MARCO LEARNING®

AP® HUMAN GEOGRAPHY

STUDY GUIDE PACK

UNIT ONE: THINKING GEOGRAPHICALLY

GEOGRAPHY AND MAPS

You are who you are because of *where* you are—and human geography explains the *why* behind the *where*. It is a science that analyzes **spatial patterns and relationships**, both historical and modern. Geography's most important tool in showcasing these patterns is a **map**. **Cartography** is the science of mapmaking, and the two main types of maps are reference and thematic. **Reference maps** show the location of human and physical objects, while **thematic maps** show the spatial arrangement of features or data. Examples of spatial patterns shown on maps include **absolute** and **relative location** and **distance**, **direction, elevation, dispersal,** and **clustering.** These patterns can be portrayed on various maps such as **physical, political, choropleth, symbol, dot, topographic,** and **isoline.**

Each map is unique in the information it shows, and no map is perfect. Because a map is a 2-D representation of a spherical object, all map projections distort some spatial property. The four types of **map distortion** are **Shape, Area, Distance,** and **Direction** (SADD). To balance map distortion, many different **map projections** have been created over time. Some of the most used map projections are the **Mercator, Robinson,** and **Winkel Tripel.**

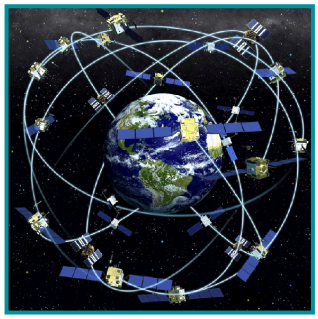
To think geographically is to consider how human activities are connected to social, political, economic, environmental, and demographic characteristics. Geographers employ a spatial perspective to explain the patterns and relationships created by human activities.

THINKING GEOGRAPHICALLY

Human geography examines all the social science disciplines. At the heart of its study is a foundation of all the social studies—population and migration, culture, politics, economic development, and urban and rural land uses.

GEOSPATIAL DATA AND TECHNOLOGIES

Geospatial data is information pertaining to a location of Earth. This data can be gathered, displayed, and used in several different ways. All data exists as one of two types—quantitative and qualitative. **Quantitative data** is represented by numbers, whereas qualitative is not. Examples of quantitative data are income, census information, and birthrates. Examples of **qualitative data** include interviews, travel narratives, and visual observations. **Geospatial technologies** used to acquire data include **GPS (global position system), GIS (geographic information system), remote sensing,** and **online mapping**. These technologies require modern technology, such as satellites, computer software, and aircraft.



Geospatial data is used for personal, business, and governmental purposes. Personal use could be as simple as using a GPS receiver on a cell phone for directions, whereas businesses and governments many use data to make important decisions, such as the optimal location for a new restaurant, school, or professional sports stadium. Geospatial data can be analyzed to reveal patterns about the spatial arrangement of phenomena. Geographic concepts used to illustrate these patterns include distance decay, distribution, and networks.

HUMANS AND THE ENVIRONMENT

The environment has played a crucial role in the development of human societies. The study of human culture and its relationship to the environment is **cultural ecology**. The two theories of cultural ecology are **environmental determinism** and **possibilism**. Environmental determinism is the belief that human behavior is caused by the environment, whereas possibilism is the belief that the environment may limit or influence human behavior, not cause it. As humans continue to modify, adapt, and depend on the environment, issues over sustainability, natural resource use, and land use emerge.

SENSE OF PLACE AND REGIONALIZATION

Each location on Earth has human and physical characteristics that make up its **place**. These characteristics can arouse a multitude of emotions—such as loyalty, pride, and shame, among others—all of which, create a **sense of place**. Often, **toponyms**, or names given to a location, can reflect important people or physical features. A location absent of any strong emotional ties experiences **placelessness**.

Regions are defined based on one or more unifying characteristics, spatial patterns, or human activity. There are three main types of regions—**formal, functional,** and **perceptual/vernacular**. A **formal region** is characterized by one or more common features, like the Gulf Coast, which shares a similar climate. **Functional regions** are organized around a central point, like the broadcast area of a news or radio station. **Perceptual/vernacular regions** are based on how humans perceive it to exist, like the South—not everyone regards "the South" as the same geographic area—it can differ based on human perception. The boundaries of regions are constantly changing, overlapping, and are often disputed.

