

FUNDAMENTALS OF

WORLD REGIONAL
GEOGRAPHY

FOURTH EDITION

JOSEPH J. HOBBS

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- benefit from exploring it at <http://www.theguardian.com/news/datablog/ng-interactive/2014/sep/24/friends-and-enemies-in-the-middle-east-who-is-connected-to-who-interactive>. **247**
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Preface

To appreciate how our complex world works today, it is vital to have a solid grounding in the environmental, cultural, historic, economic, and geopolitical contexts of the world's regions and nations. *Fundamentals of World Regional Geography* establishes that foundation and offers you an opportunity to explore the events, issues, and landscapes of the world in more detail.

Chapters 1 through 3 provide the basic concepts, tools, and vocabulary of world regional geography. In the first chapter, geography's uniquely spatial approach to the world is introduced along with some of the discipline's milestone concepts and its considerable career possibilities—especially those growing from the “geospatial revolution.” The second chapter covers the essential characteristics of the world's physical processes and how human activity has altered some of them. Climate change and the treaties to control it have a prominent role in that chapter. Chapter 3 traces the modification of landscapes by human actions, describes trends and projections of population growth, and considers agendas to slow destructive trends in resource use.

Then come eight chapters exploring the world's regions through a consistent, thematic approach focusing in turn on five elements: Area and Population, Physical Geography and Human Adaptations, Cultural and Historical Geographies, Economic Geography, and Geopolitical Issues. The final section of each chapter, entitled “Regional Issues and Landscapes,” contains a selection of short studies of critical problems in global affairs and exemplary or important problems in human or physical geography.

The book is built for use in either a one- or two-semester course. If time is limited, the five thematic elements of each chapter may be a priority, with limited use of the case studies in the “Regional Issues and Landscapes” section. After the three introductory chapters, it does not matter what order the regional chapters are read in; no regional chapter presumes that any other regional chapter has been read. However, a unique cross-reference system allows a theme or issue introduced in one region to be tied immediately to other regions.

MindTap for Fundamentals of World Regional Geography, 4e implements the cross-reference system through easy-to-use links so readers can instantly navigate to the related theme or issue. Read more about the powerful learning tools made available in MindTap in the Course Support section of the Preface.

New to the Fourth Edition

Both longtime and first-time users of *Fundamentals of World Regional Geography* should be pleased with this edition. Much of the critical content of the previous editions is retained, but this is the most extensive revision to date, and a number of new elements are introduced here.

- Almost all of the maps are new or newly designed. Cartographer Andrew Dolan and I have worked to tie the maps tightly to the content.

- The climate and biome classification and mapping schemes have been revised to be consistent with the Köppen system and the World Wildlife Fund ecoregions data.
- Pie charts have replaced population cartograms.
- The language and religion maps in each regional chapter are revised using better and more consistent data.
- The book is more thematic and conceptual than in previous editions. Fritz Gritzner's big geographic question, “What is where, why there, and why care?,” leads us to critical thinking about the concepts and themes that span the world's regions.
- The new *Geographic Spotlight* feature depicts geographers' methods of capturing, analyzing, and depicting geographic information.
- The definitive “18 Standards of Geography” authored by the National Council for Geographic Education (NCGE), and presented in Chapter 1, served as a constant reference in writing the book. At the end of the course, the book's reader will be able to claim confidently, “My geographic understanding has been informed by all the standards. I can match each standard with content in the book.”
- Extensive use of the NCGE Standards is one of many elements that recommend this book in preparing for the AP Human Geography test.
- Regional chapters have a new feature entitled “Life in . . .,” where a resident of that region discusses land and life in a particular country. The only exception is the chapter on the United States because most of the book's readers know life in that country.
- In the introductory Chapter 3 and in each regional chapter, economic geography has been given more attention. Globalization has shifted wealth from more to less developed countries, lifting hundreds of millions of people out of poverty while gutting middle class jobs in developed countries and widening inequalities in many societies. These issues, along with the crosscurrents of post-Great Recession economic growth and the impacts of China's economic slowdown, are tied together throughout the book.
- The geographies of fresh and marine waters have more attention than in previous editions.
- Urban geography is much more prominent than in earlier editions.
- Geopolitical issues are more important than ever. Here the reader is brought up to date on geopolitical problems while also given a geographic foundation for understanding post-publication current events.
- Geopolitical instability and other climate change impacts on human systems are covered throughout.
- *Think Critically* questions are raised with many figure captions, challenging the student to use the text information in a thoughtful manner.

- Graphs have a new clean look and are more accessible.
- A thorough Study Guide useful for both instructors and students concludes each chapter.

Chapter-Specific Changes

- Chapter 1, “Objectives and Tools of World Regional Geography,” introduces NCGE’s “Six Essential Elements” and “18 Standards of Geography.” Two new objectives of the book are presented: *To become geographically literate*, and *To use geographic critical thinking to understand the world*. Tobler’s First Law of Geography is introduced. There is a figure showing “how to lie with maps.” The AAG’s “Strategic Research Directions” for students and scientists of geography are highlighted as thematic elements covered in the book.
- Chapter 2, Physical Processes and World Regions, contains global maps using the new world climate and biome data. There is more discussion of ocean resources, with a new map of global shipping lanes. Data, modeling, and treaties related to climate change are updated, with a global map of changes observed to date. IPCC conclusions structure the discussion.
- Chapter 3, Human Processes and World Regions, includes a new map and discussion of global human migrations, based on DNA analysis. The Geography of Economic Development section introduces the dramatic shifts in wealth across the globe, and the factors behind them. The new discussion of *globalization and development* with five outcomes of globalization is especially useful. The Human Development Index, Fragile States Index, and Human Values Index are mapped and discussed at the global scale, as is “land grabbing,” which re-emerges in many of the regional chapters. There is new discussion of freshwater, including the concepts of “virtual water” and “water footprints,” along with a new map of the world’s aquifers. A unique graphic of global human migrations serves as a reference in many regional chapters. There are new maps and discussions of urban geography and the globalization of industrial supply chains.
- Chapter 4 on Europe covers the region’s growing immigration crisis and the related rise of populist and nationalist parties, and its “crisis with Islam.” Recent developments in the devolution of Scotland and Catalonia are covered. There is a vivid new map of the Columbian exchange and a thematic map of Lampedusa as a migrants’ stepping stone to Europe. A new graph and discussion depict the decline of Europe’s primary and secondary economic sectors and the rise of its tertiary services sector. “Life in France” is the guest essay. Problems in the Eurozone and European Union (EU), including the Greek financial crisis, are described, along with Germany’s linchpin status. European reactions to Russia’s invasion of Crimea are discussed. Environmental Perception is illustrated with English landscape tastes. Attributes of the “global city” with a worldwide map of global cities are introduced here. A new map of Iceland’s and Norway’s EEZs shows where their whaling takes place. The geopolitical evolution of the East European shatterbelt is depicted in five maps.
- Chapter 5, Russia and the Near Abroad, sees Russia falling into economic crisis (with “Dutch Disease”) while Vladimir Putin consolidates his hold on power in the wake of Russia’s invasion and intervention in Ukraine. Future actions by Russia, especially in “frozen conflicts” like that in Transnistria, and where Russian irredentism is strong, are considered. Russia’s power to use pipelined energy as a political tool is analyzed and mapped. The country’s demographic crisis is updated and mapped with a comparison of neighboring countries’ demographics. The Chelyabinsk and Tunguska meteor events are in a new discussion of near-earth objects. A Cold War map depicts communism globally in 1980. “Life in Moldova” is the guest essay. Eurasia’s status as the “cockpit of history” girded by the “Iron Silk Road” is proposed. The Armenian Genocide is discussed and mapped.
- Chapter 6, the Middle East and North Africa, is filled with new features. The region’s enduring economic importance is seen in a map of global oil reserves, alongside global oil consumption. The tense standoff over Nile Basin waters is discussed and mapped, and the *Geography of Water* feature takes a closer look at the importance of virtual water and land grabbing for many of the countries. The region’s geopolitical importance as a shatterbelt with numerous chokepoints is underscored in view of emerging threats, particularly terrorism. The evolution of Islamic State in Iraq and Syria (ISIS) from Syria’s civil war and America’s engagements in Iraq are traced and mapped, and US options for confronting ISIS are considered. There is discussion and a map of the refugee camps of externally and internally displaced Syrian refugees. There is an in-depth comparison of al-Qa’ida and ISIS, and a backgrounder on what Salafist movements are seeking. There is a map of the distribution of Islamist terrorist movements across Eurasia and Africa. An extraordinary graph shows the tangled web of allies and adversaries within and beyond the region. American geopolitical interests in the region are detailed. US options in dealing with Iran’s nuclear ambitions are considered. A sequence of maps shows the evolution of political borders in Mesopotamia and raises the prospect of Iraq’s fragmentation. The previous edition’s “Arab Spring” is bookended here by the “Arab Fall.” The Saudi intervention in Houthi-dominated Yemen is discussed. Three maps of Freedom House ratings through time depict the region’s lack of democratic institutions. Dubai’s troubled artificial islands are a “problem landscape.” A graphic shows how the Gulf’s traditional architectural “wind catchers” work. “Life in Egypt” is the guest essay.
- Chapter Seven on South and East Asia is the book’s longest because it covers the most populous world region. It discusses the revision of China’s one-child policy. A new graph shows the ecological succession associated with

