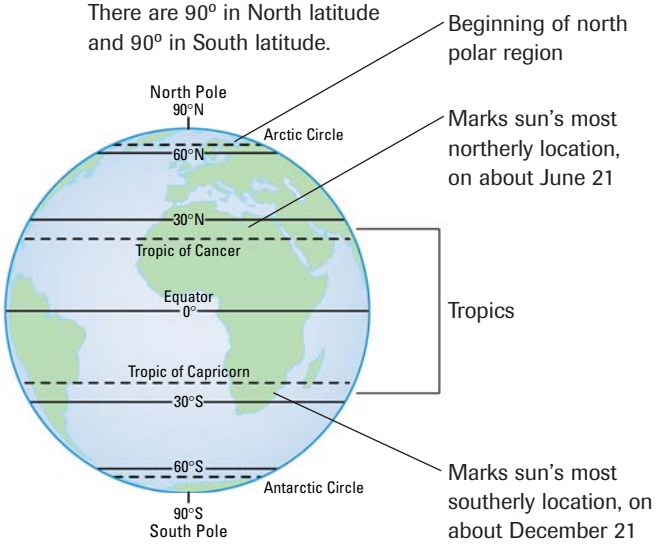
Using the Geographic Grid

As you learned in Chapter 1, geographers use a grid system to identify absolute location. The grid system uses two kinds of imaginary lines:

- latitude lines, also called parallels because they run parallel to the equator
- longitude lines, also called meridians because, like the prime meridian, they run from pole to pole

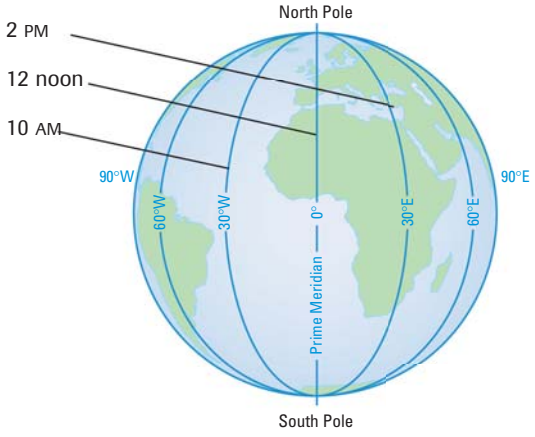
Latitude

There are 90º in North latitude and 90º in South latitude.



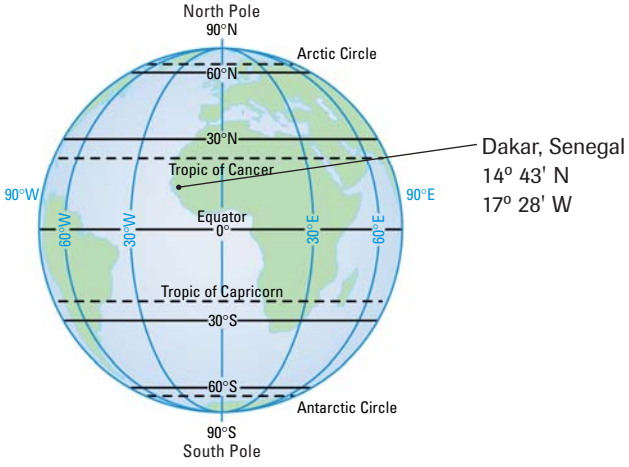
Longitude

There are 180º in West longitude and 180º in East longitude. Lines also mark the hours of the day as the earth rotates. Every 15º east or west is equal to one hour.



Global Grid

Absolute location can be determined by noting where latitude and longitude lines cross. For more precision, each degree is divided into 60 minutes.

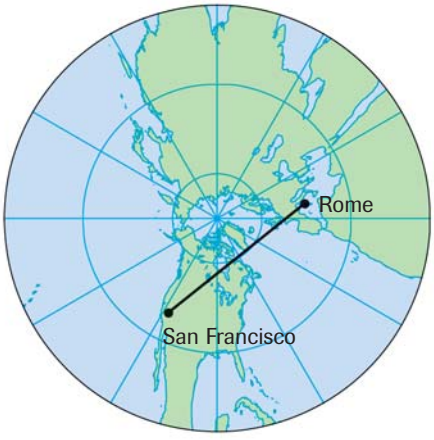


Projections

A projection is a way of showing the curved surface of the earth on a flat map. Because the earth is a sphere, a flat map will distort some aspect of the earth's surface. Distance, shape, direction, or area may be distorted by a projection. Be sure to check the projection of a map so you are aware of how the areas are distorted.

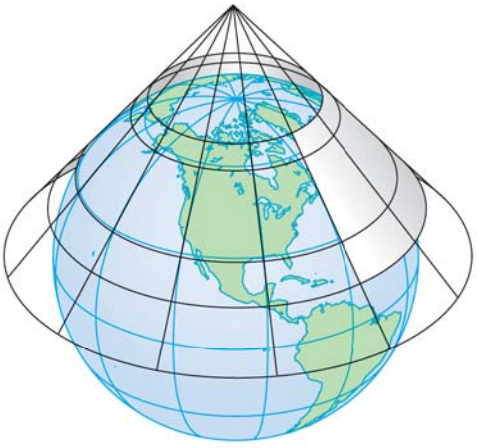
PLANAR PROJECTIONS

A planar projection is a projection on a flat surface. This projection is also called an azimuthal projection. It distorts size and shape. To the right is a type of planar projection.



The **azimuthal** projection shows the earth so that a line from the central point to any other point on the map gives the shortest distance between the two points. Size and shape are distorted.

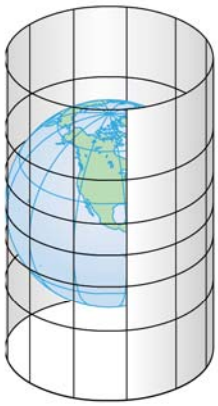
CONICAL PROJECTIONS



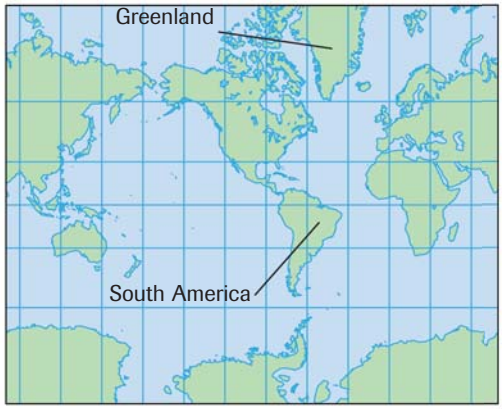
A conical projection is a projection onto a cone. This projection shows shape fairly accurately, but it distorts landmasses at the edges of the map.

Conical projections are often used to show landmasses that extend over large areas going east and west.

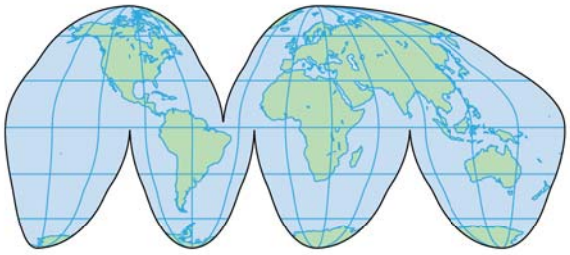
COMPROMISE PROJECTIONS



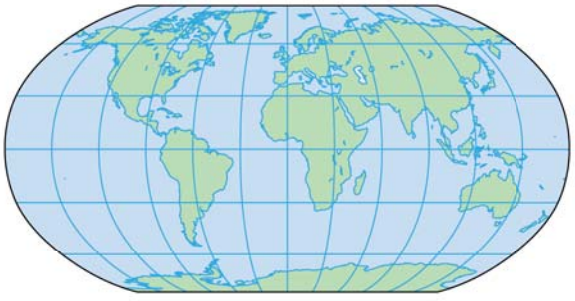
A compromise projection is a projection onto a cylinder. This projection shows the entire earth on one map. Included here are three types of compromise projections.



In the compromise projection called **Mercator,** the shapes of the continents are distorted at the poles and somewhat compressed near the equator. For example, the island of Greenland is actually one-eighth the size of South America.



The compromise projection called **homolosine** is sometimes called an "interrupted map," because the oceans are divided. This projection shows the accurate shapes and sizes of the landmasses, but distances on the map are not correct.



A **Robinson** projection is a type of compromise projection, commonly used in textbooks. It shows the entire earth with nearly the true sizes and shapes of the continents and oceans. However, the shapes of the landforms near the poles appear flat.

Map Practice

Use pages 14–19 to help you answer these questions. Look at the map on page 15 to answer questions 1–3.

1. How are colors used on this map?

2. Is the map a large-scale or a small-scale map? How do you know?

3. What is the approximate longitude of Tehran?

4. What are the names of three lines of latitude besides the equator?

5. Which projections show shape of landmasses most accurately?

GeoActivity

MAKING COMPARISONS Look at the maps in the atlas in this book. Create a **database** that shows the projection and scale of each map. Write a summary of your findings.

Using Different Types of Maps

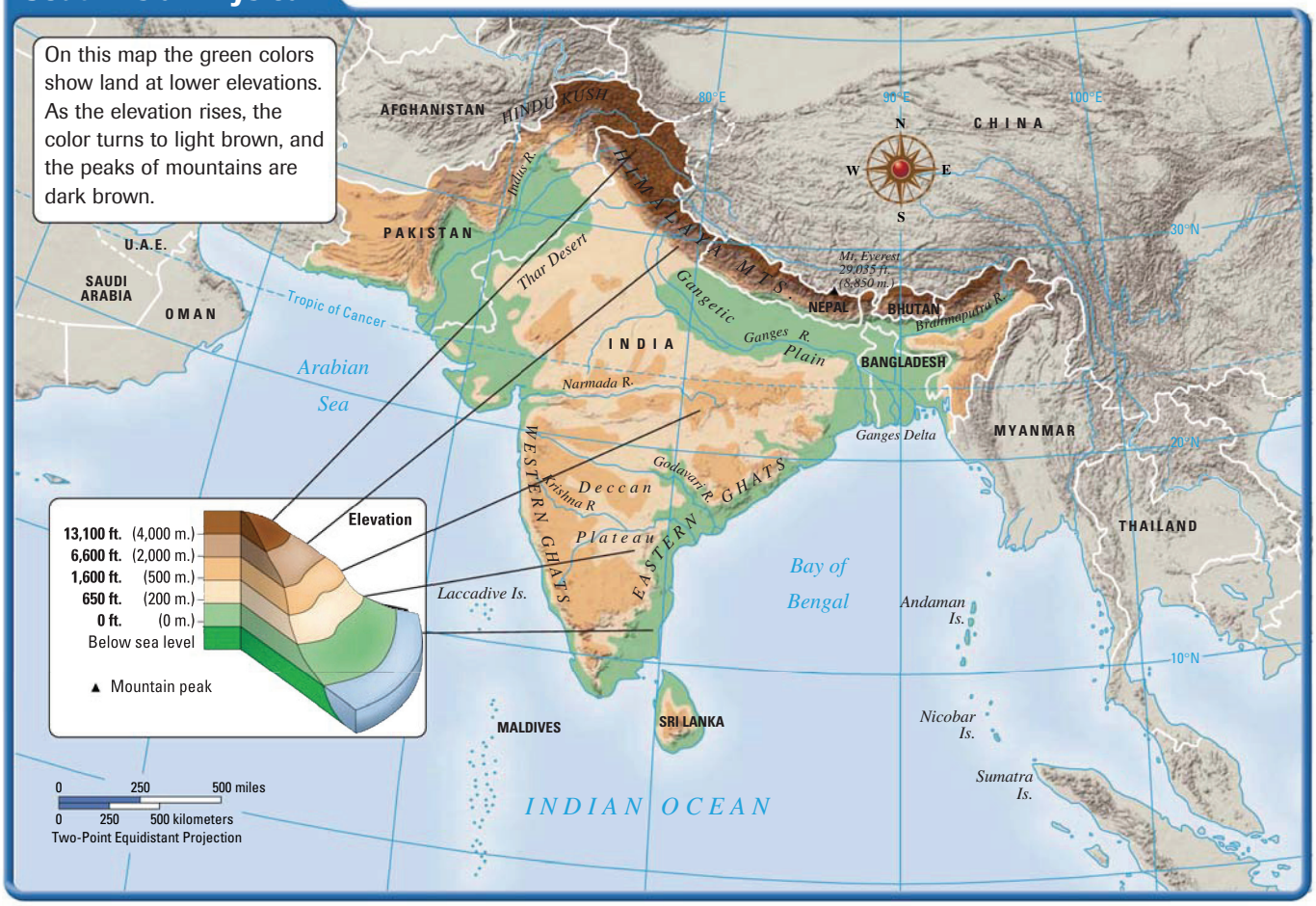
PHYSICAL MAPS Physical maps help you see the types of landforms and bodies of water found in a specific area. By studying the map, you can begin to understand the relative location and characteristics of a place or region.

On a physical map, color, shading, or contour lines are used to indicate elevation or altitude, also called relief.

Ask these questions about the physical features shown on a map:

- Where on the earth's surface is this area located?
- What is its relative location?
- What is the shape of the region?
- In which direction do the rivers flow? How might the direction of flow affect travel and transportation in the region?
- Are there mountains or deserts? How do they affect the people living in the area?

South Asia: Physical



POLITICAL MAPS Political maps show features on the earth's surface that humans created. Included on a political map may be cities, states, provinces, territories, or countries.

Ask these questions about the political features shown on a map:

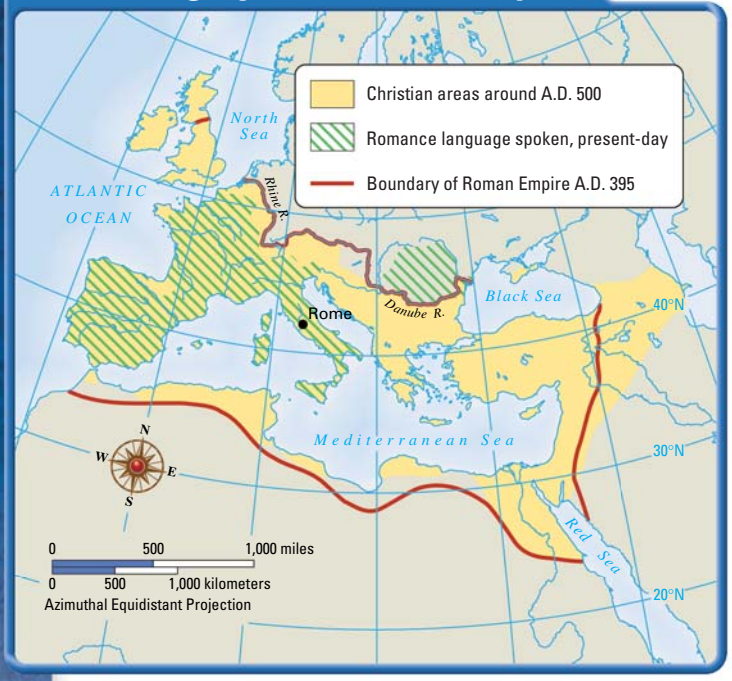
- Where on the earth's surface is this area located?
- What is its relative location? How might the location affect the economy or foreign policy of a place?
- What is the shape and size of the country? How might shape or size affect the people living in the country?
- Who are the neighbors in the region, country, state, or city?
- How populated does the area seem to be? How might that affect activities there?

South Asia: Political

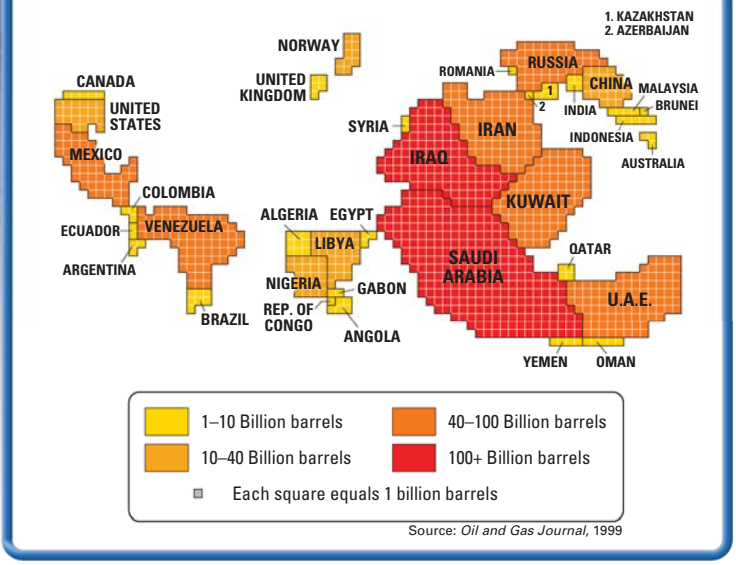
Thematic Maps

Geographers also rely on thematic maps, which focus on specific types of information. For example, in this textbook you will see thematic maps that show climate, vegetation, natural resources, population density, and economic activities. Some thematic maps illustrate historical trends, and others may focus on the movement of people or ideas. These maps may be presented in a variety of ways.

Cultural Legacy of the Roman Empire



Estimated World Oil Reserves



Source: *Oil and Gas Journal*, 1999

QUALITATIVE MAPS Qualitative maps use colors, symbols, dots, or lines to help you see patterns related to a specific idea. The map shown to the left shows the influence of the Roman Empire on Europe, North Africa, and Southwest Asia. Use the suggestions below to help you interpret a map.

- Check the title to identify the theme and data being presented.
- Study the legend to understand the theme and the information presented.
- Look at physical or political features of the area. How might the theme of the map affect them?
- What are the relationships among the data?

CARTOGRAMS In a cartogram, geographers present information about a country based on a set of data other than land area. The size of each country is drawn in proportion to that data rather than to its land size. On the cartogram shown to the left, the countries are represented on the basis of their oil reserves. Use the suggestions below to help you interpret a cartogram.

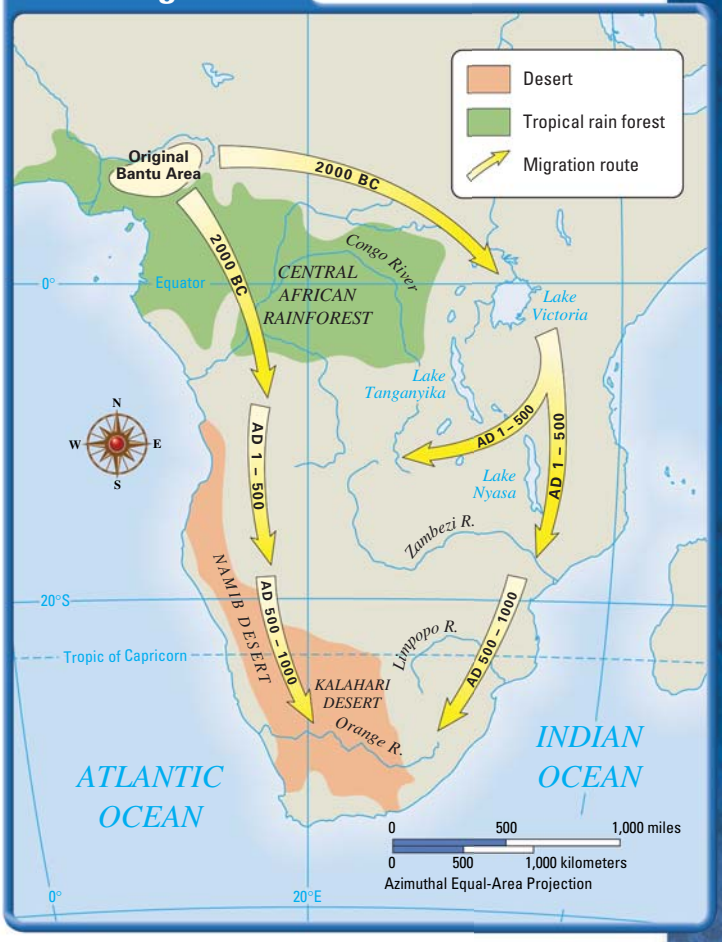
- Check the title and legend to identify the data being presented.
- What do sizes represent?
- Look at the relative sizes of the countries shown. Which is largest? smallest?
- How do the sizes of the countries on the physical map differ from those in the cartogram?
- What are the relationships among the data?

FLOW-LINE MAPS Flow-line maps illustrate movement of people, goods, ideas, animals, or even glaciers. The information is usually shown in a series of arrows. Location, direction, and scope of movement can be seen. The width of the arrow may show how extensive the flow is. Often the information is given over a period of time. The map shown to the right portrays the movement of the Bantu peoples in Africa. Use the suggestions below to help you interpret a flow-line map.

- Check the title and legend to identify the data being presented.
- Over what period of time did the movement occur?
- In what direction did the movement occur?
- How extensive was the movement?

Remember that the purpose of a map is to show a location and provide additional information. Be sure to look at the type of map, scale, and projection. Knowing how maps present the information will help you interpret the map and the ideas it presents.

Bantu Migrations



Map Practice

Use pages 20–23 to help you answer these questions. Use the maps on pages 20–21 to answer questions 1–3.

1. In what direction does the Ganges River flow?

2. China is the northern neighbor of which countries?

3. Which city is closer to the Thar Desert—Lahore, Pakistan or New Delhi, India?

4. Why are so few nations shown on the cartogram?

5. Which of the thematic maps would best show the location of climate zones?

GeoActivity

EXPLORING LOCAL GEOGRAPHY Obtain a physical–political map of your state. Use the data on it to create two separate **maps.** One should show physical features only, and one should show political features only.

Chapter 1 Assessment

VISUAL SUMMARY
LOOKING AT THE EARTH

The Five Themes of Geography

Location
- **Absolute Location** uses latitude and longitude.
- **Relative Location** uses relationships to other places.

Place This explains the characteristics of an area.

Region This looks at a larger area with similar characteristics.

Movement People, plants, animals, and ideas move through time and across space.

Human–Environment Interaction Humans interact with the environment to adjust to it or to alter it.

The Geographer's Tools

Globe A three-dimensional representation of the earth

Map A two-dimensional representation of the earth

Mapmaking
- Area is surveyed.
- High-tech tools, including satellites, are used to gather data and create maps.

Geography Skills Handbook

Map Elements Maps have elements such as a legend to aid in interpreting them.

Scale This determines how much detail is shown on a map.

Grid Gridlines help to determine absolute location.

Projection This shows the earth's surface in two dimensions but distorts either size, shape, direction, or area.

Types of Maps These include physical, political, and thematic, such as qualitative, cartographic, or flow-line.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. geography
2. hemisphere
3. equator
4. prime meridian
5. latitude
6. longitude
7. globe
8. map
9. cartographer
10. map projection

B. Answer the questions about vocabulary in complete sentences.

11. Which of the above terms indicate imaginary parallel lines that circle the earth?
12. Which term marks the beginning of longitude?
13. Which of the above terms has 180° in each hemisphere?
14. How may hemispheres be divided?
15. What imaginary line separates the Northern Hemisphere from the Southern Hemisphere?
16. Which term is also known as a meridian line?
17. Would a cartographer work on a map or a globe?
18. Why are map projections needed?
19. Which of the above terms are associated with the geographic grid?
20. Which term characterizes the study of the use of land space?

Main Ideas

The Five Themes of Geography (pp. 5–9)

1. How is absolute location different from relative location?
2. What are some examples of information that would be included in a place description?
3. How is place different from region?
4. Why do geographers study movement?

The Geographer's Tools (pp. 10–13)

5. What is the purpose of a map?
6. How do satellites aid in mapmaking?
7. Why is GIS a valuable tool for examining the geography of a place?

Geography Skills Handbook (pp. 14–23)

8. How is the use of small-scale maps different from the use of large-scale maps?
9. In what ways may relief be shown on a map?
10. What are three types of thematic maps?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.

5 Themes:
Tools:

a. How are relative location and place related?

b. How do thematic maps help geographers understand the five themes?

2. Geographic Themes

a. **REGION** Write a sentence describing a region that your community is a part of. Be sure to identify the region and give reasons for your answer.

b. **MOVEMENT** How are linear and time distances related to the theme of movement?

3. Identifying Themes

Into which two hemispheres would an island at 50°S, 60°W be placed? Which of the five themes are reflected in your answer?

4. Drawing Conclusions

Why was it necessary for geographers to develop a grid system?

5. Seeing Patterns

Into which formal region, functional region, and perceptual region might your community be placed?

Additional Test Practice, pp. S1–S37

TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Maps

Continents of the World

Use the map to answer the following questions.

1. **LOCATION** What is the absolute location of the continent of Australia?
2. **LOCATION** What is the relative location of South America?
3. **PLACE** What body of water is located at 45° N, 45° W?

GeoActivity

With a partner, choose and record the latitude and longitude of five locations on the map at left. Then trade your list with another set of partners. Have them search for the coordinates on your list, and do the same with their list. Then check the accuracy of the findings.

INTERNET ACTIVITY

Use the links at **classzone.com** to do research about GIS. Take notes on the ways GIS can be used to provide geographic information for mapmaking, site selection, and simulating environmental effects.

Creating a Multimedia Presentation Using the information you gathered about GIS, create a multimedia presentation explaining the various aspects of GIS and how it helps geographers and others solve problems.

Chapter 2

PHYSICAL GEOGRAPHY
A Living Planet

Third planet from the Sun: Earth appears as a blue and white ball in the darkness of space.

GeoFocus

What forces shape the earth?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information from the chapter about the structure of the earth.

The Earth Inside and Out

Main Ideas

- The earth is the only habitable planet in the sun's solar system.
- The drifting of the continents shaped the world we live in today.

Places & Terms

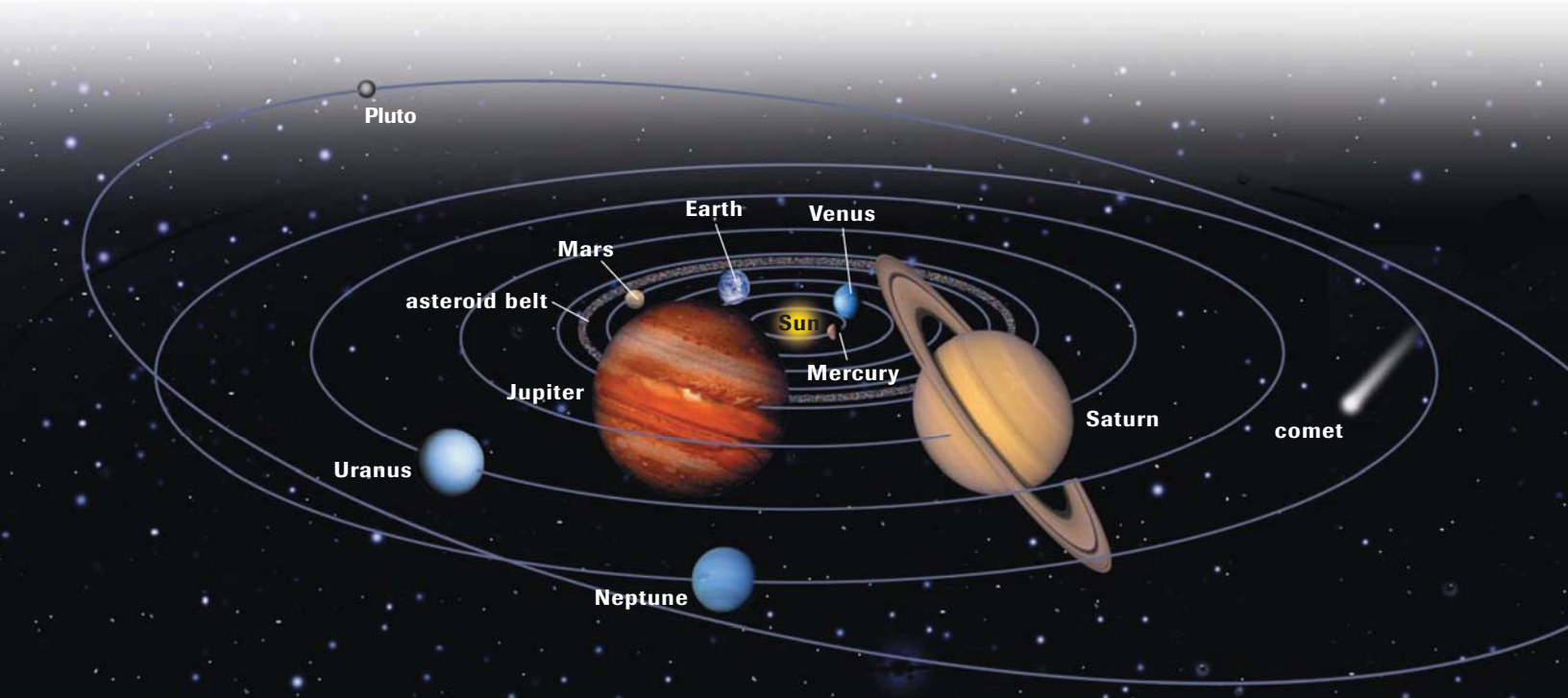
continent
solar system
core
mantle
magma
crust
atmosphere
lithosphere
hydrosphere
biosphere
continental drift

BASICS

A HUMAN PERSPECTIVE A quick look at a world map will convince you that the **continents,** landmasses above water on earth, fit together like a huge jigsaw puzzle. South America and Africa are good examples. With imagination, you can see how other continents might fit together as well. The first person to suggest that the seven continents were once all one supercontinent was Englishman Francis Bacon in 1620. Bacon's idea received support in the early 1900s, when scientists found rocks in Africa that matched rocks in South America. Other evidence also supported the idea of a supercontinent millions of years ago.

The Solar System

The "home address" of the earth is the third planet in the solar system of the sun, which is a medium-sized star on the edge of the Milky Way galaxy. Its distance from the sun is 93 million miles. The **solar system** consists of the sun and nine known planets, as well as other celestial bodies that orbit the sun. The solar system also contains comets, spheres covered with ice and dust that leave trails of vapor as they race through space. Asteroids—large chunks of rocky material—are found in space as well. As you can see in the diagram, our solar system has an asteroid belt between the orbits of Jupiter and Mars.



LOCATION This not-to-scale illustration shows the nine planets and other objects in our solar system.
What is the earth's relative location in the solar system?

The Structure of the Earth

The earth is about 24,900 miles in circumference and about 7,900 miles in diameter. Although the earth seems like a solid ball, it is really more like a series of shells that surround one another.

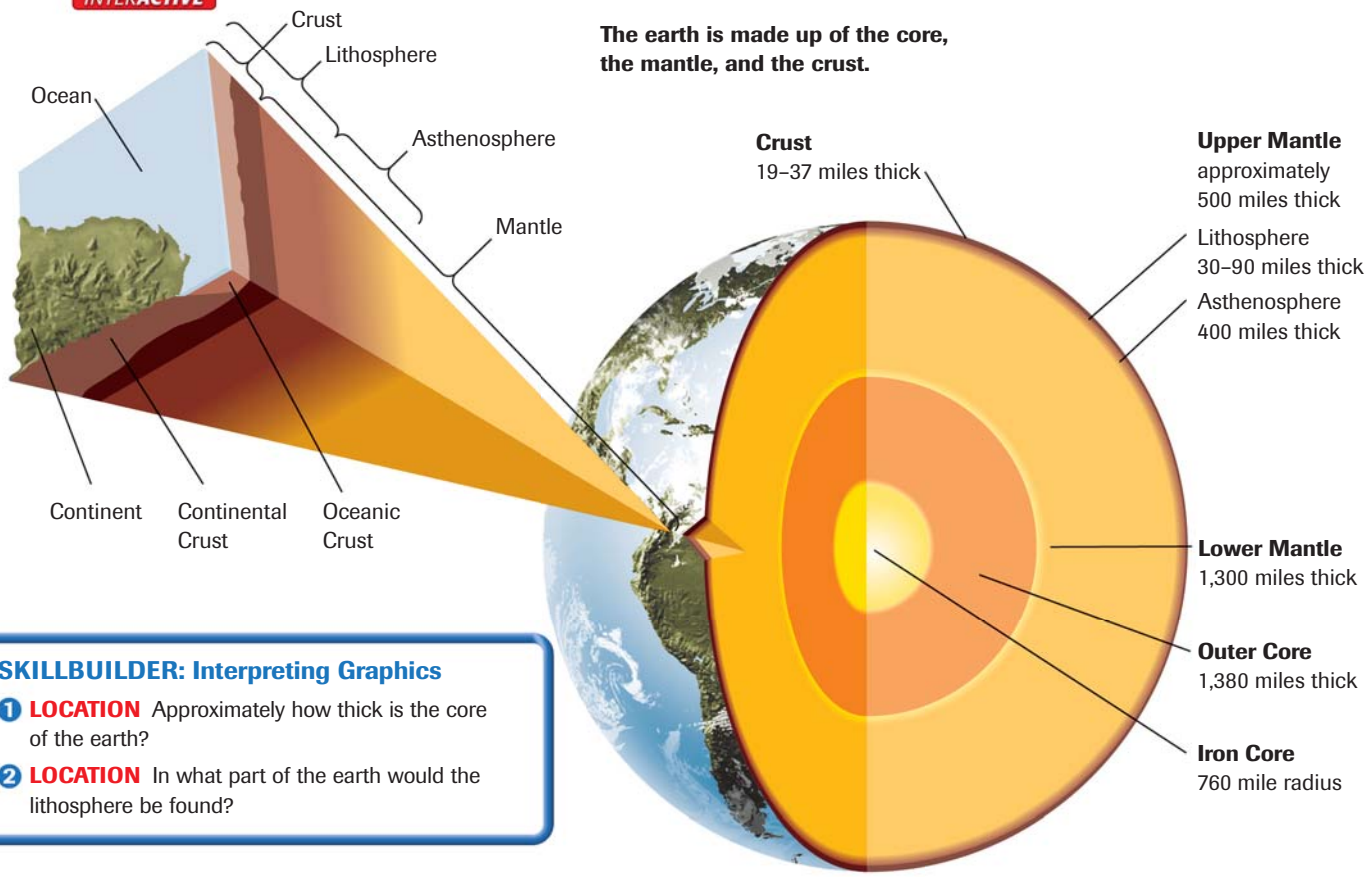
INSIDE THE EARTH The **core** is the center of the earth and is made up of iron and nickel. The outer core is liquid, but the inner core is solid. Surrounding the core is the **mantle,** which has several layers. The mantle contains most of the earth's mass. **Magma,** which is molten rock, can form in the mantle and rise through the **crust,** the thin layer of rock at the earth's surface. Study the diagram below to learn more about the earth's interior.

ON AND ABOVE THE EARTH Surrounding the earth is a layer of gases called the **atmosphere.** It contains the oxygen we breathe, protects the earth from radiation and space debris, and provides the medium for weather and climate. The solid rock portion of the earth's surface is the **lithosphere,** which includes the crust and uppermost mantle. Under the ocean, the lithosphere forms the seafloor. The huge landmasses above water are called continents. There are seven continents: North America, South America, Europe, Asia, Africa, Australia, and Antarctica. The **hydrosphere** is made up of the water elements on the earth, which include oceans, seas, rivers, lakes, and water in the atmosphere. Together, the atmosphere, the lithosphere, and the hydrosphere form the **biosphere,** the part of the earth where plants and animals live.

BACKGROUND
Part of the upper portion of the mantle is known as the asthenosphere. It is the hot, but still mostly solid, rock below the cold, brittle rock of the lithosphere.

The Earth's Interior

INTERACTIVE



SKILLBUILDER: Interpreting Graphics

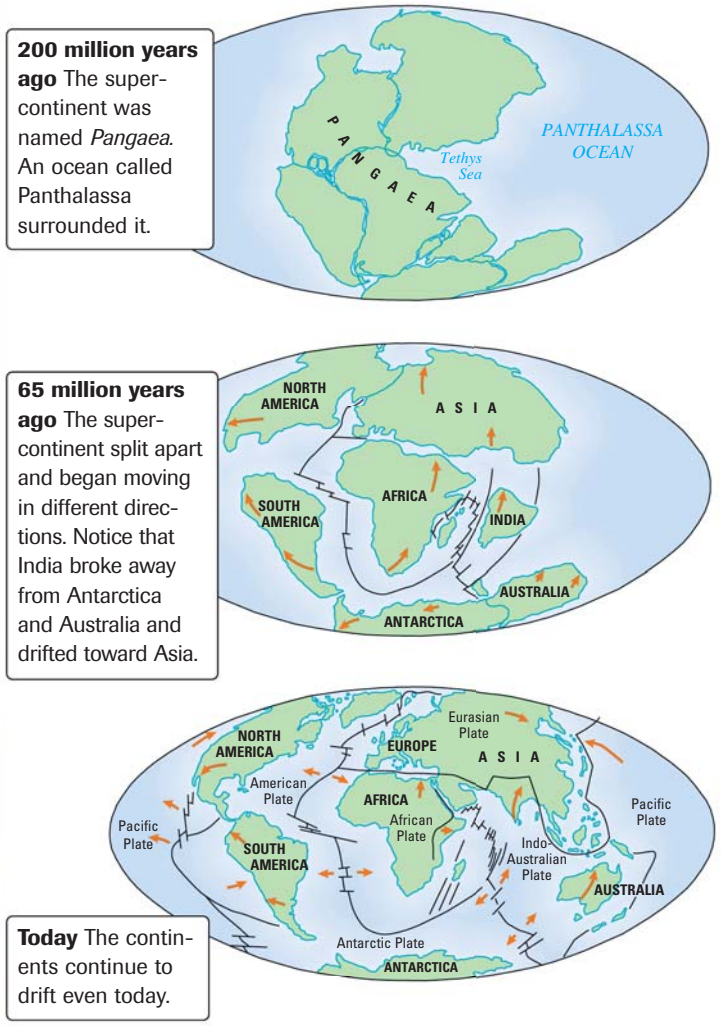
1. **LOCATION** Approximately how thick is the core of the earth?
2. **LOCATION** In what part of the earth would the lithosphere be found?

CONTINENTAL DRIFT In 1912, Alfred Wegener of Germany presented a new idea about continents—the **continental drift** hypothesis. It maintained that the earth was once a supercontinent that divided and slowly drifted apart over millions of years. Wegener called the supercontinent Pangaea (from a Greek word meaning "all earth"). An ocean called Panthalassa surrounded it. The supercontinent split into many plates that drifted, crashed into each other, and split apart several times before they came to their current positions. This process occurred over millions of years.

In the 1960s, scientists studying the sea floor discovered that the youngest rocks were in the middle of the ocean, at long cracks in the crust. This suggested that the new sea floor was being added, pushing the continents apart. Later in this chapter, you will learn how the rocks of Earth's surface are broken into giant plates that move and continue to shape the earth.

Continental Drift Theory

INTERACTIVE



SECTION 1 Assessment

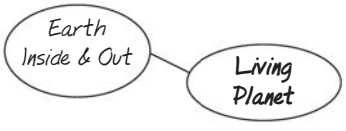
1 Places & Terms

Identify and explain where on the earth these terms would be found.

- continent
- mantle
- magma
- crust
- biosphere

2 Taking Notes

PLACE Review the notes you took for this section.



- What are the three basic parts of the earth's interior?
- What are four basic spheres found on or above the earth?

3 Main Ideas

a. What makes up the interior of the earth?

b. What makes up the biosphere?

c. How can the presence of seven continents on the earth's surface be explained?

4 Geographic Thinking

Making Inferences How do the earth's spheres influence one another? **Think about:**

- the function of the atmosphere
- the makeup of the biosphere

See Skillbuilder Handbook, page R4.

GeoActivity

MAKING COMPARISONS Study the diagrams of continental drift on this page. Write a **description** of the location of the continents in the past in comparison with their current location.

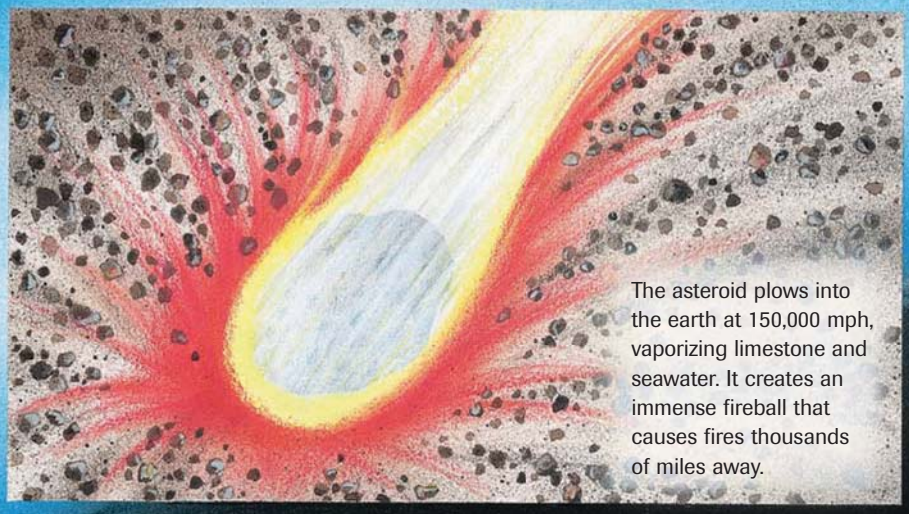
Disasters!

INTERACTIVE

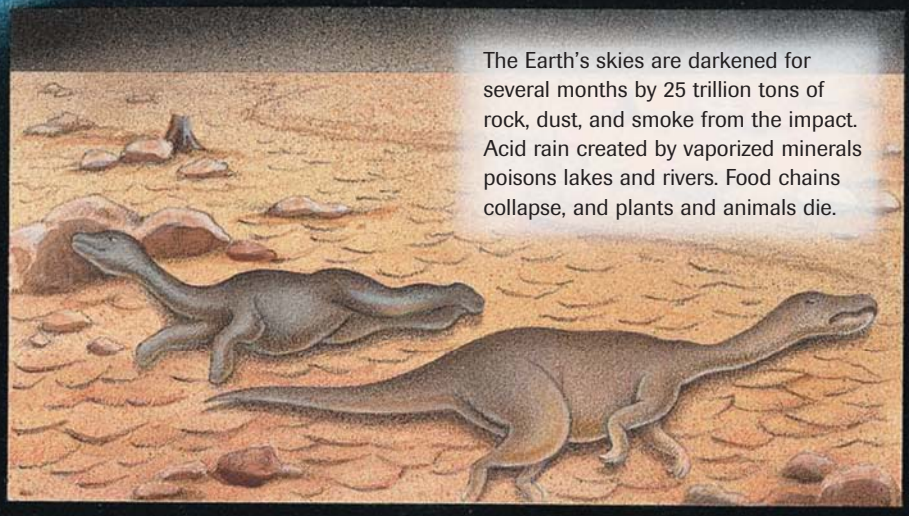
Asteroid Hit!

For years, scientists speculated that the extinction of dinosaurs was due to one very large "environmental event." Today we know that event was most likely the impact of an asteroid about six miles wide. Sixty-five million years ago it slammed into the earth traveling a thousand times faster than a rifle bullet. Fallout from the asteriod impact changed the environment so drastically that 50 to 70 percent of all living species on earth were wiped out.

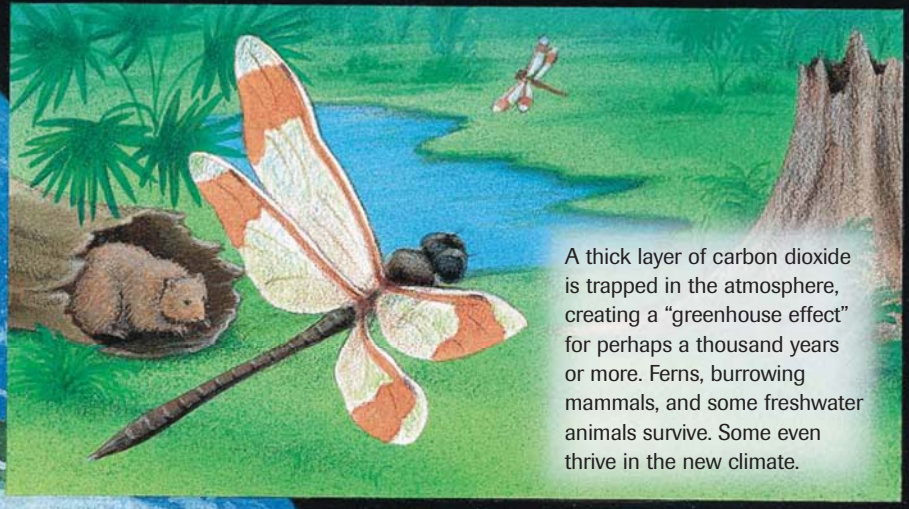
The asteroid hit near Chicxulub (CHEEK•shoo•loob) on the Yucatán Peninsula of Mexico. It dug a crater about 62 miles (100km) across.



The asteroid plows into the earth at 150,000 mph, vaporizing limestone and seawater. It creates an immense fireball that causes fires thousands of miles away.



The Earth's skies are darkened for several months by 25 trillion tons of rock, dust, and smoke from the impact. Acid rain created by vaporized minerals poisons lakes and rivers. Food chains collapse, and plants and animals die.



A thick layer of carbon dioxide is trapped in the atmosphere, creating a "greenhouse effect" for perhaps a thousand years or more. Ferns, burrowing mammals, and some freshwater animals survive. Some even thrive in the new climate.

GeoActivities

CREATING A FRONT PAGE

With a small group, use the Internet to research the Chicxulub event. Then create the front page of a **newspaper** describing the event.

- Create a map showing the impact area.
- Add an article describing the destruction caused by the asteroid.
- Write an interview with a scientist who predicts event results.

RESEARCH LINKS
CLASSZONE.COM

GeoData

ASTEROIDS

- Asteroids are small planetary bodies that orbit the sun.
- There are an estimated 50,000 asteroids in our solar system.
- Asteroids range in size from 20 feet to 580 miles in diameter.
- Fragments of asteroids that reach the earth are called meteorites.

TUNGUSKA EVENT

On June 30, 1908, at about 7:30 A.M., an explosion occurred over the Tunguska region of Siberia. This event might have been an asteroid hit.

- The force of the explosion was estimated at between 10 and 20 megatons of TNT.
- The fireball and explosion were seen and felt 500 miles away.
- Five hundred thousand acres of forest were flattened and burned.
- More than 600 grazing reindeer were roasted instantly.
- No crater could be found.

2 Bodies of Water and Landforms

Main Ideas

- Water covers about three-fourths of the earth's surface.
- The earth's surface displays a variety of landforms.

Places & Terms

hydrologic cycle
drainage basin
ground water
water table
landform
continental shelf
relief
topography

A HUMAN PERSPECTIVE In July 1971, astronaut James Irwin was lifted into space on the Apollo 15 mission. As he circled the earth, he was deeply moved by the beauty of our planet. Later he wrote this:

> Anyone passing through our solar system would be attracted to the blue planet. They would know that the blue color indicated water on Earth. They would know that where there is water there is probably life. They might try to meet us. We, the blue planet, stand out as a beacon to all.

The earth is unlike any other observable planet in our solar system. It is a living planet.

Bodies of Water

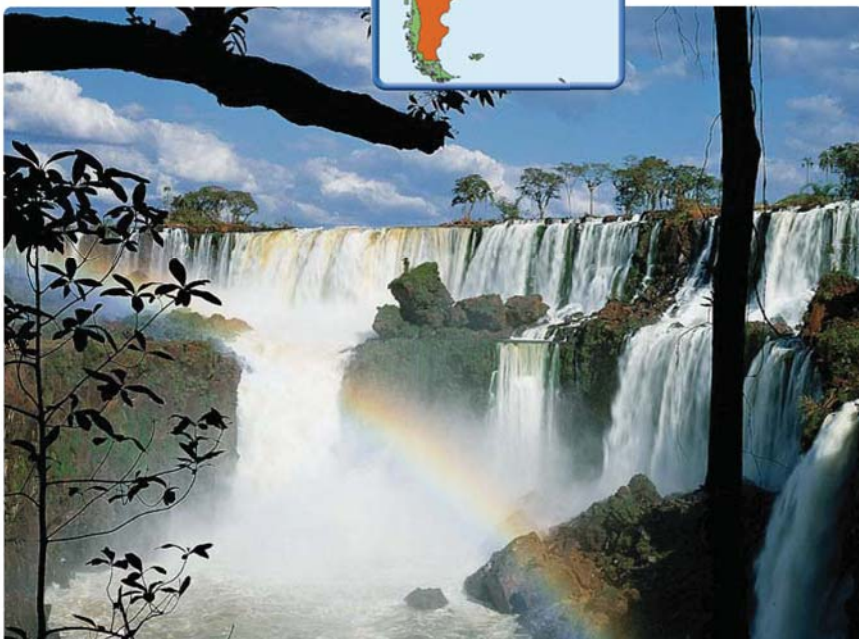
Without both freshwater and saltwater, life on this planet would be impossible. Water not only supports plants and animals, it helps distribute heat on the earth.

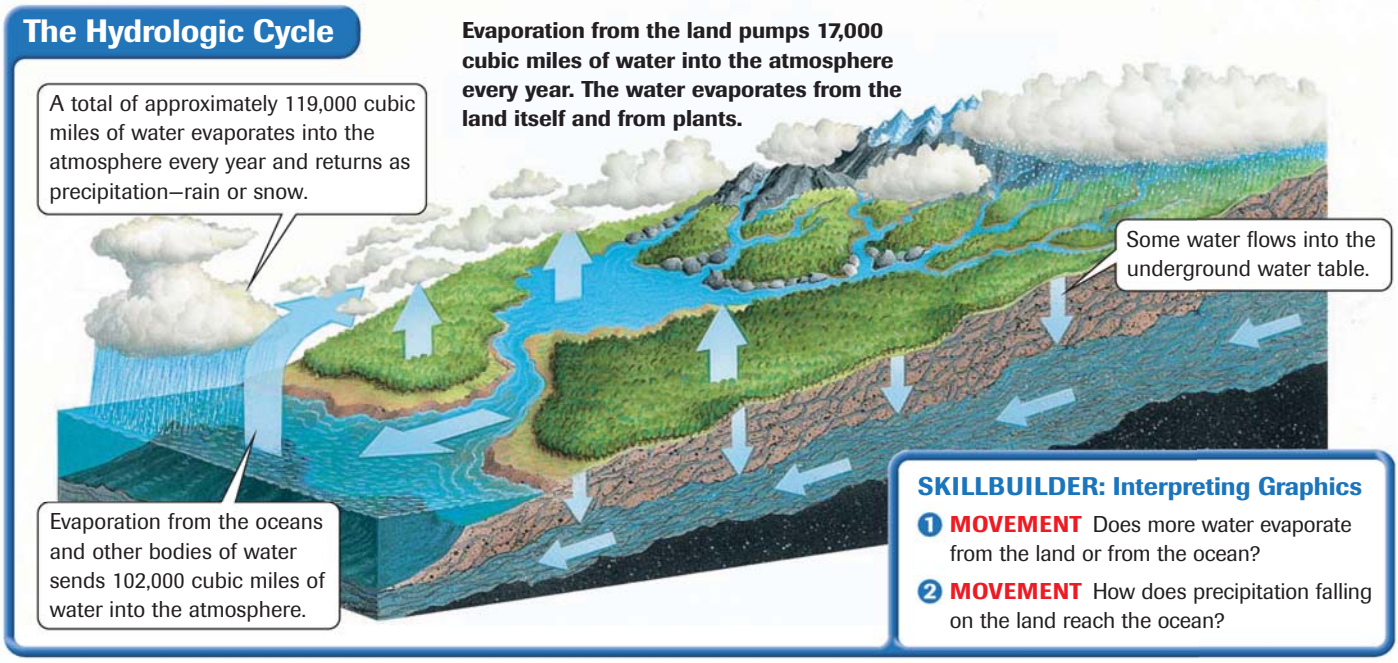
OCEANS AND SEAS The ocean is an interconnected body of salt water that covers about 71 percent of our planet. It covers a little more than 60 percent of the Northern Hemisphere and about 81 percent of the Southern Hemisphere. Even though it is one ocean, geographers divide it into four main parts: the Atlantic Ocean, the Pacific Ocean, the Indian Ocean, and the Arctic Ocean, which is sometimes considered part of the Atlantic. The largest of the oceans is the Pacific. The waters near Antarctica are sometimes called the Southern Ocean.

OCEAN MOTION The salty water of the ocean circulates through three basic motions: currents, waves, and tides. Currents act like rivers flowing through the ocean. Waves are swells or ridges produced by winds. Tides are the regular rises and falls of the ocean created by the gravitational pull of the moon or the sun. The motion of the ocean helps distribute heat on the planet. Winds blow over the ocean and are either heated or cooled by the water. When the winds eventually blow over the land, they moderate the temperature of the air over the land.

HYDROLOGIC CYCLE The **hydrologic cycle** is the continous circulation of water between the atmosphere, the oceans, and the earth. As you can see in

PLACE Iguaçu Falls at the Argentina-Brazil border has 275 separate waterfalls varying between 200 and 269 feet high. It is nearly three times wider than Niagara Falls in North America.





the diagram above, water evaporates into the atmosphere from the surface of the oceans, other bodies of water, and from plants. The water exists in the atmosphere as vapor. Eventually, the vapor cools, condenses, and falls to earth as precipitation—rain or snow. The water soaks into the ground, evaporates to the atmosphere, or flows into rivers to be recycled.

LAKES, RIVERS, AND STREAMS Lakes hold more than 95 percent of all the earth's fresh water supply. The largest freshwater lake is Lake Baikal in Russia. Its volume of water equals 18 percent of all freshwater on earth. Freshwater lakes like the Great Lakes of North America are the result of glacial action thousands of years ago. Saltwater lakes result from changes in the earth's surface that cut off outlets to the sea. Saltwater lakes are created when creeks and rivers carry salts into a lake, and there is no outlet to carry the salt away. The Great Salt Lake in Utah is the remnant of a large freshwater lake—Lake Bonneville. Its water outflows were cut off, causing the remaining water to become more salty as the water evaporated. The largest saltwater lake is the Caspian Sea in Western Asia.

Rivers and streams flow through channels and move water to or from larger bodies of water. Rivers and streams connect into drainage systems that work like the branches of a tree, with smaller branches, called tributaries, feeding into larger and larger ones. Geographers call an area drained by a major river and its tributaries a **drainage basin**.

GROUND WATER Some water on the surface of the earth is held by the soil, and some flows into the pores of the rock below the soil. The water held in the pores of rock is called **ground water**. The level at which the rock is saturated marks the rim of the **water table**. The water table can rise or fall depending on the amount of precipitation in the region and on the amount of water pumped out of the ground.

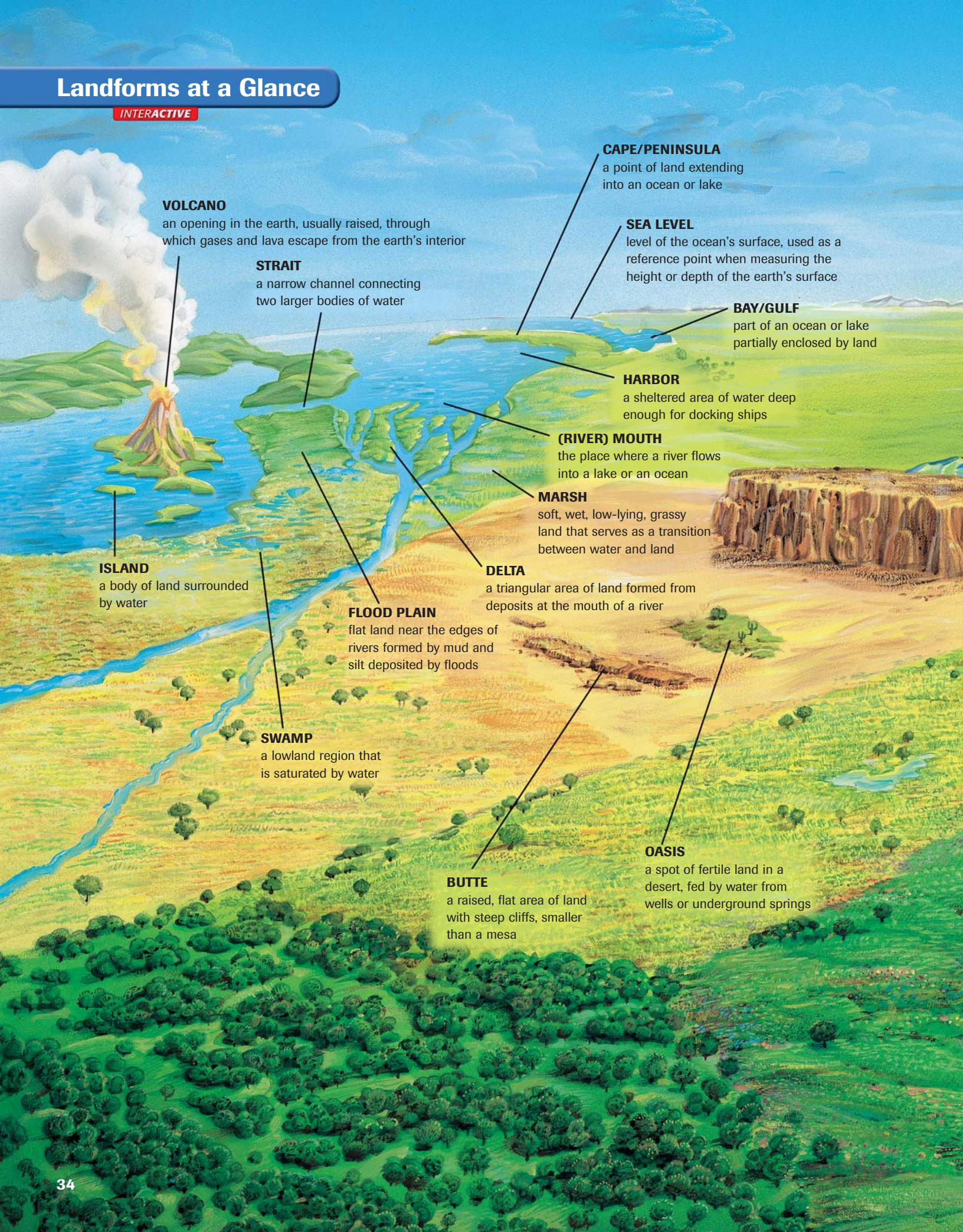
BACKGROUND Rock layers that store water are called aquifers. The largest U.S. aquifer is the Ogallala Aquifer, which runs from South Dakota south to Texas.

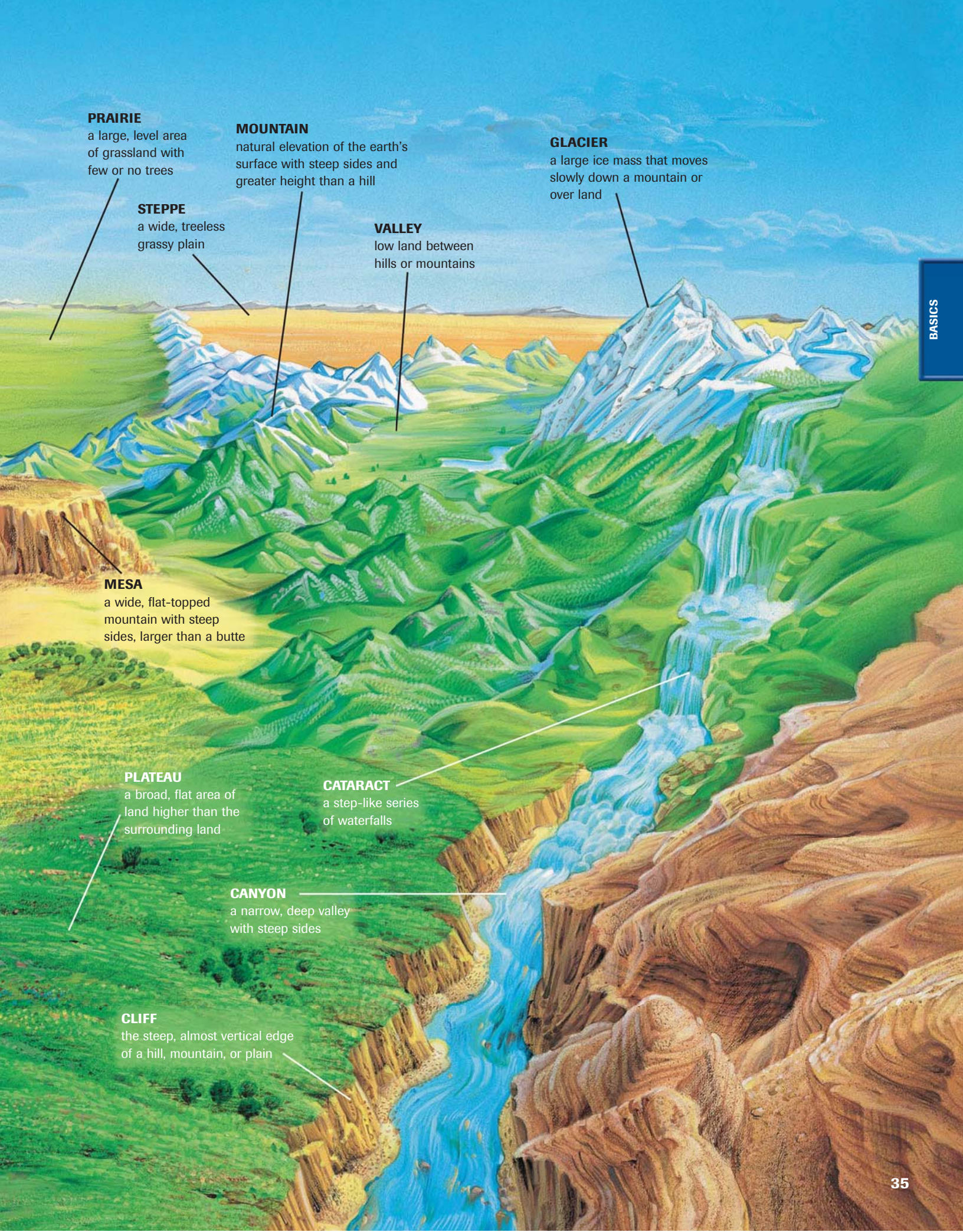
Landforms

Landforms are naturally formed features on the surface of the earth. The diagram on pages 34–35 shows the different kinds of landforms.

Landforms at a Glance

INTERACTIVE




PRAIRIE
a large, level area of grassland with few or no trees
MOUNTAIN
natural elevation of the earth's surface with steep sides and greater height than a hill
GLACIER
a large ice mass that moves slowly down a mountain or over land
STEPPE
a wide, treeless grassy plain
VALLEY
low land between hills or mountains
MESA
a wide, flat-topped mountain with steep sides, larger than a butte
PLATEAU
a broad, flat area of land higher than the surrounding land
CATARACT
a step-like series of waterfalls
CANYON
a narrow, deep valley with steep sides
CLIFF
the steep, almost vertical edge of a hill, mountain, or plain

5 THEMES

REGION

The Everglades

Native Americans called it Pa-May-Okee ("Grassy Water"). Today, we call it the Everglades. It is a region of wetlands, a marshy landform, that covers 4,000 square miles of Florida. Live oak, palms, and pines cover the region. Saw grass with tiny sharp teeth stands over 10 feet high among cypress. Swampy waters hide snakes, alligators, and turtles. Huge numbers of birds call the Everglades home.

Drainage projects have met with protest because they threaten the plants and animals that flourish there. Plans are now under way to restore the Everglades to its natural habitat.

Everglades National Park

OCEANIC LANDFORMS The sea floor has landforms similar to those above water. The earth's surface from the edge of a continent to the deep part of the ocean is called the **continental shelf.** The floor of the ocean has ridges, valleys, canyons, and plains. Ridges mark places where new crust is being formed on the edges of the tectonic plates. Mountain chains similar to those on the continents themselves cover parts of the ocean floor. The longest continuous range is the Mid-Atlantic Ridge, which extends for thousands of miles north to south through the middle of the Atlantic Ocean. Islands dot the ocean surface. Islands can be formed by volcanic action, deposits of sand, or deposits of coral skeletons.

CONTINENTAL LANDFORMS To understand the types of landforms, study the illustration on pages 34–35. The major geographic feature that separates one type of landform from another is relief. **Relief** is the difference in elevation of a landform from its lowest point to its highest point. There are four categories of relief: mountains, hills, plains, and plateaus. A mountain, for instance, has great relief compared with a plain, which displays very little difference between its high and low points. A

Topography is the combination of the surface shape and composition of the landforms and their distribution in a region. A topographic map shows the landforms with their vertical dimensions and their relationship to other landforms.

In the next section, you will learn how internal forces of the earth help to build and change the landforms on the earth—and how those forces affect humans.

Geographic Thinking

Using the Atlas A Use the map on page A10 to determine the relief of your state.

SECTION 2 Assessment

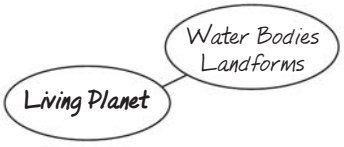
1 Places & Terms

Explain the meaning of each of the following terms.

- hydrologic cycle
- ground water
- continental shelf
- relief
- topography

2 Taking Notes

MOVEMENT Review the notes you took for this section.



- How does the hydrologic cycle circulate water?
- How does ocean water circulate?

3 Main Ideas

a. How do the winds and the ocean distribute heat on the earth's surface?

b. How are relief and topography related?

c. How are islands formed?

4 Geographic Thinking

Making Comparisons How is the floor of the ocean similar to land above sea level? **Think about:**

- mountain chains
- other landforms

See Skillbuilder Handbook, page R3.

GeoActivity

SEEING PATTERNS Study the Landforms at a Glance diagram on pages 34–35. Choose a part of it to reproduce in a three-dimensional **relief map.** Be sure to label the landforms clearly.

Internal Forces Shaping the Earth

Main Ideas

- Internal forces reshape the earth's surface.
- Internal forces shaping the earth often radically alter the lives of people as well.

Places & Terms

tectonic plate	**Richter scale**
fault	**tsunami**
earthquake	**volcano**
seismograph	**lava**
epicenter	**Ring of Fire**

BASICS

A HUMAN PERSPECTIVE Sally Ride, America's first female astronaut, wrote the following after one of her trips into space:

> I also became an instant believer in plate tectonics; India really is crashing into Asia, and Saudi Arabia and Egypt really are pulling apart, making the Red Sea even wider. Even though their respective motion is really no more than mere inches a year, the view from overhead makes the theory come alive.

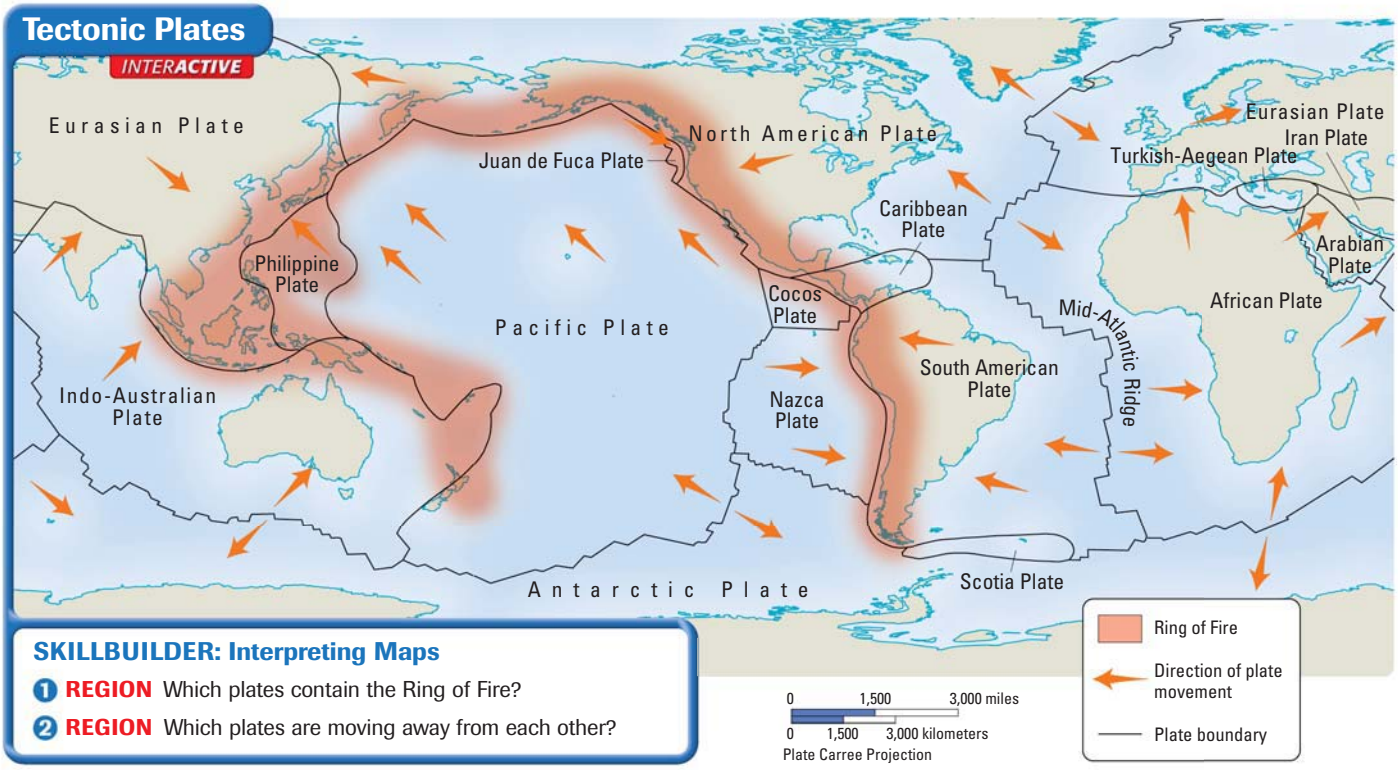
From space, Ride was seeing evidence of the internal forces that have shaped the earth's surface.

