Basic Concepts

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Learning Outcomes

After reading, studying, and discussing the chapter, students should be able to:

Learning Outcome 1.1.1: Explain differences between early maps and contemporary maps.

Learning Outcome 1.1.2: Describe the role of map scale and projections in making maps.

Learning Outcome 1.1.3: Explain how latitude and longitude are used to locate points on Earth's surface.

Learning Outcome 1.1.4: Identify contemporary analytical tools, including remote sensing, GIS, and GPS.

Learning Outcome 1.2.1: Identify geographic characteristics of places, including toponym, site, and situation.

Learning Outcome 1.2.2: Identify the three types of regions.

Learning Outcome 1.2.3: Describe two geographic definitions of culture.

Learning Outcome 1.3.1: Give examples of changes in economy and culture occurring at global and local scales.

Learning Outcome 1.3.2: Identify the three properties of distribution across space.

Learning Outcome 1.3.3: Describe different ways in which geographers approach aspects of cultural identity such as gender, ethnicity, and sexuality.

Learning Outcome 1.3.4: Describe how characteristics can spread across space over time through diffusion.

Learning Outcome 1.3.5: Explain how places are connected through networks and how inequality can hinder connections.

Learning Outcome 1.4.1: Describe the three pillars of sustainability.

Learning Outcome 1.4.2: Describe the three abiotic physical systems.

Learning Outcome 1.4.3: Explain how the biosphere interacts with Earth's abiotic systems.

Learning Outcome 1.4.4: Compare ecosystems in the Netherlands and Southern Louisiana.

Chapter Outline

Introduction Geography is more than rote memorization: Geographers ask where things are and why they are where they are. They use concepts of **location** and **distribution** to do so. Especially important in the study of human geography is the tension between **globalization** and local diversity.

Key Issue 1: How Do Geographers Describe Where Things Are?

A **map** is a two-dimensional or flat-scale model of the real world, made small enough to work with on a desk or computer. **Cartography** is the science of making maps. Maps are used for reference (where things are located) and for communication of the distribution of some feature or features.

Early Mapmaking Maps have been created for thousands of years. The earliest maps were used as reference tools—simple navigation devices designed to show a traveler how to get from Point A to Point B. Mapmaking as a reference tool was revived during the Age of Exploration and Discovery. Explorers who sailed across the oceans in search of trade routes and resources in the fifteenth and sixteenth centuries required accurate maps to reach their desired destinations without wrecking their ships.

Contemporary Mapping Maps are used by geographers primarily for displaying geographic information and for offering geographic explanation. Maps are geographer's most essential tool.

Map Scale The map's **scale** is the relationship between map units and the actual distance on Earth. Ratio or fraction scale gives the relationship as a ratio, for example, 1:100,000 is that 1 unit on the map equals 100,000 units on the ground. In a written scale units are expressed in a convenient way, for example, "1 centimeter equals 1 kilometer." A graphic scale is given by a scale bar showing the distance represented on Earth's surface.

Projection Maps are a planar (flat) representation of Earth's curved surface. Earth is nearly a sphere and is therefore only accurately represented on a globe. Thus, some distortion must result when using maps, especially at small scales (continental or whole-Earth maps). Cartographers must choose a **projection** that results in some set of distortions between shape, distance, relative size, and direction.

Geographic Grid Mathematical location describes a place's location using a coordinate system such as **latitude** and **longitude**. Longitude is culturally defined as starting at Greenwich, England, and measures degrees of east and west of that line of longitude, or **meridian.** The zero degree longitude line in

Greenwich, England, is known as the **prime meridian.** Latitude measures north and south distance with the **equator** being the line of latitude halfway between the poles. A latitude line is known as a **parallel** because all latitude lines are parallel to the equator. The equator is the parallel with the greatest circumference and is the baseline for measuring latitude.

Telling Time Longitude plays an important role in calculating time. If we let every fifteenth degree of longitude represent one time zone, and divide 360 degrees by 15 degrees, we get 24 time zones. As the Earth rotates eastward, any place to the east of you always passes under the Sun earlier. Thus as you travel eastward from the prime meridian you are catching up with the Sun, so you must turn your clock ahead 1 hour by each 15 degrees. If you travel westward from the prime meridian, you are falling behind the Sun, so you turn your clock back by 1 hour for each 15 degrees. During the summer, many places in the world, including most of North America, move the clocks ahead 1 hour.