slash-and-burn cultivation. In this chapter and others, we consider Edward Glaeser's ideas about cities, including their slums, as engines of innovations. The economic geography text and maps have expanded to consider the International Monetary Fund's characterization of China as the world's largest economy; the interdependence of the Chinese and American economies; the "onshoring" of US jobs previously offshored to China, as wages rise there; China's gaps between rich and poor, rural and urban; the vulnerabilities of China's real estate sector and overall economy; and the domestic fallout and international repercussions of China's economic slowdown. Geopolitical Hot Spots in the Western Pacific describes and maps each of the conflicting maritime claims in this area. China's strategic "string of pearls" is discussed and mapped. China's growing frustration with North Korea is discussed. Maps and prose show the evolution of colonial India into India, Pakistan, East Pakistan, and disputed Kashmir, and the emergence of the Naxalite "Red Corridor" in India. A map shows the distortions between genders, due largely to abortions, in India's states. We consider the future of Afghanistan, the "Graveyard of Empires," in the wake of the US drawdown. A new map shows the contributions of palm oil plantations and other developments to deforestation in Indonesia and Malaysia. Myanmar earns a dedicated ethnic map and discussion of growing democracy and new relationships with the US. Indochina's political evolution is described and mapped. The benefits and drawbacks of golden rice are discussed. The guest essay is about "Life in Vietnam."

- Chapter 8 takes us across Oceania and Antarctica. Helping to illustrate New Zealand's position in tectonic movements, there is a new map of the mostly submerged continental fragment of Zealandia. Christchurch's 2011 earthquake is discussed in the accompanying text and in the guest essay on "Life in New Zealand," by a Maori woman geographer. The Hawaii-Emperor Seamount Chain map reveals how the Hawaiian Islands and others were born. We reconsider the simple parable of Easter Island's decline. There is more insight into how control over natural resources spawned conflict in the Solomon Islands. Renewed US military interests in the Pacific as a counterweight to China are discussed. The titanic Castle Bravo atomic test is seen in the context of foreign military uses of the region. Australia's "Pacific Solution" for its unwanted immigrants is introduced. Aboriginal and Torres Strait Islander efforts to reclaim territories and resources are brought up to date with a recent Supreme Court ruling in Australia. There is a *Geographic Spotlight* on countermapping. Recent research on climate change related to Antarctica accompanies a new map of the continent.
- Chapter 9 on Sub-Saharan Africa portrays the continent in its most hopeful state in decades. The fight against HIV/AIDS continues with new hope as ARVs reach more people. The sudden epidemic of Ebola and the success in fighting it are discussed. Maps and prose describe the devastating trafficking of ivory. There are discussions of better governance, less conflict, more foreign investment, and diversification

away from commodities towards manufacturing and services, all helping to grow economic prospects. Africa's "durable strengths and resources" are listed. "Conflict metals" have become problematic. We see land grabbing and the continuing "sustained looting" of Africa's resources. We consider China's infrastructure-for-minerals swaps with African governments, and the different priorities of Chinese and American aid. The growth of Islamist terrorism is viewed as one reason for renewed Western geopolitical interest in the region. The Sustainable Development Goals and the Millennium Development Goals preceding them are described in the African context. Current and planned urban projects across the region are introduced. The historic geography of race relations in South Africa and a map of the "homelands" are introduced to provide more understanding of the current situation. "Life in Tanzania" is the guest essay.

- Chapter 10 on Latin America includes a completely revised section on economic geography that reveals the region's growing relationship with China (including impacts of China's economic slowdown), disturbing economic inequalities, the drive to diversify into manufacturing and services, and the wide adoption of neo-liberalism and related free trade agreements (amidst pushback by Brazil and the "Bolivarian socialist countries"). A new map depicts minerals and mining. The status of NAFTA and other FTAs is updated. There is a town plan of the colonial city and discussion of life in the region's informal settlements. The reestablishment of diplomatic relations between Cuba and the US is marked. There are new insights and maps in the "Geography of Drug Trafficking" about smuggling routes, the drugs value chain, and the role of cartels. The Nicaragua Canal is discussed and mapped. Students are invited to contribute to humanitarian mapping projects in Latin America and elsewhere, including through Mappgive and Tomnod. The guest essay is "Life in Amazonia for Uncontacted Tribes."
- Chapter 11 is the most thorough revision to date of the United States and Canada. Current debates over legal and illegal immigration in both countries are discussed. There are new maps of physiographic regions and natural hazards. The section on "Cultural and Historical Geographies" includes new discussions of early peoples' migrations into North America, ecological and cultural impacts of Europeans, European settlers and settlements, and peoples of the US and Canada today. There is a new map of the ethnic composition of selected US metropolitan areas. There is a new discussion of the geographic underpinnings of the region's prosperity. Using a new map of the region's energy resources and routes, readers are encouraged to weigh in on the Keystone XL pipeline controversy. The revised economic geography section depicts the American "energy revolution," the convergence of new oil drilling and falling oil prices, new insights into alternative energies and agricultural technologies, growth in information technologies and how they have displaced traditional workers, projected

sectors of employment, and growing social and economic inequalities. America's infrastructure woes are described. Geopolitical issues include expressions of war-weariness while the US finds itself on a perpetual war footing. Saul Cohen argues that the US is no longer a superpower. Readers are asked to consider six great geopolitical challenges for the US. New patterns of settlement in small, mid-sized, and large cities are discussed, along with urban "smart growth." There is a much-expanded discussion of issues related to Colorado River waters and drought in the West.

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Course Support Resources

The text is accompanied by a number of ancillary publications to assist instructors and enhance student learning, including full *MindTap* course support!