Plate Tectonics

The internal forces that shape the earth's surface begin beneath the lithosphere. Rock in the asthenosphere is hot enough to flow slowly. Heated rock rises, moves up toward the lithosphere, cools, and circulates downward. Riding above this circulation system are the **tectonic plates,** enormous moving pieces of the earth's lithosphere. You can see the position of the tectonic plates in the map below.

Tectonic Plates

INTERACTIVE



SKILLBUILDER: Interpreting Maps

1. **REGION** Which plates contain the Ring of Fire?
2. **REGION** Which plates are moving away from each other?

Geographers study the movement of the plates and the changes they cause in order to understand how the earth is continually being reshaped—and how earthquakes and volcanoes occur.

PLATE MOVEMENT Tectonic plates move in one of four ways: 1) spreading, or moving apart; 2) subduction, or diving under another plate; 3) collision, or crashing into one another; 4) sliding past each other in a shearing motion. The diagrams below show details about plate movement.

When tectonic plates come into contact, changes on the earth's surface occur. Three types of boundaries mark plate movements:

- **Divergent boundary**—Plates move apart, spreading horizontally.
- **Convergent boundary**—Plates collide, causing either one plate to dive under the other or the edges of both plates to crumple.
- **Transform boundary**—Plates slide past one another. A

An example of a divergent boundary is the one between Saudi Arabia and Egypt. The two plates on which those countries sit are spreading apart, making the Red Sea even wider. The Red Sea is actually a part of the Great Rift Valley in Africa. If you look at the map of Africa on page A18, you will see a string of lakes along the eastern side of Africa, including Lake Tanganyika and Lake Nyasa. These lakes, along with the Red Sea, were formed in the spreading boundary.

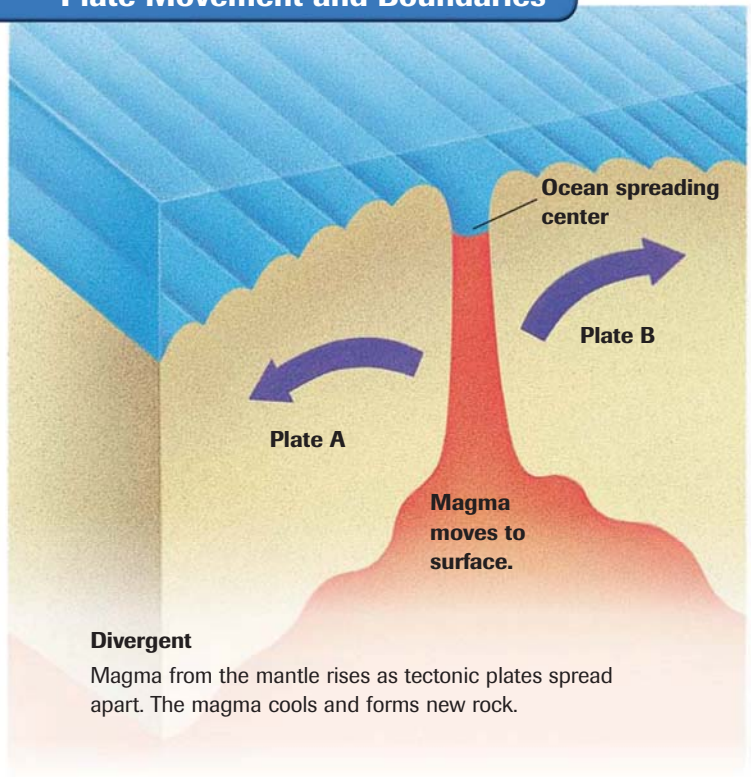
An example of a convergent boundary can be found in South Asia. The plate where India is located is crashing into the Asian continent and building up the Himalayas. One of the most famous examples of a transform boundary is in North America—the San Andreas Fault in

Geographic Thinking

Making Comparisons

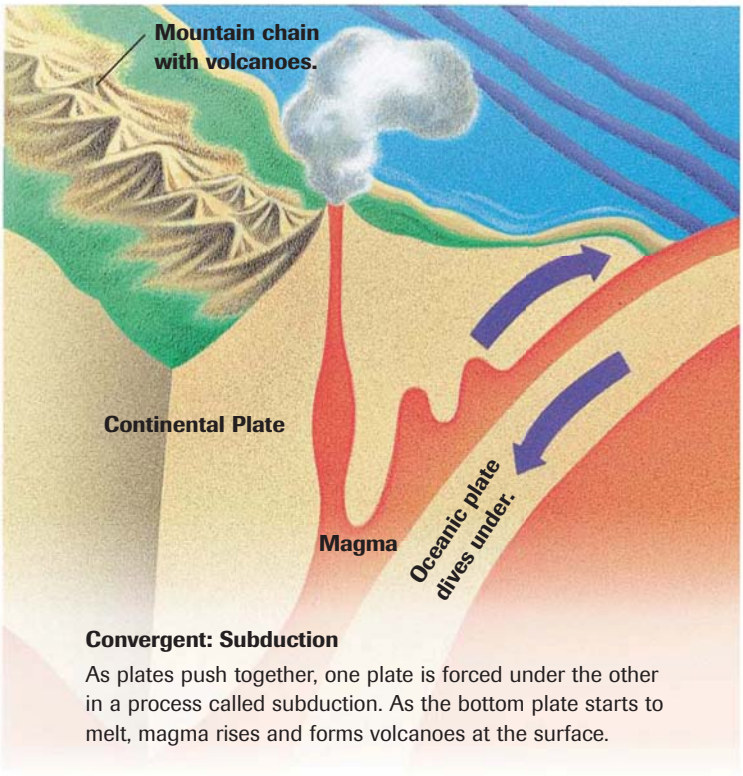
A Which of the plate boundaries involves a collision of plates?

Plate Movement and Boundaries



Divergent

Magma from the mantle rises as tectonic plates spread apart. The magma cools and forms new rock.



Convergent: Subduction

As plates push together, one plate is forced under the other in a process called subduction. As the bottom plate starts to melt, magma rises and forms volcanoes at the surface.

California. Study the diagrams below to understand the movement of the plates and their effect on the surface of the earth.

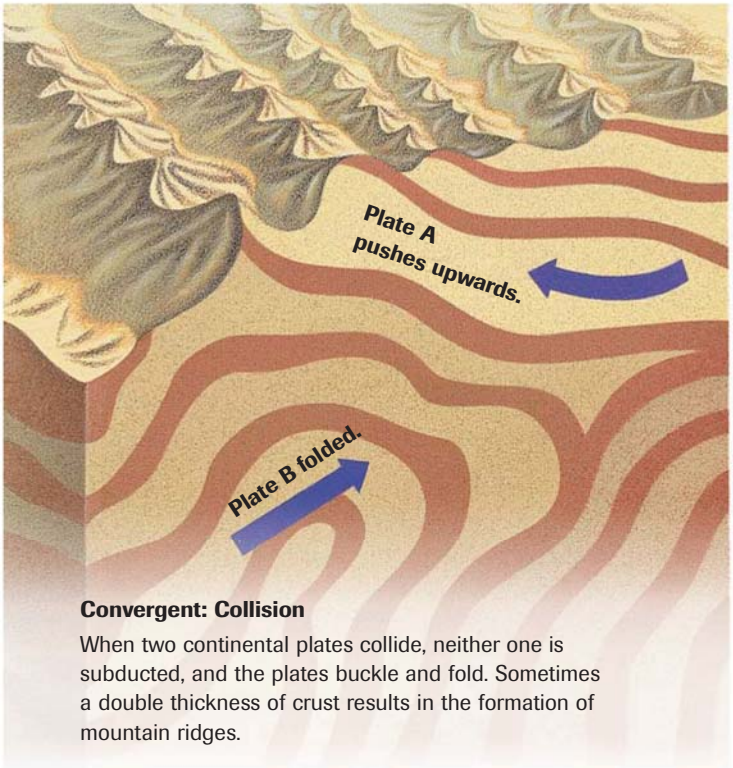
FOLDS AND FAULTS When two plates meet each other, they can cause folding and cracking of the rock. The transformation of the crust by folding or cracking occurs very slowly, often only a few centimeters or inches in a year. Because the movement is slow, the rocks, which are under great pressure, become more flexible and bend or fold, creating changes in the crust. However, sometimes the rock is not flexible and will crack under the pressures exerted by the plate movement. This fracture in the earth's crust is called a **fault.** It is at the fault line that the plates move past each other.

Earthquakes

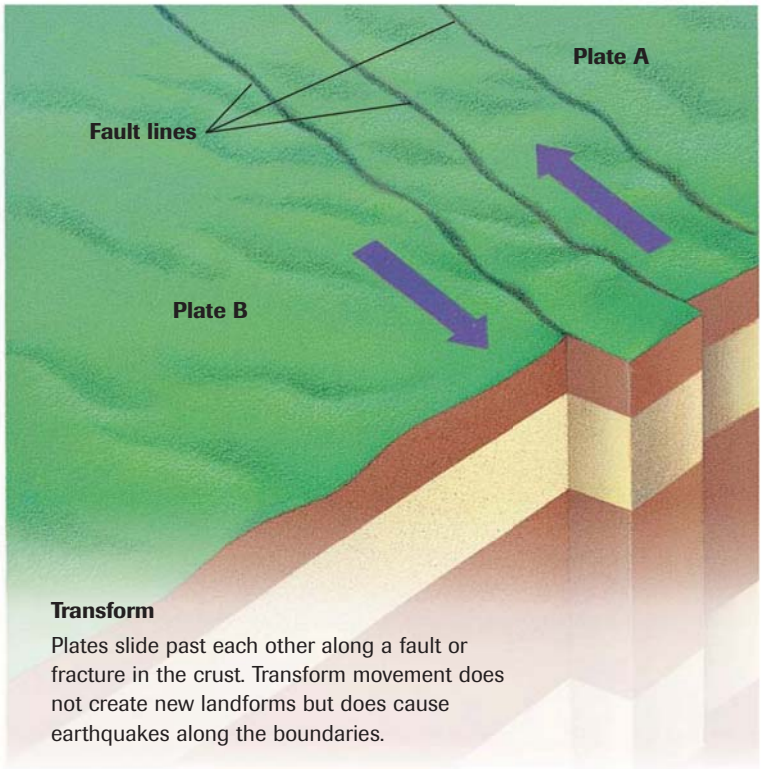
As the plates grind or slip past each other at a fault, the earth shakes or trembles. This sometimes violent movement of the earth is an **earthquake.** Thousands of earthquakes occur every year, but most are so slight that people cannot feel them. Only a special device called a **seismograph** (SYZ•muh•GRAF) can detect them. A seismograph measures the size of the waves created by an earthquake.

BACKGROUND
Seismographs measure earthquakes, but no accurate device for predicting quakes has been developed.

EARTHQUAKE LOCATIONS The location in the earth where an earthquake begins is called the focus. The point directly above the focus on the earth's surface is the **epicenter.** The map on page 37 outlines the major plate boundaries. Nearly 95 percent of all recorded earthquakes occur around those boundaries. Plate movement along the Pacific Rim



Convergent: Collision
When two continental plates collide, neither one is subducted, and the plates buckle and fold. Sometimes a double thickness of crust results in the formation of mountain ridges.



Transform
Plates slide past each other along a fault or fracture in the crust. Transform movement does not create new landforms but does cause earthquakes along the boundaries.

LOCATION Victims of the 1995 earthquake in Kobe, Japan, wait out aftershocks. More than 5,000 people died in this quake. **Why does the location of Japan make it vulnerable to earthquakes?**

and from southern Asia westward to southern Europe makes this region especially vulnerable to quakes.

EARTHQUAKE DAMAGE Earthquakes result in squeezing, stretching, and shearing motions of the earth's crust that damage land and structures.

The changes are most noticeable in places where people live. Landslides, displacement of land, fires (from broken gas lines), and collapsed buildings are major outcomes of the ground motion. Aftershocks, or smaller-magnitude quakes, may occur after an initial shock and can sometimes continue for days afterward.

An earthquake is the sudden release of energy in the form of motion. C.F. Richter developed a scale to measure the amount of energy released. The **Richter Scale** uses information collected by seismographs to determine the relative strength of an earthquake. The scale has no absolute upper limit. Most people would not notice a quake that measured 2 on the scale. A 4.5 quake will probably be reported in the news. A major quake has a measurement of 7 or more. The largest quake ever measured was 8.9 in the Kermadec Islands of the South Pacific in 1986.

TSUNAMI Sometimes an earthquake causes a **tsunami** (tsu•NAH•mee), a giant wave in the ocean. A tsunami can travel from the epicenter of a quake at speeds of up to 450 miles per hour, producing waves of 50 to 100 feet or higher. Tsunamis may travel across wide stretches of the ocean and do damage on distant shores. For example, in 1960 a quake near Chile created a tsunami that caused damage in Japan, almost half a world away. In December 2004, a tsunami from a quake in the Indian Ocean struck areas of Southeast Asia, South Asia, and East Africa. An estimated 225,000 people were immediately killed, and another 1.2 million were forced to leave their homes. B

Geographic Thinking

Using the Atlas

B Using the map on pages A2–3, calculate the distance the 1960 tsunami traveled.

Volcanoes

Volcanoes are among the most spectacular of natural events. Magma, gases, and water from the lower part of the crust or the mantle collect in underground chambers. Eventually the materials pour out of a crack in the earth's surface called a **volcano.** Most volcanoes are found along the tectonic plate boundaries.

VOLCANIC ACTION When the magma flows out onto the land slowly, it may spread across an area and cool. Magma that has reached the earth's surface is called **lava.** The most dramatic volcanic action is an eruption, in which hot lava, gases, ash, dust, and rocks explode out of vents in the earth's crust. Often a hill or a mountain is created by lava. The landform may also be called a volcano.

Volcanoes do not erupt on a predictable schedule; they may be active over many years and then stop. Sometimes they remain inactive for

long periods of time—as long as hundreds of years—before becoming active again.

RING OF FIRE The **Ring of Fire,** a zone around the rim of the Pacific Ocean, is the location of the vast majority of active volcanoes. You can see the zone on the map on page 37. Eight major tectonic plates meet in this zone. Volcanic action and earthquakes occur frequently there. Other volcanoes are located far from the margins of tectonic plates. They appear over "hot spots" where magma from deep in the mantle rises and melts through the lithosphere, as in volcanoes in the Hawaiian Islands.

Hot springs and geysers are indicators of high temperatures in the earth's crust. Hot springs occur when ground water circulates near a magma chamber. The water heats up and rises to the surface. The hot springs and pools of Yellowstone Park are examples of this type of activity. A geyser is a hot spring that occasionally erupts with steam jets and boiling water. Old Faithful, a geyser in Yellowstone, erupts regularly, but most geysers are irregular in their eruptions. Countries with hot springs and geysers include the United States, Iceland, and Japan.

Not all volcanic action is bad. Volcanic ash produces fertile soil. In some parts of the world, the hot springs, steam, and heat generated by the magma are tapped for energy. In Iceland, for example, volcanic heat and steam are used for heating and hot water in the city of Reykjavik.

Internal forces have a major role in shaping the earth. In the next section, you will learn how external forces also change the landscape.

Geographic Thinking

Seeing Patterns
Why do the United States, Iceland, and Japan have geysers?

Geography TODAY

An Island Is Born

On May 14, 2000, a team of scientists observed the birth of a new island in the South Pacific. On that day Kavachi, a volcano in the Solomon Islands, erupted for the first time since 1991. The volcano is located about 18 miles from the boundary of the Indo-Australian plate and the Pacific plate.

For at least 20 hours, the volcano erupted every 5 to 7 minutes, shooting ash and glowing lava blocks 230 feet into the air (shown below). The peak of the volcano is under water, about 2,100 feet above the sea floor. A sandy, ashen beach is forming about 6 feet below the surface of the ocean.

BASICS

SECTION 3 Assessment

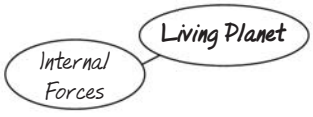
1 Places & Terms

Explain the meaning of each of the following terms.

- tectonic plate
- fault
- earthquake
- seismograph
- epicenter
- volcano

2 Taking Notes

MOVEMENT Review the notes you took for this section.



- What are four types of plate movement?
- How are folds and faults created?

3 Main Ideas

a. How does the movement of tectonic plates shape the earth's surface?

b. When does a volcano occur?

c. How do earthquakes cause damage?

4 Geographic Thinking

Making Generalizations
Why do volcanoes and earthquakes occur along the Ring of Fire? **Think about:**

- tectonic plate movement
- movement of magma

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

SEEING PATTERNS Use the Internet to find information on the top 10 most deadly volcanoes in history. Create a **database** showing the information by continent. Summarize your findings about the location of deadly quakes in two sentences.

External Forces Shaping the Earth

Main Ideas

- Wind, heat, cold, glaciers, rivers, and floods alter the surface of the earth.
- The results of weathering and erosion change the way humans interact with the environment.

Places & Terms

weathering
sediment
mechanical weathering
chemical weathering
erosion
delta
loess
glacier
glaciation
moraine
humus

A HUMAN PERSPECTIVE In Egypt, a seasonal dry wind is called khamsin ("fifty") for the number of days the season occurs. During khamsin, wind-driven sandstorms kill and injure people, close businesses and airports, and strip topsoil and seed from the ground. Sandstorms are not limited to the desert areas of Africa and Southwest Asia. For instance, a five-hour storm recently blasted Jingchang, China, causing millions of dollars of damage and killing about 300 people. Sandstorms are among the external forces that change the shape of the earth and affect the lives of the people in their paths.

Weathering

In the last section, you learned about forces within the earth that changed the land. External forces, such as weathering and erosion, also alter landscapes and in some instances create the soil that is needed for plant life. **Weathering** refers to physical and chemical processes that change the characteristics of rock on or near the earth's surface. Weathering occurs slowly over many years and even centuries. Weathering processes create smaller and smaller pieces of rock called **sediment.** Sediment is mostly identifiable as either mud, sand, or silt, which is very fine particles of rock.

MECHANICAL WEATHERING Processes that break rock into smaller pieces are referred to as **mechanical weathering.** Mechanical weathering does not change the composition of the rock—only its size. For example, when ice crystals build up in the crack of a rock, they can actually create enough pressure to fracture the rock into smaller pieces. All sorts of agents can break apart rocks. Frost and even plant roots dig into crevices in the rock, splitting it. Human activities, like road construction or drilling and blasting in mining, are also mechanical weathering forces. Eventually, the smaller broken material will be combined with organic material to become soil.

MOVEMENT A natural arch frames a view of the Grand Canyon in Arizona. The canyon's depth was created by water erosion, and the width by rain and wind erosion. **What has happened to the sediment created by weathering in the canyon?**

CHEMICAL WEATHERING **Chemical weathering** occurs when rock is changed into a new substance as a result of interaction between elements in the air or water and the minerals in the rock. Decomposition, or breakup, can happen in several ways. Some minerals react to oxygen in the air and begin to crumble. That is what happens when iron rusts, for example.

Other minerals break down when combined with water or carbon dioxide, which form weak acids within the rock. When sulfur and nitrogen oxides mix with water, acid rain is formed. The increase of acid rain in the 20th century is believed to be speeding up some decomposition. The location and the climate in which the rocks are located have a great deal to do with how rocks decompose. Climates that are warm and moist will produce more chemical weathering than do cool dry areas. Rocks in cold dry and hot dry areas generally experience more mechanical weathering than chemical weathering. A

Geographic Thinking

Making Comparisons

A Why would chemical weathering be rare in a desert area?

Erosion

Erosion occurs when weathered material is moved by the action of wind, water, ice, or gravity. For erosion to occur, a transporting agent, such as water, must be present. Glaciers, waves, stream flow, or blowing winds cause erosion by grinding rock into smaller pieces. Material moved from one location to another results in the lowering of some locations and increased elevation in others. For example, water might carry topsoil from a hill into a river and gradually cause the river to become more narrow. Erosion in its many forms reshapes landforms and coastal regions, as well as riverbeds and riverbanks.

WATER EROSION One form of water erosion occurs as water flows in a stream or river. The motion picks up loose material and moves it downstream. The greater the force of water, the greater the ability of the water to transport tiny rock particles, or sediment. Another form of erosion is abrasion, the grinding away of rock by transported particles. The heavier the load of sediment, the greater the abrasion on the banks and riverbed. A third eroding action of water occurs when the water dissolves chemical elements in the rock. The composition of the rock changes as a result.

Most streams erode both vertically and horizontally—that is, the valley cut by a stream gets deeper and wider, forming a V-shaped valley. As the water slows, it drops the sediment it is carrying. When a river enters the ocean, the sediment is deposited in a fan-like landform called a **delta**.

Background

The term *delta* is used because the shape of the landform resembles the Greek letter delta (Δ).

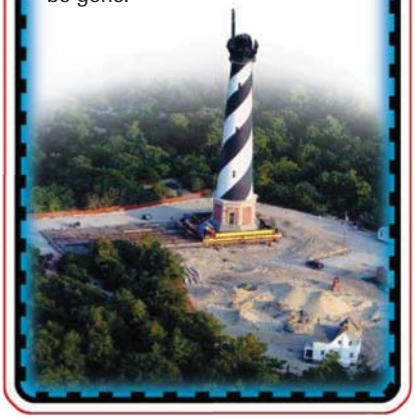
Wave action along coastlines also changes the land. Waves can reduce or increase beaches. Sediment deposited by wave action may build up sandbars or islands. Wave action is so powerful that in some locations, it erodes about three feet of beach per year. For some unfortunate people, a beach house with an ocean view

Geography TODAY

Moving the Cape Hatteras Lighthouse

Coastal erosion led to one of the great moving projects of the 20th century. The Cape Hatteras Lighthouse (shown below), the tallest brick lighthouse in the nation, was dangerously close to disappearing into the sea. Built in 1870 on Hatteras Island off the coast of North Carolina, the lighthouse stood 1,500 feet from the sea. By 1987, it was only 160 feet away. The only way to save the historic lighthouse was to move it.

In the summer of 1999, the structure was slowly moved—10 to 355 feet per day—to a new location 1,600 feet from the sea. But erosion will also take beach from the new location, and by 2018, as much as 404 feet may be gone.



MOVEMENT At Chakachamna in Alaska, a glacier moves down a mountain.
What effect has the glacier had on the landform shown here?

may end up in the ocean as a result of wave action erosion.

WIND EROSION In many ways, wind erosion is similar to water erosion because the wind transports and deposits sediment in other locations. Wind speeds must reach 11 miles per hour before fine sediment can be moved. The greater the speed of the wind, the larger the particles moved. Dust storms are capable of carrying as much as 6,000 tons of sediment per cubic mile of air. As the wind slows, the sediment is dropped.

Depending on the type of windborne sediment, new landforms—such as sand dunes miles from seashores and rocks sculpted into fantastic forms—may be produced. Deposits of **loess** (LOH•uhs), windblown silt and clay sediment that produce very fertile soil, are found across the world. In northern China, for example, the deposits are several hundred feet deep. Extensive areas of loess are found in the Mississippi Valley in the United States and in the grasslands of Argentina. B

Geographic Thinking
Making Comparisons
B In what ways are water and wind erosion similar? different?

GLACIAL EROSION A **glacier** is a large, long-lasting mass of ice that moves because of gravity. Glaciers form in mountainous areas and in regions that are routinely covered with heavy snowfall and ice. In mountain regions, glaciers move downslope as a result of gravity. Glaciers such as ice caps and ice sheets move from the highest point on land toward the lowest point.

Glaciation is the changing of landforms by slowly moving glaciers. As a glacier moves, several types of erosion occur. Rocks caught underneath the glacier are ground into finer and finer particles. Some particles are so small that they are called rock flour, which is one component of soil. Massive glaciers also cut U-shaped valleys into the land. On top of or within the ice are other rocks carried by the glacier. When the glacier melts, these rocks are left behind. Rocks left behind by a glacier may form a ridge or a hill called a **moraine.** Moraines can be found on the sides, down the center, or at the leading edge of a glacier.

Inside or under the glacier may be tunnels formed by running water. These tunnels fill up with sediment dropped by the water. When the ice melts, it leaves a long snakelike ridge called an esker. Sometimes blocks of ice are trapped in the sediment. They melt slowly and leave behind a dent or a depression in the ground. These depressions are called kettles. The kettles may be filled with water forming a small lake.

Building Soil

Weathering and erosion are a part of the process of forming soil. Soil is the loose mixture of weathered rock, organic matter, air, and water that supports plant growth. Organic matter in the soil helps to support the growth of plants by providing needed plant food. Water and air share tiny pore-like spaces in the soil. When it rains, the pores are filled with water. As the water evaporates, drains away, or is used by the plants, the pores are filled with air. The texture of the soil, the amount of organic material called **humus,** and the amount of air and water in the soil all contribute to the soil's fertility—its ability to nurture plants.

SOIL FACTORS When geographers study soil, they look at five factors:

- **Parent material** The chemical composition of the original rock, or parent rock, before it decomposes affects its fertility.
- **Relief** Steeper slopes, such as mountainsides, are eroded easily and do not produce soil quickly.
- **Organisms** Organisms include plants, small animals like worms, ants, and bacteria that decompose material. They help to loosen soil and supply nutrients for plants.
- **Climate** Hot climates produce a soil different from that produced by cold climates. Wet climates and dry climates produce soils that are different from each other as well.
- **Time** The amount of time to produce soil varies, but a very rough average is about 2.5 cubic centimeters per century.

BACKGROUND
In some soils, as many as a million or more bacteria inhabit each cubic centimeter of soil.

The variety of soils—and the climates in which they are found—determine the types of vegetation that can grow in a location. Agricultural activities, such as farming, ranching, and herding, depend on this complex relationship. In the next chapter, you will learn about the climate and vegetation on the earth and how it affects human life.

SECTION 4 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- weathering
- sediment
- erosion
- delta
- glaciation
- humus

2 Taking Notes

REGION Review the notes you took for this section.

- How does weathering vary according to climate?
- What are five factors affecting soil composition?

3 Main Ideas

a. What is the difference between mechanical weathering and chemical weathering?

b. What are three types of eroding action by water?

c. What factors contribute to soil fertility?

4 Geographic Thinking

Making Inferences In what ways does erosion affect the lives of humans? **Think about:**

- water, wind, and glacial action
- results of erosion

See Skillbuilder Handbook, page R4.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Choose a type of erosion that occurs in your community. Do some research to find examples of that type of erosion. Make **sketches** or take **photographs** of the effects of the erosion. Write captions for the pictures describing the type of erosion and where it was found.

Chapter 2 Assessment

VISUAL SUMMARY
A LIVING PLANET

The Earth Inside and Out

- The earth's interior is made up of a series of layers that float on one another.
- The exterior of the earth is the crust.
- The presence of air and water make life on earth possible.

Bodies of Water and Landforms

- Almost three-fourths of the earth is covered with water.
- The hydrologic cycle circulates water.
- Landforms on the land and under the ocean are similar.

Internal Forces Shaping the Earth

- Huge plates on the earth's crust move because of the circulation of magma.
- Earthquakes and volcanoes are the results of plate movement.

External Forces Shaping the Earth

- Weathering and erosion cause changes in the earth's surface and build soil.
- Actions of wind, water, ice, and gravity shape the earth's surface.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. continent
2. magma
3. hydrologic cycle
4. landform
5. relief
6. tectonic plate
7. earthquake
8. volcano
9. weathering
10. erosion

B. Answer the questions about vocabulary in complete sentences.

11. How are continents and tectonic plates related?
12. Where is magma found?
13. Lava is a form of which term listed above?
14. What is an example of a landform?
15. What does relief tell you about a landform?
16. What is the purpose of the hydrologic cycle?
17. What causes earthquakes?
18. How are magma and volcanoes related?
19. What are the two types of weathering?
20. What must be present for erosion to occur?

Main Ideas

The Earth Inside and Out (pp. 27–31)

1. What layers are found in the earth's interior?
2. What is the continental drift theory?

Bodies of Water and Landforms (pp. 32–36)

3. How does water reach a drainage basin?
4. What is topography?

Internal Forces Shaping the Earth (pp. 37–41)

5. What are three types of plate boundaries?
6. How are the Richter scale and a seismograph used?
7. What is the Ring of Fire?

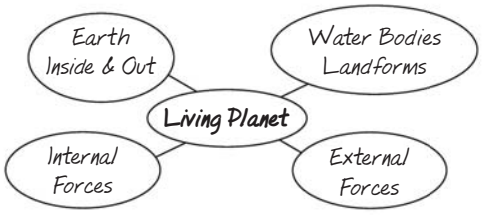
External Forces Shaping the Earth (pp. 42–45)

8. What is the difference between weathering and erosion?
9. What are three transporting agents of erosion?
10. Why are there many different types of soil?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.



a. Why is water a critical element on the earth?

b. How do internal and external forces shape the earth?

2. Geographic Themes

a. **MOVEMENT** How does the movement of wind, water, or ice reshape the earth's surface?

b. **HUMAN–ENVIRONMENT INTERACTION** How do volcanoes and earthquakes affect human life?

3. Identifying Themes

What might be the hazards of living near the Ring of Fire? Which of the five themes apply to this situation?

4. Determining Cause and Effect

What is the relationship between tectonic plates, earthquakes, and volcanoes?

5. Making Comparisons

How is a valley created by water different from a valley created by a glacier?

Additional Test Practice, pp. S1–S37

TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Charts

Ten Most Deadly Earthquakes in the 20th Century

Use the information in the chart to answer the following questions.

1. **LOCATION** Which location suffered two deadly earthquakes in the 20th century?
2. **MOVEMENT** How is the magnitude of a quake related to loss of life?
3. **PLACE** What reasons might there be for so great a loss of life in Tangshan, China?

Date	Location	Deaths	Magnitude*
1976, July 27	Tangshan, China	255,000	8.0
1920, Dec. 16	Gansu, China	200,000	8.6
1927, May 22	Nan-Shan, China	200,000	8.3
1923, Sept. 1	Yokohama, Japan	143,000	8.3
1908, Dec. 28	Messina, Italy	83,000	7.5
1932, Dec. 25	Gansu, China	70,000	7.6
1970, May 31	Northern Peru	66,000	7.8
1935, May 30	Quetta, India	50,000	7.5
1990, June 20	Western Iran	40,000	7.7
1988, Dec. 7	Armenia	25,000	7.0

*Magnitude of earthquakes measured on the Richter scale developed in 1935.
SOURCES: Global Volcanism Network, Smithsonian Institution, U.S. Geological Survey, *World Almanac*

GeoActivity

Using a base map of the world and an atlas, plot the locations of the ten most deadly earthquakes. Write a sentence describing the pattern you see in the locations.

INTERNET ACTIVITY

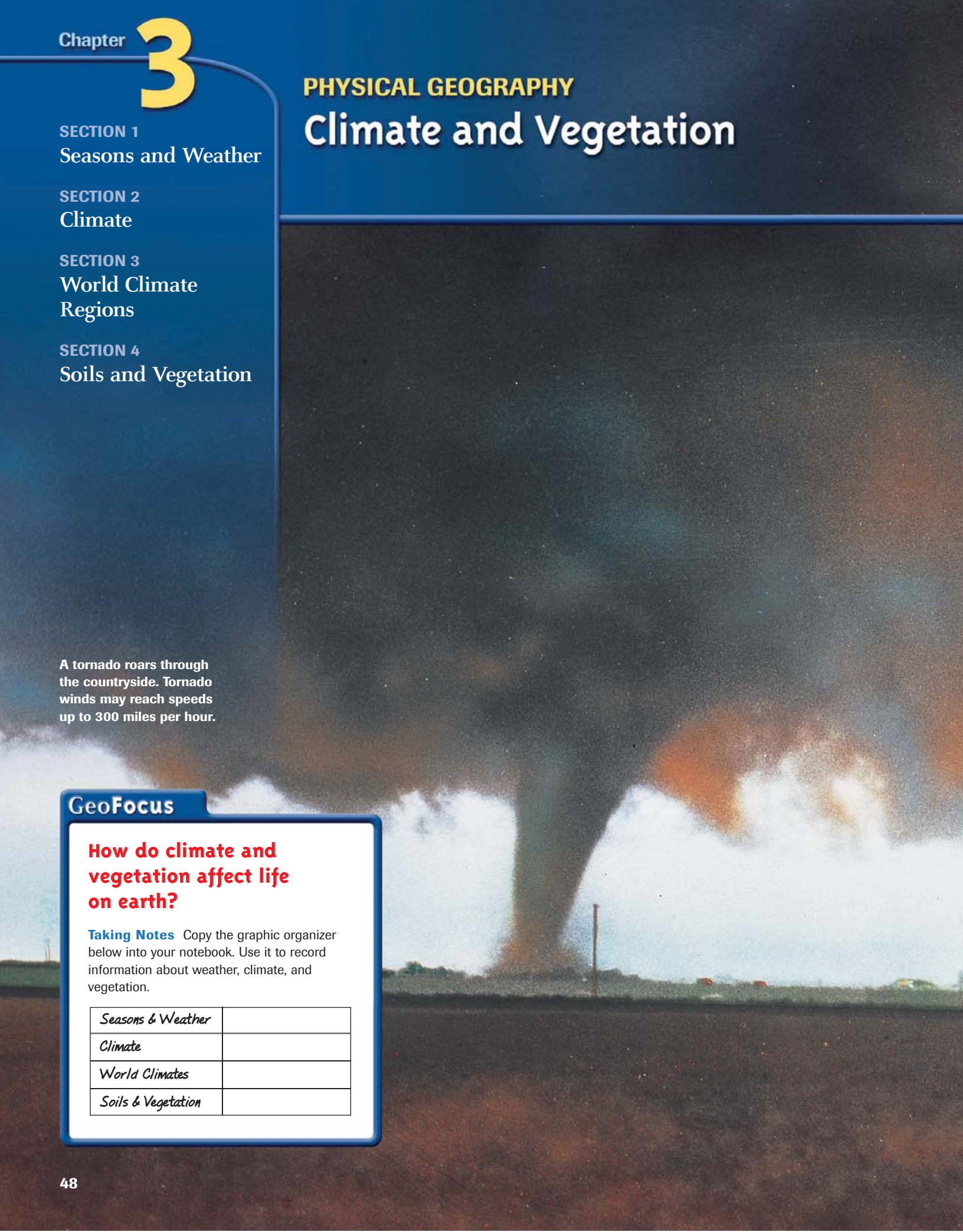
Use the links at **classzone.com** to do research about volcanic action. Focus on a variety of volcanic activities, including eruptions, geysers, hot springs, and island formation.

Creating a Multimedia Presentation Put together a presentation about the variety of volcanic activity. Include diagrams of several different types of activity and give examples of locations where the activity takes place.

Chapter 3

PHYSICAL GEOGRAPHY

Climate and Vegetation



A tornado roars through the countryside. Tornado winds may reach speeds up to 300 miles per hour.

GeoFocus

How do climate and vegetation affect life on earth?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information about weather, climate, and vegetation.

Seasons & Weather	
Climate	
World Climates	
Soils & Vegetation	

Seasons and Weather

Main Ideas

- Seasons and weather occur because of the changing position of the earth in relation to the sun.
- Weather extremes are related to location on earth.

Places & Terms

solstice
equinox
weather
climate
precipitation
rain shadow
hurricane
typhoon
tornado
blizzard
drought

BASICS

A HUMAN PERSPECTIVE The smell of thousands of decaying corpses hung in the air in what was once the thriving seaport of Galveston, Texas. The day before, winds estimated at 130 miles per hour roared through the city. A storm surge of seawater more than 15 feet high pushed a wall of debris across the island of Galveston. Through this turmoil, Isaac Cline's family huddled in their home. A trolley trestle rammed the house until at last it collapsed, and the waves poured in. Cline survived, but some of his family did not. With a toll of 8,000 human lives, the "Great Galveston Hurricane" would be the deadliest hurricane to hit the United States. The storm date was September 8, 1900.

Seasons

Hurricanes occur frequently in the southern and eastern United States during summer and fall. During these seasons, storm systems with strong winds form over warm ocean water.

EARTH'S TILT Seasons have an enormous impact on us, affecting the conditions in the atmosphere and on the earth that create our weather. As the earth revolves around the sun, it is tilted at a 23.5° angle in relation to the sun. Because of the earth's revolution and its tilt, different parts of the earth receive the direct rays of the sun for more hours of the day at certain times in the year. This causes the changing seasons on the earth. Notice in the diagram to the right that the northern half of the earth tilts toward the sun in summer and away from the sun in winter.

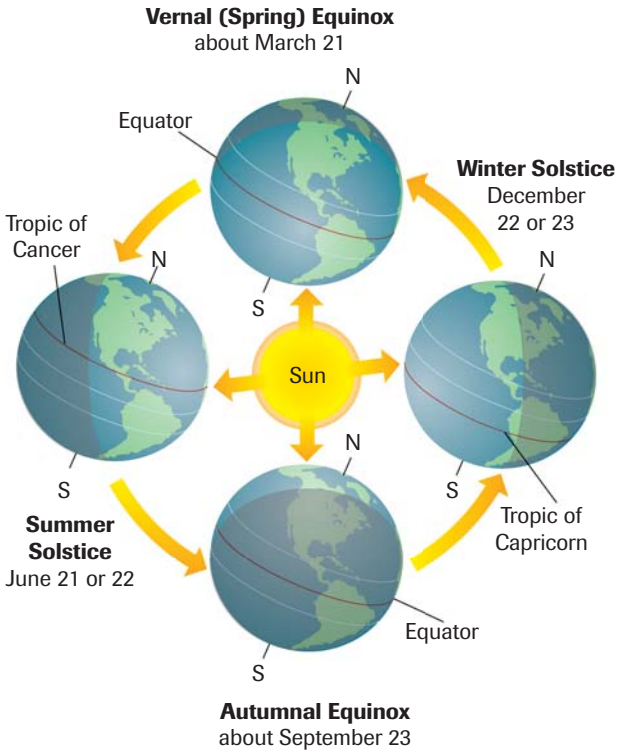
Two lines of latitude—the tropic of Cancer and the tropic of Capricorn—mark the points farthest north and south that the sun's rays shine directly overhead at noon. The day on which this occurs is called a **solstice.** In the Northern Hemisphere, the summer solstice, or the beginning of summer, is the longest day of the year. Winter solstice, the beginning of winter, is the shortest.

Another signal of seasonal change are the equinoxes. Twice a year on the **equinox,** the days and nights all over the world are equal in length. The equinoxes mark the beginning of spring and autumn.

Seasons: Northern Hemisphere

INTERACTIVE

The seasons are related to the earth's tilt and revolution. Some locations receive more direct sun rays because of the earth's tilt.



Weather

Weather and climate are often confused. **Weather** is the condition of the atmosphere at a particular location and time. **Climate** is the term for weather conditions at a particular location over a long period of time. Northern Russia, for example, has a cold climate. A

Geographic Thinking

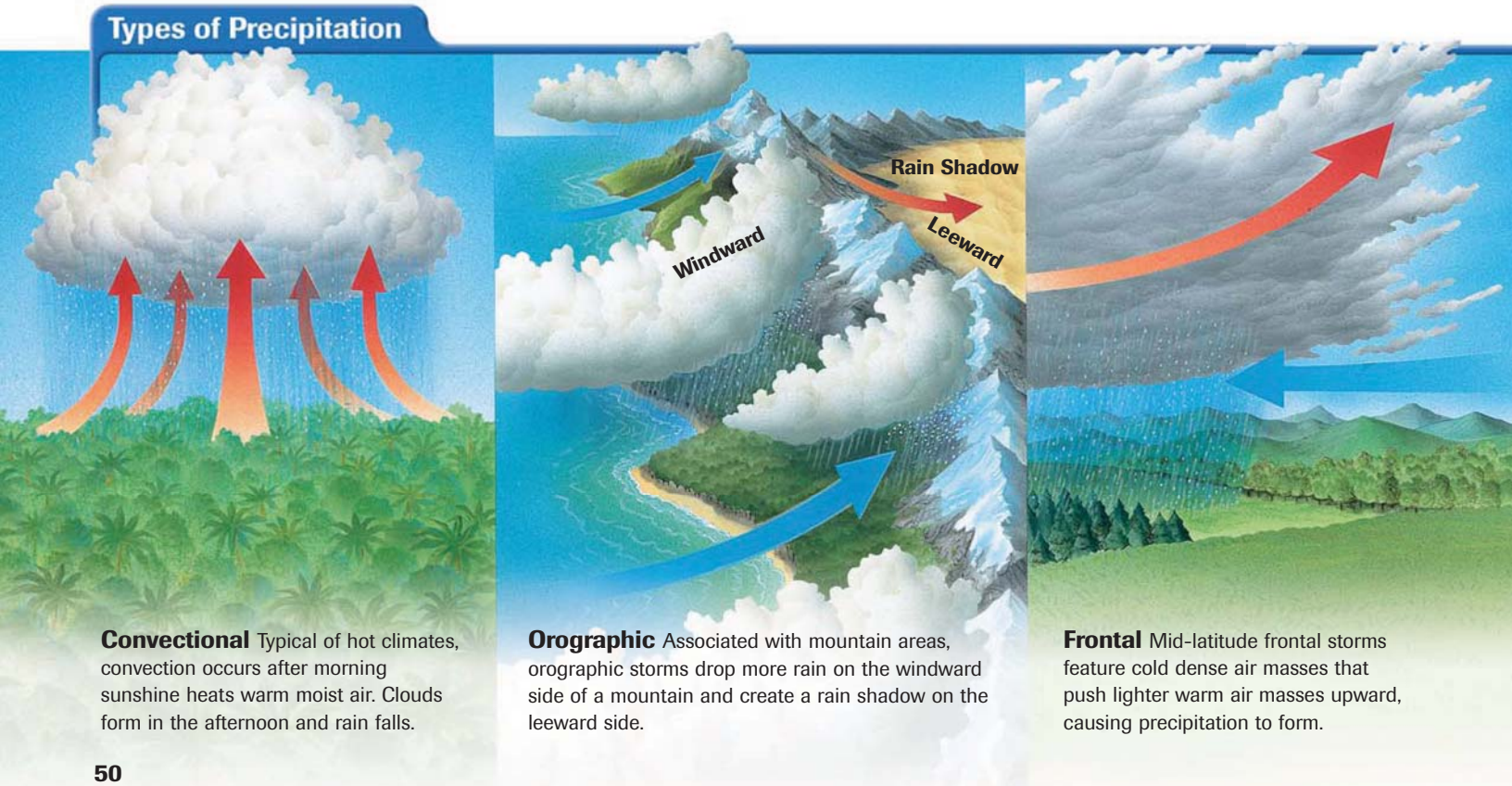
Making Comparisons

A Why might geographers be more interested in the climate of a place than its weather?

WHAT CAUSES THE WEATHER? Daily weather is the complex result of several conditions. For example, the amount of solar energy received by a location varies according to the earth's position in relation to the sun. Large masses of air absorb and distribute this solar energy, which in turn affects the weather. Other factors include:

- **water vapor** This determines whether there will be **precipitation**—falling water droplets in the form of rain, sleet, snow, or hail.
- **cloud cover** Clouds may hold water vapor.
- **landforms and bodies of water** Water heats slowly but also loses heat slowly. Land heats rapidly but loses heat quickly as well.
- **elevation** As elevation above sea level increases, the air becomes thinner and loses its ability to hold moisture.
- **air movement** Winds move the air and the solar energy and moisture that it holds. As a result, weather can change very rapidly.

PRECIPITATION Precipitation depends on the amount of water vapor in the air and the movement of that air. As warm air rises, it cools and loses its ability to hold water vapor. The water vapor condenses, and the water droplets form into clouds. When the amount of water in a cloud is too heavy for the air to hold, rain or snow falls from the cloud. Geographers classify precipitation as convectional, orographic, or frontal, as illustrated in the diagram below.



Convectional Typical of hot climates, convection occurs after morning sunshine heats warm moist air. Clouds form in the afternoon and rain falls.

Orographic Associated with mountain areas, orographic storms drop more rain on the windward side of a mountain and create a rain shadow on the leeward side.

Frontal Mid-latitude frontal storms feature cold dense air masses that push lighter warm air masses upward, causing precipitation to form.

Convectional precipitation occurs in hot, moist climates where the sun quickly heats the air. The heated air rises, and by afternoon clouds form and rain falls. Orographic precipitation falls on the windward side of hills or mountains that block moist air and force it upward. The air cools and rain or snow falls. The land on the leeward side is called a **rain shadow** because it gets little rain from the descending dry air. Frontal movement causes most precipitation in the middle latitudes. A front is the boundary between two air masses of different temperatures or density. Rain or snow occurs when lighter, warm air is pushed upward by the colder, denser air. The rising air cools, water vapor condenses, and precipitation falls.

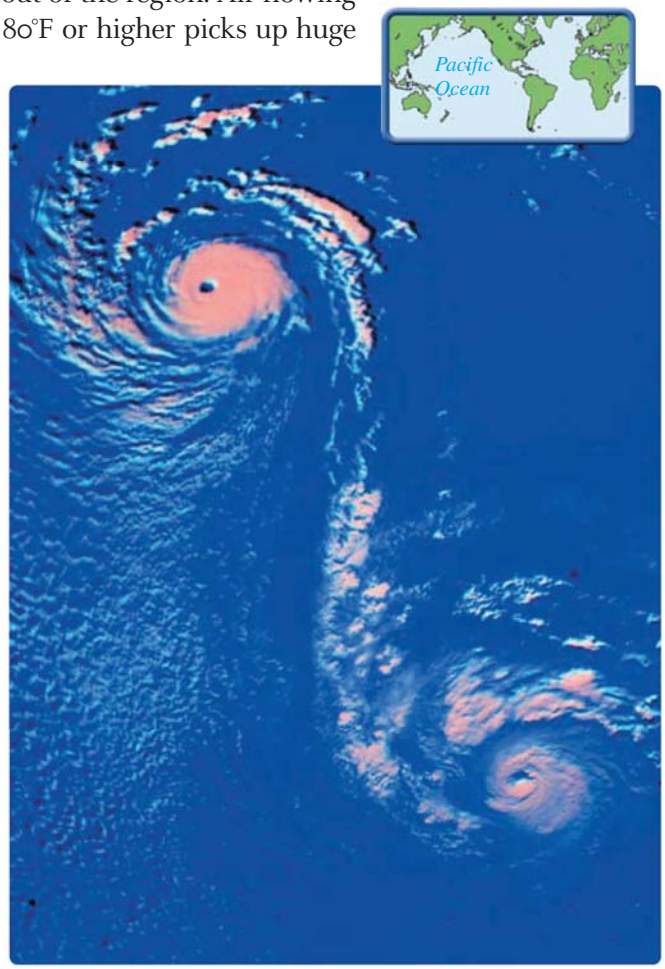
Weather Extremes

As air masses warm and cool and move across the earth's surface, they create weather. Sometimes the clashes between air masses cause storms, which can be severe. They disrupt the usual patterns of life and often cause major property damage and loss of human life. Hurricanes, tornadoes, blizzards, droughts, and floods are examples of extreme weather.

HURRICANES Storms that form over warm, tropical ocean waters are called **hurricanes**—also known as **typhoons** in Asia. These storms are called different names around the globe: tropical cyclones, willy-willies (Australia), *baguios* (Philippines), and *chubascos* (Mexico). Hurricanes are one way heat from the tropics is moved out of the region. Air flowing over an ocean with a water temperature of 80°F or higher picks up huge amounts of moisture and heat energy. As these water-laden winds flow into a low-pressure core, they tighten to form an "eye." The eye is usually 10 to 20 miles across and has clear, calm skies. But the winds moving around the eye may be as strong as 200 miles per hour.

The clouds and winds stretch over a vast area, sometimes as wide as 500 miles. Upper air currents blowing from the east steer the hurricanes in a westerly direction. As the hurricane hits land, it pounds the area with howling winds and very heavy rains. It may also cause a storm surge along coastal regions. This wall of seawater, pushed ashore by the winds, may rise to 16 feet or more. The low-lying coastal regions of Bangladesh in South Asia are especially vulnerable to storm surges from tropical cyclones. B

TORNADOES Unlike hurricanes, which take days to develop, tornadoes form quickly and sometimes without warning. A **tornado,** or twister, is a powerful funnel-shaped column of spiraling air.



MOVEMENT A pair of typhoons move across the Pacific Ocean. Notice the "eye" in each storm. **What is the weather inside the "eye" like?**

Geographic Thinking

Using the Atlas

B Use the map on page A20. On which river delta is Bangladesh located?

5 THEMES

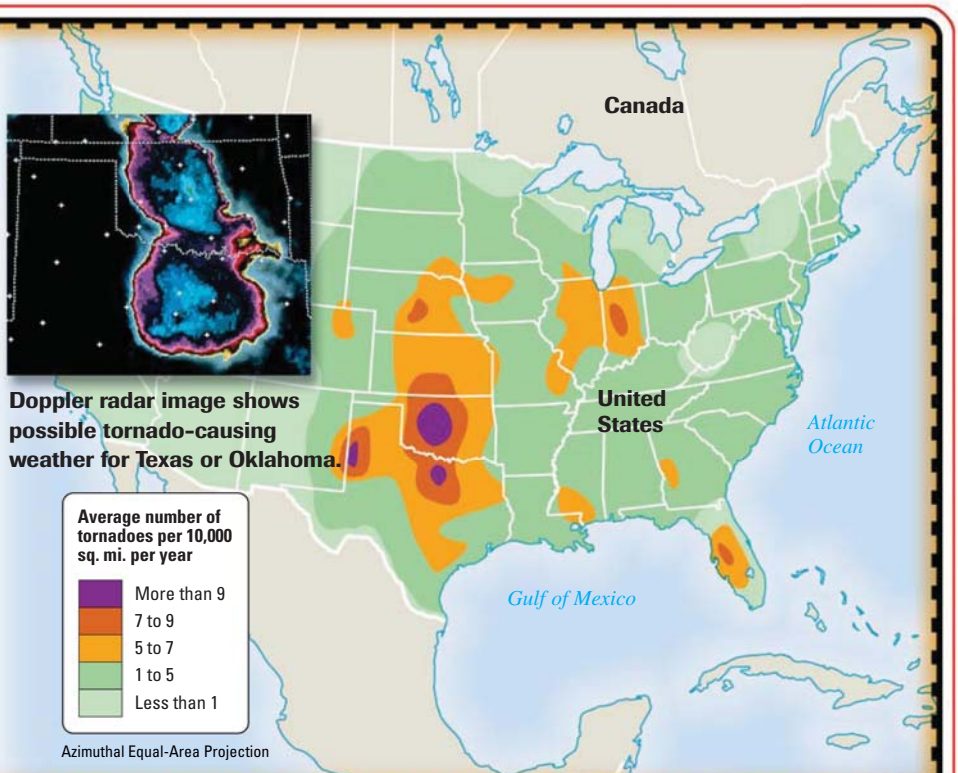
REGION

Tornado Alley

When cold, dry air collides with warm, moist air, a tornado can brew. In the United States, these violent funnel clouds occur frequently between May and October in a region known as "Tornado Alley."

The flat plains stretching from Texas through Nebraska present an ideal staging ground for tornadoes. Cold, dry air from Canada rushes south and collides with warm, moist air moving north from the Gulf of Mexico. Between 200 and 300 major storms erupt there each year, spawning hundreds of tornadoes.

Doppler radar image shows possible tornado-causing weather for Texas or Oklahoma.



Born from strong thunderstorms, tornadoes are capable of immense damage. In a tornado, winds swirl counter-clockwise around a low-pressure center. These winds may reach speeds of 300 miles per hour, blasting apart buildings and lifting objects as large as cars and mobile homes. Generally, tornadoes have small diameters (about 300 feet), travel about a mile, and last only a few minutes. However, the largest and most forceful can reach a mile across and stay on the ground for hours, hopscotching from one location to another. The largest outbreak of tornadoes in the United States occurred during a 16-hour period, April 3 and 4, 1974. A total of 148 tornadoes ripped through the Ohio and Tennessee valleys, killing 330 people. The largest share of tornadoes, about 3 of every 4, hit in the United States. On average, the U.S. National Weather Service counts 700 tornadoes each year. C

Geographic Thinking

Making Comparisons

C How are tornadoes different from hurricanes?

BLIZZARDS A **blizzard** is a heavy snowstorm with winds of more than 35 miles per hour and reduced visibility. These weather conditions snarl traffic, endanger livestock, and trap travelers. The greatest snowfall for a 24-hour period was 76 inches (6 feet 4 inches) in Silver Lake, Colorado, in 1921. A snowstorm that lasted from February 13 to 19, 1959, dumped 189 inches (almost 16 feet) of snow on Mt. Shasta, California.

Because of their location, some areas of the country are frequently hit with snowstorms that produce huge amounts of snow. For example, the eastern and southern shores of the Great Lakes are snowbelts that experience days and days of heavy snow resulting in enormous snow depths. Around the Lake Erie and Lake Ontario areas, the annual snowfall can be as much as 450 inches (37.5 feet).

DROUGHTS A **drought** is a long period of time without rain or with very minimal rainfall. This lack of rain results in crop failures and drastically reduced levels in water storage facilities. In the early 1930s, a drought hit the Great Plains in the United States. Dust storms damaged farms across a 150,000-square-mile region that became known as the "Dust Bowl." Suffering the effects of a harsh climate, thousands of families were forced to leave their land to find work elsewhere. (See the Dust Bowl Disaster feature on pages 150-151.) In 2000, a large portion of the southern United States was struck with a long drought. Northern Texas was particularly hard hit, with 84 straight days of no rain and extremely high temperatures.

BACKGROUND
A series of droughts in Texas between 1996 and 2000 caused $5.3 billion in damages.

REGION Before the drought in Texas, this boat floated on the waters of a lake now barely visible in the background. **How is life affected by drought?**

FLOODS When water spreads over land not normally covered with water, it is called a flood. Melting snow or rainwater fills streams or rivers until they reach flood stage, the point at which the banks can no longer contain the water. The water then flows into the surrounding area, called a floodplain.

Floods take lives every year, especially in low, flat places like Bangladesh, where millions of people live on the flood plains and the delta. In 1993, flooding along the Mississippi and Missouri rivers claimed 50 lives and caused about $15 billion in damage. Nearly 150 rivers and their tributaries were involved. It was the largest flood ever to hit the United States.

In the next section, you will learn about how climate affects people's lives and how humans adapt to changes in climate.

SECTION 1 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- solstice
- equinox
- weather
- climate
- precipitation

2 Taking Notes

MOVEMENT Review the notes you took for this section.

Seasons & Weather

- Which latitude lines mark the summer and winter solstices?
- How do moving air masses create weather?

3 Main Ideas

a. How do the earth's revolution and tilt affect the seasons?

b. What is the difference between weather and climate?

c. What are some examples of extreme weather?

4 Geographic Thinking

Determining Cause and Effect What must be present for any type of precipitation to occur? **Think about:**

- the cause of precipitation
- the types of precipitation

See Skillbuilder Handbook, page R9.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Using your local newspaper, television, or an Internet weather forecast, make a **chart** showing predicted temperature highs and lows and precipitation for several days. Then record the actual weather on those days. Write a summary of your observations of the accuracy of the weather forecast.

2 Climate

Main Ideas

- Climate reflects the seasonal patterns of weather for a location over a long period of time.
- Global climatic changes may be natural or human-made.

Places & Terms

convection

El Niño

greenhouse effect

A HUMAN PERSPECTIVE Nineteenth-century fishermen along the Peruvian coast called the event El Niño—the Spanish name for the infant Jesus—because the event occurred near Christmastime. Every two to seven years, the waters off the Peruvian coast became warmer than usual, resulting in poor fishing. Eventually, 20th-century scientists studying worldwide climate changes confirmed the truth of this folk knowledge. They discovered that El Niño brought about changes in global weather patterns that disrupted not only fishing, but also other economic activities. Droughts and floods in Asia, Africa, and North America seemed to be related to El Niño. Scientists recognized that weather and climate conditions are not isolated but are connected parts of the global climate system.

Factors Affecting Climate

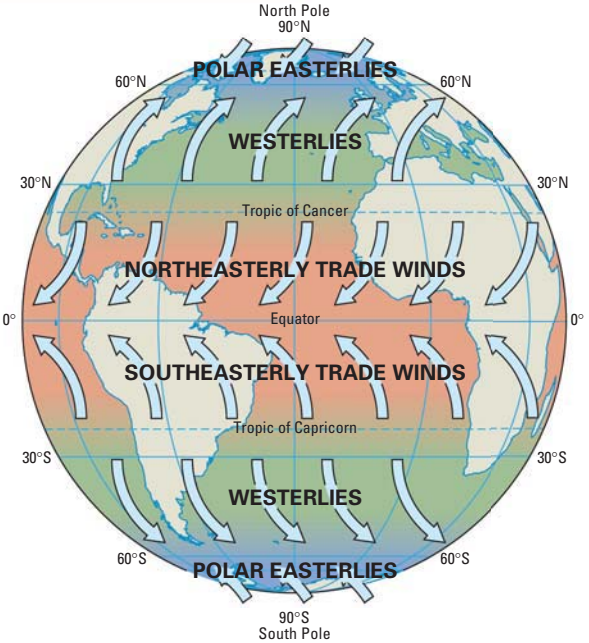
Four major factors influence the climate of a region: wind and ocean currents, latitude, elevation, and topography.

WIND CURRENTS Wind and ocean currents help distribute the sun's heat from one part of the world to another through **convection,** the transfer of heat in the atmosphere by upward motion of the air. As sunlight heats the atmosphere, the air expands, creating a zone of low air pressure. Cooler dense air in a nearby high-pressure zone rushes into the low-pressure area, causing wind.

Global wind patterns are caused by the same kind of circulation on a larger scale. The hot air flows toward the poles, and the cold air moves toward the equator. The winds would blow in straight lines, but since the earth rotates they are turned at an angle. In the Northern Hemisphere, they turn to the right. In the Southern Hemisphere, they turn to the left. This bending of the winds is called the Coriolis effect.

The map to the right shows that the wind patterns are mirror images of each other in the Northern and Southern Hemispheres. Winds are identified by the direction from which they blow; a north wind blows from the north to the south.

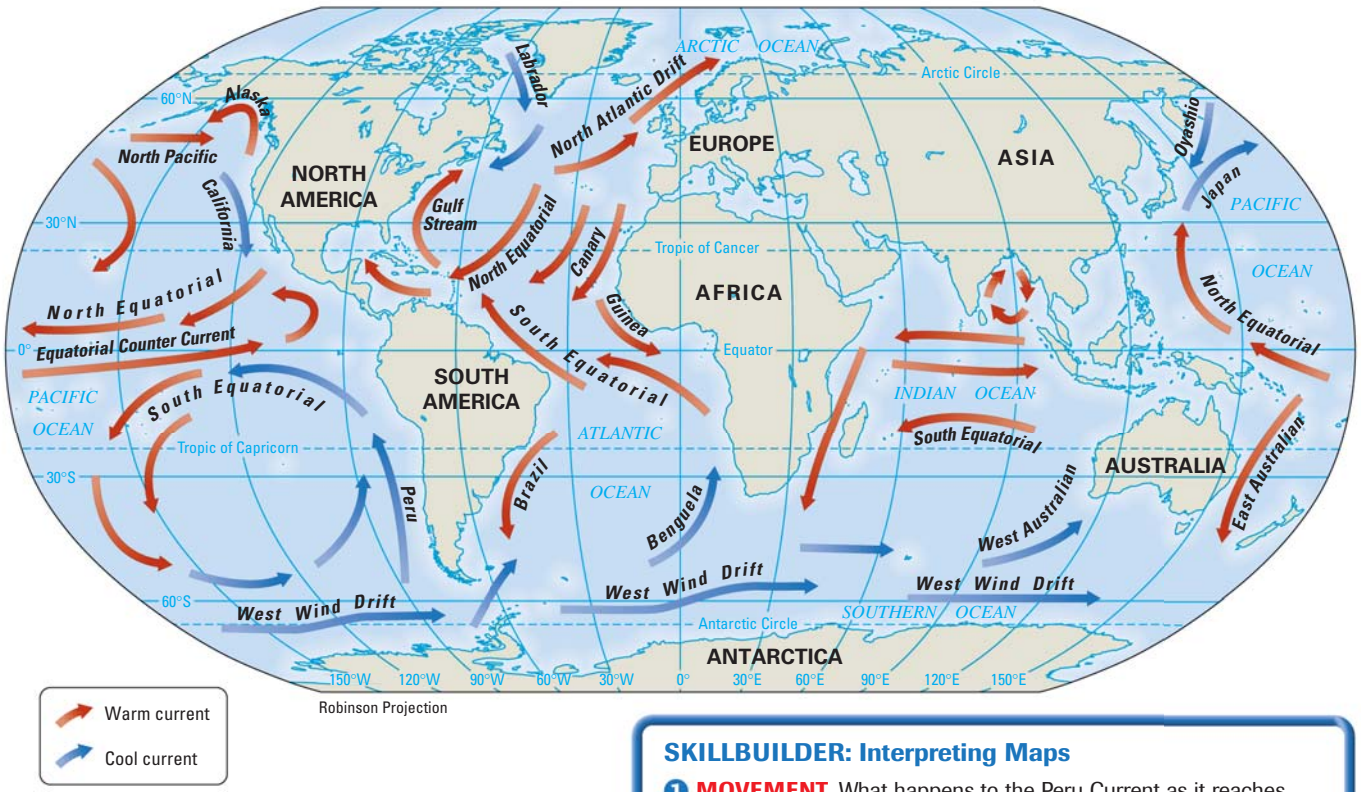
Global Wind Currents



SKILLBUILDER: Interpreting Maps

1. **MOVEMENT** From which direction do the wind currents blow near the equator in the Southern Hemisphere?
2. **LOCATION** Between which latitudes do the westerlies blow?

Global Ocean Currents



SKILLBUILDER: Interpreting Maps

1. **MOVEMENT** What happens to the Peru Current as it reaches the equator?
2. **LOCATION** Where does the West Wind Drift flow?

OCEAN CURRENTS Ocean currents are like rivers flowing in the ocean. Moving in large circular systems, warm waters flow away from the equator toward the poles, and cold water flows back toward the equator. Winds blowing over the ocean currents affect the climate of the lands that the winds cross. For example, the warmth of the Gulf Stream and the North Atlantic Drift help keep the temperature of Europe moderate. Even though much of Europe is as far north as Canada, it enjoys a much milder climate than Canada.

Ocean currents affect not only the temperature of an area, but also the amount of precipitation received. Cold ocean currents flowing along a coastal region chill the air and sometimes prevent warm air and the moisture it holds from falling to earth. The Atacama Desert in South America and the Namib Desert in Africa, for example, were formed partly because of cold ocean currents nearby. A

Geographic Thinking

Making Comparisons

A How are wind and ocean currents similar in their effect on climate?

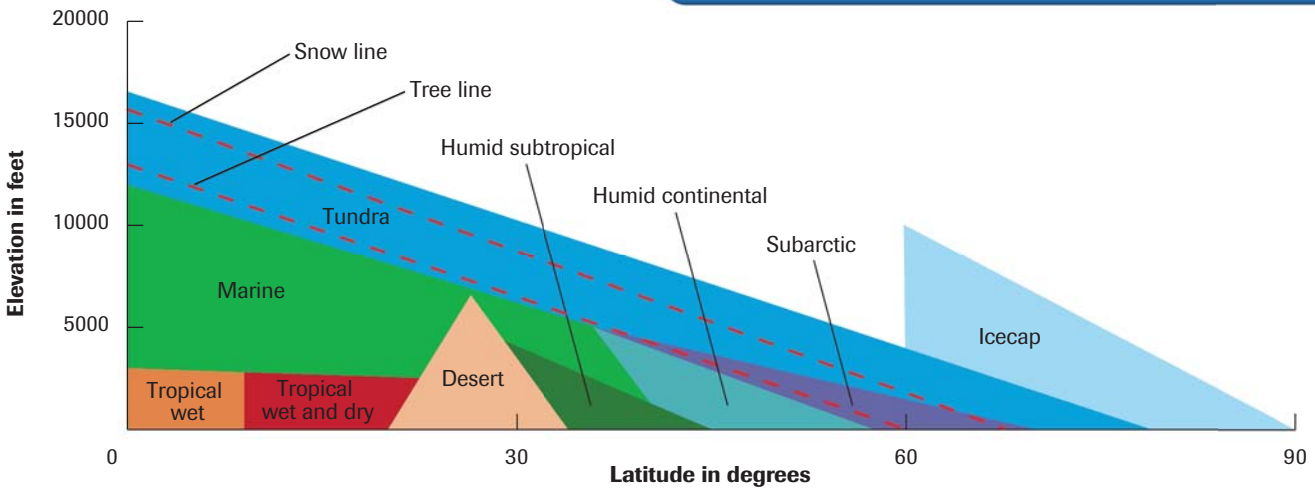
ZONES OF LATITUDE Geographers divide the earth into three general zones of latitude: low or tropical, middle or temperate, and high or polar. Tropical zones are found on either side of the equator. They extend to the tropic of Cancer in the Northern Hemisphere and the tropic of Capricorn in the Southern Hemisphere. Lands in tropical zones are hot all year long. In some areas, a shift in wind patterns causes variations in the seasons. For example, Tanzania experiences both a rainy season and a dry season as Indian Ocean winds blow in or away from the land.

Climate Controls

Latitude and elevation influence climate. Notice that as you move along the latitude line, the climates at the lower altitude change. However, the greater the altitude, the fewer the climate zones no matter what latitude a location may be.

SKILLBUILDER: Interpreting Graphics

1. **LOCATION** At about what latitude and altitude would you find a desert climate?
2. **REGION** How do the climate zones change as latitude gets higher?



Adapted from *Physical Geography* by Ralph Scott.

The high-latitude polar zones, which encircle the North Pole and South Pole, are cold all year. Summer temperatures in the polar regions may reach a high of only 50°F.

The earth's two temperate zones lie at the middle latitudes, between the tropics and the polar regions. Within the temperate zones, climates can vary greatly, ranging from relatively hot to relatively cold. These variations occur because solar heating is greater in the summer than in the winter. So summers are much warmer.

ELEVATION Another factor in determining the climate of a region is elevation, or distance above sea level. You would think that the closer you get to the sun, the hotter it would become. But as altitude increases, the air temperature drops about 3.5°F for every 1,000 feet. Therefore, the climate gets colder as you climb a mountain or other elevated location. Climates above 12,000 feet become like those in Arctic areas—with snow and ice. For example, Mt. Kilimanjaro in east Africa is capped by snow all year long. The diagram above will help you see how latitude and elevation are related.

TOPOGRAPHY Landforms also affect the climate. This is especially true of mountain areas. Remember that moisture-laden winds cool as they move up the side of a mountain, eventually releasing rain or snow. By the time the winds reach the other side of the mountain, they are dry and become warmer as they flow down the mountain.

Changes in Climate

Climates change over time. Scientists studying ice-core samples from thousands of years ago have noted a variety of changes in temperature and precipitation. Some of the changes in climate appear to be natural while others are the result of human activities.

EL NIÑO The warming of the waters off the west coast of South America—known as **El Niño**—is a natural change in the climate. About every two to seven years, prevailing easterly winds that blow over the central Pacific Ocean slow or reverse direction, changing the ocean temperature and affecting the weather worldwide. Normally, these easterlies bring seasonal rains and push warm ocean water toward Asia and Australia. In El Niño years, however, the winds push warm water and heavy rains toward the Americas. This can cause floods and mudslides there, while Australia and Asia experience drought conditions.

When the reverse occurs—that is, when the winds blow the warmer water to the lands on the western Pacific rim—the event is called La Niña. La Niña causes increases in precipitation in places such as India and increased dryness along the Pacific coasts of the Americas.