FROM LOCAL TO GLOBAL

From buying clothes at a mall to purchasing an international plane ticket from your phone, human activities are intertwined with geography. Modern communication and technology have accelerated the rate at which humans are connected—a process known as **globalization**. As people **migrate** and **transnational corporations** diffuse ideas and products, people are becoming more and more connected. Aided by technological advancements, humans can now travel larger distances over shorter time periods, a concept known as **time-space compression**.

But not all human activities are global in nature—some are more connected to smaller areas. There are **four scales of analysis** in geography—**global, regional, national,** and **local**. Geospatial data at these four scales can show variations in data interpretation. **Local** refers to immediate surroundings, such as neighborhood, city, county, and state. **National** refers to a country. **Regional** refers to a collection of other units, such as a collection of U.S. states—like the Midwest and Pacific Northwest—or a collection of countries—like Latin America and the Middle East. **Global** refers to the context of most or all of Earth.

NOTES

UNIT TWO: POPULATION AND MIGRATION PATTERNS AND PROCESSES

POPULATION DISTRIBUTION

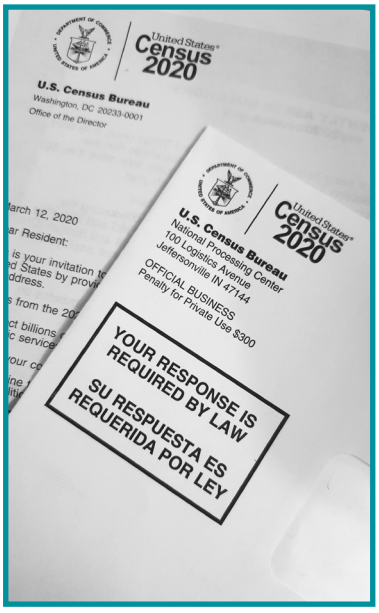
Human populations are not evenly distributed across Earth. The portion of Earth occupied by permanent human settlements is called the **ecumene**. Historically, being close to water—both ocean coasts and rivers—has had the most influence on where people live. Humans will tend to avoid living in places that are too high, wet, dry, or cold. The **carrying capacity,** or ability to support human life, is too small in these areas.

Today, the largest clusters of population can be found in: **South Asia, Southeast Asia, East Asia, Europe, West Africa,** and **Eastern North America**. These regions account for over 70% of Earth's total population. To describe relationships between resource use and population distribution, geographers use **arithmetic density**—the number of people in an area. Geographers will also use **physiological density**—the number of people per unit of arable land. **Arable** land is land suited for agriculture. Lastly, geographers will use **agricultural density**—the number of farmers per unit of arable land.

Humans sort themselves out across Earth in unique ways. The distribution and movement of people has created a mosaic of human activities that dot Earth's landscape.

POPULATION AND MIGRATION

How people live—and where people live—greatly impacts the various economic, social, political, environmental, and demographic patterns and processes of geography.



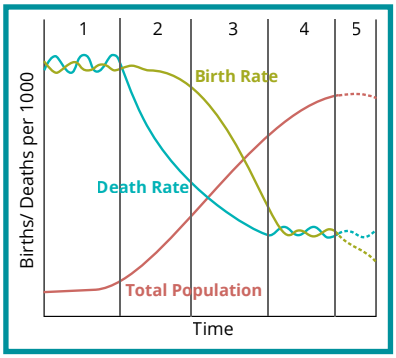
DEMOGRAPHIC DATA

Demography is the statistical study of human populations. Demographers analyze data about human populations—data about gender, age, health, birth and death rates, among others. Populations can change for three reasons: births, deaths, and migration. Geographers use the **natural increase rate (NIR)** to explain population growth; NIR is calculated by subtracting deaths from births.

Important demographic measurements include the **CBR** and **CDR (crude birth** and **death rate)**, which is the number of people who are born or die per 1,000 people. **IMR (infant mortality rate)** is the number of deaths per 1,000 live births. **Sex ratio** is the ratio of males to females in a given population. Geographers use **doubling times**, **J-curves**, and **S-curves** to calculate, predict, and plot population growth trends and data.