MindTap for *Fundamentals of World Regional Geography, 4e*

MindTap is a personalized, fully online digital learning platform of authoritative content, assignments, and services that engages your students with interactivity while also offering

you choice in the configuration of coursework and enhancement of the curriculum via web apps known as MindApps. MindApps range from ReadSpeaker (which reads the text out loud to students) to Kaltura (allowing you to insert inline video and audio into your curriculum), to ConnectYard (allowing you to create digital "yards" through social media—all without "friending" your students). *MindTap for Fundamentals of World Regional Geography, 4e* provides the following unique features to enhance your course:

- An interactive eBook with highlighting, note taking, and an interactive glossary
- Unparalleled content cross-referencing so students can make important connections across the regions of the world
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- Pre-tests and Post-tests for each chapter that are auto-graded in MindTap and include helpful hints for students

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About the Author

Joe Hobbs received his B.A. at the University of California Santa Cruz and his M.A. and Ph.D. at the University of Texas at Austin. He is a geography professor at the University of Missouri, where he also serves as director of the Vietnam Institute. He is mainly a geographer of the Middle East, with many years of field research on Bedouin peoples and natural environments in Egypt's deserts. Joe's interest in the region grew from his boyhood in Saudi Arabia. His profession in geography grew out of life abroad with his Mom and Dad, all of his travels, and especially his being a "wayfellow" of Saleh Ali, a Bedouin of the Ma'aza tribe. His research in Egypt has been supported by grants from Fulbright, the American Council of Learned Societies, the American Research Center in Egypt, and the National Geographic Society Committee for Research and Exploration. He served as the team leader of the Bedouin Support Program, a component of the St. Katherine National Park project in Egypt's Sinai Peninsula, and led an effort to establish a national plan for environmental management in the United Arab Emirates. His most recent field research has been with a team, funded by the Norwegian Research Council, studying the interactions between nomadic pastoralists and acacia trees in Egypt and the



Cindy Hobbs

Sudan. Upcoming work deals with impacts of climate change on cultures and livelihoods in the Lower Mekong Basin and with best practices in environmental management for Ajman, United Arab Emirates.

Joe is the author of other books including *Bedouin Life in the Egyptian Wilderness* and *Mount Sinai* (both University of Texas Press), co-author of *The Birds of Egypt* (Oxford University Press), and co-editor of *Dangerous*

Harvest: Drug Plants and the Transformation of Indigenous Landscapes (Oxford University Press).

Joe has taught graduate and undergraduate courses in world regional geography, geopolitics, environmental geography, the geography of the Middle East, the geography of caves, the geography of global current events, and the geographies of drugs and terrorism, as well as a field course on the ancient Maya geography of Belize. He has received the University of Missouri's highest teaching award, the Kemper Fellowship, and awards for leadership in international education at MU. He has led adventure tours to remote areas in Latin America, Africa, the Indian Ocean, Asia, Europe, and the High Arctic. Joe lives in Missouri with his wife, Cindy; daughters, Katie and Lily; and turtles, lizards, cats, and dogs.

In loving memory of Tommy, Jack,
Elizabeth, and Avantika



Above: Maps are the primary way geographers visualize spatial information of all kinds. Above is a selection of maps from this book, each focusing on a different relationship between people, places, and the environment. Left: Paddling the Perfume River, central Vietnam. Joe Hobbs

1

We are living in the era of the geographer.

—HAL MOONEY, STANFORD ECOLOGIST¹

Objectives and Tools of World Regional Geography

Welcome to world regional geography. What an important and useful field of study! In recent times the world has seemed endangered on so many fronts: great powers struggle for control in Ukraine; violent Islamists threaten the social and political fabric of the Middle East; China exerts its power over the marine territories of less powerful Asian countries; Ebola ravages West Africa and threatens other regions, for example. What on Earth is going on? But buried by the worrisome headlines are remarkable stories of breakthroughs in technology, communications, and agriculture as well as advancements in the eradication of disease and hunger. What are those all about? Where are we, Earth's peoples, headed?

Chapter Outline

- 1.1 What Is Where, Why There, and Why Care? 03
- 1.2 The Language of Maps 09
- 1.3 Geographic Technologies and Careers 15

Chapter Objectives

This chapter will enable you to

- Learn about the scope of geography as an academic discipline.
- Get acquainted with the essential themes, elements, and standards of geography.
- Learn some key concepts in geography.
- Appreciate the book's overall objectives.
- Learn the basic language of maps.
- Explore the “geospatial revolution,” geographic information systems (GIS), and remote sensing.
- See how geographic knowledge is put to work in the job market.

1.1 What Is Where, Why There, and Why Care?

In studying world regional geography, we seek to understand what is going on, and why, and especially where. How are we doing? Many findings suggest “not very well.” A study carried out recently by professors in three Ivy League colleges revealed that only one in six adult Americans could accurately locate Ukraine on a world map. Asked to locate Ukraine on a world map with only country borders drawn in, the 2066 respondents were literally all over the map, placing Ukraine on every continent except Antarctica, which was not depicted. Ukraine turned up in a number of US states, especially in Alaska. A number of respondents put it in Greenland.²

What difference does it make? Who cares if you know where Ukraine is, much less Greenland? Long ago *geography* earned a reputation for mind-numbing memorization of state capitals, and for driving students away (•Figure 1.1). Netflix’s description of a 2014 film called *Geography Club* reads in part: “Looking for a haven from the social hell of [high] school, the teens in this dramedy form a social club they know no one else will join.”³ That’s not very funny to geographers like me, but I understand it. The truth is, by itself, a piece of knowledge like where Ukraine is probably means little. But geography is all about context and connections. Understanding *where* things are makes it much easier to appreciate and answer the *who, what, when, why, and how* questions in life, at every scale—from your daily activities to world affairs. Geography always starts with the *where* question, but it is far more interesting and important than its old reputation for memorizing places suggests. Helping you to understand contexts and relationships, geography can help you make better-informed judgments and decisions. My geographer colleague Fritz Gritzner coined this definition of geography, which also serves as a methodology and as a challenge for us to think critically: “*What is where, why there, and why care?*”⁴

To illustrate the importance of geographic insight, let’s drill down a little deeper into that Ukraine study, which was conducted after Russia annexed the Crimean Peninsula in 2014 and appeared ready to take eastern Ukraine by force. The professors who conducted the study found that the farther away from the actual location of Ukraine the survey participants guessed Ukraine was, the more likely they were to support US military intervention in Ukraine. Should that kind of disconnect concern us as we think about expending American “blood and treasure” in the world’s hotspots?

Most of us using this book are Americans, and our collective experience in recent decades has prompted us to say this to our politicians: We are tired of getting it wrong, and we can’t afford to get it wrong. Our decision makers are responding. Here is what the former US Secretary of Defense Robert Gates told cadets at the US Military Academy at West Point in 2011:

Any future defense secretary who advises the president to again send a big American land army into Asia or into the Middle East or Africa should “have his head examined,” as General [Douglas] MacArthur so delicately put it . . . Just think about the range of security challenges we face right now beyond Iraq and Afghanistan: terrorism and terrorists in search of weapons of mass destruction, Iran, North Korea, military modernization programs in Russia and China, failed and failing states, revolution in the Middle East, cyber-piracy proliferation, natural and man-made disasters, and more. And I must tell you, when it comes to predicting the nature and location of our next military engagements, since Vietnam, our record has been perfect. We have never once gotten it right.⁵

In his second term in office, President Obama depicted his foreign policy motto as “don’t do stupid stuff.”⁶

If only American presidents were advised by geographers . . . Geography is all about “getting it right” and “doing smart stuff” when it comes to understanding how the world works. Geographic knowledge of the *where, who,*



• **Figure 1.1** Geography used to be associated with memorizing mind-numbing facts. Not any more!

what, when, why, and how can help guide informed decision making at all scales, from whether and how the United States should commit troops to a ground war to how you can get from point A to point B in your own community. Geographic insight has the power to transform our lives and contribute to the welfare of our communities and our countries.