El Niño and La Niña

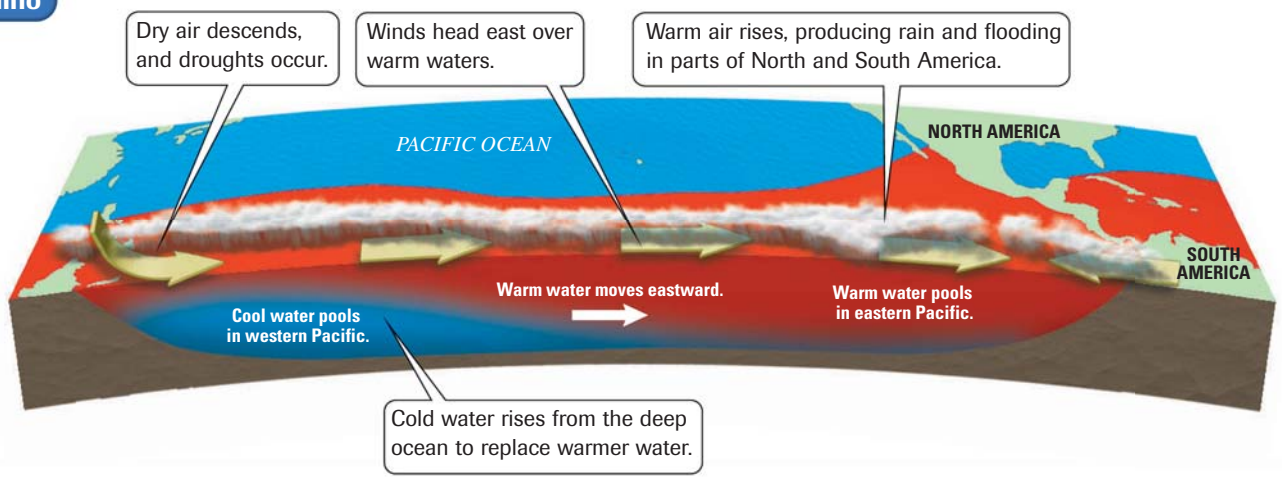
INTERACTIVE

El Niño and La Niña act to transfer the heat on the earth's surface and in the atmosphere to other parts of the globe.

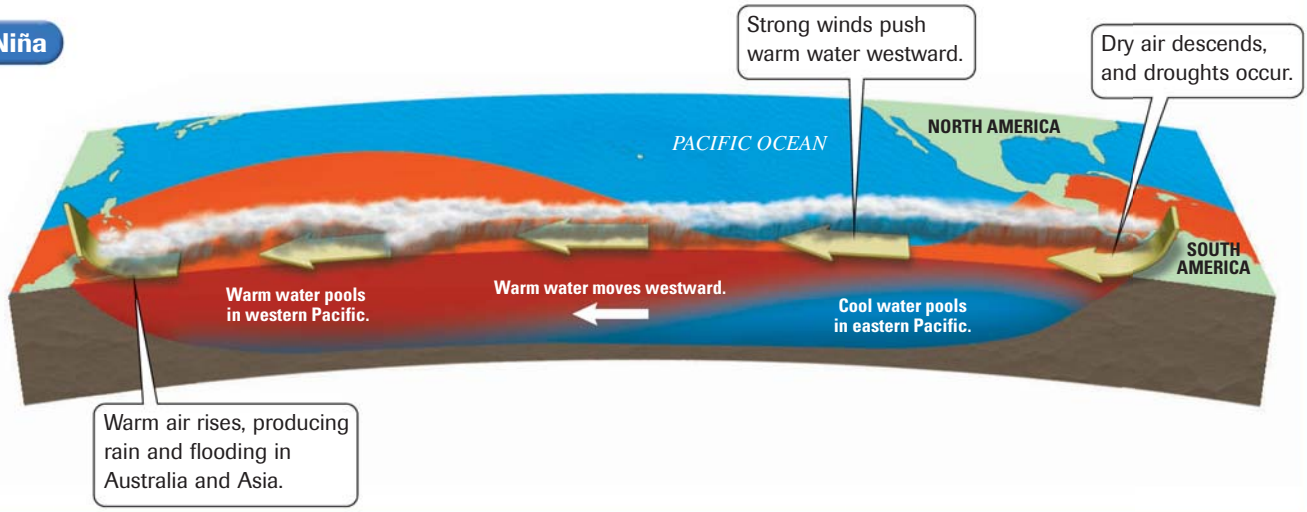
SKILLBUILDER: Interpreting Graphics

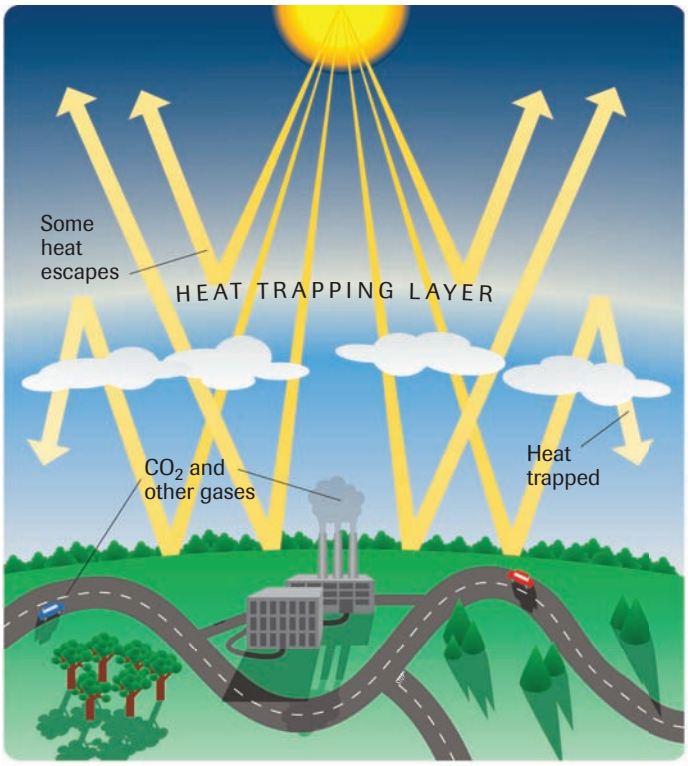
1. **MOVEMENT** In which direction do winds and water move in El Niño?
2. **LOCATION** Where does flooding occur during La Niña?

El Niño



La Niña





SKILLBUILDER: Interpreting Graphics

1. **HUMAN–ENVIRONMENT INTERACTION** Which elements in the illustration add heat to the environment?
2. **MOVEMENT** What might happen if more motor vehicles are added to the picture?

GLOBAL WARMING Although controversy exists over the causes of global warming, scientists agree that air temperatures are increasing. Since the late 1800s, the temperature of the earth has increased by one degree. However, estimates for the next century suggest that the increase will be almost 3.5 degrees.

Some scientists believe that this warming is part of the earth's natural warming and cooling cycles. For example, 18,000 to 20,000 years ago, the earth was in the last of several ice ages, when vast glaciers advanced over huge portions of the land mass.

Other scientists argue that global temperature increases are caused by the **greenhouse effect.** The layer of gases released by the burning of coal and petroleum traps some solar energy, causing higher temperatures in the same way that a greenhouse traps solar energy.

As more and more nations become industrialized, the amount of greenhouse gases will also increase. Scientists predict that, if global warming continues, ice caps will melt, flooding some coastal areas, covering islands, and changing the global climate. In the next section, you will learn about world climate regions.

BACKGROUND The air temperature in the period between about 1500 and 1850 was so much cooler than today that it is known as a "Little Ice Age."

SECTION 2 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- convection
- El Niño
- greenhouse effect

2 Taking Notes

MOVEMENT Review the notes you took for this section.

- What are four factors that affect climate?
- What are examples of forces that produce climate changes?

3 Main Ideas

a. What role do wind and ocean currents play in climate?

b. How do latitude and altitude affect climate?

c. How do El Niño and La Niña affect climate?

4 Geographic Thinking

Drawing Conclusions
Which of the factors affecting climate has the greatest impact on the climate in your region? **Think about:**

- the four factors affecting climate
- the climate where you live

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

SEEING PATTERNS Review the information and diagram about El Niño and La Niña on page 57. Use the Internet to find more information on these events. Create a **multimedia presentation** explaining one of the events and how it affects the world-wide weather conditions.

3 World Climate Regions

Main Ideas

- Temperature and precipitation define climate regions.
- Broad climate definitions help to identify variations in weather at a location over the course of a year.

Places & Terms

tundra

permafrost

BASICS

A HUMAN PERSPECTIVE Songs have been written celebrating April in Paris. Springtime there is mild, with temperatures in the 50°F range. But no songs have been written about April in Winnipeg, Canada. Temperatures in April there are only slightly above freezing. If you look at the two locations on a map, you will find the cities are almost the same distance north of the equator. To understand why two cities at the same latitude are so different, you need to understand climate regions. When studying climate, one of the key words is location.

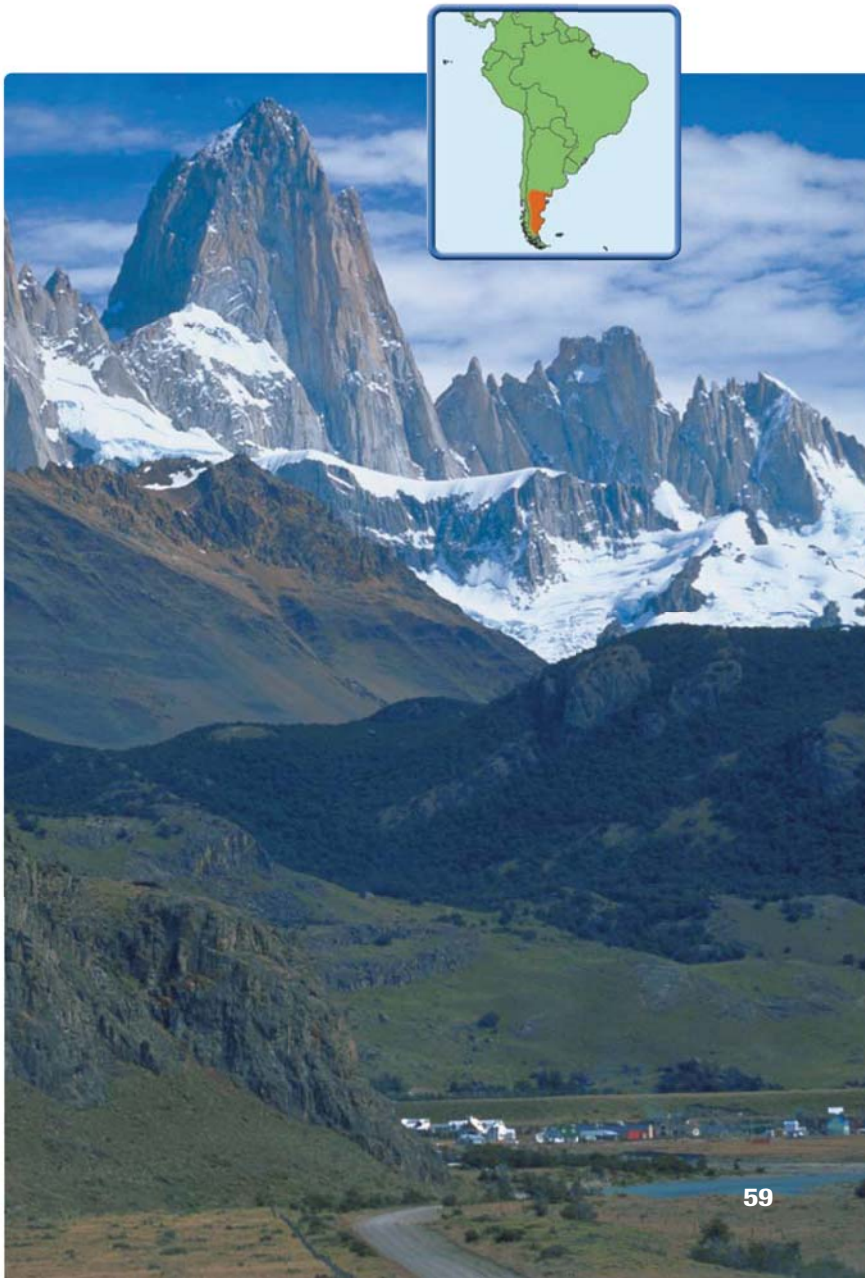
Defining a Climate Region

Climate regions act like a code that tells geographers much about an area without giving many local details. To define a climate region, geographers must make generalizations about what the typical weather conditions are like over many years in a location.

The two most significant factors in defining different climates are temperature and precipitation. A place's location on a continent, its topography, and its elevation may also have an impact on the climate.

Geographers use a variety of methods to describe climate patterns. The most common method uses latitude to help define the climate. There are five general climate regions: tropical (low latitude), dry, mid-latitude, high latitude, and highland. Dry and highland climates occur at several different latitudes. Within the five regions, there are variations that geographers divide into smaller zones. You can see the varied climate regions on the map on pages 60–61.

Although the map shows a distinct line between each of the climate regions, in reality there are transition zones between the regions. As you read about climate regions, refer to the climate map. You should see the latitude-related patterns that emerge in world climate regions.



PLACE This highland climate zone in Patagonia, South America, has several different climate regions, including tundra and subartic.

Types of Climates

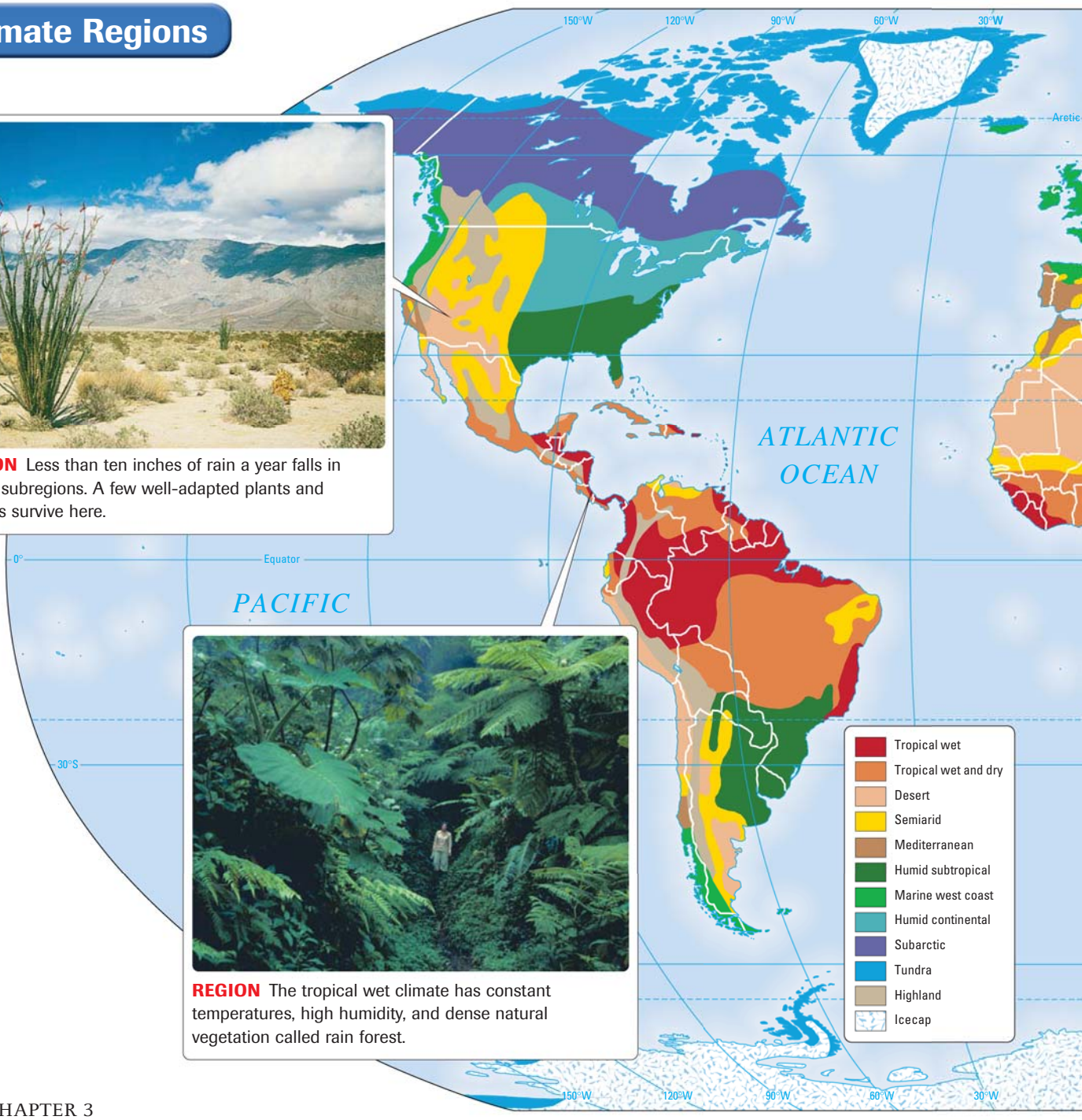
World climates are generally divided into five large regions: tropical, dry, mid-latitude, high latitude, and highland. The regions are divided into smaller subregions that are described below.

TROPICAL WET This subregion has little variation in temperature over the year—it is always hot, with an average temperature of 80°F. The days begin sunny but by afternoon have clouded up, and rain falls almost daily. The average amount of rain in a year is more than 80 inches. Tropical wet climates are found in Central and South America as well as Africa and Southwest Asia.

Climate Regions

REGION Less than ten inches of rain a year falls in desert subregions. A few well-adapted plants and animals survive here.

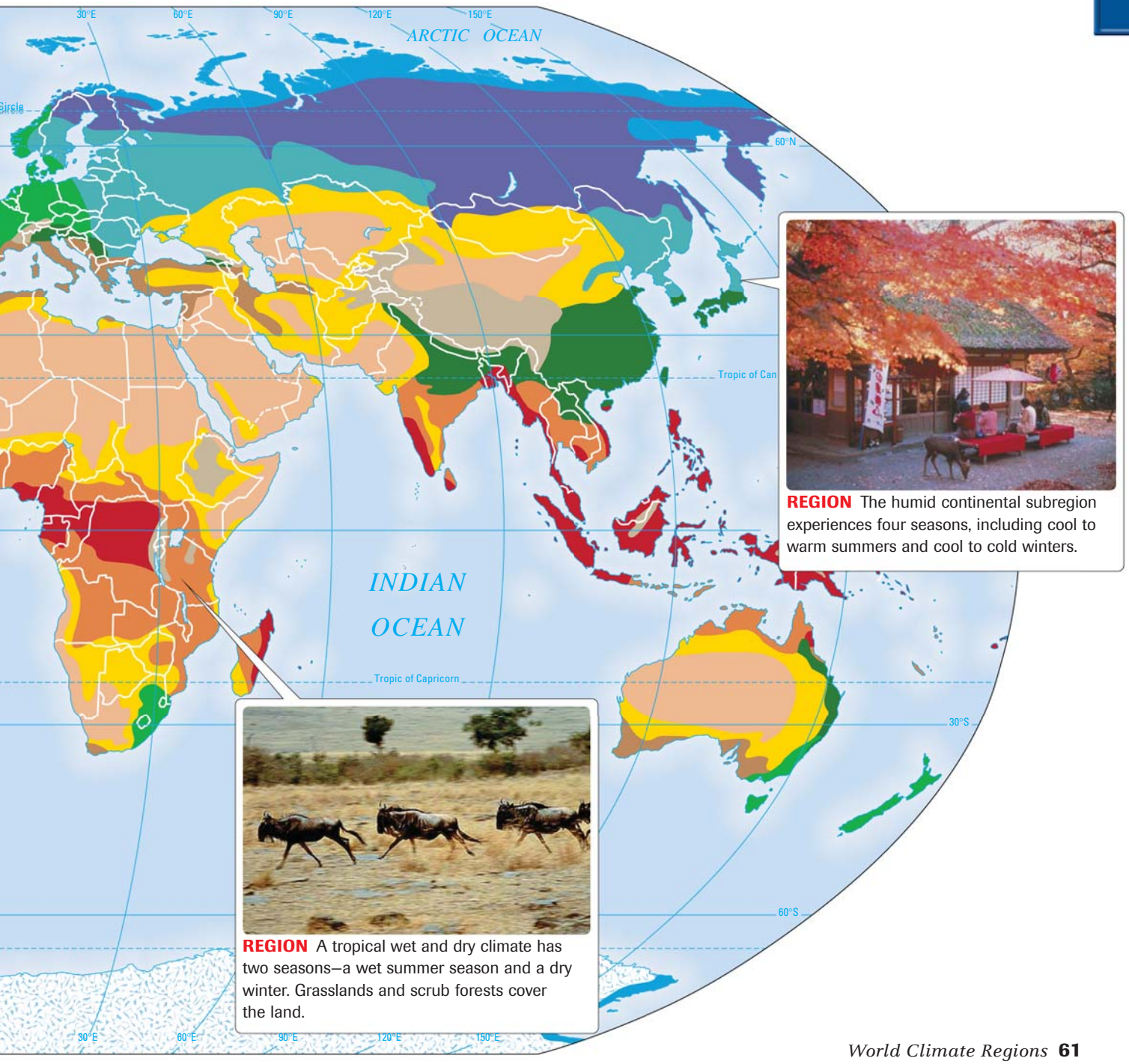
REGION The tropical wet climate has constant temperatures, high humidity, and dense natural vegetation called rain forest.



Robinson Projection

TROPICAL WET AND DRY This climate is called "tropical wet and dry" because the subregion has a rainy season in summer and a dry season in winter. Temperatures are cooler in the dry season and warmer in the wet season. Rainfall is less than in the tropical wet climate subregion and occurs mostly in the wet season. Tropical wet and dry climates are found next to tropical wet climates in Africa, South and Central America, and parts of Asia.

SEMIARID This climate subregion does receive precipitation, just not very much: about 16 inches per year. Summers are hot. Winters are mild to cold, and some semiarid locations can produce snow. The climate is found in the interior of continents, or in a zone around deserts. The region contains some of the most productive agricultural lands in the world.

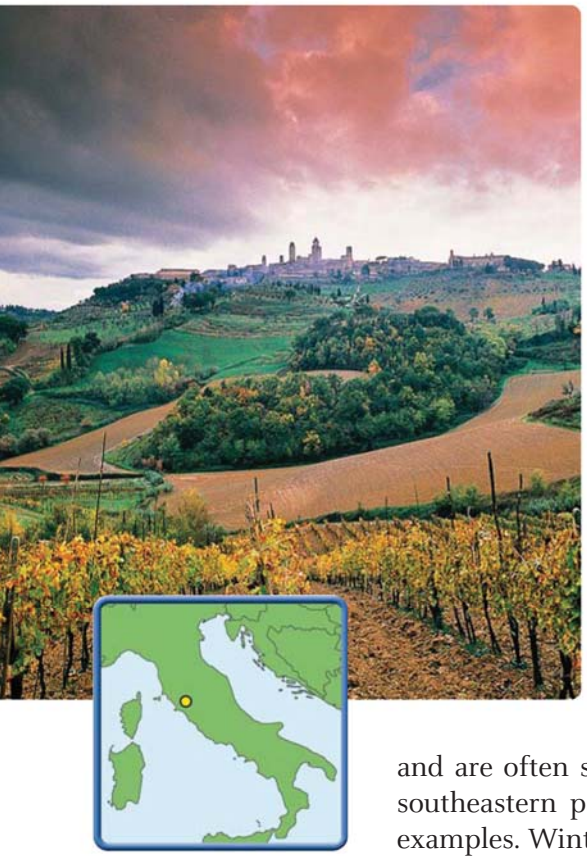


REGION The humid continental subregion experiences four seasons, including cool to warm summers and cool to cold winters.

REGION A tropical wet and dry climate has two seasons—a wet summer season and a dry winter. Grasslands and scrub forests cover the land.

DESERT Some people think a desert is nothing but sand dunes. However, deserts are categorized according to the amount of rainfall, rather than by landforms, and can be hot or cool/cold. Deserts receive less than ten inches of rain per year. Hot deserts, like the Sahara and the Arabian Desert, regularly have low humidity and high temperatures during the day. At night, temperatures drop because the dry air cannot hold heat well.

Cool/cold deserts are found in the mid-latitudes mostly in the Northern Hemisphere, often in the rain shadow of nearby mountain ranges. Summer temperatures are warm to hot, and winter temperatures range from quite cool to below freezing.



PLACE These Italian vineyards thrive in the hot dry summers and cool rainy winters of the Mediterranean climate. The climate also supports the cultivation of citrus fruit, olives, and vegetables.

MEDITERRANEAN This climate subregion is named for the land around the Mediterranean Sea where it is located. It also exists elsewhere, such as the west coast of the United States and parts of Australia. Its summers are dry and hot, and its winters cool and rainy. This climate region supports a dense population and rich agricultural activity.

MARINE WEST COAST This climate subregion, which is located close to the ocean, is frequently cloudy, foggy, and damp. The winds over the warm ocean moderate the temperatures and keep them relatively constant. Parts of the west coast of the United States and Canada and most of Western Europe experience this climate. Precipitation in marine west coast climate regions is evenly distributed throughout the year. Industrial regions with marine west coast climate may have smog (a mixture of smoke and fog). A

Geographic Thinking

Making Comparisons

A How are Mediterranean and marine west coast climates different?

HUMID SUBTROPICAL Long periods of summer heat and humidity characterize the humid subtropics. These areas are found on the east coast of continents and are often subject to hurricanes in late summer and autumn. The southeastern part of the United States and large areas of China are examples. Winters are mild to cool, depending on latitude. The climate is very suitable for raising crops, especially rice.

HUMID CONTINENTAL A great variety in temperature and precipitation characterizes this climate, which is found in the mid-latitude interiors of Northern Hemisphere continents. For example, Winnipeg, Manitoba, in Canada is located deep in the North American continent. It has a humid continental climate. Air masses chilled by Arctic ice and snow flow south over these areas and frequently collide with tropical air masses, causing changing weather conditions. These areas experience four seasons. However, the length of each season is determined by the region's latitude.

SUBARCTIC Evergreen forests called taiga cover the lands in the subarctic subregion, especially in Canada and Russia. Huge temperature variations occur in this subregion between summer and winter. Although the summers are short and cool, the winters are always very cold.

Temperatures at freezing or below freezing last five to eight months of the year.

TUNDRA The flat, treeless lands forming a ring around the Arctic Ocean are called **tundra.** The climate subregion is also called tundra. It is almost exclusively located in the Northern Hemisphere. Very little precipitation falls here, usually less than 15 inches per year. The land has **permafrost**—that is, the subsoil is constantly frozen. In the summer, which lasts for only a few weeks, the temperature may reach slightly above 40°F. B

Geographic Thinking

Making Comparisons
B How are precipitation amounts in a tundra climate similar to those of a desert climate?

ICE CAP Snow, ice, and permanently freezing temperatures characterize the region, which is so cold that it rarely snows. These subregions are sometimes called polar deserts since they receive less than ten inches of precipitation a year. The coldest temperature ever recorded, 128.6°F below zero, was on the ice cap at Vostok, Antarctica.

REGION Life is hard during the long, cold, and dark winter in the subarctic. The only places where the temperatures are colder are the icecaps of Greenland and the Antarctic.

HIGHLANDS The highlands climate varies with latitude, elevation, other topography, and continental location. In rugged mountain areas such as the Andes of South America, climates can vary based on such factors as whether a slope faces north or south and whether it is exposed to winds carrying moisture.

Understanding climate helps you understand about the general weather conditions in an area. In the next section, you will learn about the variety of soils and vegetation on the earth.

SECTION 3 Assessment

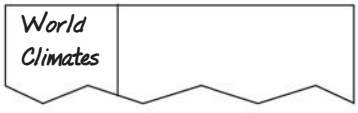
1 Places & Terms

Identify and explain where in the region these would be found.

- tundra
- permafrost

2 Taking Notes

REGION Review the notes you took for this section.



- What are the five basic climate regions?
- What are the factors that determine climate?

3 Main Ideas

a. How do tropical climates differ from each other?

b. How do desert regions differ from each other?

c. How are Humid subtropical and Mediterranean climates different from each other?

4 Geographic Thinking

Making Generalizations
How are the climates of the Northern Hemisphere different from the climates of the Southern Hemisphere?
Think about:

- sizes and locations of the continents

See Skillbuilder Handbook, page R6.

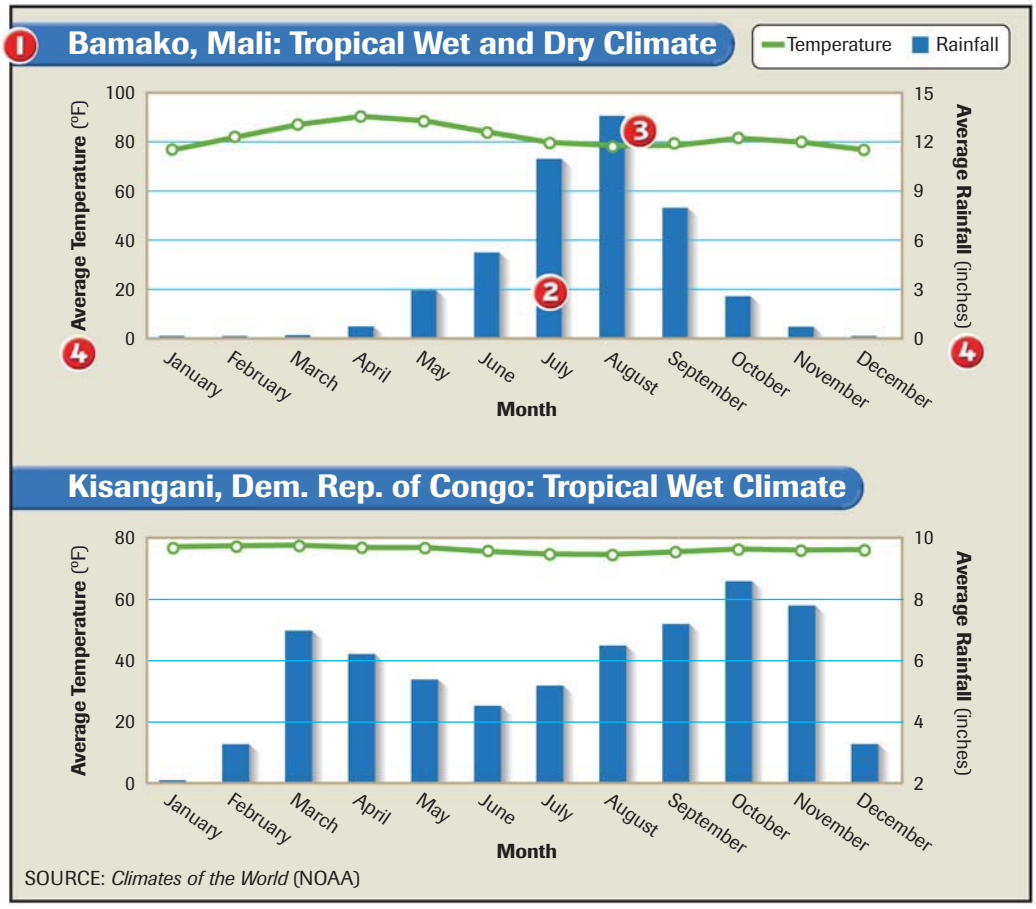
GeoActivity

MAKING COMPARISONS Study the descriptions of climates in this chapter. Then either draw pictures or find pictures that illustrate the climates. Using a hanger and string, create a **mobile** displaying world climate regions.

Interpreting Climographs

How many seasons are in a year where you live? In some parts of the world the climate is the same all year long. Other places have only two seasons—wet and dry. Still others experience changes in temperature and precipitation almost every month. A climograph allows you to quickly determine what the climate is like in a place. If you have two climographs you may compare two different places.

THE LANGUAGE OF GRAPHS A **climograph** shows the average daily temperature and precipitation for each month of the year for a specific location. This information shows what the climate is like over a year. Use the green line on the graph to find the average temperature and the blue bars to find average rainfall.



SOURCE: *Climates of the World* (NOAA)

1. The title indicates the place, sometimes its absolute location, and the type of climate.
2. Each blue bar shows average rainfall for one month of the year. For example, more than 13 inches of rain falls in Bamako in August.
3. The green line shows the average temperature. For example, the July temperature in Bamako is 80°F.
4. Precipitation can be shown in inches (in.) or centimeters (cm.). Temperature can be shown in Fahrenheit (F°) or Celsius (C°) degrees.

Map and Graph Skills Assessment

1. Analyzing Data
What information is shown on each side of the vertical axis?

2. Analyzing Data
What are the rainy months in Bamako? How much rain falls in the rainiest month?

3. Drawing Conclusions
How is the tropical wet and dry climate of Bamako different from the tropical wet climate of Kisangani?

Soils and Vegetation

Main Ideas

- Soil and climate help to determine the vegetation of a region.
- Human land use alters the vegetation in both positive and negative ways.

Places & Terms

ecosystem
biome
deciduous
rain forest
coniferous
savanna
steppe

BASICS

A HUMAN PERSPECTIVE In the 1870s, a settler described prairie land in Tazewell County, Illinois, as having western meadow lilies "as high as a boy's head," rippling waves of wildflowers, and grass so dense that a man on horseback 30 yards away could not be seen. At that time, the land produced crops of grains, such as corn, wheat, and oats. In most places in the world where people have settled, the land continues to be used for agricultural purposes, such as farming, herding, and timber production. Soil and vegetation have a direct impact on which of those activities the people living in a region can perform.

Soil Regions

Soil is a thin layer of weathered rock, humus, air, and water. It shapes human existence in many ways. The world's food supply depends greatly on the top six inches of soil (sometimes called topsoil). Such factors as depth, texture, and humus content of the soil determine the type of vegetation that can be supported in a region. That, in turn, helps to influence which human activities may take place there. As you study the chart below, notice the relationship of climate to the characteristics of the soil. Soil characteristics and climate are major influences in vegetation regions.

Vegetation Regions

Vegetation regions are natural environments that provide the stage for human activities such as farming, raising livestock, and producing timber. Soil, temperature, and moisture influence the type of vegetation that thrives naturally in a region. Vegetation patterns are identified on the basis of the ecosystems they support. An **ecosystem** is an interdependent community of plants and animals. The ecosystem of a region is referred to as a **biome.** Biomes are further divided into forest, grassland, desert, and tundra.

Soil Differences

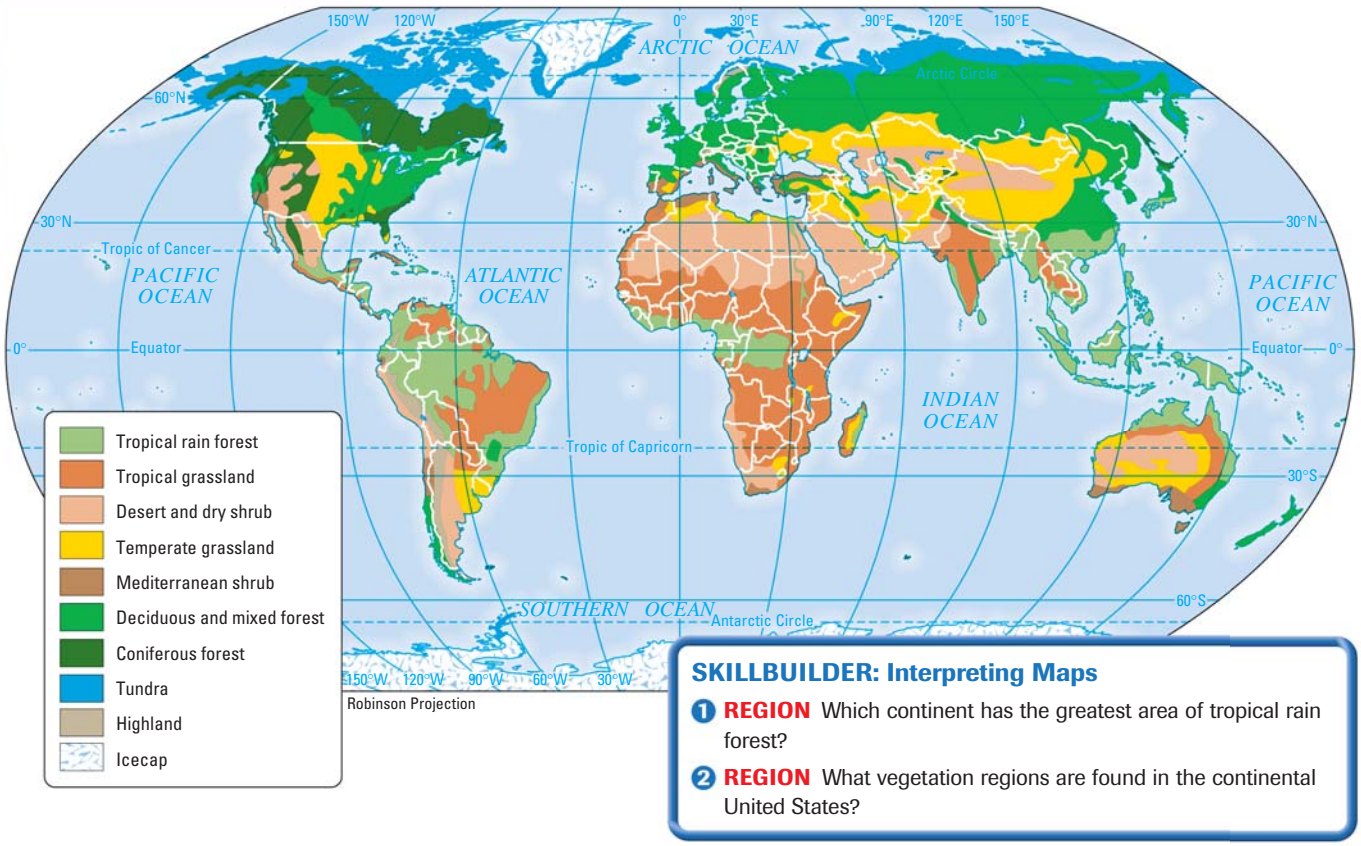
Soil Characteristic	Wet Climate	Dry Climate	Warm Climate	Cold Climate
Depth	deep	shallow	deep	shallow
Texture	intermediate to fine	coarse	fine	coarse
Weathering	chemical	physical	rapid	slow
Humus Content	variable	low	low	abundant
Acidity	acidic	not acidic	less acidity	higher acidity

SOURCE: *Physical Geography,* Ralph Scott

SKILLBUILDER: Interpreting Charts

1. **PLACE** What characteristics would soil in a cold, dry climate most likely have?
2. **REGION** How does the soil in warm and wet climates differ from the soil in cold and dry climates in terms of depth and texture?

World Vegetation Regions



SKILLBUILDER: Interpreting Maps

1. **REGION** Which continent has the greatest area of tropical rain forest?
2. **REGION** What vegetation regions are found in the continental United States?

FORESTLANDS Forest regions are categorized by the types of trees they support—broadleaf or needleleaf. Broadleaf trees, such as maple, oak, birch, and cottonwood, are also called **deciduous** trees. The **rain forest** is located in the tropical zone and is covered with a heavy concentration of broadleaf trees. In the tropical rain forest region, some broadleaf trees stay green all year. In the deciduous region, trees shed their leaves at least once during the year. This region is located almost exclusively in the Northern Hemisphere. Sometimes deciduous trees are mixed with needleleaf trees, such as pine, fir, and cedar, to form a mixed forest region. Needleleaf trees are also called **coniferous** trees because they are cone bearing. They are found in huge stands in northern regions of North America, Asia, and Europe.

GRASSLANDS Grasslands, mostly flat regions dotted with a few trees, are called by different terms. In the tropical grassland region, the flat, grassy, mostly treeless plains are called **savanna.** In the Northern Hemisphere, the terms **steppe** or prairie are used to identify temperate grasslands. Vast areas of Eurasia are covered with steppe. In the Southern Hemisphere, the temperate grasslands may be referred to as pampas. A

DESERT AND TUNDRA The plants that live in these extreme climates are specially adapted to tolerate the dry or cold conditions. In the tundra, plants that hug the ground, such as mosses and lichen, are best adapted to survive the cold dry climate. In the desert, plants that can conserve water and withstand heat, such as cacti, sagebrush, or other shrubs, dot the landscape.

Geographic Thinking

Seeing Patterns

A Study the map above. What patterns do you see in the relationship of forestlands to grasslands?

Human Impact on the Environment

As you can imagine, the impact of human activities on soil and vegetation is immense. Throughout this book, you will read about the ways that human beings either have adapted to the land or have altered it to meet their needs. Human activities that affect the environment include building dams or irrigation systems, planting food crops, or slashing and burning the vegetation.

The two photographs above show you an example of a human-environment interaction. The photograph to the left shows Glen Canyon on the Colorado River before a dam was built to create a huge lake. The lake—Lake Powell—was created to provide irrigation water, hydroelectric power, and recreational facilities. The photograph on the right shows a part of Lake Powell today. It is 186 miles long, has 1,900 miles of shoreline, and in places is 500 feet deep. As you can see, this human activity has caused changes in the environment.

The next chapter will help you understand the human side of geography and its relationship to the physical world.

HUMAN–ENVIRONMENT INTERACTION Photographs of Glen Canyon show the same site before and after it was filled with the waters of Lake Powell. **How has the landscape changed as the result of the creation of the lake?**

SECTION 4 Assessment

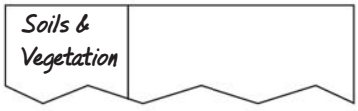
1 Places & Terms

Explain the meaning of each of the following terms.

- ecosystem
- biome
- rain forest
- savanna
- steppe

2 Taking Notes

REGION Review the notes you took for this section.



- How are soil and vegetation linked?
- What are the four types of biomes?

3 Main Ideas

a. What soil factors influence type of vegetation in a region?

b. What is the difference between coniferous and deciduous trees?

c. What is unique about vegetation in the desert and tundra regions?

4 Geographic Thinking

Making Inferences What impact have humans had on soil and vegetation? **Think about:**

- altering the land to meet needs
- careless use of the land

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

EXPLORING LOCAL GEOGRAPHY Use the Internet to find out about the current vegetation of your state and what it was like before becoming populated. Draw two **maps** to show the contrast between the two time periods. Write a sentence summarizing what you learned.

Chapter 3 Assessment

VISUAL SUMMARY
CLIMATE AND VEGETATION

Seasons and Weather

- Seasons occur because of the earth's revolution and tilt.
- Weather is the condition of the atmosphere on a daily basis.
- Weather extremes disrupt normal patterns of living.

Climate

- Climate is the atmospheric condition over a long period of time.
- Climate is affected by wind and ocean currents, latitude, elevation, and topography.
- Global climate changes include El Niño and the greenhouse effect.

World Climate Regions

- There are five basic climate regions: tropical, dry, mid-latitude, high latitude, and highland.
- The two most significant factors in climate are temperature and precipitation.

Soils and Vegetation

- Soil characteristics include texture, depth, and humus content.
- Soil and climate are major influences on vegetation regions.
- Vegetation patterns are based on ecosystems.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. weather
2. climate
3. precipitaton
4. convection
5. El Niño
6. greenhouse effect
7. ecosystem
8. biome
9. rain forest
10. savanna

B. Answer the questions about vocabulary in complete sentences.

11. In what type of situation would it be more important to know about weather instead of climate?
12. How are climate and weather related?
13. Which of the above terms deal with types of vegetation?
14. What role does convection play in precipitation?
15. Which of the above terms deals with increases in average global temperature?
16. Which of the above terms has to do with dramatic changes in Pacific Ocean water temperature?
17. What is the relative location of rain forests?
18. What does savanna have in common with steppe and prairie?
19. Which of the above terms could be affected by the greenhouse effect?
20. What is the relationship between an ecosystem and a biome?

Main Ideas

Seasons and Weather (pp. 49–53)

1. What causes the changing seasons on earth?
2. What are the major factors that cause weather?
3. What are the different types of precipitation?

Climate (pp. 54–58)

4. What are four factors that influence climate?
5. How do ocean currents affect climate?
6. What might be some causes of global warming?

World Climate Regions (pp. 59–64)

7. What general information about climate is included in a description of a climate region?
8. What are the five basic climate regions?

Soils and Vegetation (pp. 65–67)

9. How does climate affect soil?
10. How are forestlands defined?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.

Seasons & Weather	
Climate	
World Climates	
Soils & Vegetation	

a. How are seasons, weather, and climate connected to each other?

b. How would knowing about the climate of a region help you determine the vegetation of the region?

2. Geographic Themes

a. **REGION** Why are there few subarctic climate zones in the Southern Hemisphere?

b. **LOCATION** How does location affect climate?

3. Identifying Themes

How might the climate of an area be affected by global warming? Which of the five themes apply to this situation?

4. Drawing Conclusions

What is incorrect about defining a desert by landforms such as sand dunes?

5. Making Inferences

Why is a hurricane such a deadly storm?

Additional Test Practice, pp. S1–S37

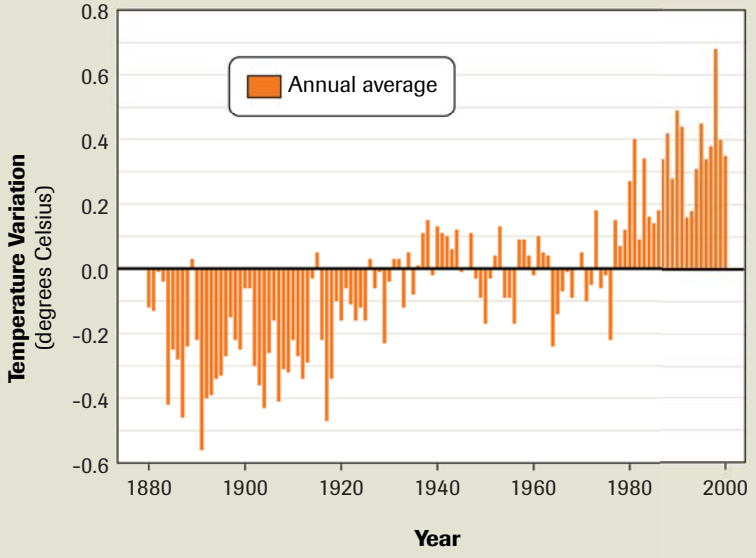
TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Graphs

Temperature Variations

Use the graph to answer the following questions.

1. **MOVEMENT** Which decade (10-year span) had the highest temperatures?
2. **MOVEMENT** In approximately which year did temperatures begin to consistently rise above the average?
3. **HUMAN–ENVIRONMENT INTERACTION** What impact might the greenhouse effect have on the temperature changes?



SOURCE: Goddard Institute for Space Studies

GeoActivity

Using straws, devise a three-dimensional model to show the information on the graph. Be sure to provide time frames and temperature information on your model.

INTERNET ACTIVITY

Use the links at **classzone.com** to do research about global warming. Choose one of the nine regions in this textbook. Focus on determining the effects of global warming on the region, especially on coastal areas.

Creating a Multimedia Presentation Combine charts, maps, or other visual images in an electronic presentation showing how the earth will be affected by global warming.

Chapter 4

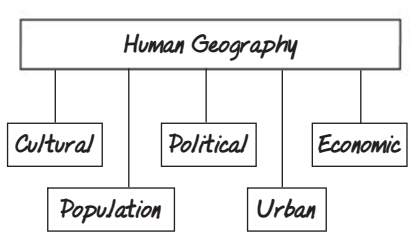
HUMAN GEOGRAPHY
People and Places

Petroglyphs like this one from the Fremont culture (found in Dinosaur National Monument) offer evidence of human life in the desert of the Colorado Plateau.

GeoFocus

What is human geography about?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information about human geography.



The Elements of Culture

Main Ideas

- Human beings are members of social groups with shared and unique sets of behaviors and attitudes.
- Language and religion are two very important aspects of culture.

Places & Terms

culture
society
ethnic group
innovation
diffusion
cultural hearth
acculturation
dialect
religion

BASICS

A HUMAN PERSPECTIVE In an article titled "The 100% American," anthropologist Ralph Linton described how a typical American, in eating breakfast, had borrowed from other cultures.

> He has coffee, an Abyssinian plant, with cream and sugar. Both the domestication of cows and the idea of milking them originated in the Near East, while sugar was first made in India. . . . As a side dish he may have the egg of a species of bird domesticated in Indo-China, or thin strips of the flesh of an animal domesticated in Eastern Asia.

Borrowing from other cultures is common around the world, even if we are not aware of it.

Defining Culture

What makes us similar to some people in the world but different from most others? The answer is culture. **Culture** is the total of knowledge, attitudes, and behaviors shared by and passed on by the members of a specific group. Culture acts as a blueprint for how a group of people should behave if they want to fit in with the group. It ties us to one group and separates us from other groups—and helps us to solve the problems that all humans face. Culture involves the following factors:

- food and shelter
- religion
- relationships to family and others
- language
- education
- security/protection
- political and social organization
- creative expression

A group that shares a geographic region, a sense of identity, and a culture is called a **society.** Sometimes you will hear the term **ethnic group** used to refer to a specific group that shares a language, customs, and a common heritage. An ethnic group has an identity as a separate group of people within the region where they live. For example, the San peoples—known as the Bushmen of the Kalahari Desert in Africa—live in a specific territory, speak their own language, and have a social organization distinct from other groups living in the region.

Society and the Individual

Tribe

A tribe is made of clans.

The clans within the tribe share a world view.

Clan

A clan is made of families.

The families within the clan share language and religion.

Family

A family is made of individuals.

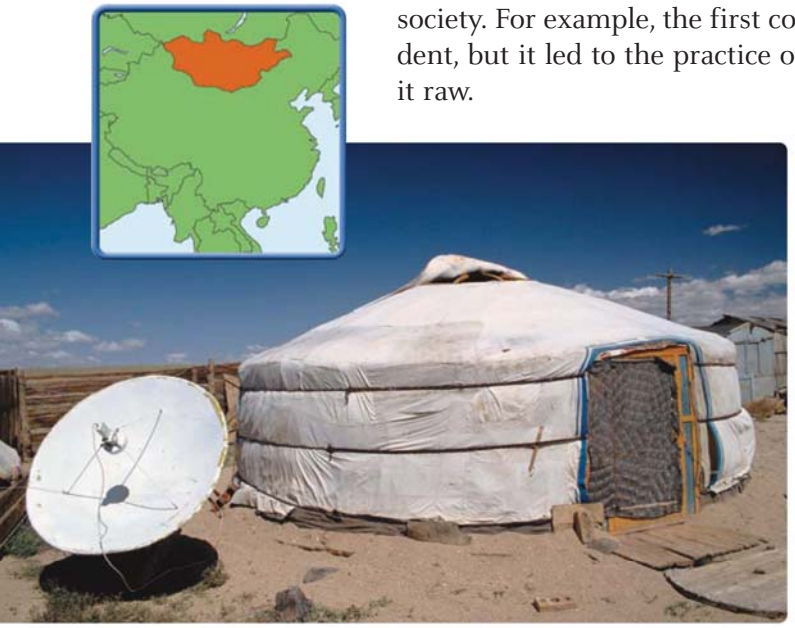
The individuals within the family share daily practices.

Individual

As a member of different divisions of a society, an individual learns its culture.

Culture Change and Exchange

Cultures and societies are always in the process of changing. Change comes very slowly to some societies and rapidly to others. It can come about through innovation or the spread of ideas or behaviors from one culture to another.



MOVEMENT A satellite dish brings the outside world to a Mongolian family living in this traditional house called a yurt. **How does this picture show acculturation?**

INNOVATION Taking existing technology and resources and creating something new to meet a need is called **innovation.** For example, to solve the need for storage of goods, some societies invented baskets woven from reeds because reeds were abundant. Other cultures developed clay pots to solve the same problem.

Innovation and invention may happen on purpose or by accident. History is filled with examples of "accidents" that changed the life of a society. For example, the first cooked meat may have happened by accident, but it led to the practice of cooking most food rather than eating it raw.

DIFFUSION Good ideas or inventions are hard to keep secret—they spread when people from different societies, or their ideas and inventions, come into contact with one another. This spread of ideas, inventions, or patterns of behavior is called **diffusion.** In an age of electronic technology, diffusion can happen very quickly. Television and the Internet speed ideas and facilitate the sale of goods around the globe. Almost no group of people can avoid some kind of contact with other societies. A

Geographic Thinking

Seeing Patterns

A In which locations would diffusion happen less frequently?

A **cultural hearth** is a site of innovation from which basic ideas, materials, and technology diffuse to many cultures. River civilizations such as those along the Indus River in South Asia, Huang He in East Asia, the Nile River in Africa, and the Tigris and Euphrates in Southwest Asia are the best known cultural hearths.

ACCULTURATION Exposure to an innovation does not guarantee that a society will accept that innovation. Individuals in the society must decide whether the innovation is useful and consistent with its basic principles. **Acculturation** occurs when a society changes because it accepts or adopts an innovation. An example of acculturation might be wearing jeans instead of traditional garments.

Sometimes individuals or a group adopt innovations that radically change the society. The resulting changes may have a positive or a negative effect on the society, depending on how the change came about. If change is forced on a group, it may have negative consequences. On the other hand, if the individuals or a group accept the change, it may lead to a better life for everyone. For example, the lives of thousands of people in Somalia were saved when they were persuaded to be vaccinated for smallpox in the 1970s.

Language

Language is one of the most important aspects of culture because it allows the people within a culture to communicate with each other. Language reflects all aspects of culture, including the physical area occupied by the society. For example, a society that lives in the subarctic or tundra region may have many different words to describe various forms of snow. However, those words would be useless for a culture in a place with no snow.

LANGUAGE AND IDENTITY Language helps establish a cultural identity. It builds a group identity and a sense of unity among those who speak the language. If a language is spoken throughout a political region, a spirit of unity and sometimes nationalism (a strong feeling of pride in one's nation) grows. Language can also divide people. If more than one language is spoken in an area, but one language seems to be favored, then conflict sometimes results. In Canada, for example, where both English and French are spoken, French Canadians pressured the government to recognize both French and English as official languages.

LANGUAGE FAMILIES Geographers estimate that between 3,000 and 6,500 languages are spoken across the world today. The languages are categorized by placing them with other similar languages in language families. (See page 74.) Today's languages evolved from earlier languages. One of the earlier languages, called Nostratic, developed in the area known today as Turkey. Nostratic is believed to be the basis of the Indo-European languages that you see on the chart on page 74. Languages as different as English, Russian, Hindi, and Greek all developed from the Indo-European family.

Background
The language spoken by the largest number of native speakers is Mandarin Chinese, with an estimated 885 million speakers.

Versions of a language are called dialects. A **dialect** reflects changes in speech patterns related to class, region, or other cultural changes. For example, in the United States, dialects might include a Southern drawl, a Boston accent, or even street slang.

LANGUAGE DIFFUSION Like other aspects of culture, language can be diffused in many ways. It may follow trade routes or even be invented. For example, Swahili developed as a trade language between Arabic traders and Bantu-speaking tribes on Africa's east coast. Sometimes a blended language develops to aid communication among groups speaking several languages. In Louisiana, the presence of French, African, and North American peoples resulted in a blended language called Louisiana Creole.

A second way diffusion occurs is through migration. As people settle in new locations, the language they carry with them sometimes takes hold in the region. For example, colonists from Europe brought the English, Spanish, French, and Dutch languages to North and South America, Africa, Australia, and parts of Asia.

5 THEMES

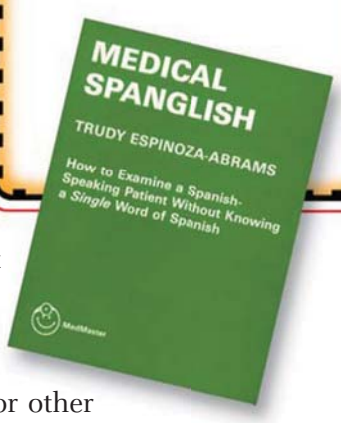
MOVEMENT

Spanglish

As more and more Spanish-speaking people moved to the United States, a blended language developed—Spanglish. The new language takes some English words and "Spanish-izes" them. In turn, some Spanish words are "English-ized."

Spanglish frequently shows up when a speaker doesn't know the correct terms in one language. Take the phrase, "click the mouse." In Spanglish, click may become "clickea" or mouse might be "el mouse" or "el raton." The final result might be "clickea el raton," or "click el mouse."

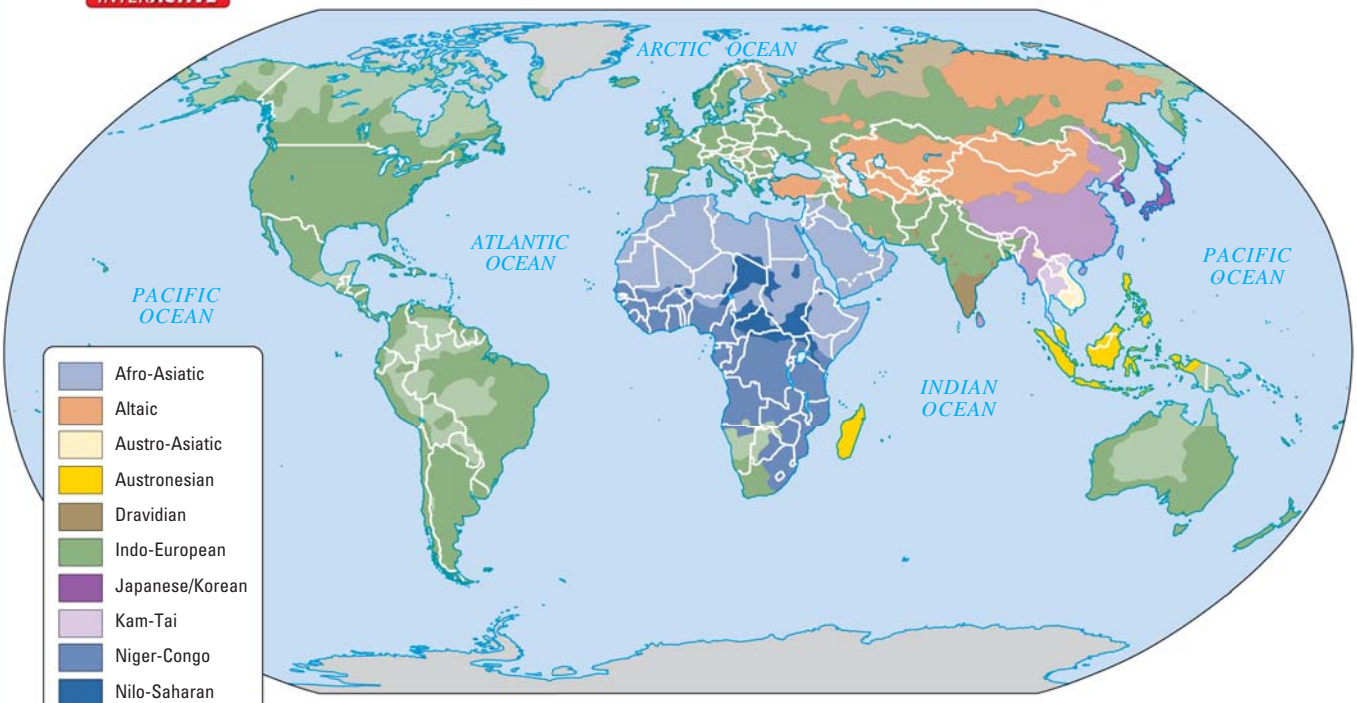
This switching back and forth between languages is called code switching and is common with many foreign language speakers.



BASICS

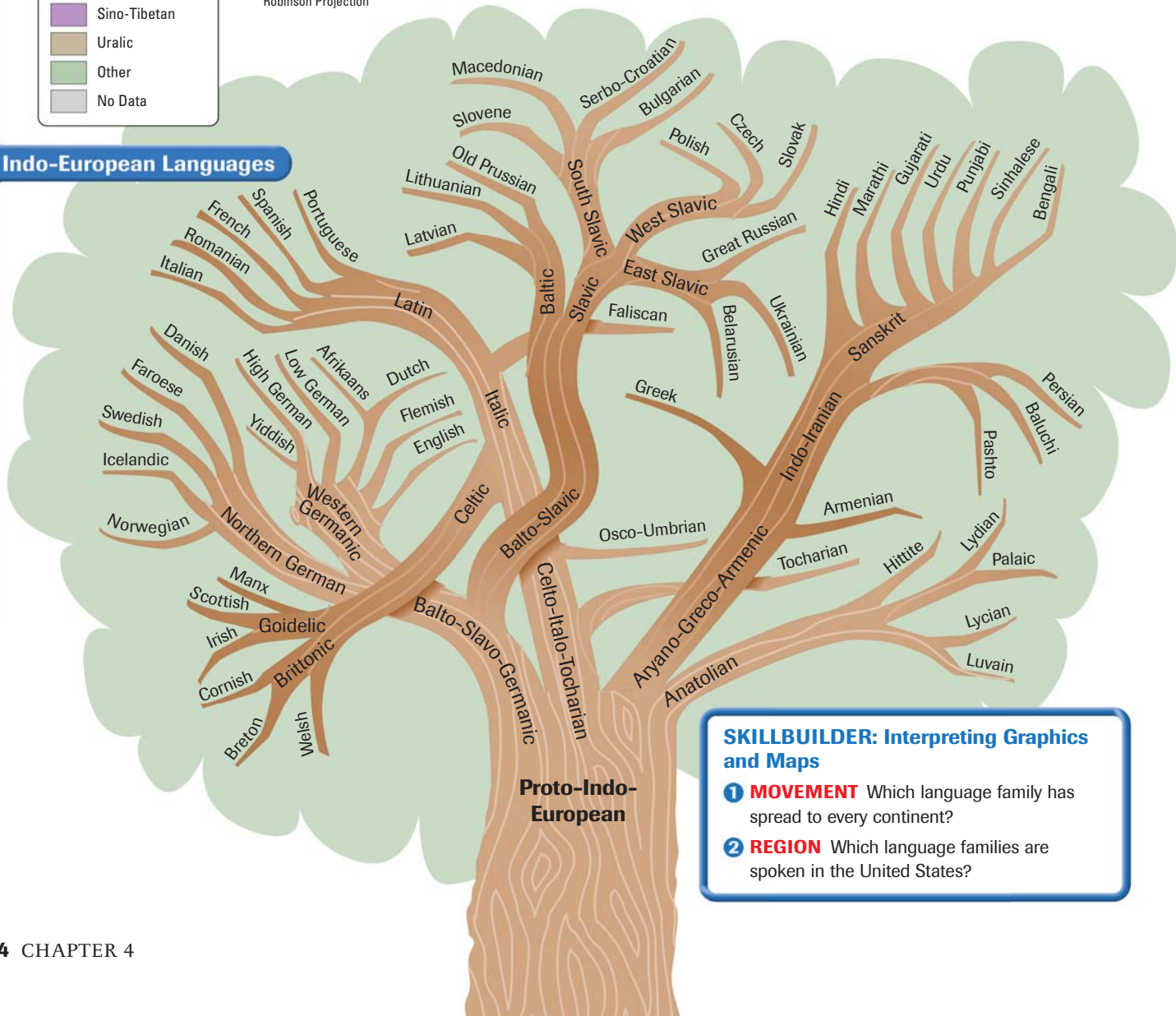
World Language Families Today

INTERACTIVE



Robinson Projection

Indo-European Languages



SKILLBUILDER: Interpreting Graphics and Maps

1. **MOVEMENT** Which language family has spread to every continent?
2. **REGION** Which language families are spoken in the United States?

Religion

An aspect of culture that has a great deal of influence on people's lives is religion. **Religion** consists of a belief in a supernatural power or powers that are regarded as the creators and maintainers of the universe. Religions establish beliefs and values that define how people worship the divine being or divine forces and how they behave toward each other. Traditionally, religions have been categorized as one of three types:

- **monotheistic,** with a belief in one god
- **polytheistic,** with a belief in many gods
- **animistic** or traditional, often with a belief in divine forces in nature

SPREAD OF RELIGION Religions spread across the world through diffusion and through converts, people who give up their former beliefs for a new religion. Some religions, such as Christianity, Islam, and Buddhism, actively seek to convert people to their beliefs. Other religions, such as Judaism and Hinduism, do not. Finally, isolated pockets of religions, mostly animist, are found in Japan, Central Africa, Oceania, and among Native Americans of both North and South America. B

Geographic Thinking

Seeing Patterns

B How does location contribute to the isolation of animist practice?

Major Religions

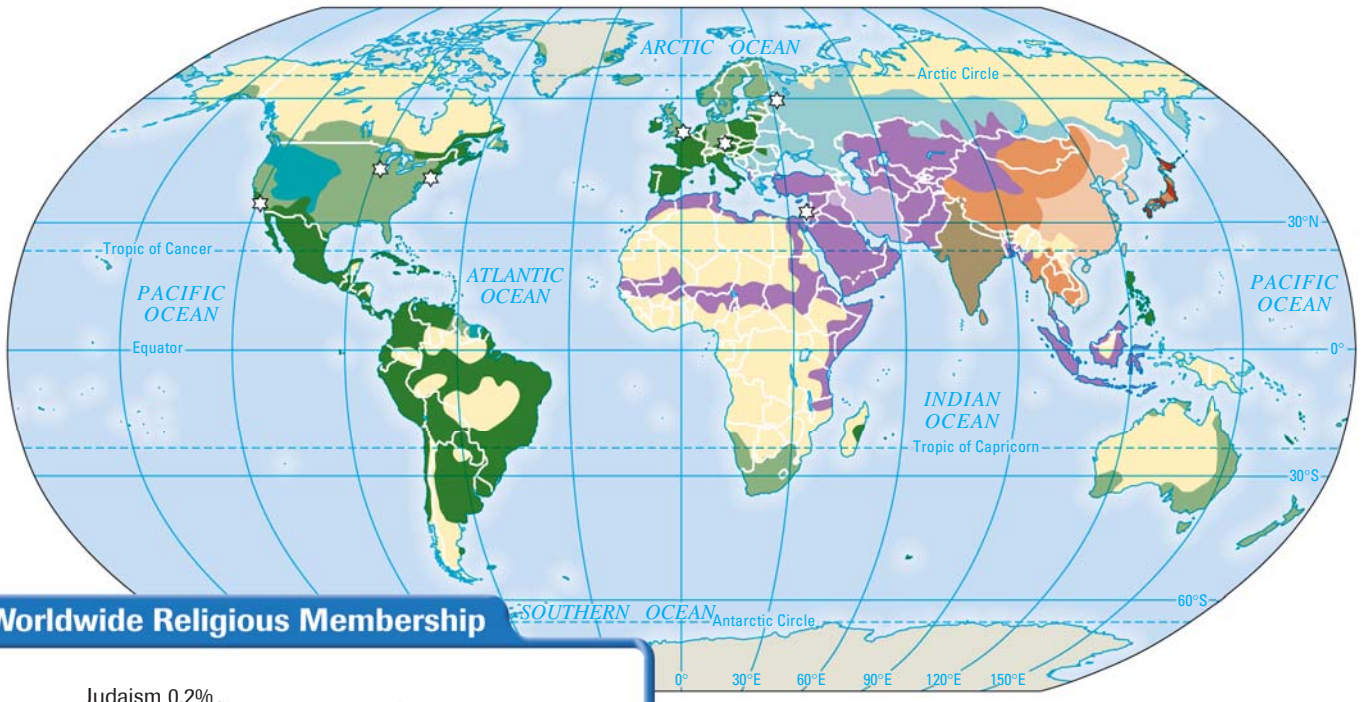
Three major religions of the world began in Southwest Asia and two in South Asia. The religions of Southwest Asia—Judaism, Christianity, and Islam—are monotheistic and share similar basic beliefs, and some prophets and teachers. Of the South Asian religions, Buddhism represents an adaptation of Hinduism.

JUDAISM The oldest of the Southwest Asian religions, Judaism is concentrated in Israel. Followers, called Jews, live in Israel, the United States, Canada, South America, and many European cities. Established more than 3,200 years ago, Judaism is the oldest monotheistic religion. It is considered an ethnic religion with a long tradition of faith and culture tied tightly together. The basic laws and teachings come from a holy book called the Torah. The religious center of Judaism is the city of Jerusalem in Israel.

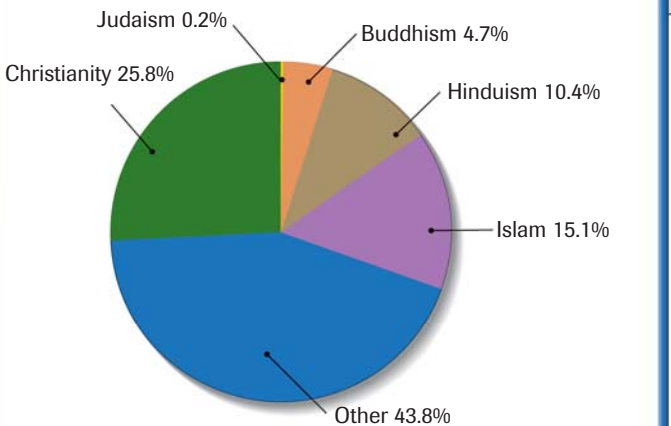
CHRISTIANITY Christianity evolved about 2,000 years ago from the teachings of Judaism. It, too, is monotheistic. Christianity is based on the teachings of Jesus Christ, whom Christians believe was the Son of God. The teachings of Jesus are recorded in the New Testament of the Bible. The religion spread from Jerusalem, first through the work of the Apostle Paul and, later, by many missionaries. It is the largest of all the religions with 2 billion followers. Christians live on every continent. Christianity has three major groups: Roman Catholic, Protestant, and Eastern Orthodox.

