CHAPTER 1

Introduction to World Regional Geography



Steve McCurry/Magnum Photos, Inc.

Nasir Bagh, Pakistan. Photographed in 1984, in the midst of the Soviet Union's occupation of Afghanistan, Sharbat Gula came to symbolize the pain of a refugee's life and the resilience of the Afghan people. Americans were drawn to Sharbat Gula's piercing green eyes on the cover of *National Geographic* magazine. Gula is a member of the Pashtun ethnic group in Afghanistan, and her parents died in the war with the Soviet Union. As a young child, she and her siblings and grandmother fled to the Nasir Bagh refugee camp across the border in Pakistan, where she lived until after she married as a teenager. The photograph of Gula is considered one of the most famous photographs in the United States. Something about her eyes spoke to Americans. Perhaps we imagined the life of the young woman in a refugee camp and thought of girls in America who were the same age. Perhaps we could not look away from those eyes, and we realized the war happening so far away was impacting people who seemed real in her face. Perhaps her eyes were engaging enough that we wanted to learn more about the war in Afghanistan. Or perhaps the glimmer of hope behind the strain in her bright eyes made us hopeful for an end to conflict in the region. Regardless of how we interpreted the photo, we paused and considered where Afghanistan and the war fit in our schemata of the world.

This may be your first college-level geography class, but your mind is not a blank slate. You come into this class with a set of perceptions about peoples, places, cultures, and regions. Your understanding of the world comes from your experiences, as well as from news stories, magazines, movies, novels, and books. Images you have seen in your life—an Afghani girl with piercing green eyes or a Maasi woman with a beaded collar on her neck—help create a structure in your brain, and this structure helps you make sense of the world.

These structures in our brains are like scaffolding. Educators across disciplines call these scaffolds schemata. Pieces of information create the base, then we build upon it with other perceptions and ideas we gain, and finally, we have schemata through which we build ideas and attach any new information we learn about places and peoples. If we read a novel set in southern Africa and the characters, stories, and descriptions contrast with our schemata of Africa, we may choose to restructure our conceptualization of Africa, reject the image of Africa presented in the novel, or pick and choose what fits and what does not fit in our perception.

The goal of *Understanding World Regional Geography* is to help you build your knowledge and appreciation of the world. As global citizens, each of us has opportunities every day to be aware of our schema, question it, wonder about it, challenge it, and ultimately, revise it so that we may have a deeper understanding of the world we call home.

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CHAPTER OUTLINE

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TC Threshold Concepts in this Chapter

Context
Scale
Region
Cultural Landscape

What Is Geography?

LEARNING OBJECTIVES

1. **Describe** what geography is.
2. **Explain** the differences between physical geography and human geography.
3. **Understand** what it means to think geographically.

Students new to the field of geography imagine that geographers study maps in order to memorize places, and read statistics in order to gather facts about people and places, such as chief exports, capitals, and major languages. However, geographers do not study peoples and places simply to gather sets of data. Geographers study peoples and places in order to *understand* how people create places, how cultures are reflected in places, how people and environment interact, and how people's perceptions of places and of others influence the ways they interact.

Studying Geography

Geography is the study of people, place, environment, and space. **People** incorporate the 7.4 billion people on Earth. Geographers study the ways people identify themselves and define others, the cultural practices and norms they follow, and the actions they take whether on a mundane day or in the context of a major event or crisis. **Place** is the uniqueness of a location, and to understand place, geographers think about how places are shaped by people and their interaction with environment. A place has a character, a visual aesthetic that typically reflects the people, their cultural values, and their reciprocal interaction with the physical environment (Figure 1.1). **Environment** is the physical context of Earth, but environment is not a static stage on which people act. Environment incorporates Earth processes, such as erosion caused by rivers, and the human impact on environment. **Space** is an abstract, boundless set of connections and construction of relations where processes occur. Geographers think about what and who creates space—the structures of everyday society, the economic, political, and social constraints in which people operate.

Reading the Cultural Landscape

Ifugao Province, Philippines: Rice Terraces

These rice fields in the Philippines look nothing like the vast, flat corn fields of Iowa and Illinois. How do people farm in a hilly or mountainous environment? Approximately 2,000 years ago, Ifugao people on the island of Luzon in the present-day Philippines carved terraces into the hillside to shape flat lands they could farm. Since then, farmers have used the terraces to cultivate rice. The terraces are irrigated by rainfall at higher elevations that is then pooled and released over time down the steps of the landscape. The engineering feat of rice terraces and the balance between nature and society shown by this form of agriculture were reasons the United Nations recognized the Ifugao rice terraces as a World Heritage Site in 1995.



Emilio Maranon III, Philippines/Moment Open/Getty Images.

FIGURE 1.1 Banaue, Philippines. These rice terraces have been farmed for 2,000 years.

Geography incorporates two major fields of study: **physical geography** and **human geography**. Physical geographers study Earth, environment, and human–environment interactions. Physical geographers study weather (meteorology), climate (climatology), natural hazards, landforms (geomorphology), human–environment interactions, and more. A physical geographer approaches an issue such as flooding in Pakistan differently from other physical scientists (Figure 1.2), because a physical geographer is concerned with why something is happening precisely where it is happening, why it matters to that place and the people, and how what is happening in this one place is connected to other peoples, places, and space.



S S MIRZA/Stringer/AFP/Getty Images.

FIGURE 1.2 Layyah District, Punjab, Pakistan. The Indus River is the lifeblood of Pakistan, providing fresh water to over 100 million people. In July 2015, the Indus experienced widespread flooding, caused by incredibly heavy rains from the summer monsoon. Monsoon rains are intensifying as the temperatures of the Indian Ocean have warmed with recent global climate change. Approximately 20 million people were displaced by the flooding in Pakistan.

Human geographers study peoples, cultures, and their shaping of place and environment. Human geographers study economics, politics, culture, health and medicine, history, and more. A human geographer approaches an issue such as guest workers migrating from Indonesia to Saudi Arabia (Figure 1.3) differently from other social scientists because a human geographer is concerned with where something is happening, why it is happening there, and why it matters to the place migrants came from, the migrants themselves, and the place where the migrants went to.

Human geographer Rachel Silvey interviewed Indonesian women who worked as domestic help in Saudi Arabia. Although reports of cases of abuse of Indonesian women in Saudi Arabia are high millions of women were still willing to migrate. The Indonesian government actually banned their citizens from working overseas in 21 North African and Southwest Asian countries in response to the Saudi Arabian government executing two Indonesian women in 2015. Workers' rights groups say the ban is a mistake because women continue to migrate and now have less protection abroad as undocumented workers. Those concerned about the ban believe it will encourage an underground trade in domestic workers. Women believe earning **remittances**, money made through work in Saudi Arabia that they could send home to Indonesia, was worth the risk of abuse Indonesia is one of the top remittance-receiving countries. In 2015, over $9.4 billion (1 percent of Indonesia's GDP) flowed into the country by Indonesian women and men working overseas.



REUTERS/Newscom.

FIGURE 1.3 Tangerang, Indonesia. The largest Muslim country in the world, based on total followers of Islam, is Indonesia, with over 206 million Muslims. A Gulf Labor Markets and Migration report estimates 1.5 million Indonesians work in Saudi Arabia. Employment is the main reason workers migrate to Saudi Arabia, but also some Indonesian Muslims see it as an opportunity to make a pilgrimage to Mecca, which is located in Saudi Arabia. Other sources estimate that more than 500,000 Indonesians work in Saudi Arabia as guest workers, invited by the government to work temporarily, mainly as domestic help. The women in this photograph are filing papers to leave Indonesia and become guest workers in Saudi Arabia.

Geographers also study the relationship between physical and human, in a field of study called **human–environment** relations. Catastrophes, including frequent flooding since 2010 in Pakistan, can have global environmental causes with very real local impacts on people. Drawing from the Indus River to irrigate lands makes agriculture possible in parts of the otherwise semiarid to arid Pakistan. The Indus River also provides fresh water to over 100 million people. Beginning in the Himalayas, water in the Indus River comes from melting snow and glaciers and from the annual summer monsoon. Monsoon rains bring more than 80 percent

of precipitation that falls in the lower Indus River valley in just three months each summer: July, August, and September.

In August 2010, extremely heavy rains flooded the Indus River. Pakistan has had widespread flooding every summer since 2010. Monsoon rains are intensifying as Indian Ocean temperatures rise with global climate change. Warmer air holds more moisture, bringing more rainfall during the summer, or wet monsoon season, throughout South Asia. The United Nations (2010) estimated 15 to 20 million people were affected by the Pakistan flooding, "more than the entire populations hit by the Indian Ocean tsunami (2004), the Kashmir earthquake (2005), Cyclone Nargis (2008), and the Haiti earthquake (2010) combined." While a relatively small number of people died in the Pakistan floods (1,700 people compared with over 250,000 deaths in the Indian Ocean tsunami), the Pakistan floods caused billions of dollars of damage to agricultural fields, infrastructure, buildings, and livestock.

Human changes to environment have also helped intensify flooding in Pakistan. Pakistanis have deforested much of northern Pakistan, where the heaviest rains fell, leaving little vegetation to absorb the rain and allowing much more runoff of rainfall into the Indus River. In southern Pakistan, people had drained wetlands along the Indus in order to farm and build settlements. The number of people displaced by the flood was higher than it would have been if the flood had occurred ten years earlier because more people live along the river now than in years past.

Geographers call human-environment relations reciprocal because what humans do affects environment, and environmental change affects what humans do. In the case of Pakistan, human action helped warm the Indian Ocean and altered the summer monsoon, leading to heavier rainfall. The heavy rainfall led to floods, and the damage of those floods was intensified because of human changes to the landscape, in this case deforesting and draining wetlands. In response, people in Pakistan are now working to rebuild their economy, establish a stable food supply and access to clean water, and find a way to survive floods of this magnitude in the future.

What does it mean to think geographically?

Thinking geographically means considering and understanding the context of what is going on in the world. Historians focus on the historical context and geographers focus on the spatial context. Geographers use geographic concepts to find connections and make distinctions among different people and places. A geographic concept is a way of thinking about or understanding something that has a geography, a location, a spatial difference, or a place distinction.

Threshold Concepts *Understanding World Regional Geography* emphasizes 25 **threshold concepts** as key to thinking geographically. Meyer and Land (2006) established that once a student understands threshold concepts in geography, it opens the door to thinking and learning like a geographer. We wrote and designed the book to highlight 25 threshold concepts and show how to apply them to specific examples. Our discipline has far more than 25 geographic concepts, but we chose these 25 as the pivotal concepts for thinking geographically in a world regional geography course. Each chapter highlights one or more threshold concepts and uses case studies to demonstrate the threshold concepts.

The creative and critical thinking questions at the end of each chapter challenge you to apply threshold concepts across regions. The concept checks within each chapter test whether you have learned the material and can apply threshold concepts and other geographic concepts. Graded questions regarding specific threshold concepts and case studies are also available to help you practice employing them. In this chapter, we will introduce the threshold concepts of context, scale, region, and cultural landscape.

Context

TC Four out of five children with HIV/AIDS live in Subsaharan Africa. Statistics like this may lead us to believe the disease is really an issue for Africa and less so for the rest of the world. However, HIV/AIDS diffuses differently in each region of the world, and understanding each regional **context** helps us grasp the impact of the disease and design programs to combat its spread. To geographers, the world is not a stage on which people act and diseases spread. Rather, in each of the world's regions, people's experiences, shared histories, cultural values and norms, and interactions with each other and places, as well as human–environment interactions, create and define a regional context in which a disease diffuses.

In regional contexts, we can better understand why diseases spread in the patterns they do. The diffusion of HIV/AIDS is a global phenomenon, interacting with many governments that work to create programs to slow the transmission of the disease in their countries. Global programs aimed at slowing the spread of HIV/AIDS are starting to have a positive impact. In 2015, fewer people were newly infected with HIV than in any year since 1991, and 2015 also marked the lowest number of deaths from HIV/AIDS in one year in over two decades (WHO 2016). Regionally, HIV/AIDS is most widespread in Subsaharan Africa, with 25.5 million of the 36.7 million worldwide cases (almost 70 percent). New research gives two major reasons for its high concentration in Africa: high rates of malaria and lack of male circumcision.

Studies report that people infected with malaria who also have HIV/AIDS can become "supercontagious," thus increasing transmission rates of HIV/AIDS among people in the region. Scientists have also confirmed that uncircumcised men are more likely to contract HIV/AIDS than circumcised men (Figure 1.4).

context The physical and human geographies that give meaning to the place, environment, and space in which events occur and people act.

Using Geographic Tools

Using Regions to Analyze Differences: The Diffusion of HIV/AIDS by Region

The first cases of HIV/AIDS in the world were found in Central Africa, and the first major diffusion of HIV/AIDS occurred in eastern Africa along a well-traveled highway from Kenya to Uganda. This area of Africa became known as the first HIV/AIDS belt. A number of factors led to the first HIV/AIDS belt developing in Africa. People who have contracted HIV do not know until they test positive or start showing symptoms, so they can spread the disease unknowingly. Before HIV/AIDS education was widespread, the disease spread relatively quickly in Subsaharan Africa. In 1996, researchers mapped areas where males are not commonly circumcised and overlaid the map with the first HIV/AIDS belt to demonstrate a spatial correlation (Figure 1.4). Knowing this helped scientists make connections between disease transmission and male circumcision and led to further research.

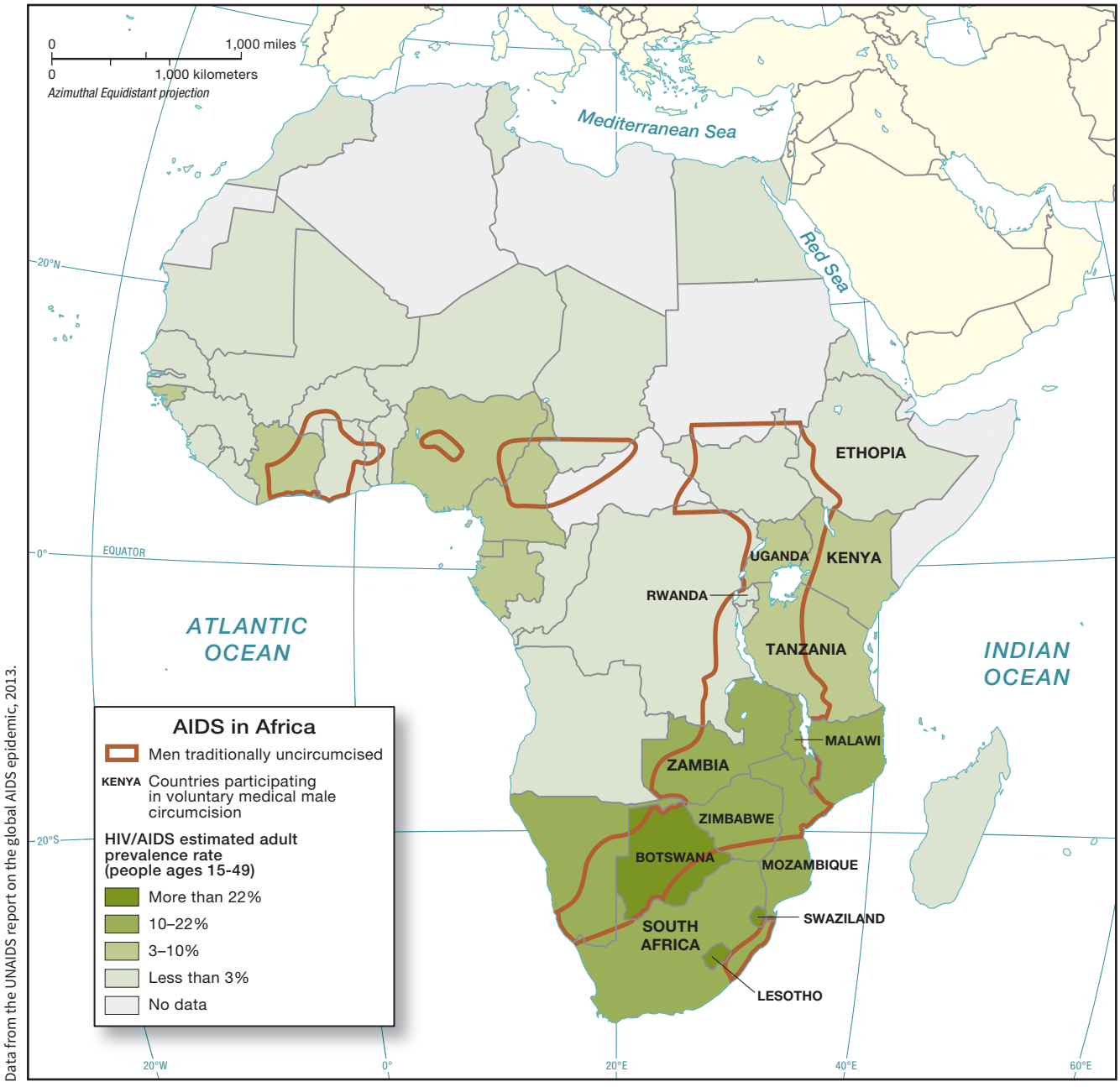


FIGURE 1.4 **HIV/AIDS in Africa.** Researchers mapped adult prevalence rates and areas where males are traditionally uncircumcised to see if the two were related.

Examining the differences in methods of transmission of HIV/AIDS in other world regions can help geographers gain a sense of how social, economic, cultural, gendered, and sexual norms vary by world region. For example, in Subsaharan Africa, HIV/AIDS is largely disseminated through heterosexual (male–female) sex as well as from mother to baby. The diffusion of HIV/AIDS in eastern Europe is caused largely by intravenous drug use and then is secondarily diffused by male–female sex. In western Europe, the diffusion of HIV/AIDS reflects the same pattern found in North America, with male–male sex being the leading transmission method, followed by intravenous drug use. In East Asia, Southeast Asia, and South Asia, the sex industry generates the highest transmission rates. Designing programs to effectively combat the spread of HIV/AIDS depends on a regional understanding of how the disease most commonly diffuses.

