

concerning a region's characteristics, depending on its scale. Consider the percentage of Americans who die each year from cancer. Death rates vary widely among scales within the United States (Figure 1-21):

- At the scale of the United States, the Great Lakes and South regions have higher levels of cancer than the West.
- At the scale of the state of Maryland, the eastern region has a higher level of cancer than the western region.
- At the scale of the city of Baltimore, Maryland, lower levels of cancer are found in the northern region.

To explain why regions possess distinctive features, such as a high cancer rate, geographers try to identify cultural, economic, and environmental factors that display similar spatial distributions. By integrating other spatial information about people, activities, and environments, we can begin to see factors that may be associated with regional differences in cancer:

- At the national scale, the Great Lakes region may have higher cancer rates in part because the distribution of cancer is spatially associated with the distribution of factories.
- At the state scale, Baltimore City may have higher cancer rates because of a concentration of people with lower levels of income and education. People living in

the rural Eastern Shore region may be exposed to runoff of chemicals from farms into the nearby Chesapeake Bay, as well as discharges carried by prevailing winds from factories further west.

- At the urban scale, neighborhoods on the north side of Baltimore City contain a higher percentage of people with high incomes and are further from the city's factories and port facilities.

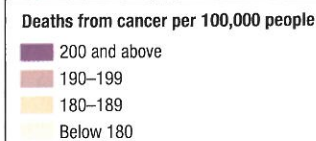
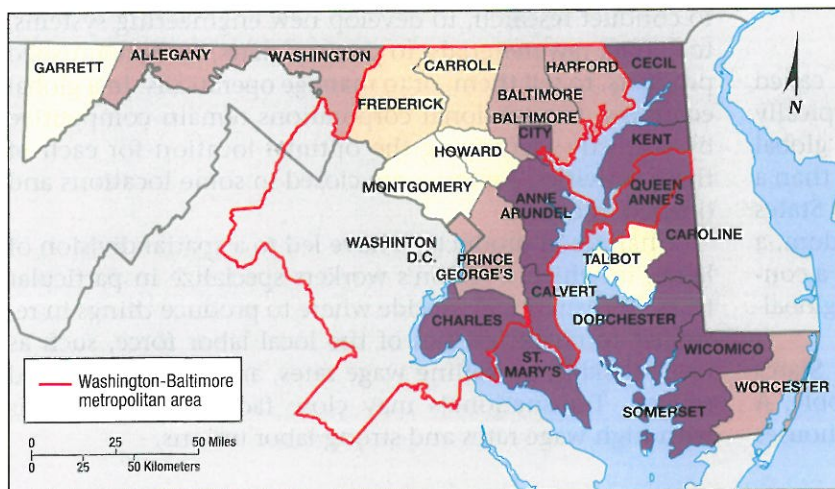
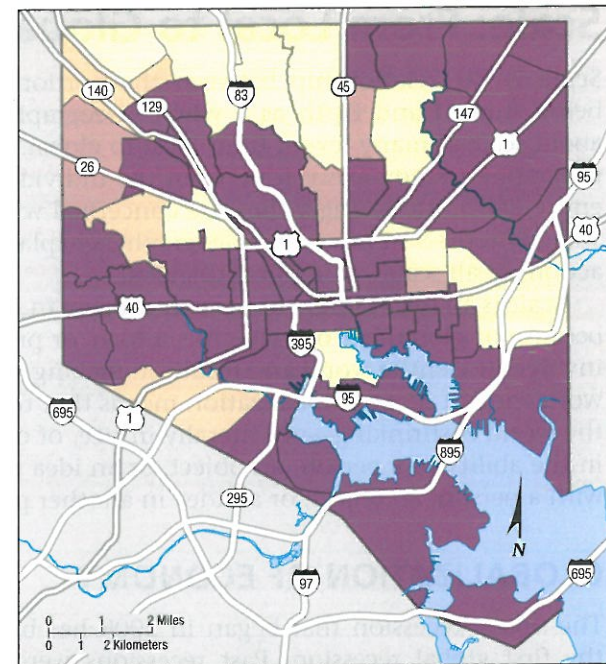
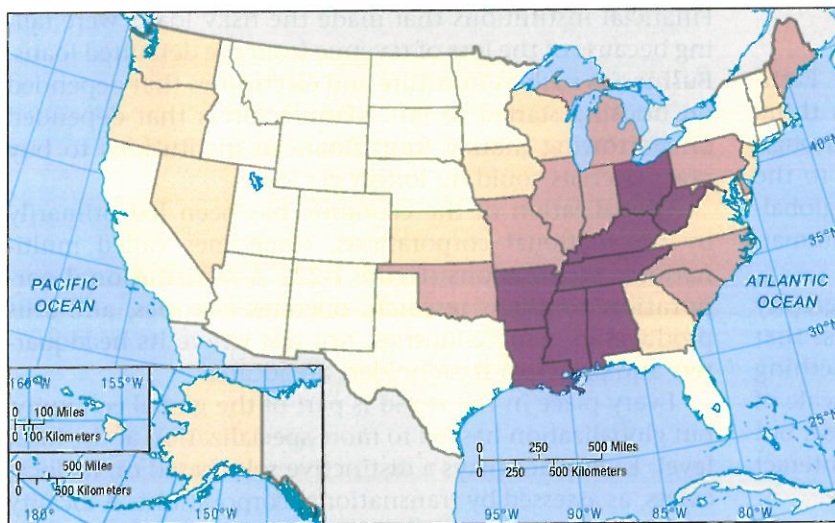
### Pause and Reflect 1.2.3

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?

### CHECK-IN: KEY ISSUE 2

#### Why Is Each Point On Earth Unique?

- ✓ Location is identified through name, site, and situation.
- ✓ Regions can be formal, functional, or vernacular.
- ✓ Culture encompasses what people care about and what people take care of.



▲ **FIGURE 1-21 SPATIAL ASSOCIATION** On the national scale, the Great Lakes and South regions have higher cancer rates than the West. On the scale of the state of Maryland, the eastern region has a higher cancer rate than the western region. On the urban scale, southern and western neighborhoods of Baltimore City have higher cancer rates than northwestern ones. Geographers try to understand the reason for such variations.

## KEY ISSUE 3

# Why Are Different Places Similar?

- **Scale: From Local to Global**
- **Space: Distribution of Features**
- **Connections between Places**

### Learning Outcome 1.3.1

**Give examples of changes in economy and culture occurring at global and local scales.**

Although accepting that each place or region on Earth may be unique, geographers recognize that human activities are rarely confined to one location. Three basic concepts—scale, space, and connections—help geographers explain why similarities among places and regions do not result from coincidence.

## Scale: From Local to Global

**Scale** is the relationship between the portion of Earth being studied and Earth as a whole. Geographers think about scale at many levels, from local to global. Although geographers study every scale from the individual to the entire Earth, increasingly they are concerned with global-scale patterns and processes. Geographers explain human actions at all scales, from local to global.

Scale is an increasingly important concept in geography because of **globalization**, which is a force or process that involves the entire world and results in making something worldwide in scope. Globalization means that the scale of the world is shrinking—not literally in size, of course, but in the ability of a person, an object, or an idea to interact with a person, an object, or an idea in another place.

## GLOBALIZATION OF ECONOMY

The severe recession that began in 2008 has been called the first global recession. Past recessions were typically confined to one country or region. In contrast, the global economy declined in 2009 for the first time in more than a half-century. The fate of a home buyer in the United States was tied to the fate of a banker in the United Kingdom, a sales clerk in Japan, a clothing maker in China, and a construction worker in Nigeria. All were caught in a global-scale web of falling demand and lack of credit.