When you cross the **International Date Line** you move the clock back one entire day, if you are heading eastward toward America. You turn the clock ahead 24 hours if you are heading westward toward Asia. The International Date Line for the most part follows 180 degrees longitude. However, several islands in the Pacific Ocean belonging to the countries of Kiribati and Samoa, as well as to New Zealand's Tokelau territory, moved the International Date Line several thousand kilometers to the east.

Collecting Data: Remote Sensing The acquisition of data about Earth's surface from a satellite orbiting Earth or from airplanes is known as **remote sensing**. At any moment a satellite sensor records the image of a tiny area called a pixel. A map created by remote sensing is essentially a grid that contains many rows of pixels. Geographers use remote sensing to map the changing distribution of a wide variety of features, such as agriculture, drought, and sprawl.

Pinpointing Location: GPS The **Global Positioning System (GPS)** uses satellites to reference locations on the ground. GPS is most commonly used for navigation. Pilots of aircraft and ships stay on course with GPS. On land, GPS detects a vehicle's current position, the motorist programs the desired destination into a GPS device, and the device provides instructions on how to reach the destination. GPS can also be used to find the precise location of a vehicle or person. Geographers find GPS to be particularly useful in coding the precise location of objects collected in fieldwork.

Layering Data: GIS A **geographic information system (GIS)** is a complex computer system which stores and presents geographically referenced data. GIS is more efficient than pen and ink for making for making a map: Objects can be added or removed, colors brightened or toned town, and mistakes corrected without having to tear up the paper and start from scratch. Each type of information can be stored in a layer. Separate layers could be created for boundaries of countries, bodies of water, roads, and names of places. Most maps combine several layers and GIS maps permits construction of much more complex maps than can be drawn by hand.

Mixing Data: Mashups The term mashup refers to the practice of overlaying data from one source on top of one of the mapping services. Computer users have the ability to do their own GIS because mapping services provide access to the application programming interface, which is the language that links a database such as an address list with software such as mapping. A mashup map can show the locations of businesses and activities within a neighborhood in a city. The requested information could be all pizza

parlors within a mile of a certain address. Mapping software can also show the precise locations of gas stations with the lowest prices or current traffic tie-ups on highways.

Key Issue 2: Why Is Each Point on Earth Unique?

Place Names A place name or **toponym** is the most common way of describing a location. Many uninhabited places are even named. Place names sometimes reflect the cultural history of a place, and a change in place name is often culturally motivated. Examining changes in place name geography is a useful insight into the changing cultural context of a place. The Board of Geographical Names was established in the late nineteenth century to be the final arbiter of names on U.S. maps. In recent years the board has been especially concerned with removing offensive place names.

Site The term **site** makes reference to the physical characteristics of a place. Important site characteristics include climate, water sources, topography, soil, vegetation, latitude, and elevation. The combination of physical features gives each place a distinctive character. People disagree on the attributes of a good location for settlement. What is considered a good site depends on cultural values.

Situation The term **situation** describes a place in terms of its location relative to other places. Understanding situation can help locate an unfamiliar place in terms of known places, or it can help explain the significance of a place. We give directions to people by referring to the situation of a place. We identify important buildings, streets, and other landmarks to direct people to the desired location.

Region: A Unique Area An area of Earth defined by one or more distinctive characteristics is a **region**. A particular place can be included in more than one region, depending on how the region is defined. A region gains uniqueness from possessing not a single human or environmental characteristic but a combination of them. The **cultural landscape** is a recurrent theme throughout this text. It represents the total sum of cultural, economic, and environmental forces combining to make distinctive landscapes across Earth.

Formal Region A **formal region** is a region with a predominant or universal characteristic. Formal regions commonly have well-defined boundaries. The shared feature could be a cultural value such as a common language or an environmental property such as climate. In a formal region, the selected characteristic is present throughout the region. Some formal regions are easy to identify, such as countries or local government units. A characteristic may just be predominant rather than universal. For example, the North American wheat belt is a formal region in which wheat is the most commonly grown crop, but other crops are grown there as well.