ISLAM The third religion that originated in Southwest Asia is Islam. It is based on the teachings of the Prophet Muhammad, who began teaching around 613 A.D. Its followers are known as Muslims. Islam is a monotheistic religion in which followers worship God, who is called Allah in Arabic. The religion has close ties to the prophets and teachers of Judaism and Christianity. The holy book of the Muslims is the

World Religions



Worldwide Religious Membership



SOURCE: *Britannica Book of the Year 2000*

SKILLBUILDER: Interpreting Graphs and Maps

1. **REGION** On which continents are there large areas of Traditional religion?
2. **REGION** What percentage of the world's population practices Hinduism, and where are its followers found?

Qur'an. Islam spread from Southwest Asia to Africa, Central, South, and Southeast Asia, and parts of the Balkans in Europe. The two major divisions of Islam are Sunni and Shiíte.

HINDUISM One of the world's oldest religions, Hinduism dates back about 5,000 years. It is an ethnic religion concentrated in India, but has followers elsewhere. Hinduism is usually considered polytheistic because a Hindu may believe in one god or many gods, each of whom represents an aspect of the divine spirit, Brahman. The religious requirements of a caste system—levels of fixed social classes with specific rites and duties—shape many aspects of Hindus' lives and culture.

BUDDHISM An offshoot of Hinduism, Buddhism developed about 563 B.C. in India, near the Nepal border. Its founder, Siddhartha Gautama (also called the Buddha or Enlightened One), rejected the Hindu idea of caste. Buddha's teachings promote the correct way of

living in order to reach an enlightened spiritual state called nirvana. Missionaries spread the Buddha's teaching from India to Southeast Asia, China, Japan, and Korea. Buddhism has several branches, the largest of which are Theravada, Mahayana, Lamaism, and Zen.

OTHER ASIAN PRACTICES In parts of East Asia, three belief systems are widely practiced. They are Confucianism, Taoism, and Shinto. Sometimes those belief systems are thought of as religions and sometimes as philosophies of life. All of them have specific ways of life and behaviors associated with them.

HUMAN–ENVIRONMENT INTERACTION This Peruvian bone flute dates back to sometime before 700 A.D. Bone flutes are among the oldest of all musical instruments. **In what way does this instrument show human-environment interaction?**

Creative Cultural Expressions

All cultures have ways of expressing themselves creatively. The environment and culture in which an artist lives is reflected in the artistic product. Cultures produce performing arts, visual arts, and literature.

Performing arts developed by a culture often include music, dance, theater, and film. Music is a cultural aspect found in all societies. The instruments on which the music is played and the style of music are unique to each group.

Visual arts include architecture, painting, sculpture, and textiles. The style of the visual arts will reflect materials available in the region and cultural themes. C

Oral and written literature, such as poems, folk tales, and stories, often illustrate aspects of the culture such as attitudes and behaviors. They can also be a reflection of the environment in which they are produced.

Throughout this book, you will find discussions of creative cultural expressions. As you study them, remind yourself that each culture is unique—as are the artistic expressions that the people from that culture produce.

Geographic Thinking

Seeing Patterns
C How might climate affect the visual arts of a region?

SECTION 1 Assessment

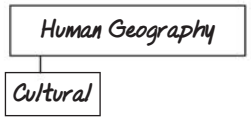
1 Places & Terms

Explain the meaning of each of the following terms.

- culture
- society
- ethnic group
- diffusion
- acculturation
- dialect

2 Taking Notes

MOVEMENT Review the notes you took for this section.



- In what ways is culture diffused?
- Which religions have spread from the place where they were founded?

3 Main Ideas

a. What factors make up culture?

b. In what ways is language spread?

c. What are the major religions of the world?

4 Geographic Thinking

Determining Cause and Effect What role do innovation and diffusion play in changing a culture? **Think about:**

- contact with other groups
- acculturation

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

MAKING COMPARISONS Choose one of the factors of culture listed on page 71. Then select three countries. Use the Internet to find information on how each culture solves the problems associated with the factor you selected. Create a **database** showing the results of your research.

Population Geography

Main Ideas

- People are not distributed equally on the earth's surface.
- The world's population continues to grow, but at different rates in different regions.

Places & Terms

birthrate
fertility rate
mortality rate
infant mortality rate
rate of natural increase
population pyramid
push-pull factors
population density
carrying capacity

A HUMAN PERSPECTIVE In 1999, the world's population reached 6 billion people. To get an idea of how many people that is, consider this:

If you had a *million* dollars in thousand dollar bills, the stack would be 6.3 inches high. If you had a *billion* dollars in thousand dollar bills, the stack would be 357 feet high, or about the length of a football field including the end zones. Now multiply by 6. Six billion dollars would be almost 6 football fields high.

At the world's natural growth rate in 1999, that 6 billion population figure was reached by the births of 230,000 people each day.

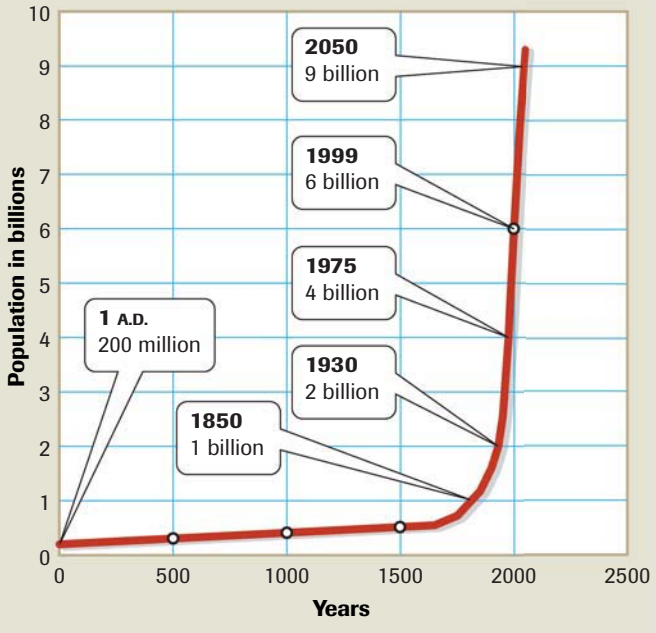
Worldwide Population Growth

The earth's population hit the one billion mark in the early 1800s. As the world industrialized, people grew more and better food and improved sanitation methods, and the population of the world began to soar. As more and more women reached childbearing age, the number of children added to the population also increased. As you can see in the diagram at the right, by 1930 two billion people lived on the earth. Notice that the number of years between each billion mark gets smaller.

BIRTH AND DEATH RATES A population geographer studies aspects of population such as birth and death rates, distribution, and density. To understand population growth, geographers calculate several different statistics. One is the **birthrate,** which is the number of live births per thousand population. In 2000, the highest birthrate in the world was more than 54 per thousand in Niger, and the lowest rate was about 8 per thousand in Latvia. The world average birthrate is 22 per thousand.

Another way to study population is to look at the fertility rate. The **fertility rate** shows the average number of children a woman of childbearing years would have in her lifetime, if she had children at the current rate for her country. A fertility rate of 2.1 is necessary just to replace current population. Today, the worldwide average fertility rate is about 3.0.

World Population Growth



SOURCE: *The World Almanac,* 2000

SKILLBUILDER: Interpreting Graphs

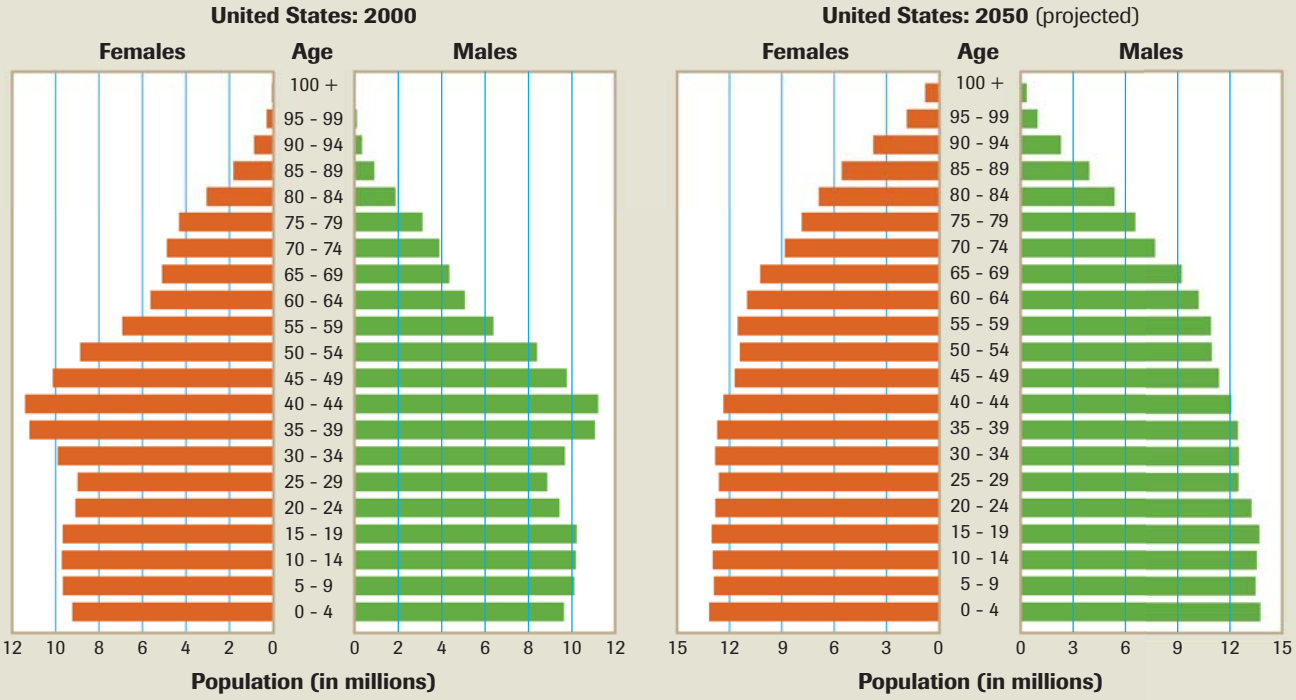
1. **ANALYZING DATA** How long did it take for the population to reach one billion?
2. **MAKING GENERALIZATIONS** How have the intervals between increases changed?

U.S. Population Pyramids, 2000 and 2050

A population pyramid presents a quick picture of a country's population distribution by age and sex. The effects of events in society can also be seen. Notice that in the year 2000 pyramid there is a bulge between ages 35 to 49. This reflects the "baby boom" generation born after World War II.

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** How old are the people in the "baby boom" generation in the 2000 pyramid?
2. **DRAWING CONCLUSIONS** Why will the numbers for the very elderly (85+) increase so much by the year 2050?



SOURCE: U.S. Census Bureau

The **mortality rate**—also called the death rate—is the number of deaths per thousand people. In general, a society is considered healthy if it has a low mortality rate. However, some healthy nations have higher mortality rates because they have large numbers of elderly people.

For this reason, geographers also look at infant mortality rates in measuring how healthy the people of a nation are. The **infant mortality rate** shows the number of deaths among infants under age one per thousand live births. In the 1800s, the worldwide infant mortality rate was about 200 to 300 deaths per thousand live births. At the beginning of the 21st century, improved health care and nutrition led to a much lower rate worldwide. However, some parts of the world still record as many as 110 infant deaths per thousand. To find the rate at which population is growing, subtract the mortality rate from the birthrate. The difference is the **rate of natural increase,** or population growth rate. A

Geographic Thinking

Seeing Patterns

A What will the rate of natural increase be like if the birthrate is high and the mortality rate is low?

POPULATION PYRAMID Another way to analyze populations is to use a **population pyramid,** a graphic device that shows sex and age distribution of a population. A population pyramid allows geographers to examine how events in society, such as wars, famine, or epidemics, affect the population of a country or region. Study the population pyramids shown above to learn how to interpret these graphics.

Population Distribution

The billions of people in the world are not distributed equally across the earth. Some lands are not suitable for human habitation. In fact, almost 90 percent of the world's population lives in the Northern Hemisphere. One in four people in the world lives in East Asia, and one of every two people lives in either East Asia or South Asia. Several factors, including climate, altitude, and access to water, influence where people live.

HABITABLE LANDS Almost two-thirds of the world's population lives in the zone between 20° N and 60°N latitude. Some of the lands in this zone have suitable climate and vegetation for dense human habitation. They are warm enough and wet enough to make agriculture possible. In addition, populations are concentrated along coastal regions and river valleys. The lightly populated areas are in polar regions, heavily mountainous regions, and desert regions. B

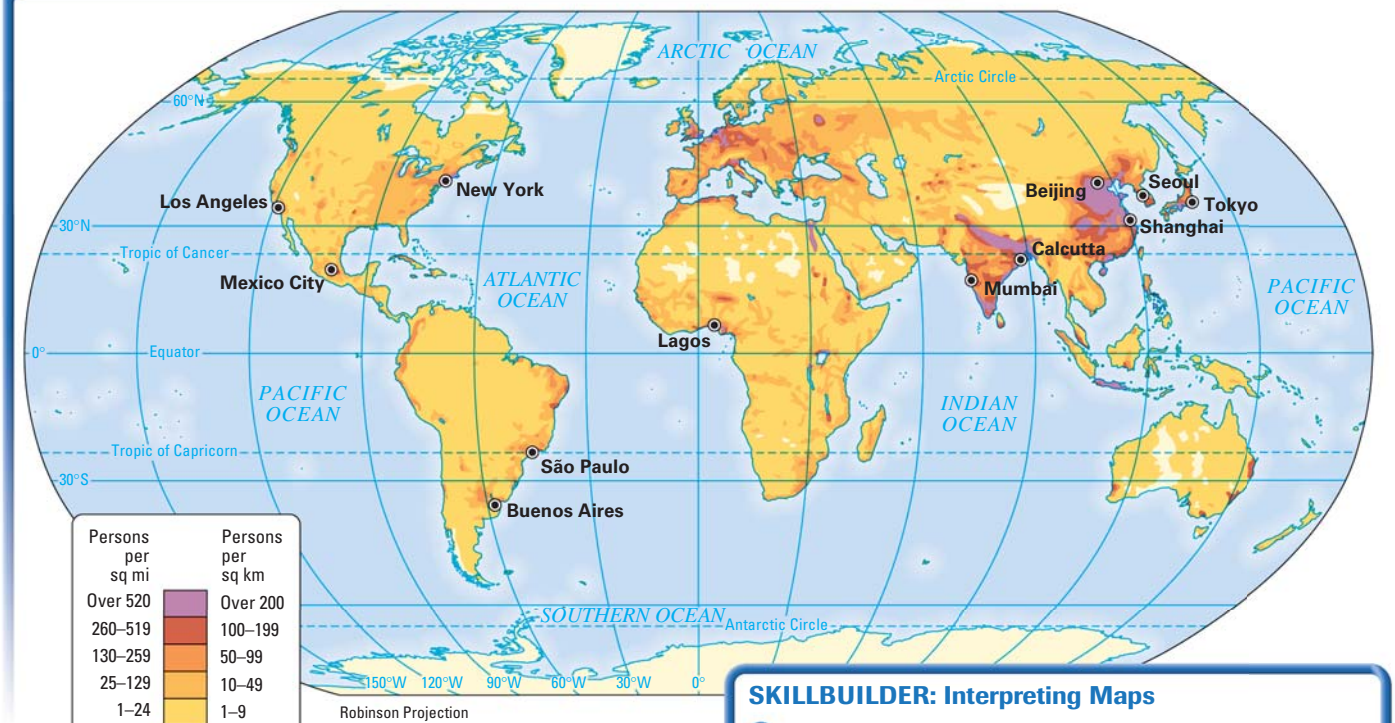
URBAN–RURAL MIX Currently, more than half of the world's population lives in rural areas, but that number is changing rapidly. More people are moving into cities—particularly cities with populations of more than one million people. Twenty-six giant cities, called megacities, are home to a total of more than 250 million people. The largest of these is Tokyo, with more than 28 million inhabitants. These huge cities struggle with overcrowded conditions and immense demand for water and sanitation. You'll learn more about cities and their populations in the Urban Geography section of this chapter.

Geographic Thinking

Seeing Patterns

B Why are populations concentrated along coastal regions and river valleys?

World Population Density



SKILLBUILDER: Interpreting Maps

1. **REGION** On which continent are the largest number of cities over 12 million found?
2. **REGION** In which hemisphere, North or South, is the population less dense?

PLACE Nanjing Road in Shanghai, China, is considered one of the busiest streets in the world. **What problems do people in overcrowded cities face?**

MIGRATION The large-scale migration of people from one location to another also alters the distribution of population. Reasons for migrating are sometimes referred to as **push-pull factors.** Push factors are those that cause people to leave their homeland and migrate to another region. Environmental conditions, such as drought or other natural disasters, are examples of push factors. Other push factors are political, such as war or the persecution of certain groups of people for ethnic or religious reasons. For example, more than one million Rwandans left their country for other parts of Africa in the wake of a civil war there in 1994. Pull factors draw or attract people to another location. Countries with good economic opportunities and high salaries are the likely destinations for migrants. Favorable climate is another pull factor.

Geographic Thinking

Making Comparisons

Do you think push factors or pull factors result in larger migrations?

Population Density

To understand how heavily populated an area is, geographers use a figure called **population density.** This figure is the average number of people who live in a measurable area, such as a square mile. The number is reached by dividing the number of inhabitants in an area by the total amount of land they occupy.

Because population is not distributed evenly across the land, the number may be misleading for an entire nation. Certain areas may be densely populated, while others are quite thinly populated. For example, according to the 1990 census, the population density of the United States was 70.3 people per square mile. But as you can see on the population density table on the next page, Alaska—with its huge land area and small population—had a density of one person per square mile. On the other hand, New Jersey, with a small land area and large population, had a very high density at 1,098 people per square mile. Remember, too, that population density may change over time.

Regional Population Density

Region	Highest Density (per square mile)		Lowest Density (per square mile)	
United States and Canada	New Jersey	1,098	Alaska Nunavut	1.10 0.01
Latin America	Barbados	1,560	French Guiana	6.00
Europe	Monaco	45,333	Iceland	7.00
Russia and the Republics	Armenia	331	Kazakhstan	14.00
Africa	Rwanda	711	Namibia	6.00
Southwest Asia	Bahrain	2,594	Saudi Arabia	26.00
South Asia	Maldives	2,469	Bhutan	48.00
East Asia	South Korea	1,234	Mongolia	4.00
Southeast Asia, Australia, and Oceania	Singapore	16,714	Australia	6.00

SOURCE: Population Reference Bureau 2000 World Population Data

SKILLBUILDER: Interpreting Charts

1. **ANALYZING DATA** Which region seems to be the most densely populated?
2. **MAKING INFERENCES** Why might Korea be more densely populated than China, which is in the same region?

CARRYING CAPACITY Another aspect of population density statistics is the ability of the land to support a population. **Carrying capacity** is the number of organisms a piece of land can support. A region with fertile land may be able to support far more people than one with land of poor quality or with little land available for cultivation.

The level of technology of a group living on the land may affect carrying capacity. Improved farming techniques, such as irrigation, use of fertilizers, and mechanized farm equipment, will generally increase the carrying capacity of land.

In some locations, few if any people make their living by farming. However, other aspects of their economy allow a small area of land to support a large number of people. Notice the density of Singapore shown in the chart at left. A city state located at the tip of Malaysia, Singapore is a center of international finance and shipping. The wealth these activities bring allows people to import food. Thus, Singapore is able to support millions of people even though it has little farmable land.

In the next section, you'll learn how the world's population forms into political units.

Geographic Thinking

Using the Atlas Use the map on pages A22–A23 to find the location of Singapore. On what bodies of water is Singapore located?

Section 2 Assessment

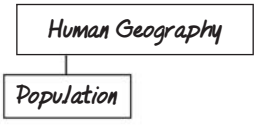
1 Places & Terms

Explain the meaning of each of the following terms.

- birthrate
- mortality rate
- rate of natural increase
- push-pull factors
- population density

2 Taking Notes

PLACE Review the notes you took for this section.



- How does a population pyramid help you understand population in a place?
- What factors influence where people live?

3 Main Ideas

a. How is the rate of natural increase determined?

b. Why must the population density figures for a country be used with caution?

c. Where does the majority of the world's population live?

4 Geographic Thinking

Making Inferences What role has industrialization played in population growth?
Think about:

- infant mortality rate
- improved living conditions

See Skillbuilder Handbook, page R4.

GeoActivity

SEEING PATTERNS Choose one continent to study on the satellite image on page 88. Compare the satellite image with an atlas map of the same area. Write an **explanation** of which landforms or water bodies have played a part in the distribution of population that you see in the satellite image.

3 Political Geography

Main Ideas

- The world is divided into many political regions.
- Local, national, and regional governments control aspects of life within the boundaries of the unit.

Places & Terms

state	**monarchy**
nation	**dictatorship**
nation-state	**communism**
democracy	**landlocked**

BASICS

A HUMAN PERSPECTIVE Abdoulaye Sowe, a Senegalese farmer, chose a spot to build his new house near the Senegalese border guard's shack. He believed the guard shack was in Senegal. But long-time residents of the area told him that, before the shack was built, a guard used to sit near a tree that was considered the border marker. The tree was several hundred feet north of Sowe's house. Technically, Sowe now lived in the country of Gambia, not Senegal. Sowe's dilemma points out the difficulty of pinpointing borders that create political units.

Nations of the World

Governmental units of the world can be described in either political or geographic terms. Generally, we use the political term **state** to describe an independent unit that occupies a specific territory and has full control of its internal and external affairs. Often the term "country" is used to mean state.

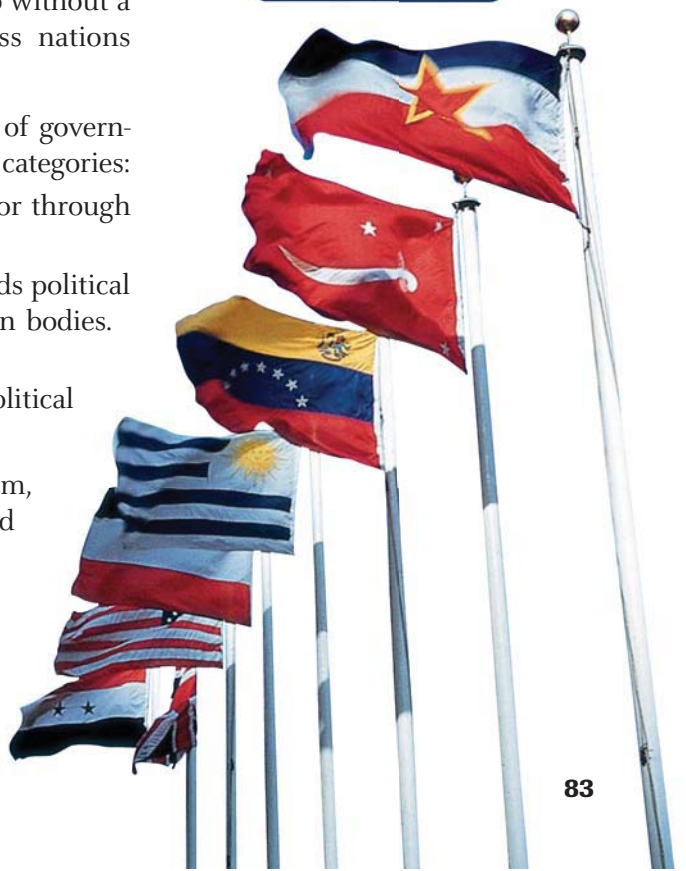
Nation refers to a group of people with a common culture living in a territory and having a strong sense of unity. When a nation and a state occupy the same territory, that territory is called a **nation-state.** Many countries of the world are nation-states. However, it is possible for a nation not to have a territory. When that happens, the group without a territory is called a stateless nation. Examples of stateless nations include Palestinians, Kurds, and Basques.

TYPES OF GOVERNMENT All countries must choose a type of government. Generally, the type of government falls into one of these categories:

- **Democracy** Citizens hold political power, either directly or through elected representatives. Example: the United States.
- **Monarchy** A ruling family headed by a king or queen holds political power and may or may not share the power with citizen bodies. Example: the United Kingdom or Saudi Arabia.
- **Dictatorship** An individual or group holds complete political power. Example: North Korea or Afghanistan.
- **Communism** In this government and economic system, nearly all political power and means of production are held by the government in the name of all the people.

Whatever the type of government, it must deal with issues that have to do with the territory and people of the state.

PLACE National flags fly at the United Nations headquarters in New York City.



Political Geography of the Korean Peninsula

SKILLBUILDER: Interpreting Maps

1. **LOCATION** What is the relative location of the Korean Peninsula?
2. **PLACE** How is the coastline on the west side of the peninsula different from the coastline on the east side?

Geographic Characteristics of Nations

Three geographic characteristics are very important in describing a country. These characteristics are: 1) size, 2) shape, and 3) relative location. The combination of these characteristics makes each nation unique. By looking at the map above, you will see how these characteristics helped shape the political geography of the Korean Peninsula.

SIZE You might assume that the physical size of a country has much to do with its wealth and power. However, this is not always true. For example, the political division of the United Kingdom known as England once controlled a significant empire of colonies around the globe. Even so, a larger nation, such as the United States, China, or Russia, has the potential to be more powerful because it has more resources and people on which to build military or economic power.

SHAPE Countries can be compact, such as Germany, or long like Chile. Some countries are fragmented, like Japan, which is made up of many islands. The shape of a country can have an impact on how easily it can be governed, how goods are moved to all areas of the country, and how it relates to neighboring countries. A

Geographic Thinking

Making Comparisons

A Which of the three shapes describes the United States?

LOCATION The relative location of a country can be very important. A **landlocked** country—one surrounded by other land and with no direct outlet to the sea—must find ways to build connections to the rest of the world to get goods in and out of the country. Bolivia is an example of a landlocked country. In contrast, the location of the tiny city-state of

Singapore in Southeast Asia gives it access to major shipping lanes between East Asia and South Asia. The resulting trade brings great wealth to the port. A nation surrounded by hostile neighbors must deal with issues of protection and security.

National Boundaries

Boundaries or borders set the limits of the territory controlled by a state. Within its borders, the state can do such things as collect taxes, set up a legal code, and declare an official language. A state may claim all of the resources found within its boundaries. Because so much is at stake, states are very protective of their borders. The two basic types of national boundaries are natural and artificial.

NATURAL BOUNDARIES A natural boundary is based on physical features of the land, such as rivers, lakes, or chains of mountains. The Rio Grande, for example, is a river that forms a natural boundary between part of Mexico and part of the United States. Natural boundaries may seem like an easy way to separate one country from another, but they do present problems. Traditionally, a river or lake boundary is fixed in the middle of the body of water. What if a river shifts its course? Which country gets additional land—or loses it?

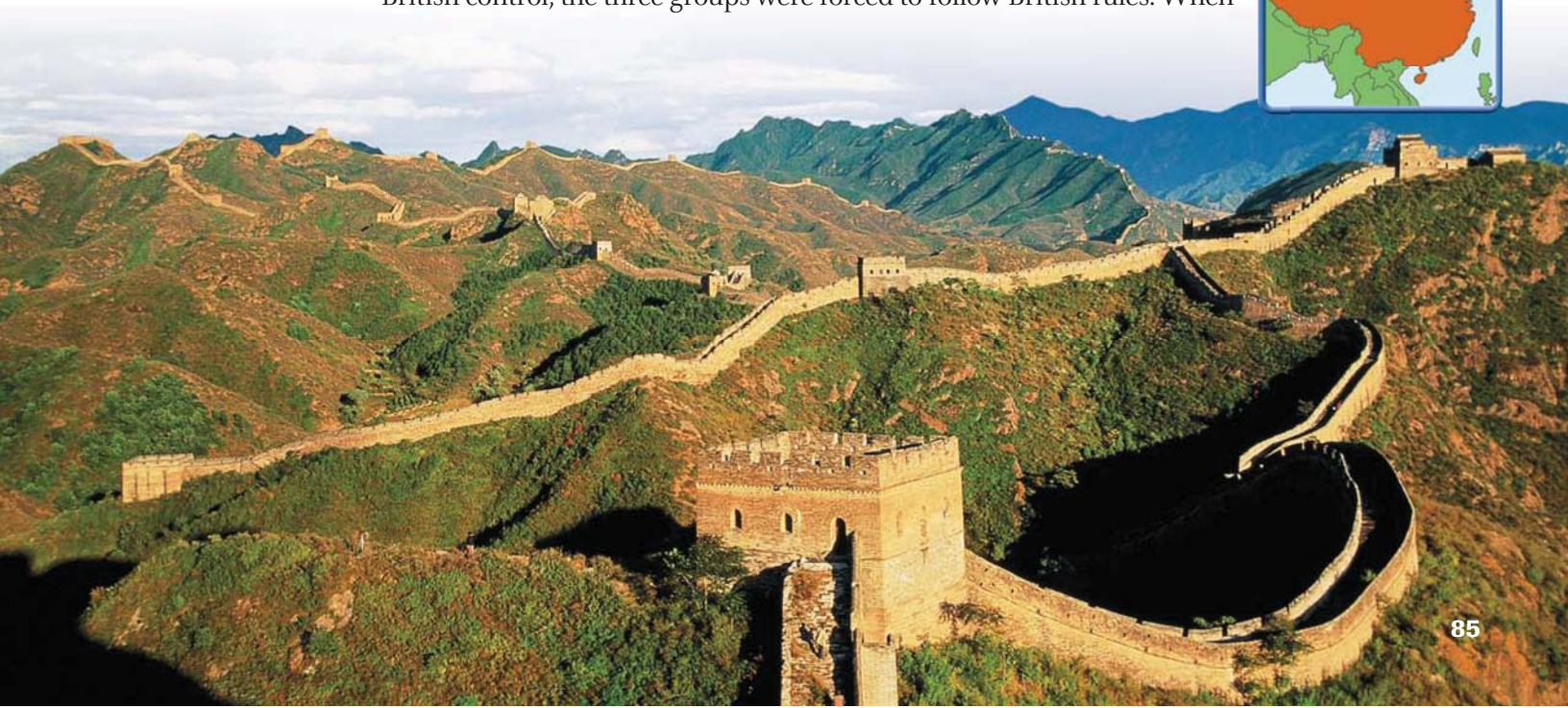
Geographic Thinking

Using the Atlas

Use the map on page A10. What physical features make up the natural boundaries between the United States and Canada?

ARTIFICIAL BOUNDARIES An artificial boundary is a fixed line generally following latitude or longitude lines. The 49°N latitude line that separates the United States from Canada is an example. These lines are often formally defined in boundary treaties between countries. Sometimes a conquering country imposes boundaries on lands it has taken over. The lines established may not match boundaries previously found in that location, which can lead to internal problems or even war.

Africa is a good example of how boundary lines can divide groups of people or put groups that have long been enemies together in one state. When parts of Africa were divided by European colonial powers in the 1800s, the boundary lines for Nigeria included the traditional lands of the Hausa-Fulani people, the Yoruba people, and the Ibo people. Under British control, the three groups were forced to follow British rules. When



MOVEMENT The Great Wall of China is an example of an artificial boundary. It was built to stop invading armies. **How does the wall also illustrate a type of natural boundary?**

Levels of Government

NATIONAL

Size Very large units composed of many medium and small units

Effect Little direct contact with the people

Role Deals with issues affecting the entire nation, such as security or international diplomatic relations

Example United States

STATE/REGIONAL

Size Larger units composed of many smaller units

Effect More direct contact with the people than national units

Role Deals with issues that affect all of the smaller units, such as licensing drivers

Example States or regional groups, such as the Tennessee Valley Authority

LOCAL

Size Smaller units of government

Effect Very direct contact with the people

Role Deals with issues that are narrow in scope, such as streets and sanitation

Example A school district or town

Britain left, there was controversy over the control of the lands. One group, the Ibo, attempted to withdraw from Nigeria and form its own nation-state—Biafra. A civil war resulted, and the attempt to split away failed.

Regional Political Systems

Countries often are divided into smaller political units to make governing more efficient. The most common local units of government are cities, towns, and villages. Other types of political units might include school districts.

Smaller political units often combine to form larger regional units, such as counties, provinces, and states. Here, too, there may be districts for providing a service or product to an area that crosses several political units. For example, the Tennessee Valley Authority (TVA) regulates water usage in a seven-state region.

BACKGROUND The TVA built dams, hydroelectric plants, and flood control projects on the Tennessee River and its tributaries.

Countries may join with each other to form international political, military, or economic units. Groups of states within a regional area may band together to promote mutual goals. An example is the European Union, which you'll learn more about in Chapter 14.

The largest political unit is the United Nations, which has nearly 200 members who work to improve political, cultural, and economic conditions across the globe. In the next section, you'll learn that almost half of the world's population lives in urban areas that include political units called cities.

SECTION 3 Assessment

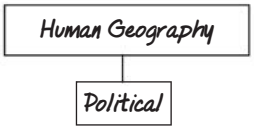
1 Places & Terms

Explain the meaning of each of the following terms.

- state
- nation
- nation-state
- democracy
- monarchy
- dictatorship

2 Taking Notes

PLACE Review the notes you took for this section.



- What are three geographic characteristics of countries?
- What are three types of governments?

3 Main Ideas

a. How do the three basic geographic characteristics affect a nation?

b. What is the difference between natural and artificial boundaries?

c. Why do local and regional political systems exist?

4 Geographic Thinking

Making Inferences Which type of boundary would most likely cause the greatest political problems? **Think about:**

- types of natural borders
- artificial boundaries

See Skillbuilder Handbook, page R4.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Using a map of the United States, study the boundaries of the 50 states. Create a **database** that shows the names of states with 1) all artificial boundaries, 2) all natural boundaries, 3) mixed boundaries. Write several sentences summarizing your data.

Urban Geography

Main Ideas

- Nearly half the world's population lives in urban areas.
- Cities fulfill economic, residential, and cultural functions in different ways.

Places & Terms

urban geography
city
suburb
metropolitan area
urbanization
central business district (CBD)

BASICS

A HUMAN PERSPECTIVE Around 4500 B.C. in Sumer, an ancient country in what today is Iraq, the city of Ur was settled. Eventually it grew to be home to as many as 34,000 people. Archaeologists believe that it was one of the first cities in the world. Within the city walls, a broad avenue led up to an immense temple with a roof that loomed 80 feet above the ground. Surrounding the temple were private homes and large open markets with shops on streets resembling those in cities of Southwest Asia today. Some people lived in two-story houses with balconies and even had clay-lined drains for waste disposal. A canal ran through the city from the river to a harbor built on its northern edge. This was not an overgrown village, but a real city.

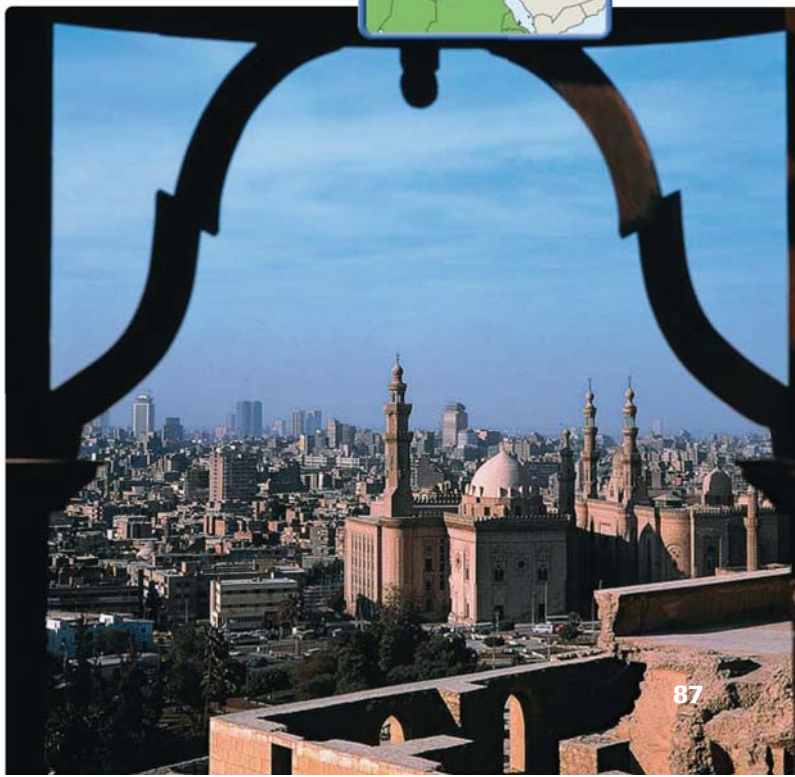
In the centuries since, cities have grown so important that geographers have developed the field of **urban geography**—the study of how people use space in cities.

Growth of Urban Areas

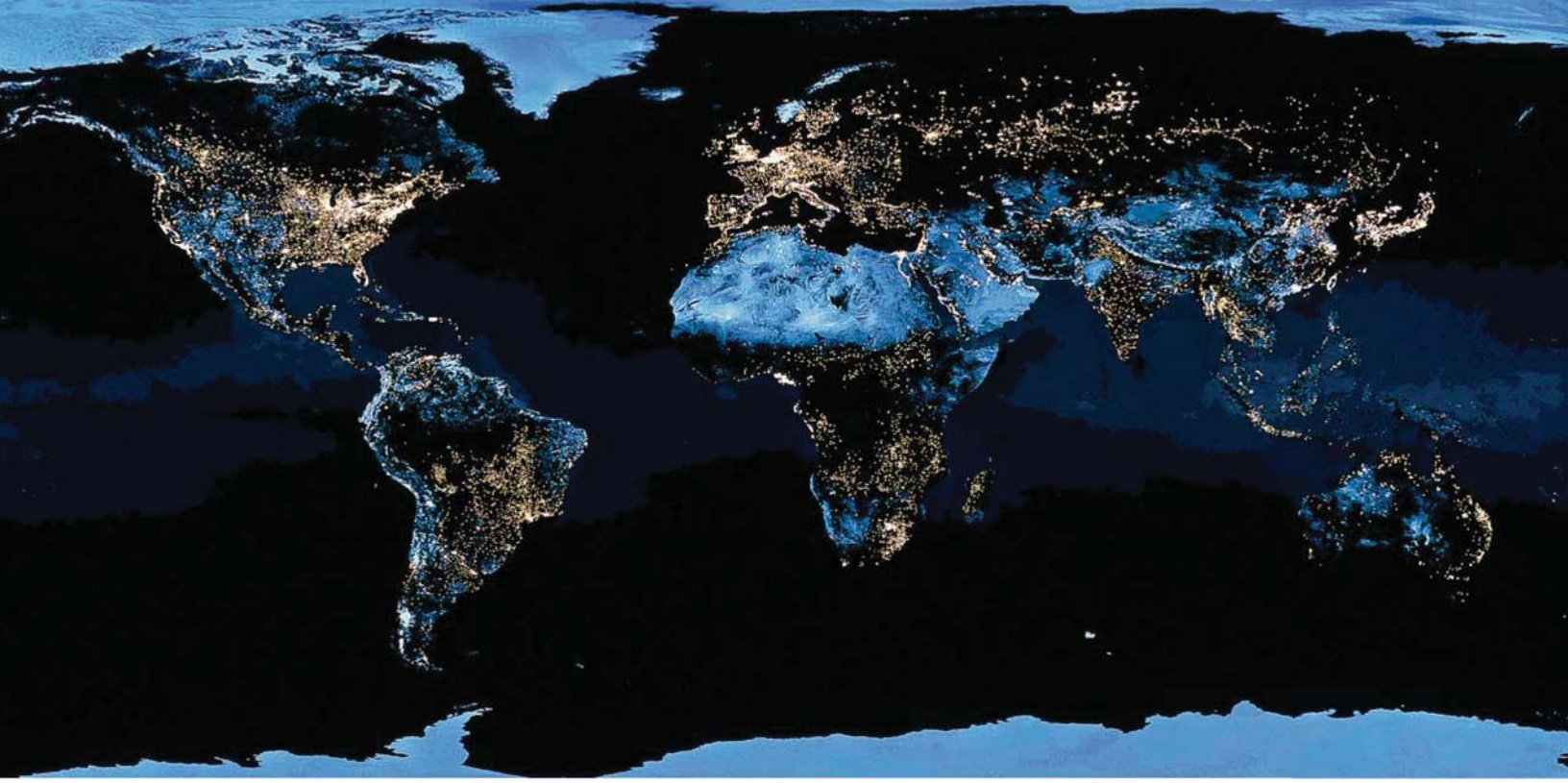
Today, much of the population of the world lives in cities. **Cities** are not just areas with large populations—they are also centers of business and culture. Cities are often the birthplace of innovation and change in a society. Urban lifestyles are different from those of towns, villages, or rural areas. When geographers study urban areas, they consider location, land use, and functions of the city.

URBAN AREAS An urban area develops around a main city called the central city. The built-up area around the central city may include **suburbs,** which are political units touching the borders of the central city or touching other suburbs that touch the city. These suburbs are within commuting distance of the city. Some suburbs are mostly residential, while others have a whole range of urban activities.

Smaller cities or towns with open land between them and the central city are called exurbs. The city, its suburbs, and exurbs link together economically to form a functional area called a **metropolitan area.** A megalopolis is formed when several metropolitan areas grow together. An example of a megalopolis is the corridor in the northeastern United States including Boston, New York, Philadelphia, Baltimore, and Washington, D.C.



PLACE Both the old city and the new parts of Cairo, Egypt, can be seen in this view.
Why do you think the old parts of the city were not torn down and replaced with new buildings?



PLACE Urban areas are clearly visible in this satellite view of earth at night. The light blue areas are "reflective" areas with either snow pack or sand. **Which regions of the earth have few urban areas?**

URBANIZATION The dramatic rise in the number of cities and the changes in lifestyle that result is called **urbanization.** The trend to live in cities increased rapidly over the last two centuries. As more and more people moved into cities to find work, the cities and their surrounding areas grew. Today, some cities are enormous in physical area and have populations exceeding 10 million residents. As you can see above, cities are found on all continents except Antarctica.

City Locations

Around the world, cities have certain geographic characteristics in common. Many cities are found in places that allow good transportation, such as on a river, lake, or coast. Others are found in places with easy access to natural resources. Sacramento, California, for instance, grew rapidly after gold was discovered in 1848 in north-central California. Because of their geographic advantages, cities serve as economic bases, attracting businesses and people to work in those businesses.

Cities are often places where goods are shifted from one form of transportation to another. For example, the city of Chicago, Illinois, is a transportation hub for goods produced in the upper Great Lakes states. Goods are sent by air, truck, or train to Chicago on Lake Michigan, then to the U.S. east coast and the rest of the world.

Cities may specialize in certain economic activities because of their location. For example, the city of Pittsburgh, Pennsylvania, which is located close to iron ore and coal sources, became a steel-producing center. The same is true for the city of Sheffield in England. Some urban areas may grow or expand because of economic activities located in the city. Brasília, the capital of Brazil, has grown to 1.8 million people since 1960 because of all the government agencies and activities there. Cultural, educational, or military activities may also attract people to a specific location.

Geographic Thinking

Using the Atlas
Use the map of North America on page A10. What waterway leads from the Great Lakes to the Atlantic Ocean?

Land Use Patterns

Urban geographers also study land use, the activities that take place in cities. Basic land use patterns found in all cities are:

- **residential,** including single-family housing and apartment buildings
- **industrial,** areas reserved for manufacturing of goods
- **commercial,** used for private business and the buying and selling of retail products

The core of a city is almost always based on commercial activity. This area of the city is called the **central business district (CBD).** Business offices and stores are found in this part of the city. In some cities, very expensive housing may also be found there. Predictably, the value of the land in the CBD is very high. In fact, the land is so expensive that skyscrapers are often built to get the most value from the land.

As you move away from the CBD, other functions become more important. For example, residential housing begins to dominate land use. Generally, the farther you get from the CBD, the lower the value of the land. Lower land values may lead to less expensive housing. Tucked into these less expensive areas are industrial activities and retail areas, such as shopping centers, markets, or bazaars. However, the patterns for urban activities vary by culture and geography. Study the models below to learn more about urban land use patterns. B

Geographic Thinking

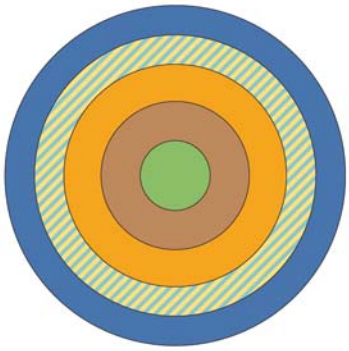
Seeing Patterns

B Why do industrial activities take place where land is less expensive?

Urban Area Models

Geographers may use a model to illustrate patterns they find in the use of space. The models below are patterns of land use in urban areas.

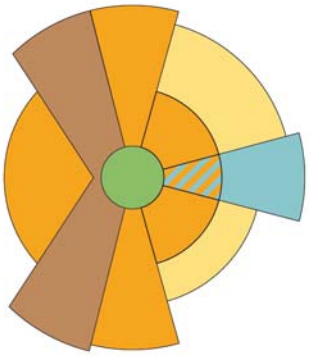
Concentric Zone Model



An early model showed the CBD as the "bull's-eye" of the urban area. It is surrounded by other activities.

by E. W. Burgess

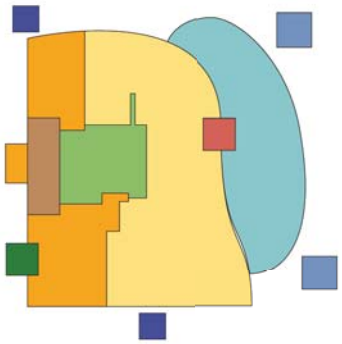
Sector Model



Activities are concentrated in wedges or sectors, which may follow transportation lines or natural features such as a river.

by H. Hoyt

Multiple Nuclei Model



Districts, called nuclei, specialize in one urban activity, and are found throughout the urban area.

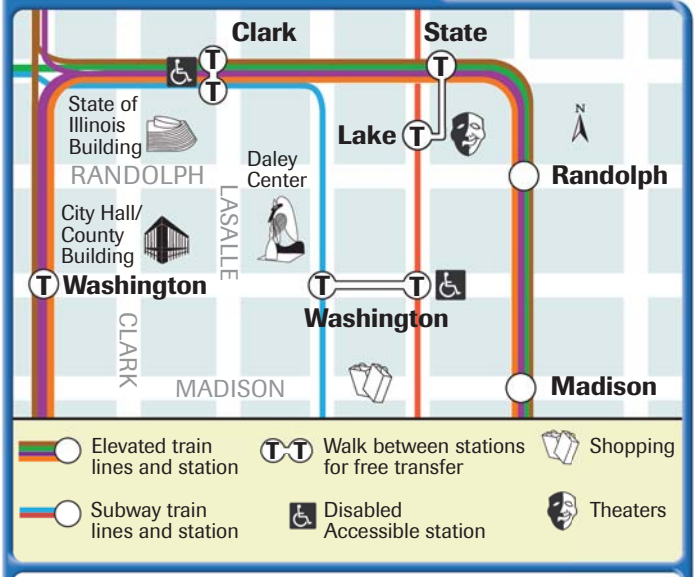
by C. D. Harris and E. L. Ullman

- Central business district
- Wholesale and light manufacturing
- Low-income housing
- Middle-income housing
- High-income housing
- Low-income and high-income housing
- Middle-income and high-income housing
- Heavy manufacturing
- Outlying business district
- Outer suburban housing
- Outer suburban industry
- High-income commuter zone

SKILLBUILDER: Interpreting Graphics

1. **MAKING GENERALIZATIONS** Where is low-income housing found in each of the models?
2. **MAKING COMPARISONS** What has happened to business and industry activities in the multiple nuclei model as compared to the other two models?

Urban Functions: Chicago



SKILLBUILDER: Interpreting Maps

1. **LOCATION** What other government building is located near the State of Illinois Center?
2. **PLACE** What urban functions are found in the area shown?

The Functions of Cities

The city is the center of a variety of functions. The map at the left shows a portion of the CBD of Chicago, Illinois. Notice that shopping, entertainment, and government services are located there. Large office buildings occupy much of the rest of the area shown.

Many cities also have educational and cultural activities such as libraries or museums located in the CBD. The Manhattan section of New York City, for example, is home to about 70 museums. Other functions of the city—such as manufacturing, wholesaling, residential, recreation, and a variety of religious and social services—may be located in other parts of the city.

Cities need a great deal of space to accomplish these functions, which makes good transportation absolutely essential. Major cities may have several forms of mass transit, such as bus systems, subways, or commuter trains, to move thousands of people to and from the areas of the city where the various functions take place. In some areas, freeway systems link people in the suburbs to the activities in the city. Geographers often study a city's transportation system to understand how well the city is fulfilling its functions. C

In the next section, you'll learn more about economic geography that takes place across the globe.

Geographic Thinking

Making Comparisons C How are city transportation systems different from those of towns or villages?

SECTION 4 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- city
- suburb
- metropolitan area
- urbanization
- central business district (CBD)

2 Taking Notes

LOCATION Review the notes you took for this section.

Human Geography

Urban

- What functions or activities are located away from the CBD?
- In what types of relative locations are many cities found?

3 Main Ideas

a. What components make up a metropolitan area?

b. What are some basic land use patterns in cities?

c. What are some functions of an urban area?

4 Geographic Thinking

Making Inferences How does land value influence the activities that take place on a piece of urban land? **Think about:**

- land use patterns
- the CBD

See Skillbuilder Handbook, page R4.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Survey the CBD of the city you live in or one close to you. Make notes of the urban functions you see there. Create a **sketch map** of your CBD. Be sure to label the areas or buildings, and the urban functions they fill.

Economic Geography

Main Ideas

- Economic activities depend on the resources of the land and how people use them.
- The level of economic development can be measured in different ways.

Places & Terms

economy
economic system
command economy
market economy
natural resources
infrastructure
per capita income
GNP
GDP

BASICS

A HUMAN PERSPECTIVE One of the most valuable of natural resources—petroleum—wasn't always used as a source of energy. Until the world began to run on gasoline-powered machinery, oil was used for a variety of purposes. Native Americans, for instance, used "rock oil" for medicinal purposes. Egyptians used oil as a dressing for wounds. Ancient Persians wrapped oil-soaked fibers around arrows, lit them, and fired them into the city of Athens in 480 B.C.

Sometimes a resource only becomes valuable after the technology to use it is developed. In today's world, petroleum is vital to providing power for industry, commerce, and transportation. Petroleum plays a powerful role in the economies of nations that supply it and consume it.

Economic Systems

An **economy** consists of the production and exchange of goods and services among a group of people. Economies operate on a local, regional, national, or international level. Geographers study economic geography by looking at how people in a region support themselves and how economic activities are linked across regions.

TYPES OF ECONOMIC SYSTEMS The way people produce and exchange goods and services is called an **economic system.** In the world today, there are four basic types of economic systems:

- **Traditional Economy** Goods and services are traded without exchanging money. Also called "barter."
- **Command Economy** Production of goods and services is determined by a central government, which usually owns the means of production. Production does not necessarily reflect the consumer demand. Also called a planned economy.
- **Market Economy** Production of goods and services is determined by the demand from consumers. Also called a demand economy or capitalism.
- **Mixed Economy** A combination of command and market economies provides goods and services so that all people will benefit.

Economic behaviors and activities to meet human needs take place within these economic systems.

PLACE A woman sells goods on a Moscow street. Russia is changing from a command economy to a market economy.
Is the activity in this photograph an example of a command or market economy?

Economic Activities

People may choose from a variety of methods to meet their basic needs. Some groups simply raise enough food or animals to meet their need to eat, but have little left over to sell to others. This is called subsistence agriculture. In other areas, market-oriented agriculture produces crops or animals that farmers sell to markets.

In some places, industries dominate economic activities. Small industries often involve a family of craftspersons who produce goods to be sold in a local area. Since they often take place in the home, these businesses are referred to as cottage industries. Finally, commercial industries meet the needs of people within a very large area. Economic behaviors are related to the economic activities described below.

LEVELS OF ECONOMIC ACTIVITY No matter how small or large a business is, it operates at one of four economic levels. The four levels of economic activity describe how materials are gathered and processed into goods or how services are delivered to consumers.

Primary Activities involve gathering raw materials such as timber for immediate use or to use in the making of a final product.

Secondary Activities involve adding value to materials by changing their form. Manufacturing automobiles is an example.

Tertiary Activities involve providing business or professional services. Salespeople, teachers, or doctors are examples.

Quaternary Activities provide information, management, and research services by highly-trained persons. A

The more developed an economy is, the greater the number and variety of activities you will find.

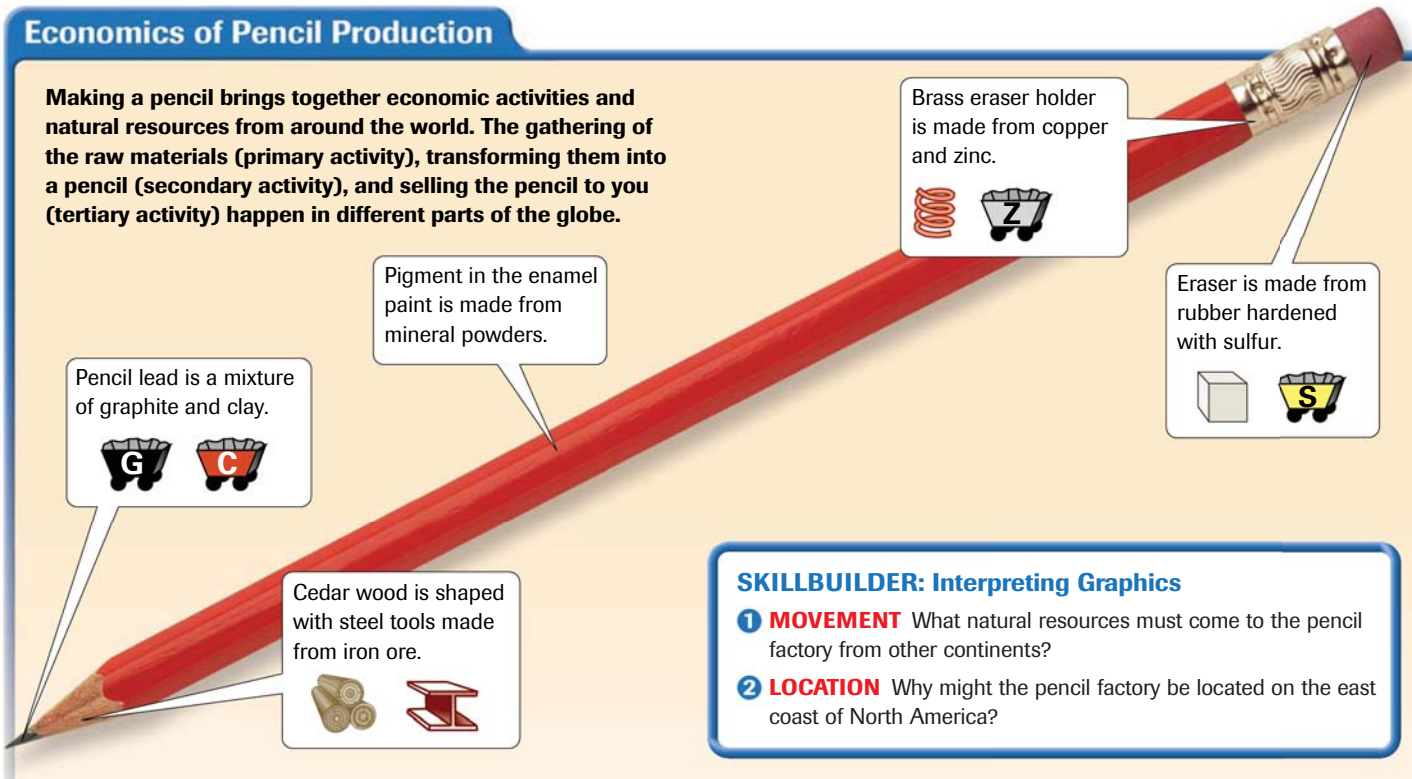
Geographic Thinking

Making Comparisons

A Into which level of activity would insurance sales fit?

Economics of Pencil Production

Making a pencil brings together economic activities and natural resources from around the world. The gathering of the raw materials (primary activity), transforming them into a pencil (secondary activity), and selling the pencil to you (tertiary activity) happen in different parts of the globe.



SKILLBUILDER: Interpreting Graphics

1. **MOVEMENT** What natural resources must come to the pencil factory from other continents?
2. **LOCATION** Why might the pencil factory be located on the east coast of North America?

The Economics of Natural Resources

An important part of economic geography is understanding which resources a nation possesses. **Natural resources** are materials on or in the earth—such as trees, fish, or coal—that have economic value. Materials from the earth become resources only when the society has the technology and ability to transform those resources into goods. So, iron ore is useless until people have the technology to produce steel from it.

Natural resources are abundant but are not distributed equally around the world. As a result, when geographers study the economy of a country, they look closely at the location, quality, and quantity of its natural resources. They also divide natural resources into three basic types:

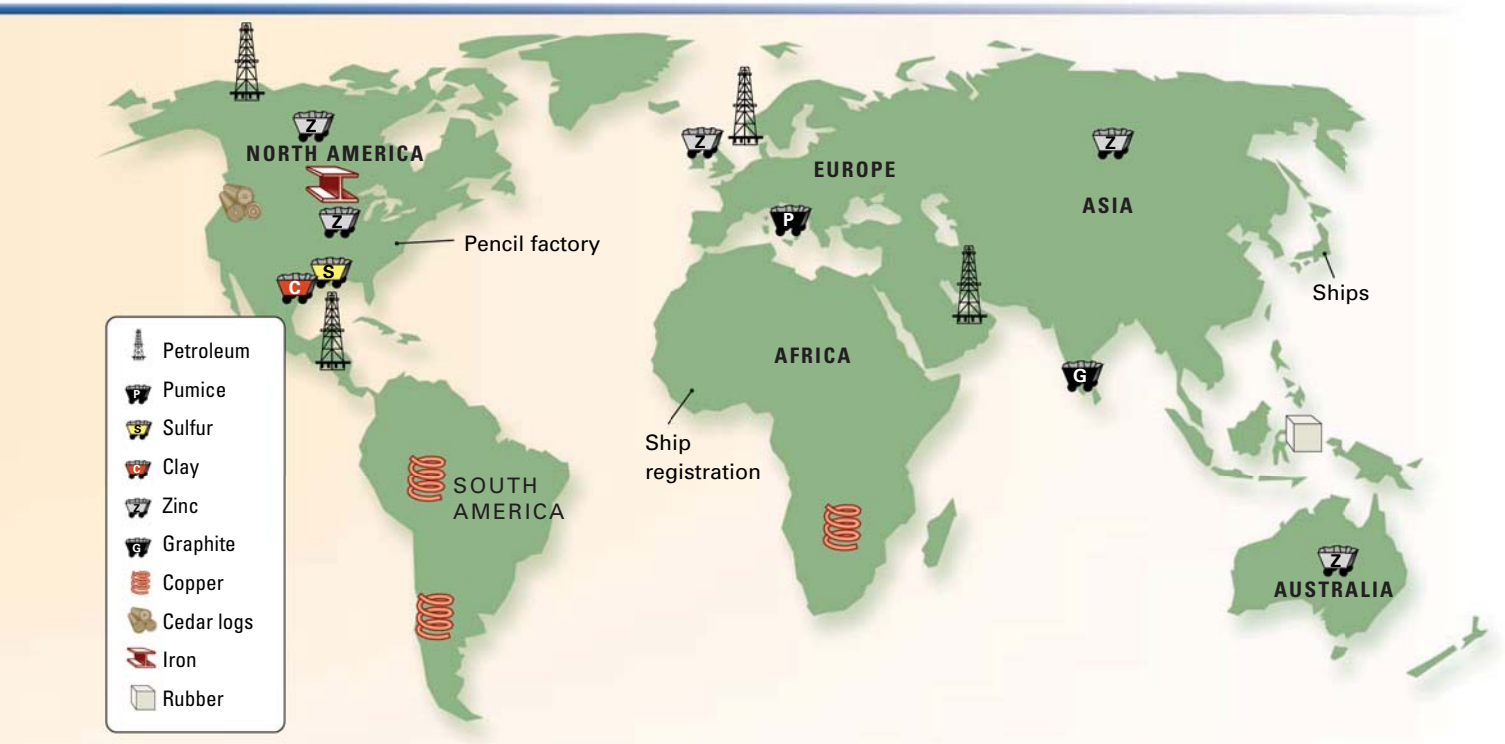
- **Renewable**—These resources can be replaced through natural processes. Examples include trees and seafood.
- **Non-renewable**—These resources cannot be replaced once they have been removed from the ground. Examples include metals, such as gold, silver, and iron, and non-metals, such as gemstones, limestone, or sulfur. Also included are fossil fuels, petroleum, natural gas, and coal. They are the basis of energy production.
- **Inexhaustible energy sources**—These resources, which are used for producing power, are the result of solar or planetary processes and are unlimited in quantity. They include sunlight, geothermal heat, winds, and tides. B

Natural resources are a major part of world trade. This is especially true of the fossil fuels, since industry relies on them for both power and raw materials in manufacturing. The value of a natural resource depends on the qualities that make it useful. For example, trees can provide lumber for building or pulp for paper. Countries trade for raw materials that they need for energy and to manufacture products.

Geographic Thinking

Making Comparisons

B What advantage do inexhaustible energy sources have over fossil fuels?



Family Possessions

Levels of economic development are measured in goods and services available in a country. In this graphic, the possessions of three families reflect economic development levels.

DEVELOPING NATION
Mali (family of 11)

5 ceramic pots
2 water kettles
2 sieves for sifting grain
1 bicycle
1 radio

NATION IN TRANSITION
Cuba (family of 9)

4 bicycles
3 televisions
2 stereos
3 radios
1 VCR

Economic Support Systems

Producing and distributing goods and services requires a series of support systems. The most important of these services is infrastructure.

INFRASTRUCTURE A nation's **infrastructure** consists of the basic support systems needed to keep an economy going, including power, communications, transportation, water, sanitation, and education systems. The more sophisticated the infrastructure, the more developed the country.

One of the most important systems in the infrastructure is transportation. Geographers look at the patterns of roads and highways, ports, and airports to get an idea of how transportation affects economic growth. For example, the country of Honduras has only one major north-south highway. The highway leads to port cities where a major export, bananas, is shipped out of the country. Areas not accessible to the major highway remain undeveloped.

Communications systems give geographers an idea of how a country is linked internally as well as with the outside world. Countries with a strong economy are linked internally and externally by high-speed Internet and satellite communications.

The level of available technology and access to it is also an indicator of the development of a country. A country may have valuable natural resources but be unable to profit from them because its people lack the skills to make use of them. Technology may be available, but a country may lack educated workers to run and maintain sophisticated equipment.

Measuring Economic Development

Geographers use a variety of standards to make comparisons among economies. One is **per capita income,** the average amount of money earned by each person in a political unit. Another way of comparing economies examines levels of development based on economic activities such as industry and commerce. Still others use a standard of living that reflects a society's purchasing power, health, and level of education.

GNP AND GDP A commonly-used statistic to measure the economy of a country is the **gross national product (GNP).** The **GNP** is the total value of all goods and services produced by a country over a year or some other specified period of time.

Because economies have become so interconnected, the GNP may reflect the value of goods or services produced in one country by a com-

NATION IN TRANSITION
Cuba


251 televisions per 1,000 people


16 passenger cars per 1,000 people

DEVELOPED NATION
Japan


785 televisions per 1,000 people


283 passenger cars per 1,000 people

pany based in another country. For example, the value of sport shoes produced in Thailand by an American company is counted as U.S. production, even though the shoes were not produced in the United States. To adjust for situations like this, a second statistic is used—**GDP, or gross domestic product**—which is the total value of all goods and services produced *within* a country in a given period of time.

DEVELOPMENT LEVELS Countries of the world have different levels of economic development. Developing nations are nations that have a low GDP and limited development on all levels of economic activities. These countries lack an industrial base and struggle to provide their residents with items to meet their basic needs.

BACKGROUND Developing countries that have greatly improved their GDP are called countries in transition.

Developed nations, on the other hand, are countries with a high per capita income and varied economy, especially with quaternary activities such as computer software development. Western European nations, Japan, Canada, and the United States have highly developed economies.

In this chapter, you've learned that human geography is a complex mix of human activities and the earth's resources. As you study the regions of the world, remember that a geographer views those regions by looking at the space and the interactions that take place there.

SECTION 5 Assessment

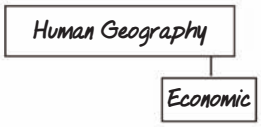
1 Places & Terms

Explain the meaning of each of the following terms.

- economy
- natural resources
- infrastructure
- per capita income
- GDP

2 Taking Notes

PLACE Review the notes you took for this section.



- What are the four basic economic systems?
- What are the three types of resources?

3 Main Ideas

a. What are the basic activities in each of the four economic activity levels?

b. What role do natural resources play in the economy of a country?

c. What systems are a part of a country's infrastructure?

4 Geographic Thinking

Drawing Conclusions Fossil fuels are non-renewable resources. What does this suggest about worldwide supplies of this energy?
Think about:

- industrial need for power
- alternative sources of power

GeoActivity

MAKING COMPARISONS Study the types of economic systems on page 91. Create a series of **illustrations** showing the differences among the systems. Be sure your illustrations show the role of the consumer and the government in determining what goods or services are produced in each type of economy.

Chapter 4 Assessment

VISUAL SUMMARY
PEOPLE AND PLACES

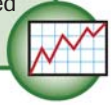
The Elements of Culture
- All human groups have a culture.
- Language and religion are a part of culture.

Population Geography
- The world's population is expanding rapidly.
- Most of the world's population lives in the Northern Hemisphere.

Political Geography
- Size, shape, and location influence political geography.
- States of the world have a variety of political systems.

Urban Geography
- Urban areas have expanded rapidly and now are home to about one half of the world's population.
- Functions of cities are similar.
- Land use patterns are unique to a place.

Economic Geography
- Resources, available technology, and economic systems shape the economy of a state.
- Economic activities are based on how goods or services are produced and traded.



Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. culture
2. diffusion
3. rate of natural increase
4. population density
5. state
6. nation
7. urbanization
8. economy
9. infrastructure
10. GDP

B. Answer the questions about vocabulary in complete sentences.

11. What is the growth in the number of cities called?
12. Which term above refers to the blueprint for the behaviors of a group?
13. How is the birthrate different from the rate of natural increase?
14. How is population density determined?
15. How is a nation different from a state?
16. Which term refers to the spread of ideas, innovations and inventions, and patterns of behavior?
17. How are the economy and the infrastructure related to each other?
18. What does the GDP number tell you about a country's economy?
19. Which terms above are associated with population geography?
20. What are some examples of infrastructure?

Main Ideas

The Elements of Culture (pp. 71–77)

1. What is the purpose of culture?
2. Why is language so important to a culture?

Population Geography (pp. 78–82)

3. What geographic factors influence population distribution?
4. How is population density different from population distribution?

Political Geography (pp. 83–86)

5. What are the geographic characteristics of a state?
6. What is the difference between a country with a democracy and one with a dictatorship?

Urban Geography (pp. 87–90)

7. What are some characteristics of city locations?
8. What are the basic land use patterns in cities?

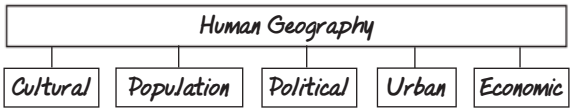
Economic Geography (pp. 91–95)

9. Why does a country need an infrastructure?
10. How are natural resources related to a country's economy?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.



a. Which type of human geography focuses on how goods and services are produced and distributed by a country?

b. What do population geographers study?

2. Geographic Themes

a. **MOVEMENT** How might migration affect both population distribution and density?

b. **PLACE** What are some characteristics of an urban area?

3. Identifying Themes

How do landform and climate affect the distribution of population? Which of the five themes apply to this situation?

4. Making Inferences

Why might two groups of people living in the same area develop different cultures?

5. Identifying and Solving Problems

What reasons might countries have to form a regional political unit?