The global financial crisis began in the United States and Europe with the bursting of the housing bubble. A **housing bubble** is a rapid increase in the value of houses

followed by a sharp decline in their value. Housing prices had risen very rapidly for a number of years, primarily because very low interest rates made it possible for more people to borrow more money to buy more houses:

- Poorer people bought houses for the first time because financial institutions were willing to lend them money even though they were at a high risk of not being able to repay the debt.
- Wealthy people bought second and third homes as investments, taking advantage of the low rates for borrowing money. They were betting that prices would continue to escalate, enabling them to resell the houses at a profit. The wealthy also invested money in funds that directly or indirectly provided the loans to high-risk people.
- The government encouraged low-income families to buy houses even though they were at risk of not repaying the loans. Less government regulation and oversight of the financial industry made it easier for abusive practices to occur.

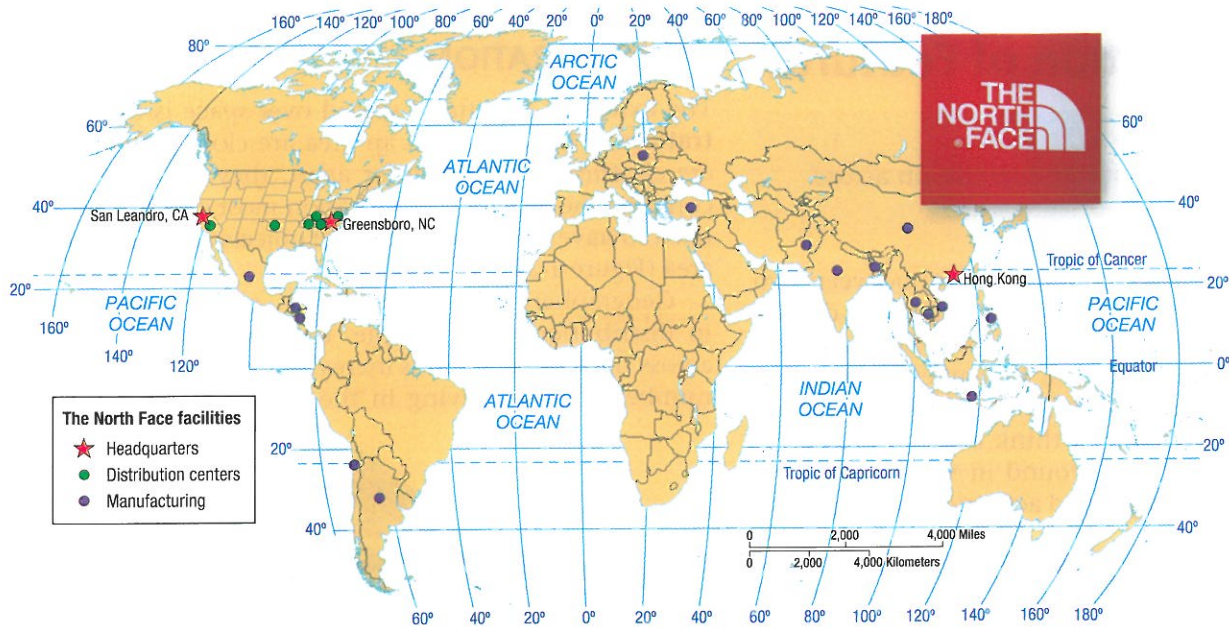
Declining demand for housing led to falling prices. Many people owed more on their houses than the houses were now worth if they tried to sell them. Ultimately, many defaulted on their loans and walked away from the houses, leaving them vacant and derelict.

The crisis spread from housing through the economy. Financial institutions that made the risky loans were failing because of the loss of revenue from the defaulted loans. Businesses such as furniture and electronics that depended on housing started to fail. Manufacturers that depended on borrowing money from financial institutions to buy raw materials could no longer get loans.

Globalization of the economy has been led primarily by transnational corporations, sometimes called multinational corporations (Figure 1-22). A **transnational corporation** conducts research, operates factories, and sells products in many countries, not just where its headquarters and principal shareholders are located.

Every place in the world is part of the global economy, but globalization has led to more specialization at the local level. Each place plays a distinctive role, based on its local assets, as assessed by transnational corporations. A locality may be especially suitable for a transnational corporation to conduct research, to develop new engineering systems, to extract raw materials, to produce parts, to store finished products, to sell them, or to manage operations. In a global economy, transnational corporations remain competitive by correctly identifying the optimal location for each of these activities. Factories are closed in some locations and opened in others.

Changes in production have led to a spatial division of labor, in which a region's workers specialize in particular tasks. Transnationals decide where to produce things in response to characteristics of the local labor force, such as level of skills, prevailing wage rates, and attitudes toward unions. Transnationals may close factories in locations with high wage rates and strong labor unions.



▲ **FIGURE 1-22 GLOBALIZATION OF ECONOMY** Most North Face clothing is manufactured in Latin America and Asia. The company's headquarters is in San Leandro, California, the headquarters of its parent VF Corporation is in Greensboro, North Carolina, and manufacturing is managed from its Hong Kong office.

## GLOBALIZATION OF CULTURE

Geographers observe that increasingly uniform cultural preferences produce uniform “global” landscapes of material artifacts and of cultural values. Fast-food restaurants, service stations, and retail chains deliberately create a visual appearance that varies among locations as little as possible (Figure 1-23). That way, customers know what to expect, regardless of where in the world they happen to be.

Underlying the uniform cultural landscape is globalization of cultural beliefs and forms, especially religion and language. Africans, in particular, have moved away from traditional religions and have adopted Christianity or Islam, religions shared with hundreds of millions of people throughout the world. Globalization requires a form of common communication, and the English language is increasingly playing that role.

As more people become aware of elements of global culture and aspire to possess them, local cultural beliefs, forms, and traits are threatened with extinction. The survival of

a local culture's distinctive beliefs, forms, and traits may be threatened by interaction with such social customs as wearing jeans and Nike shoes, consuming Coca-Cola and McDonald'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. Global standardization of products does not mean that everyone wants the same cultural products. The communications revolution that promotes globalization of culture also permits preservation of cultural diversity. TV, for example, was once limited to a handful of channels displaying one set of cultural values. With the distribution of programming through cable, satellite, and Internet, people now can choose from hundreds of programs in many languages.

With the globalization of communications, people in two distant places can watch the same TV program. At the same time, with the fragmentation of the broadcasting market, two people in the same house can watch different programs. Groups of people on every continent may aspire to wear jeans, but they might live with someone who prefers skirts. In a global culture, companies can target groups of consumers with similar tastes in different parts of the world.



### Pause and Reflect 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.

◀ **FIGURE 1-23 GLOBALIZATION OF CULTURE** McDonald's has more than 32,000 restaurants in 117 countries. To promote global uniformity of its restaurants, the company erects signs around the world that include two golden arches.

## Space: Distribution of Features

### Learning Outcome 1.3.2

Identify the three properties of distribution across space.

**Space** refers to the physical gap or interval between two objects. Geographers observe that many objects are distributed across space in a regular manner, for discernible reasons. Spatial thinking is the most fundamental skill that geographers possess to understand the arrangement of objects across Earth. 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.

Look around the space you currently occupy—perhaps a classroom or a bedroom. Tables and chairs are arranged regularly, perhaps in a row in a classroom or against a wall at home. The room is located in a building that occupies an organized space—along a street or a side of a quadrangle. Similarly, the community containing the campus or house is part of a system of communities arranged across the country and around the world.