By the end of this chapter, you will know what geography is, recognize the benefits you can gain from learning world regional geography, understand the organization and objectives of this book, and learn some of the key concepts and tools of geography.

Before You Go On . . .

I have been teaching world regional geography (WRG) for more than 25 years, and I know the challenges you face as a student in taking on such a large and important subject as the world. Knowing the earth gets a lot easier when you recognize the patterns that repeat themselves in different places, and also when you recognize the key points of what you are reading. So, before you continue reading, you need to know about some important features of the book that help you with WRG recognition. The first is its *cross-referencing system*. The book is written with global interconnections in mind. “Globalization” is understandable as a concept, but how exactly does it work? The page and figure numbers in the book’s margins (and the hyperlinks in the ebook) tie the diverse strands of global issues together. For example, when you read in Chapter 3 how countries running low on productive agricultural land become “land grabbers” in other countries, page numbers in the margin lead you to the places where land grabbing is occurring (go to **page 65** to see what I mean). As you read about China’s economic growth and its appetite for raw materials, you are likewise directed to places around the world where these forces come into play (see **page 65**). I put a lot of effort into making these connections

for you, and I hope you will use this feature often and learn much from it.

I also want to draw your attention to features that will help you know what the most important points in the book are. My WRG students often ask me that famous question: “Do I need to know that for the test?” I cannot tell you what your professor or TA will put on your test or quiz, but I can help you recognize the ideas, issues, concepts, themes, and information that are *fundamental* to world regional geography (*fundamental* means “of central importance”) and that are worthy of testing. I encourage you to use the Study Guide at the end of each chapter. It highlights the chapter’s most important points and issues. If you want to double its usefulness, I recommend that you read the Study Guide even before you read the chapter, and use it more thoroughly after your reading and when you are preparing for the test. Another device that I am fond of as a writer and that should be useful to you is the *topic sentence* or *phrase* introducing or summarizing the main point or content of a given passage. Usually my topic sentence is at the beginning or end of a paragraph, but not always. Want a quick read of the chapter to get up to speed? Follow the topic sentences like highway signs.

What Is Geography?

Geography, a term first used by the Greek scholar Eratosthenes in the third century BCE,⁷ literally means “description of the Earth” but is probably best characterized as “the study of the Earth as the home of humankind.” Focusing on interactions between people and the environments in which we live, the modern academic discipline of geography has its roots in the Greek and Roman civilizations and the Scientific Revolution in Europe.

Geography has unique properties as a scientific discipline. These traits are articulated especially well in the set of **National Geography Standards**, composed by the National Council for Geographic Education (NCGE) and promoted by the National Geographic Society.⁸ The standards

are based on the NCGE's **six essential elements of geography**. Each of the six elements has a subset of geographic knowledge standards, eighteen in all, that “represent the most current conception of what it means to be geographically literate.” These eighteen standards represent the substantive content of the field of geography, and they also underpin this book's contents. You should be able to take any issue discussed in the text and match it with one or more of the eighteen standards. The standards are presented in **Table 1.1**:

In this book, I have worked mainly behind the scenes to ensure that your geographic literacy is informed by these NCGE standards. The book's three introductory chapters employ all eighteen standards to set the world stage for you, and the chapter outline of each regional chapter reflects (but does not mirror) the six essential elements.

Another conceptual summary of geography's distinctive properties is known as the **Five Themes of Geography**. The National Council for Geographic Education and the **Association of American Geographers (AAG)** developed these themes. Because of their clarity and easy use, many geographers prefer them for teaching, and I encourage you to try them out for yourself (see **Try It, page 6**). Your prof may wish to use this set instead of or alongside the six essential elements and their eighteen standards. The Five Themes of Geography are listed here:⁹

1. Location
2. Place
3. Human–Environment Interaction
4. Movement
5. Region

Table 1.1 The Six Essential Elements and 18 Standards of Geography

1	<i>The World in Spatial Terms.</i> Geography studies the relationships among people, places, and environments by mapping information about them into a spatial context (<i>spatial</i> means “of or relating to space”).
	Standard 1: How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.
	Standard 2: How to use mental maps to organize information about people, places, and environments.
	Standard 3: How to analyze the spatial organization of people, places, and environments on Earth's surface.
2	<i>Places and Regions.</i> The identities and lives of individuals and peoples are rooted in particular places and in human constructs called “regions.”
	Standard 4: The physical and human characteristics of places.
	Standard 5: That people create regions to interpret Earth's complexity.
	Standard 6: How culture and experience influence people's perception of places and regions.
3	<i>Physical Systems.</i> Physical processes shape the Earth's surface and interact with plant and animal life to create, sustain, and modify ecosystems.
	Standard 7: The physical processes that shape the patterns of Earth's surface.
	Standard 8: The characteristics and spatial distribution of ecosystems on Earth's surface.
4	<i>Human Systems.</i> People are central to geography; human activities, settlements, and structures help shape the Earth's surface, and humans compete for control of the Earth's surface.
	Standard 9: The characteristics, distribution, and migration of human populations on Earth's surface.
	Standard 10: The characteristics, distributions, and complexity of Earth's cultural mosaics.
	Standard 11: The patterns and networks of economic interdependence on Earth's surface, process, patterns, and functions of human settlement.
	Standard 12: The process, patterns, and functions of human settlement.
	Standard 13: How forces of cooperation and conflict among people influence the division and control of Earth's surface.
5	<i>Environment and Society.</i> The physical environment is influenced by the ways in which human societies value and use the Earth's physical features and processes.
	Standard 14: How human actions modify the physical environment.
	Standard 15: How physical systems affect human systems.
	Standard 16: The changes that occur in the meaning, use, distribution, and importance of resources.
6	<i>Uses of Geography.</i> Knowledge of geography enables people to develop an understanding of the relationships among people, places, and environments over time—that is, of the Earth as it was, is, and might be.
	Standard 17: How to apply geography to interpret the past.
	Standard 18: To apply geography to interpret the present and plan for the future.

Source: National Council for Geographic Education, 2012. *Geography for Life: National Geography Standards*, 2012. <http://education.nationalgeographic.com/standards/national-geography-standards/>.

Try it The Geography of Anyplace

Try using the *Five Themes of Geography* to characterize any place. Here is an example to work from, using *Ground Zero in Manhattan*.

Geographic Characteristics of Ground Zero

Location: Lower Manhattan, New York City (with an exact location of latitude: 40 degrees, 42 minutes, 43 seconds N; and longitude: 74 degrees, 00 minutes, 49 seconds W (later in the chapter, we will look at latitude and longitude).

Place: Formerly, office buildings and firms at the heart of one of the world's great financial centers (a reason it was targeted for destruction); now, a place of historical significance and collective grief for people of the United States.

Human–Environment Interaction: Lower Manhattan occupies low-lying ground that once

was marshy swampland. Construction of the twin towers of the World Trade Center, as well as the buildings erected after the 9/11 attacks, required special foundations to keep the Hudson River's water from pouring in.

Movement: Before 9/11, the daily comings and goings of office workers in the World Trade Center; on 9/11, the diversion of airplanes to target the buildings; after 9/11, the flow of tourists and construction crews to the site.

Region: Situated in region of the United States known as the Northeast, in a humid subtropical climate region (in the next chapter, we look at such physical regions).