Additional Test Practice, pp. S1–S37

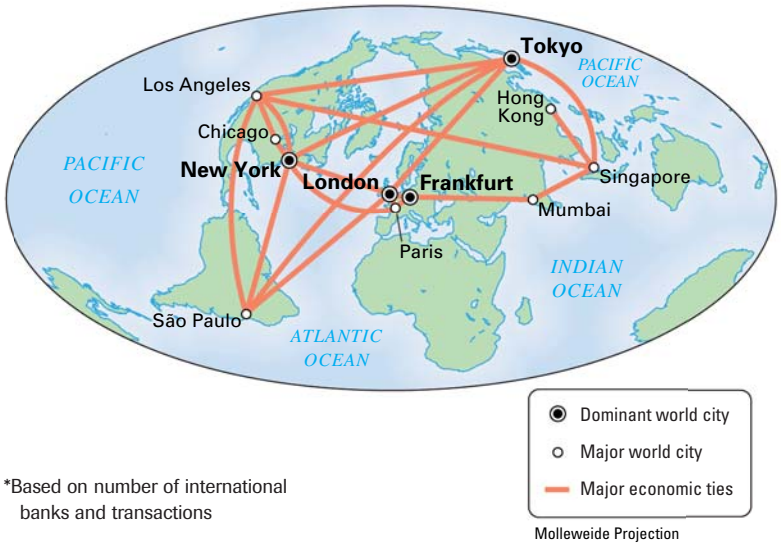
TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Maps

Dominant World Cities*

Use the map to answer the following questions.

1. **REGION** Which continent has the most dominant world cities shown?
2. **REGION** Which continents do not have dominant world cities?
3. **MOVEMENT** Into which continent does the most activity appear to flow? Give a reason for your answer.



*Based on number of international banks and transactions

Molleweide Projection

GeoActivity

Using a blank map of the world, mark in the cities shown on this map. Then go to page 80. Add the cities with more than 12 million shown on that map. On the back of your map, write two observations about the cities on your map.

INTERNET ACTIVITY

Use the links at **classzone.com** to do research about population growth. Focus on the projected growth by 2050. Identify ten places where predicted growth will be the greatest and ten with little predicted growth.

Creating a Database Create a **database** showing your findings about worldwide growth. Create separate databases for the fastest growth and for the slowest growth. Be sure to label your databases.

Unit 2

The United States and Canada

The United States and Canada are two of the world's largest countries, with vast lands and abundant resources. They occupy four-fifths of the continent of North America.

MOVEMENT Thousands of cars enter and leave Chicago, Illinois, daily. They use the vast expressway system that links the city to its surrounding suburbs and to interstate highways.

PLACE Cowhands and tourists from around the world gather in the western Canadian city of Calgary, Alberta, each July for the Calgary Stampede—the world's largest rodeo.

GeoData

LOCATION The United States and Canada extend from the Atlantic Ocean to the Pacific Ocean and from the Arctic Ocean to the Gulf of Mexico (only the United States).

REGION The two countries are often referred to as Anglo America, because both were once British colonies and also share a common language—English.

MOVEMENT Both countries were settled by immigrants from all over the world, beginning with their first settlers who migrated from Asia after the last Ice Age.

For more information on the United States and Canada . . .

RESEARCH LINKS
CLASSZONE.COM

LOCATION The majestic falls of the Niagara River are shared by both the United States and Canada. The American Falls, to the left, are in New York state; Horseshoe Falls, to the right, are in Ontario, Canada.

Unit 2 PREVIEW

Today's Issues in the United States and Canada

Today, the United States and Canada face the issues previewed here. As you read Chapters 5, 6, and 7, you will learn helpful background information. You will study the issues themselves in Chapter 8.

In a small group, answer the questions below. Then have a class discussion of your answers.

Exploring the Issues

1. **TERRORISM** Consider news stories that you have heard about terrorist groups in other countries. Make a list of the countries and the type of terrorist activity in each.
2. **URBAN SPRAWL** Why is the ever-expanding spread, or sprawl, of cities and suburbs a problem? What can be done to improve the quality of life in these areas?
3. **DIVERSE SOCIETIES** Search the Internet for information about diversity in the United States or Canada. What strategies or actions are being taken to help these many cultures unify?

For more on these issues in the United States and Canada . . .

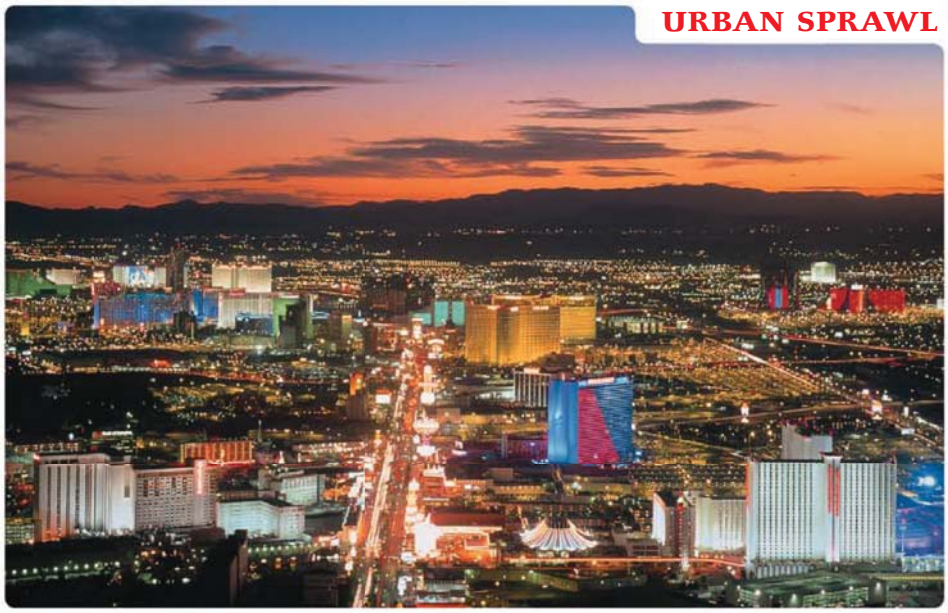
CURRENT EVENTS
CLASSZONE.COM

TERRORISM

How can a country protect itself from terrorism?

A surprise attack, such as the one on the World Trade Center in New York City, is just one way terrorists attempt to intimidate governments and civilian populations to further their objectives.

URBAN SPRAWL

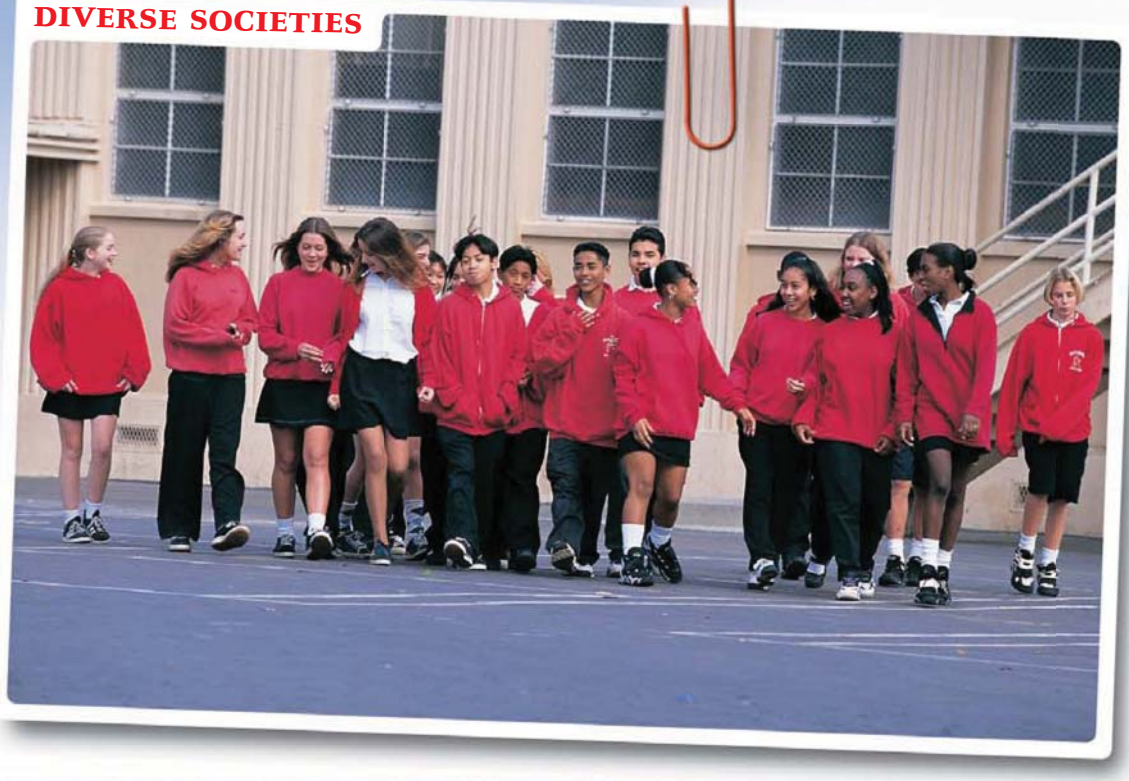


How can urban sprawl be controlled?

Urban communities, such as Las Vegas shown here, are trying to solve problems caused by urban areas spreading farther and farther out.

CASESTUDY

DIVERSE SOCIETIES



How can many cultures form a unified nation?

The diverse population of the United States is reflected in this group of California students. How to bring many cultures together as one nation is a continuing challenge for the United States, and for Canada, as well.

Unit ATLAS

Patterns of Physical Geography

Use the Unit Atlas to add to your knowledge of the United States and Canada. As you look at the maps and charts, notice geographic patterns and specific details about the region.

After studying the illustrations, graphs, and physical map on these two pages, jot down answers to the following questions in your notebook.

Making Comparisons

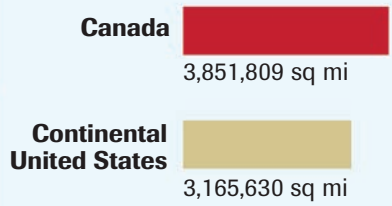
1. Compare the world's longest river, the Nile, to the Mississippi. How much difference is there in the lengths of the two rivers?
2. Compare the landmass and population of the United States to those of Canada. What statement can be made about the two countries?
3. Compare the mountain peaks of the United States to those of Canada. What statement can be made about the height of these mountains?

For updated statistics on the United States and Canada . . .

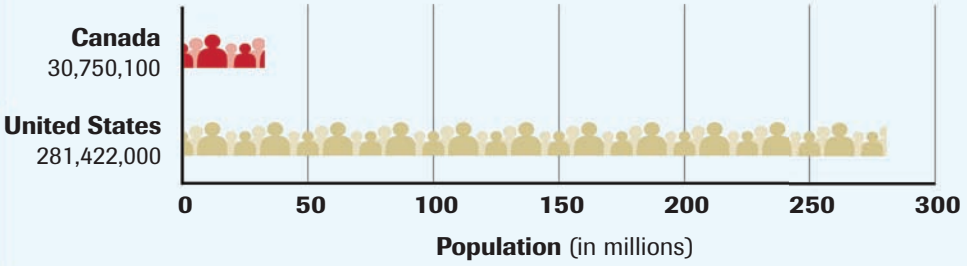
DATA UPDATE
CLASSZONE.COM

Comparing Data

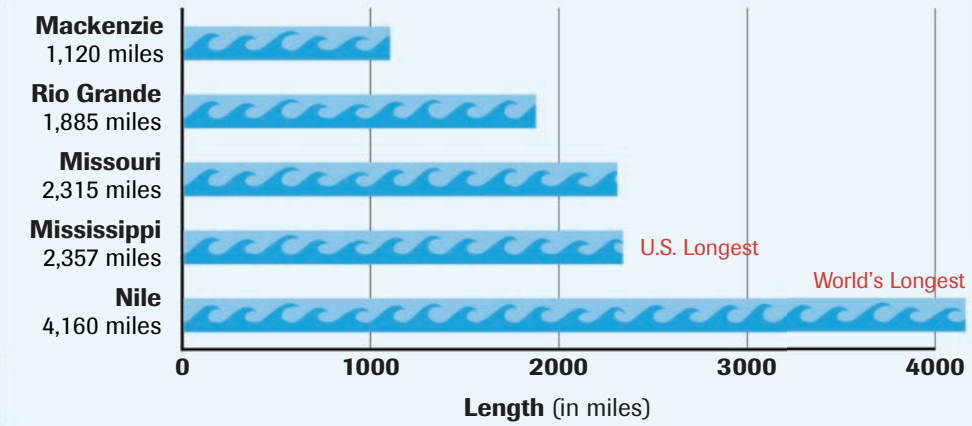
Landmass



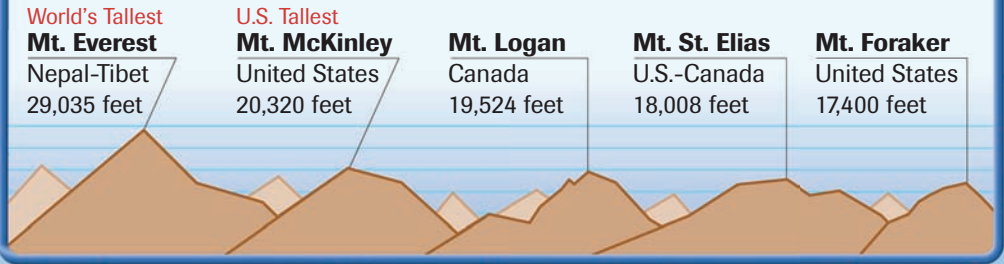
Population



Rivers



Mountains



United States and Canada: Physical

Unit ATLAS

Patterns of Human Geography

After the coming of European settlers in the 17th century, the political map of North America changed quickly and significantly. Study the historical and political maps of the United States and Canada on these two pages. In your notebook, answer these questions.

Making Comparisons

1. What differences do you notice when you compare the map of 1600 with the map of the United States and Canada today?
2. Which names of native peoples are found as geographic names on the map on page 105?
3. Which country was more sparsely settled by native peoples in 1600?

Selected Native Peoples of North America, c. 1600

United States and Canada: Political

Unit ATLAS

Regional Patterns

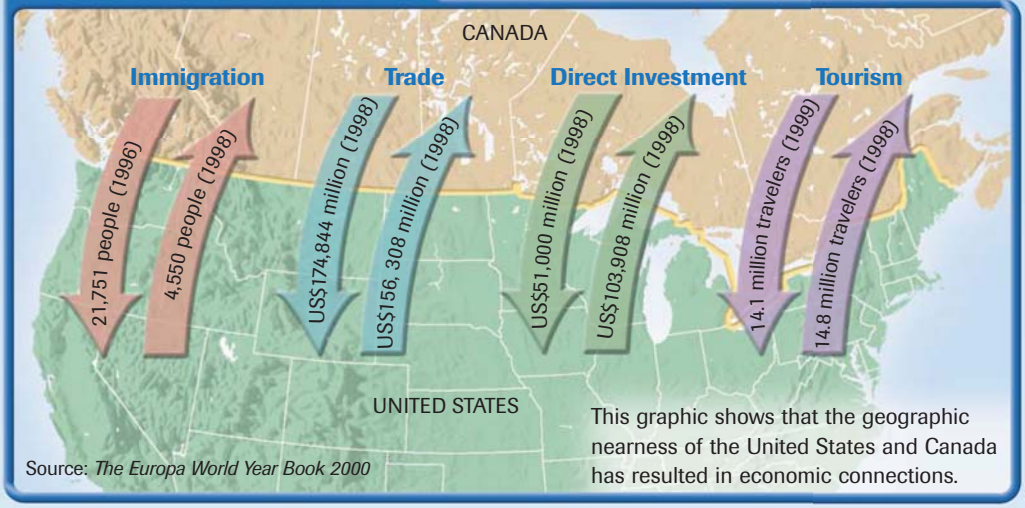
These pages contain three thematic maps and an infographic. The infographic illustrates economic connections between the United States and Canada. The maps show economic activities, population density, and areas affected by natural hazards.

Study these two pages and then answer the questions below in your notebook.

Making Comparisons

1. Where are the areas of greatest population density found in each country? Do settlement patterns have any relationship to the threat of natural hazards?
2. Where are manufacturing and trade concentrated in the United States and Canada? Why might this be so?

Canada-U.S. Connections



Source: *The Europa World Year Book 2000*

This graphic shows that the geographic nearness of the United States and Canada has resulted in economic connections.

Economic Activities of the U.S. and Canada

Natural Hazards of the U.S. and Canada

Population Density of the U.S. and Canada

Unit ATLAS

Regional Data File

Study the charts on the United States and Canada and their political subdivisions—states, provinces, and territories. In your notebook, answer these questions.

Making Comparisons

1. Which state of the United States and which province or territory of Canada have the most people? Is each also the largest in total area in its country? Locate them on the map. What is significant about their locations?
2. Which state of the United States and which province or territory of Canada have the least people? Is each also the smallest in total area in its country? Locate them on the map.

(continued on page 110)

Flag	State or Territory/ Capital	Population (2000)	Population Rank (2000)	Infant Mortality (per 1,000 live births) (1998)
	**Alabama** Montgomery	4,447,100	23	10.2
	**Alaska** Juneau	626,900	48	5.9
	**Arizona** Phoenix	5,130,600	20	7.5
	**Arkansas** Little Rock	2,673,400	33	8.9
	**California** Sacramento	33,871,600	1	5.8
	**Colorado** Denver	4,301,300	24	6.7
	**Connecticut** Hartford	3,405,600	29	7.0
	**Delaware** Dover	783,600	45	9.6
	**District of Columbia***	572,100	—	12.5
	**Florida** Tallahassee	15,982,400	4	7.2
	**Georgia** Atlanta	8,186,500	10	8.5
	**Hawaii** Honolulu	1,211,500	42	6.9
	**Idaho** Boise	1,294,000	39	7.2
	**Illinois** Springfield	12,419,300	5	8.4
	**Indiana** Indianapolis	6,080,500	14	7.6
	**Iowa** Des Moines	2,926,300	30	6.6
	**Kansas** Topeka	2,688,400	32	7.0
	**Kentucky** Frankfort	4,041,800	25	7.5
	**Louisiana** Baton Rouge	4,469,000	22	9.1

Notes:

* The federal district of Washington, D.C., is the capital city of the United States.

[a] In constant 1996 dollars.

[b] Percentage of the population, 25 years old or older, with high school diploma or higher.

[c] Includes land and water, when figures are available.

For updated statistics on the United States and Canada . . .

DATA UPDATE
CLASSZONE.COM

Doctors (per 100,000 pop.) (1998–1999)	**Population Density** (per square mile)	**Urban/Rural Population (%)** (1990)	**Per Capita Income[a] ($US)** (1999)	**High School Graduates[b] (%)** (1998)	**Area Rank** (2000)	**Total Area[c]** (square miles)	
198	85.1	60 / 40	21,941	78.8	30	52,237	
167	1.0	68 / 32	27,274	90.6	1	615,230	
202	45.0	88 / 12	24,199	81.9	6	114,006	
190	50.3	54 / 46	21,146	76.8	28	53,182	
247	213.2	93 / 7	28,513	80.1	3	158,869	
238	41.3	82 / 18	30,291	89.6	8	104,100	
354	614.3	79 / 21	37,452	83.7	48	5,544	
234	327.0	73 / 27	29,341	85.2	49	2,396	
737	8,412.6	100 / 00	36,554	83.8	51	68	
238	266.7	85 / 15	26,796	81.9	23	59,928	
211	138.8	63 / 37	26,007	80.0	24	58,977	
265	187.6	89 / 11	26,623	84.6	47	6,459	
154	15.5	57 / 43	22,418	82.7	14	83,574	
260	214.4	85 / 15	29,908	84.2	25	57,918	
195	167.0	65 / 35	24,949	83.5	38	36,420	
173	51.9	61 / 39	24,600	87.7	26	56,276	
203	32.7	69 / 31	25,467	89.2	15	82,282	
209	100.0	52 / 48	22,147	77.9	37	40,411	
246	90.0	68 / 32	21,794	78.6	31	49,651	

Unit ATLAS

Regional Data File

Making Comparisons

(continued)

3. Which six states of the United States and which three provinces or territories of Canada have the highest per capita income? Locate them on the map. What factors might account for this?

4. Which are the six most highly urbanized states of the United States? In which three provinces or territories of Canada do at least 80 percent of the people live in urban areas? Are these states and provinces or territories the same as those that have the highest per capita incomes?

(continued on page 112)

Flag	State or Territory/ Capital	Population (2000)	Population Rank (2000)	Infant Mortality (per 1,000 live births) (1998)
	Maine Augusta	1,274,900	40	6.3
	Maryland Annapolis	5,296,500	19	8.6
	Massachusetts Boston	6,349,100	13	5.1
	Michigan Lansing	9,938,400	8	8.2
	Minnesota St. Paul	4,919,479	21	5.9
	Mississippi Jackson	2,844,700	31	10.1
	Missouri Jefferson City	5,595,200	17	7.7
	Montana Helena	902,200	44	7.4
	Nebraska Lincoln	1,711,300	38	7.3
	Nevada Carson City	1,998,300	35	7.0
	New Hampshire Concord	1,235,800	41	4.4
	New Jersey Trenton	8,414,400	9	6.4
	New Mexico Santa Fe	1,819,00	36	7.2
	New York Albany	18,976,500	3	6.3
	North Carolina Raleigh	8,049,300	11	9.3
	North Dakota Bismarck	642,200	47	8.6
	Ohio Columbus	11,353,100	7	8.0
	Oklahoma Oklahoma City	3,450,700	27	8.5
	Oregon Salem	3,421,400	28	5.4

Notes:

[a] In constant 1996 dollars.

[b] Percentage of the population, 25 years old or older, with high school diploma or higher.

[c] Includes land and water, when figures are available.

Doctors (per 100,000 pop.) (1998–1999)	Population Density (per square mile)	Urban/Rural Population (%) (1990)	Per Capita Income[a] ($US) (1999)	High School Graduates[b] (%) (1998)	Area Rank (2000)	Total Area[c] (square miles)	
223	37.8	45 / 55	23,867	86.7	39	33,741	
374	430.7	81 / 19	30,757	84.7	42	12,297	
412	687.1	84 / 16	34,168	85.6	45	9,241	
224	102.8	71 / 29	26,625	85.4	11	96,705	
249	56.6	70 / 30	29,281	89.4	12	86,943	
163	58.9	47 / 53	19,608	77.3	32	48,286	
230	80.3	69 / 31	25,040	82.9	21	69,709	
190	6.1	53 / 47	21,337	89.1	4	147,046	
218	22.1	66 / 34	26,235	87.7	16	77,358	
173	18.1	88 / 12	29,022	89.1	7	110,567	
237	133.1	51 / 49	29,552	84.0	44	9,283	
295	1,024.3	89 / 11	34,525	86.5	46	8,215	
212	15.0	73 / 37	21,097	79.6	5	121,598	
387	351.5	84 / 16	32,459	81.5	27	53,989	
232	153.0	50 / 50	25,072	81.4	29	52,672	
222	9.1	53 / 47	22,488	84.3	18	70,704	
235	253.3	74 / 26	25,895	86.2	34	44,828	
169	49.4	68 / 32	21,802	84.6	20	69,903	
225	35.2	71 / 29	25,947	85.5	10	97,132	

Regional Data File

Making Comparisons

(continued)

5. Which seven states of the United States and which three provinces or territories of Canada have the highest infant mortality rate? the lowest? What relationship do these figures appear to have to the urban/rural population ratio?

6. Which U.S. territory has the largest population and largest area? Which has the smallest population and the smallest area?

(continued on page 114)

Flag	State or Territory/ Capital	Population (2000)	Population Rank (2000)	Infant Mortality (per 1,000 live births) (1998)
	**Pennsylvania** Harrisburg	12,281,100	6	7.1
	**Rhode Island** Providence	1,048,300	43	7.0
	**South Carolina** Columbia	4,012,000	26	9.6
	**South Dakota** Pierre	754,800	46	9.1
	**Tennessee** Nashville	5,689,300	16	8.2
	**Texas** Austin	20,851,800	2	6.4
	**Utah** Salt Lake City	2,233,200	34	5.6
	**Vermont** Montpelier	608,800	49	7.0
	**Virginia** Richmond	7,078,500	12	7.7
	**Washington** Olympia	5,894,100	15	5.7
	**West Virginia** Charleston	1,808,300	37	8.0
	**Wisconsin** Madison	5,363,675	18	7.2
	**Wyoming** Cheyenne	493,800	50	7.2
	U.S. Territories			
	**American Samoa** Pago Pago	65,400	—	11.0 (2000)
	**Guam** Agana	154,600	—	7.0 (2000)
	**Puerto Rico** San Juan	3,915,800	—	10.0 (2000)
	**U.S. Virgin Islands** Charlotte Amalie	120,900	—	10.0 (2000)

Notes:

[a] In constant 1996 dollars.

[b] Percentage of the population, 25 years old or older, with high school diploma or higher.

[c] Includes land and water, when figures are available.

Doctors (per 100,000 pop.) (1998–1999)	Population Density (per square mile)	Urban/Rural Population (%) (1990)	Per Capita Income[a] ($US) (1999)	High School Graduates[b] (%) (1998)	Area Rank (2000)	Total Area[c] (square miles)	
291	266.6	69 / 31	27,420	84.1	33	46,058	
338	851.6	86 / 14	24,418	80.7	50	1,231	
207	128.6	55 /45	22,467	78.6	40	31,189	
184	9.8	50 / 50	24,007	86.3	17	77,121	
246	135.0	61 / 39	24,461	76.9	36	42,146	
203	78.0	80 / 20	25,363	78.3	2	267,277	
200	26.3	87 / 13	22,333	89.3	13	84,904	
305	63.3	32 / 68	24,758	86.7	43	9,615	
241	167.2	69 / 31	28,193	82.6	35	42,326	
235	83.4	76 / 24	28,968	92.0	19	70,637	
215	74.6	36 / 64	19,973	76.4	41	24,231	
227	82.0	66 / 34	26,212	88.0	22	65,499	
171	5.0	65 / 35	24,864	90.0	9	97,818	
0.3 (1996)	727.2	33 / 67	3,270 (1995)	61.3 (1995)	—	90	
0.9 (1995)	712.5	38 / 62	19,000 (1996)	73.1 (1995)	—	217	
1.8	1,116.2	72 / 28	9,800 (1995)	49.7 (1989)	—	3,508	
1.1 (1989)	707.1	37 / 63	10,942 (1995)	58.6 (1995)	—	171	

Unit ATLAS

Regional Data File

Making Comparisons

(continued)

7. Which state and which province or territory is the most densely populated? Which state and which territory is the least densely populated? Are the most densely populated the smallest in area and the least populated the largest in area?

Flag	Province or Territory/ Capital	Population (2000)	Population Rank (2000)	Infant Mortality (per 1,000 live births) (1997)
	Alberta Edmonton	2,997,200	4	4.8
	British Columbia Victoria	4,063,800	3	4.7
	Manitoba Winnipeg	1,147,900	5	7.5
	New Brunswick Fredericton	756,600	8	5.7
	Newfoundland St. John's	538,800	9	5.2
	Northwest Territories Yellowknife	42,100	11	10.9
	Nova Scotia Halifax	941,000	7	4.4
	Nunavut Iqaluit	27,700	13	N/A
	Ontario Toronto	11,669,300	1	5.5
	Prince Edward Island Charlottetown	138,900	10	4.4
	Quebec Quebec City	7,372,400	2	5.6
	Saskatchewan Regina	1,023,600	6	8.9
	Yukon Territory Whitehorse	30,700	12	8.4
	Canada Ottawa, Ontario	30,750,100	—	5.5
	United States Washington, D.C.	281,422,000	—	7.0

Sources:

Bureau of Economic Analysis, U.S. Dept. of Commerce
Canadian Institute for Health Information, online
Census 2000, U.S. Census Bureau, online
Digest of Educational Statistics 2000, online
Europa World Year Book 2000
Merriam-Webster's Geographical Dictionary, 1997
Northwest Territories Bureau of Statistics, online
Pan-American Health Organization, online
Statistical Abstract of the United States, 1999 and 2000
Statistics Canada, online
World Factbook 2000, CIA online
N/A = not available

Notes:

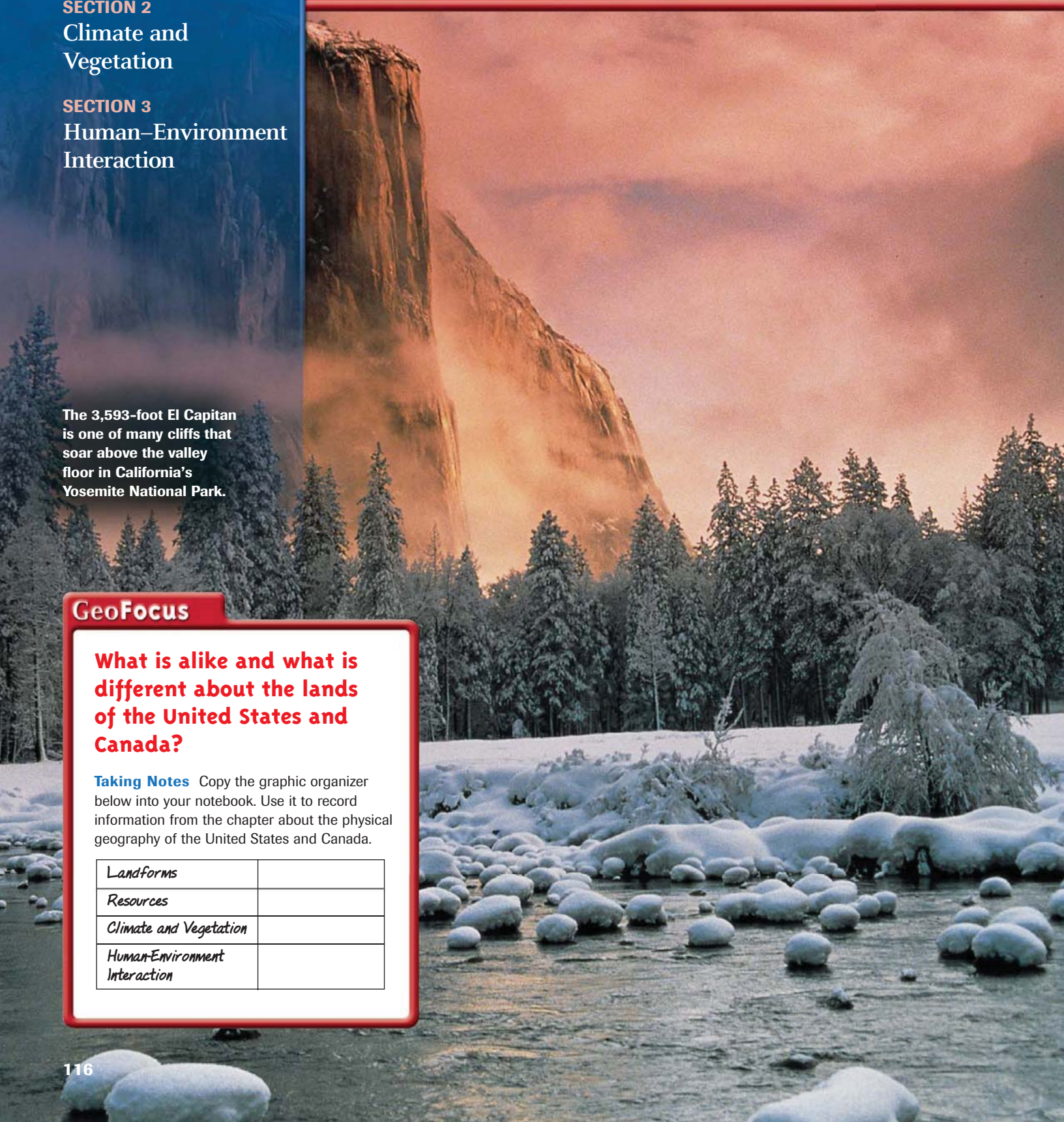
[a] In constant 1996 dollars.
[b] Percentage of the population, 25 years old or older, with high school diploma or higher.
[c] Includes land and water, when figures are available.

Doctors (per 100,000 pop.) (1998)	Population Density (per square mile)	Urban/Rural Population (%) (1996)	Per Capita Income[a] ($US) (1996)	High School Graduates[b] (%) (1998)	Area Rank (2000)	Total Area[c] (square miles)	
162	11.7	80 / 20	30,038	86	6	255,285	
193	11.1	82 / 18	31,592	87	5	366,255	
177	4.6	72 / 28	26,829	79	8	250,934	
153	26.7	49 / 51	26,607	78	11	28,345	
171	12.4	57 / 43	27,692	71	10	43,359	
92	0.08	42 / 58	33,738 (1994)	64 (1996)	3	503,951	
196	44.0	55 / 45	25,712	78	12	21,425	
N/A	0.03	N/A	27,421 (1994)	N/A	1	818,959	
178	28.3	83 / 17	32,537	84	4	412,582	
128	49.4	44 / 56	25,534	74	13	2,814	
211	12.4	78 / 22	28,826	78	2	594,860	
149	4.1	63 / 34	26,463	82	7	251,700	
149	0.2	60 / 40	36,130	67 (1996)	9	186,661	
185	8.0	78 / 22	23,000 (1999)	82	—	3,851,809	
251	74.3	76 / 24	33,900 (1999)	83	—	3,787,319	

Chapter 5

PHYSICAL GEOGRAPHY OF THE UNITED STATES and CANADA

A Land of Contrasts



The 3,593-foot El Capitan is one of many cliffs that soar above the valley floor in California's Yosemite National Park.

GeoFocus

What is alike and what is different about the lands of the United States and Canada?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information from the chapter about the physical geography of the United States and Canada.

Landforms	
Resources	
Climate and Vegetation	
Human-Environment Interaction	

Landforms and Resources

Main Ideas

- The United States and Canada have vast lands and abundant resources.
- These two countries share many of the same landforms.

Places & Terms

Appalachian Mountains
Great Plains
Canadian Shield
Rocky Mountains
Great Lakes
Mackenzie River

Connect to the Issues

URBAN SPRAWL Urban development in the United States is generally determined by the location of landforms and the abundance of natural resources.

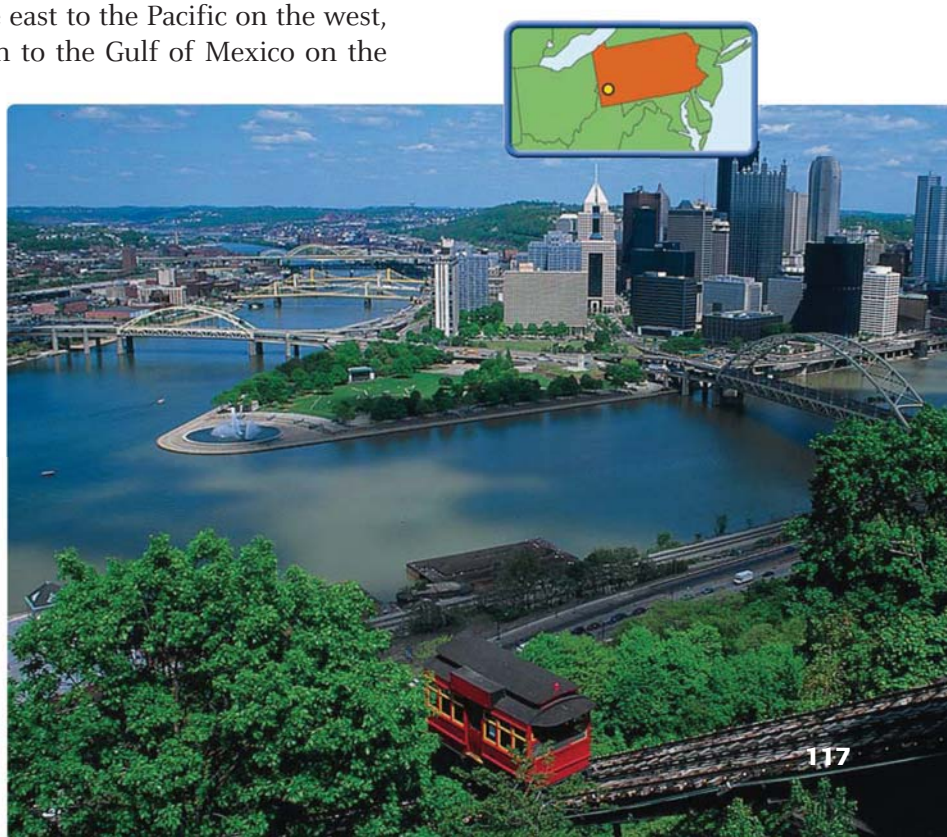
A HUMAN PERSPECTIVE The beauty and abundance of the land was a source of wonder to early explorers of North America. One who traveled the Atlantic coast referred to the "amazing extent of uncultivated land, covered with forests, and intermixed with vast lakes and marshes." A 17th–century French expedition described "a beautiful river, large, broad, and deep" (the Mississippi). Still others found "an unbounded prairie" (the Great Plains), "shining mountains" (the Rocky Mountains), and "an infinite number of fish" (along the Pacific coast). To the continent's first settlers, the land was "strong and it was beautiful all around," according to an old Native American song.

Landscape Influenced Development

The United States and Canada occupy the central and northern four-fifths of the continent of North America. Culturally, the region is known as Anglo America because both countries were colonies of Great Britain at one time and because most of the people speak English. (The southern one-fifth of the continent—Mexico—is part of Latin America.) The two countries are bound together not only by physical geography and cultural heritage, but also by strong economic and political ties.

VAST LANDS The United States and Canada extend across North America from the Atlantic Ocean on the east to the Pacific on the west, and from the Arctic Ocean on the north to the Gulf of Mexico on the south (only the United States). In total area, each ranks among the largest countries of the world. Canada ranks second, behind Russia, and the United States is third. Together, they fill one-eighth of the land surface of the earth.

ABUNDANT RESOURCES In addition to their huge landmass, the United States and Canada are rich in natural resources. They have fertile soils, ample supplies of water, vast forests, and large deposits of a variety of minerals. This geographic richness has for centuries attracted immigrants from around the world and has enabled both countries to develop into global economic powers.

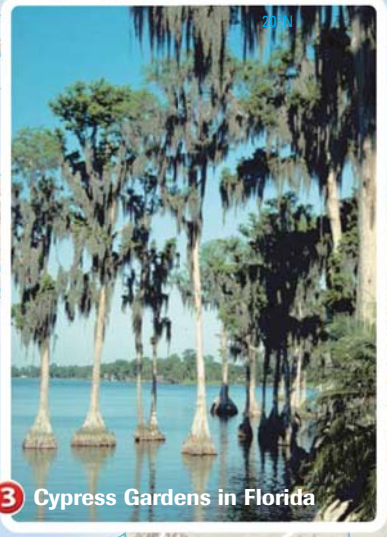


LOCATION Pittsburgh, Pennsylvania, is located where the Allegheny and Monongahela rivers meet to form the Ohio River.

Landform Regions of the U.S. and Canada

1 East Quoddy Head in New Brunswick

2 Great Regina Plain in Saskatchewan



3 Cypress Gardens in Florida

ARCTIC OCEAN
PACIFIC OCEAN
ATLANTIC OCEAN
Gulf of Mexico
Hudson Bay
ARCTIC COASTAL PLAIN
INTERMOUNTAIN BASINS AND PLATEAUS
ROCKY MOUNTAINS
PACIFIC MOUNTAINS AND VALLEYS
CANADIAN SHIELD
INTERIOR PLAINS
GREAT PLAINS
APPALACHIAN HIGHLANDS
PIEDMONT
INTERIOR HIGHLANDS
GULF-ATLANTIC COASTAL PLAIN
Mackenzie R.
Columbia R.
Colorado R.
Rio Grande
Mississippi R.
Missouri R.
Ohio R.
St. Lawrence R.
L. Superior
L. Michigan
L. Huron
L. Erie
L. Ontario
Tropic of Cancer
160°E
170°E
180°
160°W
50°N
40°N
30°N
0°
60°N
40°W
50°W
130°W
120°W
110°W
100°W
90°W
0 250 500 miles
0 250 500 kilometers
Azimuthal Equal-Area Projection

Many and Varied Landforms

All major types of landforms are found in the United States and Canada. If you look at the map on the opposite page, you will see that both countries share many of these landforms. The most prominent are eastern and western mountain chains and enormous interior plains.

THE EASTERN LOWLANDS A flat, coastal plain runs along the Atlantic Ocean and the Gulf of Mexico. One section, called the Atlantic Coastal Plain, begins as narrow lowland in the northeastern United States and widens as it extends southward into Florida. This area features many excellent harbors. A broader section of the plain—the Gulf Coastal Plain—stretches along the Gulf of Mexico from Florida into Texas. The Mississippi River empties into the Gulf from this region.

Between these plains and the nearby Appalachian (A•puh•LAY•chun) Highlands is a low plateau called the Piedmont (PEED•MAHNT). This area of rolling hills contains many fast-flowing rivers and streams.

BACKGROUND
The word *piedmont* comes from *pied,* meaning "foot," and *mont,* for "mountain." A piedmont is found at the foot of a mountain chain.

THE APPALACHIAN HIGHLANDS West of the coastal plain are the Appalachian highlands. The gently sloping **Appalachian Mountains** are in this region. They are one of the two major mountain chains in the United States and Canada. Both chains run north to south. The Appalachian Mountains extend some 1,600 miles from Newfoundland in Canada to Alabama. There are several mountain ranges in the Appalachian system. Among them are the Green and the Catskill mountains in the north and the Blue Ridge and the Great Smoky mountains in the south.

Because the Appalachians are very old—more than 400 million years old—they have been eroded by the elements. Many peaks are only between 1,200 and 2,400 feet high. The Appalachian Trail, a scenic hiking path 2,160 miles long, spans almost the entire length of the chain.

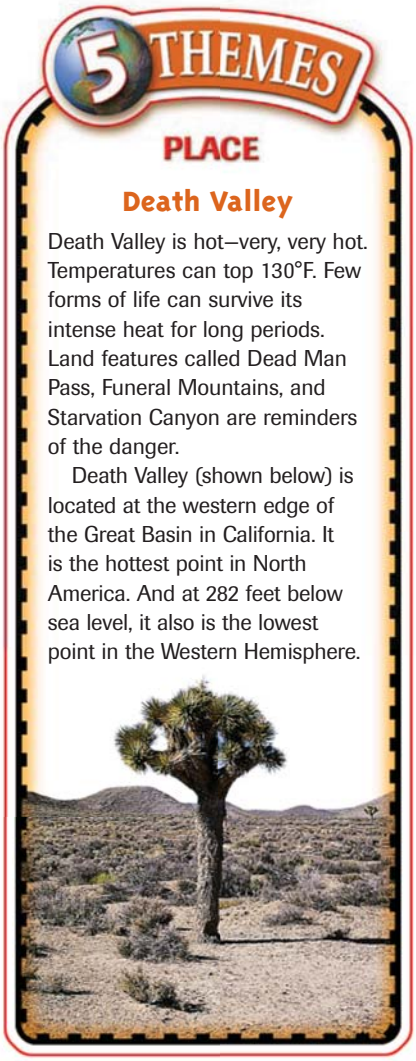
THE INTERIOR LOWLANDS A huge expanse of mainly level land covers the interior of North America. It was flattened by huge glaciers thousands of years ago. The terrain includes lowlands, rolling hills, thousands of lakes and rivers, and some of the world's most fertile soils.

The interior lowlands are divided into three subregions: the Interior Plains, the Great Plains, and the Canadian Shield. The Interior Plains spread out from the Appalachians to about 300 miles west of the Mississippi River. They gradually rise from a few hundred feet above sea level to about 2,000 feet. To the west are the **Great Plains,** a largely treeless area that continues the ascent to about 4,000 feet. The **Canadian Shield** lies farther north. This rocky, mainly flat area covers nearly 2 million square miles around Hudson Bay. It averages 1,500 feet above sea level but reaches over 5,000 feet in Labrador. A

Geographic Thinking

Making Comparisons
A Which of the interior lowlands has the highest elevation?

THE WESTERN MOUNTAINS, PLATEAUS, AND BASINS West of the plains are the massive, rugged **Rocky Mountains,** the other major mountain system of the



United States and Canada. The Rockies are a series of ranges that extend about 3,000 miles from Alaska south to New Mexico. Because they are relatively young—about 80 million years old—the Rockies have not been eroded like the Appalachians. Many of their jagged, snow-covered peaks are more than 12,000 feet high. The **Continental Divide** is the line of highest points in the Rockies that marks the separation between rivers flowing eastward and westward. B

Between the Rockies and the Pacific Ocean is an area of mixed landforms. A series of ranges, including the Sierra Nevada and the Cascade Range, run parallel to the Pacific coastline from California to Alaska. North America's highest peak—Mt. McKinley (also called by its Native American name, Denali)—is in Alaska, towering 20,320 feet above sea level. Major earthquakes occur near the Pacific ranges. Between these

Geographic Thinking

Making Comparisons

B How do the Rockies differ from the Appalachians?

Natural Resources of the U.S. and Canada

INTERACTIVE

SKILLBUILDER: Interpreting Maps

1. **REGION** Where in the United States is petroleum found?
2. **PLACE** Which energy resource is more widespread in Canada than in the United States?

ranges and the Rockies are steep cliffs, deep canyons, and lowland desert areas called basins.

THE ISLANDS Canada's northernmost lands are islands riding the icy seas near the Arctic Circle. Three of the islands—Ellesmere, Victoria, and Baffin—are huge. In North America, only Greenland is larger.

Two island chains created by volcanic activity are part of the westernmost United States. The rugged, treeless Aleutian Islands extend in an arc off the coast of Alaska. The lush, tropical Hawaiian Islands, though politically part of the United States, are not geographically part of North America. They lie in the central Pacific, about 2,400 miles to the southwest.

Resources Shape Ways of Life

The landforms of the United States and Canada hold a rich variety and abundance of natural resources. Both countries are leading agricultural and industrial nations because of this wealth of resources.

OCEANS AND WATERWAYS The United States and Canada possess ample water resources. They are bounded by three oceans—Atlantic, Pacific, and Arctic. The United States is also bounded by the Gulf of Mexico. As a result, both countries have important shipping and fishing industries.

Inland, large rivers and lakes serve as sources of transportation, hydroelectric power, irrigation, fresh water, and fisheries. Eight of the world's 15 largest lakes are found in this region. Among these are the **Great Lakes**—Huron, Ontario, Michigan, Erie, and Superior. As you will see on page 129, these lakes and the St. Lawrence River form one of the world's major shipping routes.

The continent's longest and busiest river system is the Mississippi-Missouri-Ohio. The Mississippi River runs almost the north-south length of the United States, from Minnesota to the Gulf of Mexico. (See map at right.) The Mississippi's main tributaries, the Ohio and Missouri rivers, are major rivers in their own right. Canada's longest river is the **Mackenzie River,** which is part of a river system that flows across the Northwest Territories to the Arctic Ocean. C

LAND AND FORESTS One of the richest natural resources of the United States and Canada is the land itself. Both countries are large and contain some of the most fertile soils in the world. In fact, the land is so productive that North America is the world's leading food exporter. Much of this agricultural land is found in the plains regions and in river valleys.

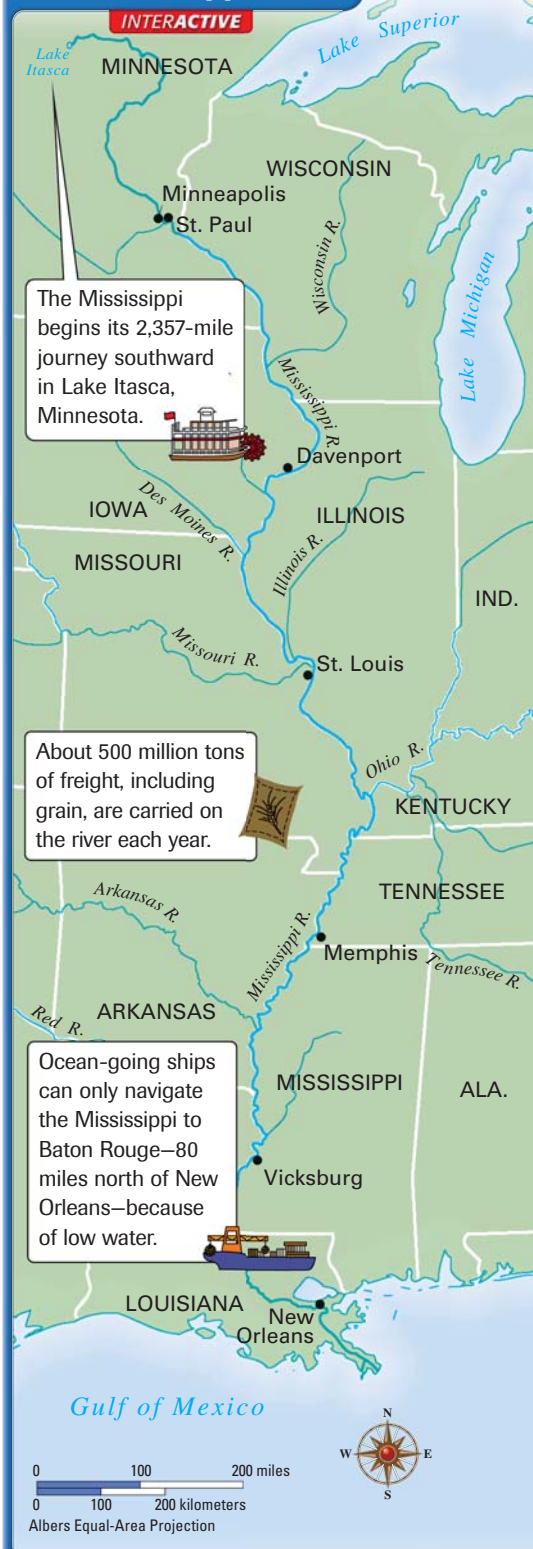
Geographic Thinking

Using the Atlas

Use the map on page 103. Find the Mackenzie River. Into which body of water does it empty?

The Mississippi River

INTERACTIVE



SKILLBUILDER: Interpreting Maps

1. **LOCATION** What states have the Mississippi River for at least part of their border?
2. **MOVEMENT** What rivers empty into the Mississippi?

REGION This West Virginia coal mine is in one of the world's most important coal-producing regions—the Appalachian highlands. **What other region in North America is an important coal producer?**

The United States and Canada also have huge forests. About one-half of Canada is covered by woodlands, as is one-third of the United States. Canada's forests cover more land than those of the United States, but the United States has more kinds of trees because of its more varied climate. Both countries are major producers of lumber and forest products.

MINERALS AND FOSSIL FUELS As you saw on the map on page 120, the United States and Canada have large quantities and varieties of minerals and fossil fuels. These resources gave both countries the means to industrialize rapidly.

Valuable deposits of iron ore, nickel, copper, gold, and uranium are found in the Canadian Shield. Scattered among the western mountains are gold, silver, copper, and uranium. Both countries also have substantial deposits of coal, natural gas, and oil, and well-developed networks for distributing these energy-producing fossil fuels. Important coal-producing areas are the Appalachian highlands and the northern Great Plains. Significant deposits of oil and natural gas are found in the Great Plains, Alaska, and along the Gulf of Mexico.

The United States is the world's biggest consumer of energy resources. Its need for these fuels is so great that it is a major importer. In fact, most of Canada's energy exports go to its neighbor to the south.

In the next section, you will read how some landforms of the United States and Canada have affected climate and vegetation patterns.

Geographic Thinking

Seeing Patterns Why are oil and natural gas important to highly-industrialized nations?

SECTION 1 Assessment

1 Places & Terms

Identify and explain where in the region these would be found.

- Appalachian Mountains
- Great Plains
- Canadian Shield
- Rocky Mountains
- Great Lakes

2 Taking Notes

LOCATION Review the notes you took for this section.

Landforms	
Resources	

- What is the relative location of the Great Lakes?
- What is the relative location of most of Canada's islands?

3 Main Ideas

a. What landforms are shared by the United States and Canada?

b. Why are the Great Lakes important to both the United States and Canada?

c. Why do most of Canada's energy exports go to the United States?

4 Geographic Thinking

Making Generalizations What makes the United States and Canada leading industrial nations? **Think about:**

- available resources
- oceans and waterways

See Skillbuilder Handbook, page R6.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Using the maps on pages 103 and 118, identify the landforms located in your state. Then draw a **sketch map** of your state showing the major landforms and water bodies.

2 Climate and Vegetation

Main Ideas

- Almost every type of climate is found in the 50 United States because they extend over such a large area north to south.
- Canada's cold climate is related to its location in the far northern latitudes.

Places & Terms

permafrost

prevailing westerlies

Everglades

Connect to the Issues

URBAN SPRAWL The rapid spread of urban sprawl has led to the loss of much vegetation in both the United States and Canada.

A HUMAN PERSPECTIVE A little gold and bitter cold—that is what thousands of prospectors found in Alaska and the Yukon Territory during the Klondike gold rushes of the 1890s. Most of these fortune hunters were unprepared for the harsh climate and inhospitable land of the far north. Winters were long and cold, the ground frozen. Ice fogs, blizzards, and avalanches were regular occurrences. You could lose fingers and toes—even your life—in the cold. But hardy souls stuck it out. Legend has it that one miner, Bishop Stringer, kept himself alive by boiling his sealskin and walrus-sole boots and then drinking the broth.

Shared Climates and Vegetation

The United States and Canada have more in common than just frigid winter temperatures where Alaska meets northwestern Canada. Other shared climate and vegetation zones are found along their joint border at the southern end of Canada and the northern end of the United States.

If you look at the map on page 125, you will see that the United States has more climate zones than Canada. This variety, ranging from tundra to tropical, occurs because the country extends over such a large area north to south. Most of the United States is located in the mid-latitudes, where the climates are moderate. Canada is colder because so much of it lies far north in the higher latitudes.

COLDER CLIMATES The Arctic coast of Alaska and Canada have tundra climate and vegetation. Winters are long and bitterly cold, while summers are brief and chilly. Even in July, temperatures are only around 40°F. The land is a huge, treeless plain. Much of the rest of Canada and Alaska have a subarctic climate, with very cold winters and short, mild summers. A vast forest of needle-leafed evergreens covers the area. In some places, there is **permafrost,** or permanently frozen ground.

The Rocky Mountains and the Pacific ranges have highland climate and vegetation. Temperature and vegetation vary with elevation and latitude. Generally, the temperature is colder and the vegetation is more sparse in the higher, more northerly mountains. The mountains also influence the temperature and precipitation of surrounding lower areas. For example, the

MOVEMENT The snowmobile has replaced the dogsled as transportation in many parts of the Northwest Territories. Here, a mother picks up her children from school.

coastal ranges protect the coast from cold Arctic air from the interior. In the United States, the western mountains trap Pacific moisture. This makes lands west of the mountains rainy and those east very dry.

MODERATE CLIMATES The north central and northeastern United States and southern Canada near the U.S. border have a humid continental climate. Winters are cold and summers warm. Climate and soil make this one of the world's most productive agricultural areas, yielding an abundance of dairy products, grain, and livestock. In the northern part of this climate zone, summers are short. There are mixed forests of deciduous and needle-leafed evergreen trees. Most of the population of Canada is concentrated here. In the southern part of this zone, which is in the United States, summers are longer. For the most part, deciduous forests are found east of the Mississippi River and temperate grasslands are found to the west. A

Geographic Thinking

Seeing Patterns

A Why is most of Canada's population clustered in the humid continental region?

The Pacific coast from northern California to southern Alaska, which includes British Columbia, has a climate described as marine west coast. This climate is affected by Pacific Ocean currents, the coastal mountains, and the **prevailing westerlies**—winds that blow from west to east in the middle of the latitudes. The summers are moderately warm. The winters are long and mild, but rainy and foggy. Vegetation is mixed, including dense forests of broad-leafed deciduous trees, needle-leafed evergreens, and giant California redwoods. The Washington coast even has a cool, wet rain forest.

Differences in Climate and Vegetation

The milder, dry, and tropical climates of North America are found south of 40°N latitude. Much of the United States is located in these climate zones; little of Canada is.

MILDER CLIMATES Most southern states have a humid subtropical climate. This means that summers are hot and muggy, with temperatures ranging from about 75°F to 90°F. Winters are usually mild and cool. Moist air from the Gulf of Mexico brings rain during the winter. The combination of mild temperatures and adequate rainfall provides a long growing season for a variety of crops—from citrus fruits in Florida to peanuts in Georgia. Broad-leafed evergreen trees and needle-leafed evergreen trees are found in this region. The central and southern coasts of California have a Mediterranean climate. Summers are dry, sunny, and warm. Winters are mild and somewhat rainy. Temperatures range from 50°F to 80°F year-round. A long growing season and irrigation make this a rich farming area for fruits and vegetables. B

Geographic Thinking

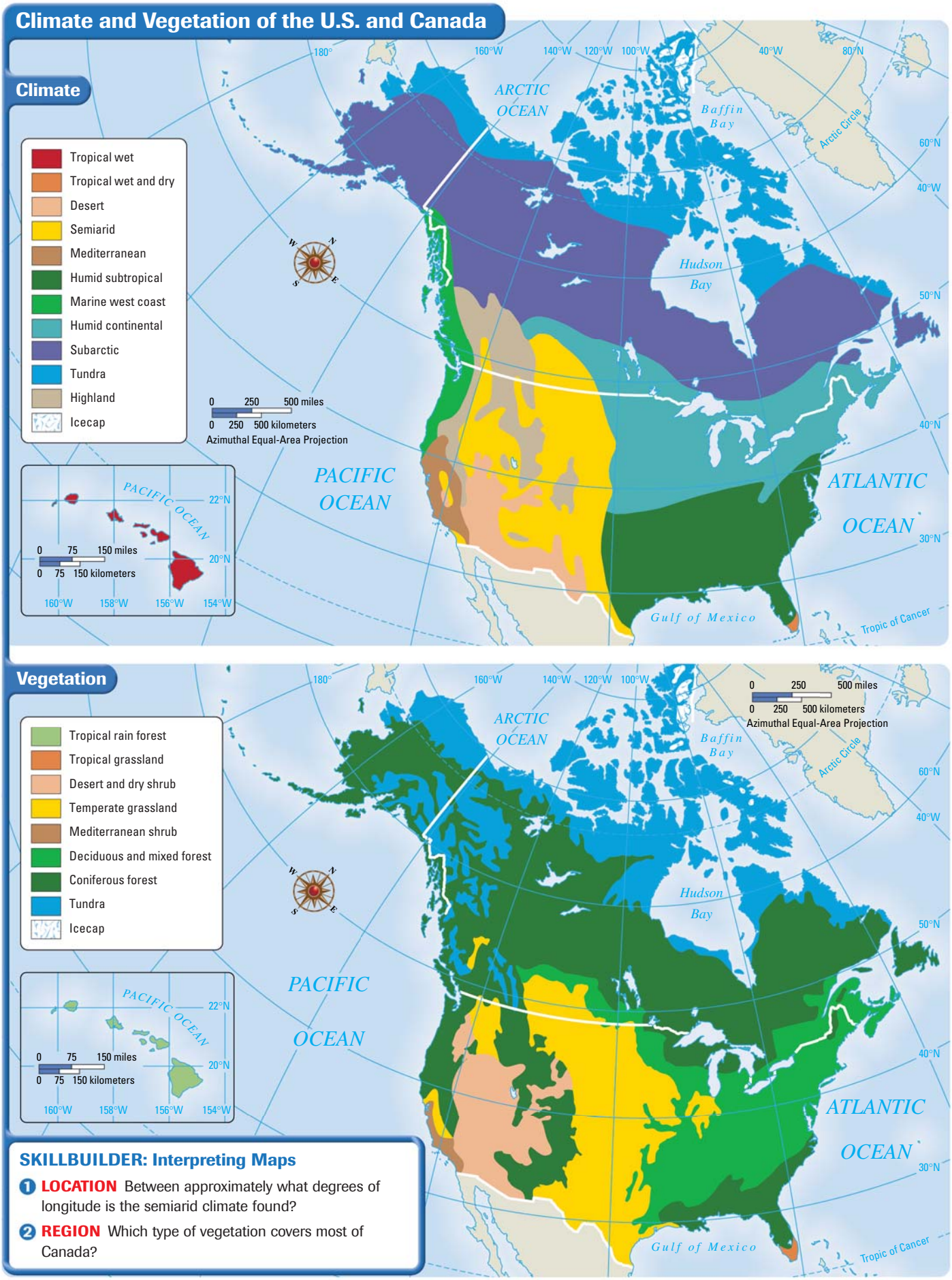
Making Comparisons

B Why don't central and southern California have a marine west coast climate?

DRY CLIMATES The Great Plains and dry northern parts of the Great Basin have a semiarid climate. This means dry weather—only about 15 inches of rain annually—and vegetation that is mainly short grasses and shrubs. The southwestern states have a desert climate. In these states, the weather is usually hot and dry. Less than 10 inches of rain falls each year. Some cactus plants thrive, but much of the area is barren rock or sand. Large desert areas are the Mojave and the Sonoran.

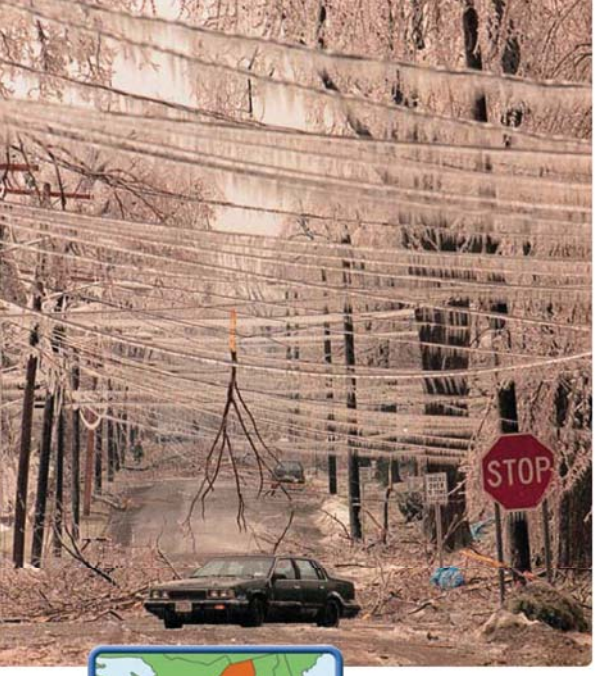
TROPICAL CLIMATES In the United States, only Hawaii and southern Florida have tropical climates. The islands of Hawaii have a tropical wet climate that supports lush rain forests. Temperatures vary only

Climate and Vegetation of the U.S. and Canada



SKILLBUILDER: Interpreting Maps

1. **LOCATION** Between approximately what degrees of longitude is the semiarid climate found?
2. **REGION** Which type of vegetation covers most of Canada?



REGION Deadly ice storms like this one in Watertown, New York, create chaos each winter, especially in heavily populated areas. **What are some of the hazards of this form of extreme weather?**

a few degrees in the 70s°F. Mount Waialeale (wy•AH•lay•AH•lay) on Kauai island receives about 460 inches of rain annually, and is one of the wettest spots on earth. Southern Florida has a tropical wet and dry climate. It is nearly always warm, but has wet and dry seasons. Vegetation is mainly tall grasses and scattered trees, like those in the **Everglades,** a huge swampland that covers some 4,000 square miles.

Geographic Thinking

Making Comparisons How do climate and vegetation differ between Mediterranean and tropical climates?

Effects of Extreme Weather

Weather in the United States and Canada can be harsh and sometimes deadly. You can see the areas affected by extreme weather and climate conditions by looking at the natural hazards map on page 107.

In both cold and mild climates, severe storms can trigger widespread devastation. Warm air from the Gulf of Mexico and cold Canadian air masses sometimes clash over the plains region to produce violent thunderstorms, tornadoes, and blizzards. As you read in Unit 1, tornadoes strike so often in an area of the Great Plains that it is called "Tornado Alley." In summer and fall, hurricanes that sweep along the Atlantic and Gulf coasts can cause great damage. Winter snowstorms may bring normal life to a temporary halt in many cities, such as the one shown in the photo on this page.

Disasters can also result from too much precipitation in a short time or too little over a long period. Heavy rainfall can cause flooding. Lands along major rivers, such as the Mississippi, are especially at risk. Too little rain or too much heat may bring on droughts and dust storms or spark destructive forest fires.

In this section, you read about the varied climates and vegetation of the United States and Canada. In the next section, you will learn how physical geography has shaped life in these countries.

SECTION 2 Assessment

1 Places & Terms

Identify and explain where in the region these would be found.

- permafrost
- prevailing westerlies
- Everglades

2 Taking Notes

REGION Review the notes you took for this section.

Climate and Vegetation

- What climate regions do the United States and Canada share?
- What climate regions are found in the United States but not in Canada?

3 Main Ideas

a. How do the prevailing westerlies change the climate of parts of the United States and Canada?

b. In which region would you find the dry climates?

c. In which climate type would you find the Everglades?

4 Geographic Thinking

Seeing Patterns Why doesn't all of Alaska have cold, snowy winters? **Think about:**

- location
- prevailing westerlies

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

MAKING COMPARISONS Make a list of five Canadian cities and five U.S. cities. Then use the Internet to find out the average monthly temperature and monthly rainfall for each city. Create a **database** with the information. Then summarize your findings.

Human–Environment Interaction

Main Ideas

- Humans have dramatically changed the face of North America.
- European settlements in the United States and Canada expanded from east to west.

Places & Terms

nomad

Beringia

St. Lawrence Seaway

lock

CONNECT TO THE ISSUES

URBAN SPRAWL The spreading of cities and suburbs over wider areas—urban sprawl—is causing problems.

A HUMAN PERSPECTIVE The sun-baked American Southwest was a harsh environment for its early inhabitants, the ancestors of today's Pueblo peoples. But these early settlers made good use of available resources. From the land, they took clay and stone building materials. They built multi-room, apartment-like dwellings in cliffs. This gave protection against daytime heat, nighttime cold, and human and animal enemies. From plants and animals, the early settlers got food and clothing. They survived because they adapted to their environment.

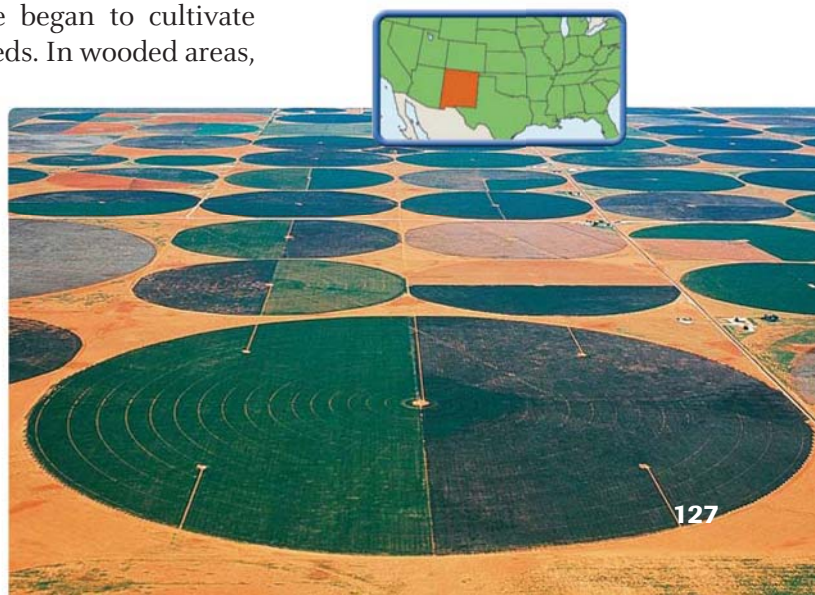
Settlement and Agriculture Alter the Land

Before humans came, North American landforms were changed only by natural forces, such as weathering and erosion. That changed when the first settlers—the ancestors of the native peoples of North America—arrived thousands of years ago.

SETTLEMENT The first inhabitants of the area of North America now known as the United States and Canada were **nomads,** people who move from place to place. Most archaeologists believe that they probably migrated from Asia over **Beringia,** a land bridge that once connected Siberia and Alaska. These migrants moved about the land. They hunted game, fished, and gathered edible wild plants. Since water was necessary for survival, these first Americans made temporary settlements along coastlines and near rivers and streams. They adjusted to extremes of temperature and climate. They also adapted to the region's many natural environments, including mountains, forests, plains, and deserts.

AGRICULTURE Many early settlements became permanent after agriculture replaced hunting and gathering as the primary method of food production about 3,000 years ago. When people began to cultivate crops, they changed the landscape to meet their needs. In wooded areas, early farmers cut down trees for lumber to build houses and to burn as fuel. To plant crops, they plowed the rich soil of river valleys and flood plains using hoes of wood, stone, and bone. They dug ditches for irrigation. Vegetables they first cultivated—corn, beans, and squash—are now staples around the world.

Agriculture remains an important economic activity in the United States and Canada. In fact, both countries are leading exporters of agricultural products.



REGION Irrigation has opened land in dry areas to farming. Tracts such as these in New Mexico are watered by a method called center-pivot, which taps underground water.
What are some other ways water can be brought to dry land?