Thinking Geographically

1. Knowing that the primary transmission methods of HIV/AIDS varies by world region, how could you design a program to combat the diffusion of HIV/AIDS that takes into account the primary transmission methods in each world region?
2. What is unique about HIV/AIDS relative to other diseases that would explain why many analysts claim that the economic impact of HIV/AIDS on a country is more severe than most diseases?

Sources: United Nations Programme on HIV/AIDS (UNAIDS). 2013. "Global Report: UNAIDS Report on the Global AIDS Epidemic 2013." BBC. 2005. "HIV Impact: Region-by-Region." BBC News. November 30.

The World Health Organization reports that 90 percent of all malaria cases worldwide are in Africa, and the Centers for Disease Control reports circumcised men have a 42 percent lower chance of HIV infection than uncircumcised men. An analysis of HIV/AIDS and male circumcision rates by country and region found that males in Subsaharan Africa. where the major religions are traditionalist and Christianity, have relatively low rates of male circumcision and high rates of HIV/AIDS.

The World Health Organization reported that medical male circumcision "reduces the risk of female-to-male sexual transmission of HIV-AIDS by approximately 60 percent." Governments and non-governmental organizations have established programs and clinics to circumcise adult males in Subsaharan Africa. In eastern and southern Africa alone, between 2008 and 2016, more than 11 million boys and men were voluntarily medically circumcised. The World Health Organization set the goal of 90 percent of males ages 10-29 being circumcised by 2021 in the most vulnerable parts of Africa.

Scale

TC Geographers use **scale** in two ways: first, to explain the relationship between the distance on a map and distance on Earth (one inch on the map equals one mile on Earth, for example), and second, to describe the extent of a study (countries of the world versus counties in a country). In this book, we use the second approach to scale. The scale of analysis is the extent of a study, the scope of Earth (local, national, or global) we are considering when looking at circumstances, patterns, and relationships.

Understanding an issue as complex as the diffusion of HIV/AIDS depends on grasping the context of the disease and also on integrating our knowledge of circumstances at multiple scales: individual, family, local, national, regional, and global.

At the same time that HIV/AIDS diffuses globally, regional and local processes (the diffusion of malaria, the preparedness of a health care clinic, the access to anti-retroviral medicine) are interacting with global processes (sometimes creating global processes of their own). Everything happening across all of these scales creates a context for understanding what is happening in a given place at a given time and why.

Concept Check

1. **Why** does place matter in the study of geography?
2. **How** do human geographers and physical geographers study Earth differently?
3. **How** does understanding the context and scale of the diffusion of HIV/AIDS help you better understand the global AIDS crisis?

What Are Regions?

LEARNING OBJECTIVES

1. **Identify** what a world region is.
2. **Explain** the role humans play in creating regions.
3. **Understand** why scale matters when defining boundaries.

TC Are **regions** natural, built into Earth, or are regions created by humans? Historically, geographers believed regions were real or natural—that you were born into a region as you were born into a family. Geographers used regions as the basic

scale The geographical scope (local, national, or global) in which we analyze and understand a phenomenon.

region an area of Earth with a degree of similarity that differentiates it from surrounding areas.

units for studying the world. Studying world regional geography became a way of sorting the world into similar groups or regions, which each had its own distinct character or set of characteristics. People who thought of world regions as natural entities saw them as relatively static spaces, each standing alone.

Researchers in the field of new regional geography have come to see regions as things humans construct to categorize people and places into conveniently sized pieces of the world. New regional geographies question who draws the world's regions, how regions are drawn, what they represent, and how they are used. A new regional geographer would see a region like "the Middle East" in its historical context as something Europeans created and defined during the Middle Ages in order to separate themselves (Europeans) from the "other" people in the Orient, or what journalists now call the Middle East.

Regions

In *Understanding World Regional Geography*, we take from both the old and new regional geographies, defining regions as a balance of real and constructed. Regions exhibit actual differences in languages, religions, climates, and vegetation. Regions also have perceived differences because humans decide what is important in classifying them.

If we think of regions only as real and built into Earth, we miss how the movement of people and ideas has changed the world and how people in power can decide what is important and construct a place or region as they choose. If we think of regions only as constructed, we miss how much local circumstances and important places, including cultural hearths (regions of origin of cultural traits) and sacred sites, directly influence peoples and regions.

For example, envision the parts of North and South America where Spanish is the predominant language. The Spanish-speaking region has a real, similar cultural trait within it, but people perceived that the linguistic similarity was an important enough difference to make it the defining criterion for the region.

The regions used in world regional geography books are constructs of the authors who determine the regions based on a combination of physical or cultural traits. We can consider physical geography separately from human geography in constructing world regions (Figure 1.5); however, if we do, we overlook the countless ways humans have changed Earth over time.

To understand that regions are dynamic and not static, think about regions at a different scale. In a world regional geography class, all of Europe is treated as one region. But in a class on the geography of Europe, the professor will define distinct regions within Europe, such as Scandinavia or the Mediterranean. If you shifted scales to the Mediterranean region of Europe, you would see distinct regions within that space, for example, the coastal tourist region, the coastal nontourist region, and the interior. Shifting scales again to a single city in the Mediterranean such as Nice, France, you will find further distinct regions: the gambling region, the research and development park, the tourist hotels, and the locals' neighborhoods (Gade 1982).

In building your schematic understanding of world regional geography through this course, you will improve your understanding of the physical and human world and also determine how you construct world regions in your own mind.

To define world regions using physical geographic traits, a geographer might start with this satellite image of Earth (Figure 1.5a). Patterns of climate, vegetation, and soil are reflected in this image, where green represents vegetation and tan indicates areas that are sparsely vegetated. Physical geographers can use the concept of **relative humidity**, the ratio of water vapor in a parcel of air compared to the total amount of water vapor air at that temperature can hold, to understand why some areas of Earth receive more precipitation than others.

How much water vapor air can hold (its capacity) depends on the air temperature. Warmer air can hold more water vapor than cold air. Condensation occurs when air cools, the capacity decreases, and air reaches 100 percent relative humidity. Once water vapor is condensing into liquid water, precipitation can follow. On the satellite image of Earth, the equatorial regions are bright green, dense with plant life because this part of the world receives the most direct sunlight over the course of the year. The warm air along the equator consistently rises, cools, decreases its capacity, reaches 100 percent relative humidity, and precipitation follows, creating rain forests (Figure 1.5b). Soils in this part of the world are typically old and deeply weathered because the abundant rainfall leaches nutrients over time but leaves the iron (Figure 1.5c).

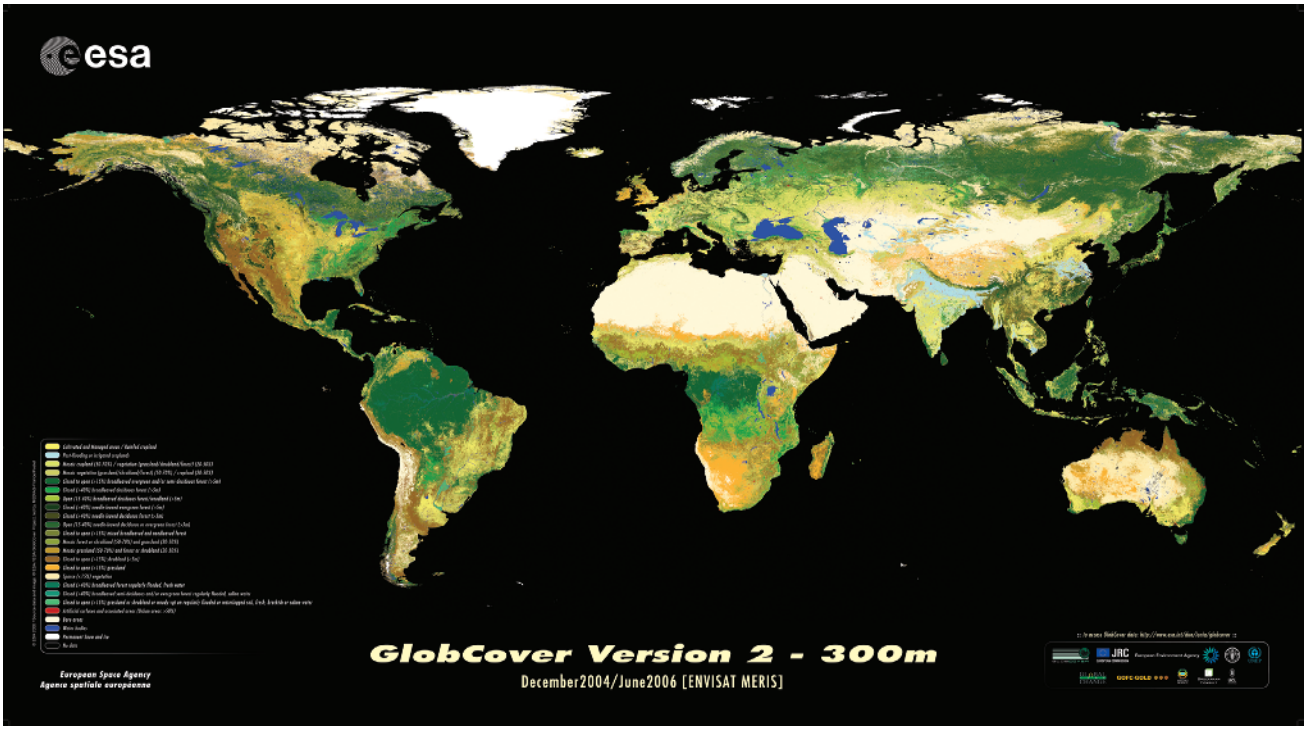
In contrast, the northern parts of Africa, Central Asia, central Australia, and the southwestern United States are deserts (Figure 1.5d). The winds in these areas are high-pressure cells. Because air flows from high pressure to low pressure, air descends from the upper atmosphere to the surface and then air flows out away from the high pressure cell. Air warms as it descends from the upper atmosphere to the surface, increasing the air's capacity and decreasing its relative humidity. Precipitation is unlikely because the relative humidity of the air decreases instead of increasing, resulting in sparse vegetation and poorly developed soils that are lighter in color than their tropical counterparts (Figure 1.5e).

Using the example of precipitation, we can divide the world into two basic physical geography regions: areas that receive a lot of precipitation and areas that receive very little precipitation. These two regions, wet and dry, describe precipitation patterns, but they do not account for a multitude of other physical geographic traits (landforms, hazards, temperatures) nor do they explain human geography, how people in different places interact with and make sense of the world's physical diversity.

Reading the Physical Landscape

Defining World Regions Using Physical Geographic Traits

The satellite image of Earth is colored according to vegetative regions, with green representing lush vegetation and tan representing sparse vegetation (Figure 1.5a). The green region of the map that is found in northern South America, central Africa, and across Southeast Asia, marks rainforest around the equator. The area around the equator receives more direct sunlight over the course of the year than other latitudes. Earth absorbs incoming solar radiation, then releases it as warm air, and when that warm air rises, it cools, condenses, and then precipitation can follow.



ESA/ESA GlobCover Project, led by MEDIAS France/Postel.

FIGURE 1.5a This satellite image shows areas of dense vegetation in green and sparsely vegetated areas in tan.



Michael Boyny/LOOK/Getty Images.

FIGURE 1.5b **Costa Rica.** Monteverde Cloud Forest Reserve demonstrates the layers of vegetation found in a rainforest climate.



© Boaz Rottem/Alamy.

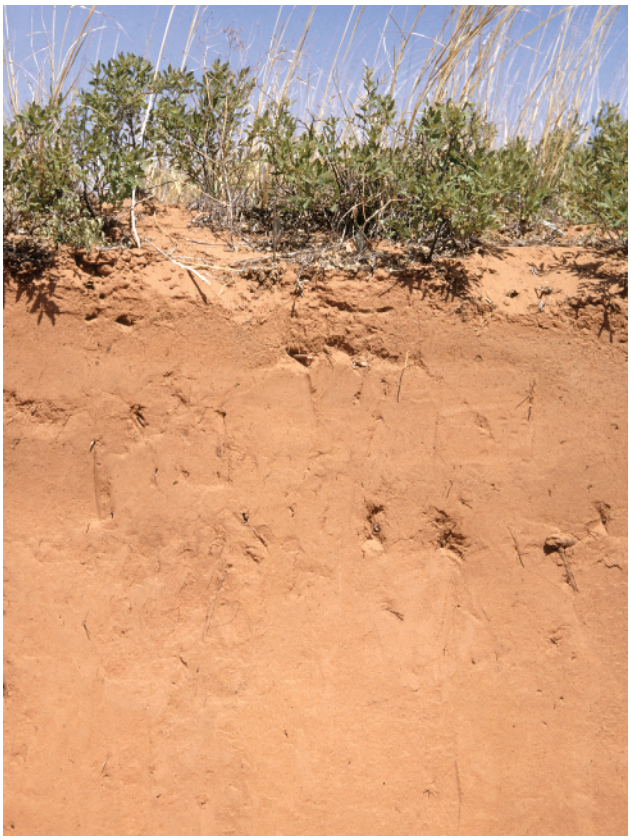
FIGURE 1.5c **Western Africa.** The red soil of this dirt road is typically found in tropical regions.

Consistent precipitation creates rainforests (Figure 1.5b). Vegetation is also found in the tropics, both north and south of the rainforest on the satellite image. The soils in the equatorial or tropical region are deeply weathered by abundant rainfall. The weathered, iron-rich oxisols of the tropics are orange or reddish in color (Figure 1.5c). The tan region of the map, extending across northern Africa, into southwest Asia, and through central Asia, marks the desert region (Figure 1.5d). Semi-arid regions, especially in western North America and northern Australia, appear brown on the satellite image. The poorly developed soils are light brown in color and have limited weathering because of limited rainfall (Figure 1.5e).



Frank Krahmer/The Image Bank/Getty Images.

FIGURE 1.5d **Libya, Africa.** Date palm trees dot the true desert Mandara Lakes region of the Sahara Desert.



USDA.

FIGURE 1.5e **Eastern Colorado.** The soil profile of a semiarid climate region shows a narrow band of dark soil on the top supporting vegetation.

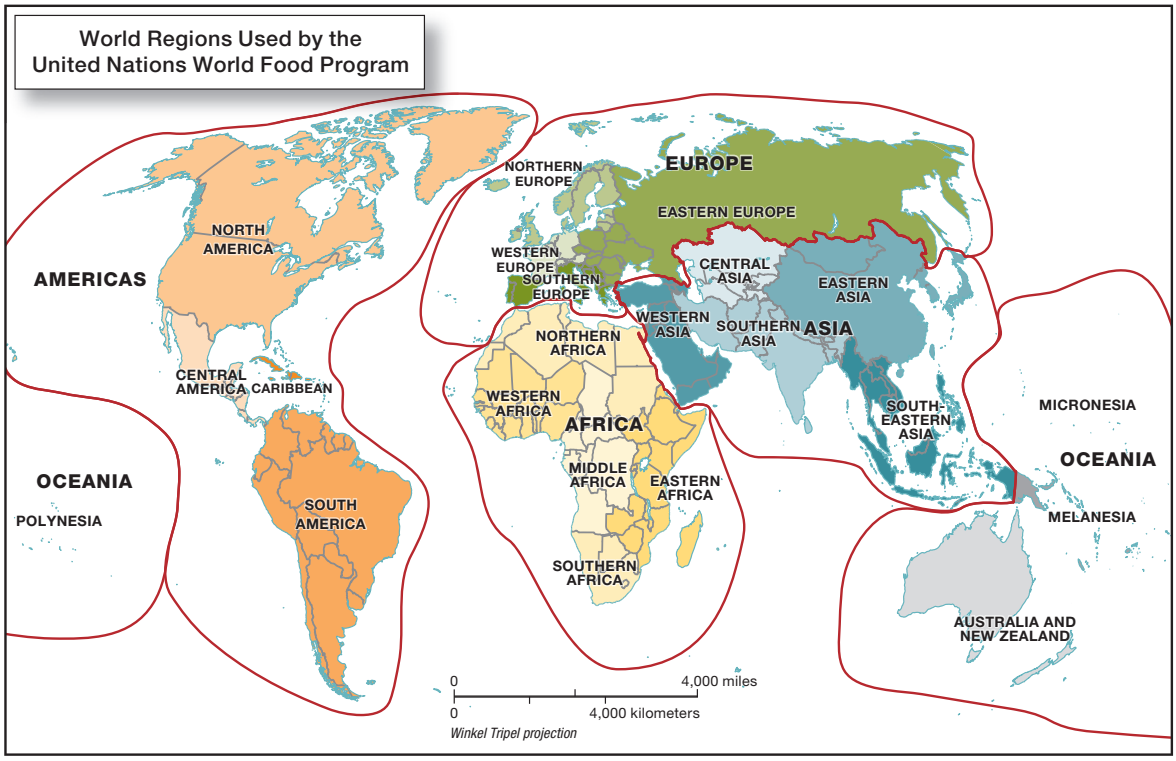
Institutionalizing Regions

Regions created in people's minds gain permanence when governments, corporations, and organizations build institutions to support them (Paasi 2002). For example, the United Nations (UN), World Bank, European Union, online giant Amazon Web Services, aircraft maker Boeing, and insurance company AIG divide the world into regions to gather data, report information, and operate programs and services.

In the day-to-day activities of UN organizations, workers use regions. For instance, the UN World Food Program divides the world into five regions: Asia, Oceania, Africa, the Americas, and Europe. The most important decisions and policies in the operations of the World Food Program (Figure 1.6), however, are made at the country level, by the country directors. The World Food Program collects data by country, reports data by world region, institutes policies by subregion, and works with country governments to carry out policies of its global program. While world regions are important to define and identify problems and solutions, usually data are gathered and programs are implemented by country.