You can use the five themes to appreciate any place geographically, from the Great Pyramids of Egypt to where you are now. Try it.

The National Geographic Society's educational division recommends, "While the five themes are still used, essential geography content knowledge for students is best described in the National Geography Standards, which were updated in 2012."¹⁰

The five themes, the six elements, and the eighteen standards cover a lot of ground. In its scope of interests, geography is the most all encompassing of the social sciences (a point of pride for us geographers). Broadly, the discipline has two major branches, **physical geography** and **human geography**, each of which has roots and relationships with other disciplines in the social and physical sciences (• **Figure 1.2**). Although we are classified as social scientists, we geographers often bridge the social and natural sciences and even the humanities in our research, publication, and teaching (another point of pride for us).

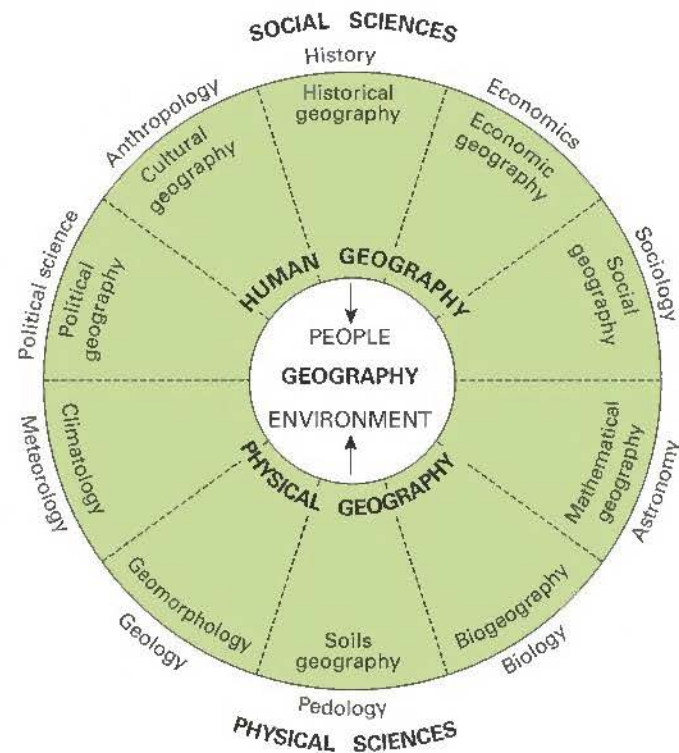
As you can see in the center of Figure 1.2, where all the components of the discipline converge, *geography is almost always concerned with the theme of human–environment interaction*. This concern has put geographers at the cutting edge of science and policy in the twenty-first century because so many of the Earth's most pressing problems—climate change, population growth, and hunger, for example—involve the coupling of human and environmental systems.

Geographers' interests in human–environment interaction, and especially in the ways in which people are changing the face of the Earth, go way back. The great German geographer Alexander von Humboldt (1769–1859) began geography's modern era in a series of classic studies on this theme. From field observations in Venezuela, he concluded, "Felling the trees which cover the sides of the mountains provokes in every climate two disasters for future generations: a want of fuel and a scarcity of water."¹¹ A century and a half later, we are von Humboldt's future generations.

Look at some of the most pressing global environmental issues that concern us today: they include deforestation and shortages of fresh water.

In Humboldt's wake, other geographers in Europe and the United States wrote about environmental changes due to deforestation and the expansion of agriculture and industry. The American geographer Carl Sauer (1889–1975) wrote, "We have accustomed ourselves to think of ever expanding productive capacity, of ever fresh spaces of the world to be filled with people, of ever new discoveries of kinds and sources of raw materials, of continuous technical progress operating indefinitely to solve problems of supply. Yet our modern expansion has been affected in large measure at the cost of an actual and permanent impoverishment of the world."¹² These words have a modern ring to them, but

Sauer, a geographer at the University of California–Berkeley, wrote them in 1938. Sauer focused geographers' attention on how the forces of nature and culture shape the **landscape**—the collection of physical and human geographic features on the Earth's surface—and in particular the roles that human ideas, activities, and cultures play in modifying the landscape. Sauer is credited with founding the **landscape perspective** in



• **Figure 1.2** Selected subfields of geography. These are the main subject areas in human geography and physical geography and their links with the most closely related disciplines in the social and natural sciences.

American geography, based on the method of studying the transformation through time of a **natural landscape** to a **cultural landscape**. Essentially, Sauer challenged us to think of what the world would look like without people and then understand what people have done to reshape the world through time.

Culture—the system of values, beliefs, and attitudes that shapes and influences perception and behavior—underlies many of our decisions about how to use and modify the landscape.¹³ That is why geographers are so concerned with cultural features such as ethnicity, language, and religion, and why you will learn much about them in this book.

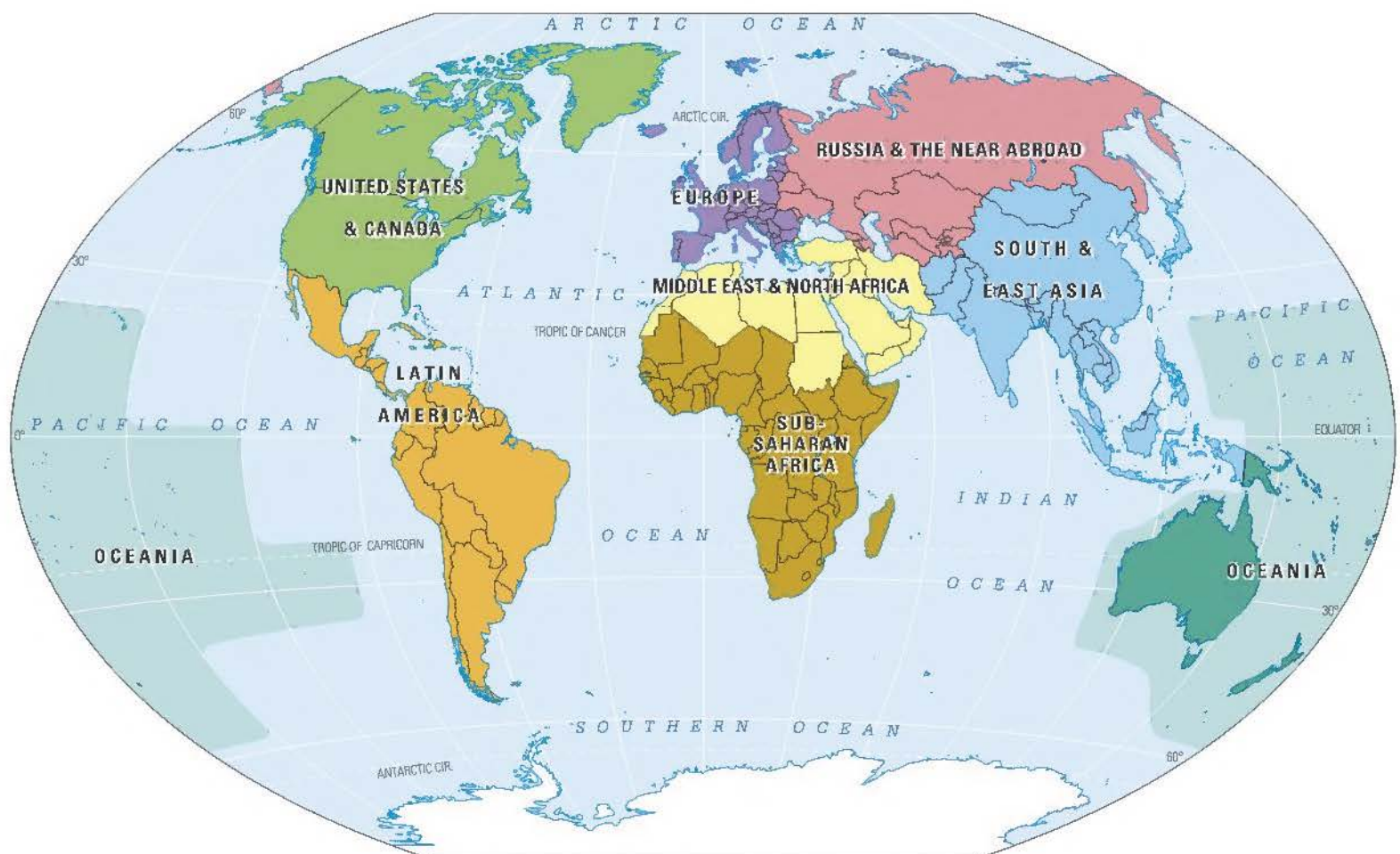
The World Regional Approach to Geography