DEMOGRAPHIC TRANSITION MODEL

Changes in birth and death rates are illustrated on the Demographic Transition Model (DTM). This five-stage model helps explain the causes and consequences of various demographic conditions. As a country progresses from one stage to the next, various social changes occur. For example, as women gain access to eduction, employment, and contraceptives, they will have fewer children. This is typical of the developed world and can be shown in Stages 4 and 5 of the DTM.

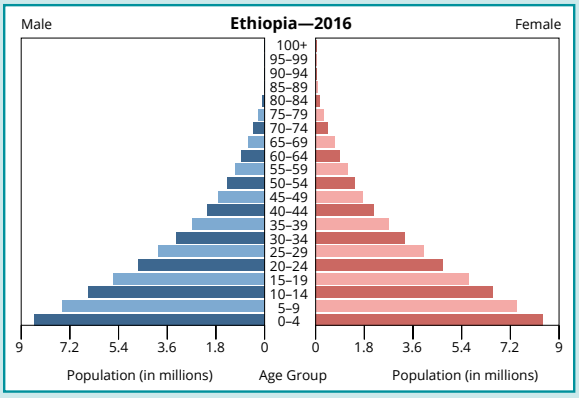


POPULATION PYRAMIDS

An important tool in demography is a population pyramid. These show the age and sex breakdown of a specific population. Population pyramids exist at different scales—one may reveal data for a country, while another may show data for a city. Demographers can use population pyramids to analyze the past and predict future concerns. Population pyramids can be used to identify a country's placement on the DTM. No country is in Stage 1, as its very high birth and death rates are reflective of hunting and gathering societies.

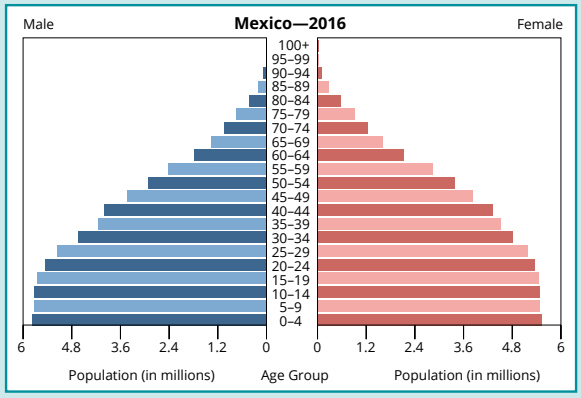
Stage 2: Ethiopia

Large base due to high birth rates. Women lack access to contraceptives and education and employment opportunities.



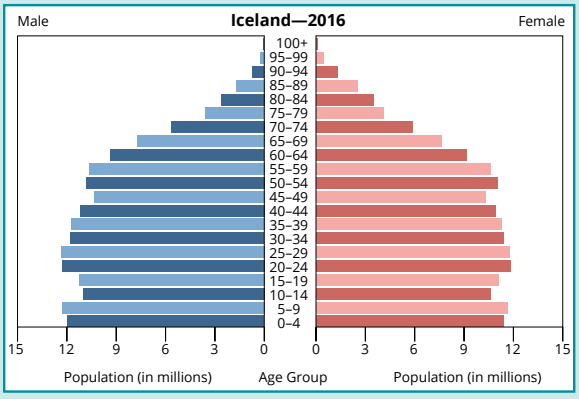
Stage 3: Mexico

Base narrows due to a decrease in fertility and births as more women have access to contraceptives and education and jobs.



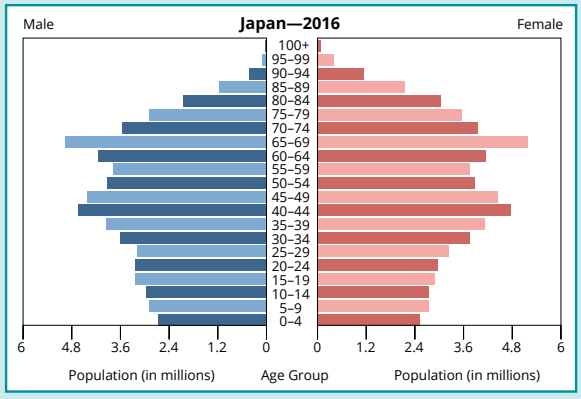
Stage 4: Iceland

Top widens due to people living longer. Fertility rates are low as women are an active part of economic and political decisions.