Functional Region A **functional region** is defined by an area of use or influence of some feature. Often used in economic geography, functional regions have "fuzzy" boundaries as the influence of the central feature decreases over distance. The functional region is organized around a focal point. A good example of a functional region is the reception area of a television station. A television station's signal is strongest at the center of its service area and becomes weaker at the edge and eventually can no longer be distinguished. At some distance from the center, more people are watching a station originating in another city. That place is the boundary between functional regions of two TV market areas.

Vernacular Region A **vernacular region** is the most ambiguously defined as they rely on a mental conception of a place as belonging to a common region for complex cultural reasons. Such regions emerge from people's informal sense of place rather than scientific models developed through geographic thought. A vernacular region is an individual's **mental map,** which is an internal representation of a portion of Earth's surface. A mental map depicts what an individual knows about a place, containing personal impressions of what is in the place and where the place is located.

Culture: What People Care About A body of customary beliefs, material traits, and social forms that together constitutes the distinct tradition of a group of people is known as **culture.** Important cultural values derive from a group's language, religion, and ethnicity. These three cultural traits are both an excellent way of identifying the location of a culture and the principle means by which cultural values become distributed around the world. These cultural traits are covered in detail in chapters 5, 6, and 7.

Culture: What People Take Care Of Another element of culture of interest to geographers is production of material wealth—the food, clothing, and shelter that humans need to survive and thrive. All people consume food, wear clothing, and build shelter, but different cultural groups obtain their wealth in different ways. Various characteristics—such as per capita income, literacy rates, and TVs per capita—distinguish developed regions and developing ones. Most people in developing countries are engaged in agriculture, whereas most people in developed countries earn their living through performing services in exchange for wages. These concepts are discussed in chapters 9, 10, 11, 12, and 13.

Spatial Association Different levels of regional analysis can demonstrate dramatically different characteristics. Geographers attempt to explain regional differences by looking for factors with similar distributions.

Key Issue 3: Why Are Different Places Similar?

Globalization of Economy The **globalization** of economic activities has come as a result of increasing connections between places and the rapid movement of goods and information around the world. Every place in the world is part of the global economy. **Transnational corporations** are often seen as emblematic of this globalization. Transnational corporations conduct research, operate factories, and sell products in many countries, not just where its headquarters and principle shareholders are located. Each place in the world plays a distinctive role in the global economy based on its local assets, as assessed by transnational corporations.

Globalization of Culture Economic globalization is matched with an increasing global influence and spread of some cultures, resulting in more uniform cultural landscapes across the world. Groups with distinctive local cultures may feel threatened by the globalization of culture, causing conflict or a sense of loss. The survival of a local culture's distinctive beliefs, forms, and traits may be threatened by interaction with social customs as wearing jeans and Nike shoes, consuming Coca-Cola and Mc Donald's hamburgers, and communicating using cell phones and computers. Yet despite globalization, cultural differences among places not only persist but actually flourish in many places.

Distribution Properties: Density Geographers think about the arrangement of people and activities found in space and try to understand why those people and activities are distributed across space as they

are. **Space** refers to the physical gap or interval between two objects. Geographers measure the arrangement of features in space as part of their study of Earth. The arrangement of a feature in space is known as its **distribution. Density** measures the number of features per area of land. Other measures, such as physiological or agricultural density, are based on a subgroup of people or a subtype of land.

Distribution Properties: Concentration The extent of a feature's spread over space is its **concentration**. If the objects in an area are close together, they are *clustered*; if they are far apart they are *dispersed*. Geographers use concentration to explain distribution. In a dispersed neighborhood, each house has a large private yard, whereas in a clustered neighborhood, the houses are close together and open space is shared as a community park.

Distribution Properties: Pattern The term **pattern** describes whether features are arranged along geometric or other predictable arrangements. Geographers observe that many objects form a linear distribution, such as the arrangement of houses along a street or stations along a subway line. Many American cities contain a regular pattern of streets, known as a grid pattern, which intersect at right angles at uniform intervals to form square or rectangular blocks.