HUMAN–ENVIRONMENT INTERACTION Los Angeles sprawls out almost as far as the eye can see in this photo. **What changes were made to the environment as the city grew?**

Building Cities

Where a city is built and how it grows depends a great deal on physical setting. As you read, living near water was crucial to early settlers, as it would be to those who followed. Other factors that can affect the suitability of a site are landscape, climate, weather, and the availability of natural resources. Some of these factors played a role in the development of two major cities of the region.

MONTREAL—ADAPTING TO THE WEATHER Montreal, Quebec, is Canada's second largest city and a major port—even though its temperature is below freezing more than 100 days each year. Montreal's location on a large island where the St. Lawrence and Ottawa rivers meet made it an appealing site to early French explorers. The French built a permanent settlement there in 1642. The community was founded at the base of Mount Royal and grew by spreading around the mountain. To make the city's severe winters more endurable, people went inside and underground. In fact, large areas of Montreal have been developed underground, including a network of shops and restaurants.

LOS ANGELES—CREATING URBAN SPRAWL Unlike Montreal, Los Angeles, California, has a mild climate year-round. It also has a desirable location on the Pacific coast. Hundreds of thousands of people were pouring into this once small Spanish settlement by the early 1900s. As a result, the city expanded farther and farther into nearby valleys and desert-like foothills. During the 1980s, Los Angeles became the second most populous city in the United States. However, rapid population expansion brought problems. These included air pollution, inadequate water supplies, and construction on earthquake-threatened land. But such problems did not stop the city's growth. Los Angeles itself now covers about 469 square miles. Its metropolitan area spreads over 4,060 square miles. A

Building cities was just one way humans interacted with their environment. Another was in the construction of transportation systems to make movement from place to place less difficult.

Geographic Thinking

Making Comparisons
A How has climate influenced the development of Los Angeles and Montreal?

Overcoming Distances

The native peoples and the Europeans who followed encountered many obstacles when they moved across the land. They faced huge distances,

large bodies of water, formidable landforms, and harsh climates. But they spanned the continent and changed the natural environment forever.

TRAILS AND INLAND WATERWAYS Some of the early peoples who came across the land bridge from Siberia blazed trails eastward. Others followed the Pacific coast south toward warmer climates. Still others remained in the northwest, in what are now Alaska and northern Canada.

When Europeans from England and France crossed the Atlantic to North America, they set up colonies along the coast. Then, they moved inland. As they did, they carved overland trails, including the National and Wilderness roads and the Oregon and Santa Fe trails. They also used inland waterways, such as the Mississippi and Ohio rivers. To connect bodies of water, they built a network of canals. The Erie Canal across upstate New York opened in 1825 and made the first navigable water link between the Atlantic and the Great Lakes. B

Geographic Thinking

Seeing Patterns

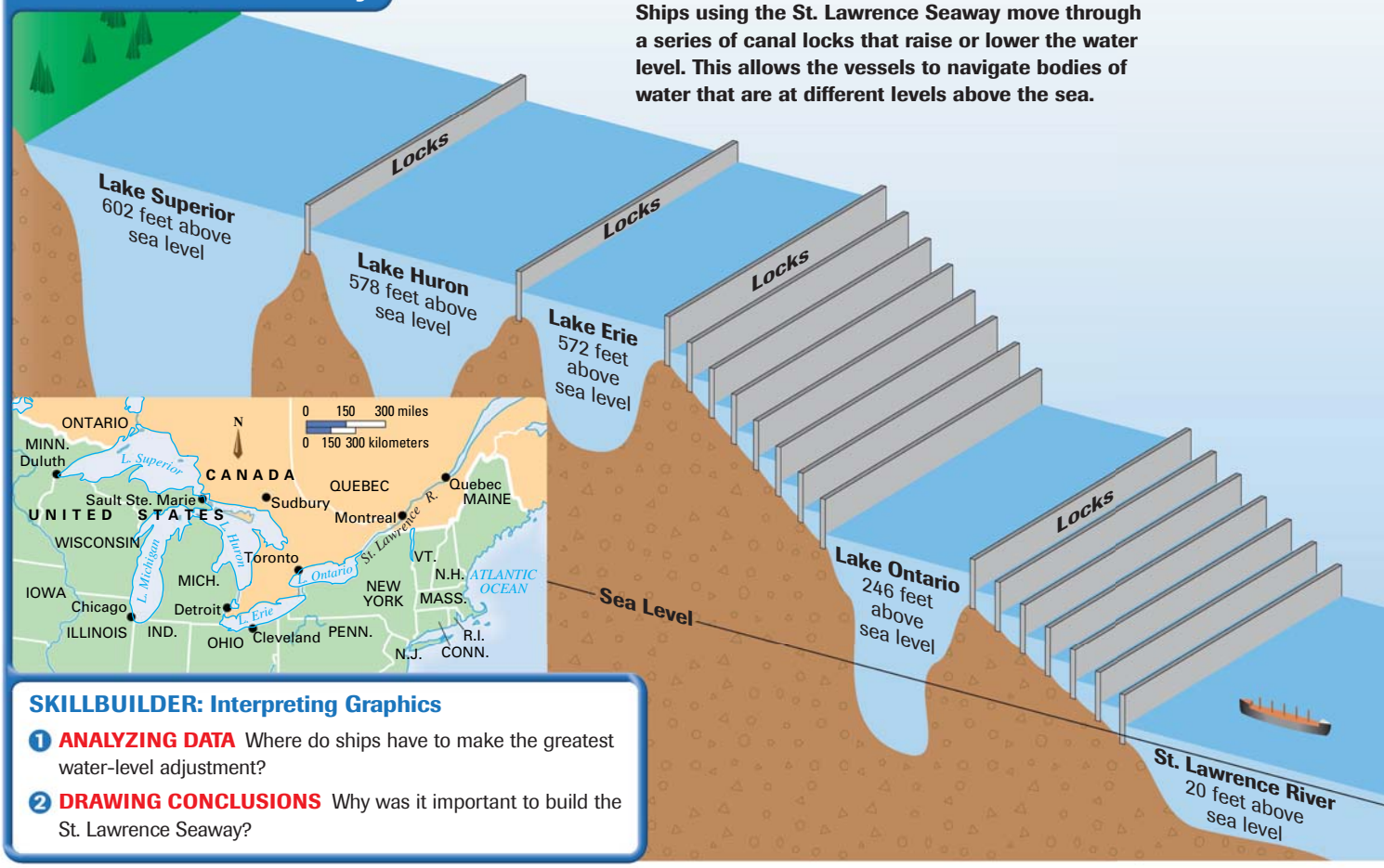
B Why was it important to link waterways?

North America's most important deepwater ship route—the **St. Lawrence Seaway**—was completed in the 1950s as a joint project of the United States and Canada. As you can see from the map on this page, the seaway connects the Great Lakes to the Atlantic Ocean by way of the St. Lawrence River. Ships are raised and lowered some 600 feet by a series of **locks,** sections of a waterway with closed gates where water levels are raised or lowered. The seaway enables huge, oceangoing vessels to sail into the industrial and agricultural heartland of North America.

US & CANADA

The St. Lawrence Seaway

Ships using the St. Lawrence Seaway move through a series of canal locks that raise or lower the water level. This allows the vessels to navigate bodies of water that are at different levels above the sea.



SKILLBUILDER: Interpreting Graphics

1. **ANALYZING DATA** Where do ships have to make the greatest water-level adjustment?
2. **DRAWING CONCLUSIONS** Why was it important to build the St. Lawrence Seaway?

TRANSCONTINENTAL RAILROADS The marriage of the steam locomotive and the railroads made crossing the continent from the Atlantic to the Pacific quicker and easier. Railroad building began in North America in the early 19th century. But many of the physical features shown on the map on page 103 presented natural barriers. To make way, railroad workers had to cut down forests, build bridges over streams, and blast tunnels through mountains.

The first transcontinental railroad was completed across the United States in 1869. A trans-Canada railroad, from Montreal to British Columbia, was completed in 1885. These railroads carried goods and passengers cross-country, promoting economic development and national unity as they went. Today, the United States has the world's largest railway system, and Canada the third largest.

NATIONAL HIGHWAY SYSTEMS Before the railroads came, there were roads that connected towns and cities and provided pathways to the interior. But it was the development of the automobile in the early 20th century that spurred roadbuilding. Today, both the United States and Canada have extensive roadway systems. The United States has about 4 million miles of roads, while Canada has about 560,000 miles.

As you read earlier, much of Canada's population is concentrated in the south. So, Canadians built their major highways east to west in the southern part of the country, connecting principal cities. The Trans-Canada Highway, Canada's primary roadway, stretches about 4,860 miles from St. John's, Newfoundland, to Victoria, British Columbia. In the United States, the interstate highway system is a network of more than 46,000 miles of highways that crisscross the country. Begun in the 1950s, it connects the United States with Canada on the north and Mexico on the south, and also runs east-west across the country.

In this chapter, you read about the physical geography of the United States and Canada. In the next chapter, you will learn about the human geography of one of these countries—the United States.

Geographic Thinking

Making Comparisons How is the Trans-Canada Highway similar to and different from the U.S. interstate highway system?

SECTION 3 Assessment

1 Places & Terms

Identify and explain where in the region these would be found.

- nomad
- Beringia
- lock
- St. Lawrence Seaway

2 Taking Notes

MOVEMENT Review the notes you took for this section.

Human-Environment Interaction

- Why are railroads important to a nation's development?
- In what ways did settlers in Canada and the United States move across the continent?

3 Main Ideas

a. What factors affect the choice of location of a city?

b. Why is the St. Lawrence Seaway important?

c. How did methods of moving people and goods across the continent change over time?

4 Geographic Thinking

Making Inferences In what ways have transportation systems crossing the continent altered the environment? **Think about:**

- construction of canals and railroads
- building cities

See Skillbuilder Handbook, page R4.

GeoActivity

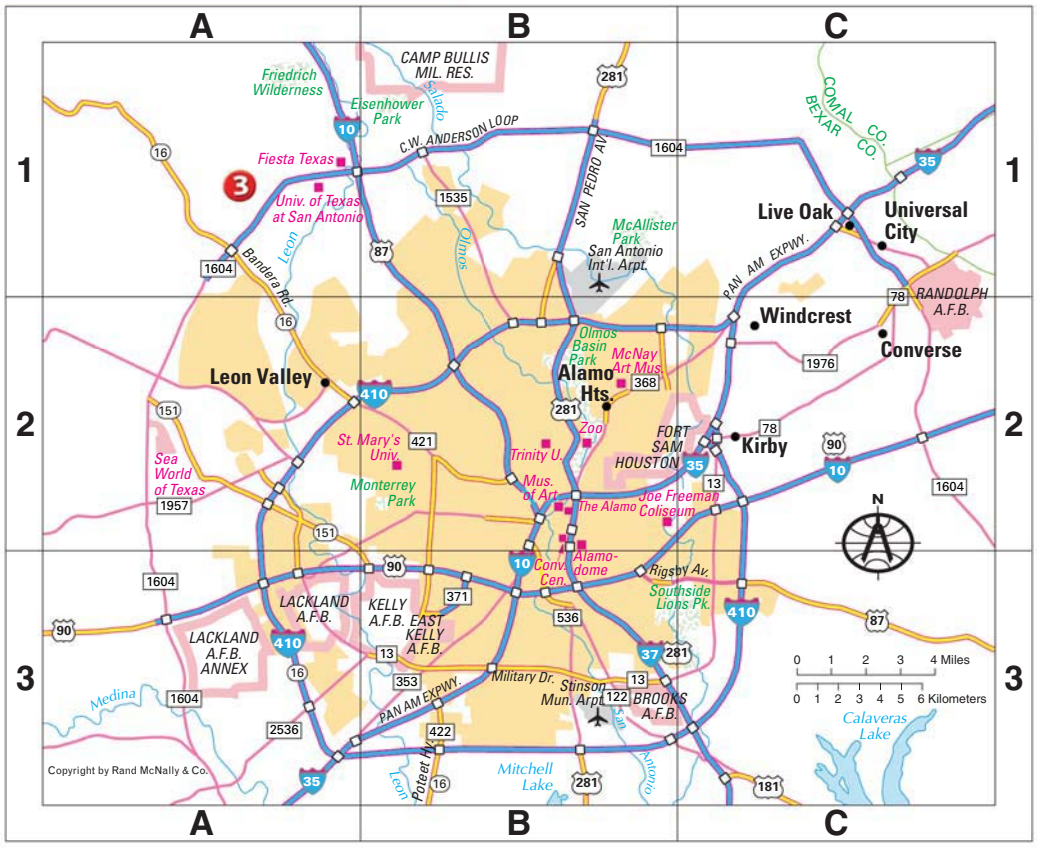
ASKING GEOGRAPHIC QUESTIONS Obtain and study a highway map of your state. Then come up with a geographic question about the map, perhaps one considering geographic features that caused the location of a highway. Answer the question and make a **class presentation** using visuals.

Reading a Highway Map

San Antonio, Texas, is a part of a metropolitan area of more than one million people, located in south central Texas. It has been a crossroads for much of its history—for its earliest Native American settlers, the Spanish who came later, and finally, the Texans who won independence from Mexico not long after the battle of the Alamo. Looking at the map below, you can see that the city remains a meeting point, crisscrossed by interstate, U.S., state, and county highways.

THE LANGUAGE OF MAPS The primary purpose of a **highway map** is to show the location of roadways in an area and the distance between places. But highway maps usually include much other information. For example, they may identify important sites, such as airports, parks, and universities.

San Antonio and Vicinity, 2001 (1)



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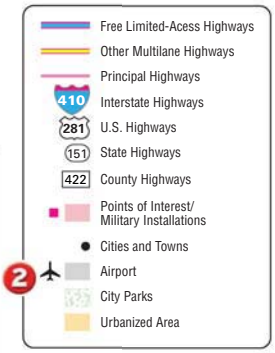


(1) The title identifies the area covered by the map.

(2) The key shows the symbols used on the map and explains what they mean. For example, the ✈ symbol shows where airports are located.

(3) Points of interest, such as the Alamo (B–2) or Sea World (A–2), are marked by small red squares or by pink ribbons, depending on their size.

Map and Graph Skills Assessment

1. Seeing Patterns
Which interstate highways pass through the center of San Antonio?

2. Making Decisions
Which interstate highway and U.S. highway would you take to the Alamo when coming from the southeast?

3. Analyzing Data
By the most direct route, how far is Live Oak from Leon Valley by highway?

Chapter 5 Assessment

VISUAL SUMMARY
PHYSICAL GEOGRAPHY OF THE UNITED STATES AND CANADA

Landforms

Major Mountain Ranges:
Rocky Mountains, Appalachian Mountains

Major Waterways:
Mississippi-Missouri-Ohio river system, Great Lakes, Mackenzie River, Columbia River, Rio Grande River, Colorado River

Interior Lowlands:
Great Plains, Canadian Shield, Interior Plains

Resources

- Both the United States and Canada have huge mineral and fossil fuel resources.
- Forest lands cover about one-third of the United States and one-half of Canada.

Climate and Vegetation

- Canada's climates and vegetation are related to its far northern location.
- The United States includes regions that are in almost every climate and vegetation zone.

Human-Environment Interaction

- Movement westward altered the land in both the United States and Canada.
- Transportation networks helped develop the land and economy of the region.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. Appalachian Mountains
2. Rocky Mountains
3. Great Plains
4. Canadian Shield
5. Great Lakes
6. Mackenzie River
7. prevailing westerlies
8. Everglades
9. lock
10. St. Lawrence Seaway

B. Answer the questions about vocabulary in complete sentences.

11. Which of the places listed above are found both in the United States and Canada?
12. Which of the mountain chains form a boundary with the Canadian Shield?
13. The Great Plains are bounded on one side by which landform listed above?
14. The Hudson Bay is found in which place listed above?
15. Which two waterways are linked?
16. Which place above is a huge swampland?
17. Which of the places are subregions of the Interior Lowlands?
18. What climate region in North America is influenced by the prevailing westerlies?
19. Why are the Great Lakes and the St. Lawrence Seaway important?
20. Why are locks needed on the St. Lawrence Seaway?

Main Ideas

Landforms and Resources (pp. 117–122)

1. How do the Eastern Lowlands differ from the Interior Lowlands?
2. What is the Continental Divide?
3. Why are the United States and Canada leading food producers?
4. What are the most abundant natural resources in the United States and Canada?

Climate and Vegetation (pp. 123–126)

5. In what type of climate would you expect to find permafrost?
6. Which climates are found in the United States and not in Canada?
7. What type of vegetation covers most of Canada?

Human-Environment Interaction (pp. 127–131)

8. How did the earliest inhabitants of the United States and Canada, those who arrived before the Europeans, alter the land?
9. What problems arose in Los Angeles with rapid expansion?
10. How did the settlers of the United States and Canada overcome the distances across the continent?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.

Landforms	
Resources	

a. How is the location of cities related to landforms and to climate?

b. How is Canada's economy affected by its climate and vegetation?

2. Geographic Themes

a. **MOVEMENT** Write a sentence describing the movement of people and goods across the United States and Canada over the last 200 years.

b. **PLACE** How have the Great Lakes contributed to the development of both the United States and Canada?

3. Identifying Themes

In developing their city, how did the people of Montreal solve the problems of a severe climate? Which of the five themes apply to this situation?

4. Making Inferences

What aspects of physical geography have contributed to the economic success of the United States and Canada?

5. Seeing Patterns

How did the presence of north-to-south flowing rivers in the United States affect its development?

Additional Test Practice, pp. S1–S37

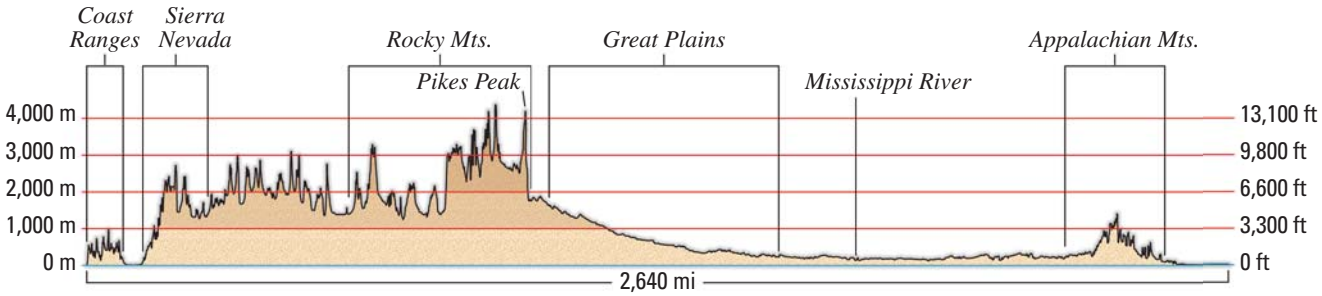
TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Maps

Physical Profile of the United States

Use the map below to answer the following questions.

1. **REGION** What might be said about the land between the Appalachians and the Mississippi?
2. **PLACE** What is the difference in altitude between the Coastal ranges and the Sierra Nevada?
3. **REGION** What happens to the land as you move west of the Mississippi?



GeoActivity

Create a three-dimensional model of the cross section on this page. Use colors to indicate elevations and label the physical features you show. Create a legend for your model.

INTERNET ACTIVITY

Use the links at **classzone.com** to conduct research on the landforms of the United States and Canada. Focus on finding pictures of major and well-known landforms and waterways.

Creating a Multimedia Presentation From your research, select a series of pictures to include in a presentation on the theme "A Land of Contrasts." List the Web sites you used in preparing your report.

Chapter 6

HUMAN GEOGRAPHY OF THE UNITED STATES

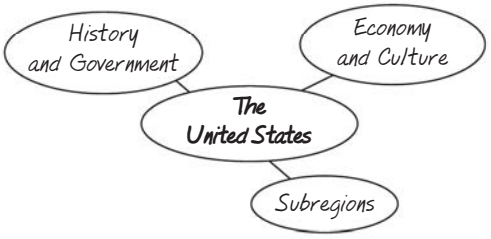
Shaping an Abundant Land

Four Subregions of the United States

GeoFocus

What factors shaped the development of the United States?

Taking Notes In your notebook, copy a cluster diagram like the one shown. As you read, take notes about the history, economy, culture, and modern life of the United States and its subregions.



History and Government of the United States

Main Ideas

- The United States is a "nation of immigrants," settled by people from all over the world.
- The United States is the most diverse and highly industrialized and urbanized nation in the world.

Places & Terms

migration
Columbian Exchange
Louisiana Purchase
frontier
suburb
representative democracy

Connect to the Issues

TERRORISM Beginning in the late 20th century, the United States has been subjected to terrorist attacks by individuals and groups opposed to its policies.

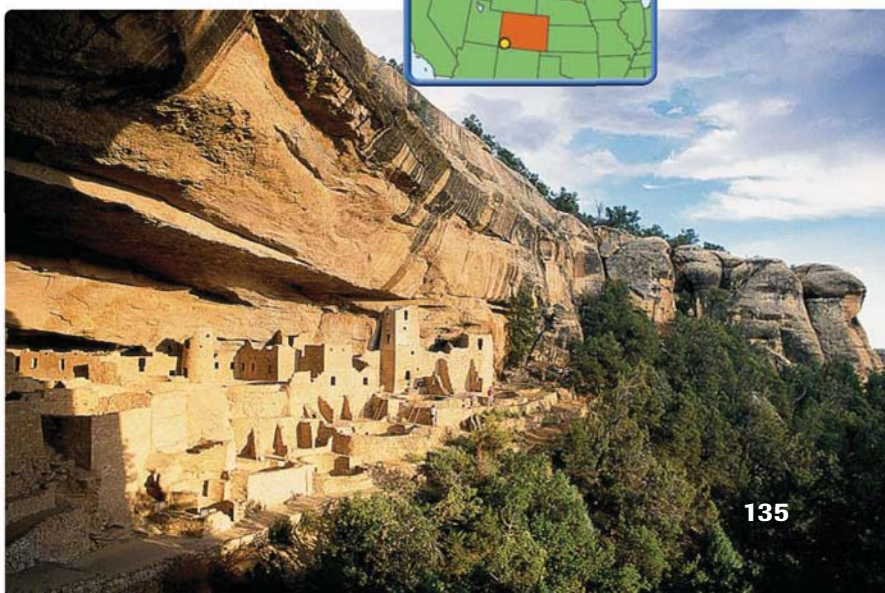
A HUMAN PERSPECTIVE Women were North America's first farmers. In all early cultures except the hunter-gatherer culture of the Southwest, women cultivated the land. They discovered which wild plants could be used as food for the family. They planted the seeds, tended the garden, harvested the crops, and prepared food for meals. Corn, beans, and squash were the first of these foods. Women also learned which leaves, bark, roots, stems, and berries could be used for medicines. Their efforts helped to ensure the survival of human settlement in North America—and the part of the land that became the United States.

Creating a Nation

The United States occupies nearly two-fifths of North America. It is the world's third largest country in both land area and population. It is rich in natural resources and is also fortunate to have a moderate climate, fertile soil, and plentiful water supplies. For thousands of years, this bounty has attracted waves of immigrants who came to find a better life. This continuing immigration is a recurring theme in the country's history; so is the constant **migration,** or movement, of peoples within the United States.

MANY PEOPLES SETTLE THE LAND As you read in Chapter 5, the first inhabitants of North America were believed to be nomads who came from Asia at least 13,000 or more years ago. These people settled the continent, spreading south along the Pacific coast and east to the Atlantic. Over the centuries, they developed separate cultures, as the map on page 104 shows. These native peoples occupied the land undisturbed until the 15th century, when Europeans began to explore what they called the "New World." The Spanish arrived first. They searched the present-day Southeast and Southwest for gold and other treasure. In 1565, they founded St. Augustine, Florida, the oldest permanent European settlement in the United States.

The French and English came later. France was interested in fisheries and the fur trade. In the early 1600s, the French settled along the northern Atlantic Coast and the St. Lawrence River in what is now Canada. The English arrived at about the same time. During the 1600s and 1700s,



HUMAN-ENVIRONMENT INTERACTION Early Native American settlers in the Southwest often built their dwellings into canyon walls. The dwellings shown are in Mesa Verde National Park in Colorado. **Why did the earliest settlers choose such locations for their dwellings?**

MOVEMENT This infographic shows how plants, animals, and diseases were transferred between the Eastern and Western hemispheres as trade followed the voyages of Christopher Columbus to the Americas.

they settled to the south—on rivers and bays along the Atlantic coast from present-day Maine to Georgia. The English made their first permanent settlement in Jamestown, Virginia, in 1607.

European colonies often displaced Native Americans. In 1617, the Europeans brought Africans to America to work as slave laborers on cotton and tobacco plantations in the South. The coming of the Europeans also began what historians call the **Columbian Exchange.** The infographic above shows how the arrival of Europeans in the Western Hemisphere affected the lives of both Europeans and the native peoples.

BACKGROUND About 600,000 Africans were brought to the United States to work as slave laborers from 1617 until the importation of slaves was banned in 1808.

ESTABLISHING AND MAINTAINING THE UNION The French and the English eventually fought in North America over trade and territory. In 1763, Great Britain gained control of all of North America east of the Mississippi River. But its control was short-lived. Britain's 13 American colonies soon began to resent the policies forced on them by a government thousands of miles away across the Atlantic. Their protests led to the American Revolution (1775–1783) and the founding of the United States of America. The new nation grew rapidly, and settlers pushed westward to the Mississippi. In 1803, the United States nearly doubled in size when the government purchased the vast plains region between the Mississippi and the Rocky Mountains from France. This territory became known as the **Louisiana Purchase.**

In the early 1800s, immigrants from Western Europe arrived in great numbers. They settled in cities in the Northeast, where industrialization was beginning. One such city was Lowell, Massachusetts, which had become a booming textile center by the 1840s. The newcomers also moved to rich farmlands in what is now the Midwest.

Meanwhile, sectionalism was growing. People were placing loyalty to their region, or section, above loyalty to the nation. The result was rising political and economic tensions between an agricultural South dependent on slave labor and the more industrialized North. These tensions led to the Civil War (1861–1865). It took four years of bloody fighting and many more years of political conflict to reunite the country.

An Industrial and Urban Society

In the second half of the 19th century, millions of Americans were on the move. They settled on newly opened lands west of the Mississippi and in the rapidly industrializing cities of the North and Midwest.

WESTWARD MOVEMENT From departure points such as Independence, Missouri, hundreds of thousands of pioneers left in covered wagons bound for the West. They blazed trails that crossed prairie, plains, desert, and mountains, moving toward the Pacific. A wagon train on the Oregon Trail might have taken up to six months to reach its destination 2,000 miles away.

To make way for white settlers, the U.S. government removed Native Americans from their lands by treaty, or by force. In Chapter 5, you read that the first transcontinental railroad across the United States was completed in 1869. Railroads brought people to the West, and western cattle and products to markets in the East. By 1890, about 17 million people lived between the Mississippi and the Pacific. The free, open land that had been available and suitable for settlement—the **frontier**—was now fully settled.

INDUSTRIALIZATION AND URBANIZATION As the West was being settled, immigrants—mainly from Western and Eastern Europe—poured into the United States. About 14 million came from 1860 to 1900.

Some joined the movement to the West. Others settled in urban areas undergoing industrialization. Cities such as New York, Boston, Pittsburgh, Cleveland, Detroit, and Chicago expanded rapidly. Both recent immigrants and large numbers of Americans from rural areas came to cities such as these to work in textile, steel, oil, food processing, and other industries. The United States was being transformed from a rural, agricultural nation to an urban, industrialized one.

World Power and Domestic Change

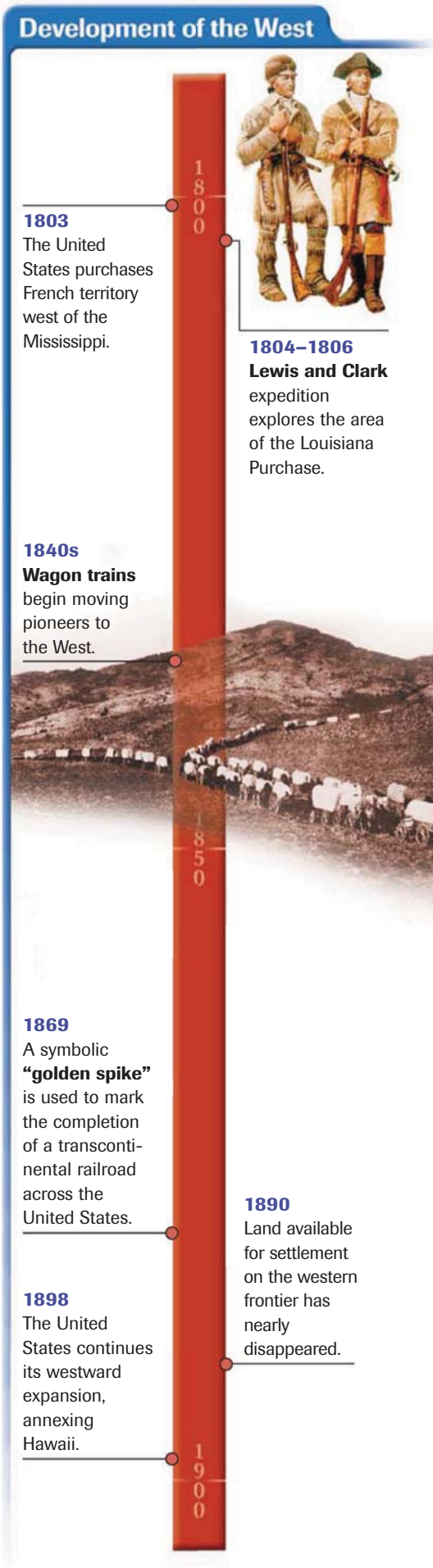
As the 20th century began, the United States was the dominant economic and political power in the Western Hemisphere. By the century's end, it would be the world's sole superpower.

LOOKING BEYOND ITS BORDERS The United States had tried to avoid involvement in foreign affairs during its decades of growth. Because of its ample natural and human resources, it had been almost self-sufficient from its founding. Its farms grew the food necessary for survival, and the nation's factories produced the manufactured goods it needed. It was also protected

Geographic Thinking

Using the Atlas

Refer to the map on page 103. What landforms must be crossed by pioneers going from Independence, Missouri, to the Pacific coast?

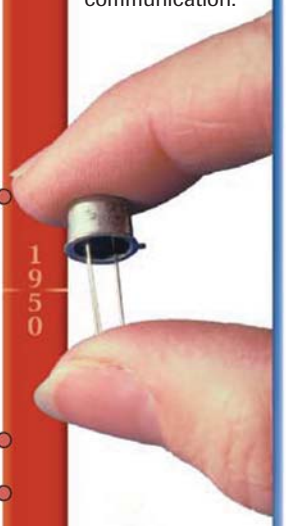


Growth of Technology

1913
Use of an **assembly line** in Ford auto plants streamlines manufacturing.

1920
Regular radio programming by station KDKA in Pittsburgh begins the era of mass communication.

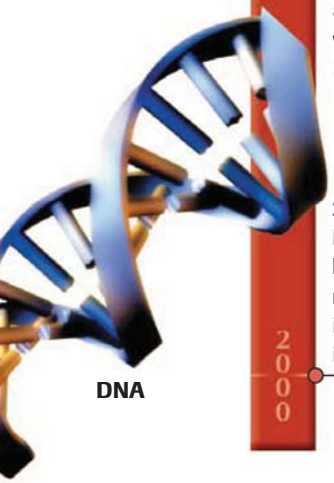
1947
The first mass television audience watches baseball's World Series.



1959
The development of the **integrated circuit** would make the widespread use of computers possible.

1961
U.S. manned exploration of space starts as Alan B. Shepard, Jr., is launched into suborbit of the Earth.

1969
The U.S. Department of Defense develops a computer network that later leads to the Internet.



DNA

2000
Mapping **human genetic material (DNA)** is a breakthrough in biotechnology.

from foreign conflicts by two vast oceans—the Atlantic and the Pacific. But a global economic depression and two world wars brought significant changes. When World War II ended in 1945, the United States was the only major nation that had escaped physical damage and had a healthy economy.

SOCIAL CHANGE AND TECHNOLOGICAL GROWTH The last half of the 20th century was a time of rapid social change. Americans were on the move. Large numbers of people began migrating from cities to surrounding **suburbs,** the communities outside of a city. Some Americans left the colder climates of the Northeast and Midwest for the warmer South and West. Also, immigrants continued to arrive by the hundreds of thousands. But now they came mainly from the countries of Latin America and Asia. B

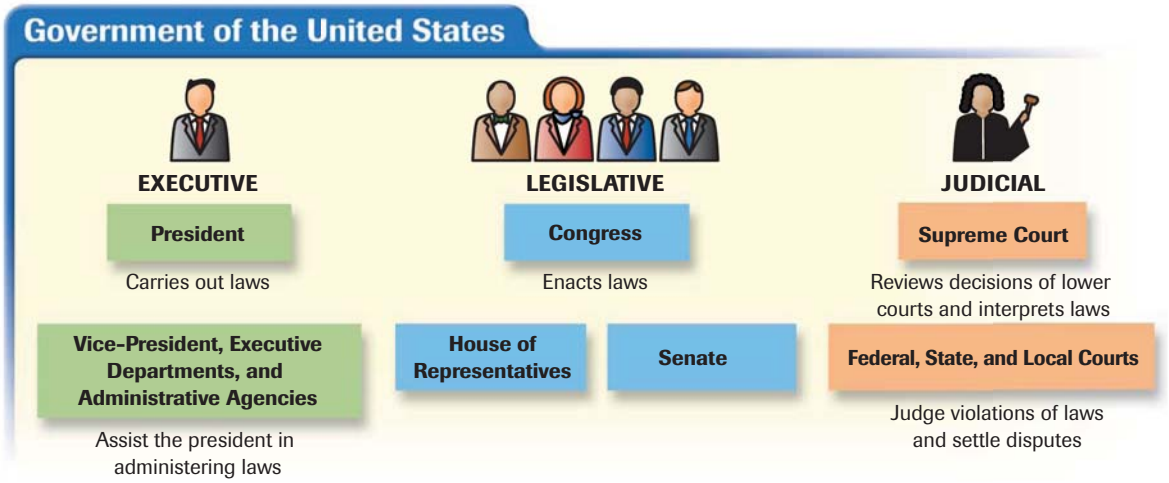
These years saw much social unrest, especially during the 1960s and 1970s. The civil rights movement fought to gain equal rights for African Americans. The feminist movement sought equality for women. Also, many students and others protested U.S. involvement in a war between Communist and non-Communist forces in Vietnam (1955–75).

During this period, the U.S. economy boomed, despite some periods of economic downturn, or recession. The economy, too, was being transformed. Changes in technology altered the way goods were produced. The use of computers revolutionized the workplace. Providing services and information technology surpassed industrial production in importance. The United States also became the world's greatest economic power. Today, it plays a major role in a global economy that is increasingly competitive.

LIVING IN A GLOBAL SOCIETY Meanwhile, American political influence spread throughout the world after the Second World War. The United States became the leader of the world's non-Communist nations. Their goal was to stop the spread of communism, spearheaded by the Soviet Union (now Russia). A competition for world influence called the Cold War (roughly 1945–1991) followed. When communism in Europe collapsed in 1991, the United States emerged as the world's sole superpower. As such, it has used its diplomatic and military power to try to keep the peace and to further American interests in the international community.

Geographic Thinking

Seeing Patterns
B What kinds of movement were taking place in the United States in the last half of the 20th century?



Governing the People

One of the strengths of the United States is the political system created by the U.S. Constitution, drawn up in 1787. The United States is a **representative democracy,** where the people rule through elected representatives. It is also a federal republic, where powers are divided among the federal, or national, government and various state governments.

As you can see on the chart above, there are three separate and equal branches of the federal government. The executive branch, headed by the president, carries out the laws. The president also approves or vetoes proposed laws. The legislative branch makes the laws, and the judicial branch interprets the laws by reviewing decisions of lower courts. The 50 states also have executive, legislative, and judicial branches. They exercise powers not specifically granted to the federal government by the Constitution.

In this section, you read about the history and government of the United States. In the next, you will learn about its economy and culture.

SECTION 1 Assessment

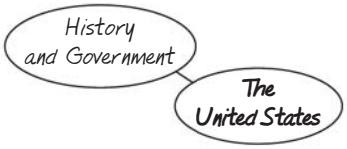
1 Places & Terms

Explain the meaning of each of the following terms.

- migration
- Columbian Exchange
- Louisiana Purchase
- frontier
- suburb
- representative democracy

2 Taking Notes

MOVEMENT Review the notes you took for this section.



- Where did people migrate from to populate North America?
- Where did people move after the frontier was fully settled?

3 Main Ideas

a. Why did the United States attract so many immigrants?

b. How was the United States able to become a world power?

c. How are the powers of government in the United States divided?

4 Geographic Thinking

Making Inferences How did the physical geography of the United States contribute to its economic growth? **Think about:**

- land and mineral resources
- its relative global location

See Skillbuilder Handbook, page R4.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Make a list of physical features that would have attracted settlement to your area. Then do research or call your local historical society to find out when your community was founded and what groups settled there. Combine your findings in a **report** about your community.

2 Economy and Culture of the United States

Main Ideas

- The United States has the world's largest and most diversified economy.
- American products and popular culture are recognized around the world.

Places & Terms

export
free enterprise
service industry
postindustrial economy
multinational

Connect to the Issues

URBAN SPRAWL
Urbanization has helped economic growth, but it has also caused a variety of problems.

A HUMAN PERSPECTIVE The average American worker in 1790 was a self-employed farmer. The farmer spent each work day, sunrise to sunset, in backbreaking labor in the field. Most of the crops and livestock raised were consumed by the farm family. In the 1890s, the average American worker labored in a manufacturing or service industry, for long hours and low wages, often under unsafe conditions. Laborers in factories, for example, worked 60 hours a week for a total wage of $12; some were as young as 12 years of age.

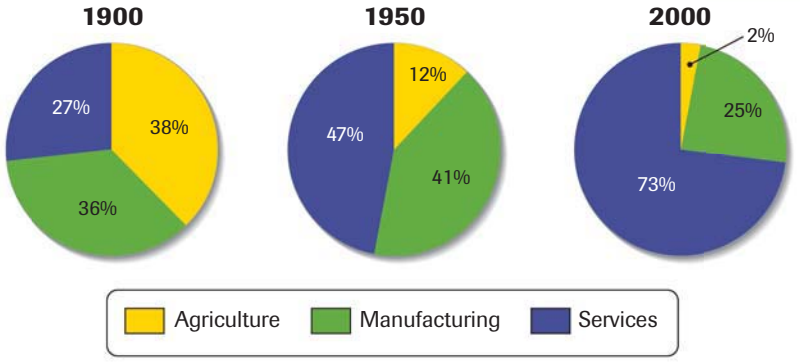
At the start of the 21st century, the average worker was spending most of the workday in an office in front of a computer, processing information or providing services. The standard workweek was 40 hours; the government regulated workplace safety; and salaries generally covered living expenses, leisure-time activities, and perhaps, even savings.

The World's Greatest Economic Power

The United States has about 7 percent of the world's land area and about 5 percent of the world's population. But it has the world's largest economy—the most powerful, diverse, and technologically advanced in the world. The United States is a world leader in agricultural products, manufactured goods, and global trade. In fact, it accounts for more than 10 percent of the world's **exports,** which are goods sold to another country.

Three factors have contributed to the overall success of the American economy—available natural resources, a skilled labor force, and a stable political system that has allowed the economy to develop. The economy is run largely on **free enterprise.** In this economic system, private individuals own most of the resources, technology, and businesses, and can operate them for profit with little control from the government.

Major Sectors of the U.S. Economy

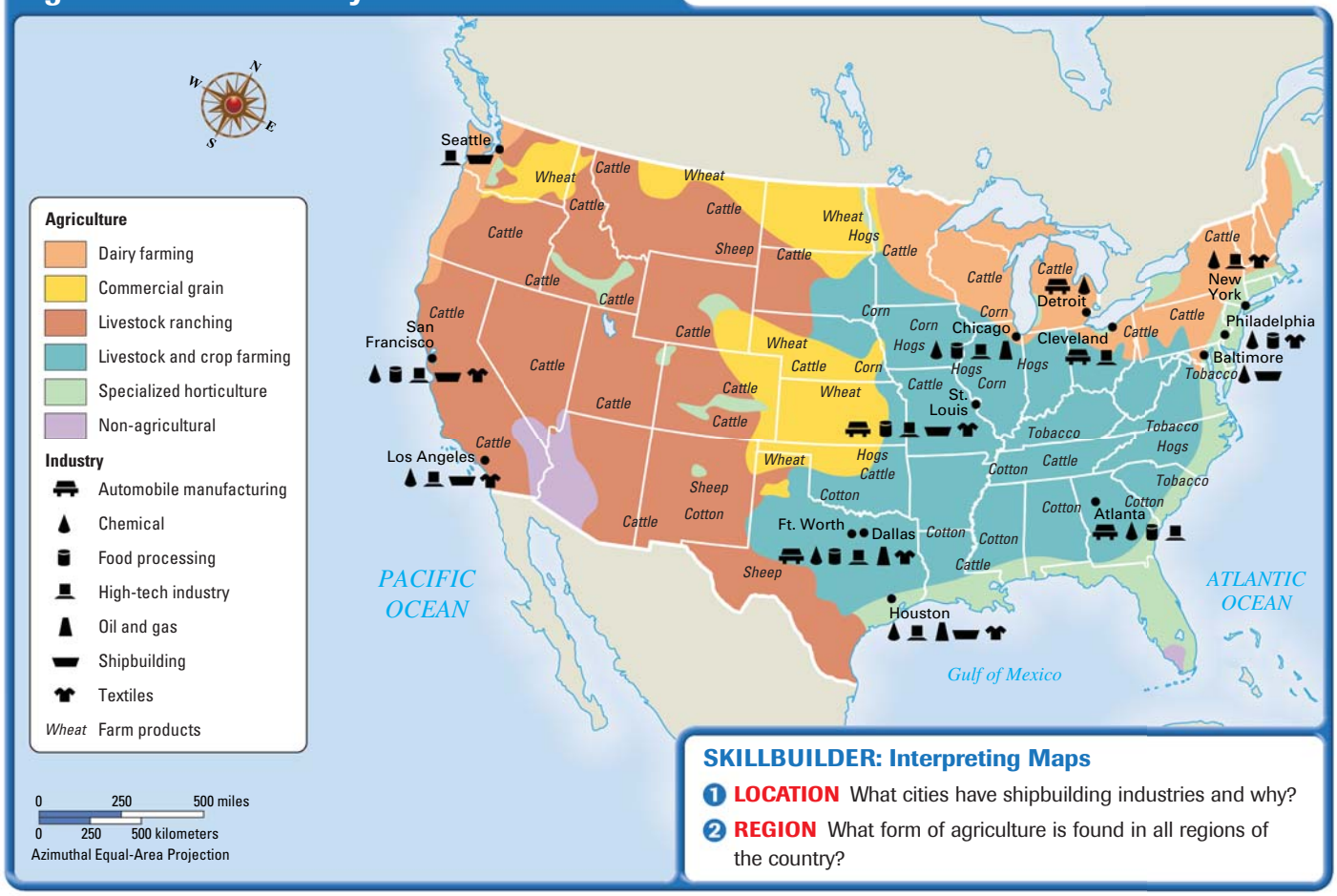


SOURCES: *Historical Statistics of the United States;* U.S. Bureau of Labor Statistics

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** What were the dominant sectors of the economy in 1900, 1950, and 2000?
2. **MAKING GENERALIZATIONS** What might account for these changes in the economy?

Agriculture and Industry of the United States



SKILLBUILDER: Interpreting Maps

1. **LOCATION** What cities have shipbuilding industries and why?
2. **REGION** What form of agriculture is found in all regions of the country?

AN AGRICULTURAL AND INDUSTRIAL GIANT The United States not only feeds itself but also helps to feed the world. American farms and ranches supply about 40 percent of the world's production of corn, 20 percent of its cotton, and about 10 percent of its wheat, cattle, and hogs. Fertile soil, a favorable climate, and the early mechanization of the country's farms are mainly responsible for this bounty. Different areas of the country produce different products, as you can see from the map on this page. The Midwest and South, for example, specialize in crop farming, while livestock ranching is concentrated in the West.

The industrial output of the United States is larger than that of any other country. Advances in technology, especially in electronics and computers, revolutionized industry and led to the creation of new products and methods of production. Leading industries are petroleum, steel, transportation equipment, chemicals, electronics, food processing, telecommunications, consumer goods, lumber, and mining. A

Geographic Thinking

Seeing Patterns

A Why might industrial centers be located near bodies of water?

Major industrial centers have long been located along the Atlantic Coast and around the Great Lakes. In recent decades, a variety of industries have also started up in urban areas in the South and along the Pacific coast. Over time, some areas have become associated with certain products, such as Detroit (automobiles), Seattle (aircraft), and northern California, in an area called Silicon Valley (computers).

A POSTINDUSTRIAL ECONOMY The graphs on page 140 show the rich farming and manufacturing traditions of the United States. But

they also indicate that the American economy today is driven by service industries. A **service industry** is any kind of economic activity that produces a service rather than a product. Nearly three out of four Americans now work in service-related jobs, such as information processing, finance, medicine, transportation, and education. This economic phase is called a **postindustrial economy,** one where manufacturing no longer plays a dominant role.

The United States is the world's major trading nation, leading the world in the value of its exports and imports. It exports raw materials, agricultural products, and manufactured goods. Automobiles, electronic equipment, machinery, and apparel are some of its principal imports. Its North American neighbors, Canada and Mexico, are two of its most important trading partners. Many American corporations engage in business worldwide and are called **multinationals.** B

Geographic Thinking

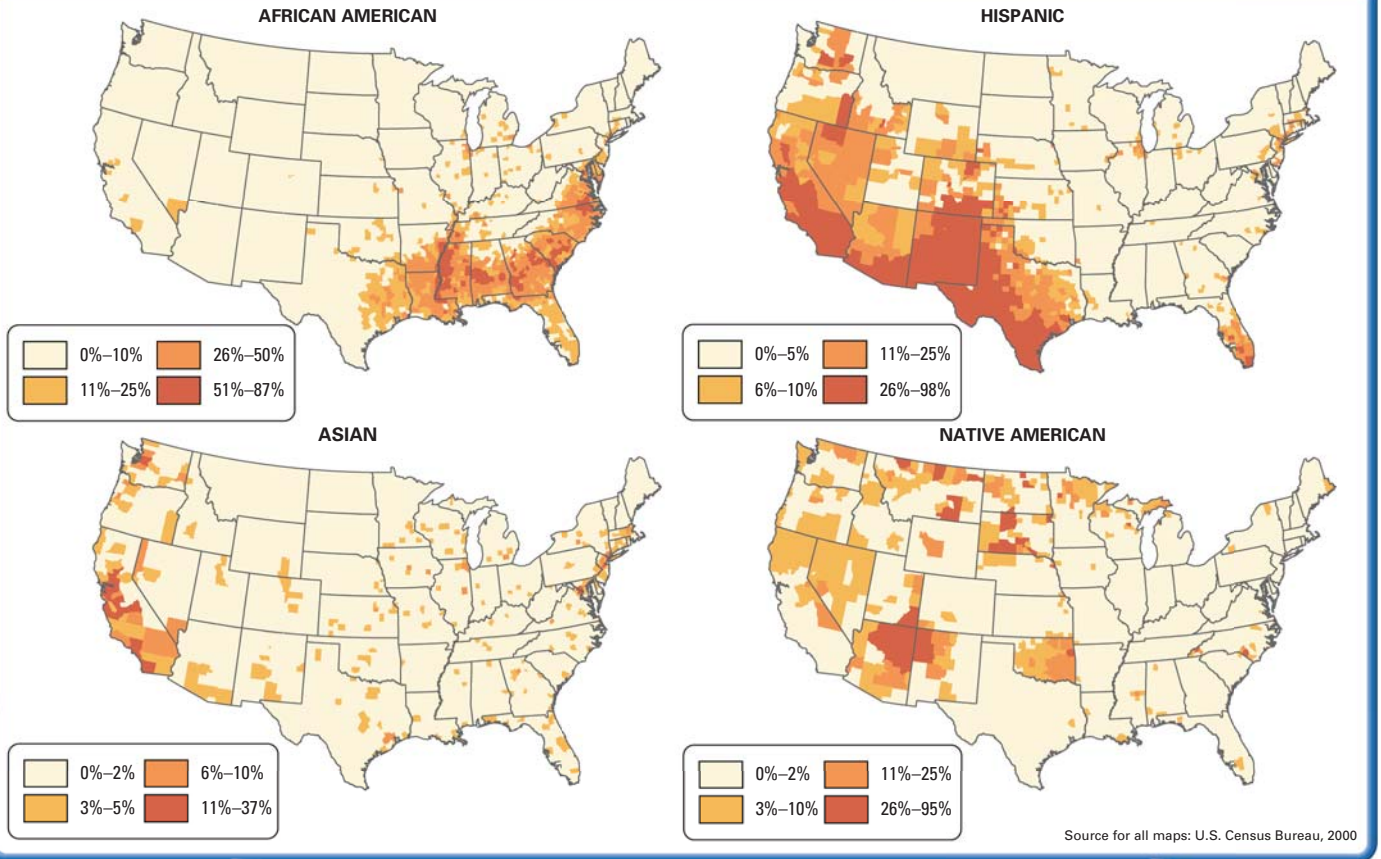
Seeing Patterns

B Where do some of the natural resources of the United States go?

A Diverse Society

Because the United States is a nation of immigrants, it is a nation of different races and ethnic traditions. The majority of Americans, about 70 percent, trace their ancestry to Europe. Hispanic Americans, mainly

Distribution of Selected Ethnic Minorities in the U.S., 2000



Source for all maps: U.S. Census Bureau, 2000

SKILLBUILDER: Interpreting Maps

1. **REGION** What subregion has significant numbers of most of the ethnic groups shown?
2. **MOVEMENT** Compare this map with the map on page 104. What has changed about the distribution of Native Americans since 1600?

from Central and South America, make up about 13 percent of the population; African Americans, about 12 percent; Asian Americans, 4 percent; and Native Americans, 1 percent. The largest ethnic groups are English, German, Irish, African, French, Italian, Scottish, Polish, and Mexican. The maps on page 142 show the distribution of some groups.

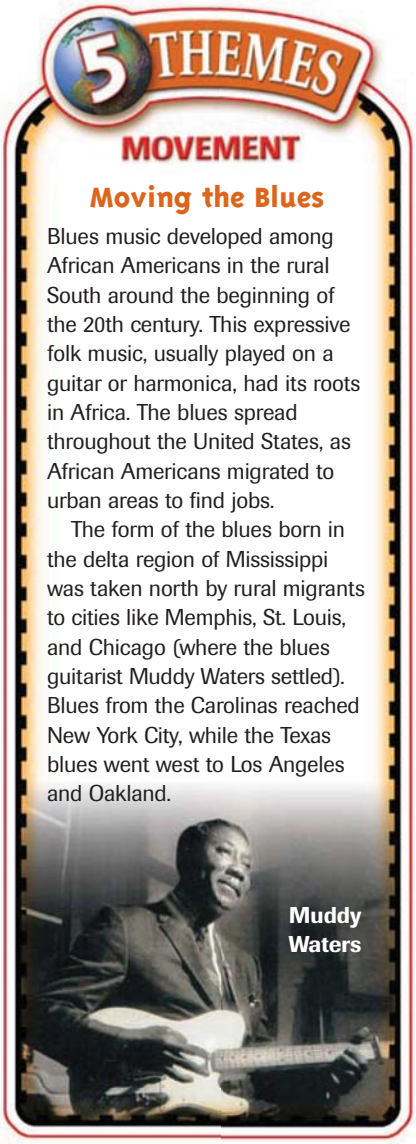
Background
English is the dominant language in countries, including Canada, the United States, and Australia, that cover one-fifth of the earth's land surface.

LANGUAGES AND RELIGION English has been the dominant language of the United States since its founding. Spanish is the second most commonly spoken language. Typically, immigrants have spoken their native language until they learned English.

Religious freedom has been a cornerstone of American society. Today, more than 1,000 different religious groups practice their faiths in the United States. By far, the majority of the American people—85 percent—are Christians. About 56 percent are Protestants and 28 percent Roman Catholics. Jews and Muslims each account for about 2 percent of the religious population.

THE ARTS AND POPULAR CULTURE The United States has a rich artistic heritage, the product of its diverse population. Its first artists were Native Americans, who made pottery, weavings, and carvings. Early European settlers brought with them the artistic traditions of their homelands. Truly American styles developed in painting, music, literature, and architecture in the 19th century. Artists depicted the country's expansive landscape and scenes of American life both on the western frontier and in the cities. One 19th-century American creation, the skyscraper, changed urban architecture all over the world.

Today, motion pictures and popular music are two influential American art forms. Hollywood, California, is the center of the movie industry in the United States. American films provide entertainment for the world. Many ethnic groups contributed to the musical heritage of the United States. For example, jazz, blues, gospel, and rock 'n' roll have African-American origins. Country and bluegrass music developed among Southern whites whose ancestors came from the British Isles.



American Life Today

More than 280 million people live in the United States. The majority enjoy a high standard of living. Despite coming from many ethnic and racial groups, they generally live and work together. They are pursuing what attracted their ancestors to the New World and came to be called "the American dream," a better life for themselves and their children.

WHERE AMERICANS LIVE About 80 percent of Americans live in cities or surrounding suburbs. Americans moved first from rural areas to cities and then from cities to suburbs. The shift to the suburbs was made possible by the widespread ownership of automobiles. There is one auto

HUMAN–ENVIRONMENT INTERACTION Lake Michigan and its shoreline provide Chicago residents with many opportunities for recreation.
What might some of these recreational opportunities be?

for every 1.3 Americans. A highly developed transportation network that includes highways, expressways, railroads, and airlines aids mobility.

HOW AMERICANS LIVE, WORK, AND PLAY Nearly 50 percent of American adults of working age are employed. Almost half of them are women. As you read earlier, about seven out of ten Americans in the workforce hold service industry jobs. Many are highly skilled positions, which require advanced education. Americans have always valued education, seeing it as a means to provide equality and opportunity. As a result, all children from the ages of 6 or 7 to age 16 are required to attend school. Nine out of ten students are in the public school system, where education is free through secondary school. The United States also has more than 2,300 four-year public and private colleges and universities.

Americans have a wide range of choices for leisure-time activities. As either spectators or players, they take part in sports such as baseball, basketball, football, golf, soccer, tennis, and skiing. Most major cities have professional sports teams. Americans of all ages also use their free time to engage in hobbies, visit museums and libraries, and watch television and movies. Another favorite activity is spending time on the computer, surfing the Internet or playing video games.

Unfortunately, not all Americans live well. More than one in ten lives in poverty. It is a continuing challenge for government and society to try to bring these people into the mainstream of American life. In the next section, you will learn about life in the country's subregions.

SECTION 2 Assessment

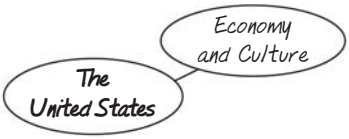
1 Places & Terms

Explain the meaning of each of the following terms.

- export
- free enterprise
- service industry
- postindustrial economy
- multinational

2 Taking Notes

REGION Review the notes you took for this section.



- Where are the industrial centers in the United States?
- Where do the majority of Americans live?

3 Main Ideas

a. What three factors have contributed to the success of the American economy?

b. What are the geographic origins of some American musical styles?

c. What invention made life in the suburbs possible?

4 Geographic Thinking

Making Comparisons How is the economy of the United States today different from its economy 50 years ago?
Think about:

- postindustrial economy
- multinational trade

See Skillbuilder Handbook, page R3.

GeoActivity

EXPLORING LOCAL GEOGRAPHY Study the maps on page 142. Find your state. Create a **sketch map** of your state and show the location of major ethnic groups that live in your state.

3

Subregions of the United States

Main Ideas

- The United States is divided into four major economic and cultural subregions.
- There are both similarities and differences among the subregions of the United States.

Places & Terms

New England
megalopolis
the Midwest
the South
metropolitan area
the West

CONNECT TO THE ISSUES
DIVERSE SOCIETIES While diversity can be a strength, it has also been the cause of tension and conflict among regions.

A HUMAN PERSPECTIVE America's back roads were the beat of reporter and author Charles Kuralt for more than 20 years. Beginning in the 1960s, he traveled by van through every region of the country. In his "On the Road" series for television, he reported on the uniqueness of the lives of ordinary Americans. He said that he wanted to make these trips off the beaten path because most people traveled across the country on interstate highways without seeing the "real" America. Whether he visited Minnesota's lake country or a small New England town, Kuralt spotlighted America's regional diversity. In fact, one of the key strengths of the United States is the variety of life in its subregions—the Northeast, the Midwest, the South, and the West.

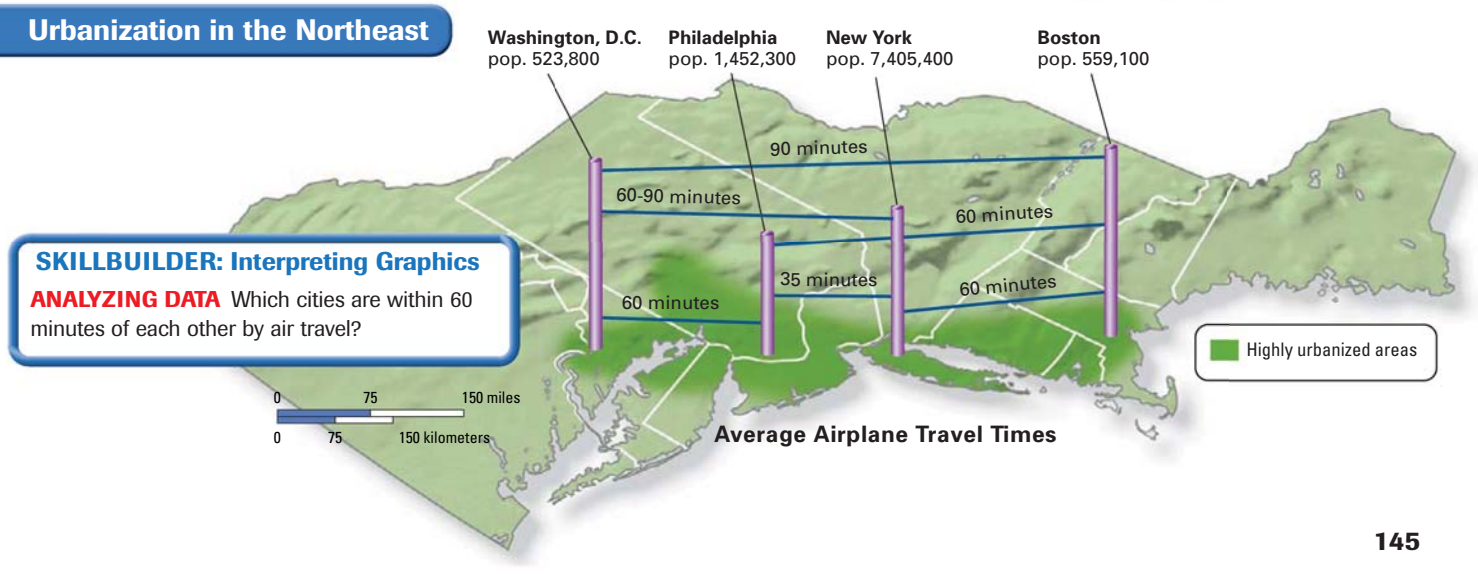
The Northeast

As you can see on the map on page 134, the Northeast covers only 5 percent of the nation's land area. But about 20 percent of the population lives there. The six northern states of the subregion—Maine, Vermont, New Hampshire, Massachusetts, Rhode Island, and Connecticut—are called **New England**. The other three—Pennsylvania, New York, and New Jersey—are sometimes referred to as Middle Atlantic states. (Maryland and Delaware, which are included in the South in this book, are sometimes included in the Middle Atlantic states.)

AMERICA'S GATEWAY Because of its location along the Atlantic coast, the Northeast contains many of the areas first settled by Europeans. The region served as the "gateway" to America for millions of immigrants from all over the world. Many people still engage in fishing and farming,

LOCATION BosWash is the name given to the highly urbanized northeastern seaboard of the United States.

Urbanization in the Northeast



SKILLBUILDER: Interpreting Graphics
ANALYZING DATA Which cities are within 60 minutes of each other by air travel?

as the Northeast's early settlers did. But the region's coastal and inland waters turned it into the heart of trade, commerce, and industry for the nation. In fact, the Northeast is one of the most heavily industrialized and urbanized areas in the world. The Atlantic seaboard cities of Philadelphia, Boston, and New York City serve as international trade centers.

Coal, iron ore, and oil—found mainly in Pennsylvania—fueled the industrialization of the region. Traditional industries, such as iron and steel, petroleum, and lumber, still play a role in the region's economy. But most Northeasterners are now employed in such manufacturing and service industries as electronics, communications, chemicals, medical research, finance, and tourism. Pennsylvania, New York, and New Jersey have rich farmlands, but much of New England is too hilly or rocky to grow crops easily.

Parts of the Middle Atlantic states are often referred to as the "rust belt" because of their declining and abandoned traditional industries. They share this term with some of the states of the Midwest. In recent times, many "rust belt" industries have moved to the warmer climates of the "sunbelt" in the South and West.

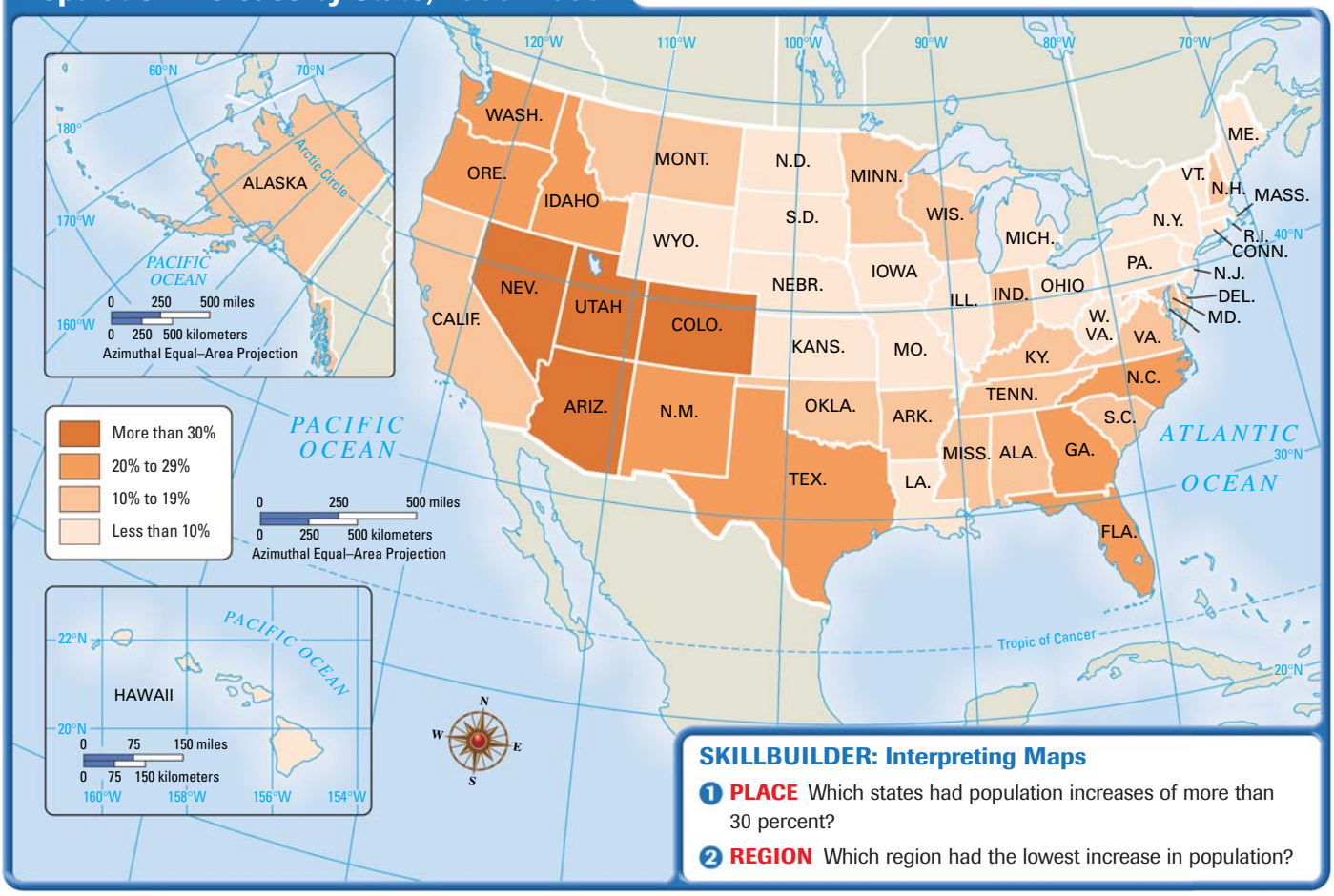
Geographic Thinking

Using the Atlas

Refer to the map on page 106. What economic activities are shown for the Northeast?

GROWTH OF THE MEGALOPOLIS The nation's first megalopolis developed in the Northeast. A **megalopolis** is a region in which several large cities and surrounding areas grow together. You can see the extent of the "BosWash" megalopolis, as it is called, in the illustration on page 145.

Population Increase by State, 1990–2000



SKILLBUILDER: Interpreting Maps

1. **PLACE** Which states had population increases of more than 30 percent?
2. **REGION** Which region had the lowest increase in population?

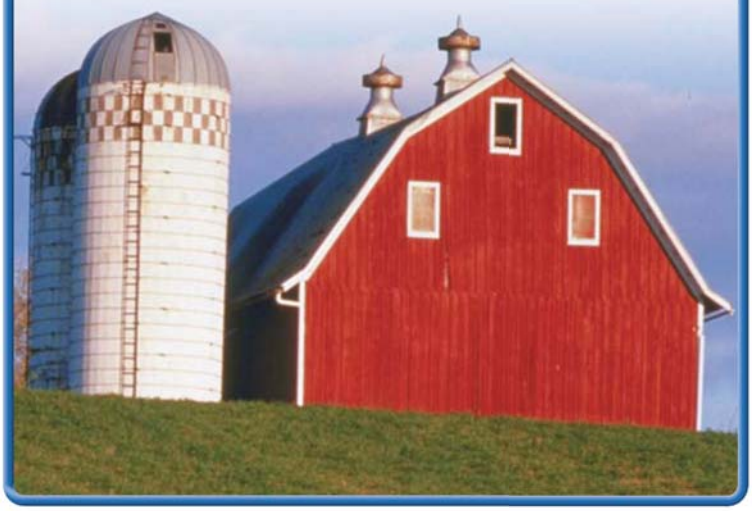
It stretches through 500 miles of highly urbanized areas from Boston in the north to Washington, D.C., the national capital, in the south. It contains one-sixth of the U.S. population. New York City, the country's cultural and financial center, is located here. Rapid road, rail, and air links have been vital to its economic development and expansion into the South. You will read more about urban growth in Chapter 8.

The Midwest

The subregion that contains the 12 states of the north-central United States is called the **Midwest.** Because of its central location, the Midwest is called the American heartland. It occupies about one-fifth of the nation's land and almost one-fourth of its people live there. Since the Revolutionary War, immigrants from all over the world have made it their destination. Many early settlers came from Britain, Germany, and Scandinavia. Vast, largely flat plains are a distinctive feature of the region. So are numerous waterways, including the Great Lakes and the Mississippi River and its many tributaries.

The Changing Face of U.S. Agriculture

	1950	1990
Farm Population:	25 million	4.6 million
Number of Farms:	5.3 million	2.1 million
Average Farm Size:	216 acres	461 acres



AGRICULTURAL AND INDUSTRIAL HEARTLAND The Midwest is the nation's "breadbasket." Fertile soil, adequate rainfall, and a favorable climate enable Midwesterners to produce more food and feed more people than farmers in any comparable area in the world. Among the main products are corn, wheat, soybeans, meat, and dairy goods. Agriculture also is the foundation for many of the region's industries, including meatpacking, food processing, farm equipment, and grain milling. Other traditional industries are steel and automaking.

Its central location and excellent waterways make the Midwest a trade, transportation, and distribution center. Chicago, Illinois, which is located near the southwestern shores of Lake Michigan, is the cultural, financial, and transportation hub of the Midwest. Most of the region's major cities developed near large bodies of water, which were essential for early transportation. Cleveland, Detroit, Chicago, and Milwaukee grew near the Great Lakes, and Cincinnati, St. Louis, Minneapolis, St. Paul, Kansas City, and Omaha developed along rivers. B

CHANGING FACE OF THE MIDWEST Like other regions, the Midwest is changing. The number of farms is declining. More Midwesterners are now employed in providing services than in traditional industries. The region's metropolitan areas are expanding as urban dwellers and businesses leave the central cities for the suburbs. People and industries are also moving to the warmer South and West.