Stage 5: Japan

Top portion becomes widest as population grays. Deaths outnumber births as most people are beyond their reproductive years.



DEMOGRAPHIC CONSEQUENCES

Many demographic characteristics are influenced by level of economic development—the developing world has higher rates of natural increase than the developed world. **Dependency ratio** is the ratio of non-workers to workers. The developing world has high dependency ratios due to its large number of people too young to work, whereas the developed world may have high dependency ratios due to the large number of people who are too old to work. Countries may employ natalist policies designed to increase or decrease birth rates. **Pro-natalist policies** encourage more births, while **anti-natalist policies** discourage births. One of the most important theories used to predict and explain population growth is by **Thomas Malthus**. In the late 1700s, he predicted population would grow exponentially if left unchecked and would lead to massive food shortages. Today, **Neo-Malthusians** apply his theory to resources like energy, water, and arable land.

MIGRATION

Migration is a permanent move to a new location. People migrate because of push and pull factors—a **push factor** causes someone to move—or **emigrate**, whereas a **pull factor** attracts someone to a new location—or **immigrate**. An **intervening obstacle** is something that prevents migration. Push and pull factors and intervening obstacles can be economic, social, political, or environmental. There are several types of migration—but most are voluntary. Types of **voluntary migration** include **transhumance, chain, circular,** and **guest worker**. Forced migration occurs when the migrant is forced to leave, fearing loss of life. Examples of **forced migration** include slavery and other events that produce **refugees, internally displaced persons (IDPs),** and **asylum seekers**. Globally, the largest migration flows are from **rural** to **urban** areas and from the **developing world** to the **developed world**. **Ernst Ravenstein** was a geographer whose research served as the "laws" for migration research and theory. He concluded that most migrants are young adults and likely to move shorter distances.

UNIT THREE: CULTURAL PATTERNS AND PROCESSES

CULTURE AND THE CULTURAL LANDSCAPE

Culture is the collection of beliefs and artifacts that represent values and social institutions. Culture can be material or non-material. **Material culture** is comprised of concrete artifacts, while **non-material culture** includes abstract beliefs and ideals. Clothing worn for religious reasons would be considered material culture, while belief in that religion would be non-material. Geographers divide the study of culture into folk and popular culture. **Folk culture** is typical of isolated, homogenous communities, while popular culture is seen in large, heterogenous societies with access to modern communication and technology.

The **cultural landscape** is the imprint humans place on their environment. It is the combination of human activities. Each culture creates a distinctive cultural landscape. These landscapes are the combinations of physical features, agricultural and industrial practices, religious and linguistic characteristics, and other expressions of culture, like architecture.

No two places are the same—people will represent who they are—and what they value—based on how they shape the use of space.

CULTURAL PATTERNS AND PROCESSES

As communication technology increases, so too does the spread of ideas and information. Cultural ideas and innovations change, disappear, and influence so much of human identity.

DIFFUSION

Migration is the movment of people across space. But when ideas, behaviors, and information spreads, it is called **diffusion**. Cultural characteristics originate in **hearths** and spread differently. The two categories of diffusion are **relocation** and **expansion.** There are four types of expansion diffusion: **contagious, stimulus, hierarchichal,** and **reverse hierarchical**. As interactions between cultures occur, new forms of cultural expressions are created. **Syncretism** is when a group combines elements of different cultures to forge a new cultural idea.

Historically, the diffusion of ideas has been coupled with the migration of people. Through colonialism, imperialism, and trade, cultural practices were spread all over Earth. Modern communication technologies—like the Internet—have accelerated cultural interactions and diffusion among people, thus changing cultural practices. **Cultural convergence** is the tendency for cultures to become more and more similar over time, whereas **cultural divergence** occurs when cultures become less and less similar over time.

CONSEQUENCES OF DIFFUSION

As ideas and information spread across space over time, various consequences emerge—both good and bad. For example, as the English language becomes more widely accepted, it could lead to the loss of traditional languages—but its spread has also made international trade and travel much easier. **Acculturation** is when an ethnic group moves to a new location and adopts both cultures—the culture they left and the culture they entered. **Assimilation** occurs when the migratory group no longer resembles the culture they left—they resemble the culture they entered. **Multiculturalism** is created when various cultures co-exist. In contrast, **nativism** is the belief that foreign cultures should be excluded from the accepted cultural beliefs and expressions of a society.