Distribution across Space Humans often arrange their activities in space along ethnic or gender divisions. Most concepts of difference among humans are culturally constructed and changes in cultural concepts of difference are sometimes reflected in changing arrangements. Openly homosexual men and lesbian women may be attracted to some locations to reinforce spatial interactions with other gays. *Humanistic Geography* is a branch of human geography that emphasizes the different ways that individuals perceive their surrounding environment.

Movement Across Space Traditional roles and relationships influence how people move across space. The location of a family's home is selected primarily to ease the husband's daily commute to work. Movement across space varies by ethnicity because in many neighborhoods the residents are virtually all white or virtually all persons of color.

Cultural Identity in Contemporary Geography Thought The experiences of women differ from those of men, blacks from whites, and gays from straights. Distinctive spatial patterns by gender, race, and sexual orientation are constructed by the attitudes and actions of others. Although it is illegal to discriminate against people of color, spatial segregation persists. In many places in the world, it is legal to discriminate against gays. For geographers, concern for cultural diversity in not merely a political expediency; it lies at the heart of geography's spatial tradition.

Relocation Diffusion The term **connection** refers to the relationships among people and objects across the barrier of space. **Diffusion** refers to the spread of anything from a cultural trait, people, things, or ideas from some point of origin (a **hearth**). Geographers document the location of hearths and the processes by which diffusion carries things elsewhere over time. The spread of an idea through the physical movement of people from one place to another is termed **relocation diffusion**. When people move, they carry with them their culture, including language, religion, and ethnicity.

Expansion Diffusion The spread of a feature from one place to another in an additive process is **expansion diffusion**. Expansion diffusion refers to the growth of an idea to new areas through a hierarchy

(**hierarchical diffusion**), popular notions or even contact (**contagious diffusion**), or the spread of an underlying idea divorced from its original context (**stimulus diffusion**).

Spatial Interaction Some places are well-connected by communications or transportation networks, other are not as much. Contact diminishes with increasing distance and eventually disappears. This trailing-off phenomenon is called **distance decay.** In the contemporary world, distance decay is much less severe because connection between places takes less time. Geographers apply the term **space-time compression** to describe the reduction in time it takes for something to reach another place. Interaction takes place through a **network,** which is a chain of communication that connects places. Ideas that originate in a hearth are now able to diffuse rapidly to other areas through communication networks. Distant places seem less remote and more accessible to us.

Unequal Access In the modern world, barriers to interaction are more likely to derive from unequal access to electronics. Internet access depends on availability of electricity to power the computer and a service provider. A person must be able to afford to pay for the communications equipment and service. Countries in Africa, Asia, and Latin America find themselves on a periphery with respect to wealthier core regions of North America, Europe, and Japan. The increasing gap in economic conditions between regions in the core and periphery that results from globalization is known as **uneven development**. In a global culture and economy, every area of the world plays some role intertwined with the roles played by other regions.

Key Issue 4: Why Are Some Human Actions Not Sustainable?

A **resource** is a substance in the environment that is useful to people, economically and technologically feasible to access, and socially acceptable to use. A **renewable resource** is produced in nature more rapidly than it is consumed by humans. A **nonrenewable resource** is produced in nature more slowly than it is consumed by humans. The use of Earth's renewable and nonrenewable natural resources in ways that ensure resource availability in the future is **sustainability**.

Three Pillars of Sustainability According to the United Nations, sustainability rests on three pillars: environment, economy, and society. Sustainability requires the curtailing the use of nonrenewable resources and limiting the use of renewable resources to the level at which the environment can continue to supply them indefinitely. The sustainable use and management of Earth's natural resources to meet human needs such as food, medicine, and recreation is **conservation**. Conservation differs from **preservation**, which is the maintenance of resources in their present condition, with as little human impact as possible. Preservation does not regard nature as a resource for human use.

Sustainability's Critics Biologically productive land is defined as the amount of land required to produce the resources currently consumed and handle the wastes currently generated by the world's 7 billion people at current levels of technology. The Earth has only 11.4 billion hectares of biologically productive land, so humans are already using all of the productive land and none is left for future growth. Others have said that resource availability has no maximum, and Earth's resources have no absolute limit because the definition of resources changes drastically and unpredictably over time.