Geographers explain how features such as buildings and communities are arranged across Earth. On Earth as a whole, or within an area of Earth, features may be numerous or scarce, close together or far apart. The arrangement of a feature in space is known as its **distribution**. Geographers identify three main properties of distribution across Earth—density, concentration, and pattern.

### DISTRIBUTION PROPERTIES: DENSITY

**Density** is the frequency with which something occurs in space. The feature being measured could be people, houses, cars, trees, or anything else. The area could be measured in square kilometers, square miles, hectares, acres, or any other unit of area.

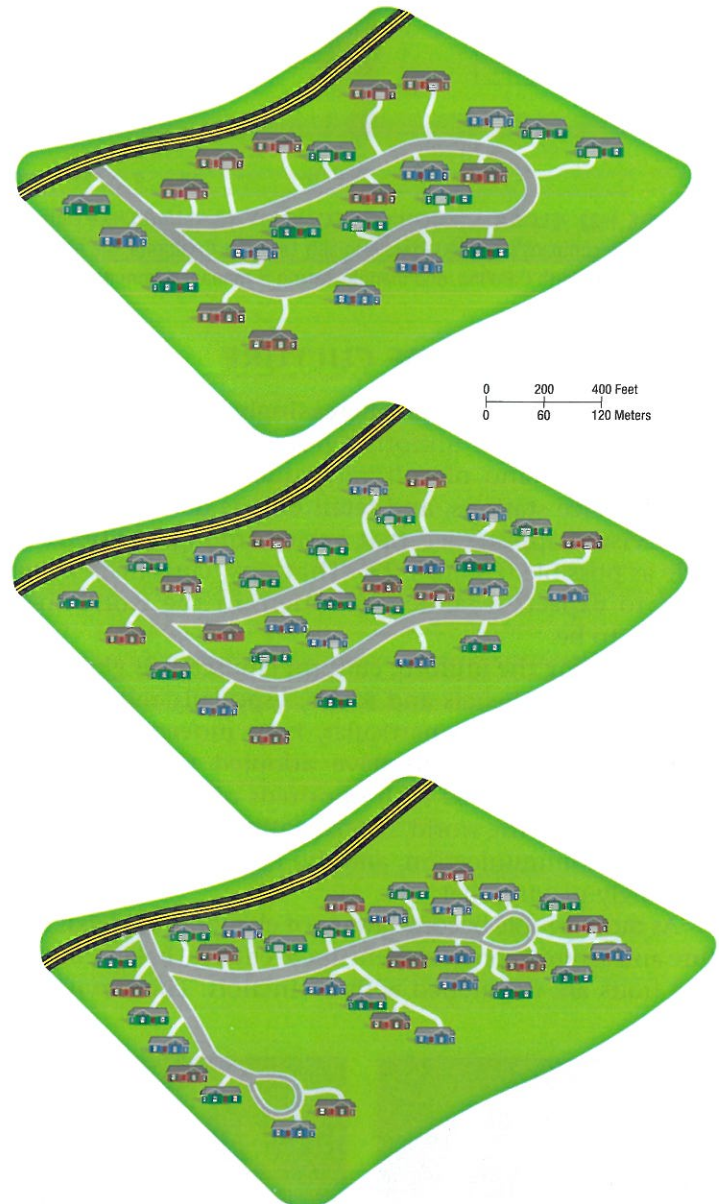
Remember that a large number of a feature does not necessarily lead to a high density. Density involves two measures—the number of a feature and the land area. China is the country with the largest number of people—approximately 1.4 billion—but it does not have the world's highest density. The Netherlands, for example, has only 17 million people, but its density of 400 persons per square kilometer is much higher than China's 140 persons per square kilometer. The reason is that the land area of China is 9.6 million square kilometers, compared to only 37,000 square kilometers for the Netherlands.

High population density is also unrelated to poverty. The Netherlands is one of the world's wealthiest countries, and Mali one of the world's poorest. Yet the Netherlands' density of 400 persons per square kilometer is much larger than Mali's density of 12 persons per square kilometer (see Chapter 2 for more about density).

### 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 relatively far apart, they are *dispersed*. To compare the level of concentration most clearly, two areas need to have the same number of objects and the same size area (Figure 1-24).

Geographers use concentration to describe changes in distribution. For example, the distribution of people across the United States is increasingly dispersed. The total number of people living in the United States is growing

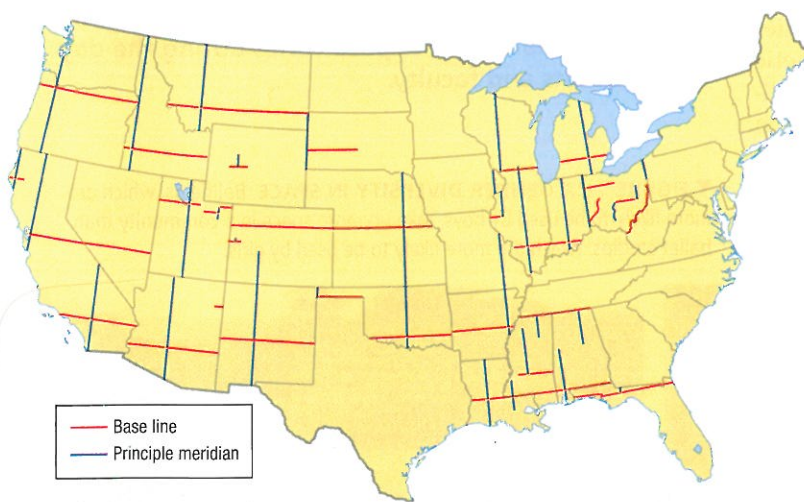


▲ **FIGURE 1-24 DISTRIBUTION OF HOUSES** The top plan for a residential area has a lower density than the middle plan (24 houses compared to 32 houses on the same 82-acre piece of land), but both have dispersed concentrations. The middle and lower plans have the same density (32 houses on 82 acres), but the distribution of houses is more clustered in the lower plan. The lower plan has shared open space, whereas the middle plan provides a larger, private yard surrounding each house.



**▲ FIGURE 1-25 DISTRIBUTION OF BASEBALL TEAMS** The changing distribution of North American baseball teams illustrates the difference between density and concentration.

slowly—less than 1 percent per year—and the land area is essentially unchanged. But the population distribution is changing from relatively clustered in the Northeast to more evenly dispersed across the country.



**▲ FIGURE 1-26 PATTERN: TOWNSHIP AND RANGE** (left) To facilitate the numbering of townships, the U.S. Land Ordinance of 1785 designated several north–south lines as principal meridians and several east–west lines as base lines. (right) As territory farther west was settled, additional lines were delineated. Townships are typically 6 miles by 6 miles.

Concentration is not the same as density. Two neighborhoods could have the same density of housing but different concentrations. In a dispersed neighborhood, each house has a large private yard, whereas in a clustered neighborhood, the houses are close together and the open space is shared as a community park.

The distribution of major-league baseball teams illustrates the difference between density and concentration (Figure 1-25). After remaining unchanged during the first half of the twentieth century, the distribution of major-league baseball teams changed during the second half of the twentieth century. The major leagues expanded from 16 to 30 teams in North America between 1960 and 1998, thus increasing the density. At the same time, 6 of the 16 original teams moved to other locations. In 1952, every team was clustered in the Northeast United States, but the moves dispersed several teams to the West Coast and Southeast. These moves, as well as the spaces occupied by the expansion teams, resulted in a more dispersed distribution.