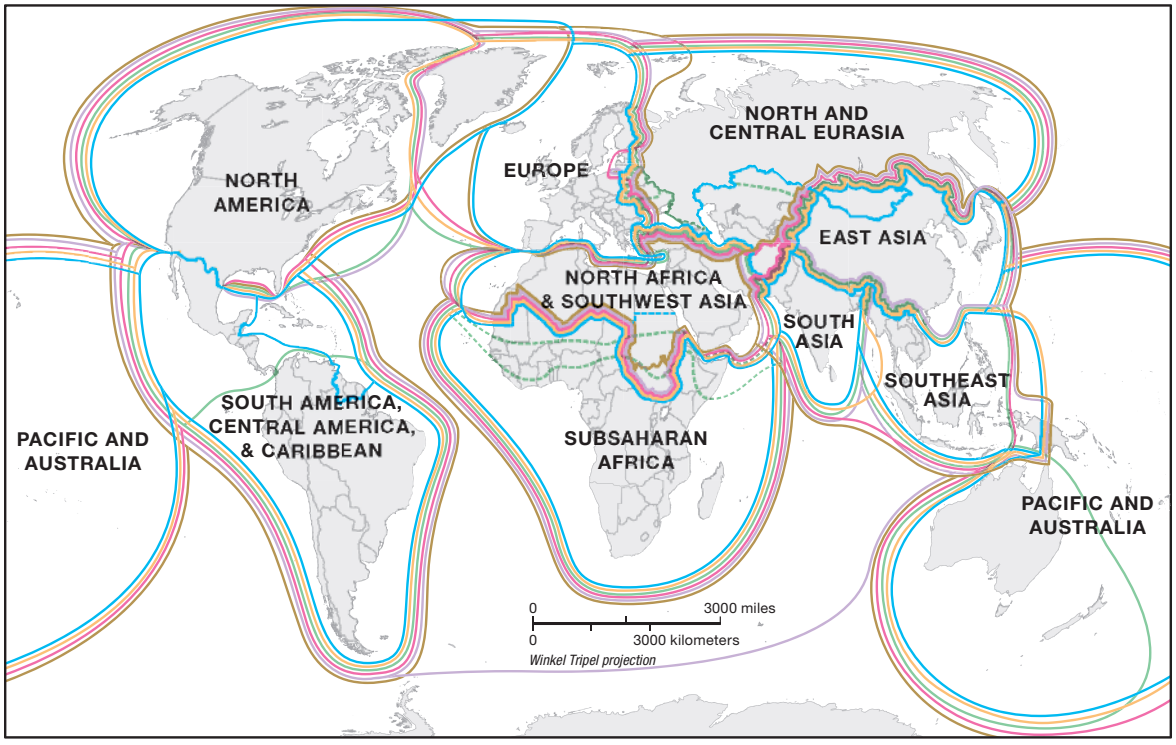
World regional geography books aid in **institutionalizing** world regions. North American geographers divide the world into similar regions (Figure 1.7). Authors tend to use continents and contiguous lands and keep countries intact as guidelines for world regions. Although some regions such as Asia may be divided into smaller regional units, the regions of the world that most geography books use are contiguous, nonoverlapping, country-border-following, rather neat agglomerations of places.

Scale matters when defining regions. For example, if we look at the Spanish-speaking population at the global scale (Figure 1.8), the entire United States is shaded as having a relatively large percent (10.7 percent) of Spanish speakers. However, if we map the Spanish-speaking population according to counties within a country, we find the Spanish-speaking population is concentrated in certain areas of the country, and in these areas, Spanish speakers are up to 92 percent of a county's population. The patterns we see in maps are limited by the scale at which we collect data. If we collect data by country, the data we find for a country is spread across the territory of the country as its average.



Data from the World Food Programme website, at http://www.wfp.org/countries, and the United Nations cartographic website, at http://www.un.org/Depts/Cartographic/english/htmain.htm.

FIGURE 1.6 United Nations Regions and the United Nations World Food Program. The United Nations collects data by country and reports it by world region, marked with the burgandy lines on this map. The United Nations World Food Program administers food aid to the world based on subregions where the program operates (marked by color and name on the map). When the World Food Program uses world regions and subregions, it helps institutionalize these regions in the minds of the program's employees.



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FIGURE 1.7 World Regions used in North American world regional geography books. Maps of the world regions defined by authors of several world regional geography books demonstrate how the boundaries of regions are subjective. The overlap in regions across the books shows relative agreement among authors in North America.

Choosing a scale for analysis is key because answers to questions such as "where is the Spanish-speaking region of the Americas?" depend on the scale of our data. Analyzing the maps in Figure 1.8a and b may lead us to two different conclusions about the place of the United States in the Spanish-speaking region.

Because data about physical and human phenomena are gathered and reported according to specific territories, like countries or counties, called "areal units," geographers call this problem the **modifiable areal unit problem (MAUP)**. The MAUP happens when geographers change scales. Patterns seen at the global scale are not necessarily evident at the local scale (or vice versa), and the problem also happens when geographers aggregate data in different ways; for example, crime statistics reported by school district appear different than the same data reported by police district. A continuous phenomenon may be measured over several areal units, or the data themselves appear differently based on the areal unit used for reporting and mapping.

Why do geographers use regions?

Knowing what regions are and the limitations of statistically defining them, you might question why geographers use them. Each of us uses regions to order our world, to imagine the vastness of the world and our place in it. As the U.S. National Geography Standards contend, "The geographically informed person knows and understands that people create regions to interpret Earth's complexity."

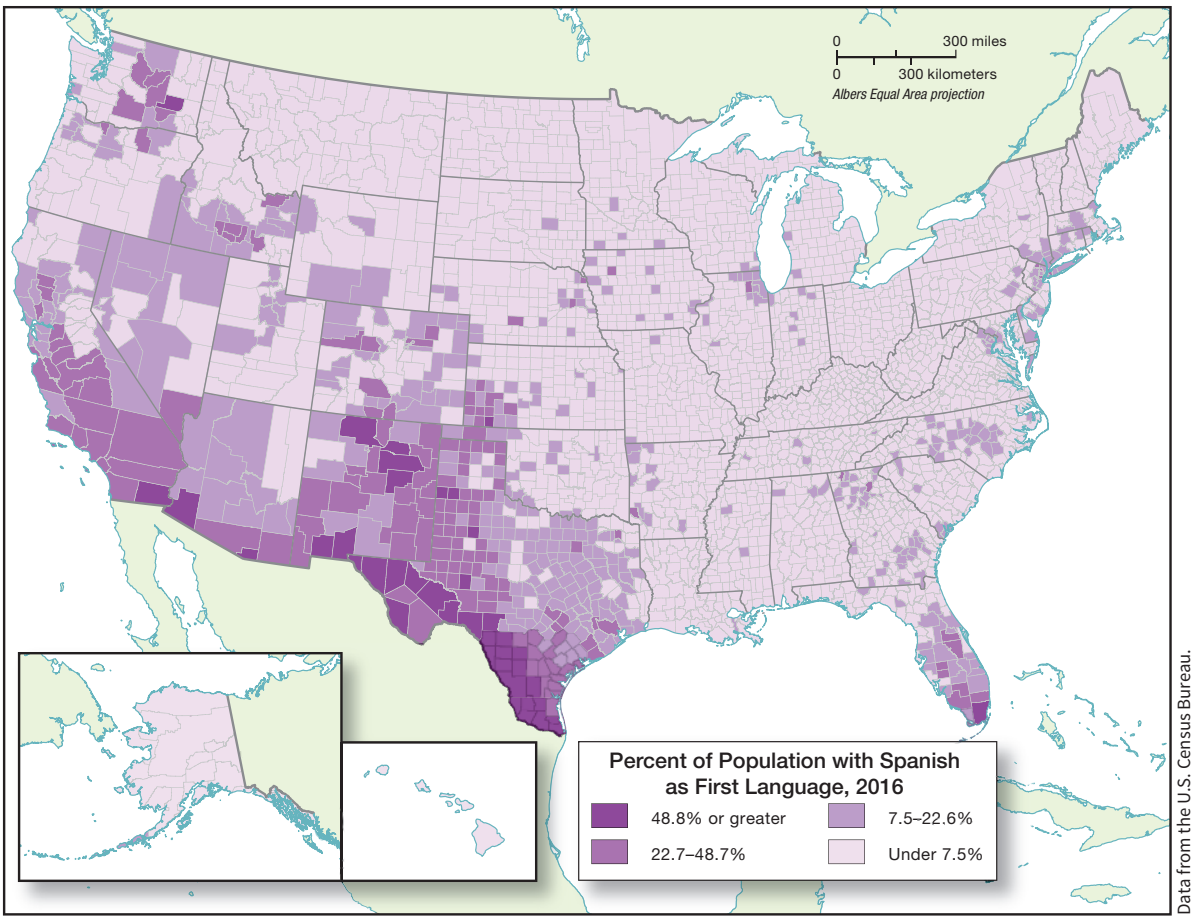
Regions are powerful concepts: People use them to order and describe their world, and regions reflect the social, political, and economic processes weaving through places and across peoples. We have perceptions in our minds of places like "the South" in the United States. People who have not experienced or lived in the South may simplify the region in their minds, perhaps in a negative way. However, the South, like every region, is complex and is created and re-created by a combination of multifaceted social, political, and economic processes (Figure 1.9). People's **schemata** have multiple, overlapping regions based on



Data from Cervantes. www.cervantes.es

(a)

FIGURE 1.8 Spanish-speaking population. Shifting scales from countries on a world map (a) to counties within the United States (b) reveals a different pattern in the Spanish-speaking population of the United States.



(b)

FIGURE 1.8 (*Continued*)

positive and negative perceptions within them, and people use these regions and their schemata to make sense of the world and their place in it.

The greatest value in studying the world region by region is that regions give us a way to talk about and understand the complexities of our world.

Concept Check

1. **How** is the concept of region useful in the study of geography?
2. **Are** regions natural or are they constructed?
3. **Why** does scale matter in defining regions?



© Peter M. Wilson/Alamy.

FIGURE 1.9 Montgomery, Alabama. The civil rights memorial across from the Southern Poverty Law Center demonstrates the complexities of the region Americans call the South. The memorial was built to commemorate those who lost their lives in the U.S. Civil Rights movement between 1954 (*Brown v. Board of Education*) and 1968 (assassination of Martin Luther King Jr.). Each inscription on the black granite circular table is the name of a person who died in the civil rights struggle. The Civil Rights movement took place largely in the South and has paved the way for a groundswell of civil rights attainment by social groups beyond African Americans. Today, some of the most progressive thinkers on civil rights in the world are in the South, at the Southern Poverty Law Center. The Center began as a law firm specializing in civil rights in 1971 and now teaches tolerance; it also tracks hate groups in the United States.

What Regions Are Used in *Understanding World Regional Geography?*

LEARNING OBJECTIVES

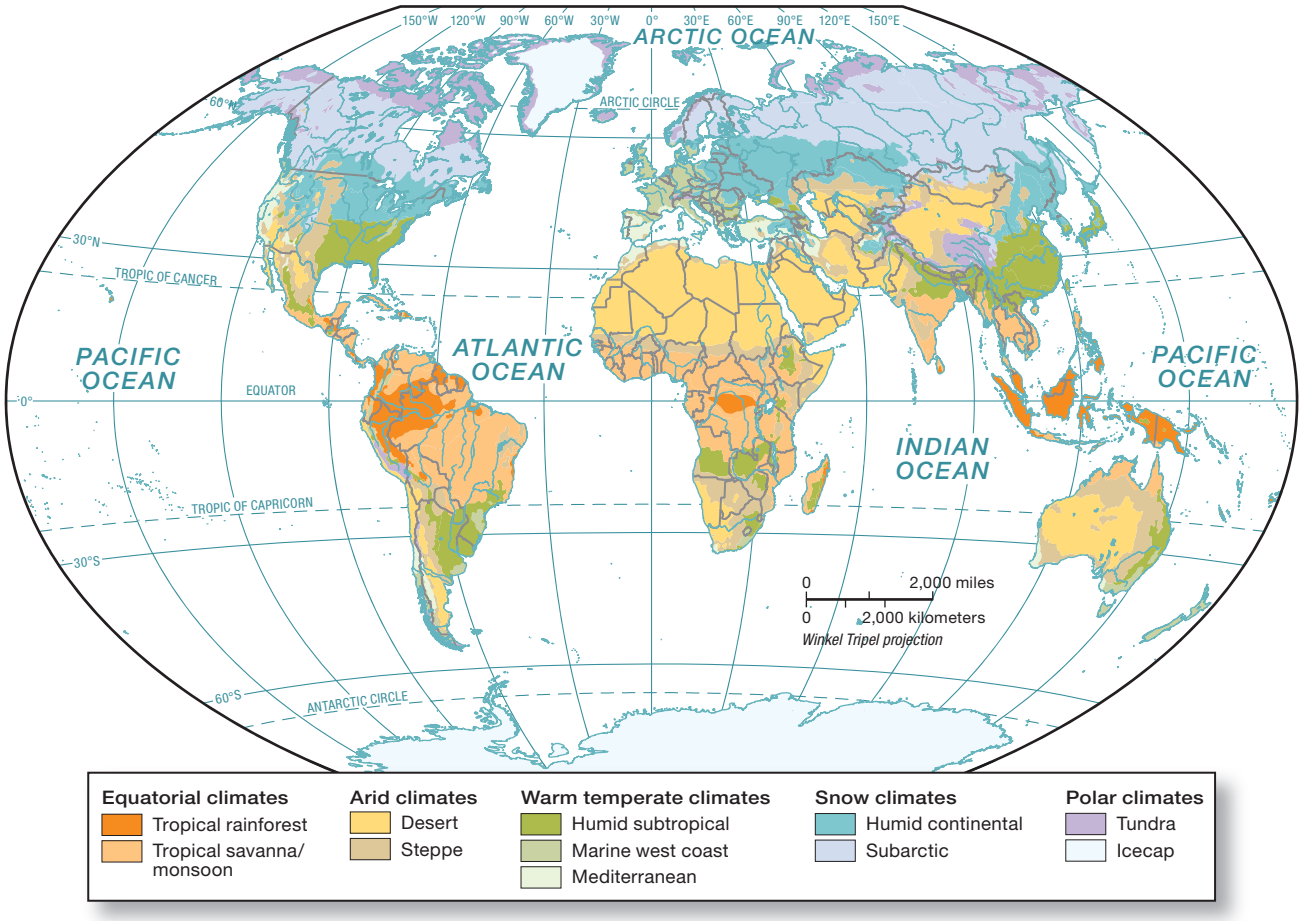
1. **Explain** the differences between formal and functional regions.
2. **Describe** why perceptual regions are a powerful influence in constructing schemata.
3. **Identify** the regions used in this course and **explain** why they are used.

Despite the limitations of dividing the world into regions, geographers rely on them to organize and digest the complexities of the world. To organize ideas and places, we use three types of geographic regions: formal, functional, and perceptual.

Formal regions

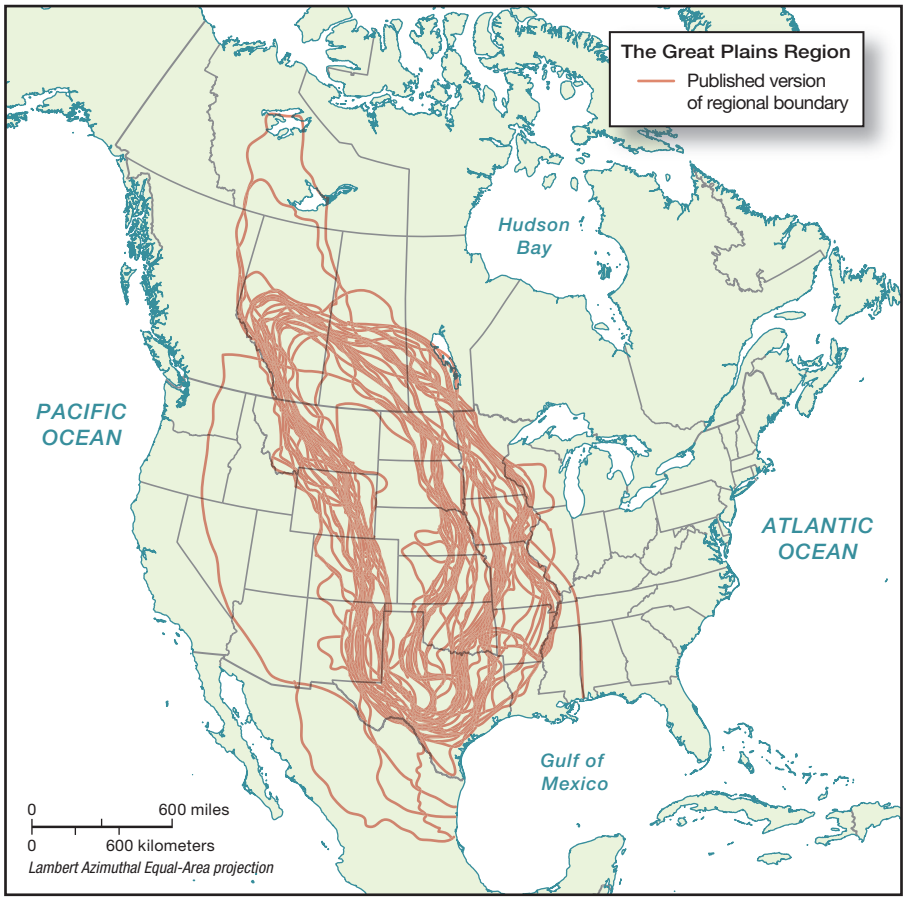
A **formal region** is an area of land distinguished by either cultural or physical criteria. For example, physical geographers take places with similar temperature, precipitation, and seasonality of precipitation over at least a 30-year period of time and divide the world into climate regions. Figure 1.10 maps the climate regions originally drawn by Russian climatologist Wladimir Köppen and revised over time. Places in the same climate region, such as the humid subtropical climate zone, are found on the east coasts of continents because high-pressure systems in the oceans push warm, moist air to these places. The high pressure cells in the ocean strengthen in the summer months, creating a season of extremely humid summer days for the humid subtropical climate region.