Earth's Physical Systems A **biotic** system is composed of living organisms. An **abiotic** system is composed of nonliving or inorganic matter. Three of Earth's four systems are abiotic. The **atmosphere** is a thin layer of gases surrounding Earth. The **hydrosphere** is all the water on Earth or near Earth's surface. The **lithosphere** is Earth's crust and a portion of upper mantle directly above the crust. Only one of Earth's systems is biotic. The **biosphere** is all living organisms on Earth, including plants and animals, as well as microorganisms.

Interactions in the Biosphere A group of living organisms and abiotic spheres with which they interact is an **ecosystem**. The scientific study of ecosystems is **ecology**. Living organisms in the biosphere interact with each of the three abiotic systems. Human geographers are especially interested in ecosystems involving the interaction of humans with the rest of the biosphere and the three abiotic spheres. If the atmosphere contains pollutants or its oxygen level is reduced, humans have trouble breathing. Without water, humans waste away and die. A stable lithosphere provides humans with materials for buildings and fuel for energy. The rest of the biosphere provides humans with food.

Cultural Ecology: Integrating Culture and Environment Human geographers are especially interested in the fact that different cultural groups modify the natural environment in distinctive ways. The geographic study of human-environmental relationships is known as **cultural ecology**. E**nvironmental determinism**, largely dismissed by modern geographers, states that physical factors cause cultures to develop and behave as they do. Environmental determinists believe that human geographers should apply laws from the natural sciences to understanding relationships between the physical environment and human actions. **Possibilism** recognizes the constraints of the physical environment while also crediting human cultures with the ability to adapt to the environment in many ways—including by changing it.

Modifying the Environment A **polder** is a piece of land that is created by draining water from an area. All together, the Netherlands has 2,600 square miles of polders. The Dutch government has reserved most of the polders for agriculture to reduce the country's dependence on imported food. The Dutch have also constructed massive dikes to prevent the North Sea from flooding much of the country. A second ambitious project in the Netherlands is the Delta Plan. The low-lying delta in the southwestern part of the country is very vulnerable to flooding. The Delta Plan called for the construction of several dams to close off most of the waterways from the North Sea.

The lowlands in South Florida are environmentally sensitive areas, but have been modified less sensitively than those in the Netherlands. The U.S. Army Corps of Engineers built a levee around Lake Okeechobee during the 1930s, drained the northern one-third of the Everglades during the 1940s, and diverted the Kissimmee River into canals during the 1950s. These modifications opened up hundreds of thousands of hectares of land for growing sugarcane and protecting farmland as well as the land occupied by the growing South Florida population from flooding. Polluted water, mainly from cattle grazing along the banks on the canals, flowed into Lake Okeechobee. The modification of barrier islands along South Florida's coast by humans has caused a lot of damage.

Icebreaker

This chapter may seem superficial to many instructors, but keep in mind it is new ground for many students. For example, a 2006 National Geographic/Roper poll of Americans aged 18–24 found the

following: "48% of young Americans believe the majority population in India is Muslim. . . . Half of young Americans can't find New York on a map."

This illustrates the challenge you face as a geography educator. Instead of calling attention to these statistics to your students, consider being positive in your introduction, as introducing this chapter will set the tone for the remainder of the course. This is your chance to emphasize the importance of geographic knowledge of all of your students, regardless of their eventual fields of study.

What is geography? Why is it important?

A class discussion of what geography is, and why it is important, is always a useful place to start with any geography course. Reasons for the importance of geography will vary by instructor, but a useful example of inquiry is provided in this chapter's presentation of New Orleans/ Hurricane Katrina disaster. Here are some other events to use as examples of geographic relevance at your own discretion:

- The Japanese earthquake and tsunami of 2011. This example is another great one, like New Orleans, to show the interrelatedness of human and physical geography.
- The September 11, 2001, attack on the World Trade Center (and other targets).
- Ask your students where their footwear, clothing, or cars come from. Is there anything geographic about this?

What is the name of your town? Where is that? What is it like?

The terminology associated with place and region may be difficult for students to grasp. Explaining how we describe places every day will help build an understanding of how geographers think about place.

Try this method in class: Ask the students individually where they are from until a place name not in the immediate area is encountered. If you are not familiar with the place (or even if you are), ask, "Where is that?"