THE GEOGRAPHY OF LANGUAGES

Language is mutually understood sounds used to communicate between people. A **dialect** is a regional variety of a language. For example, English is a language with many dialects—English in Australia is different from that spoken in America. Dialects exists within countries, too. English is not spoken the same across all regions of the United States. The boundary between linguistic differnces is called an **isogloss**.

Some global estimates put the number of spoken languages over 6,000; however, the vast majority of these languages are spoken in very small numbers. The most spoken native, or first learned, language is Mandarin Chinese, but the most spoken language is English. When speakers of different languages communicate using a third language, that language is called a **lingua franca**. English is considered the world's lingua franca.

Because of their shared history, languages can be organized into **familes**, **branches**, and can be displayed on a **language tree**. The world's most spoken language family is the **Indo-European**, which includes English, Spanish, Hindi, Bengali, Portuguese, among others. Mandarin is in the second largest language family—**Sino Tibetan**.

THE GEOGRAPHY OF RELIGIONS

Few other human activities have influenced the use of space the way religion has. Religious artifacts have long marked Earth's landscape. Geographers categorize religions into two categories: ethnic and universalizing. An **ethnic religion** is a religion related to—and attempts to appeal to—a particular ethnicity. The most practiced ethnic religions are Hinduism and Judaism. Ethnic religions are typically located near their hearths or spread through relocation diffusion. **Universalizing religions** attempt to appeal to all people, regardless of ethnicity. The most practiced universalizing religions are Christianity, Islam, Buddhism, and Sikhism. Universalizing religions diffuse through both relocation and expansion diffusion.

Religions interpret events, people, and artifacts differently. Even within a religion, there can be disagreements on these interpretations. Consequently, religions can be broken down into **branches, denominations,** and **sects**. Strict interpretation of a religion's holy text is called **fundamentalism**. Belief in the holy text with some human interpretation is called **conservatism**, whereas belief with higher degrees of human interpretation is called **liberalism**.

GLOBALIZATION

Globalization is the process of becoming world-wide in scope. **Globalization** increases the likelihood of interaction between places, regardless of distance. Geographers can study globalization by analyzing both economy and culture. Today's economy is one characterized by globalization and interdependence. **Transnational corporations** conduct business in multiple countries and help create an interdependent global distribution of goods. Consumers in the developed world often purchase products manufactured or grown in the developing world. The globalization of culture can be seen as the cultural landscapes of the world become increasingly similar. As artifacts and ideas of popular culture spread around the world, use of space can be become less distinctive. For example, the heart of every major city contains high-rise skyscrapers, and distinguishing one downtown from the next can become difficult.

NOTES

UNIT FOUR: POLITICAL PATTERNS & PROCESSES

POLITICAL UNITS

Earth's space is organized into various political units because of the historical and modern spread of people and ideas. Each political unit has characteristics that distinguish it from others. A **state** refers to an independent **country**. A state has **sovereignty**, which is total control over its foreign and domestic affairs. The United States and France are examples of states.

A **nation** is a group of people who share similar cultural characteristics, such as heritage, traditions, and beliefs. Examples of nations include the Kurds and Palestinians—they each share a common culture and express **self-determination**, the belief that ethnicities should have their own state. However, since the Kurds and Palestinians do not have their own state, they are considered **stateless nations**.

When a nation corresponds to the boundaries of a state, it creates a **nation-state**. Japan and Iceland are examples of nation-states. A nation that covers more than one state is a **multi-state nation**, such as North and South Korea. A **multi-national state** is a state with multiple nations, such as the United Kingdom and Russia. Other political units are **autonomous** and **semi-autonomous regions**, which have some degree of self-rule, but not total sovereignty. Greenland is autonomous, while Native American reservations are semi-autonomous.