### DISTRIBUTION PROPERTIES: PATTERN

The third property of distribution is **pattern**, which is the geometric arrangement of objects in space. Some features are organized in a geometric pattern, whereas others are distributed irregularly. Geographers observe that many objects form a linear distribution, such as the arrangement of houses along a street or stations along a subway line.

Objects are frequently arranged in a square or rectangular pattern. 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. The system of townships, ranges, and sections established by the Land Ordinance of 1785 is another example of a square or grid pattern (Figure 1-26).

|   |          |    |          |    |    |    |    |    |  |
|---|----------|----|----------|----|----|----|----|----|--|
| N | T24N R1W |    | T24N R1E |    |    |    |    |    |  |
|   | T23N R1W |    | 6        | 5  | 4  | 3  | 2  | 1  |  |
|   |          |    | 7        | 8  | 9  | 10 | 11 | 12 |  |
|   |          |    | 18       | 17 | 16 | 15 | 14 | 13 |  |
|   |          |    | 19       | 20 | 21 | 22 | 23 | 24 |  |
|   |          |    | 30       | 29 | 28 | 27 | 26 | 25 |  |
|   | 31       | 32 | 33       | 34 | 35 | 36 |    |    |  |
|   | T22N R1W |    | T22N R1E |    |    |    |    |    |  |

## CULTURAL IDENTITY IN SPACE

### Learning Outcome 1.3.3

**Describe different ways in which geographers approach aspects of cultural identity such as gender, ethnicity, and sexuality.**

Patterns in space vary according to gender, ethnicity, and sexuality. Geographers study these cultural traits because they are important in explaining why people sort themselves out in space and move across the landscape in distinctive ways. Critical geographers are especially concerned with the way in which the movement across space and the resulting distribution of activities perpetuate traditional roles of gender, ethnicity, and sexuality.

**DISTRIBUTION ACROSS SPACE.** The importance of space is learned as a child. Which child—the boy or girl—went to Little League and which went to ballet lessons? To which activity is substantially more land allocated in a city—ballfields or dance studios? (See Figure 1-27.) Space may be designed to appeal to a particular cultural group—or repel that group. A bar that appeals to whites may be uncomfortable for persons of color. A park that attracts African Americans may be uncomfortable for whites. One person's haven may generate fear for safety in others. *Behavioral geography* is a branch of human geography that emphasizes the importance of understanding the psychological basis for individual human actions.

Openly homosexual men and lesbian women may be attracted to some locations to reinforce spatial interaction with other gays. Some communities have relatively high concentrations of same-sex couples (Figure 1-28). Similarly, within communities that attract a concentration of gays, businesses that appeal primarily to gays may not be distributed uniformly (Figure 1-29). These communities and neighborhoods may be seen as offering a sympathetic haven for homosexuals and lesbians through inclusive policies and business practices. *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. For example, consider the spatial patterns typical of a household that consists of a husband and wife:

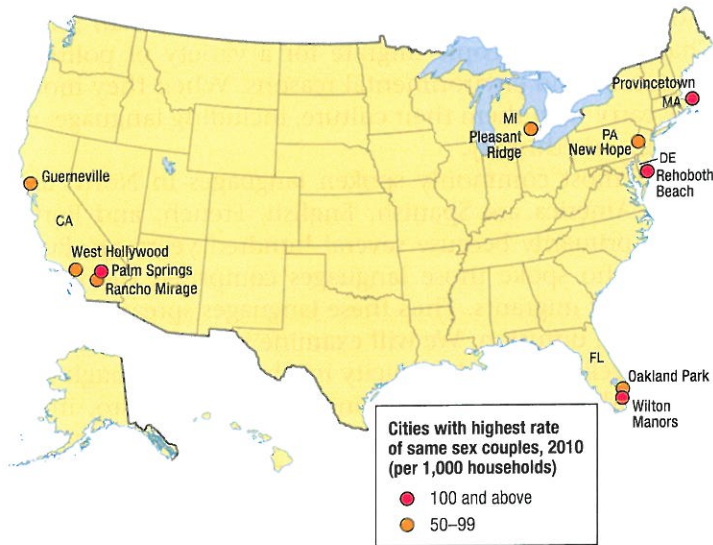
- **Movement by gender: Husband.** He gets in his car in the morning and drives from home to work, where he parks the car and spends the day. In the late afternoon, he collects the car and drives home. The location of the home was selected primarily to ease his daily commute to work.
- **Movement by gender: Wife.** She drives the children to school in the morning, walks the dog, drives to the supermarket, and visits her mother. In the afternoon, she drives the children from school to Little League or ballet lessons. Most American women are now employed at work outside the home, adding a substantial complication to an already complex pattern of moving across urban space. Where is her job located? The family house was already selected largely for access to her husband's place of employment, so she may need to travel across town. Who leaves work early to drive a child to a doctor's office? Who takes a day off work when a child is home sick?
- **Movement by ethnicity.** Movement across space varies by ethnicity because in many neighborhoods the residents are virtually all white people or virtually all persons of color. For example, most African Americans in Dayton, Ohio, live on the west side, whereas the east side is home to a virtually all-white population. As a result, when office workers are heading home from downtown Dayton, persons of color are driving or waiting for buses on the westbound streets, whereas whites are moving on the eastbound streets.

### Pause and Reflect 1.3.3

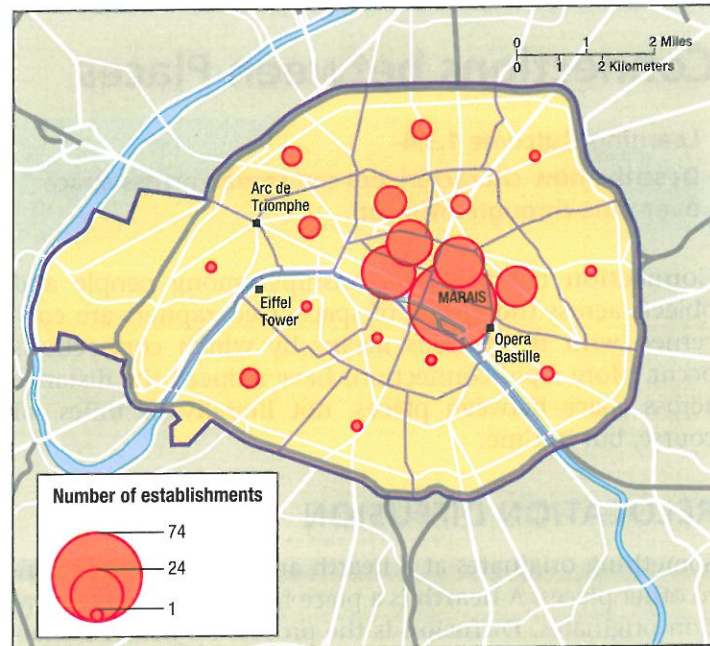
**Using your own campus as the example, describe how movement across space varies during the day for students and faculty.**

▼ **FIGURE 1-27 GENDER DIVERSITY IN SPACE** Ballfields, which are more likely to be used by boys, take up more space in a community than ballet studios, which are more likely to be used by girls.





**▲ FIGURE 1-28 CONCENTRATION OF GAYS** These 10 cities have the highest percentages of same-sex couples living together.



**▲ FIGURE 1-29 GAY-ORIENTED BUSINESSES IN PARIS** In Paris, 140 businesses appealing primarily to gays were identified through four 2004 guidebooks for gay travelers and residents. Gay-oriented businesses were found to be highly clustered in the Marais district of central Paris.