The **world regional approach to geography** ranges across the human and physical subfields of geography, synthesizing, simplifying, and characterizing the human experiences of Earth as home. It is impossible to deal with something as large and diverse as our planet without an organizing framework. World regional geography simplifies the task by dividing the world into **regions** (•Figure 1.3 and •Table 1.2). These subdivisions of space are human constructs, not “facts on the ground.” People create and draw boundaries around regions that share relatively similar characteristics. A region is simply

a convenience and a generalization, helping us become acquainted with the world and preparing us for more detailed insights. This WRG book recognizes eight world regions; others have more or less.

Three types of regions are recognized by geographers. Each is helpful in its own way in conveying information about different parts of the world:

- A **formal region** (also called a **uniform** or **homogeneous region**) is one in which all the population shares a defining trait or set of traits. A good example is a political unit such as a county or a state, where the regional boundaries are defined on a map. Figure 4.2 on page 91 is a formal region map showing the countries of Europe.
- A **functional region** (also called a **nodal region**) is a spatial unit characterized by a central focus on some kind activity (often an economic activity). At the center of a functional region, the activity is most intense, whereas toward the edges of the region the defining activity becomes less important. A good example is the distribution area for a metropolitan newspaper, with the highest numbers of subscribers in the city and diminishing numbers at growing distances from the city.
- A **vernacular region** (or **perceptual region**) is a region that popularly exists in people’s minds but has no definitive boundaries. This region may play an important role in



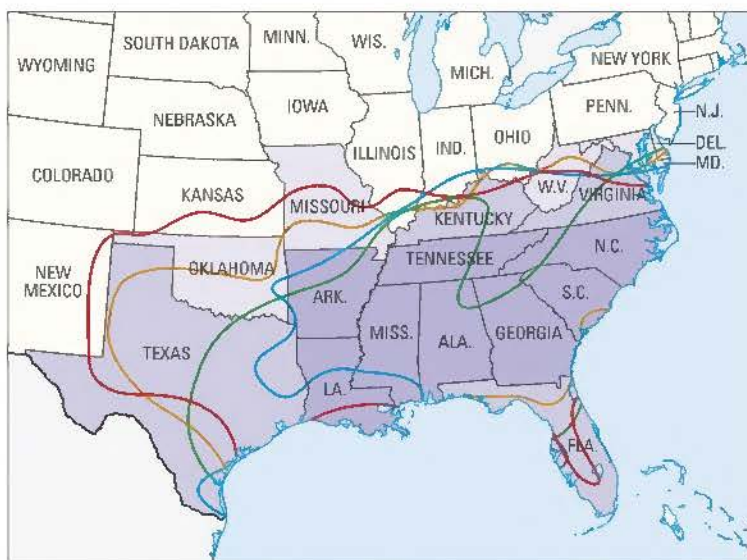
• **Figure 1.3** World regions as identified and used in this book.

Table 1.2 The Major World Regions: Basic Data

Political Unit	Area (sq mi, thousands)	Area (sq km, thousands)	Population (millions)	Rate of Natural Increase (%)	Urban Population (%)	Population Under Age 15 (%)	Agricultural Workers (%)	Per Capita GDP (PPP) (\$US)	GDP (\$US, billions)	Oil Production (million bbl/day)	Literacy, Female (%)	Literacy, Male (%)	HDI
World	52,485.9	135,935.9	7,227.7	1.2	52	27	18	11,900	107,405	84	79	87	0.669
Europe	1,959.3	5,072.0	532.2	0.1	73	16	3	32,400	19,145	3	98	98	0.878
Russia and the Near Abroad	8,533.2	22,100.8	284.5	0.4	65	19	9	12,900	5,068	13	99	98	0.745
Middle East and North Africa	5,416.1	14,027.8	531.2	1.9	63	30	10	11,600	9,150	29.5	77	87	0.694
South and East Asia	8,265.3	21,407.1	3,950.7	1.1	45	25	14	7,900	41,074	7.4	79	88	0.646
Oceania	3,306.8	8,564.5	38.4	1.1	70	24	10	31,200	1,311	0.5	86	89	0.808
Sub-Saharan Africa	8,655.2	22,417.2	919.5	2.6	37	43	61	2,600	3,275	5.7	52	69	0.462
Latin America	7,946.2	20,580.7	618	1.2	78	27	16	14,000	9,336	9.3	88	89	0.734
North America	8,403.8	21,765.8	353.2	0.4	81	19	2	51,800	19,046	15.3	99	99	0.913

Sources: World Population Data Sheet, Population Reference Bureau, 2014; Human Development Report, United Nations, 2014; World Factbook, CIA, 2014.

cultural identity but does not necessarily have official or clear-cut borders. Good examples are the South, the Bible Belt, and the Rust Belt in the United States (• **Figure 1.4**). These regional terms have economic and cultural connotations, but ten people might have ten different definitions of the qualities and boundaries of these regions. Vernacular or perceptual regions, created by individuals and cultures, represent the regional identities that help us organize, simplify, and make sense of the world around us. This book's eight regions are vernacular regions: not all geographers agree which countries make up the Middle East, for example. In



• **Figure 1.4** Definitions of a vernacular region, the American South. Purple shading represents three state-based delineations; colored lines delimit various religious, linguistic, and cultural “Souths.” These are just a few of the many different interpretations of the region.

introducing each region, I will tell you what characteristics I chose to define it.

The Objectives of This Book

I have written this book to help you achieve five objectives:

1. *To become geographically literate.* This book will empower you with a comprehensive geographic vocabulary and an advanced command of the “language” of world regional geography. Using the framework of world regions, this book puts the “meat on the bones” of the 18 geographic standards, giving you all you need to achieve geographic literacy.
2. *To understand Earth's problems and their potential solutions.* Like geography broadly, WRG is concerned with problems in human–environment interaction. Some of these problems, such as overpopulation, poverty, and climate change, are global in scope, whereas others are national, regional, and local, or are manifested at these scales. We will see how these problems can be made less threatening and even solved. One of the overarching ones, climate change, first gets our attention in Chapter 2 and re-emerges in all the other chapters.
3. *To use geographic critical thinking to understand the world.* To understand and grapple with Earth's problems, including climate change, we must consider many factors: natural environments and resources, population, economic development, ethnicity, history, and geopolitical interests, for example. Is that too much information for you to take in? No. You will use the tools of WRG to filter and synthesize information, making the information more meaningful and memorable. You will think critically to recognize and reveal the geographic underpinnings of our world's problems. Critical thinking is “the process of actively and skillfully

conceptualizing, applying, analyzing, synthesizing, and evaluating information to reach an answer or conclusion.”¹⁴ Using geography’s holistic and integrative approach in a regional framework, you will synthesize information, techniques, and perspectives from both the natural sciences and the social sciences. You will tread into the grounds of political science, history, economics, anthropology, sociology, geology, atmospheric science, and other areas. Pulling these issues and perspectives together, thinking critically and finding the links among them is doing geography. Doing this synthesis within a regional framework is doing world regional geography. Thinking critically in this framework, you *will* be able to understand Earth’s problems and potential solutions.