Regional geography has been based on formal regions where a geographer chooses criteria and then constructs formal regions based on them. Since the 1980s, geographers studying regions have realized how imprecise the boundaries of formal regions are and have dispelled the myth that formal regions are natural. The *Encyclopedia of the Great Plains*



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FIGURE 1.10 **World climate regions.** Climates are defined based on averages over at least a 30-year period of time. Climate regions are classified by and average and seasonal variation in precipitation and temperature.



Adapted from The Encyclopedia of the Great Plains edited by David J. Wishart by permission of the University of Nebraska Press. Copyright 2004 by the Center for Great Plains Studies.

FIGURE 1.11 The Great Plains region. Each line on this map represents the way an author described or mapped the boundaries of the Great Plains. The map shows fifty different ways the formal region of the Great Plains has been defined over time.

pulled together over 50 different studies of the Great Plains to create a map of the formal region of the Great Plains (Wishart 2004) (Figure 1.11). The map gives us an idea of what places 50 different researchers thought were definitely in the Great Plains, and it also shows us how fuzzy boundaries for formal regions can be.

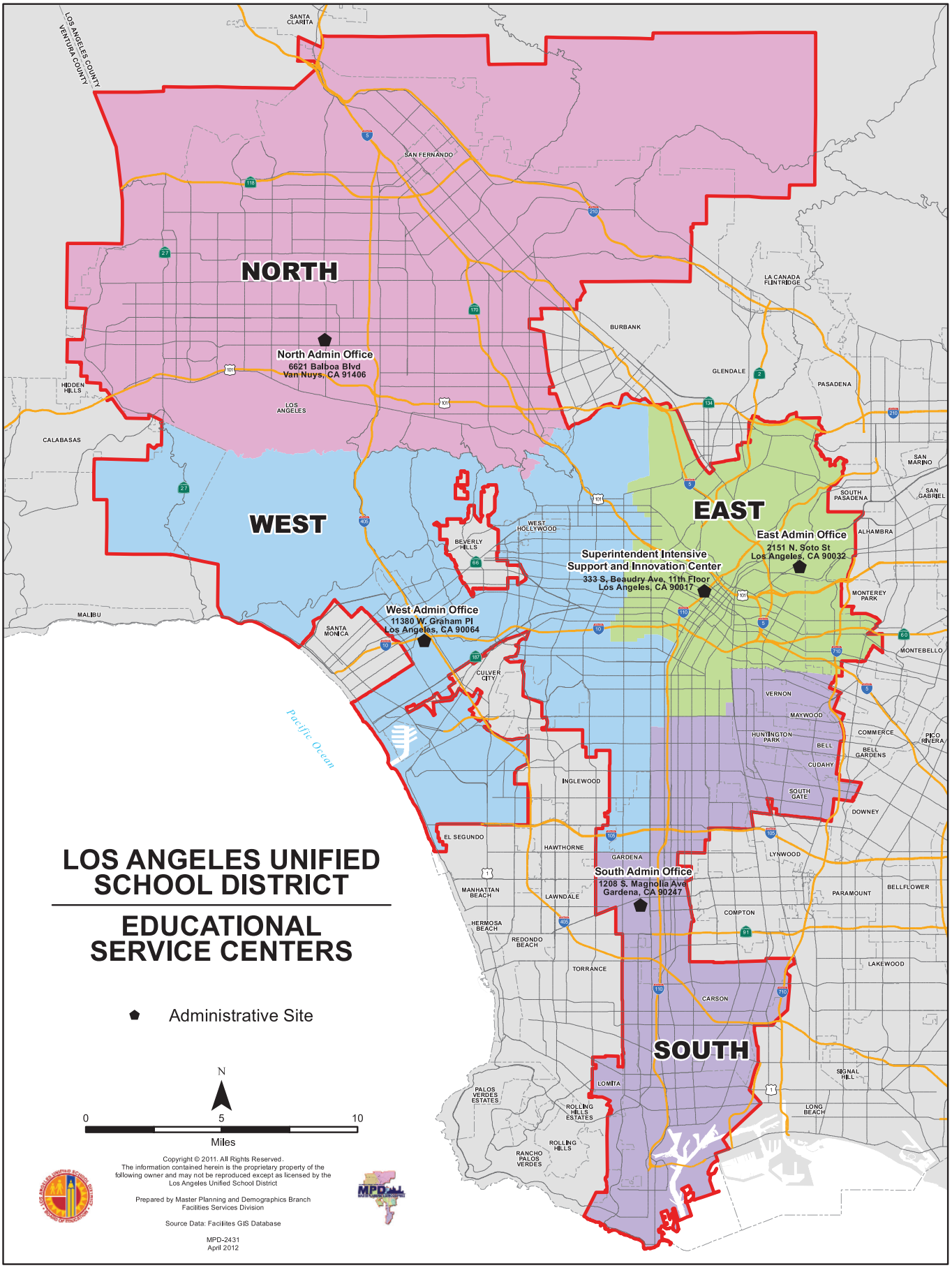
Functional Regions

A **functional region** is an area that has a shared political, economic, or social purpose. For example, the jurisdiction of a circuit court or a county court is considered a functional region. A city is a functional region defined by city boundaries. Functional regions generally have nodes or points where the function is clustered. In the functional region of a city, headquarters of city government would be the node.

Many of the parts of everyday life that Westerners take for granted are provided through functional regions: school districts, water treatment districts, and waste management districts (Figure 1.12). Standing in any place in the United States, you could, if you took the time, easily name at least 100 functional regions you are in. Functional regions can cover larger spaces, such as an entire state, or even the entire country or broader North America. For example, the North American Free Trade Agreement (NAFTA) creates a functional region for trade in North America.

Functional regions can provide or limit opportunities for the people in the region. Take the example of school districts in the United States. Public schools in the United States are funded primarily by local property taxes. The quality of public schools in any given district is, in part, dependent on the tax base created by the property values in the district.

The Los Angeles Unified School District is a functional region because all students who live within the district's eight local districts and attend public school fall under its curriculum and rules. In the middle of the Los Angeles Unified School District is a separate school district with much higher property values, the Beverly Hills School District. Standardized test scores differ greatly between the Beverly Hills School District and the Los Angeles Unified School District. The average SAT score in Beverly Hills for 2015 was 1751 (out of a possible 2400). In the Los Angeles School District, the average SAT score was 1309 in



Courtesy of: Los Angeles Unified School District.

FIGURE 1.12 **School districts in Los Angeles, California.** The functional region of the Los Angeles Unified School District is shown in color on this map. Note the island of gray in the middle of the Los Angeles District. The small area of gray is the Beverly Hills School District. Each public school district in the United States has a distinct functional region. Every home is only in one district; so where you live dictates where you go to school. Provisions of federal education laws and other local rules allow students to petition into other districts in certain cases, however.

the same academic year (California Department of Education). The SAT turnout rate had a marked difference, with 65.05 percent of the eligible Beverly Hills students taking the SAT compared to only 43.75 percent of Los Angeles students taking the exam. In 2015 the Beverly Hills district paid an average salary of $81,020 to its teachers, while the Los Angeles Unified district paid an average salary of $72,495 to its teachers.

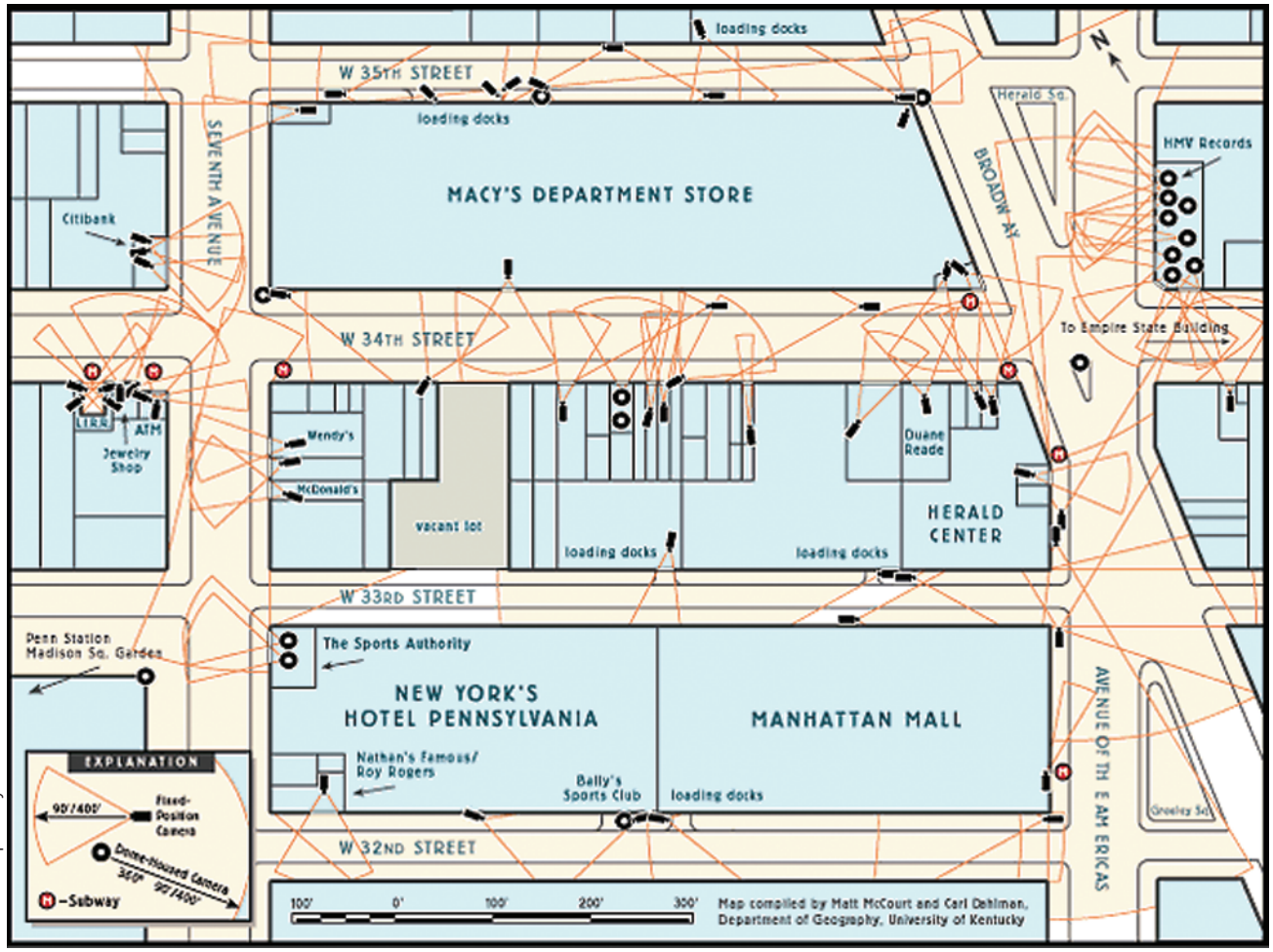
Another interesting example of functional regions is the number of overlapping security cameras on a city street (Figure 1.13). On April 15, 2013, Dzhokhar and Tamerlan Tsarnaev planted two bombs near the finish line of the Boston Marathon. The bombs exploded ten seconds apart at 2:49 pm. Security cameras on street corners and businesses captured the suspects' movements through the city streets

Using Geographic Tools

Functional Regions

Geographers Matt McCourt and Carl Dahlman studied the functional regions of video security cameras in New York City to demonstrate how cameras in public spaces overlap to make most city streets visible to security systems. Nearly every move you make can be captured by a camera.

When you are reading a map, look for what stands out the most and then check the legend of the map to see what it calls out. The legend is usually found on a corner of the map and often has a box around it. The legend on this map is titled "Explanation." The red triangles on the map are explained in the legend. The geographers mapped each fixed camera and then calculated what was



Source: Compiled by Matt McCourt and Carl Dahlman.

FIGURE 1.13a The functional regions of video security cameras in a small area (a few city blocks) of New York City. Most of the sidewalks and streets in this area of the city are covered by security cameras, and some areas are covered by multiple cameras.



© Jim West/Alamy.

FIGURE 1.13b New York. Several video surveillance cameras are clustered along a fence near the September 11 Memorial in Lower Manhattan.

within the view of the camera based on angles and the shapes of buildings, drawing a red triangle for each camera.

Once you know what the symbols mean, go back to the map and study the red triangles. Notice the pattern of the triangles. Where do you see a lot and where do you see a few? Go back to the legend and note the symbols for subway stations. Go back to the map and notice where the subway stations are and generalize how they interact with the triangles. The buildings on the map are labeled. Look for whether the triangles on the map (the functional regions of the cameras) are concentrated around certain kinds of stores.

Thinking Geographically

1. Determine whether there is a pattern in how the functional regions of security cameras are distributed in this small area of New York City.
2. Examine the map and hypothesize what impact the functional regions of security cameras have on other functional regions in New York City.

Sources: Atlantic Monthly Digital Edition. 1998. 'To see and be seen.' http://www.theatlantic.com/past/issues/98jul/count.htm

New York Civil Liberties Union. 2006. 'Who's watching? Video camera surveillance in New York City and the need for public oversight.' http://www.nyclu.org/files/publications/nyclu_pub_whos_watching.pdf

hours before the bombing. Think of each security camera as having its own functional region, the area covered by its lens. The regions each camera surveyed overlapped in places and were supplemented by videos and photos shot by spectators of the race. The FBI combed through 13,000 videos and more than 120,000 photographs, using video forensics to solve the case in 101 hours.

Perceptual regions

Perceptual regions are based on what an individual sees in his or her mind. Each of us perceives the region where we live, and we also perceive the regions where others live. Perceptual regions, in a way, are similar to the concept of **identity**. We create a perception of what our region is, of what it means to be from the Midwest, the South, New England, the Great Plains, or the West, and we also create perceptions of what it means to be from the regions where we do not live.

Perceptions are personal. The stories that are passed down, the history that is preserved (or forgotten), movies, television shows, and even the things we hear others say in casual conversation contribute to our perceptions—both of our own region and of others. Tourists with different identities experience the same place and perceive the region in which the place is located differently (Figure 1.14). The Laura Creole Plantation in Louisiana was home to hundreds of enslaved African Americans. Tours of the Laura Creole Plantation begin at the mansion and end behind the horse barns and carriage house in one of the slave cabins. Geographers interviewed over 1,000 tourists, including white, foreign-born, and African American, to find out what narratives or stories of the plantation they found most interesting on their tours. The researchers found that the white tourists were most interested in the narratives or stories that told of the lives of the plantation owners. The academics found that foreign-born tourists were generally more interested in slavery at the plantation than the home and lives of the plantation owners (Butler, Carter, and Dwyer 2008).

Perceptual regions also exist at the global scale. We use references to world regions in our conversations, journalists refer to world regions in international stories, and the president and other politicians define and redefine world regions as their interests shift. We use terms such as "Latin America," but rarely do we pause to ask ourselves what Latin America is, where it is, or whether others agree with our perceptions.

We have perceptions of all sorts of places—places we have been and places we have not been. Even if you are not a skier or have never been to Colorado, if *People* magazine mentions that celebrities went on a ski holiday in Winter Park, Colorado (Figure 1.15a), a perception enters your mind. The name, or **toponym**, Winter Park implies that the place is a playground in the winter. The fact that a celebrity is there

Guest Field Note Vacherie, Louisiana: Laura Creole Plantation

Dr. David Butler
University of Southern Mississippi

Dr. Perry Carter
Texas Tech University

Dr. Owen Dwyer
Indiana University-Purdue University Indianapolis



Courtesy of Oak Alley Foundation, Vacherie, Louisiana.

FIGURE 1.14 Vacherie, Louisiana. The plantation's "big house" was built in 1804.

In the pre-Civil War American South, the plantation owner ruled a hierarchical society. Enslaved African Americans produced valuable export crops like cotton, sugar cane, tobacco, rice, and indigo. The sale of these commodities resulted in vast fortunes. The grandeur of the "big house" and its stately landscape reminded everyone—whites and blacks alike—that the master was in charge. After the South lost the Civil War and African Americans began the long struggle for equality, a romanticized image of plantation life was promoted to justify white rule and attract tourists. Books and movies like *Gone with the Wind* helped create a powerful, but false, history of dashing masters, glamorous Southern belles and happy slaves. Stories about the Old South distracted attention from the violence and intimidation used to ensure white supremacy. Increasingly, African Americans are reclaiming their heritage as people who made the plantation's economic success possible.

for a ski holiday helps create images of chalets, half-timber architecture, and fireplaces reaching two stories high and covered with stones.

A toponym is often the first way people construct their **perception of a place**—an idea of what a place is like. We can have perceptions of places where we have been and also places where we have not been. Toponyms evoke perceptions. We perceive **sense of place**, a concept closely related to perception of place, when we infuse a place with memories and emotions, giving it meaning from our experiences. The feeling of being "home" is fundamentally a sense of place. A sense of place can directly influence our identities. The assignment of meaning to a place helps us sort out who we are as individuals and ties people and place together.

People often project perceptions of individual places to entire regions. After seeing images of Winter Park, Colorado (Figure 1.15a), you may project that image to the entire Rocky Mountain region or at least to all of Colorado. However, Durango, Colorado (Figure 1.15b) bills itself as a western town—not a winter playground for the rich. Durango is 339 miles from Winter Park in southwestern Colorado. It is located near the Four Corners (the intersection of Colorado, New Mexico, Arizona, and Utah) and has been home to the Anasazi Indians and more recently, the Ute Indians. The city of Durango was founded in 1880 by non-Indian Americans encouraged by gold and westward movement to settle in the area.