### CULTURAL IDENTITY IN CONTEMPORARY GEOGRAPHY THOUGHT

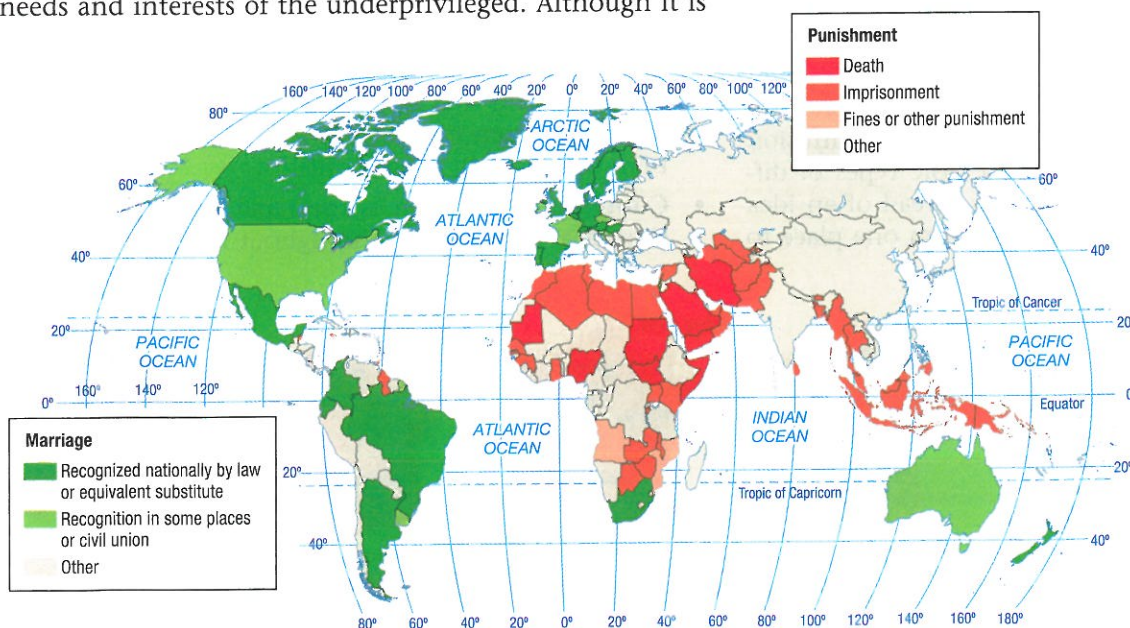
*Poststructuralist geography* emphasizes the need to understand multiple perspectives regarding space. The experiences of women differ from those of men, blacks from whites, and gays from straights. It is important to listen to and to record what different groups have to say about their environment.

Cultural groups compete to organize space. Poststructuralist geographers are especially concerned with cultural groups that are dominated in space, especially women, ethnic minorities, and gays, as well as confrontations that result from the domination. Distinctive spatial patterns by gender, race, and sexual orientation are constructed by the attitudes and actions of others.

Critical geographers use their studies to focus on the needs and interests of the underprivileged. 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 (Figure 1-30).

All academic disciplines and workplaces have proclaimed sensitivity to issues of cultural diversity. For geographers, concern for cultural diversity is not merely a politically correct expediency; it lies at the heart of geography's spatial tradition. Nor is geographers' deep respect for the dignity of all cultural groups merely a matter of political correctness; it lies at the heart of geography's understanding of space.



**◀ FIGURE 1-30 SEXUAL DIVERSITY IN SPACE** The International Lesbian, Gay, Bisexual, Trans and Intersex Association maps the distribution of laws that discriminate on the basis of gender. The harshest laws against male–male or female–female relationships are found in sub-Saharan Africa and Southwest Asia and North Africa. Laws supporting male–male or female–female marriage or equivalent substitute are found primarily in Europe and Latin America.

## Connections between Places

### Learning Outcome 1.3.4

Describe how characteristics can spread across space over time through diffusion.

**Connection** refers to relationships among people and objects across the barrier of space. Geographers are concerned with the various means by which connections occur. More rapid connections have reduced the distance across space between places, not literally in miles, of course, but in time.

### RELOCATION DIFFUSION

Something originates at a hearth and diffuses from there to other places. A **hearth** is a place from which an innovation originates. **Diffusion** is the process by which a characteristic spreads across space from one place to another over time. Geographers document the location of nodes and the processes by which diffusion carries things elsewhere over time.

How does a hearth emerge? A cultural group must be willing to try something new and must be able to allocate resources to nurture the innovation. To develop a hearth, a group of people must also have the technical ability to achieve the desired idea and the economic structures, such as financial institutions, to facilitate implementation of the innovation.

As discussed in subsequent chapters, geographers can trace the dominant cultural, political, and economic features of the contemporary United States and Canada primarily to hearths in Europe and the Middle East. Other regions of the world also contain important hearths. In some cases an idea, such as an agricultural practice, may originate independently in more than one hearth. In other cases, hearths may emerge in two regions because two cultural groups modify a shared concept in two different ways.

For a person, an object, or an idea to have interaction with persons, objects, or ideas in other regions, diffusion must occur. Geographers observe two basic types of diffusion—relocation and expansion. The spread of an idea through physical movement of people from one place to

another is termed **relocation diffusion**. We shall see in Chapter 3 that people migrate for a variety of political, economic, and environmental reasons. When they move, they carry with them their culture, including language, religion, and ethnicity.

The most commonly spoken languages in North and South America are Spanish, English, French, and Portuguese, primarily because several hundred years ago Europeans who spoke those languages comprised the largest number of migrants. Thus these languages spread through relocation diffusion. We will examine the diffusion of languages, religions, and ethnicity in Chapters 5 through 7.

Introduction of a common currency, the euro, in 12 European countries in 2002 gave scientists an unusual opportunity to measure relocation diffusion from hearths (Figure 1-31). Although a single set of paper money was issued, each of the 12 countries minted its own coins in proportion to its share of the region's economy. A country's coins were initially distributed only inside its borders, although the coins could also be used in the other 11 countries. Scientists in France took month-to-month samples to monitor the proportion of coins from each of the other 11 countries. The percentage of coins from a particular country is a measure of the level of relocation diffusion to and from France.

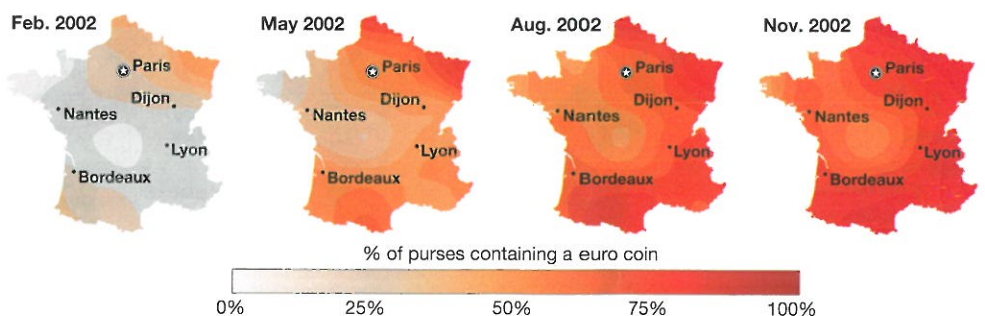
### EXPANSION DIFFUSION

The spread of a feature from one place to another in an additive process is **expansion diffusion**. This expansion may result from one of three processes:

- **Hierarchical diffusion** is the spread of an idea from persons or nodes of authority or power to other persons or places (Figure 1-32). Hierarchical diffusion may result from the spread of ideas from political leaders, socially elite people, or other important persons to others in the community. Innovations may also originate in a particular node or core region of power, such as a large urban center, and diffuse later to isolated rural areas on the periphery. Hip-hop or rap music is an example of an innovation that originated in urban areas, though it diffused from low-income African Americans rather than from socially elite people.
- **Contagious diffusion** is the rapid, widespread diffusion of a characteristic throughout the population. As

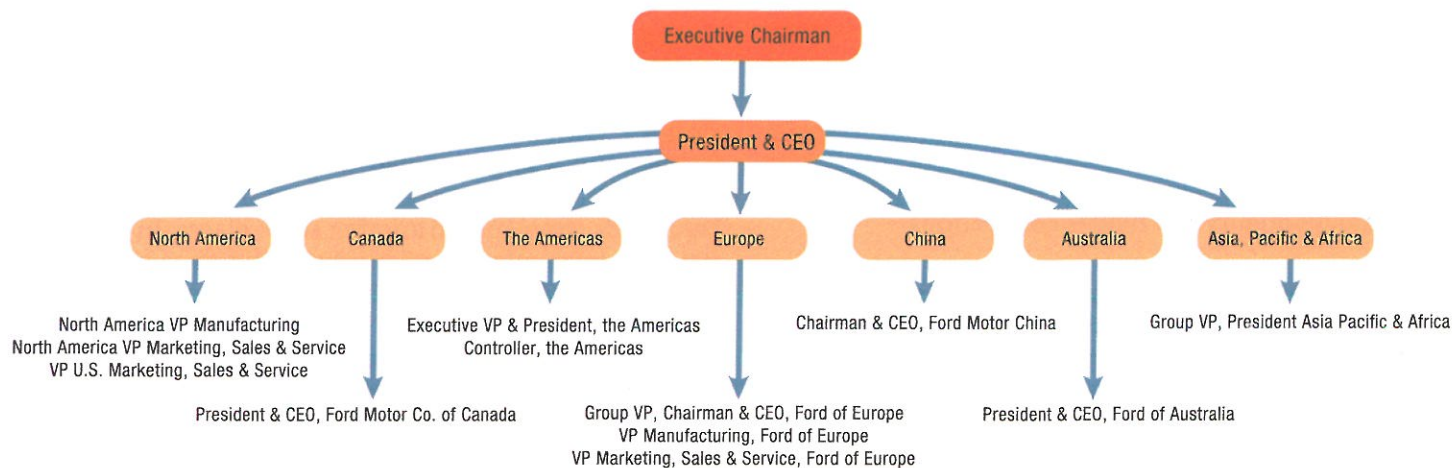
► **FIGURE 1-31** RELOCATION DIFFUSION: EURO COINS

Introduction of a common currency, the euro, in 12 European countries on January 1, 2002, gave scientists an unusual opportunity to measure relocation diffusion. The percentage of euro coins circulating in France but minted in other countries is a measure of the level of relocation diffusion into France.



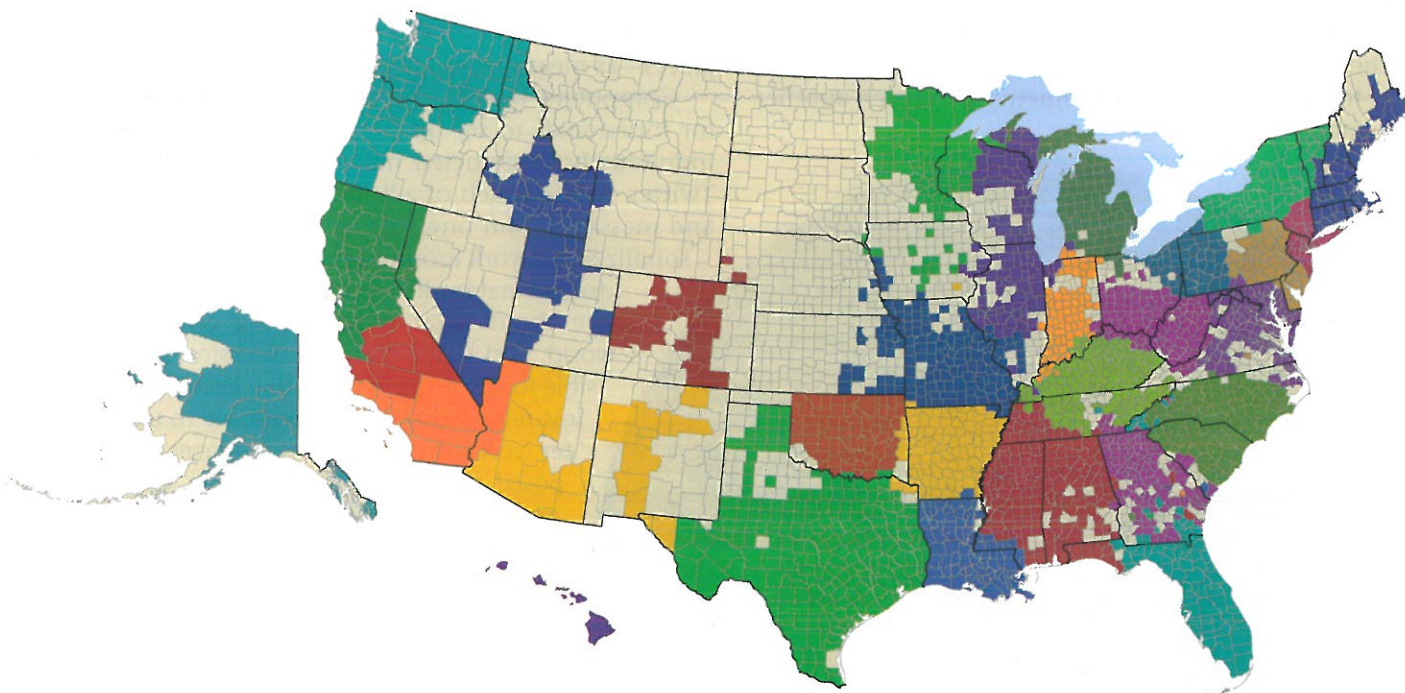


### Regional Hierarchy of Ford Motor Company



▲ **FIGURE 1-32 HIERARCHICAL DIFFUSION: FORD LEADERSHIP**

Ford Motor Company's top executives are organized by world regions, according to where the company sells most of its vehicles.



▲ **FIGURE 1-33 CONTAGIOUS DIFFUSION: TEXT MESSAGING**

Cities are hearths of diffusion for many features. AT&T, with the help of Massachusetts Institute of Technology and IBM, mapped the origin and destination of all SMS messages for a month. Each region on the map shows a clustering of senders and recipients of messages. Areas in gray had too few senders or recipients to map.

the term implies, this form of diffusion is analogous to the spread of a contagious disease, such as influenza. Contagious diffusion spreads like a wave among fans in a stadium, without regard for hierarchy and without requiring permanent relocation of people. The rapid adoption throughout the United States of AIDS prevention methods and new medicines is an example of contagious diffusion. An idea placed on the World Wide Web spreads through contagious diffusion ("goes viral") because web surfers throughout the world have access to the same material simultaneously—and quickly (Figure 1-33).