Growing your habit of geographic critical thinking will be rewarding for you. Your overall university experience will be richer as you connect the dots between your diverse courses. As you carry on through life, your insight and wisdom may reward you both professionally and personally. More complete knowledge of the world—good geography—is also good business. In the competitive environment of the global economy, better understanding of cultures and environments throughout the world helps boost the “bottom line.” You may be surprised how much your geographic knowledge, enhanced by your ability to produce insight and advice from it, will help you in your career, whatever it turns out to be.

4. *To understand the geography of current events.* This book is carefully written to set the stage of world events for you. With the book and your professor’s guidance, you should become able to read and view news with a much better understanding of the issues underlying world events. Incidents like earthquakes and tsunamis in the western Pacific, disease epidemics originating in southern China, and Russia’s invasions of neighboring countries are not random, unpredictable events. They are rooted in consistent, recognizable problems that have geographic dimensions. You will find it satisfying to be “pre-informed” about a problem that suddenly appears in the news. You will become somewhat of an expert on **geopolitics**, the struggle for space and power played out in a geographical setting.¹⁵
5. *To develop the ability to interpret places and “read” landscapes.* In doing geography, you will be concerned both with **space** (the exact placement of locations on the face of the Earth) and with **place** (the imprecise but important physical and cultural contexts of a location). Place is much more subjective than space because, like a vernacular region, it often is defined by the meanings of a particular location. For example, your perceptions of New York City may be very different from those of your friend and may be shaped by personal experience in the “Big Apple” or by photographs or movies you have seen. In this book, there is much discussion of the “sense of place” that individuals and groups have about locations and regions. Perception of place can have a very strong influence on how we make decisions and interact with others. Perception of place can even have a strong impact on world events. For example, in



Job Hobbs

• **Figure 1.5** Study this photograph, and name the country—or at least the region—where it was taken. What clues in the physical and human geographies of this place help you locate it? For more clues and the place identification, see note 16 on page 23.

Chapter 6 on the Middle East, you will see how Jewish and Muslim perceptions of sacred places located within a few meters of each other in Jerusalem play crucial roles in conflict and peacemaking in the Middle East and beyond. With **Figure 1.5**, let’s consider an example of how you can use your critical thinking skills to define and identify place.¹⁶ As you work forward through your book and course, you will get better at identifying the many elements of place identity, including climate, vegetation, and landforms of the physical environment and the language, religion, history, and livelihoods of the people living in that environment. Your skill in interpreting places will even help make you a better traveler.

1.2 The Language of Maps

We turn now to the most important tool that geographers use to explore and explain relationships on our planet: the map. As geographers study people, places, and environments, we usually (but not always) collect and depict information that can be mapped. In other words, we are interested in the **spatial** context of the things. As noted in the first essential element of geography, **spatial** means “of or relating to space.”

A **map** is a representation of various phenomena over all or a part of the Earth’s surface, usually rendered on a flat surface such as paper or a computer monitor. The science of making maps is called **cartography**. There are two basic types of maps: reference maps and thematic maps. **Reference maps** are concerned mainly with depicting the locations of various features, both natural and human-made, on the Earth’s surface (road atlases are a good example, as are the opening maps for each regional chapter, such as Europe in **Figure 4.1**). **Thematic maps** show the spatial distribution of one or more attributes



Insights Mental Maps

When someone asks you, “Could you draw me a map of how to get there?” you might quickly draw some lines, write down some street names, talk about some familiar landmarks, and apologize for how crude your map is. Your map would probably end up looking very different from that of another person asked the same question. Our understanding of location is not

completely objective. Each of us has a personal sense of space and place and associations with them.

A **mental map**, like a vernacular region, is a collection of personal geographic information that each of us uses to spatially organize the images and facts we have about places, both local and distant. We constantly draw upon

that geographic information to make our way through daily life, and are always revising and updating that information as we succeed or fail on our way. Sometimes we use that information to create actual maps. These maps are not accurate, precise, or scientific, but they portray useful information and tell us much about the individuals and cultures that create them.

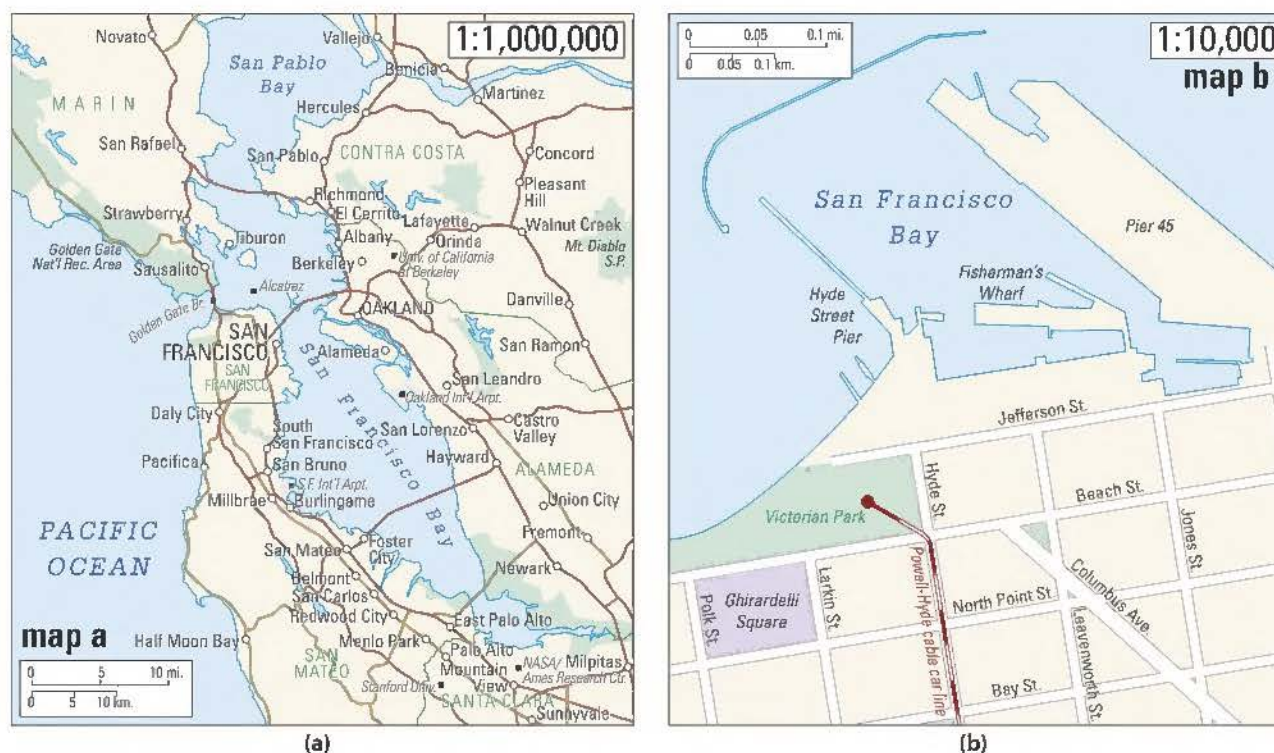
across a given area. Thematic maps can be divided into two categories: quantitative and qualitative. Quantitative thematic maps show the spatial distribution of numerical information (such as population density or income levels, as in Figure 3.7 on page 56), whereas qualitative thematic maps display non-numeric data (such as the distribution of climates or languages, as in Figure 2.4 on page 30).