Explain that the students are using place names, or toponyms, to describe where they are from, but the place name is only useful as long as everyone knows where the place name is referring to.

When a place name is unfamiliar, we need to refer to situation factors (and sometimes site factors) to tell people where a place is.

Mathematical location might seem quite abstract to students, but ask how many can list their addresses and zip codes. While not mathematical in the same way as latitude and longitude or UTM coordinates, the street address does represent a unique description of a discrete place. An Internet mapping program (e.g., Google or Yahoo Maps) can be used to demonstrate these concepts.

Challenges to Comprehension

Scale

Many, including professional geographers, confuse large and small scales. The smaller the scale, the larger the area covered. For example a globe is a very small-scale representation of Earth. Yet many persist in referring to global issues as occurring at a "large scale."

To avoid confusion, consider referring to scales as "local", "regional", or "global." This also helps emphasize the text's themes of global vs. local contrasts.

These concepts are reinforced in Chapter 1's Key Issue 3, Why Are Different Places Similar?

Understanding Geographic Information Systems (GIS)

Students often confuse a geographic information system (GIS) with the Global Positioning System (GPS).

Students rarely understand the importance of GIS to many processes that we take for granted in society. However, there are a variety of Internet resources which demonstrate how much a part of our everyday lives GIS are becoming. Some online examples include:

- Zillow (see "Resources" section)
- Real property databases managed by county or city governments (e.g., the King County parcel viewer at www.kingcounty.gov/operations/GIS/PropResearch/ParcelViewer.aspx
- Numerous "mashups" available on an ever-changing basis (try googlemapsmania.blogspot.com)

Vernacular Regions

Some have a difficult time with the idea of a vernacular region. The example in the textbook uses a number of overlapping formal regions in an attempt to describe the vernacular region of the South. Consider using another example, especially one without a direction, as these examples can be confusing (students think that a vernacular region must contain compass direction).

Cultural Landscapes

The concept of a cultural landscape can be misunderstood as a principally environmental landscape. Help students learn about how pervasive cultural landscapes are by showing them some examples from around the world. Note that an Internet search for "cultural landscape" returns a number of results about extraordinary, famous, or unique landscapes; but cultural landscapes are pervasive and students will benefit from being able to interpret the cultural landscape of everyday places like their home towns.

The Great Mirror: Dr. Bret Wallach of the University of Oklahoma has posted a remarkable collection of photographs for the purpose of displaying cultural landscapes at his website The Great Mirror, www.greatmirror.com.

Another great option is the user-generated content featured on Panoramio (www.panoramio.com), which is also on Google Maps (maps.google.com), indexed under the "More . . . Photos" option. These photos are usually "scenic" features, but it's possible to find more mundane cultural landscapes, too.

Assignments

Review/Reflection Questions

These questions can be used in addition to the "thinking geographically" questions at the end of each chapter. Students can be assigned these questions as homework, they can be given as essay questions on exams, or they can serve as focus questions for in-class discussions.

- Describe the site, situation, and mathematical location of our school (alternative—your hometown).
- Name three formal regions that this school is located within and give a reason for each. Do the same for functional and vernacular regions.
- Describe an element of your culture that appears to be environmentally determined (caused by the natural environment). Can you now provide evidence that this cultural element is only one of many possibilities in the given environment?
- Give a local example of not-so-sensitive environmental modification, as demonstrated in the book's discussion of Florida. Are there multiple ways to achieve the desired result of an environmental modification? Discuss.

For additional review and test prep materials, have your students visit **MasteringGeography™** to access a variety of resources, including interactive maps, videos, GoogleEarth activities, RSS feeds, flashcards, web links and self-study quizzes.

Thinking Geographically Questions

1.1. Mapping is partially a science, but it also involves a lot of human judgment. Provide examples of human judgment in mapping, such as in the creation of the geographic grid in contemporary tools.

Mapping vernacular regions would be a good example of using human judgment in mapping. Vernacular regions are perceptual regions that emerge from people's informal sense of place. One person may find a vernacular region to be larger or smaller than another person. The map projection that a cartographer uses to display information is a matter of human judgment as well. Particular map projections are favored by certain cartographers. A cartographer uses the map projection that they think best displays the data on their map.