Geographic Thinking

Making Comparisons

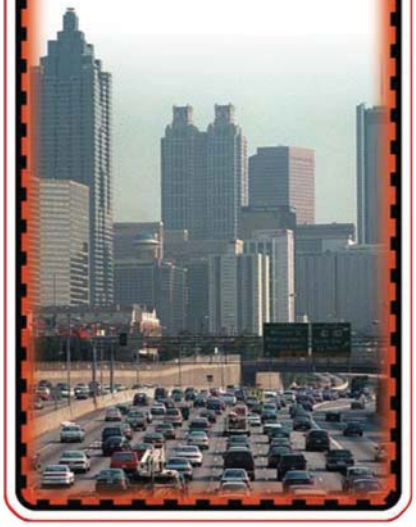
B What do the major cities of the Midwest have in common with those of the Northeast?

Connect to the Issues

URBAN SPRAWL

Traffic Congestion in Atlanta

Atlanta, Georgia, is one of the most traffic-clogged areas in the United States. Urban sprawl is a cause. Like many cities, Atlanta has experienced rapid population growth and suburbanization in recent decades. The Atlanta metropolitan area spreads out over 20 counties and contains nearly 4 million people. This growth brought roadbuilding, and more roads brought more traffic. Residents drive an average of 35 miles a day to reach their destinations—more than anywhere else in the country.



The South

The South is a subregion that covers about one-fourth of the land area of the United States and contains more than one-third of its population. Among its 16 states are 11 that made up the Confederacy during the Civil War. One of these states—Texas—is sometimes included in an area of the West called the Southwest. The South's warm climate, fertile soils, and many natural resources have shaped its development.

THE OLD SOUTH Like the Northeast, the South was also the site of early European settlement. In fact, Virginia was England's first American colony. The South has a mix of cultures that reflects the diversity of its early settlers. In addition to people of British heritage, there are the descendants of Africans brought as slave laborers and Hispanics whose families first migrated from Mexico to Texas. Cajuns of French-Canadian origin and Creoles of French, Spanish, and African descent are found in Louisiana, while Florida is home to many Hispanics who came from Cuba.

Once a rural agricultural area, the South is rapidly changing and its cities growing. Along with the Southwest, it is often referred to as the "sunbelt" because of its climate.

THE NEW SOUTH Agriculture was the South's first economic activity, and cotton, tobacco, fruits, peanuts, and rice are still grown there. Also, livestock production is important in states such as Texas and Arkansas. The South's humid subtropical climate at first hindered industrialization. But the widespread use of air conditioning beginning in the 1950s and the region's vast stores of energy resources—oil, coal, natural gas, and water—gave a boost to industry.

In recent times, the South has attracted many manufacturing and service industries fleeing the harsh weather of the "rust belt." Major industries include petroleum, steel, chemicals, food processing, textiles, and electronics. The South's climate draws millions of tourists and retirees, too. Atlanta, Georgia—a financial, trade, and transportation center—is the hub of the New South. Miami, Tampa-St. Petersburg, New Orleans, Houston, Dallas-Fort Worth, and San Antonio are other rapidly growing **metropolitan areas**—large cities and nearby suburbs and towns.

The West

Look on the map on page 134, and you will see that **the West** is a far-flung subregion consisting of 13 states. It stretches from the Great Plains to the Pacific Ocean and includes Alaska to the north and Hawaii in the Pacific. The West covers about one-half of the land area of the United States but has only about one-fifth of the population. It is a region of dramatic and varied landscapes.

People settle in the West today as they did during its frontier days: wherever landforms and climate are favorable. Some areas, such as its many deserts, are sparsely settled. Nonetheless, California is the

BACKGROUND Washington, Oregon, and Idaho are often called the Northwest. California, Arizona, New Mexico, Nevada, Colorado, Utah, and Texas are called the Southwest.

Background
According to the 2000 census, the population of the West grew by 20 percent from 1990.

country's most populous state because of excellent farmland, good harbors, and a mild climate. The West is the most rapidly growing region in the United States. Los Angeles, the country's second largest city, is the West's cultural and commercial center.

DEVELOPING THE WEST The West's growth in the 20th century was helped by air conditioning and by irrigation. The map on this page, for example, shows how water from the Colorado River in Arizona has been diverted to serve many areas. Water supply aided development of inland cities such as Las Vegas, Tucson, and Phoenix.

The economic activities of the West are as varied as its climate and landscape. Among them are farming, ranching, food processing, logging, fishing, mining, oil refining, tourism, filmmaking, and the production of computers. Many cities with good harbors, including Seattle, Los Angeles, and Long Beach, make foreign trade—especially with Asia—important.

Colorado River Basin

SKILLBUILDER: Interpreting Maps

1. **PLACE** What area receives the largest volume of water from the Colorado River?
2. **MOVEMENT** Which states contribute water to the Colorado River?

You read about the subregions of the United States in this section. In the next chapter, you will learn about the human geography of Canada.

US & CANADA

SECTION 3 Assessment

1 Places & Terms

Explain the meaning of each of the following terms.

- New England
- megalopolis
- the Midwest
- the South
- metropolitan area
- the West

2 Taking Notes

REGION Review the notes you took for this section.

- What are the four subregions of the United States?
- Which subregion is the largest in land area?

3 Main Ideas

a. Why is the Northeast one of the most heavily industrialized and urbanized areas?

b. How is the economy of the Midwest changing?

c. What helped the economy of the West to grow?

4 Geographic Thinking

Seeing Patterns How has air conditioning changed the economic activities of the subregions of the United States? **Think about:**

- the South and the West
- the "rust belt" and the "sunbelt"

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

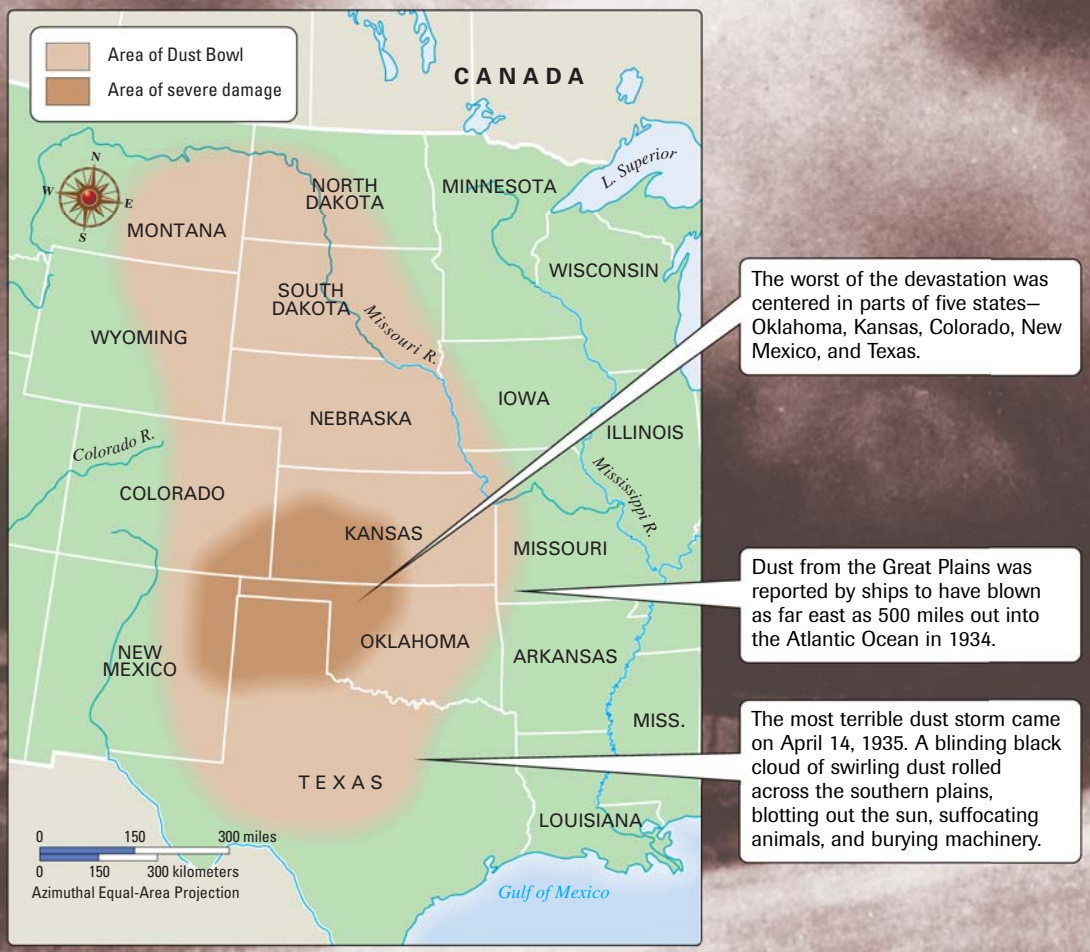
MAKING COMPARISONS Use the Internet to find more information on the economies of the four subregions. Create a **database** comparing the top five industries in each of the four subregions.

Disasters!

INTERACTIVE

The Dust Bowl

Years of unrelenting drought, misuse of the land, and the miles-high dust storms that resulted (shown here) devastated the Great Plains in the 1930s. Rivers dried up, and heat scorched the earth. As livestock died and crops withered, farms were abandoned. Thousands of families—more than two million people—fled to the West, leaving behind their farms and their former lives. Most of these "Okies," as they were called (referring to Oklahoma, the native state of many), made their way over hundreds of miles to California. There they tried to find work as migrant farm laborers and restart their lives. The drought lasted nearly a decade, and it took years for this productive agricultural region to recover.



Thousands of farms like this one in Cimarron County, Oklahoma, were turned into dust-covered wastelands by the drought and dust storms of the 1930s.

Migrants from the Dust Bowl were forced to live any way they could while trying to find jobs picking vegetables or fruit. This mother and her seven children lived in a tent in a California migrant camp, eating vegetables found on the ground and birds they killed.

GeoActivity

REMEMBERING THE VICTIMS

Use the Internet to find personal accounts of Dust Bowl families. Then create a **documentary proposal** about one of them.

- Begin with a brief overview of how the drought affected the family.
- Add a sketch map showing where they lived and copies of any photos available, with captions for each.
- Present your proposal to a panel of student producers.

RESEARCH LINKS
CLASSZONE.COM

GeoData

CAUSES

- Years of poor agricultural practices, such as overplowing and overgrazing, stripped away about 96 million acres of grasslands in the southern plains.
- Seven years of drought, or dry weather, turned the soil to dust.

EFFECTS

- Hundreds of millions of tons of soil were blown away.
- Crops withered and livestock died.
- More than 2 million plains people abandoned their farms.

PREVENTIVE MEASURES

Experts in crop production and soil management proposed the use of scientific farming methods, including

- contour plowing, or plowing across a hill rather than up and down, to stop wind and water erosion
- terracing, or planting crops in stair-stepped rows, to prevent soil erosion
- planting trees to hold the soil in place and to slow the force of the wind

Chapter 6 Assessment

VISUAL SUMMARY
HUMAN GEOGRAPHY OF THE UNITED STATES

History and Government

- The United States was populated by a diverse group of immigrants.
- The United States expanded westward and industrialized.
- The government of the United States is a representative democracy.
- At the start of the 21st century, the United States was the only remaining superpower.

Economy and Culture

- Fertile land, valuable resources, and good location help make the United States an economic leader.
- Much of the U.S. economy is based on service industries.
- Most of the U.S. population lives in urban areas.

Subregions of the United States

- The Northeast region is heavily populated and industrialized.
- The Midwest produces a variety of agricultural and manufactured goods but is shifting to some service industries.
- The South is rapidly becoming more industrialized.
- The West is a rapidly growing economic region.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. migration
2. Columbian Exchange
3. suburb
4. representative democracy
5. free enterprise
6. service industry
7. postindustrial economy
8. multinational
9. megalopolis
10. metropolitan area

B. Answer the questions about vocabulary in complete sentences.

11. What role did migration play in populating the United States?
12. What are some examples of items in the Columbian Exchange?
13. Which of the above terms are associated with urban geography?
14. What type of government does the United States have?
15. What is an advantage of free enterprise?
16. How are the service industry and postindustrial economy related?
17. What is an example of a service industry?
18. What makes a business a multinational corporation?
19. In which region is an example of a megalopolis found?
20. How are the terms suburb and metropolitan area related?

Main Ideas

History and Government of the United States (pp. 135–139)

1. Why is the United States called a "nation of immigrants?"
2. How did the Louisiana Purchase change the United States?
3. What factors led the United States to become a superpower?

Economy and Culture of the United States (pp. 140–144)

4. Why is the United States a leader in agricultural production?
5. What are some examples of the cultural diversity of the United States?
6. In what industry do most Americans work?

Subregions of the United States (pp. 145–151)

7. What changes have taken place in the industrial base of the Northeast?
8. What role did water play in the development of the Midwest?
9. What industries are found in the South today?
10. How did California become the nation's most populous state?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.

a. What resources have been important in the development of the United States?

b. Which subregions make up the "rust belt" and which the "sunbelt"? How are they related?

2. Geographic Themes

a. **REGION** How has the economy of the South changed?

b. **MOVEMENT** How has U.S. population shifted since the country began?

3. Identifying Themes

How did air conditioning and irrigation change the population of the West? Which of the five themes apply to this situation?

4. Determining Cause and Effect

What was the effect of the United States becoming industrialized?

5. Making Generalizations

What has been the result of the United States being populated by many different groups of people?

Additional Test Practice, pp. S1–S37

TEST PRACTICE
CLASSZONE.COM

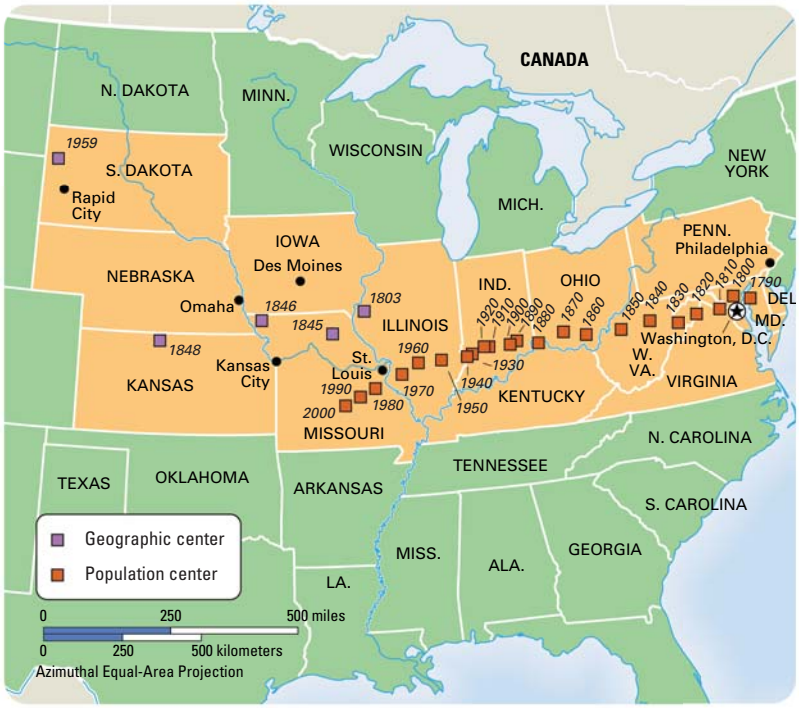
US & CANADA

Geographic Skills: Interpreting Maps

U.S. Population and Geographic Centers

Use the map at right to answer the following questions.

1. **MOVEMENT** In which year did the population center cross the Mississippi River?
2. **MOVEMENT** How would you describe the difference between changes in the geographic center and changes in the population center?
3. **REGION** In which region was the population center from 1790 through 1850?



GeoActivity

Create a series of four maps showing movement of the population center of the United States in 50-year periods. Use the map on this page to help you. Start with the period from 1790 to 1840.

INTERNET ACTIVITY

Use the links at **classzone.com** to do research about the expansion of the United States. Look for the dates when territory was added to the United States.

Writing About Geography Write a report about your findings. Include a map showing the territory acquired to help present the information. List the Web sites that were your sources.

Chapter 7

SECTION 1
History and Government of Canada

SECTION 2
Economy and Culture of Canada

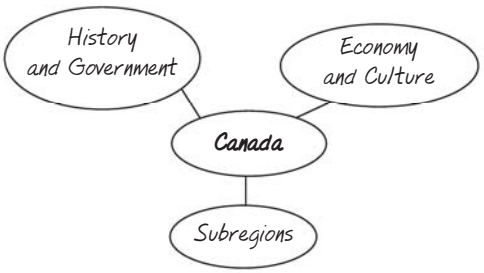
SECTION 3
Subregions of Canada

HUMAN GEOGRAPHY OF CANADA
Developing a Vast Wilderness

GeoFocus

How was such an immense land developed?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information about the human geography of Canada.



History and Government of Canada

Main Ideas

- French and British settlement greatly influenced Canada's political development.
- Canada's size and climate affected economic growth and population distribution.

Places & Terms

province
Dominion of Canada
confederation
parliamentary government
parliament
prime minister

Connect to the Issues

DIVERSE SOCIETIES
Conflict between Canadians of French and English ancestry has been a factor throughout much of Canada's history.

A HUMAN PERSPECTIVE Around A.D. 980, a Viking named Erik the Red sailed to Greenland. Soon after, about 3,000 Vikings colonized the region. About A.D. 1000, Erik's son Leif led an expedition that landed off the Atlantic coast of North America on what is now Newfoundland. Leif called the area Vinland, after the wild grapes that grew there. The Vikings built a settlement but later abandoned it. Five centuries would pass before another European, an Italian navigator named Giovanni Caboto, would come to North America. In 1497, exploring for the English, Caboto (John Cabot in English) landed in Newfoundland and claimed the region for England. European exploration and colonization followed.

The First Settlers and Colonial Rivalry

Canada's vast size and its cold climate significantly affected its development. So did the early migrations of people across its land, the bitter territorial rivalry between the two European nations that colonized it—England and France—and their conflict with the First Nations peoples.

EARLY PEOPLES As you read in Chapter 5, one of the greatest migrations in history took place thousands of years ago, after the last Ice Age. Migrants from Asia began moving into North America across an Arctic land bridge that connected the two continents. Some early peoples remained in what are now the Canadian Arctic and Alaska. These were the ancestors of the Inuit (or Eskimos). Others, the ancestors of the North

LOCATION Quebec City, located on high ground above the St. Lawrence River, was the site of the first permanent French settlement in Canada. **Why was this a desirable location?**

American Indian peoples, gradually moved south, into present-day British Columbia and beyond. When the ice melted, they moved throughout Canada. They settled where they could grow crops.

COLONIZATION BY FRANCE AND BRITAIN During the 16th and 17th centuries, French explorers claimed much of Canada. Their settlements were known as New France. The British, too, were colonizing North America along the Atlantic coast. To both countries, the coastal fisheries and the inland fur trade were important. Soon, the French and British challenged each other's territorial claims. Britain defeated France in the French and Indian War (1754–1763), forcing France to surrender its territory. But French settlers remained.

Steps Toward Unity

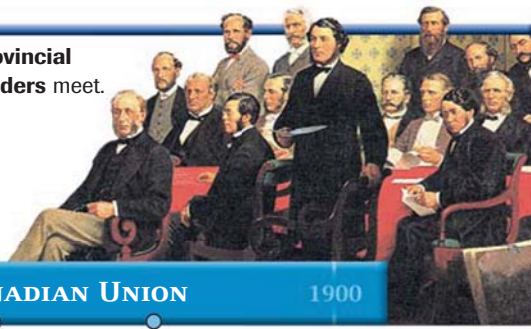
By the end of the 18th century, Canada had become a land of two distinct cultures—Roman Catholic French and Protestant English. Conflicts erupted between the two groups, and in 1791, the British government split Canada into two **provinces,** or political units. Upper Canada (later, Ontario), located near the Great Lakes, had an English-speaking majority, while Lower Canada (Quebec), located along the St. Lawrence River, had a French-speaking population. The land to the northwest, called Rupert's Land, was owned by a British fur-trading company.

BACKGROUND Upper Canada was upriver—on the St. Lawrence—from Lower Canada (Quebec).

ESTABLISHING THE DOMINION OF CANADA Over the next few decades, Quebec City, Montreal, and Toronto developed as major cities in Canada. Population soared as large numbers of immigrants came from Great Britain. Railways and canals were built, and explorers moved across western lands seeking better fur-trading areas.

The conflicts between English-speaking and French-speaking settlers had not ended, however. By the late 1830s, there were serious political and ethnic disputes in both Upper and Lower Canada. The British government decided that major reform was needed. In 1867, it passed the British North America Act creating the **Dominion of Canada.** The Dominion was to be a loose **confederation,** or political union, of Ontario (Upper Canada), Quebec (Lower Canada), and two British colonies on the Atlantic coast—Nova Scotia and New Brunswick. The Dominion

Canadian History, 1450–1900



Provincial leaders meet.

1497 John Cabot claims what is now Canada for England.

1608 **Samuel de Champlain** founds the first French settlement at Quebec.

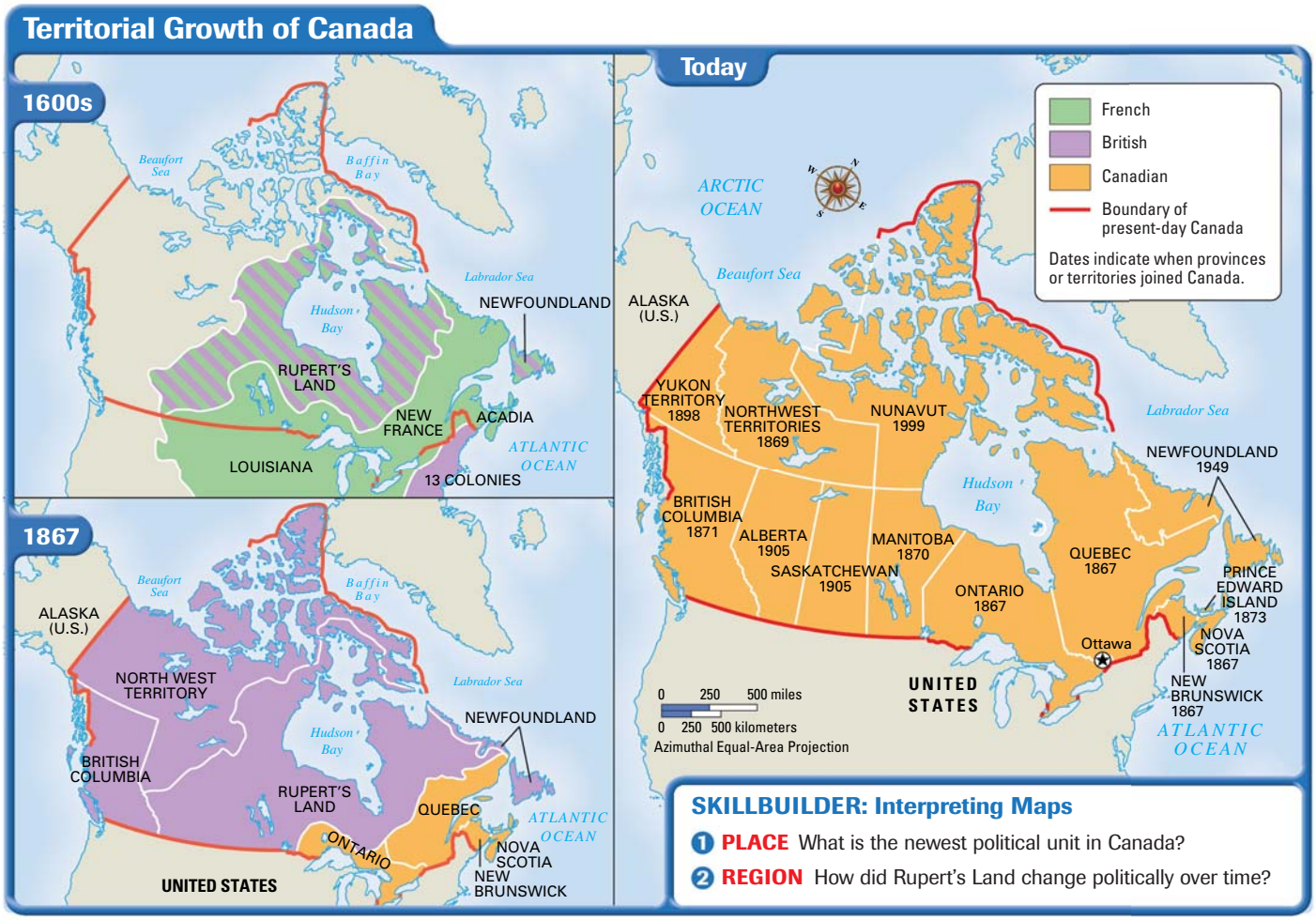
1763 Britain defeats France in the French and Indian War.

1791 Britain creates Upper Canada and Lower Canada.

1837 Revolts break out in Upper and Lower Canada.

1867 Canadian provinces unite as the Dominion of Canada.

EUROPEAN SETTLEMENT 1800 | 1800 CANADIAN UNION 1900



had self-government but remained part of the British Empire. Ottawa, in Ontario, became the capital.

As the map above shows, the Dominion grew rapidly. It gained control of Rupert's Land in 1869. By 1871, Canada stretched from the Atlantic to the Pacific, as Manitoba, British Columbia, and Prince Edward Island were added. Soon the Yukon Territory, Alberta, and Saskatchewan followed. Only Newfoundland remained outside the union, not joining until the mid-20th century.

Geographic Thinking

Making Comparisons

A How was Canada's westward movement similar to that of the United States?

Continental Expansion and Development

With so much area to settle, Canada set about making its land accessible to pioneers. Successful settlement of the west would depend on good transportation routes: roads, canals, and railroads. A

FROM THE ATLANTIC TO THE PACIFIC In 1872, the government began construction of a transcontinental railroad. In 1885, the main line of the railway, from Montreal to Vancouver, was completed. The coasts were now linked by rail. A little more than a decade later, gold was discovered in the Yukon. Fortune-hunters from around the world headed to Canada. Not long after, copper, zinc, and silver deposits also were found in Canada, prompting the building of new railroads and towns. At the same time, immigrants from other parts of Europe besides Britain were coming to Canada's vast open lands. The Dominion was taking on a new character.

PLACE The Ceremonial Guard parades in front of the parliament buildings in Ottawa, Ontario, Canada's capital city.

URBAN AND INDUSTRIAL GROWTH For much of the time after settlement, Canadians lived in rural areas and engaged in farming. But as the population grew and natural resources were developed, Canada became more urban and industrial. Cities and towns first sprang up wherever farming was possible. Later, these same areas became manufacturing and service industry centers, drawing more people to them. Nearly all of this growth took place within 100 miles of the U.S. border. There, the climate was warmer, the land more productive, and transportation linking east and west more widely available. Like its neighbor to the south, Canada developed into a major economic power in the 20th century. B

Geographic Thinking

Using the Atlas

B Use the atlas on page 105. List the major Canadian cities within 200 miles of the Canadian/U.S. border.

Governing Canada

Canada was recognized as an independent nation by Britain in 1931. Like Great Britain, Canada has a **parliamentary government,** a system in which legislative and executive functions are combined in a legislature called a **parliament.** A central federal government and smaller provincial and territorial governments govern Canada. Although Canada is independent, its symbolic head of state remains the British monarch. Parliament handles all legislative matters. The Parliament consists of an appointed Senate and an elected House of Commons. The majority party's leader in Parliament becomes **prime minister,** or head of the government. Each of Canada's ten provinces has its own legislature and premier (prime minister). The federal government administers the territories.

In this section, you read about the history and government of Canada. In the next section, you will learn about life in Canada today.

SECTION 1 Assessment

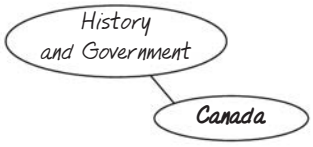
1 Places & Terms

Identify and explain these terms.

- province
- Dominion of Canada
- confederation
- parliamentary government
- parliament
- prime minister

2 Taking Notes

PLACE Review the notes you took for this section.



- How is Upper Canada different from Lower Canada?
- What mineral discoveries spurred development of Canada?

3 Main Ideas

a. How did the French and Indian War change Canada?

b. Where did nearly all growth in Canada's industry and urban areas take place?

c. How is Canada's federal government different from the federal government of the United States?

4 Geographic Thinking

Drawing Conclusions How did the early settlement of Canada lead to a diverse society? **Think about:**

- New France
- French and Indian War

RESEARCH LINKS
CLASSZONE.COM

GeoActivity

SEEING PATTERNS Use the Internet to find the percentage of French-speaking and English-speaking citizens in each of Canada's provinces and territories. Create a **map** of Canada and write in the percentages for each province or territory.

Economy and Culture of Canada

Main Ideas

- Canada is highly industrialized and urbanized, with one of the world's most developed economies.
- Canadians are a diverse people.

Places & Terms

First Nations

métis

reserve

CONNECT TO THE ISSUES
DIVERSE SOCIETIES
Canada is a land of immigrants with many diverse cultures.

A HUMAN PERSPECTIVE The fur trade was a major economic activity in early Canada. It began in the 16th century, when Canada's Native American peoples, now known as the **First Nations,** started trading with European fishermen along the northern Atlantic coast. A brisk trade soon developed, and trappers and traders poured into Canada. They came first from France and later, from England. As the trade expanded westward, it depended heavily on daring French-Canadian boatmen called *voyageurs*. They moved animal pelts from the wilderness to trading posts, often paddling 16 hours a day. According to one trader, these hardy souls often endured "privation and hardship, not only without complaining, but even with cheerfullness."

An Increasingly Diverse Economy

Canada is one of the world's richest countries. It is highly industrialized and urbanized. As you just read, Canada's early economy was based largely on the trade of its many natural resources. Today, the manufacturing and service industries fuel the nation's economic engines.

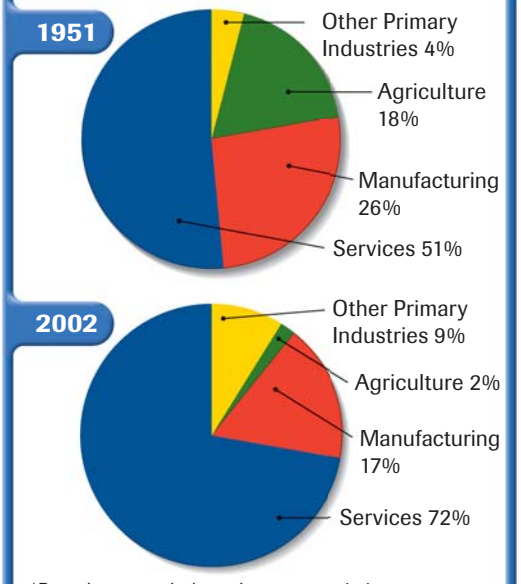
CANADA'S PRIMARY INDUSTRIES Farming, logging, mining, and fishing are important Canadian industries. Although only about 5 percent of Canada's land is suitable for farming, Canada produces large amounts of food for domestic use and for export. Canada also is a leader in the production of newsprint—paper made from wood pulp.

Mining, too, is a major industry because of Canada's extensive mineral deposits. Uranium, zinc, gold, and silver are just a few of the minerals Canada exports to the world.

Three ocean coastlines—Atlantic, Pacific, and Arctic—have given Canadians access to ample fish supplies. Traditionally, Canada has been a major exporter of fish. In recent years, however, overfishing has caused supplies to decline. As a result, some fishers have begun raising salmon and other fish on fish farms.

THE MANUFACTURING SECTOR About 17 percent of Canadians earn their living from manufacturing. Their efforts account for nearly one-fifth of the nation's GDP. Automobiles, steel, household appliances, electronics, and high-tech and mining equipment are just some of the products Canada manufactures.

Canadian Economy*

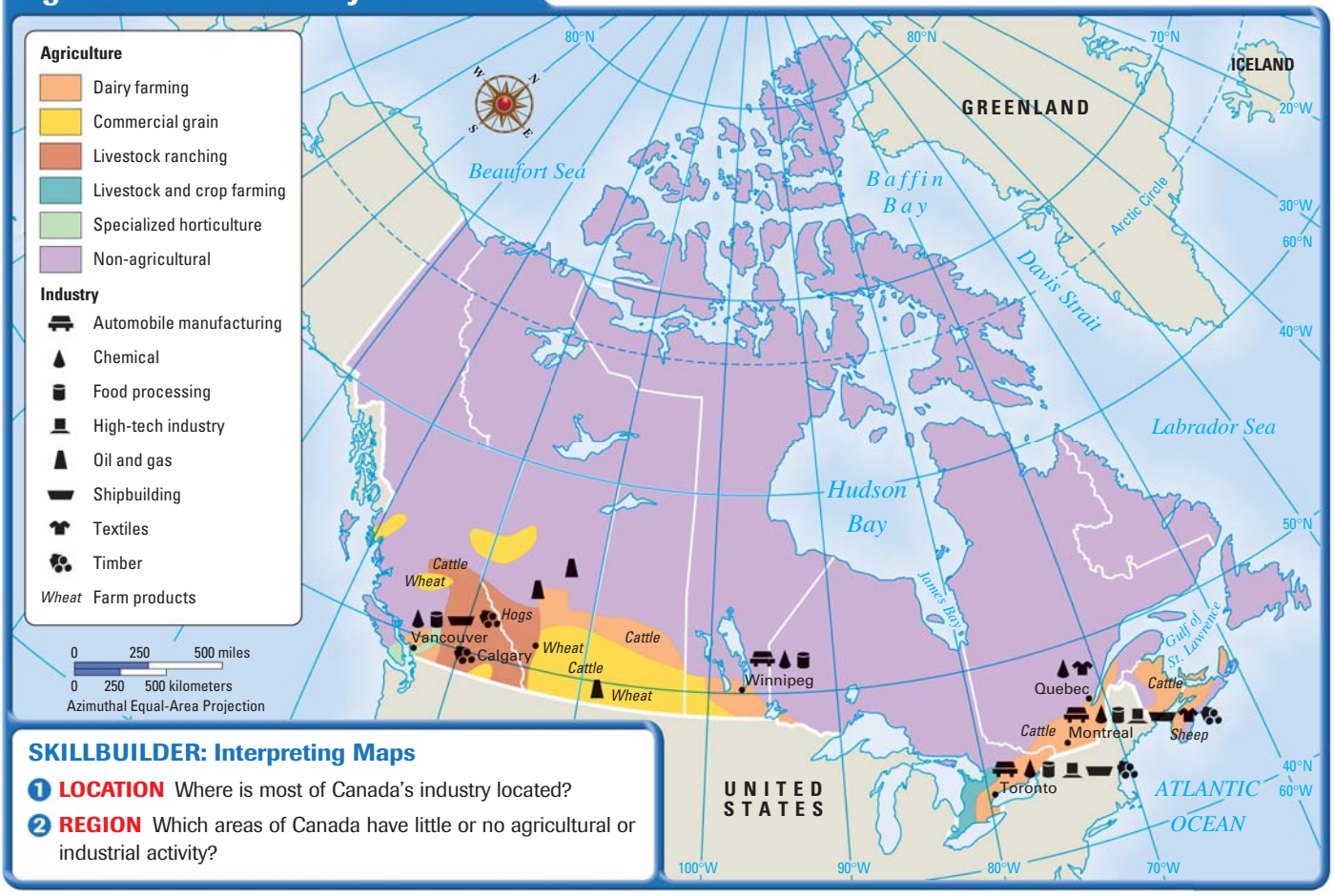


*Based on rounded employment statistics
SOURCE: *Canada Year Book 1994; Canada Year Book 1997; Statistics Canada*

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** Which sector showed the greatest increase in growth from 1951 to 2002? the greatest decrease in growth?
2. **MAKING GENERALIZATIONS** What might account for these changes in the economy?

Agriculture and Industry of Canada



SKILLBUILDER: Interpreting Maps

1. **LOCATION** Where is most of Canada's industry located?
2. **REGION** Which areas of Canada have little or no agricultural or industrial activity?

Most of the manufacturing is done in the Canadian heartland, which reaches from Quebec City, Quebec, to Windsor, Ontario. A

SERVICE INDUSTRIES DRIVE THE ECONOMY Canada's service industries are the country's real economic powerhouse. In fact, more than 70 percent of the GDP comes from service industries. Those industries employ more Canadians than all other industries combined. Service industries include finance, utilities, trade, transportation, tourism, communications, insurance, and real estate. Canada's spectacular natural beauty has made tourism one of the fastest growing of the service industries. At the end of the 20th century, the Canadian tourism industry employed the same percentage of workers—about 3 percent—as those who were engaged in agriculture.

Historically, Canada's economy has always relied on trade. The fur trade between Canada's native peoples and European fishermen was just the start of what would become a key Canadian industry. The United States is Canada's chief trading partner. This is largely because the two nations share the longest open border in the world and the same language—English. In 1994, Canada and the United States, along with Mexico, signed the North American Free Trade Agreement (NAFTA). This pact made trade between them even easier than before. At the turn of the 21st century, about 85 percent of Canada's exports went to the United States, and about 75 percent of Canada's imports came from its neighbor to the south.

Geographic Thinking

Making Comparisons

A How is the Canadian heartland similar to the northeast region of the United States?

A Land of Many Cultures

From its earliest settlement, Canada has been a land of diverse cultures. The first settlers were the Inuit and the First Nations peoples who came after the last Ice Age. Many thousands of years later, the English and French arrived, bringing their languages and traditions with them. Interaction between the French and native peoples gave rise to another culture, the **métis** (may•TEES), people of mixed French and native heritage.

More recent immigrants from Europe and Asia also have made their contributions to the cultural mix. As in the United States, Canada's cultural richness has come from all corners of the world.

Background
Official documents and information are printed both in English and in French.

LANGUAGES AND RELIGION Canada is officially a bilingual country. It has an English-speaking majority and a French-speaking minority. (Only in Quebec are French speakers in the majority.) In addition, the languages of First Nation peoples still survive, and the native languages of immigrants can be heard on many city streets.

As the English and the French settled Canada, their different cultures became a source of conflict. The English were largely Protestant, and the French were Roman Catholics. Religious and cultural conflicts between the two groups have continued over the years, as noted in the graphic at the bottom of this page. Today, these two religions continue to dominate Canadian society. But Muslims, Jews, and other religious groups are represented in ever-increasing numbers.

CANADA'S POPULATION Settlement patterns in Canada have always been influenced by the country's harsh environment and the accessibility of transportation routes. Canada's port cities—especially Montreal, Toronto, and Vancouver—and its rich farmlands make up the country's most densely settled areas. In fact, more than 80 percent of all Canadians live on just 10 percent of the land. This region is mostly along a 100-mile-wide strip of land just north of the U.S. border. B

Geographic Thinking
Seeing Patterns
B Which physical factors influence Canada's population distribution?

Clash of Cultures

Growing up in...Canada

These boys are playing ice hockey on an outdoor rink in Fergus, Ontario. Hockey is Canada's national pastime. Children learn to play this Canadian-invented sport at an early age. Many boys dream of playing professional hockey in the National Hockey League. On any given day, young people and adults can be found playing or watching a game at neighborhood ice rinks.

If you lived in Canada, you would pass these milestones:

- You could attend a private preschool at age 3 or 4.
- You would begin elementary school at age 5 or 6 and would be required to attend until age 16.
- You would choose to get a job or attend a college or university after high school graduation at age 18.
- You could drive at age 16.
- You could vote at age 18.
- You could get married at age 18 without written consent.

Canada's population has become increasingly urban. At the beginning of the 20th century, about one-third of the people lived in urban areas. By the end of the century, nearly four-fifths were city dwellers. Some Canadian population groups are clustered in certain areas. For example, about 75 percent of all French Canadians reside in Quebec. Many of Canada's native peoples are found on the country's 2,300 **reserves,** public land set aside for them by the government. The territories in the remote Arctic north are home to most of the Inuit. Large numbers of Canadians of Asian ancestry live on the West Coast. C

CONNECT TO THE ISSUES
DIVERSITY
C Which major cultural groups are found in Canada?

Life in Canada Today

Most Canadians live active personal and professional lives and enjoy a relatively high standard of living. In 1998, Canada's labor force was nearly evenly split between men and women. Men made up about 55 percent of the work force and women, about 45 percent. As the chart on page 159 shows, Canada's service industries employ more than 75 percent of the work force. Manufacturing is a distant second, accounting for approximately 15 percent of Canadian workers. Canada's population is well educated. The oldest university, Laval, was established in Quebec during the period of French settlement. The first English-speaking universities were founded in New Brunswick and Nova Scotia in the 1780s. Today, Canada boasts a 97 percent literacy rate.

SPORTS AND RECREATION Canadians value their leisure time and use it to engage in many recreational activities. Sports such as skating, ice hockey, fishing, skiing, golf, and hunting are popular. Canadians also enjoy their professional sports teams. Canada has its own football

league and its professional ice hockey, baseball, and basketball teams compete in U.S. leagues. The Canadian love of sport goes back to its native peoples, who developed the game we know as lacrosse, and to its early European settlers, who developed ice hockey. Two annual events that are favorites nationwide are the Quebec Winter Carnival, held in Quebec City, and the Calgary Stampede, pictured on page 99.

THE ARTS Not surprisingly, Canada's long history and cultural diversity have given the nation a rich artistic heritage. The earliest Canadian literature was born in the oral traditions of the First Nations peoples. Later, the writings of settlers, missionaries, and explorers lent French and English influences to the literature.

The early visual arts included the realistic carvings of the Inuit and the elaborately decorated totem poles of the First Nations peoples of the West Coast. The artistry of the Inuit carvings has been evident since prehistoric times. Inuit carvers used ivory, whalebone, and soapstone to carve figurines of animals and people in scenes from everyday life. A uniquely Canadian style of painting developed among a group of Toronto-based artists called the Group of Seven early in the 20th century. The performing arts—music, dance, and theater—enjoyed spectacular growth during the last half of the century. The Stratford Festival in Ontario, honoring William Shakespeare, is known worldwide.

In this section, you read about life in Canada today. In the next section, you will learn more about Canada's subregions.

HUMAN–ENVIRONMENT INTERACTION This Inuit artist carves a sculpture of two polar bears from gray soapstone.

SECTION 2 Assessment

1 Places & Terms

Identify and explain these terms.

- First Nations
- métis
- reserve

2 Taking Notes

REGION Review the notes you took for this section.

- Which industries drive Canada's economy?
- In which region is the majority of the population located?

3 Main Ideas

a. Why are Canada and the United States close trading partners?

b. How have Canada's urban areas changed?

c. What is Canada's work force like?

4 Geographic Thinking

Drawing Conclusions How have Canada's physical resources contributed to its economic prosperity? **Think about:**

- its location
- its primary industries

See Skillbuilder Handbook, page R5.

GeoActivity

MAKING COMPARISONS Study the information in Chapter 6, Section 2, about the U.S. economy. Create a **Venn diagram** with three circles showing the economic activities Canada and the United States have in common and those that are unique to each.

INTERACTIVE

Comparing Cultures

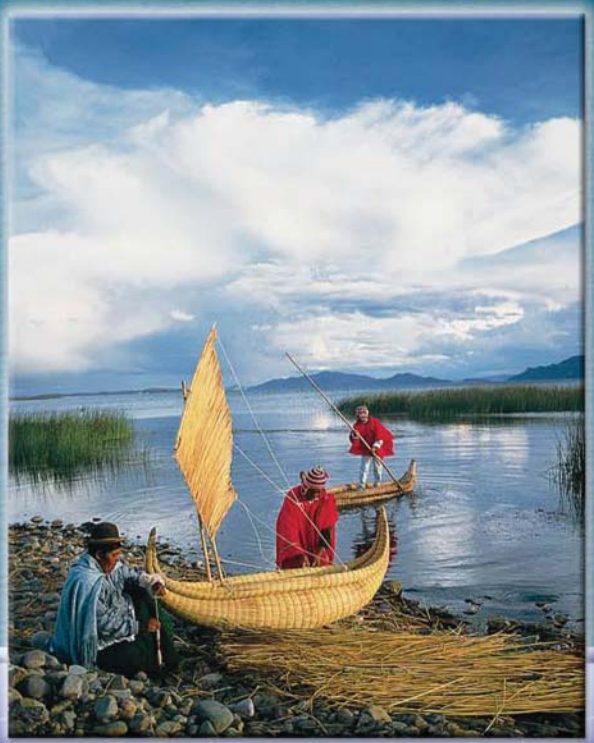
Transportation

As you have read, one of the five themes of geography is movement—how people move themselves and their goods across the Earth's surface. The earliest humans moved by foot from place to place. Later, they used animals, both to ride and as pack animals. Needing to cross streams, ancient people built primitive boats from available materials, such as wood and reeds. Over the centuries, advances in technology from wheeled vehicles to the steam engine to the construction of lighter-than-air craft has enabled people in different regions to meet the challenges posed by their environments.

In North African countries like Algeria, camels are often called "ships of the desert" because they can carry freight and people across long distances. The Arabian, or one-humped, camel shown here in the Sahara Desert can cover 40 miles a day for four days carrying 400 pounds.

Flat, smooth roadways crisscrossing Vietnam make it easy for these workers to transport hundreds of fish traps from workshops to customers on the coast by bicycle.

In the northernmost reaches of Canada, roads are scarce. So, vast distances between places are more easily covered by small planes that can touch down on land or water, like this one flying into Cochrane, Ontario.



This crescent-shaped boat on Lake Titicaca in Peru is made from a reedlike plant. Native peoples of the region have made these boats for centuries.

GeoActivity

RESEARCHING TRANSPORTATION
Working with a partner, use the Internet to research transportation around the world. Then prepare a report that shows the design of a **Web page** highlighting some aspect of world transportation.

- Create text to present the information you have found.
- Select suitable images.
- Locate appropriate links for visitors to your Web site.

RESEARCH LINKS
CLASSZONE.COM

GeoData

LAND TRANSPORTATION

- In the United States, there is one car for every two persons; in Somalia, one for every 500.
- One of the world's longest single rail systems, Russia's Trans-Siberian Railway, covers a distance of 5,867 miles from Moscow to the port of Nakhodka.
- Snowmobiles have replaced dogsleds as transport in remote, cold climates of North America.
- China has more bicycles—about 540,000,000—than any other country.
- Animals, including dogs, horses, donkeys, mules, camels, and elephants, still provide transport for many people around the world.

AIR TRANSPORTATION

- Airliners carried 137 million passengers on more than 1 million flights from the United States to other countries from June 1999 to June 2000.

WATER TRANSPORTATION

- Some modern cruise ships and ocean liners are more than 900 feet long and can carry upwards of 2,000 passengers on a voyage.

3 Subregions of Canada

Main Ideas

- Canada is divided into four subregions—the Atlantic, Core, and Prairie Provinces, and the Pacific Province and the Territories.
- Each subregion possesses unique natural resources, landforms, economic activities, and cultural life.

Places & Terms

Atlantic Provinces
Quebec
Ontario
Prairie Provinces
British Columbia
Nunavut

Connect to the Issues

URBAN SPRAWL Much of Canada's population is in urban areas within 100 miles of the U.S.-Canadian border.

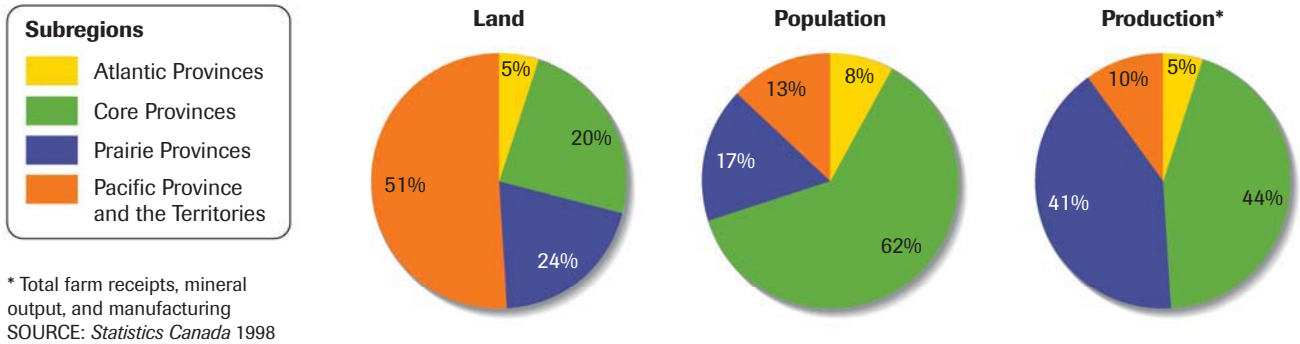
A HUMAN PERSPECTIVE The Grand Banks, a shallow section of the North Atlantic off the coast of Newfoundland, make up one of the earth's richest fishing grounds. In fact, it was the abundance of fish—including cod, haddock, herring, and mackerel—that first attracted Europeans to the region centuries ago. Today, thousands of hardy Canadians make their living fishing in these coastal waters. One, Alex Saunders of Labrador, remarked that "fishing is a disease. Once you start, you keep at it, do whatever's necessary. I jeopardize my home, all my possessions just to keep this boat going and keep fishing." The Grand Banks are part of the Atlantic Provinces, one of Canada's four subregions.

The Atlantic Provinces

Canada is divided into ten provinces and three territories. Each has a unique population, economy, and resources. Eastern Canada is the location of the four **Atlantic Provinces**—Prince Edward Island, New Brunswick, Nova Scotia, and Newfoundland.

HARSH LANDS AND SMALL POPULATIONS As you can see on the chart below, the Atlantic Provinces are home to just 8 percent of Canada's population. Of these people, most live in coastal cities, such as Halifax, Nova Scotia, and St. John, New Brunswick. The small population is due largely to the provinces' rugged terrain and severe weather.

Comparing the Subregions of Canada



* Total farm receipts, mineral output, and manufacturing
SOURCE: *Statistics Canada* 1998

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** Which subregion has the highest production?
2. **MAKING COMPARISONS** How do the Pacific Province and the Territories compare overall to the other three subregions?

Geographic Thinking

Using the Atlas

Look at the map on page 154. Which bodies of water do the Atlantic Provinces border?

For example, about 85 percent of the land in Nova Scotia cannot be farmed because of rocky hills and poor soil. In New Brunswick, forests cover 90 percent of the land. Newfoundland—made up of the island of Newfoundland, Labrador, and nearby islands—is visited by fierce storms that roar up the Atlantic seaboard.

ECONOMIC ACTIVITIES Despite the sometimes harsh conditions, the people of the Atlantic Provinces have learned to use what the land and the sea offer them. For example, New Brunswick's dense forests provide the province with its largest industry—logging. This industry produces lumber, wood pulp, and paper products. The Gulf of St. Lawrence and coastal waters supply plentiful stocks of seafood for export. Also, there is mining for zinc, copper, lead, and silver.

Logging and fishing are mainstays of the economy of Nova Scotia, too. This province boasts one of the largest fish-processing plants in North America. In addition, shipbuilding and trade through the port of Halifax provide more employment and revenue. Until the 20th century, fishing was the principal industry in Newfoundland. Today, the province also has healthy mining and logging industries. Moreover, its hydroelectric-power resources are part of a system supplying power to Quebec and parts of the northeastern United States.

5 THEMES

MOVEMENT

Acadians to Cajuns

Colonists from France founded the colony of Acadia on the eastern coast of what is now Canada in 1604. Tensions flared between these settlers and later arrivals from England and Scotland, however.

In 1713, the British gained control of Acadia and renamed it Nova Scotia (New Scotland). They expelled about 4,000 descendants of the original Acadians. Many eventually settled in southern Louisiana. Today, their culture still thrives in the Mississippi Delta area, where the people are called Cajuns (an alteration of Acadian).

US & CANADA

The Core Provinces—Quebec and Ontario

In 1608, Samuel de Champlain, a French explorer, built a fort, the first European structure in what is now Canada, at present-day Quebec City. Four centuries later, the lands he colonized are part of the country's most dynamic region—**Quebec** and **Ontario,** Canada's Core Provinces.

THE HEARTLAND OF CANADA Quebec and Ontario are often referred to as Canada's heartland, and with good reason. Three out of five Canadians live there. Ontario is the largest province in terms of population, Quebec in land area. Most of the settlement in these inland provinces is found along the Great Lakes and the St. Lawrence River. Each province is the core of one of Canada's two major cultures. A large number of Canada's English-speaking majority live in Ontario. For most French-speaking Canadians, Quebec is home.

CANADA'S POLITICAL AND ECONOMIC CENTER Ontario and Quebec are at the center of Canada's political and economic life. Ottawa is the capital of the federal government. It is located in southeastern Ontario, right next to the border of Quebec province. Quebec has its own political importance as the heart of French Canadian life.

Ontario and Quebec also power Canada's economy. Together, they account for more than 35 percent of Canadian agricultural production, 45 percent of its mineral output, and 70 percent of its manufacturing. As

the map on page 160 shows, they supply a wide variety of products. Toronto, located on the shores of Lake Ontario, is not only the country's most populous city but also its banking and financial hub. Montreal, located on the St. Lawrence River, is Canada's second largest city. It is the center of economic and political activity in Quebec province.

The Prairie Provinces

To the west of the hustle and bustle of Ontario and Quebec lie the **Prairie Provinces**—Manitoba, Saskatchewan, and Alberta.

CANADA'S BREADBASKET Canada's Prairie Provinces are part of the Great Plains of North America. These three provinces are the center of the nation's agricultural yield. They account for 50 percent of Canada's agricultural production. The land of the Prairie Provinces, however, consists of more than just fertile soil. About 60 percent of Canada's mineral output comes from this region of the country. Alberta itself has the nation's largest known deposits of coal and oil and produces 90 percent of Canada's natural gas.

A CULTURAL MIX The people of the Prairie Provinces are a diverse group. Manitoba has large numbers of Scots-Irish, Germans, Scandinavians, Ukrainians, and Poles. The town of St. Boniface boasts the largest French-Canadian population outside Quebec. The population of Saskatchewan also includes immigrants from South and East Asia and is home to the métis. Alberta is perhaps the most diverse of all. In addition to European immigrants, this province also has significant Indian, Japanese, Lebanese, and Vietnamese populations. B

Geographic Thinking

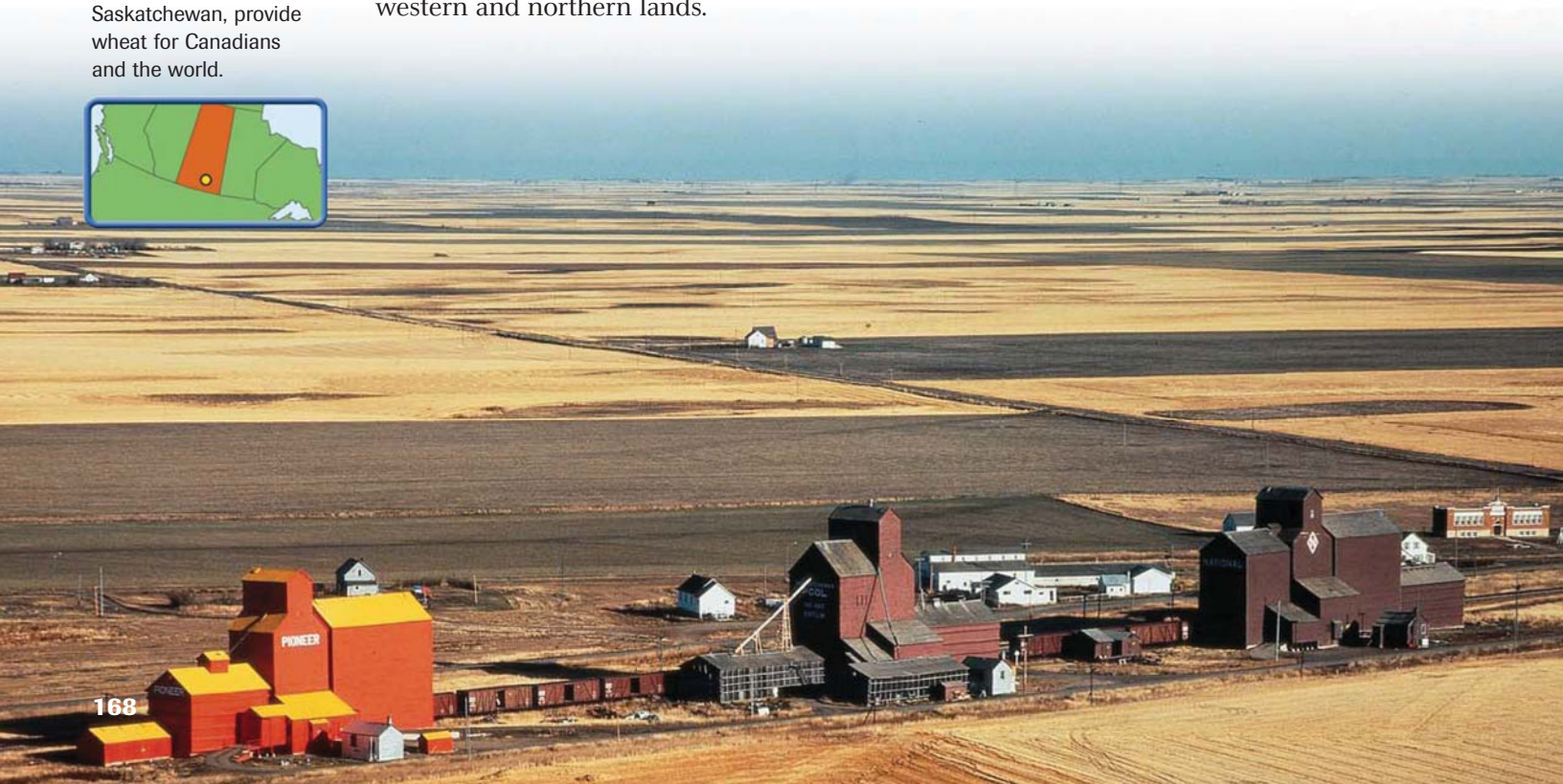
Seeing Patterns

B Why might Alberta have attracted such a diverse population?

The Pacific Province and the Territories

The province of British Columbia along with the three territories—Yukon Territory, Northwest Territories, and Nunavut—make up Canada's western and northern lands.

REGION The vast fertile plains of the Prairie Provinces, shown here in Regina, Saskatchewan, provide wheat for Canadians and the world.



BRITISH COLUMBIA Canada's westernmost province is **British Columbia.** Nearly all of it lies within the Rocky Mountain range. As a result, three-fourths of the province is 3,000 feet or more above sea level. More than half of the land is densely forested, and nearly one-third is frozen tundra, snowfields, and glaciers. Most of the population is found in the southwest. This is the location of British Columbia's two largest cities, Victoria and Vancouver. The economy is built on logging, mining, and hydroelectric-power production. Vancouver is Canada's largest port and has a prosperous shipping trade.

Geographic Thinking

Using the Atlas Using a world map, locate Vancouver. Where might many of the goods shipped from its port be headed?

THE TERRITORIES Canada's three territories make up 41 percent of the country's land mass. Yet, they are too sparsely populated to be provinces. The Yukon Territory, with a population around 30,000, lies north of British Columbia and is largely an unspoiled wilderness. Directly east is the Northwest Territories, an area that extends into the Arctic. It has a population of about 41,000 people.

Nunavut was carved out of the eastern half of the Northwest Territories in 1999. It is home to many of Canada's Inuit. (See "Geography Today" on this page.) Even though the land is rugged and climatic conditions are severe, economic activities take place in the territories. Mining, fishing, and some logging are the principal industries, and these widely scattered activities explain why the settlements are so dispersed.

In this chapter and the last, you read about the human geography of the United States and Canada. In the next chapter, you will learn about some of the issues that are facing those countries today.

Geography TODAY

Nunavut

Nunavut is large, cold, undeveloped, and sparsely settled. It is also Canada's newest territory—its flag is shown below. In 1999, the Canadian government split off the eastern half of the Northwest Territories and created a territory that would settle the land claims of the Inuit. *Nunavut* means "our land" in the Inuit language. About 30,000 people live in its almost 820,000 square miles—an area more than three times the size of Alberta.

SECTION 3 Assessment

1 Places & Terms

Identify and explain where in the region these would be found.

- Atlantic Provinces
- Quebec
- Ontario
- Prairie Provinces
- British Columbia

2 Taking Notes

REGION Review the notes you took for this section.

- What is the major economic activity of the Atlantic Provinces?
- Which provinces make up the Prairie Provinces?

3 Main Ideas

a. Why is the population of the Atlantic Provinces so small?

b. Why are Ontario and Quebec called the heartland of Canada?

c. What economic activities take place in British Columbia?

4 Geographic Thinking

Making Inferences Which subregions have the greatest potential for economic growth? **Think about:**

- already developed subregions
- each subregion's natural resources

See Skillbuilder Handbook, page R4.

GeoActivity

MAKING COMPARISONS Review the differences among the subregions of Canada. Create a **brochure** that illustrates the economic activities, population characteristics, and major cities of the subregions.

Chapter 7 Assessment

VISUAL SUMMARY
HUMAN GEOGRAPHY OF CANADA

History and Government

- French and British settlement of the region had a major effect on its political development.
- The vastness of Canada and its harsh climate have affected the country's population distribution and its economic growth.

Economy and Culture

- Canada is one of the world's most industrialized and urbanized nations.
- Canada has diverse cultures.

Subregions of Canada

- The Atlantic Provinces are the smallest of the subregions.
- The Core Provinces of Canada are Quebec and Ontario.
- The Prairie Provinces are the breadbasket of Canada.
- The Pacific Province and the Territories contain huge tracts of largely undeveloped land.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. New France
2. Dominion of Canada
3. province
4. prime minister
5. First Nations
6. Atlantic Provinces
7. Quebec
8. Ontario
9. Prairie Provinces
10. British Columbia

B. Answer the questions about vocabulary in complete sentences.

11. Who were the original settlers of Canada?
12. Where was New France located?
13. How is Canada divided politically?
14. What is the title of the leader of Canada?
15. Which provinces made up the original part of the Dominion of Canada?
16. Which provinces make up Canada's core?
17. Which provinces are known as Canada's "breadbasket"?
18. Which province has the majority of Canada's French speakers?
19. Which is Canada's westernmost province?
20. Which provinces are the smallest and least populated?

Main Ideas

History and Government of Canada (pp. 155–158)

1. Why were the French and the British interested in colonizing the area of North America that became the United States and Canada?
2. How did the French and Indian War change the history of Canada?
3. In what ways is the expansion and development of Canada similar to that of the United States?
4. How is Canada's government different from that of the United States?

Economy and Culture of Canada (pp. 159–165)

5. What is Canada's largest export product?
6. Which two languages and religions dominate Canadian culture?
7. Where do most Canadians live?

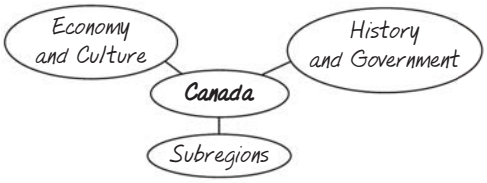
Subregions of Canada (pp. 166–169)

8. In which provinces would you expect to find a large fishing industry?
9. Which provinces power Canada's economy?
10. Why are the Prairie Provinces so important to the Canadian economy?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.



a. Which of the subregions has the least developed resources and why?

b. What types of service industry drive the Canadian economy?

2. Geographic Themes

a. **REGION** How has climate affected the distribution of population in Canada?

b. **PLACE** How are the Pacific Province and the Territories different from the rest of the subregions?

3. Identifying Themes

How did immigration shape the culture of Canada? Which of the five themes of geography applies to the development of Canadian culture?

4. Determing Cause and Effect

What impact did French and British settlement have on modern life in Canada?

5. Drawing Conclusions

Why are Quebec and Ontario considered the core of Canada?

Additional Test Practice, pp. S1–S37

TEST PRACTICE
CLASSZONE.COM

US & CANADA

Geographic Skills: Interpreting Maps

Major Languages of Canada

Use the map to answer the questions.

1. **LOCATION** What is the relative location of the French speakers?
2. **MOVEMENT** Which native language is spoken over the widest area?
3. **REGION** What is the predominant language spoken in most areas near the U.S. border?

GeoActivity

Choose one of the Native American languages shown on the map. Do some research to find out about the people who speak that language. Write a brief report of your findings and include a sketch map of the location of that language.

INTERNET ACTIVITY

Use the links at **classzone.com** to do research about the art of the Inuit people. Look for pictures of works that can be copied and background about the art itself.

Creating an Oral Presentation Put together the pictures you have copied and the information about the art for an oral presentation. Be sure to show how geography influenced the art of Canada.

Chapter 8

TODAY'S ISSUES

The United States and Canada

SECTION 1
The Fight Against Terrorism

SECTION 2
Urban Sprawl

CASESTUDY
DIVERSE SOCIETIES FACE CHANGE

For more on the issues in the United States and Canada . . .

CURRENT EVENTS
CLASSZONE.COM

New York City firefighters raise the American flag amid the rubble of the World Trade Center after the terrorist attack of September 11, 2001.

GeoFocus

How can people cooperate to solve problems?

Taking Notes In your notebook, copy a cause-and-effect chart like the one shown below for each issue. Then take notes on the causes and effects of some aspect of each issue.

	Causes	Effects
Issue 1: Terrorism		
Issue 2: Urban Sprawl		
Case Study: Diverse Societies		

The Fight Against Terrorism

How can a country protect itself from terrorism?

Main Ideas

- Terrorism threatens the safety and security of society.
- The United States launched a war against international terrorism after being attacked on September 11, 2001.

Places & Terms

terrorism

global network

coalition

biological weapon

A HUMAN PERSPECTIVE For Karl Co, a 15-year-old sophomore at Stuyvesant High School in New York City, September 11, 2001, began as "such a normal day." From his classroom, Karl had a clear view of the World Trade Center, just four blocks away. On a normal day, about 50,000 people worked in and 70,000 visited the twin towers. When the north tower burst into flames and smoke, Karl first thought, "It's a bomb. I'm going to die." Then the south tower erupted, and, shortly after, both collapsed. The students soon learned terrorists had crashed airliners into the towers, and the school was evacuated.

The September 11 Attacks

The students at Stuyvesant High had witnessed an act of **terrorism.** Terrorism is the unlawful use of, or threatened use of, force or violence against individuals or property for the purpose of intimidating or causing fear for political or social ends. Like many countries, the United States has been subjected to terrorism, both at home and abroad. But the September 11, 2001, attacks were the most destructive acts of terrorism ever committed on American soil.

On that morning, 19 Arab terrorists hijacked four airliners. They crashed two planes into the World Trade Center towers and one into the Pentagon, the U.S. military headquarters near Washington, D.C. The fourth plane crashed in Pennsylvania without striking its intended target, after some passengers overwhelmed the hijackers.

THE DESTRUCTION The hijacked planes were loaded with fuel. They became destructive missiles as they crashed into their targets. Thousands of workers escaped before the damaged skyscrapers collapsed. Fire and raining debris caused nearby buildings to collapse as well. At the Pentagon, the plane tore a 75-foot hole in the building's west side.

About 3,000 people died in the attacks. The dead included 265 plane passengers and 343 New York City firefighters who had entered the towers to rescue those trapped inside. Nine buildings in the city's financial district were completely destroyed or partly collapsed, and six others suffered major damage. The disaster area covered 16 acres.

THE TERRORISTS Immediately after the attacks, investigators worked to identify both the hijackers and those who directed the attacks. The evidence pointed to a **global network,** or worldwide interconnected group, of extremist Islamic terrorists led by Osama bin Laden, a Saudi Arabian millionaire. The group, known as al-Qaeda, was formed to fight the Soviet invasion of Afghanistan in 1979. Al-Qaeda later began to oppose

Background
Osama bin Laden offered to help the Saudi Arabian government when Iraq invaded Kuwait in 1990 and threatened Saudi Arabia. He was angered when the Saudis turned to the United States for military help instead.

Major Terrorist Attacks Against Americans, 1979–2001

SKILLBUILDER: Interpreting Maps

LOCATION What region was the site of the most attacks on Americans?

American influence in Muslim lands. It started to target Americans and U.S. allies after the Persian Gulf War in 1991. Since its founding, al-Qaeda has carried out numerous terrorist attacks. A

Geographic Thinking

Using the Atlas

A Locate Afghanistan on the political map on page A34. What is its location in relation to Saudi Arabia?

Aftermath of the Attacks

The September 11 attacks shocked and distressed not only Americans but people around the world. President George W. Bush declared war on terrorism and called on other nations to join the United States in fighting global terrorism. He also pushed for new security measures at home and authorized a search for suspected terrorists.