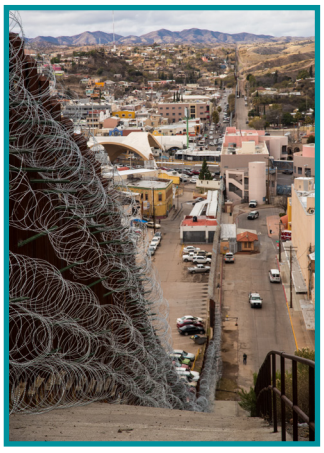
The world is made up of political entities that engage in cooperation and competition. Geopolitics is the relationship between geography and international politics.

POLITICAL PATTERNS & PROCESSES

The location of boundaries, state sovereignty, and balances of power have been influenced by geographic processes and events—both historical and modern.

POLITICAL BOUNDARIES

Where humans live influences *how* humans live—and *where* humans live is dictated by boundaries. Boundaries are established to separate geographic territory. These separations can be contested and may or may not follow other human divisions, such as cultural or national. Boundaries can be **defined**, meaning they are established by a legal document. Boundaries can also be delimited and demarcated—**delimited boundaries** show the extent of territory on a map, and **demarcated boundaries** are those identified with physical objects on the landscape, such as a sign, wall, or fence. Boundaries that cross water are called **maritime boundaries**.



The **United Nations Convention** on the **Law of the Sea (UNCLOS)** established the territorial claims of states into ocean waters.

Many types of political boundaries are used to separate countries and internal divisions of space, such as cities and counties. **Relic boundaries** no longer serve to separate space but are still part of the cultural landscape, such as the Berlin Wall and the Great Wall of China. **Subsequent boundaries** are drawn in response to cultural or economic differences, such as the boundary between Northern Ireland (U.K) and Ireland. **Antecedent boundaries** were used to separate space before significant human settlement, such as the U.S. and Canada border along the 49th parallel. **Physical boundaries** follow physical features of Earth's surface, such as rivers and mountains, whereas **geometric boundaries** are straight lines drawn by humans. **Superimposed boundaries** are drawn by outside forces and placed on top of pre-existing boundaries, such as the boundaries drawn in Africa by Europeans at the **Berlin Conference** or the **demilitarized zone (DMZ)** separating North and South Korea.

POLITICAL GOVERNANCE

A primary function of political boundaries is to show the extent of territoriality. **Territoriality** is the connection of human activities—their culture, political, and economic institutions—to land. Each country can govern its territory as it sees fit. States can be categorized as unitary or federal. **Unitary states** place power in the central government, whereas **federal states** divide power between the central and small sub-unit governments. France and China are examples of unitary states, while the United States and Germany are examples of federal states. An important function of internal boundaries is to create voting districts. Most voting districts include an equal number of voters. Redrawing legislative boundaries to give an advantage to a political group is called **gerrymandering.**

DEVOLUTION

Devolution occurs when political powers are transferred from central governments to sub-unit governments. Devolution can occur for a multitude of reasons. Devolutionary forces include physical separation, ethnic competition, genocide, terrorism, and **irredentism**, which is a desire to unite a common cultural group that is divided by political boundaries. Devolutionary forces can create new boundaries and reflect balances of power shared between governing bodies. They can also encourage **sub-nationalism**, feelings of pride and loyalty to a particular sub-national group—as can be seen in Quebec and Scotland. The creation of autonomous and semi-autonomous regions can result from devolution, like those seen in Spain, Belgium, and Nigeria.

Devolution can also occur as a state disintegrates—examples of this include the Soviet Union and South Sudan. Balkanization refers to the fragmentation of a state along cultural lines, like what happened in Yugoslavia.

GLOBAL COOPERATION

States will engage in trade agreements and political alliances to help further supranationalism. **Supranationalism** occurs when three or more countries create an alliance—they will each give up some local power and place it in hands of the collective.

Supranational organizations can be economic, political, or cultural in nature. The most important supranational organization is the UN (United Nations), whose primary goal is peacekeeping. Other supranational organizations and trade agreements include **NAFTA (North American Free Trade Agreement)**, **EU (European Union)**, **ASEAN (Association of Southeast Asian Nations)**, the **Arctic Circle**, and **OPEC (Organization of Petroleum Exporting Countries)**. The creation of supranational organizations may limit the economic or political actions of member states, challenging their sovereignty.