1.2. Describe the site and situation of your hometown.

Site: My hometown is located in the northern and western hemisphere. It is located in the midlatitudes. My hometown is in the Mediterranean climatic zone dominated by chaparral vegetation. My hometown borders the Pacific Ocean. I live on a coastal plain with alfisol soils.

Situation: My hometown is about 45 miles from Disneyland and 75 miles from Downtown Los Angeles and Hollywood. Interstate 5 and Pacific Coast Highway run through my hometown and these are very

important roads on the West Coast of the United States. My hometown is 5 miles from the San Onofre Nuclear Generating Station, which is one of the major sources of electricity in Southern California. The Camp Pendleton Marine Base is located two miles away from my hometown and is one of the largest military bases on the West Coast of the United States.

1.3. Imagine that a transportation device (perhaps like Harry Potter's floo powder) would enable all humans to travel instantaneously to any location on Earth. What might be the impact on the distribution of people and activities across Earth?

If this transportation device existed, a lot fewer people would live in urban areas. Many people in the developed world live in an urban area because they need to live near their place of employment. Workers don't want the expense and hassle of very long commutes so they choose to live near their job. If they could instantaneously commute, many workers with families would choose to live in somewhat rural areas. Living in a less congested area is appealing to many people, but rural areas rarely offer many well-paying jobs.

More people would live in temperate climates. Imagine if you could work a well-paying job in Fairbanks, Alaska, but not actually have to move to Fairbanks. You could live in Hawaii, but instantaneously commute to Fairbanks every day during the week. Many people live in the severe climates because they have a good job and family and friends in the area, not because they like subzero temperatures. With instantaneous travel, they could still see family and friends and continue to work their job, but not have to shovel snow to get out of their driveway most mornings.

1.4. What activities in your community appear to promote sustainability?

Southern California has numerous Recycling Centers. Recycling Centers are usually located in the back of large grocery stores. People get money for used plastic and glass bottles at these Recycling Centers. Some of these Recycling Centers will also pay people for their aluminum cans too. There was a tax credit program in California recently that essentially gave money to homeowners who installed solar panels on the roofs of their homes. Wind turbines have recently been built in the nearby desert areas. California promotes sustainability more than a lot of states.

Pause and Reflect Questions

1.1.1: What is one main difference between Ptolemy's world map and the world map of Waldseemuller?

Waldseemuller's map depicted the Western Hemisphere separated from Europe and Africa by the Atlantic Ocean.

1.1.2: What type of projection would be best for a world map of population densities?

The Goode Homolosine Projection keeps the sizes of the continents accurate and does not allocate too much space for the oceans. The Goode Homolosine projection would be better than the Mercator or Robinson projection for displaying population density data.

1.1.3: Compare the stick chart in Figure 1-3 with the geographic grid in Figure 1-10. What are their similarities and differences?

Both the ancient stick chart and the modern globe use a grid structure in which to position specific places, although of course the ancient stick chart is less "accurate" than the current grid.

1.1.4: State a question you have about the area where you live. Now describe a mashup that you could create using GIS that would answer your question.

How many Starbuck's Coffee Shops are within 30 miles of my house? I could go to Starbuck's website and find out the location of their stores. I could then link the information from Starbuck's website with GIS mapping software.

1.2.1: How would you describe the site and situation of the place where you live? (Use online maps or an atlas to help analyze the characteristics of your location.)

See *Thinking Geographically* question #2.

1.2.3: For each map in Figure 1-21, write a question that you could ask about the data on the map at that scale. How do your questions change as the map's scale changes?

For the small scale map I would ask: Why do the Great Lakes and South have higher rates of cancer than the West or East Coast? For the larger scale map I would ask: Why do the areas in eastern Maryland have higher rates of cancer than the areas in western Maryland? For the largest scale map I would ask: Why do the northeastern neighborhoods of Baltimore have higher cancer rates than the neighborhoods in the northwest?

1.3.1: Give examples from your own community of (a) a cultural element that is local and (b) a cultural element that reflects the globalization of culture.

The city I live in is actually known as the center of the surf industry. Many of the trends and innovations in surf clothing, surfboards, and wetsuits originate in San Clemente, California. We are the hearth for a lot surf-related fashion and products.