A single perception of a region rarely reflects its richness or complexity. In this case, both winter ski land and Old West town may create conflicting perceptions of Colorado, but both places are part of the American West and should factor into our perception of the region.

Regions In *Understanding World Regional Geography*

No one way of regionalizing the world is the "right" way. The regions in *Understanding World Regional Geography* draw from historical spatial interaction and physical and cultural processes that have created areas of greater interaction, deeper connection, similarities in geography, and a perceived commonality.

Spatial Interaction Throughout History

The degree of contact among peoples and places, which geographers call **spatial interaction**, depends on distance, connectivity, and accessibility. The likelihood that a particular trait or innovation will spread depends on the amount of spatial interaction between two places. The probability of diffusion declines with distance from the hearth, which is demonstrated in the concept of **time–distance decay**.


© Ian Dagnall/Alamy.

(a)



© nik wheeler/Alamy.

(b)

FIGURE 1.15 **Toponym and Place.** (a) **Winter Park, Colorado.** Winter Park Ski Resort offers accommodations on the slope as well as vacation homes for rental. (b) **Durango, Colorado.** Main Avenue in downtown Durango features architecture dating back to the 1800s, including the beautiful Strater Hotel in the background, which was built in 1887.

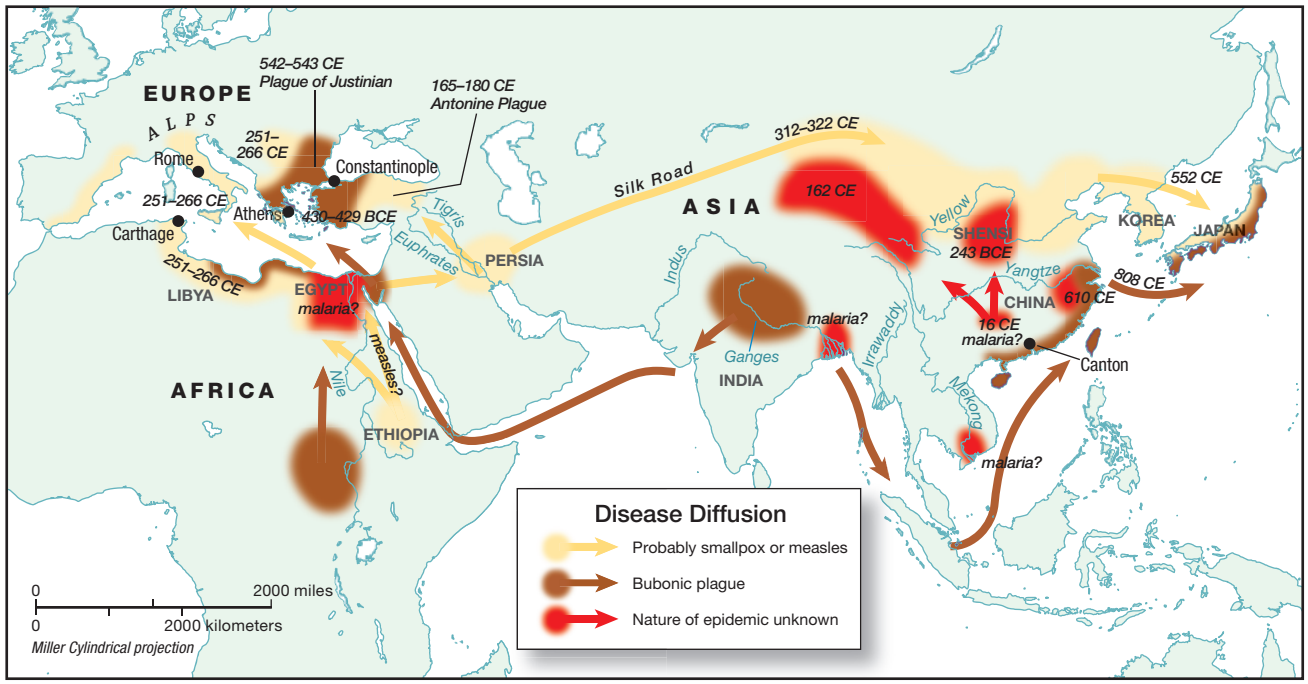
Connectivity means people in two places are tied together through a cultural process, such as trade or religion, or a physical feature, like a river or sea, that encourages spatial interaction. In Africa, Europe, and Asia from 500 BCE to 1500 CE, the most connected places, in terms of trade, were coastal locations in and around the Mediterranean Sea, the Arabian Sea, and the Indian Ocean. Connectivity through trade also eased the diffusion of other aspects of life, including contagious diseases. One way to see how closely the people in Africa, Europe, and Asia interacted with each other is to examine a map of the diffusion of contagious diseases, such as smallpox and the plague (Figure 1.16). The map shows areas of major spatial interaction at the time, as contagious diseases diffused between areas with high degrees of spatial interaction.

The map of disease diffusion also shows the places where little, if any, spatial interaction occurred during this time frame. The areas in gray on the map do not imply a lack of people in the place. Rather, the areas in gray reveal little accessibility. *Accessibility* points to what must be traversed between two places (mountains or deserts, for example), and it also points to whether people in one place are welcome or able to engage with people in another, which often depends on religion, language, or social status. For example, during the time frame of this map thousands of people lived in Subsaharan Africa, and West Africa had a series of empires that rose and fell. However, the Sahara Desert divided western Subsaharan Africa from North Africa, making accessibility difficult and resulting in a lack of spatial interaction. Subsaharan Africa thus avoided the plague and smallpox in the timeframe of the map. North and South America are not on the map. When Europeans brought smallpox and plague to the Americas after 1492, the diseases ravaged the people of the Americas because having lacked prior exposure, they had not built up immunity.

By studying historical spatial interaction, we can see places that were tied together and places that were not. A map of historical civilizations from 500 BCE to 1500 CE points to the regional clusters of religions, languages, and other cultural attributes present in the world today. Analyzing modern spatial distribution of cultural attributes can illustrate how people and cultures interacted in the past.

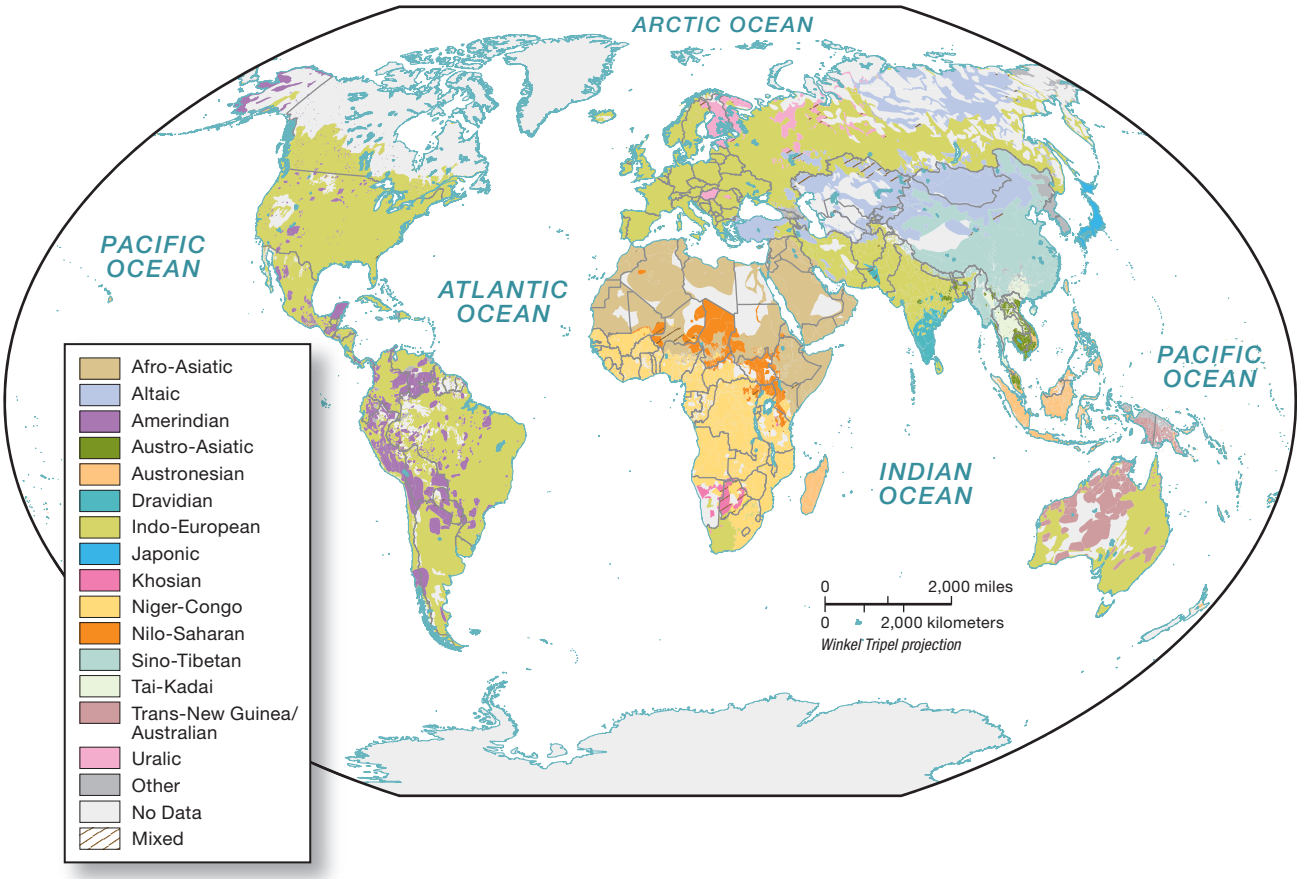
The map of world languages (Figure 1.17) shows the extent of the Indo-European language family in Europe and Asia. As different as English is from Hindi, they are actually part of the same language family. Linguists believe the **hearth** of the Indo-European language family was near the Caspian Sea, and from there, speakers of the language migrated both west and east, diffusing the language into Europe and South Asia.

The Sino-Tibetan language family is concentrated in East, southeast, and South Asia, near its hearth in the Himalayan Plateau to the north and east of the Himalayas. Linguists believed the speakers of the proto-Sino-Tibetan language migrated from its hearth along rivers into China, Southeast Asia, and South Asia.



Adapted from Barraclough, G. ed. Hammond Concise Atlas of World History, 5th edition (1995), page 25.

FIGURE 1.16 Disease diffusion in Africa, Asia, and Europe circa 300 CE. The diffusion of smallpox, measles, and bubonic plague followed trade routes on land and by sea. The arrows on the map reflect major trade routes at the time. Trade flowed overseas, as between eastern India and the east coast of China, and over land, along the Silk Road between Persia and China.



Data from Global Mapping International, World Language Mapping System, 2014.

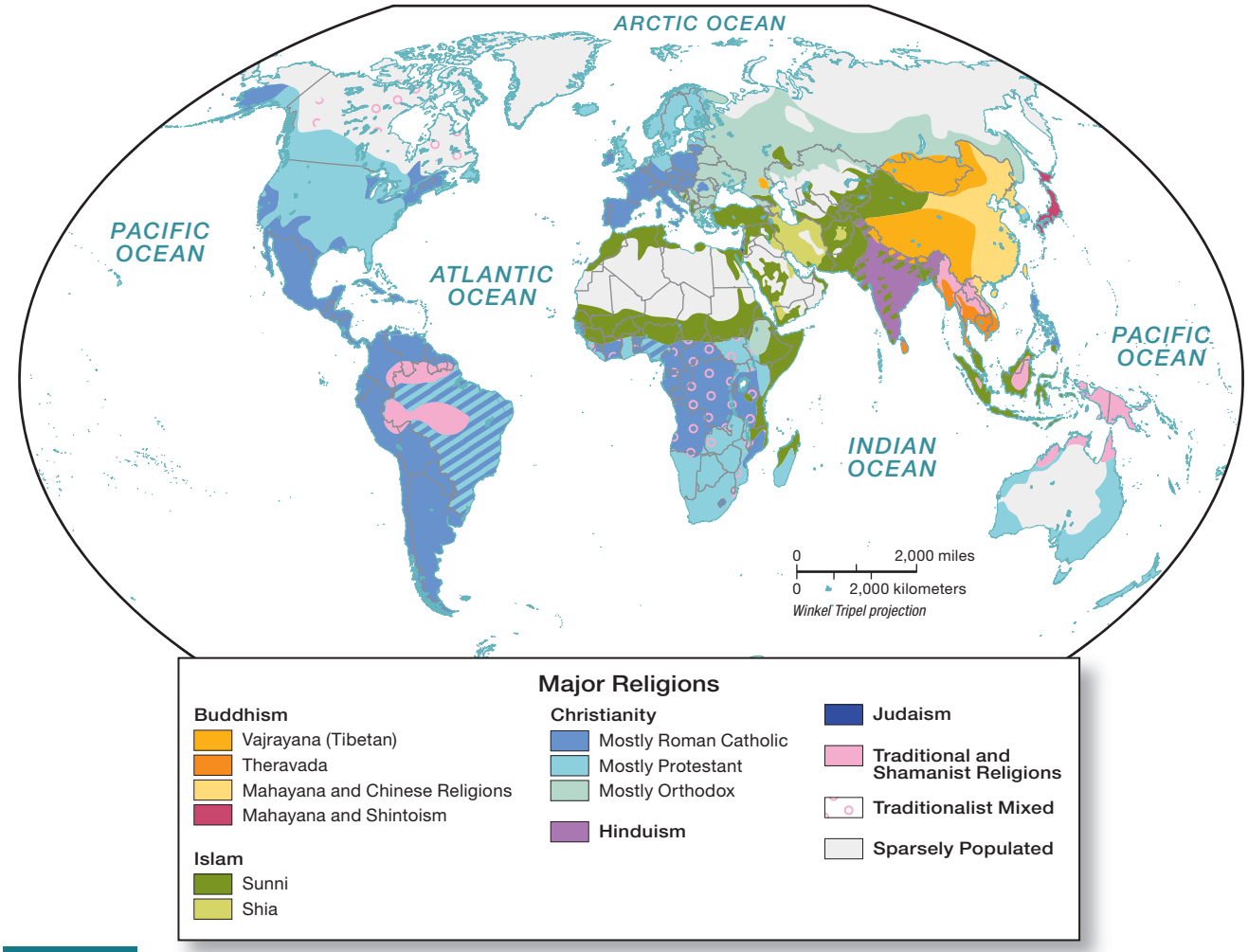
FIGURE 1.17 World languages. The distribution of the major language families reflects historical spatial interaction (or lack thereof) across the world. For example, the Austronesian language family is in Madagascar (the large island off the east coast of Africa) and Indonesia in Southeast Asia, reflecting a history of spatial interaction across the Indian Ocean between people in these places.

The map of world religions (Figure 1.18) demonstrates the **diffusion** of ideas and innovations among people and places in two major ways: **expansion diffusion** and **relocation diffusion**. With relocation diffusion, people move and take ideas and innovations from their homeland with them. Expansion diffusion occurs in two ways: ideas and innovations spread from the hearth to nearby places and people first (*contagious diffusion*), or ideas and innovations spread from the most important places to the next most important places, skipping over people and places in between (*hierarchical diffusion*). For example, Islam spread contagiously from its hearth in Mecca to encompass half of the Arabian Peninsula by the time of Muhammad's death in 632.

The spread of Christianity from its hearth in the eastern Mediterranean to people and lands along the northern Mediterranean Sea is a good example of hierarchical diffusion (see Chapter 9). When Christianity diffused into Europe near the end of the Roman Empire, it traveled from the most important cities to the next most important cities, skipping over the countryside between. Christianity followed the same pattern among people. The Roman Emperor Constantine converted to Christianity, and from that point, conversions in the empire diffused hierarchically, from most important person to next most important.

Relocation diffusion also helped spread both Christianity and Islam. Christianity came to the Americas by relocation diffusion. Europeans who traded with the Americas, colonized the region, and migrated from Europe brought their religions (and languages and other cultural attributes) with them. Islam spread out from the Arabian Peninsula when Muslims conducted trade with people in South Asia and Southeast Asia. As the traders set up ports in South and Southeast Asia, they taught people about Muhammad's teachings, spreading the religion to new areas of the world.

The paths of diffusion reveal the underlying political, economic, and social structures that shape the spread of ideas, innovations, and traits. If a practice diffuses from



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FIGURE 1.18 **World religions.** While Islam and Judaism persist in their hearths (the Arabian peninsula and the eastern Mediterranean, respectively), other major world religions have diffused broadly but are not the majority religion in their hearths, including Christianity (hearth was in the eastern Mediterranean) and Buddhism (hearth was in the northern India).

one person or place to the next contagiously, it demonstrates that spatial interaction is occurring. When something diffuses hierarchically, it shows that an underlying, hierarchical political, economic, or social structure exists and influences the acceptance or rejection of new ideas (Figure 1.19).

Regional Manifestations of Global Processes

A map of major civilizations between 1000 CE and 1500 CE (Figure 1.20) shows the connections established before the onset of globalization and can be seen in the world regions used in this book, as they reflect long-term physical and cultural processes carried out in place.

Between 1500 and 1950, growing connections among people and places around the world established **globalization** (see Chapter 2). Civilizations reached beyond regional seas and coastlines to cross oceans and create global networks of trade, culture, and society. By 1950, as a result of global trade established through colonization and innovations in shipping, trade had come to encompass the entire world. With global trade, interactions among people and places continue to increase across the world, often ignoring state (country) borders.



Courtesy of Erin Fouberg.

FIGURE 1.19a Seattle, Washington, United States. The first Starbucks store opened just outside Pike Place Market in 1971. Tourists line up daily to visit the store, buy a beverage, and shop for Starbucks Pike Place memorabilia.