As maps are an essential tool in the study of world regional geography, it is important that you know how to read them. The main elements of the “language of maps” are *scale*, *coordinate systems*, *projections*, and *symbolization*.

Scale

A map is a reducer; it shrinks an area to the manageable size of a chart, piece of paper, or computer monitor. The amount of reduction appears on the map’s scale, which shows the

actual distance on Earth as represented by a given linear unit on the map. A common way to depict scale is with a fraction or ratio, such as 1:10,000 or 1:10,000,000. In the fraction, one linear unit on the map (for example, 1 inch or 1 centimeter) represents 10,000 or 10,000,000 such real-world units on the ground. A **large-scale map** is one with a relatively large representative fraction (for example, 1:10,000 or even 1:100) that portrays a relatively small area in more detail. A **small-scale map** has a relatively small representative fraction (such as 1:1,000,000 or 1:10,000,000) that portrays a relatively large area in more generalized terms. Compare the two maps in •Figure 1.6. Figure 1.6a is a small-scale map showing San Francisco and surrounding parts of the Bay Area. Figure 1.6b is a large-scale map that “zooms in” on part of San Francisco. Remember this inverse relationship: a small-scale map shows a large area, and a large-scale map shows a small area.



• Figure 1.6 (a) Small-scale and (b) large-scale maps of San Francisco and environs.

How good are you at reading maps? What about imagining or drawing them? (See the Try It feature on this page.) Did you ever wish you were better at it? This section should help you—and it will be useful as you navigate this book.

Coordinate Systems

Maps cannot convey the subjective meanings associated with place, but they are very effective in conveying information about space and location. In this book, you will be concerned with two kinds of **location**: relative location and absolute location.

Relative location defines a place in relationship to other places. You can derive this kind of information from many maps. Relative location is one of the most basic reference tools of everyday life; you might say you live south of the city, just west of the shopping mall, or next door to a good friend. As you proceed through the book, relative location will become part of your basic geographic knowledge and your critical thinking about geography. You might look at Figure 5.33, on page 193, to see, for example, how tantalizingly close the legally-Ukrainian port of Sevastopol is to Russia's southwestern border. Despite its vast size, Russia has few ports in warm waters accessible for seafaring throughout the year. Understanding the implications of relative location will prove quite useful for you in following world affairs; in this case, you can easily appreciate one of the reasons why Russia asserted control over the Ukraine's Crimean Peninsula, which juts into the Black Sea (see page 180 and Geographic Spotlight, page 12).

Absolute location refers to a point on the Earth's surface. Also known as **mathematical location**, absolute location is essential in reference maps, but not always in thematic maps. **Coordinate systems** are used to determine absolute location. These coordinate systems use a network of grids consisting of horizontal and vertical lines covering the entire globe. The intersections of these lines create addresses in a global coordinate system, giving each location a specific, unique, and mathematical placement (as appears, for example, as a "waypoint" in the common global positioning system (GPS) device).

The most common coordinate system uses **parallels of latitude** and **meridians of longitude**. The term *latitude* denotes position with respect to the Equator and the poles (see •Figure 1.7). Latitude and longitude are measured in **degrees** ($^{\circ}$), **minutes** ($'$), and **seconds** ($''$). Each degree of latitude, which is made up of 60 minutes, is about 69 miles (111 km) apart; these distances vary a little because Earth is a slightly flattened ("oblate") sphere or ellipsoid. Each minute of latitude, which is made up of 60 seconds, is therefore roughly a mile apart. The **Equator**, which circles the globe east and west midway between the

Mental Maps

You have mental maps in your mind. Try this: without referring to this book or any other source, draw your map of the world. It does not need to be detailed. But try to get outlines of the continents on your map, with their rough shapes and relative sizes. Then compare yours with a world map in the book or elsewhere. How did you do? Yes, you

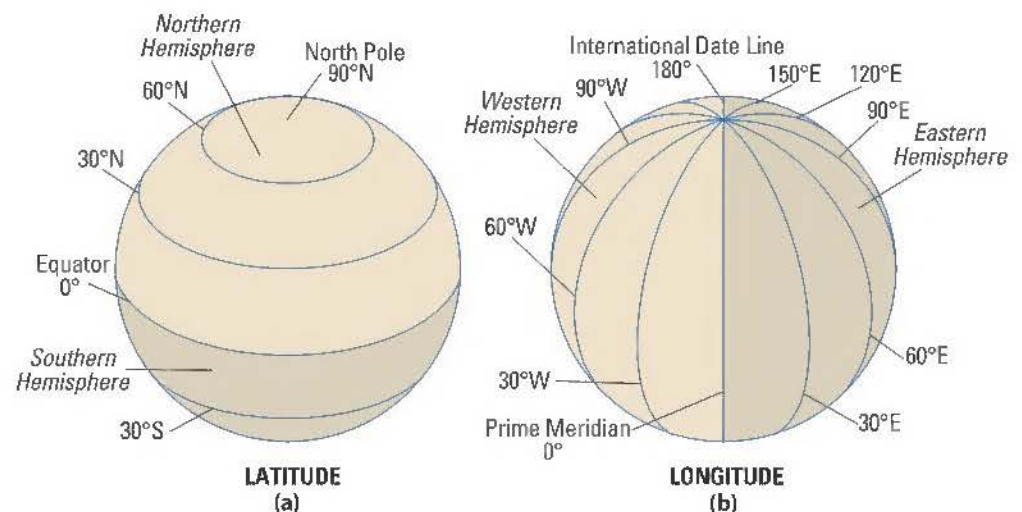
can laugh at yourself. This is not something that most of us are proficient at. Did you lean toward a certain projection you might be familiar with, like the Mercator with its large polar land areas (see page 16)? It is very likely that if you try this again when you are finished with the course, your mental world map will be much improved.

Try it

poles, has a latitude of 0° . All other latitudinal lines are parallel to the Equator and to each other, which is why they are called **parallels**.

Every point on a parallel has the same latitude (for example, places on the Equator in both South America and Africa are located at 0° latitude). Places north of the Equator are in **north latitude**. Places south of the Equator are in **south latitude**. The highest latitude a place can have is 90°N (the **North Pole**) or 90°S (the **South Pole**). Places located between the **Arctic Circle** at 65.56°N and the North Pole, and between the **Antarctic Circle** at 65.56°S and the South Pole, form the most commonly recognized boundaries of the **high latitudes**. Places located between the **Tropic of Cancer** and the **Tropic of Capricorn**, at 23.44°N and 23.44°S , respectively, are said to be in **low latitudes**. Places occupying an intermediate position with respect to the poles and the Equator are said to be in the **middle latitudes**. Incidentally, there are no universally accepted definitions for the boundaries of the high, middle, and low latitudes. The northern half of the Earth between the Equator and the North Pole is called the **Northern Hemisphere**, and the southern half between the Equator and the South Pole is the **Southern Hemisphere**.

Meridians of longitude are straight lines connecting the poles (see Figure 1.7b). Every meridian runs due north–south. All the meridians converge at the poles and are farthest apart



• **Figure 1.7** (a) Earth's lines of latitude (parallels) in increments of 30 degrees, from the Equator (0 degrees) to the North Pole (90 degrees north latitude). (b) Earth's lines of longitude (meridians) in increments of 30 degrees.