My town is ethnically very diverse. We have numerous ethnic eateries in my hometown. We have Mexican, Japanese, Thai, Chinese, Italian, Greek, and Indian restaurants in my hometown. We even had an Ethiopian restaurant at one time, but it went out of business. The Ethiopian restaurant did not offer eating utensils, and many people did not like eating their food with their hands.

1.3.2: Using your own campus as the example, describe how movement across space varies during the day for students and faculty.

During the morning, the campus is bustling with activity. After 2:00 P.M., less people are on campus. Many of the younger students take classes in the morning and work a part-time job in the afternoon. After 6:00 P.M., activity at the campus increases as older students arrive to take night classes. Night classes are popular with students who work full-time jobs during the day.

1.3.3. What are the main differences between countries in the core regions and those in the periphery?

The main differences between core and periphery countries are income and health. People in core countries are generally more affluent and live longer than people in periphery countries.

1.4.1: Why would maps of Earth's hydrosphere, lithosphere, and biosphere be important in the quest for sustainability?

Maps of all of Earth's spheres would help a person locate where natural resources are available and how much is available. They would also identify potential trouble spots in the future. Certain areas may not have enough clean freshwater for the growing population or increasing air pollution may start to endanger people's health in another location. These maps would help geographers come up with solutions to sustainability issues.

1.4.2: Both the Netherlands and the Florida Everglades face threats to sustainability. Which is better positioned to face future challenges? Explain your answer.

The Netherlands seems to be more progressive in their thinking when dealing with the environment than Florida. The planners in Florida seem to want to focus on the "here and now," whereas the Dutch tend to look more toward the future. The Dutch seem like they are willing to adjust their plans and make the necessary changes when they need to be made. Florida seems content to keep fighting a losing battle because it is beneficial in the short term.

Google Earth Questions

GOOGLE EARTH 1.1 *What are the precise latitude and longitude of the U.S. Capitol building?*

38º 53' 22.73" N 77º 00' 31.79" W

GOOGLE EARTH 1.2 *What characteristics of site and situation are visible in an aerial view of New Orleans?*

Site is low-lying area along the Mississippi River. Situation is near the mouth of the river where it flows into the Gulf of Mexico.

GOOGLE EARTH 1.3 *Fly to Spring Valley, Nevada. Click on the time slider to view historical imagery. How have the properties of distribution of Spring Valley, Nevada, changed over time?*

Density: the site was undeveloped desert in the 1950s and 1960s, and density started to increase in the 1970s. Concentration: housing is clustered on the north side of the image. Pattern: subdivisions have rectangular shapes inside curved shapes.

GOOGLE EARTH 1.4 *How many dams do you see along the southwestern coast of the Netherlands, in the vicinity of the town of Stellendam?*

Three.

Resources

Zillow (www.zillow.com)

Zillow's mapping interface demonstrates some of the increasingly sophisticated geographic information available over the Internet. Zillow uses data from property records, street addresses, and sales histories to create estimates of property values. This site can be used to demonstrate a number of geographic concepts in addition to the uses of GIS. For example, amenities and/or disamenities are shown to have an influence on property values.

Not all locations are available on this service, but a view of the United States as a whole is an immediately engaging demonstration of how geography matters, as median prices on houses in Midwestern states are significantly lower than east or west coast states.

Connections between Chapters

Chapter 1 does not spend much time introducing the structure and organization of the book, which allows for your own organization. Emphasizing the overarching structure of the book may help your students to approach the subject as holistic rather than just one chapter at a time.

The concepts in Chapter 1 lay the foundations for the remainder of the text. Especially important in Chapter 1 is the vocabulary associated with key geographic concepts, as the concepts associated with distribution, spatial association, and regions recur throughout the text.

Another fundamental concepts introduced with culture is the division between more and less developed countries. This idea is continued in the first paragraphs of Chapter 2. You can reinforce these concepts by providing previews for future chapters. You can also emphasize these concepts by explicitly referring back to the definition when they occur in subsequent chapters.

An overarching theme throughout the text and frequently referenced in the beginning of each chapter is the tension between forces of globalization and attempts to preserve local diversity. Each chapter introduction also references places, regions, where and why questions of geography, and spatial connections.