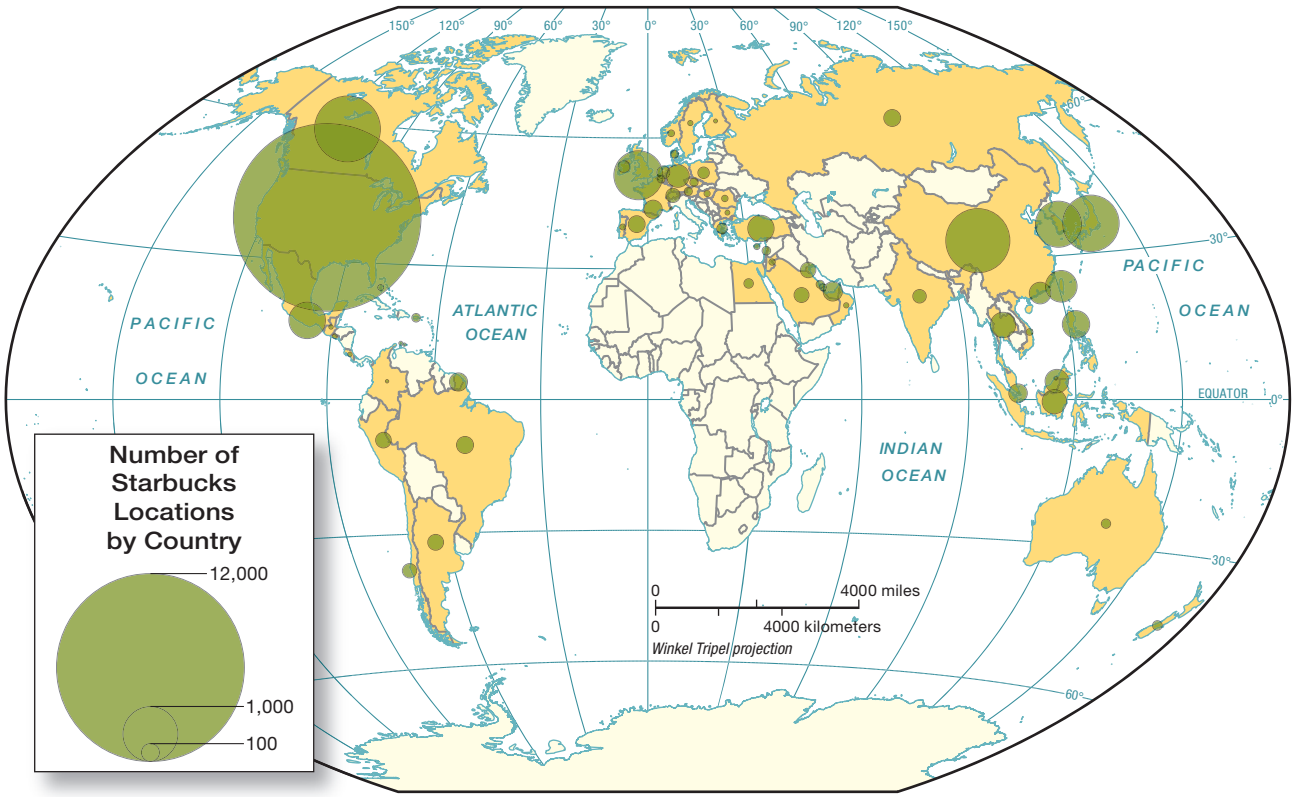
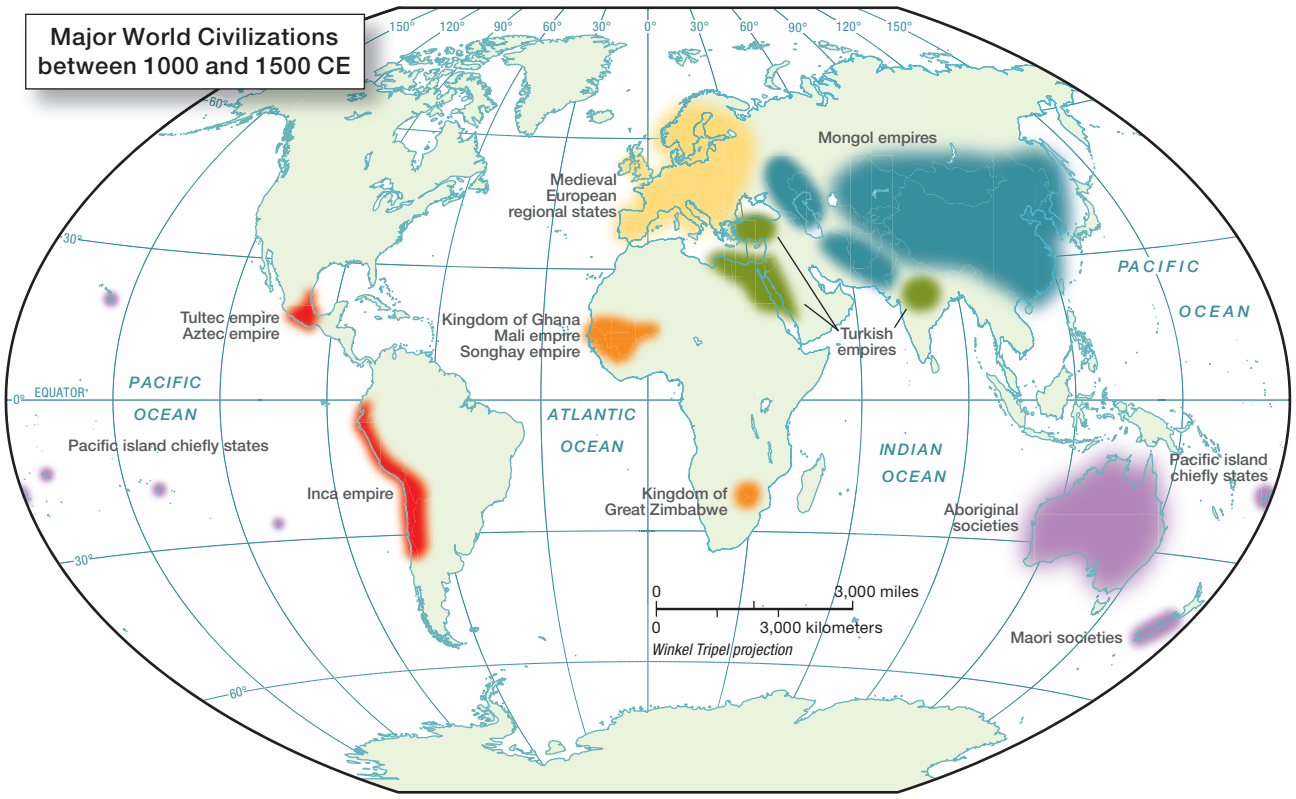


FIGURE 1.19b Starbucks Locations. From its hearth in Seattle, in the western United States, Starbucks has diffused around the world and is now located in more than 70 countries and has more than 24,000 stores. Compare this map to other maps, including Figure 3.2. What underlying economic, political, and social hierarchies help explain the distribution of Starbucks locations globally?



Adapted from Traditions & Encounters: A Global Perspective on the Past, 5th edition, by Jerry Bentley and Herbert Ziegler, New York: McGraw-Hill, 2011.

FIGURE 1.20 Major civilizations between 1000 CE and 1500 CE. Spatial interaction occurred within the major civilizations and helped establish cultural commonalities, including language, in East Asia, Southeast Asia, South Asia, Australia and the Pacific, Russia, Europe, the Arabian Peninsula, North Africa, West Africa, South Africa, South America, and Central America.

Traders from Europe, Africa, North America, South America, and the Caribbean all crisscrossed the Atlantic Ocean. A triangular trade network brought minerals (gold) and enslaved people from Africa to the Americas, agricultural products (sugar and cotton) to Europe, and finished products (rum, cigars, and clothing) into European cities and colonial port cities in Africa and the Americas (see Figure 2.2).

Along with trade, a multitude of cultural and physical processes have been exchanged across the Atlantic since 1500. African slaves brought music, language, and economic, social, political, and religious practices to the Americas. For example, enslaved Africans brought rice cultivation methods from West Africa to coastal North Carolina and South Carolina, helping establish rice plantations in the American South (Moseley 2005; Carney 2001).

From the Americas, agricultural crops, including potatoes and corn, diffused to Europe where farmers found the crops well suited for European soils (potatoes in Ireland and corn in France). The introduction of American crops altered agricultural practices and economies in Europe. Agricultural land use in the Americas, which was based on large-scale plantations, even motivated governments to legislate consolidation of land in Europe. On the negative side, Europeans brought diseases, especially animal-borne diseases, to which people in Americas had never been exposed. Cultural and biological exchanges of animals, plants, people, diseases, and ideas across the Atlantic is called the Columbian Exchange because it dates back to Columbus's travels to the "New World."

Between 1500 and 1950, several regional empires around the world peaked and then declined. The Ottoman Empire rose to colonize much of southwest Asia and southeastern Europe. Japan grew to colonize Korea, parts of China, and much of the Pacific. Europe colonized the Americas and then Africa and Asia. The experiences of the colonized versus the colonizer and the differences between preindustrial growth and industrial growth helped to distinguish the world regions defined in this book (see Chapters 2 and 3).

Trade around the Atlantic Ocean and European colonization had distinct regional outcomes as local cultural groups, civilizations, growing nations, and new countries interacted with global processes and shaped them in different ways to create unique regional effects. The processes of globalization operate across country borders, but the outcomes of globalization are not evenly distributed, as some places are more connected to global processes than others.

World Regions

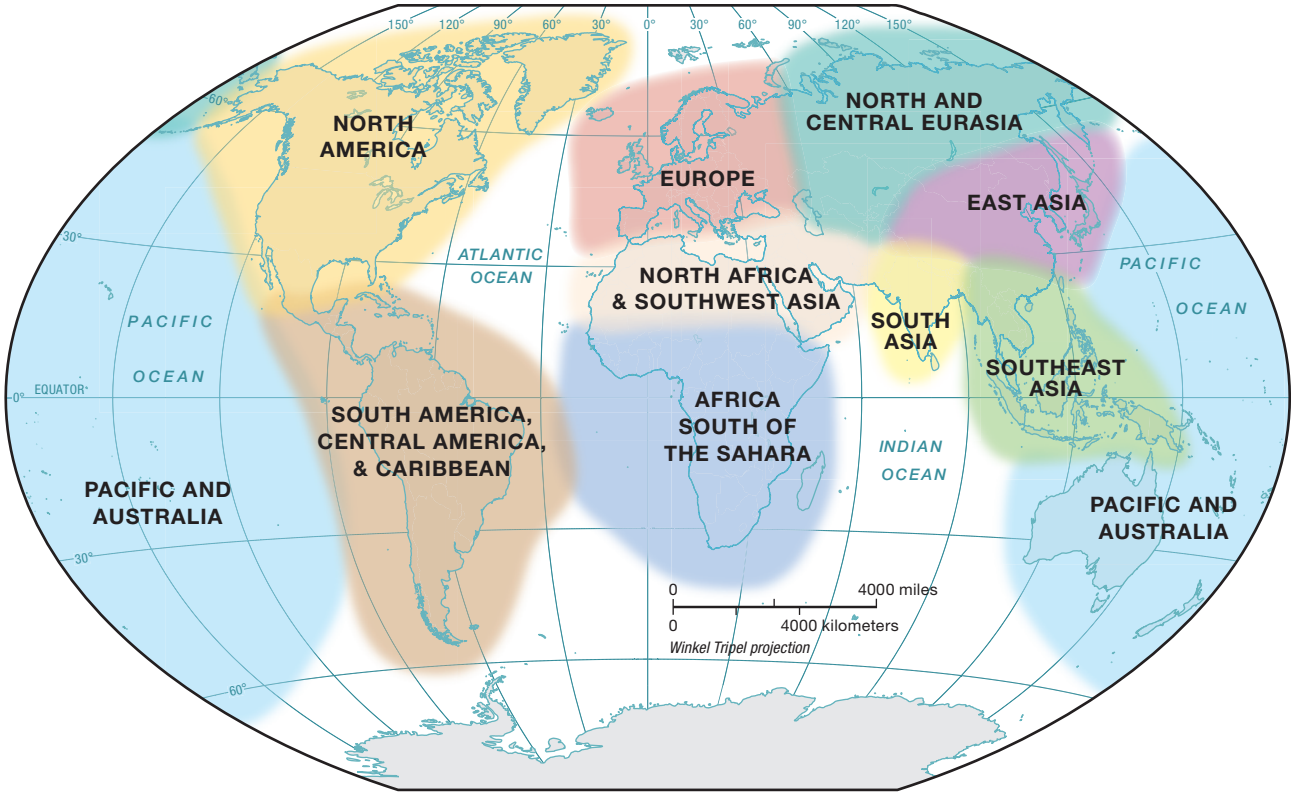
We mapped the major world regions around which we organize chapters (Figure 1.21) according to historical spatial interaction before 1500 and colonization and trade during the growth of globalization between 1500 and 1950. World regions reflect historical connectedness that helped create the fundamental cultural differences among each of the regions today.

The boundaries between world regions are transition zones. In some cases, such as the divide between Subsaharan Africa and North Africa, the physical boundary (the Sahara Desert) has been a barrier between peoples and places at various times in history. In other cases, a lack of spatial interaction between two regions occurred because of political differences, not physical boundaries. Between 1500 and 1900, tsarist Russia and western Europe had a weak relationship and experienced relatively little spatial interaction. From 1924 to 1991, when Russia was part of the Soviet Union, the Cold War divided Russia from western Europe, and again little spatial interaction occurred. These periods of division help explain why Europe and Russia are different world regions. In some cases, diverse areas encompassing many peoples and places—such as the countries throughout South America, Central America, and the Caribbean—are joined together because of an overwhelming set of shared historical, cultural, and physical experiences. In this case, Spanish and Portuguese colonization helped create a shared history for the region of South America, Central America, and the Caribbean.

World regions are dynamic and boundaries are transition zones and not firm limits; as a result, some countries appear in more than one region of this book. For example, Mexico and parts of the Caribbean are discussed in both the North America chapter and the South America, Central America, and the Caribbean chapter. Countries in East Asia are discussed in the chapter on East Asia and in the chapter on the Pacific.

The Pacific is a new region that is a product of globalization. Geographer John Agnew contends that the "changing character of the world economy" is "redrawing the regional map of the world." The Pacific Rim offers an insightful snapshot of the changing character of the world economy (see Chapter 13).

Overall, the regions in *Understanding World Regional Geography* reflect historical spatial interaction, shared experiences of colonialism, distinct local cultural identities, growth of world religions, evolution of world languages, and significant interactions among people and places.



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FIGURE 1.21 World regions. Regions of the world used in *Understanding World Regional Geography*. The regions are based on a combination of historical civilizations, the growth of globalization between 1500 and 1950, the hearths and diffusion of major cultural traits, and regional organizations established since World War II.

Concept Check

1. **What** are the differences between formal and functional regions?
2. **How** do perceptual regions help shape your schemata?
3. **What** criteria are used to delineate the regions in *Understanding World Regional Geography* and why?

What Tools Do Geographers Use to Study World Regional Geography?

LEARNING OBJECTIVES

1. **Define** GIS and remote sensing.
2. **Explain** what a physical landscapes are and why geographers study them.
3. **Explain** what a cultural landscapes are and why geographers study them.

Photographs, maps, satellite images, and graphics can help you gain an understanding of world regional geography. To understand the images in this book, you need to learn to look at maps and photographs like a geographer. Read each caption carefully and try to see on the map or in the photograph what the caption discusses. Look at the images when they are called out in the text because the text gives you a greater context for understanding the images. We also recommend that you practice analyzing maps and photographs using the exercises available in the course.

The tools geographers use vary greatly because geographic studies cover the entire Earth, including people, place, environment, and space. The range of tools in the discipline of geography includes fieldwork, map and air photo analysis, cultural and physical landscapes, geographic information systems (GIS), remote sensing, surveys, interviews, ethnography, computer modeling, and statistical analysis. We will discuss fieldwork, cartography, GIS and remote sensing, and cultural and physical landscapes in this section.

Fieldwork

Geographers go outside, into the field, and observe how people, place, environment, and space vary across the world. As early as the 1800s, geographers argued that students learn more when they study their own community to observe and apply geographic concepts. In 1861, educator James Currie wrote that students should start understanding geography by experiencing the environment in their town. Currie reasoned that after understanding local places, geography students can make connections to remote places they have read about but have not visited.

We cannot memorize world regional geography because it is constantly in flux. But we can keep up with the changing world by applying geographic concepts. One of the best ways to learn concepts is to look at the world around you, your town or city, or even your college campus. Take your blinders off as you walk around outside. Put your cell phone in your pocket and start observing. Can you see examples of functional regions in your town? How do humans and environment interact in your region, and how do your observations change if you switch scales of analysis?

Through **fieldwork** we make observations and then we analyze these observations. Geographers do fieldwork systematically by mapping change over time, categorizing observations, applying geographic questions, or analyzing differences in phenomena spatially. At the end of each chapter in this course, you will have an opportunity to explore fieldwork and think through it on your own in the *Your Turn: Geography in the Field* features.

Cartography

Geographers use maps as tools to present data spatially. Maps are powerful visuals because cartographers (mapmakers) design maps with a certain purpose in mind—whether to show data, sway an opinion, or convey an insight. **Cartography** is the subdiscipline of geography concerned with making maps.

Cartographers divide maps into two basic types: *reference maps* and *thematic maps*. A reference map shows locations of places and geographic features. A road atlas map is a good example of a reference map. Reference maps convey **absolute locations** of places. Absolute locations are usually described in latitude (degrees north or south of the equator) and longitude (degrees east or west of the Prime Meridian). With a global positioning system (GPS), finding the precise latitude and longitude of a place is simple and can be easily mapped. By using a reference map, a map reader can tell where places are, where they are in reference to each other, and whether and how the places are connected (Figure 1.22a).