- **Stimulus diffusion** is the spread of an underlying principle even though a characteristic itself apparently fails to diffuse. For example, innovative features of Apple's iPhone and iPad have been adopted by competitors.

Expansion diffusion occurs much more rapidly in the contemporary world than it did in the past. Hierarchical diffusion is encouraged by modern methods of communication, such as computers, texting, blogging, Twittering, and e-mail. Contagious diffusion is encouraged by use of the Internet, especially the World Wide Web. Stimulus diffusion is encouraged by all of the new technologies.

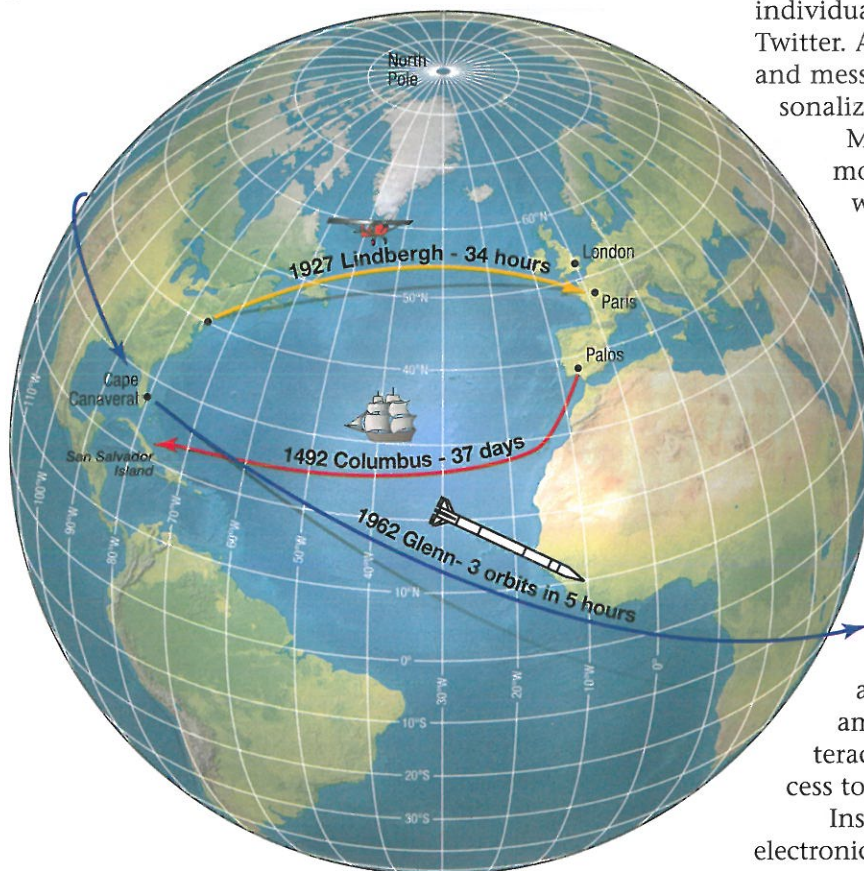
## SPATIAL INTERACTION

### Learning Outcome 1.3.5

**Explain how places are connected through networks and how inequality can hinder connections.**

In the past, most connections among cultural groups required the physical movement of settlers, explorers, and plunderers from one location to another. As recently as A.D. 1800, people traveled in the same ways and at about the same speeds as in 1800 B.C.—they were carried by an animal, took a sailboat, or walked.

The farther away someone is from another, the less likely the two are to interact. 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 much less time. Geographers apply the term **space-time compression** to describe the reduction in the time it takes for something to reach another place (Figure 1-34).



▲ **FIGURE 1-34 SPACE-TIME COMPRESSION** Transportation improvements have shrunk the world. In 1492, Christopher Columbus took 37 days (nearly 900 hours) to sail across the Atlantic Ocean from the Canary Islands to San Salvador Island. In 1912, the *Titanic* was scheduled to sail from Queenstown (now Cobh), Ireland, to New York in about 5 days, although two-thirds of the way across, after 80 hours at sea, it hit an iceberg and sank. In 1927, Charles Lindbergh was the first person to fly nonstop across the Atlantic, taking 33.5 hours to go from New York to Paris. In 1962, John Glenn, the first American to orbit in space, crossed above the Atlantic in about a half-hour and circled the globe three times in 5 hours.

Interaction takes place through a **network**, which is a chain of communication that connects places. Some airlines, for example, have networks known as “hub-and-spokes”. With a hub-and-spokes network, an airline flies planes from a large number of places into one hub airport within a short period of time and then a short time later sends the planes to another set of places. In principle, travelers originating in relatively small towns can reach a wide variety of destinations by changing planes at the hub airport.

To be connected with another place in the modern world, we do not need to travel at all. Ideas that originate in a hearth are now able to diffuse rapidly to other areas through communications networks. One example is the TV network (for example, BBC in the United Kingdom, CBC in Canada, NBC in the United States), which comprises a chain of stations simultaneously broadcasting to distant places the same program, such as a football game. Through a communications network, diffusion from one place to another is instantaneous in time, even if the physical distance between places—as measured in kilometers or miles—is large.

Computers, tablets, and smart phones make it possible for individuals to set up their own connections through individually constructed networks such as Facebook and Twitter. At the touch of a button, we can transmit images and messages from one part of the world to our own personalized network around the world.

Modern networks make it possible for us to know more about what is happening elsewhere in the world, and space-time compression makes it possible for us to know it sooner. Distant places seem less remote and more accessible to us. With better connections between places, we are exposed to a constant barrage of cultural traits and economic initiatives from people in other regions, and perhaps we may adopt some of these cultural and economic elements.

## UNEQUAL ACCESS

Electronic communications have played an especially important role in removing barriers to interaction between people who are physically far from each other. Physical barriers, such as oceans and deserts, can still retard interaction among people. In the modern world, barriers to interaction are more likely to derive from unequal access to electronics.

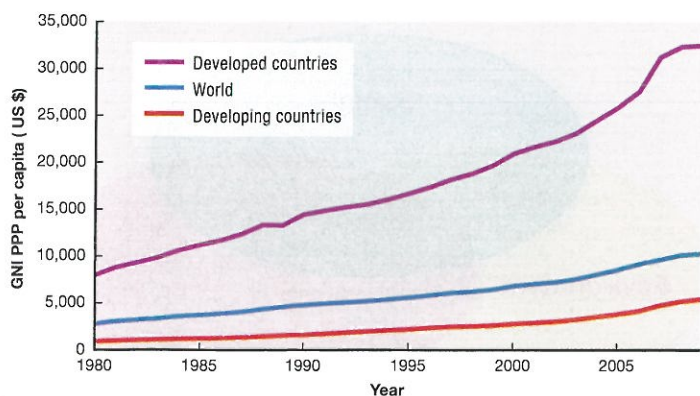
Instantaneous expansion diffusion, made possible by electronic communications, was once viewed as the “death” of geography because the ease of communications between distant places removed barriers to interaction. In reality, because of unequal access, geography matters even more than before.