INTERNATIONAL WAR ON TERRORISM The United States organized a **coalition,** or an alliance, of nations to fight the war on terrorism. Canada, China, Great Britain, Pakistan, Russia, and many other nations joined the coalition. They pledged to share information, arrest terrorists in their countries, and seize the financial assets of terrorist groups. The coalition also supported military action in Afghanistan, where al-Qaeda was based. As part of Operation Enduring Freedom, the United States began bombing Afghanistan in October 2001, and later sent in ground forces. By mid-March 2002, Afghanistan's extremist Taliban regime had been removed from power and the al-Qaeda network severely weakened.

In March 2003, President Bush expanded the war on terrorism by taking military action against Iraq. The President claimed that Iraqi dictator Saddam Hussein posed a threat to national security. Major combat in Iraq ended in May soon after Hussein's regime had been toppled.

HOMELAND SECURITY New airport security measures were enacted after the September 11 attacks. In addition, extra precautions were taken at public places where large numbers of people gather, such as sports stadiums. Other possible targets—nuclear power plants and water supply systems—expanded security. The Department of Homeland Security, initially led by Secretary Tom Ridge, was established to coordinate antiterrorist efforts.

Facing Terrorist Threats

Terrorism has been a global problem for decades. The prevention of terrorist attacks is one of the most difficult tasks facing the world today.

TERRORIST OPERATIONS AND WEAPONS Terrorists act in secret and can move from country to country while pursuing their objectives. Some terrorist groups want territory, like Palestinian extremists who use violence trying to gain a homeland in Southwest Asia. Other terrorists, such as the domestic terrorists who bombed the Federal Building in Oklahoma City in 1995, want to attack government policies. B

Terrorists can use other weapons besides bombs and fuel-laden planes, including biological, chemical, and nuclear weapons. **Biological weapons** refer to bacteria and viruses that can be used to harm or kill people, animals, or plants. The United States went on an anthrax alert after traces of the anthrax bacteria were found in letters sent to some members of Congress and the news media after the September attacks.

BALANCING SECURITY AND FREEDOM The United States and its allies hope to reduce terrorism by breaking up terrorist groups and by increasing security to make it harder for terrorists to act. But there are many kinds of terrorist threats, and the fight against global terrorism could go on for many years. Democratic countries also have to meet the challenge of providing security for citizens while preserving freedom and individual rights.

Geographic Thinking

Making Comparisons
B How does a war on terrorism differ from a conventional war against another country?

SECTION 1 Assessment

1 Places & Terms

Identify and explain the following terms.

- terrorism
- global network
- coalition
- biological weapon

2 Taking Notes

REGION Review the notes you took for this section.

	Causes	Effects
Issue 1		
Terrorism		

- Why are the United States and its allies so concerned about terrorism?
- How has terrorism affected the policies of the United States and its allies?

3 Main Ideas

a. What happened in the terrorist attacks on the United States on September 11, 2001, and who was believed to be responsible?

b. How did the United States respond to the attacks?

4 Geographic Thinking

Drawing Conclusions What might be some difficulties facing the United States and its allies in fighting terrorism?
Think about:

- terrorists moving from country to country
- the variety of weapons available to terrorists

RESEARCH LINKS CLASSZONE.COM

GeoActivities

EXPLORING LOCAL GEOGRAPHY Do research to learn how the fight against terrorism is being waged in your state. Write a **press release** describing one of these antiterrorist measures.

2 Urban Sprawl

How can urban sprawl be controlled?

Main Ideas

- Many metropolitan areas in the United States and Canada have sprawled, or spread out, farther and farther.
- Cities are focusing on smart-growth solutions to urban sprawl.

Places & Terms

urban sprawl
infrastructure
smart growth
sustainable community

A HUMAN PERSPECTIVE Richard Baron is a real estate developer who tried to address the related problems of urban sprawl and inadequate low-income housing. In 1996, he began building Murphy Park, an affordable and attractive housing complex in mid-town St. Louis, Missouri. The development has more than 400 units and contains both apartments and townhouses. It has plenty of green space, art and day-care centers, and an elementary school. More than half of Murphy Park's units are reserved for people with low income. Baron's solution—to bring the attractive features of suburban living to the city—is one of many that are being applied to the problem of urban sprawl.

Growth Without a Plan

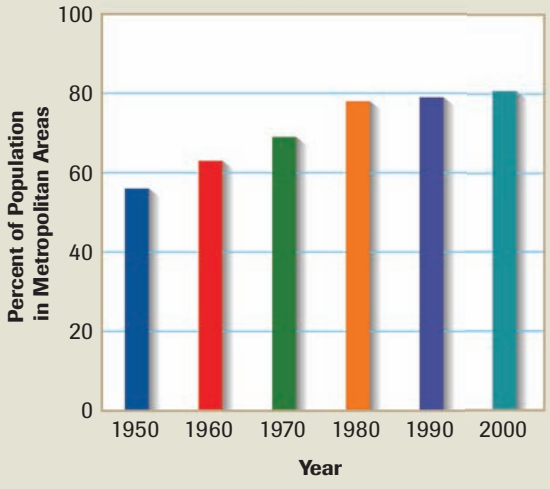
Those Americans and Canadians who can afford it often choose to work in a city but live in its suburbs. They are usually attracted by new, upscale housing, better public services, and open space. As suburbs become more numerous, metropolitan areas become larger and more difficult to manage. (See chart to the right.)

URBAN SPRAWL Poorly planned development that spreads a city's population over a wider and wider geographical area is called **urban sprawl.** As outlying areas become more populated, the land between them and the city fills in as well.

In the United States and Canada, urban sprawl is becoming a matter of increasing concern. From 1970 to 2000, people who worked in U.S. cities moved farther and farther from urban centers. The population density of cities in the United States decreased by more than 20 percent as people in cities moved to suburbs and outlying areas. About 30,000 square miles of rural lands were gobbled up by housing developments. For example, the population of the city of Chicago decreased during this period from 3.4 million people to 2.8 million. But the Chicago metropolitan area grew from about 7.0 million persons to 7.3 million.

Canada is less populated than the United States but faces similar problems. In the 1990s, more than 75 percent of all Canadians lived in urban areas.

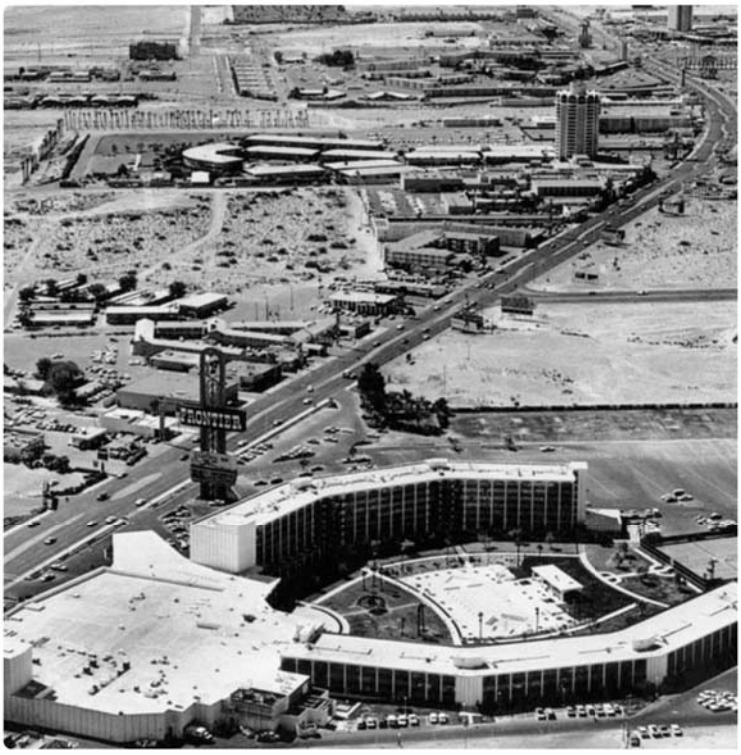
Growth of U.S. Metropolitan Areas

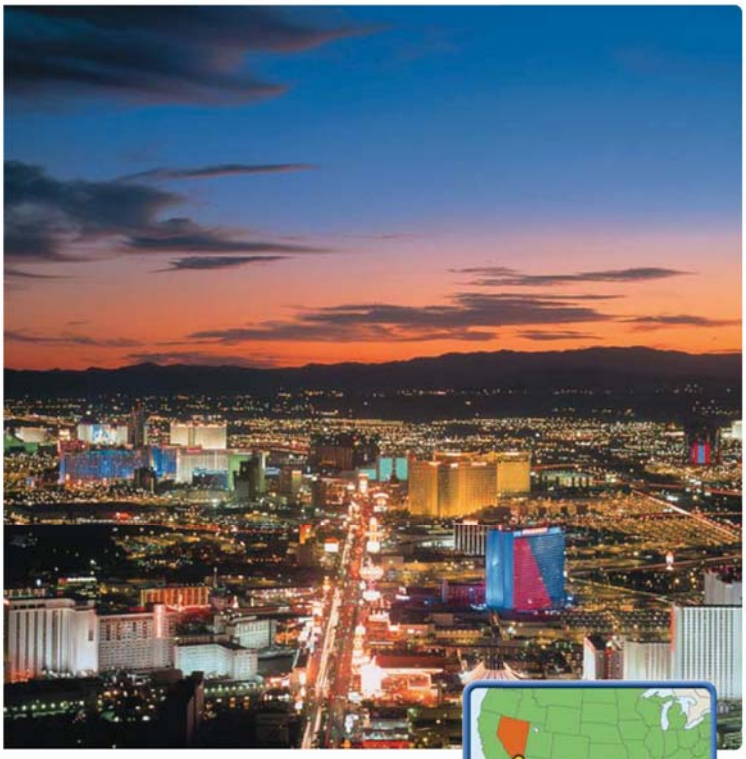


SOURCE: U.S. Census Bureau

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** During what time period did the largest increase in metropolitan growth occur?
2. **MAKING GENERALIZATIONS** What has happened to metropolitan growth since 1980?





PLACE Las Vegas, Nevada, is a perfect example of urban sprawl. In the 1970s (left), it was a small city. In the 1990s (right), it became the fastest growing city in the country.
What are some of the differences between the photos of Las Vegas above?

CAUSES OF URBAN SPRAWL Sprawl occurs in metropolitan areas that allow unrestricted growth or that have no plans to contain it. Other factors include the widespread use of automobiles and the building of expressways. Autos and relatively cheap gasoline enable Americans to drive many miles to and from their jobs. Despite clogged highways and long commutes, Americans prefer their cars to mass transit. Expressways provide the means for continued reliance on the automobile.

Yet, despite sprawl, there are many reasons why Americans have moved to suburbs. Some people want open spaces or better schools and housing. Still others want to try to recapture the sense of community they experienced while growing up. They want their children to know their neighbors and have a backyard in which to play. Only recently have urban planners started to design big-city neighborhoods to give a sense of community, hoping to slow the flight to the suburbs.

Urban Sprawl's Negative Impact

Urban sprawl has a negative impact on the quality of life in many ways. As suburbs grow, more commuter traffic strains the infrastructure. **Infrastructure** consists of the basic facilities, services, and machinery needed for a community to function. For example, roads and bridges need maintenance. More cars on the road for more time adds to air pollution, too. Also, sources of water, such as rivers or underground aquifers (layers of water-holding rock or soil), become depleted. A

Urban sprawl also has other costs. The cost of providing streets, utilities, and other public facilities to suburban communities is often at least 25 per cent higher than for high-density residences in a city. Urban sprawl also separates classes of people. When those in upper-income brackets choose to live in outlying areas, lower-income residents often become isolated in inner-city areas.

Geographic Thinking

Seeing Patterns
A What problems has the automobile caused?

Solutions to Sprawl

More and more cities are developing plans for **smart growth,** which is the efficient use and conservation of land and other resources. Most often this involves encouraging development close to or inside the limits of existing cities. Good public transportation systems help to make smart growth possible by cutting down on auto traffic.

PORTLAND'S GROWTH BOUNDARY In 1979, the city of Portland, Oregon, drew a line around itself to create an urban growth boundary. Building was allowed inside the boundary. The surrounding green space was off limits to developers. This decision caused controversy but has paid off. Portland has contained urban sprawl.

VANCOUVER'S PLAN FOR SUSTAINABLE COMMUNITIES Since 1961, Vancouver, British Columbia, has seen the population of its metropolitan area double. The growth of outlying suburbs often took place at the expense of forests, farms, and flood plains. In 1995, the Greater Vancouver Regional Board adopted a plan to manage growth. It involved turning suburbs into **sustainable communities,** that is, communities where residents could live and work. The same solution was applied to Vancouver's downtown area, where about 40 percent of its residents now walk to work. This has cut down on commuting. B

Geographic Thinking

Making Comparisons
B How were the urban growth actions of Portland and Vancouver similar?

GRASSROOTS OPPOSITION In some metropolitan areas, citizens have banded together to offer their own solutions to urban sprawl. For example, citizens in Durham, North Carolina, opposed additional commercial development along a congested area of a nearby interstate highway. They formed CAUSE—Citizens Against Urban Sprawl Everywhere. The organization is working against sprawl through education and political activism.

In this section, you read about the challenge of urban sprawl. In the Case Study that follows, you will learn about challenges increasingly diverse societies bring to the United States and Canada.

SECTION 2 Assessment

1 Places & Terms

Identify and explain the following places and terms.

- urban sprawl
- infrastructure
- smart growth
- sustainable community

2 Taking Notes

HUMAN-ENVIRONMENT INTERACTION Review the notes you took for this section.

	Causes	Effects
Issue 2: Urban Sprawl		

- What are some of the causes of urban sprawl?
- What are some of the effects of urban sprawl?

3 Main Ideas

a. What happens when metropolitan areas spread farther and farther out?

b. What are some of the ways cities are dealing with urban sprawl?

c. What are some of the ways citizens are dealing with urban sprawl?

4 Geographic Thinking

Drawing Conclusions
What would happen to the environment if urban sprawl were not controlled? **Think about:**

- the negative effects of urban sprawl
- the quality of life in the United States and Canada

GeoActivity

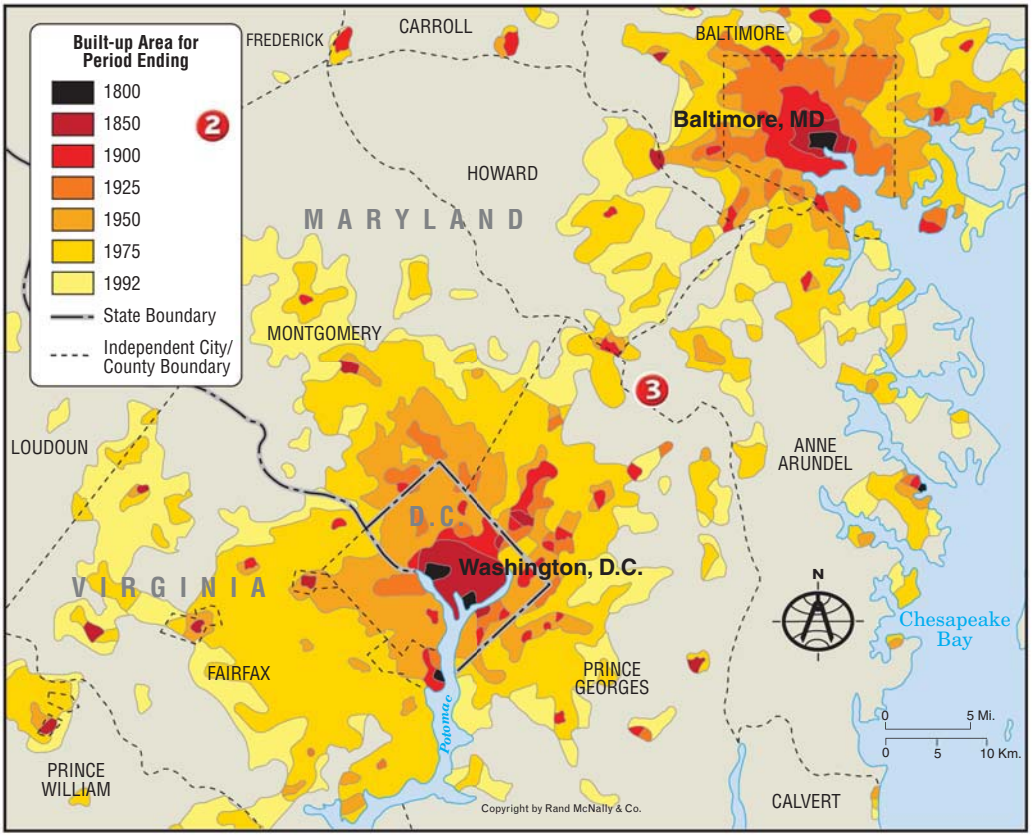
EXPLORING LOCAL GEOGRAPHY Pair with another student and choose a metropolitan area in the United States or Canada to research. Then prepare a **report** on the condition of urban sprawl in that area and present your report to the class. Discuss the effects of urban sprawl and what steps, if any, are being taken to control the sprawl.

Reading a Bounded-Area Map

Urban growth over time is the theme of this map of the Baltimore, Maryland, and Washington, D.C., areas. Both Baltimore and Washington grew from small cities to important metropolitan areas, spreading outward in all directions. At one time, nearly 30 miles of unsettled area separated them. Today, much of this area has been built up as the Baltimore and Washington metropolitan areas have spread.

THE LANGUAGE OF MAPS **Bounded-area maps** show the distribution of some feature of interest, such as climate, vegetation, precipitation, or, in this case, urban growth in a region. Bounded-area maps use lines, colors, and patterns to communicate information.

Urban Growth in Baltimore and Washington (1)



Copyright by Rand McNally & Co.

(1) The title gives you the subject matter of the map.

(2) The key explains the meanings of the colors and symbols.

(3) This map shows the gradual spread of urban areas from two neighboring cities—Baltimore and Washington. The map covers the period of time from 1800 to 1992.

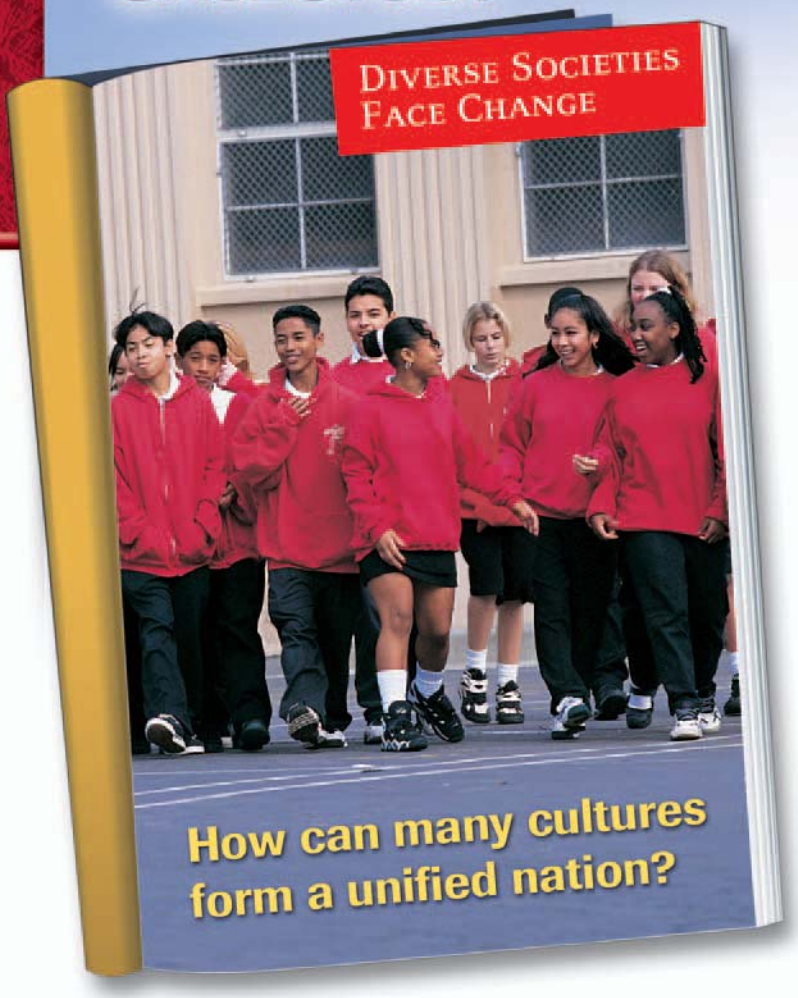
Map and Graph Skills Assessment

1. Seeing Patterns
Like most early settlements, Baltimore and Washington were founded near essential geographic features. What were they?

2. Analyzing Data
During which time period did the greatest expansion take place for the Washington metropolitan area?

3. Drawing Conclusions
At what physical location do the two metropolitan areas seem to have merged?

CaseStudy



The diverse heritage of the United States is evident in this group of students in California.

As you read earlier in this unit, the first immigrants to North America are believed to have come from Asia. They are thought to have crossed a land bridge that existed in what is now the Bering Strait thousands of years ago. Since that time, millions of people from countries all over the world have immigrated to the United States and Canada. They have come in search of a new life in a new homeland. The challenge for citizens and governments of both the United States and Canada is to make sure that these diverse peoples continue to remain unified.

"Mosaic" or "Melting Pot"

After centuries of immigration, the United States and Canada are culturally diverse. They contain large populations of the world's cultures. Ethnic neighborhoods with populations of Asians, Eastern Europeans, and Latin Americans are found in most large cities of both countries. In New York City alone, immigrant schoolchildren speak more than 100 different languages. The arrival of so many peoples over the years left the United States and Canada with the difficult task of forming a unified society. Each country approached the task of unifying its many cultures differently.

CANADA'S CULTURAL "MOSAIC" Canada's earliest settlers were its native peoples. Its first European settlers came, as you have learned, from two distinct cultural groups—French and English. All of these groups kept their separate identities as the nation developed. Also, Canada encouraged immigration from all over the world. It wanted to fill its vast lands and expand its workforce and its domestic markets. These immigrants also were encouraged to retain their cultural heritage.

As a result, many Canadians have strong ethnic ties. In fact, as you read in Chapter 7, the ethnic identity of French-speaking citizens in Quebec has been so strong that at times they have even considered separating themselves from the Canadian confederation.

The Canadian government has officially recognized the multicultural nature of Canada. In 1988, it enacted the Canadian Multiculturalism Act to protect and promote diversity. Many Canadians believe that this policy ensures equality for people of all origins and enriches their nation. But not all agree. Some Canadians feel that diversity has promoted difference at the expense of "Canadianness."

AMERICA'S "MELTING POT" For many years, people in the United States believed that assimilation was the key. It was thought to be the best way to build one nation from many different peoples. Assimilation occurs when people from a minority culture assume the language, customs, and lifestyles of people from the dominant culture. Native Americans were an example. In the late 19th century, they were encouraged and even forced to learn English, adopt Western dress, and become Christians to assimilate into the dominant white culture.

People expected immigrants to assimilate, too. Those who did not could face prejudice because of their cultural differences. Immigrants soon learned that life would be easier if they adopted the ways of their new country—if they underwent "Americanization." Most of these immigrants had come from Europe. Many wanted to assimilate. They wanted to adopt a common language and culture—to become Americans.

New Immigrants Challenge Old Ways

The immigrants who came to the United States in the late 20th century brought different attitudes. They came mainly from Latin America and Asia. They were culturally or racially unlike earlier immigrant groups, who had come mainly from Europe. These later immigrants were less willing to give up their traditions and beliefs in order to assimilate.

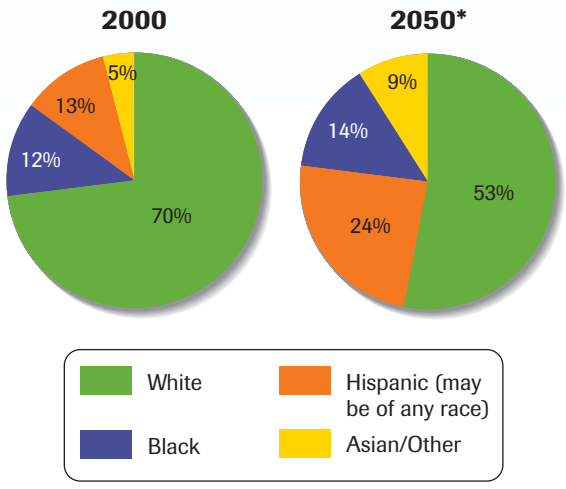
DIVIDED OPINION Some Americans felt that the new immigrants did not understand what made the United States unique. According to this point of view, America's strength has come from blending its diverse cultures to create something new—an American. They also believed that encouraging different languages and customs would promote separation, not unity. In response, they wanted immigration limited and English made the official language.

SEE PRIMARY SOURCE C

Other Americans, including many educators, held different views. They thought that American society would benefit by stressing multiculturalism, as the Canadians do.

As you can see, bringing many cultures together is a continuing challenge both in the United States and in Canada. So, how can cultural diversity be preserved and national unity forged? The Case Study Project and primary sources that follow will help you explore this question.

U.S. Population by Race and Ethnicity



* projected
SOURCE: U.S. Bureau of the Census

SKILLBUILDER: Interpreting Graphs

1. **ANALYZING DATA** What groups made up about the same proportion of the population in 2000?
2. **MAKING GENERALIZATIONS** What changes are expected to take place in the composition of the U.S. population during 2000–2050?

CASE STUDY

PROJECT

Talk Show Discussion

Primary sources A, B, C, D, and E offer differing opinions about assimilation and maintaining cultural identity. Use them along with your own research from the library or Internet to prepare for a talk show discussion on the issue of today's cultural diversity.

RESEARCH LINKS
CLASSZONE.COM

Suggested Steps

1. With a group totaling five students, prepare a talk show discussion on the topic, "Can Many Cultures Form a Unified Nation?" One member should act as the discussion leader. Each of the other members should select one of the following positions: for assimilation or against assimilation.
2. Think about the following questions as you prepare for your role. "Must a unified nation have a single culture?" "What are the advantages and disadvantages of assimilation, or the advantages and disadvantages of multiculturalism, in unifying a nation?"
3. Use online and print resources to research your topic.
4. Write an opening statement of your position. Prepare visuals, such as charts or graphs, if you need them to support your position.
5. Present your position as a part of the talk show. Discuss with the leader and other group members the focus question given above.

Materials and Supplies

- posterboard
- colored markers
- reference books, newspapers, and magazines
- Internet access

PRIMARY SOURCE A

Newspaper Article *In 1998, the* Washington Post *published a series of articles titled* The Myth of the Melting Pot. *Staff writer* ***William Booth*** *offered the following comments about immigration and cultural identity in his piece, "One Nation, Indivisible: Is It History?"*

The immigrants of today come not from Europe but overwhelmingly from the still developing world of Asia and Latin America. They are driving a demographic shift so rapid that within the lifetimes of today's teenagers, no one ethnic group—including whites of European descent—will comprise a majority of the nation's population. . . .

[M]any historians argue that there was a greater consensus in the past on what it meant to be an American, a yearning for a common language and culture, and a desire—encouraged, if not coerced [forced] by members of the dominant white Protestant culture—to assimilate. Today, they say, there is more emphasis on preserving one's ethnic identity, of finding ways to highlight and defend one's cultural roots.

PRIMARY SOURCE B

Social Commentary *Michelle Young is a writer and editor. Much of her work has focused on issues of multiculturalism. In the following excerpt from a 1996 article in the online publication* Career Magazine, *Young contrasts assimilation with multiculturalism.*

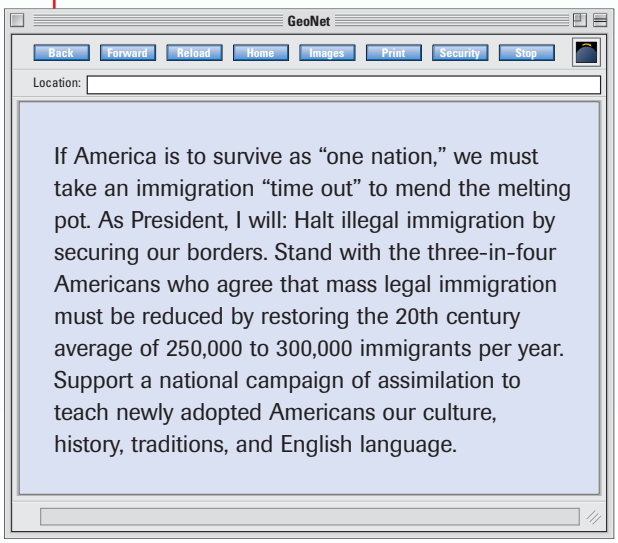
The melting pot concept spoke of all Americans being part of the enormous "cultural stew" we call America. . . . Many people . . . saw the United States of America as a place where historical hurts from their homelands could be erased. . . .

But America was not the nation they'd been promised, where the streets were paved with gold. Many newcomers knew that from experience because "they" were doing the paving! As a result, people began to realize that the concept of the melting pot just wasn't realistic. . . .

In contrast to the melting pot, multiculturalism encourages us to take pride in our own roots first, in our ingredients we've added to what has become America's multicultural stew. The nation's promise lies in that multicultural stew, and by appreciating our own cultures, we develop an eagerness to learn about others' origins.

PRIMARY SOURCE C

Political Commentary *Patrick Buchanan is a politician who was the presidential candidate of the Reform Party in 2000. Buchanan was a strong supporter of immigration reform and assimilation, as is evident in these words posted on his Web site on August 6, 2000.*



If America is to survive as "one nation," we must take an immigration "time out" to mend the melting pot. As President, I will: Halt illegal immigration by securing our borders. Stand with the three-in-four Americans who agree that mass legal immigration must be reduced by restoring the 20th century average of 250,000 to 300,000 immigrants per year. Support a national campaign of assimilation to teach newly adopted Americans our culture, history, traditions, and English language.

PRIMARY SOURCE D

Government Law *The Canadian Multiculturalism Act was passed by the Canadian parliament in 1988. Its purpose was to make the preservation and enhancement of multiculturalism in Canada the law of the land.*

"... It is hereby declared to be the policy of the Government of Canada to ... (b) recognize and promote the understanding that multiculturalism is a fundamental characteristic of the Canadian heritage and identity and that it provides an invaluable resource in the shaping of Canada's future; ... (c) promote the full and equitable participation of individuals and communities of all origins in the continuing evolution and shaping of all aspects of Canadian society and assist them in the elimination of any barrier to that participation; ... (f) encourage and assist the social, cultural, economic, and political institutions of Canada to be both respectful and inclusive of Canada's multicultural character; ... (g) promote the understanding and creativity that arise from the interaction between individuals and communities of different origins."

PRIMARY SOURCE E

Government Document *The 2000 census form contained detailed racial and ethnic classifications, showing the diverse peoples that make up the population of the United States.*

Person 1

Your answers are important! Every person in the Census counts.

1 **What is this person's name?** *Print the name of Person 1 from page 2.*

Last Name

First Name MI

2 **What is this person's telephone number?** *We may contact this person if we don't understand an answer.*

Area Code + Number

3 **What is this person's sex?** *Mark* X *ONE box.*

- ☐ Male
- ☐ Female

6 **What is this person's race?** ***Mark*** X ***one or more races*** *to indicate what this person considers himself/herself to be.*

- ☐ White
- ☐ Black, African Am., or Negro
- ☐ American Indian or Alaska Native – *Print name of enrolled or principal tribe.*
- ☐ Asian Indian
- ☐ Chinese
- ☐ Filipino
- ☐ Japanese
- ☐ Korean
- ☐ Vietnamese
- ☐ Other Asian – *Print race.*
- ☐ Native Hawaiian
- ☐ Guamanian or Chamorro
- ☐ Samoan
- ☐ Other Pacific Islander – *Print race.*
- ☐ Some other race – *Print race.*

PROJECT CheckList

Have I . . .

- ✓ fully researched my topic?
- ✓ taken into account both sides of an issue?
- ✓ created informative visuals that make my presentation clear and interesting?
- ✓ practiced the delivery of my presentation?

Chapter 8 Assessment

VISUAL SUMMARY
TODAY'S ISSUES IN THE UNITED STATES AND CANADA

Conflict

The Fight Against Terrorism
- Terrorists attack the United States on September 11, 2001.
- The United States increases security at home and searches for suspected terrorists within the country.
- A coalition of nations led by the United States launches a war against global terrorism.
- The war begins in Afghanistan, where those responsible for the September attacks—the al-Qaeda terrorists led by Osama bin Laden—are based.

Economics

Urban Sprawl
- Many metropolitan areas in North America have spread out farther and farther.
- This has caused problems such as traffic congestion, air pollution, strains on infrastructure, rising housing costs, and the separation of the well-off from the poor.
- Some governments and citizens are promoting "smart growth" as an answer to urban sprawl.

Government

Case Study: Diverse Societies Face Change
- Centuries of immigration from all parts of the world have given the United States and Canada diverse populations.
- The United States and Canada have approached unifying their many cultures differently.
- Bringing diverse peoples together is a continuing challenge for both countries.

Reviewing Places & Terms

A. Briefly explain the importance of each of the following.

1. terrorism
2. global network
3. coalition
4. biological weapon
5. urban sprawl
6. infrastructure
7. smart growth
8. sustainable community

B. Answer the questions about vocabulary in complete sentences.

9. What is the objective of terrorism?
10. What are the characteristics of a global network?
11. What is the name for an alliance of nations?
12. Which of the terms above might be used to refer to anthrax?
13. How does urban sprawl contribute to air pollution?
14. What are some of the elements that make up infrastructure?
15. Which term involves encouraging development close to or inside city limits?
16. What did Vancouver try to turn into sustainable communities?
17. What is the relationship between the terms terrorism and global network?
18. What is the objective of employing a biological weapon?
19. How does urban sprawl cause housing costs to rise?
20. What system is an important component of smart growth?

Main Ideas

The Fight Against Terrorism (pp. 173–175)

1. What are some of the actions governments can take when faced with terrorism?
2. What are some of the weapons used by terrorists to further their objectives?
3. What might become a problem for democratic governments waging war against terrorism?

Urban Sprawl (pp. 176–179)

4. What are some of the causes of urban sprawl?
5. What are some of the negative effects of urban sprawl?
6. How are governments and concerned citizens trying to find solutions to urban sprawl?

Case Study: Diverse Societies Face Change (pp. 180–183)

7. Why have the United States and Canada become diverse societies?
8. How have Americans reacted to diversity?
9. How have Canadians reacted to diversity?
10. What are some ways suggested for Americans to meet the challenges of the new immigrants?

Critical Thinking

1. Using Your Notes

Use your completed chart to answer these questions.

	Causes	Effects
Issue 1: Terrorism		
Issue 2: Urban Sprawl		

a. How might a negative effect of urban sprawl be halted?

b. What are some of the positive effects of diverse societies?

2. Geographic Themes

a. **MOVEMENT** How have terrorists been able to form global networks?

b. **HUMAN-ENVIRONMENT INTERACTION** How has the spread of urban sprawl affected the environment?

3. Identifying Themes

If you were a government official, how would you promote smart growth? Which of the five themes are reflected in your answer? Explain.

4. Making Decisions

What factors do democratic governments have to consider when waging a war against an enemy such as global terrorism?

5. Making Comparisons

How do the Canadian and American approaches to a diverse society differ?

Additional Test Practice, pp. S1–S37

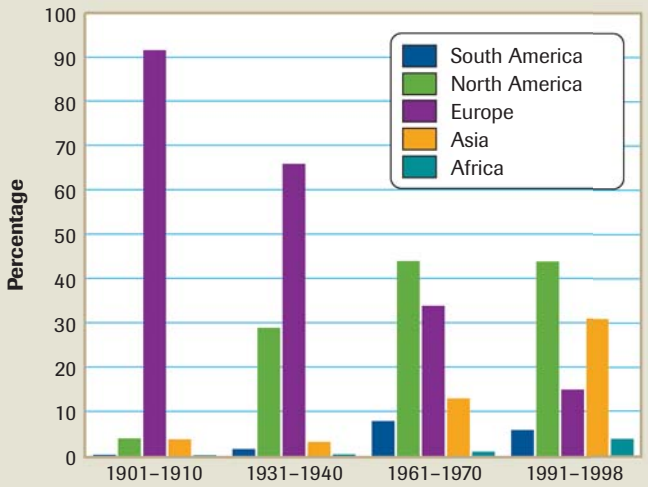
TEST PRACTICE
CLASSZONE.COM

Geographic Skills: Interpreting Graphs

Region of Last Residence of Legal Immigrants to the United States, 1901–1998

Use the graph to answer the following questions.

1. **ANALYZING DATA** What was the percentage of immigrants from Europe during 1901–1910? during 1991–1998?
2. **MAKING COMPARISONS** Which two regions supplied the largest percentage of immigrants to the United States during the last century?
3. **DRAWING CONCLUSIONS** What significant change took place in the pattern of immigration during the 20th century?



NOTE: Oceania and unspecified region represent no more than 1 percent of legal immigration each decade.

SOURCE: 1998 Statistical Yearbook of the Immigration and Naturalization Service

GeoActivity

Do research to create a chart showing the total number of immigrants from each region during the 20th century. Display the figures for each region on an outline map of the world.

INTERNET ACTIVITY

Use the links at **classzone.com** to research immigration to Canada. Focus on changes in the regions from which immigrants came in the 20th century.

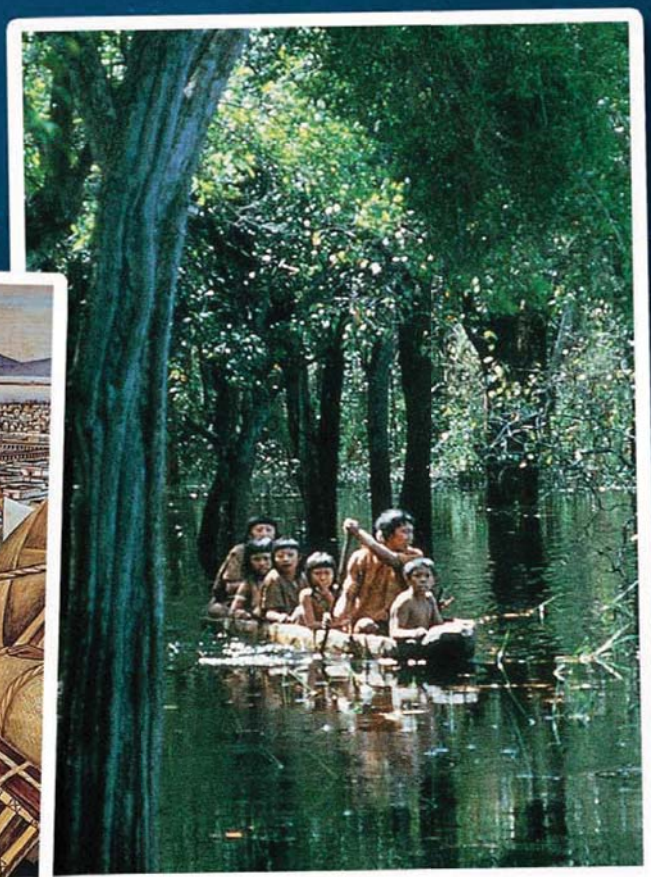
Writing About Geography Write a report on your findings. Combine with a chart listing the regions and the percentages.

Unit 3

Latin America

Latin America includes parts of North America, Central America and the Caribbean, and South America. The region covers many latitudes from north to south of the equator.

MOVEMENT Villagers from surrounding areas bring their goods to market in the Aztec city of Tenochtitlán, depicted in this mural by Diego Rivera.



HUMAN–ENVIRONMENT INTERACTION Chacobo Indians make the dugout canoes they use to explore in the Amazon River basin in northern Bolivia.

GeoData

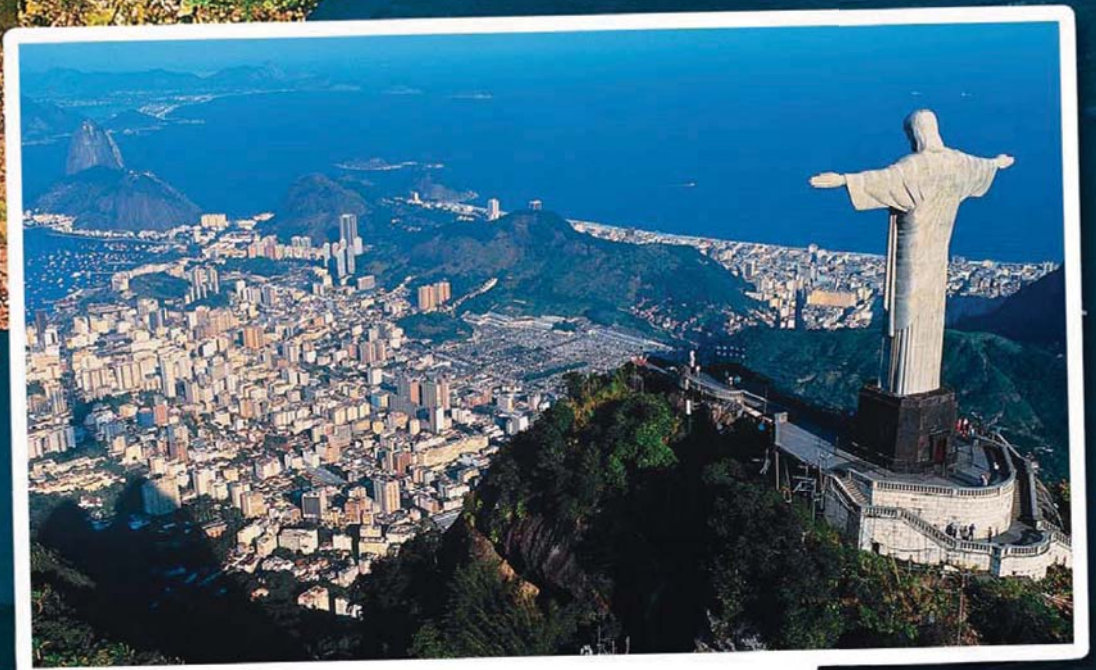
LOCATION Latin America extends from Mexico southward across the equator to nearly reach Antarctica in the Southern Hemisphere.

REGION It is called "Latin America" because the two main languages spoken there—Spanish and Portuguese—developed from Latin.

REGION This region is bordered by two oceans (Atlantic and Pacific), the Gulf of Mexico, and the Caribbean Sea.

For more information on Latin America . . .

RESEARCH LINKS
CLASSZONE.COM



PLACE Sugarloaf Mountain is a famous landmark that looks out over Guanabara Bay in Rio de Janeiro, Brazil. The statue of Christ atop the mountain reflects the importance of the Catholic faith to millions of Latin Americans.

Unit PREVIEW 3

Today's Issues in Latin America

Three of the most important issues that concern Latin America today are resources, democracy, and the income gap between rich and poor.

As you read Chapters 9 and 10, you will learn helpful background information. You will study the issues themselves in Chapter 11.

In a small group, answer the following questions. Then participate in a class discussion of your ideas.

Exploring the Issues

1. **RESOURCES** What are some resources that are becoming increasingly scarce in the world?
2. **DEMOCRACY** What are some threats to democracy in the world today? What conditions might be necessary for democracy to thrive?
3. **INCOME GAP** Why might an income gap exist in a country? How might a growing gap between rich and poor affect a country?

For more on these issues in Latin America . . .

CURRENT EVENTS
CLASSZONE.COM

RESOURCES

How can we preserve and develop the rain forest?

Agriculture and timber harvesting in Brazil are reducing the size of the rain forests by destroying thriving ecosystems, but are providing food and export products.

How can Latin Americans gain a voice in government?

Demonstrators in Chile rally in support of putting former dictator General Augusto Pinochet on trial. The signs say, "Judgment for Pinochet—truth and justice for Chile."

CaseStudy

How can the economic gulf between rich and poor be bridged?

There is a growing gap between rich and poor in Latin America, with all the problems of slums, homeless children, and street crime. Here, a young girl stands above polluted water in a slum in Belém, Brazil.

Unit ATLAS

Patterns of Physical Geography

Use the Unit Atlas to add to your knowledge of Latin America, which stretches from Mexico to the tip of South America. As you look at the maps and graphs, notice geographic patterns and specific details about the region. For example, the graph gives details about two large rivers in the region.

After studying the graphs and physical map on these two pages, jot down answers to the following questions in your notebook.

Making Comparisons

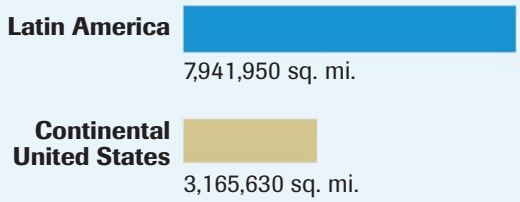
1. Which river systems dominate South America?
2. How are the Andes Mountains of South America similar in location to the Rocky Mountains of the United States?
3. Compare Latin America's landmass and population to those of the United States. Based on that data, how might the overall population densities of the two compare?

For updated statistics on Latin America . . .

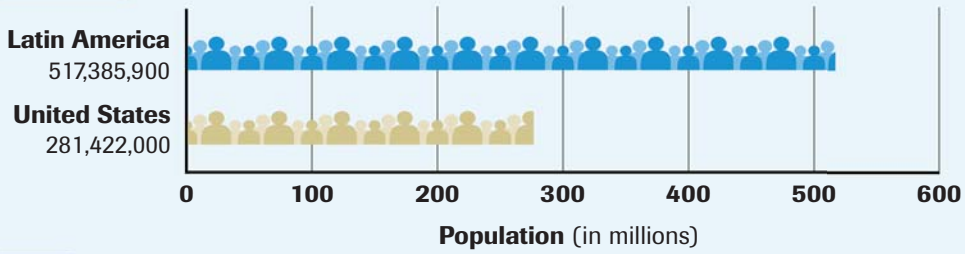
DATA UPDATE
CLASSZONE.COM

Comparing Data

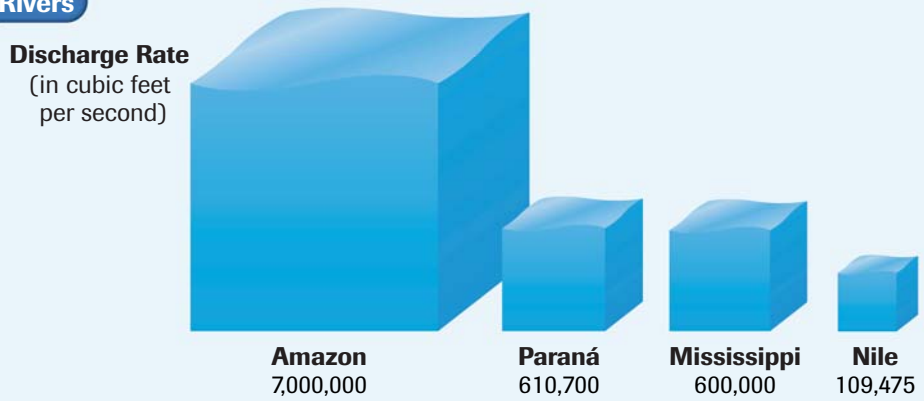
Landmass



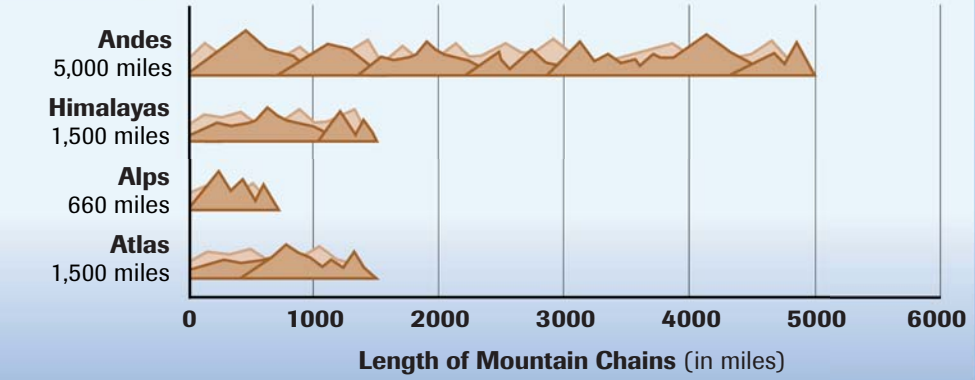
Population



Rivers



Mountains



Latin America: Physical

Unit ATLAS

Patterns of Human Geography

Study the historical and political maps of Latin America on these two pages. In your notebook, answer these questions.

Making Comparisons

1. What differences do you notice when you compare the 1800 map to the map of Latin America today?
2. What are some of the similarities between the 1800 map and the contemporary map of Latin America?
3. What former Portuguese colony in South America is the largest country in the region today?

Latin America, 1800

Latin America: Political

LATIN AMERICA

Unit ATLAS

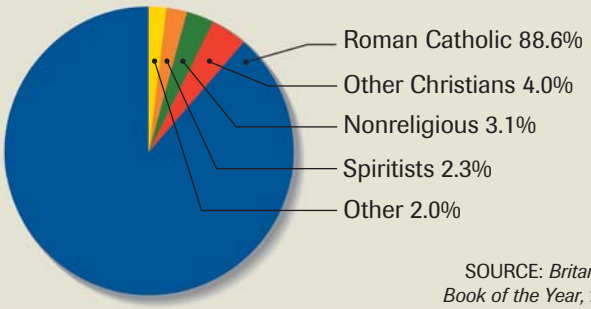
Regional Patterns

On these pages are several thematic maps and a pie graph. One map shows the climates of Latin America. Another depicts the urbanization of the region. A third map shows the languages of the region. Look at them and see what you can learn about Latin America. Answer these questions in your notebook.

Making Comparisons

1. What is the climate in much of the interior of South America? How does it differ from the climate along much of the coast? How might the climate have affected settlement in the interior?
2. What language do the people speak in Brazil? What language is spoken in most countries in the region?
3. Where is most of the population located in South America? Where is there less population? Why might people have settled in these areas rather than the others?

Religions of Latin America

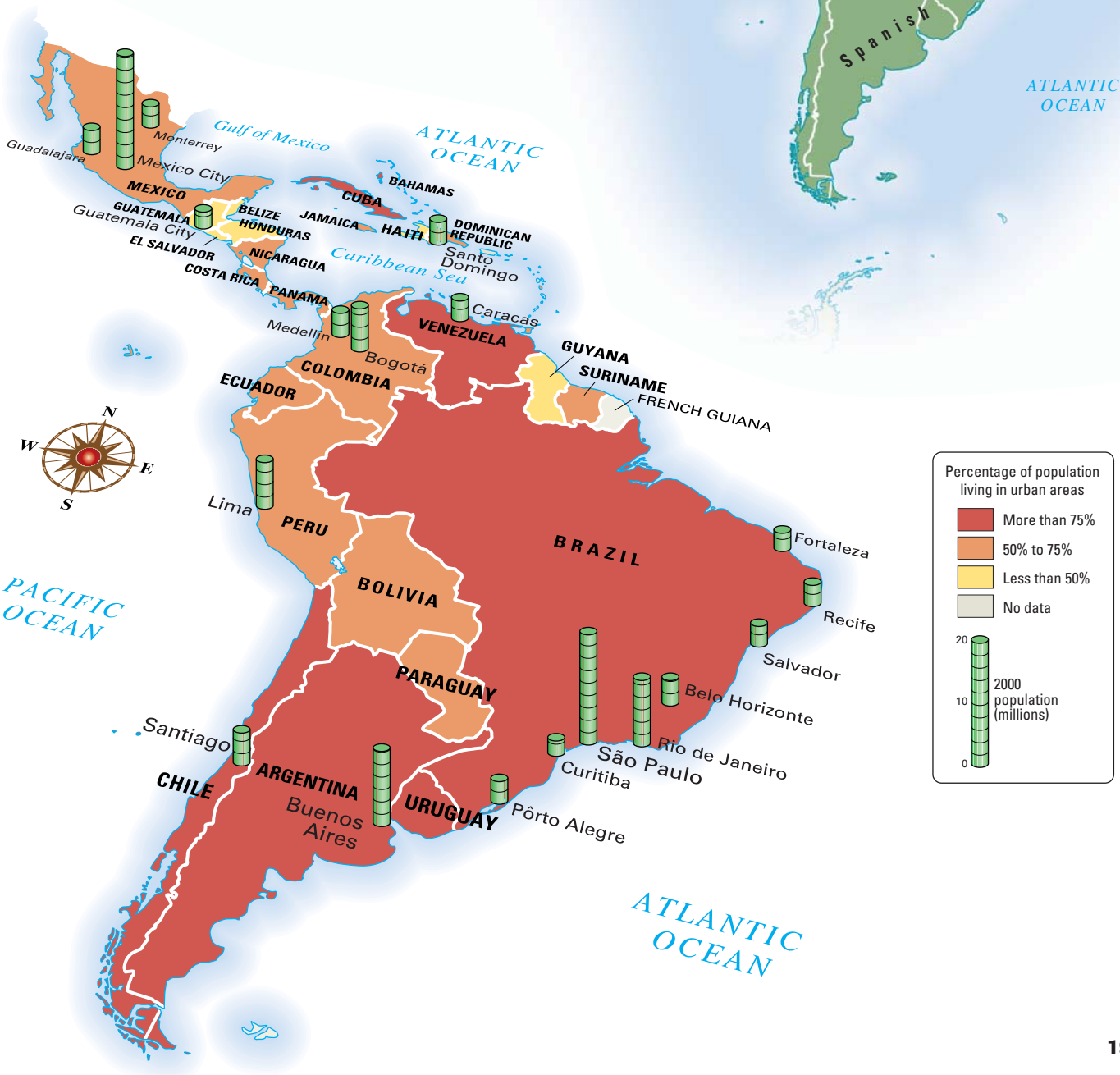


SOURCE: *Britannica Book of the Year*, 2000

Climates of Latin America

Languages of Latin America

Urbanization of Latin America



Unit ATLAS

Regional Data File

Study the charts on the countries of Latin America. In your notebook, answer these questions.

Making Comparisons

1. Which four Latin American countries have the most people? Locate them on the map on page 193. Are they also the largest countries?
2. Which four Latin American countries have the fewest people? Locate them on the map on page 193.
3. Which seven Latin American countries have the highest GDP (gross domestic product)? Which countries have the lowest? What factors might account for this?

(continued on page 198)

Country Flag	Country/ Capital	Population (2000 estimate)	Life Expectancy (years) (1995–2000)	Birthrate (per 1,000 pop.) (2000)	Infant Mortality (per 1,000 live births) (2000)
	Antigua and Barbuda St. John's	68,000	71	22	17.1
	Argentina Buenos Aires	37,048,000	73	19	19.2
	Bahamas Nassau	310,000	74	21	18.4
	Barbados Bridgetown	259,000	76	14	14.2
	Belize Belmopan	254,000	75	32	33.9
	Bolivia La Paz, Sucre	8,281,000	61	30	67.0
	Brazil Brasília	170,115,000	67	21	40.0
	Chile Santiago	15,211,000	75	18	10.5
	Colombia Bogotá	40,037,000	70	26	28.0
	Costa Rica San José	3,589,000	76	22	12.6
	Cuba Havana	11,139,000	76	14	7.2
	Dominica Roseau	76,000	78	16	14.6
	Dominican Republic Santo Domingo	8,443,000	71	28	46.6
	Ecuador Quito	12,646,000	69	27	40.0
	El Salvador San Salvador	6,280,000	69	30	35.0
	Grenada St. George's	98,000	71	29	14.3
	Guatemala Guatemala City	12,670,000	64	37	45.0

Notes:

[a] A comparison of the prices of the same items in different countries is used to figure these data.

[b] Includes land and water, where figures are available.

For updated statistics on Latin America . . .

DATA UPDATE
CLASSZONE.COM

Doctors (per 100,000 pop) (1992–1997)	**GDP**[a] (billions $US) (1998–1999)	**Import/Export**[a] (billions $US) (1998–1999)	**Literacy Rate** (percentage) (1998)	**Televisions** (per 1,000 pop.) (1996–1998)	**Passenger Cars** (per 1,000 pop.) (1991–1998)	**Total Area**[b] (square miles)	
114	0.5	0.330 / 0.038	95	452	207	171	
268	367.0	25 / 23	97	289	136	1,073,514	
152	5.6	1.74 / 0.363	95	896	245	5,386	
125	2.9	1.01 / 0.211	97	283	167	166	
55	0.7	0.320 / 0.150	93	180	10	8,867	
130	24.2	1.6 / 1.1	84	115	26	424,162	
127	1,057.0	48.7 / 46.9	84	316	84	3,300,154	
110	185.1	13.9 / 15.6	95	232	62	292,257	
116	245.1	10.0 / 11.5	91	217	31	439,735	
141	26.0	6.5 / 6.4	95	387	14	19,730	
530	18.6	3.2 / 1.4	96	239	2	42,804	
49	0.2	0.120 / 0.061	94	175	104	290	
216	43.7	8.2 / 5.1	83	84	14	18,815	
170	54.5	2.8 / 4.1	91	293	22	109,483	
107	18.1	4.15 / 2.5	78	250	6	8,124	
50	0.4	0.200 / 0.027	96	325	94	133	
93	47.9	4.5 / 2.4	67	126	9	42,042	

Unit ATLAS

Regional Data File

Making Comparisons

(continued)

4. Latin America has several countries with populations under 100,000. Which of these has the smallest total area?

5. Use the map on page 193 to identify one country in Central America and another in the Caribbean. For each country, calculate per capita GDP by dividing total GDP by population. Which country has the higher per capita GDP?

Country Flag	Country/ Capital	Population (2000 estimate)	Life Expectancy (years) (1995–2000)	Birthrate (per 1,000 pop.) (2000)	Infant Mortality (per 1,000 live births) (2000)
	Guyana Georgetown	698,000	64	24	63.0
	Haiti Port-au-Prince	6,423,000	54	33	102.6
	Honduras Tegucigalpa	6,130,000	69	33	41.8
	Jamaica Kingston	2,609,000	75	22	24.4
	Mexico Mexico City	99,639,000	72	24	31.5
	Nicaragua Managua	5,074,000	68	36	40.0
	Panama Panama City	2,857,000	74	22	20.6
	Paraguay Asunción	5,505,000	70	32	27.0
	Peru Lima	27,136,000	68	27	43.0
	St. Kitts and Nevis Basseterre	43,000	67	20	24.0
	St. Lucia Castries	157,000	72	19	16.8
	St. Vincent and the Grenadines Kingstown	112,000	73	19	20.4
	Suriname Paramaribo	434,000	70	26	29.3
	Trinidad and Tobago Port-of-Spain	1,295,000	74	14	18.6
	Uruguay Montevideo	3,313,000	74	16	14.5
	Venezuela Caracas	24,170,000	72	25	21.0
	United States Washington, D.C.	281,422,000	77	15	7.0

Sources:

Europa World Year Book 2000
Human Development Report 2000, United Nations
International Data Base, 2000, U.S. Census Bureau online
Merriam-Webster's Geographical Dictionary, 1997
Statesman's Yearbook 2001
2000 World Population Data Sheet, Population Reference Bureau online
UNESCO *World Education Report 2000*
WHO Estimates of Health Personnel, World Health Organization online
World Almanac and Book of Facts 2001
World Factbook 2000, CIA online

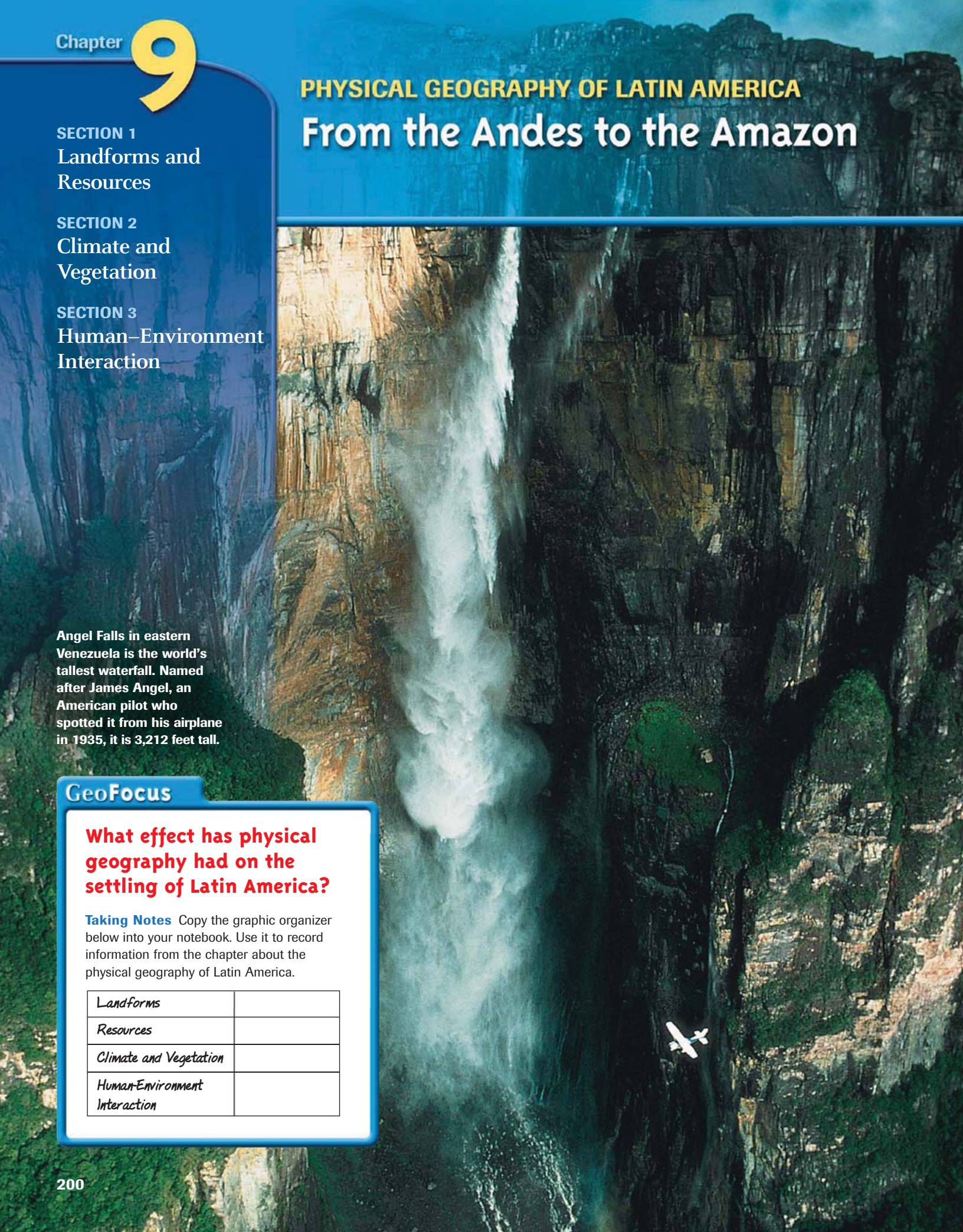
Notes:

[a] A comparison of the prices of the same items in different countries is used to figure these data.
[b] Includes land and water, where figures are available.

Doctors (per 100,000 pop.) (1992–1997)	GDP[a] (billions $US) (1998–1999)	Import/Export[a] (billions $US) (1998–1999)	Literacy Rate (percentage) (1998)	Televisions (per 1,000 pop.) (1996–1998)	Passenger Cars (per 1,000 pop.) (1991–1998)	Total Area[b] (square miles)	
18	1.9	0.620 / 0.574	98	59	34	83,000	
8	9.2	0.762 / 0.322	48	5	5	10,714	
83	14.1	2.7 / 1.6	73	90	14	43,433	
140	8.8	2.7 / 1.4	86	323	17	4,471	
186	865.5	142.1 / 136.8	91	261	87	761,600	
86	12.5	1.5 / 0.573	68	190	16	50,193	
167	21.0	6.4 / 4.7	91	187	54	33,659	
110	19.9	3.2 / 3.1	93	101	14	157,047	
93	116.0	8.4 / 5.9	89	144	20	496,222	
117	0.2	0.160 / 0.042	90	244	130	139	
47	0.7	0.290 / 0.075	82	211	68	238	
88	0.3	0.180 / 0.048	82	162	44	150	
25	1.5	0.461 / 0.406	93	217	111	63,251	
79	9.4	3.0 / 2.4	98	331	107	1,980	
370	28.0	3.4 / 2.1	97	242	147	68,498	
236	182.8	11.8 / 20.9	92	185	68	352,143	
251	9,255.0	820.8 / 663.0	97	847	489	3,787,319	

Chapter 9

PHYSICAL GEOGRAPHY OF LATIN AMERICA
From the Andes to the Amazon



Angel Falls in eastern Venezuela is the world's tallest waterfall. Named after James Angel, an American pilot who spotted it from his airplane in 1935, it is 3,212 feet tall.

GeoFocus

What effect has physical geography had on the settling of Latin America?

Taking Notes Copy the graphic organizer below into your notebook. Use it to record information from the chapter about the physical geography of Latin America.

Landforms	
Resources	
Climate and Vegetation	
Human-Environment Interaction	

Landforms and Resources

Main Ideas

- Latin America's landforms include highlands, lowlands, mountains, and plains.
- The Andes Mountains and the Amazon River are the region's most remarkable physical features.

Places & Terms

Andes Mountains
llanos
cerrado
pampas
Orinoco River
Amazon River
Paraná River

Connect to the Issues

RESOURCES People in Latin America have often struggled over the best way to develop and use natural resources.

A HUMAN PERSPECTIVE Simón Bolívar was a general who led the South American wars of independence against Spain. In August 1819, Bolívar led approximately 2,500 soldiers on a daring march from Venezuela over the mountains into present-day Colombia. Coming from this direction, over the massive barrier of the Andes Mountains, Bolívar and his troops were able to advance unseen. Bolívar's soldiers surprised the Spanish army and won a great victory. Military leaders such as Bolívar were able to use the geography of the region to help the South American republics win their independence from Spain.

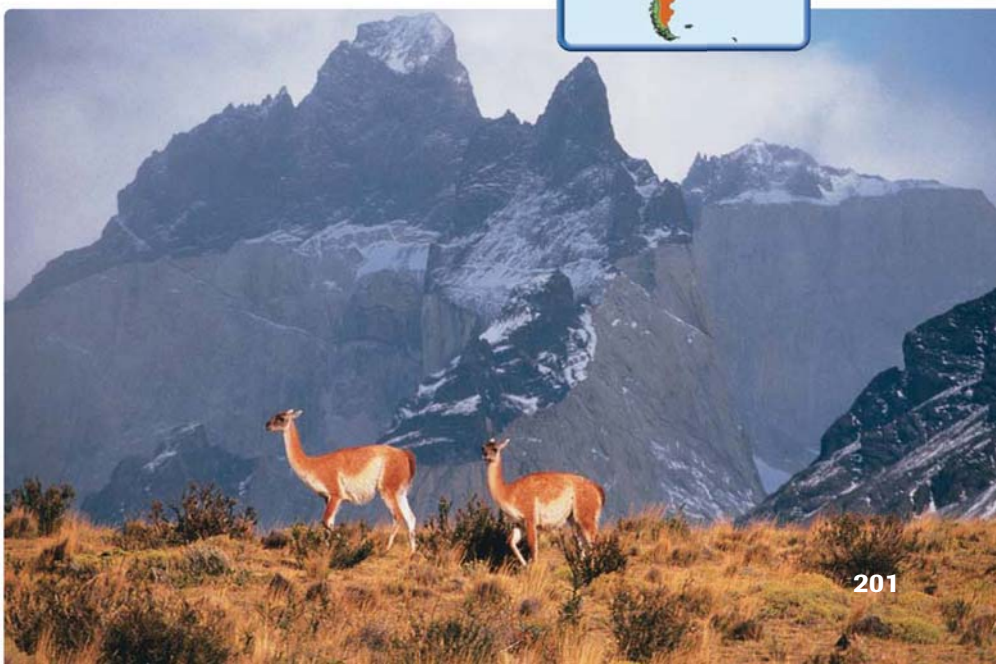
Mountains and Highlands

Latin America has an enormous span from north to south, as you can see from the map on page 191. It reaches from the border between the United States and Mexico down to Tierra del Fuego at the southernmost tip of South America, a distance of about 7,000 miles. It covers part of North America, all of Central and South America, and the Caribbean Islands. Its highlands, lowlands, rain forests, and plains are bounded by the Atlantic and Pacific oceans, the Gulf of Mexico, and the Caribbean Sea. The mountains of Latin America form one of the great ranges of the world.

THE ANDES MOUNTAINS The **Andes Mountains** of the South American continent are part of a chain of mountain ranges that run through the western portion of North, Central, and South America. This range is called the Rockies in the United States, the Sierra Madre in Mexico, and the Andes in South America. There are many active volcanoes throughout the region.

All along the west and south coasts of South America, the Andes Mountains are a barrier to movement into the interior. As a result, more settlement in South America has occurred along the eastern and northern coasts.

Even so, the mountain ranges of Latin America were the home of some of the most important civilizations in the hemisphere, including the Inca in Peru.



MOVEMENT Two sure-footed guanacos climb the foothills of the Andes in Patagonia, a region that includes parts of Argentina and Chile.