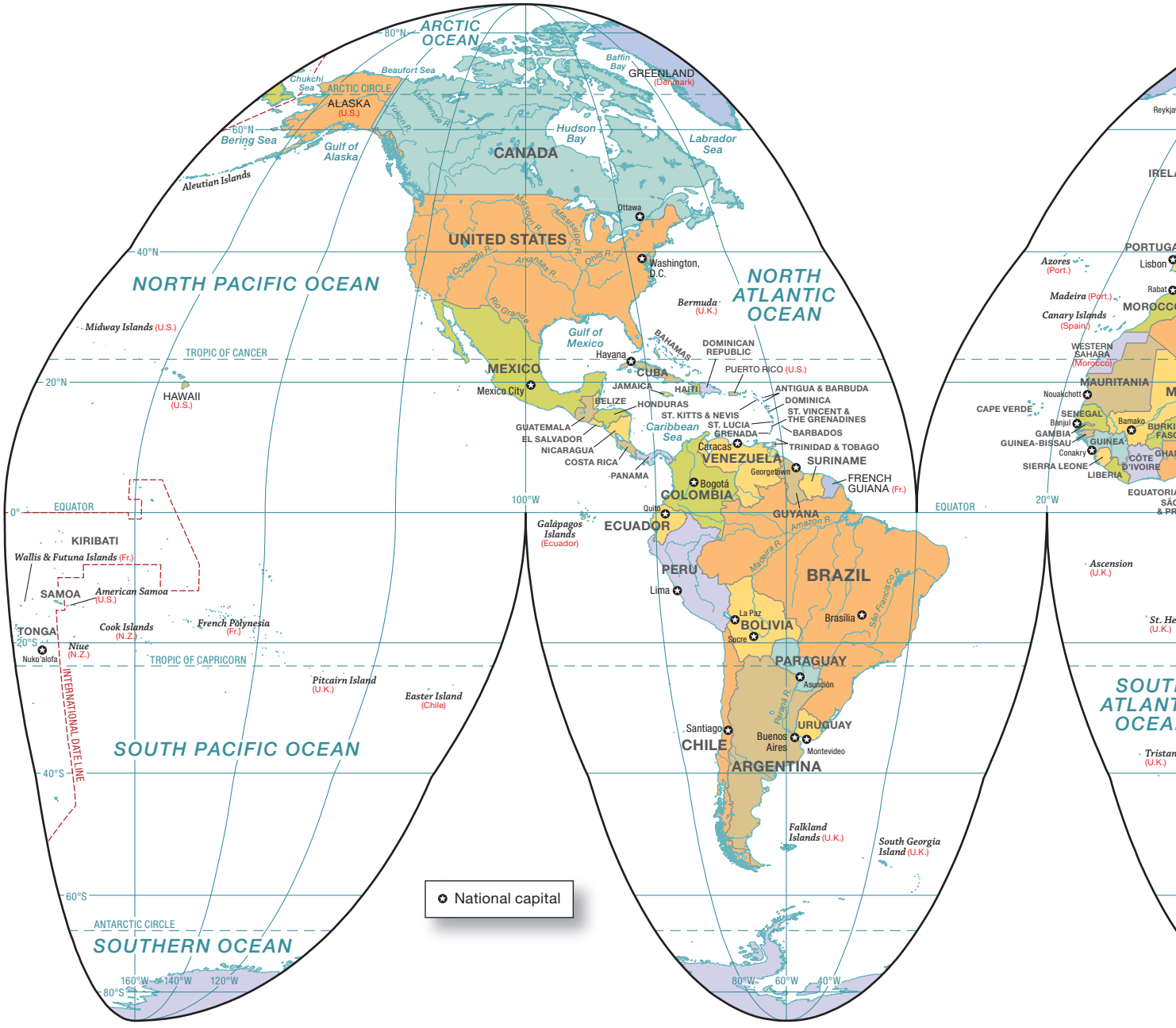
A thematic map tells a story about the degree of an attribute, the pattern of its distribution, or its movement. A thematic map shows **relative locations** of places. Instead of placing a dot for every city and town in the world, a thematic map tells the story of the distribution of the world's population by placing and coloring dots to represent

the distribution of people (Figure 1.22b) Thematic maps are used to tell the story of data whether by location, distribution, or movement.

All maps, whether reference or thematic, are representations of the world, and no map is truly accurate. Earth is three dimensional, and maps are two dimensional. Because each map has a **projection** that transforms earth from three dimensions to two, earth loses shape or distance, or becomes distorted in area (size) or direction when we flatten it onto a map. Maps are also only as accurate as the data that go into them. They lose accuracy because a cartographer must generalize and standardize data and because the areal unit limits what can be included.

GIS and Remote Sensing

Analysts in the field of geographic information sciences (GISc), which encompasses both **geographic information systems (GIS)** and remote sensing, create maps on computer

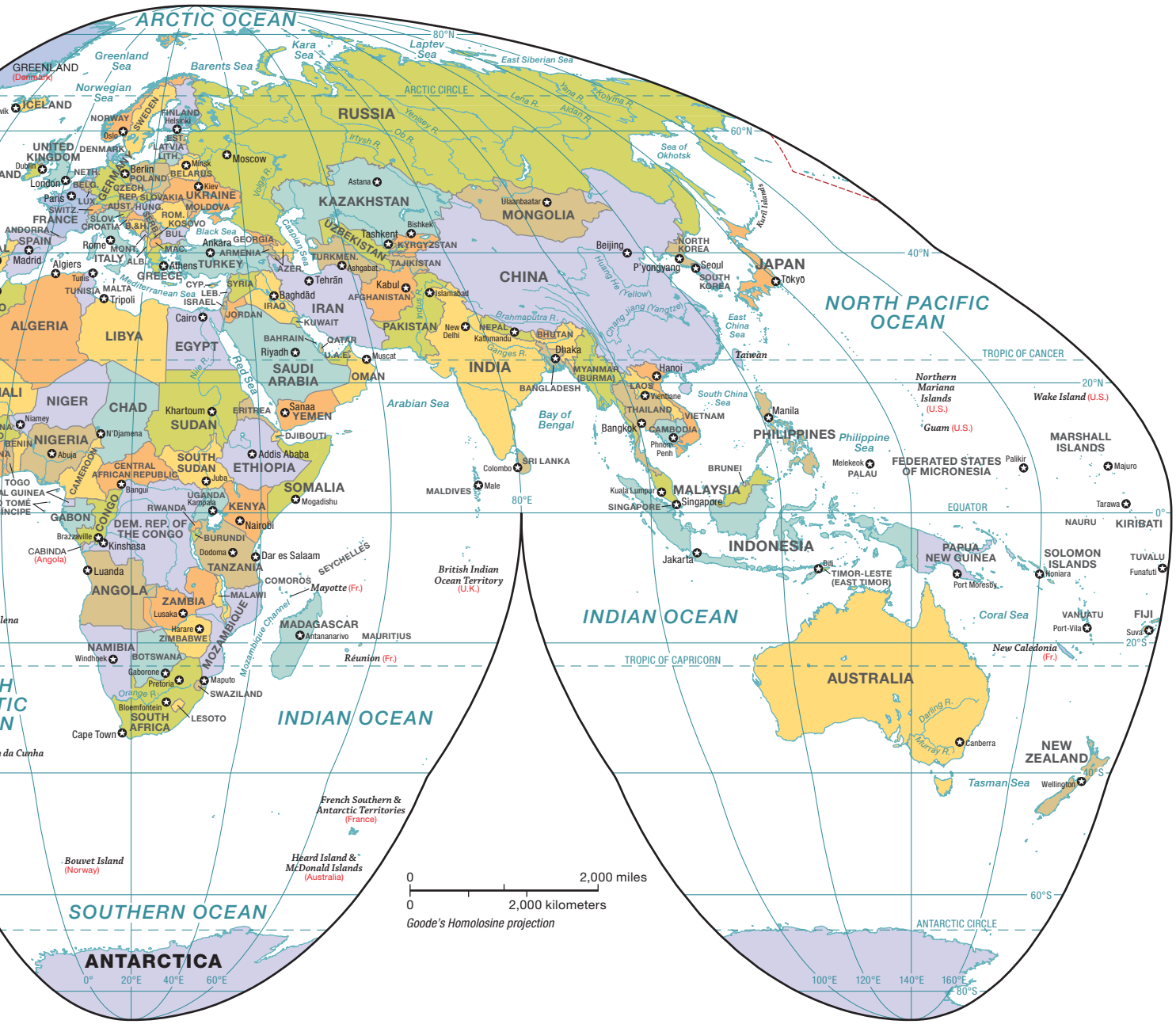


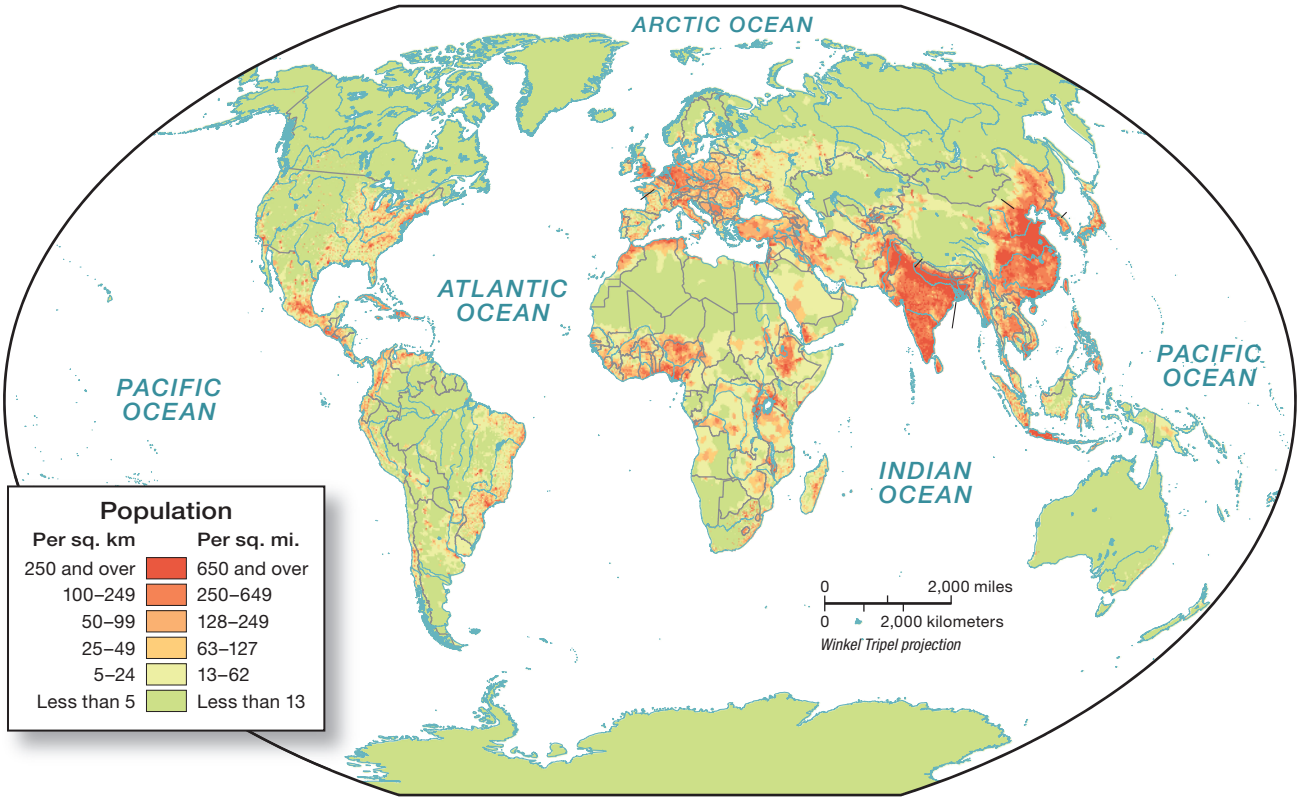
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FIGURE 1.22a Political geography of the world. This reference map shows capital cities of countries around the world. Reference maps give the map reader absolute locations of places. In this case, a map reader can see where each country is and where each capital city is located by reading this map.

programs that organize and integrate data spatially. The technologies developed in these fields have revolutionized the process of mapmaking. GIS allows geographers to store massive amounts of spatial data (Where is it?) and attribute data (What is it like? How is it?) and map it easily. Through GIS analysis, geographers can query both spatial and attribute data to answer questions. GIS analysts create models, using tools in GIS, which help them predict human and environmental outcomes to current and hypothetical situations.

Remote sensing is a method of collecting data by using instruments, including sensors on satellites that are far from the area of study. It enables geographers to study environmental and human phenomena at a variety of scales. Through remote sensing, geographers can analyze change in places over time—to the vegetation, landscape, water, or climate. Geographers can also use remote sensing to study migration flows and political maneuvers. Remote sensing and GIS can be combined by overlaying satellite photographs with GIS spatial and attribute data. The power





Data from CIESIN—Columbia University, United Nations Food and Agriculture Programme—FAO, and Centro Internacional de Agricultura Tropical—CIAT. 2005. Gridded Population of the World, Version 3 (GPW3): Population Count Grid, Future Estimates. Palisades, NY: NASA Socioeconomic Data and Applications Center (SEDAC). http://dx.doi.org/10.7927/H42B8VZZ. Accessed December 2014.

FIGURE 1.22b **Population density of the world.** This thematic map shows the general pattern of people across the world. Thematic maps give the map reader a generalized story. In this case, a map reader can get a general idea of what parts of the world are most and least densely populated by reading this map.

of GIS and remote sensing is not in the tools themselves but rather in how geographers use the tools to deepen their analysis.

Physical and Cultural Landscapes

When geographers travel, they see landscapes—both physical and cultural. Each subdiscipline in physical geography studies a different aspect of the physical world. For example, geomorphology analyzes the topography, landforms, and physical landscape of Earth (Figure 1.23). Climatologists analyze weather over time to explain the climatic conditions and variances of regions and places in the world, along with climatic phenomena such as floods and climate change. Geographers who study hazards analyze and predict how human activity impacts hazards including floods, hurricanes, and tornadoes.

By examining the **physical landscape**, a geographer can see how physical forces including glaciers, rivers, and tectonic plates, shape the landscape (Figure 1.24). For example, traveling through East Africa, a physical geographer would immediately notice the signs of tectonic activity in a series of rift valleys that make up the East African Rift Valley System.

TC No place is untouched by people. People have shaped each place on Earth in a multitude of ways, and as a result we can read the world around us to see human imprint on the landscape. A **cultural landscape** is the visible imprint of human activity. Cultural landscapes can show layers of history as different people who lived in a place over time each made their own imprint in a process known as *sequent occupance* (Figure 1.25).

Geographers have developed several ways to interpret cultural landscapes by focusing on the layers of history and on the changes that events bring to landscapes (Lewis 1979). Cultural geographers study ordinary landscapes in addition to unusual landscapes in order to understand people, place, and culture (Groth and Bressi 1997).

cultural landscape the visible human imprint on the landscape.



Nigel Pavitt/AWL Images/Getty Images.

(a)



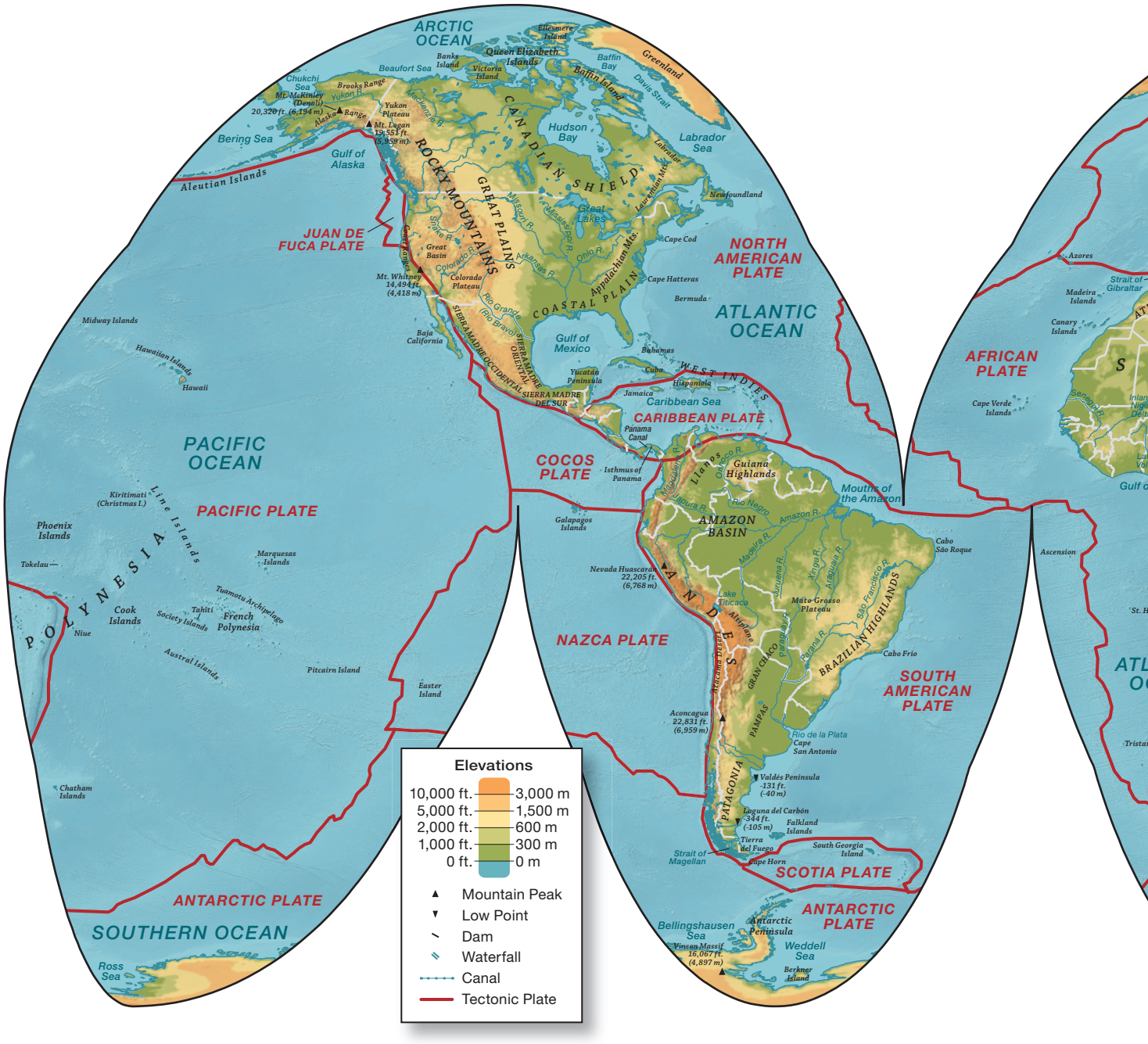
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(b)

You can practice reading physical landscapes and cultural landscapes throughout this course. Each chapter has a "Reading the Physical Landscape" feature as well as a "Reading the Cultural Landscape" feature. Take time to carefully read each map and photograph in these features along with the text to practice reading maps and photos geographically.