People have unequal access to interaction in part because the quality of electronic service varies among places. Internet access depends on availability of electricity to power the

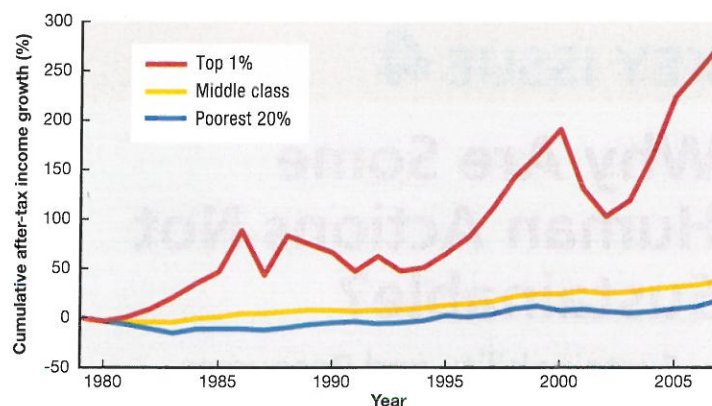
computer and a service provider. Seconds count. Broadband service requires proximity to a digital subscriber line (DSL), a cable line, or other services. Most importantly, a person must be able to afford to pay for the communications equipment and service.

Global culture and economy are increasingly centered on the three core, or hearth, regions of North America, Europe, and Japan. These three regions have a large percentage of the world's advanced technology, capital to invest in new activities, and wealth to purchase goods and services. From "command centers" in the three major world cities of New York, London, and Tokyo, key decision makers employ modern telecommunications to send orders to factories, shops, and research centers around the world—an example of hierarchical diffusion. Meanwhile, "nonessential" employees of the companies can be relocated to lower-cost offices outside the major financial centers. For example, Fila maintains headquarters in Italy but has moved 90 percent of its production of sportswear to Asian countries. Mitsubishi's corporate offices are in Japan, but its electronics products are made in other Asian countries.

Countries in Africa, Asia, and Latin America contain three-fourths of the world's population and nearly all of its population growth. However, these countries find themselves on a periphery, or outer edge, with respect to the wealthier core regions of North America, Europe, and Japan. Global investment arrives from the core through hierarchical diffusion of decisions made by transnational corporations. People in peripheral regions, who once toiled in isolated farm fields to produce food for their families, now produce crops for sale in core regions or have given up farm life altogether and migrated to cities in search of jobs in factories and offices. As a result, the global economy has produced greater disparities than in the past between the levels of wealth and well-being enjoyed by people in the core and in the periphery. The increasing gap in economic conditions between regions in the core and periphery that results from the globalization of the economy is known as **uneven development** (Figure 1-35).



▲ **FIGURE 1-35 INCOME GAP BETWEEN RICH AND POOR COUNTRIES** Income has increased much more rapidly in developed countries than in developing ones.



▲ **FIGURE 1-36 INCOME GROWTH OF THE WEALTHIEST 1 PERCENT** Between 1979 and 2007, the income of the wealthiest 1 percent in the United States grew by 278 percent, compared to an increase of approximately 34 percent for everyone else.

Economic inequality has also increased within countries. In the United States, the share of the national income held by the wealthiest 1 percent increased from 7 percent to 17 percent between 1979 and 2007, according to the Congressional Budget Office. The income of the wealthiest 1 percent increased by 278 percent, whereas the income of the poorest 20 percent increased by 18 percent, and the income of those in the middle increased by 38 percent (Figure 1-36).

In a global culture and economy, every area of the world plays some role intertwined with the roles played by other regions. Workers and cultural groups that in the past were largely unaffected by events elsewhere in the world now share a single economic and cultural world with other workers and cultural groups. The fate of an autoworker in Detroit is tied to investment decisions made in Mexico City, Seoul, Stuttgart, and Tokyo.

### Pause and Reflect 1.3.5

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

### CHECK-IN: KEY ISSUE 3

#### Why Are Different Places Similar?

- ✓ Geographers examine at all scales, though they are increasingly concerned with the global scale.
- ✓ Distribution has three properties—density, concentration, and pattern—and different cultural groups display different distributions in space.
- ✓ Places are connected through networks, and phenomena spread through relocation and expansion diffusion.
- ✓ In spite of space-time compression, peripheral regions in the global economy often have unequal access to the goods and services available in core regions.

## KEY ISSUE 4

# Why Are Some Human Actions Not Sustainable?

- Sustainability and Resources
- Sustainability and Human–Environment Relationships

### Learning Outcome 1.4.1

Describe the three pillars of sustainability.

Geography is distinctive because it encompasses both social science (human geography) and natural science (physical geography). This book focuses on human geography but doesn't forget that humans are interrelated with Earth's atmosphere, land, water, and vegetation, as well as with its other living creatures.

From the perspective of human geography, nature offers a large menu of resources available for people to use. 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 substance is merely part of nature until a society has a use for it. Food, water, minerals, soil, plants, and animals are examples of resources.

## Sustainability and Resources

Earth's resources are divided between those that are renewable and those that are not:

- 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.

Geographers observe two major misuses of resources:

- Humans deplete nonrenewable resources, such as petroleum, natural gas, and coal.
- Humans destroy otherwise renewable resources through pollution of air, water, and soil.

The use of Earth's renewable and nonrenewable natural resources in ways that ensure resource availability in the future is **sustainability**. Efforts to recycle metals, paper, and plastic, develop less polluting industrial processes, and protect farmland from suburban sprawl are all examples of practices that contribute to a more sustainable future.

## THREE PILLARS OF SUSTAINABILITY

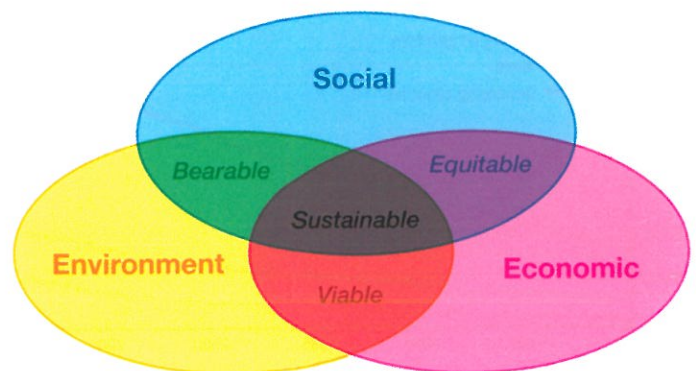
According to the United Nations, sustainability rests on three pillars: environment, economy, and society. The UN report *Our Common Future* is a landmark work in recognizing sustainability as a combination of natural and human elements. The report, released in 1987, is frequently called the Brundtland Report, named for the chair of the World Commission on Environment and Development, Gro Harlem Brundtland, former prime minister of Norway.

Sustainability requires 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. To be sustainable, the amount of timber cut down in a forest, for example, or the number of fish removed from a body of water must remain at a level that does not reduce future supplies.

The Brundtland Report argues that sustainability can be achieved only by bringing together environmental protection, economic growth, and social equity (Figure 1-37). The report is optimistic about the possibility of promoting environmental protection at the same time as economic growth and social equity.

**THE ENVIRONMENT PILLAR.** The sustainable use and management of Earth's natural resources to meet human needs such as food, medicine, and recreation is **conservation**. Renewable resources such as trees and wildlife are conserved if they are consumed at a less rapid rate than they can be replaced. Nonrenewable resources such as petroleum and coal are conserved if we use less today in order to maintain more for future generations (Figure 1-38, left).

Conservation differs from **preservation**, which is the maintenance of resources in their present condition, with as little human impact as possible. Preservation takes the view that the value of nature does not derive from human needs and interests but from the fact that every plant and animal living on Earth has a right to exist and should be preserved, regardless of the cost. Preservation does not regard nature as a resource for human use. In contrast, conservation is compatible with development but only



▲ **FIGURE 1-37 THREE PILLARS OF SUSTAINABILITY** The UN's Brundtland Report considers sustainability to be a combination of environmental protection, economic development, and social equity.