CENTRIPETAL & CENTRIFUGAL FORCES

As humans express their political ideas on the cultural landscape, it can create two types of forces—centripetal and centrifugal. **Centripetal forces** are those that bring people together and create a sense of unity. **Centrifugal forces** drive people apart and create division. Centripetal and centrifugal forces can be economic, social, political, or environmental. Examples of centripetal and centrifugal forces can be seen in many things, such as religion. Membership in a religion can act as a centripetal force among its united members; however, when one religion's ideology causes clashes with another region's ideology, it can serve as a centrifugal force. Centripetal and centrifugal forces may produce or be the result of stateless nations, nationalist movements, infrastructure development, and increased cultural cohesion.

NOTES

AGRICULTURE TYPES AND REGIONS

Agriculture is the intentional modification of Earth to raise animals or crops – and it can be done for food or for profit. Farming done for profit is called **commercial agriculture**, whereas **subsistence agriculture** is when farming is done to feed the farmer. The cost to farm plays a large role in what to farm. When land is scarce or expensive, **intensive agriculture** takes place, which involves more cost per space. When land is plentiful or inexpensive, **extensive agriculture** takes place, which uses less cost per space.

The types of intensive agriculture are market gardening, mixed crop & livestock, and plantation. **Market gardening** is the growing of fruits and vegetables. **Mixed crop & livestock farming** is an integrated system of growing crops and raising animals. **Plantations** are large farms that specialize in the growing of one crop. Plantation crops include coffee, cocoa, sugarcane, and bananas.

The types of extensive agriculture are nomadic herding, livestock ranching, and shifting cultivation. **Nomadic herding**, also called **pastoral nomadism,** is the herding of animals in places unable to grow crops. Animals used include cattle, sheep, and camels. **Transhumance** refers to the seasonal migration of nomadic herders from highlands in summer to lowlands in winter. **Livestock ranching** is the grazing of animals over a large area or a confined area, such as a **feedlot**. Livestock animals include cattle, pigs, and chicken. **Shifting cultivation** refers to the **slash-and-burn** technique of clearing fields for farming, then leaving the fields **fallow**, or unfarmed, to allow the vegetation to grow back.

Climate influences all agriculture, but some agriculture only takes place under certain climatic conditions. **Mediterranean** farming takes place in Mediterranean climates, where summers are hot-dry, and winters are mild due to coastal conditions. Mediterranean crops include olives, figs, and grapes. Shifting cultivation only takes place in tropical environments, where ample rainfall washes away nutrients from the soil. Nomadic herding takes place in environments too hot and dry to support growing crops.

Although most people live in urban environments, the majority of Earth's land is considered rural. The most dominant human activity that takes place on these lands is agriculture.

AGRICULTURE & RURAL LAND-USE

Technological advancements have significantly impacted the way humans grow and consume food.

AGRICULTURE REVOLUTIONS

For most of history, humans were hunters and gatherers. Groups were small and constantly on the move in search of food. One of the single most influential events in human history was the invention of farming—the intentional domestication of plants and animals. The first agriculture revolution, called the Neolithic Revolution, occurred several thousand years ago. Important agricultural hearths of the Neolithic Revolution include the Fertile Crescent, Indus River Valley, Southeast Asia, and Mesoamerica.

The second and third agricultural revolutions significantly increased output. The **second agricultural revolution** coincided with the Industrial Revolution. It was characterized by the mechanization and commercialization of agriculture. Increased productivity on farms created by machine-based technology enabled humans to engage in large-scale commercial agriculture. The third agricultural revolution is called the **Green Revolution**. It began in the 1960s and was characterized by high-yield seeds, created by seed **hybridization** and **genetic modification**, and increased use of fertilizers and pesticides. The Green Revolution significantly increased crop production, especially corn, wheat, and rice. While many hungry areas of Asia and Latin America saw improvements from the Green Revolution, African farmers were unable to reap its benefits. Lack of land, water, and financial resources to purchase and maintain the new strands proved too costly.