The images your imagination has gleaned from magazine covers, movies, and books are permanently in your mind, but the people in these places have changed since you first glimpsed those images. People and places are always changing, making world regional geography an intensely dynamic subject. Understanding our increasingly complex and interconnected world requires continually building our schemata. For example, the Afghani woman in the opening image of this chapter represented for Americans the human face of the war between the Soviet Union and Afghanistan when she appeared on a 1985 cover of *National Geographic*. Today, Gula still represents a war-torn country.

FIGURE 1.23 **East African Rift Valley.** (a) In the East African Rift Valley, the continental plate is pulling apart and the valley is sinking as the tectonic plate thins through the rift valley. (b) Notice on the map of the East African Rift System that major lakes in East Africa are in the rift valleys, where elevations are lowest.

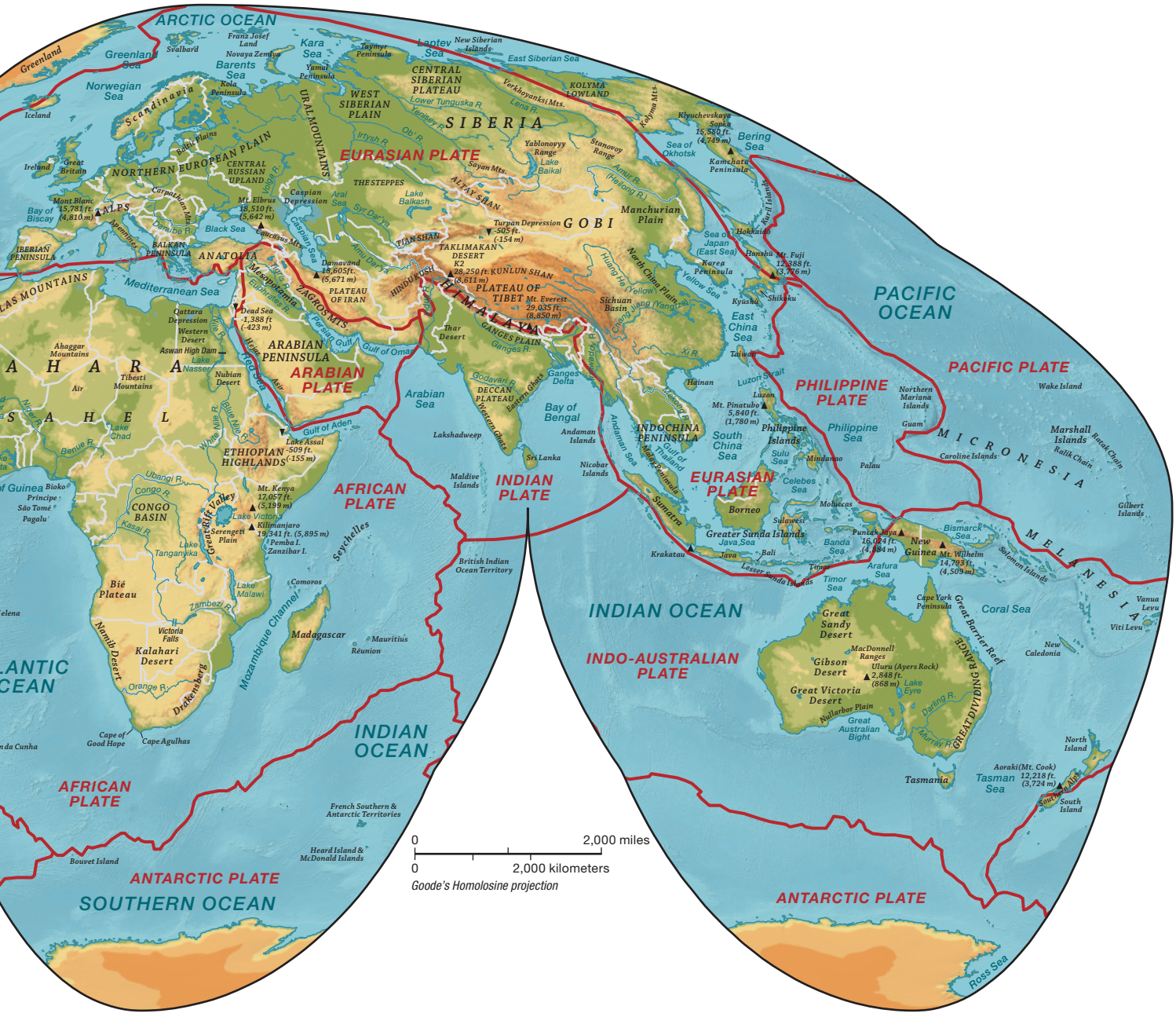


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FIGURE 1.24 **Physical geography of the world.** The areas of highest elevation appear orange on this map, and other areas of relatively high elevation are a lighter orange to beige. The areas of lowest elevation on land are the darkest green.

The 1985 photograph by Steve McCurry was so well known that it came to symbolize the *National Geographic*. The magazine used the photograph so frequently after 1985 that it almost became a brand for the magazine, making people think of *National Geographic* when they saw the photograph. Millions in the United States and around the world had seen her photograph but when the photographer Steve McCurry looked for Gula again to photograph her in 2002, he learned to his amazement that she had never seen the famous photograph. Technological advances between 1985 and 2002 enabled the FBI, through iris mapping, to say with 100 percent certainty that Gula was the woman photographed in 1985.

The world felt closer to Gula and the plight of her home country through her 1985 photograph, but the same photo,



which she did not know existed, meant little in her life. The world perceived a region through her eyes, but at the scale of her family and locality, the same photograph meant nothing. Her perception was drawn from her experience and concentrated on enduring the ongoing conflict in her country.

Concept Check

1. How do geographers use GIS and remote sensing to study geographic phenomena?

2. What is a physical landscape and how do geographers analyze physical landscapes?

3. What is a cultural landscape and **how** do geographers analyze cultural landscapes?

FIGURE 1.25 The cultural landscape: Indian Mounds Park in St. Paul, Minnesota. If you were in the Dayton's Bluff neighborhood of St. Paul, Minnesota, you might wander into Indian Mounds Park and look down on the Mississippi River as it flows between Minneapolis and St. Paul. Standing on this hill, you would see the concept of sequent occupance in the cultural landscape. The homes in the nearby neighborhood that date mostly to the 1800s and early 1900s are one layer of the landscape. The hill you are standing near is a remnant of two other occupants. The Hopewell Indians, who lived in the area beginning between 1,500 to 2,000 years ago, built the hills as burial mounds. The Dakota Indians, who arrived around the 1600s, added to the Hopewell mounds and likely built mounds of their own. Between the houses of the early 1900s and the 2,000-year-old burial mounds, the arrival of European Americans brought layers of intense agriculture, river barge traffic, a fish hatchery, an asylum, and, in 1893, the establishment of a park to preserve these mounds and green space. On this land where 37 Indian burial mounds once stood, only six stand today. Some mounds were razed for research, some for agriculture, and 11 mounds were reportedly razed to landscape the park when it was established.



© Michael Siluk/The Image Works.

Summary

What Is Geography?

1. **Geography** can be thought of as the study of people, place, environment, and space.
2. Geography incorporates two major fields of study: **physical geography** and **human geography**. Physical geographers take a geographic approach (analyzing people, place, and space) to the study of earth, environment, and human–environment interactions. Human geographers take a geographic approach to the study of peoples, cultures, and their shaping of place and environment. Geographers also study the reciprocal relationship between the physical and the human, in a field of study called **human–environment** relations.

What Are Regions, and Why Do Geographers Use Regions?

1. Traditionally, geographers thought of regions and naturally occurring areas of similarity in their analysis of the world. More recently, geographers researching in the field of new regional geography have viewed regions as constructed entities and now question how regions are drawn, what they represent, and how they should be used. The regions used in world regional geography books are created by the authors and are usually determined by a combination of physical and cultural criteria. Governments, corporations, and international organizations define regions and build their institutions around world regions.
2. Geographers use **scale** to describe the areal extent of a study, for example, countries of the world or counties in a state.
3. Regions are powerful concepts because each of us uses them to order and interpret our world and to comprehend the vastness of the world and our place in it.
4. Regions reflect the social, political, and economic processes weaving through places and across peoples.

What Regions Are Used in *Understanding World Regional Geography?*

1. A **formal region** distinguishes an area of land by cultural or physical criteria. A **functional region** is an area that has a shared political, economic, or social purpose. **Perceptual regions** are based on what individual people see in their minds. We perceive the region where we live, and we also perceive the regions where others live.
2. The regions in this book are drawn based on two factors: historical spatial interactions and physical and cultural processes that occur globally and locally and help shape world regions.
3. The map of world religions demonstrates the two major types of diffusion: **expansion diffusion** and **relocation diffusion**. Ideas and innovations spread across people and places. With expansion diffusion, people remain stationary and ideas spread across places. With relocation diffusion, people move and take ideas and innovations with them.
4. Between 1500 and 1950, growing interactions among people and places around the world established **globalization**. Civilizations reached beyond regional seas and coastlines to cross oceans and interconnect the world through trade, culture, and physical processes. With globalization, interactions among people and places continue to increase across the world, often ignoring state borders.

What Tools Do Geographers Use to Study World Regions?

1. Geographers use two key visual tools: cartography and landscape. **Cartography** is the art and science of making maps. Geographers use maps as tools to present data spatially. Cartographers design maps with a certain purpose in mind—such as showing data, swaying an opinion, or conveying an insight.

2. Cartographers divide maps into two basic types: *reference maps* and *thematic maps*. A reference map shows locations of places and geographic features. A map in a road atlas is a good example of a reference map. The goal of a reference map is to convey **absolute locations** of places. A thematic map tells a story about the degree of an attribute, the pattern of its distribution, or its movement. A thematic map shows **relative locations** of places. Thematic maps are used to tell the story of data—whether by location, distribution, or movement.

3. Most maps today are created on computers in the field of geographic information sciences (GISc) and remote sensing. The technologies in these fields have revolutionized the process of mapmaking. A **geographic information system (GIS)** is a combination of computer hardware and software designed to show, analyze, and represent geographic data.

Your Turn Geography in the Field

This sandstone block is located in Fredericksburg, Virginia, a city sited on the Rappahanock River and situated halfway between the North's capital of Washington, D.C., and the Confederate capital of Richmond, Virginia, during the Civil War. The piece of sandstone served as a slave auction block prior to the abolition of slavery. The plaque on the block simply states "Auction Block: Fredericksburg's Principal Auction Site in Pre-Civil War Days for Slaves and Property 1984 HFFI." In 2005, the slave auction block was vandalized, with two large pieces and several smaller pieces broken off the top of the sandstone block. After the vandalism, the city council debated whether to leave the block as it was or to repair it. The city council voted to repair the slave auction block.



Reza A Marvashti/The Free Lance-Star/AP Photo.

Thinking Geographically

- Why do you think this slave auction block was dedicated in Fredericksburg, Virginia, in 1984?
- What does the slave auction block mean in the cultural landscape of this place, and why do you think the city council voted to repair the block after it was vandalized in 2005?

Read:

Moyer, Laura. Slave Auction Block Vandalized. *Fredericksburg Freelance Star*. May 6, 2005. http://fredericksburg.com/News/FLS/2005/052005/05062005/1757761

Hanna, Stephen. 2008. "A Slavery Museum? Race, Memory, and Landscape in Fredericksburg, Virginia." *Southeastern Geographer*, 48(3): 316–337.

Key Terms

geography
people
place
environment
space
physical geography
human geography
remittances
human–environment
threshold concepts
context
contiguous
scale
modifiable areal unit problem
region
relative humidity
Institutionalize
schemata
formal region
functional region
perceptual region
identity
toponym
perception of place
sense of place
spatial interaction
time–distance decay
hearth
diffusion
expansion diffusion
relocation diffusion
globalization
fieldwork
cartography
absolute location
relative location
projection
geographic information system (GIS)
remote sensing
physical landscape
cultural landscape

Creative and Critical Thinking Questions

1. Read about Sharbat Gula, the Afghan woman photographed in the chapter opener, and her life now at: http://news.nationalgeographic.com/news/2002/03/0311_020312_sharbat.html

How has her status as a global symbol of Afghanistan affected her **identity** at the local scale? At the global scale?

2. How has the **situation** of Afghanistan changed in Sharbat Gula's lifetime?

3. Education is a key component of combating HIV/AIDS. How can geographers use their understanding of regional differences to advise nonprofits and governments on the best approach to tailor education programs that slow the **diffusion** of HIV/AIDS in each world region?

4. Read about the rice terraces of the Ifugao Province of the Philippines on the UNESCO website and determine whether the terraced region best fits the definition of a functional, formal, or perceptual **region**.

5. How have your perceptions of the world been formed? What experiences have you had traveling or talking with family and friends that have shaped your perceptual **regions** of the world? What movies, television shows, and books have shaped your perceptions of the world?

6. What cultural and physical geographic criteria would you use to define the formal **region** where you live? How many functional regions is your hometown in (list as many as you can)?

7. The Great Plains is one of many formal regions in North America. Name the region where your hometown is located and describe either the physical or **cultural landscape** and how the landscape distinguishes your region from surrounding regions.

8. Choose one religion mapped on the map of world religions. Read about the religion in this book (use the index) and online (try BBC), and find out where the religion's hearth is and how it **diffused**. Look at the map to see how far the religion has spread and hypothesize what kinds of diffusion brought this religion to these places in the world.

9. Choose a feature in the **cultural landscape** on your campus or in your hometown. Describe what the feature looks like and explain how it fits into the surrounding landscape and the context of the place.

Self-Test

1. Geography is divided into two subdisciplines, broadly called _____.

- **a.** environmental geography and political geography
- **b.** remote sensing and cartography
- **c.** physical geography and human geography
- **d.** place geography and space geography

2. In both of the subdisciplines, geographers _____.

- **a.** memorize capitals of countries
- **b.** analyze people, place, and space
- **c.** use timelines to analyze why places are different
- **d.** study how environments determine world cultures

3. The world region in which HIV/AIDS impacts women more than men is _____.

- **a.** East Asia
- **b.** North Africa and Southwest Asia
- **c.** Latin America
- **d.** Subsaharan Africa

4. To understand the diffusion of HIV/AIDS or other diseases, geographers explore how disease transmission can vary by the demographic characteristics of different regions. Recent studies report that people infected with this disease may be "supercontagious" when also infected with HIV/AIDS.

- **a.** chicken pox
- **b.** smallpox
- **c.** swine flu
- **d.** malaria

5. When we change scales of analysis, the distribution of an attribute _____.

- **a.** changes
- **b.** stays the same

6. The structure in the mind through which humans build knowledge and filter information is _____.

- **a.** metacognition
- **b.** scale
- **c.** region
- **d.** schema

7. The humid subtropical climate is humid because _____.

- **a.** high-pressure systems in the ocean send warm, moist air to the east coast of continents
- **b.** high-pressure systems in the ocean send warm, moist air to the west coast of continents
- **c.** low-pressure systems in the ocean bring cool, moist air to the east coast of continents
- **d.** low-pressure systems in the ocean bring cool, moist air to the west coast of continents

8. The German-speaking area of Europe is a good example of a _____.

- **a.** formal region
- **b.** functional region
- **c.** contiguous region
- **d.** continental region

9. In the map of the distribution of diseases circa 300 CE (during Roman times), diseases were _____.

- **a.** concentrated in tropical Africa
- **b.** diffused mainly along trade routes

c. diffused mainly around military bases

d. concentrated along the equator

10. In the map of the distribution of diseases, western Subsaharan Africa is shaded gray because during this time _____.

a. no one lived in Subsaharan Africa

b. the people in western Subsaharan Africa did not spatially interact with people in North Africa

c. the Sahara covered all of Africa

d. people in western Subsaharan Africa were immune to these diseases

11. With this type of diffusion, ideas spread from the most important place to the next most important place.

a. contagious **c.** hierarchical

b. relocation **d.** stimulus

12. A map in a road atlas is a good example of this type of map.

a. reference **c.** physical

b. thematic **d.** cultural

13. Sequent occupance shows _____.

a. the layers of cultures that have lived in a place

b. how rivers have changed course over time

c. how shipping methods have changed with globalization

d. the layers of climate change in a place

14. Geographers call the visible human imprint on the landscape the _____.

a. physical landscape

b. environmental landscape

c. cultural landscape

d. historical landscape

15. Globalization is a set of processes that are _____.

a. deepening the relationships of people and places around the world

b. creating a more even exchange of global goods around the world

c. redefining country borders in Africa and Asia

d. leading to European colonization of the world