SURVEY METHODS AND RURAL SETTLEMENTS

Land surveying involves measuring and determining the extent of boundaries. Different survey methods have been used in the United States to shape humans' use of rural lands. Three methods include the metes and bounds, township and range, and long lot. **Metes and bounds** used the location of physical objects, such as trees, rivers, or large rocks. **Township and range** used man-made base lines and meridians to create rectangular-shaped plots. The **long lot** system created long, thin sections of land, each with access to a river. Metes and bounds and township and range were used by British colonists, while the long lot system was largely used by French colonists. Three types of rural settlements exist: nucleated, linear, and dispersed. **Nucleated settlements** are characterized by close proximity of houses, whereas in **dispersed settlements** houses are much farther apart. **Linear settlements** follow patterns of lines, often forged by roads, rivers, and railroads.

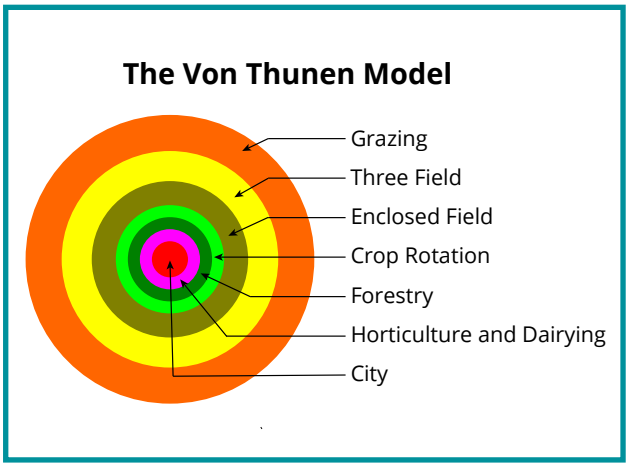
GLOBALIZATION AND CHALLENGES OF AGRICULTURE

The **economy of scale** in agriculture, or the ability to produce more with less, has increased, thereby increasing the carrying capacity of land. Innovations in agriculture—such as **genetically modified organisms (GMOs)** and **aquaculture**, the raising of water-based foods—and transportation have created a global network of agriculture where producers and consumers are connected through complex **commodity chains**. Agricultural products can transverse miles and miles of ocean, rail, air, and road. **Agribusiness** refers to the integration of steps in the food-production industry. From farm to restaurant or grocery store, food undergoes a series of steps, each playing an important role. The globalization of agriculture is influenced by trade, political relations among states, and infrastructure.

Accompanying many agricultural innovations are debates over **sustainability**, water and soil use, reductions in biodiversity, and fertilizer & pesticide overuse. The globalization of food has also influenced consumer choice in food selection. It has led to consumer-conscious movements such as **urban farming, community-supported agriculture (CSA), organic farming & value-added specialty crops, fair trade, and eat-local food movements**.

VON THÜNEN MODEL

The most important agricultural model in geography was created by Johann Heinrich **von Thünen**, in the early 1800s. His model helps explain the transportation cost associated with distance from the market. The model consists of concentric rings located around a central market. The model shows that intensive farming needs to be nearer the market, whereas extensive farming can take place farther from the market, largely based on **bid-rent theory**. His theory is limited in that land used for specialty farming does not always conform to the model.



CONSEQUENCES OF AGRICULTURE

Humans can alter the landscape to meet their agricultural needs. **Terrace farming**—farming by building steps into hills, irrigation, draining wetlands, and deforestation are examples. Other environmental consequences of agriculture include **pollution, land cover change, desertification, soil salinization, and resource overuse**.

Social consequences of agriculture can be seen as humans' diet have significantly changed. Additionally, women's role in the production and consumption food varies in many places based on level of development.

URBAN SUSTAINABILITY

Ideas and policies designed to conserve/preserve urban systems are known as **sustainable design initiatives**. Such initiatives include zoning practices that create space for mixed land use, walkable/bikeable transportation routes, transportation-oriented development, and smart-growth polices such as **New Urbanism**, greenbelts, and slow-growth cities. These ideas and policies have been met with mixed reactions. Praise has been given as the initiatives have led to the reduction of sprawl, improved walkability and transportation, and improved livability. However, criticisms include the potential of increased housing costs, **de facto segregation**, and the loss of historical character of a place.

A major challenge to urban sustainability is **urban and suburban sprawl**. Additional challenges include sanitation, climate change, air/water quality, increased energy use, and ecological footprints of cities. Responses to address these challenges can vary too. Responses may include regional planning efforts, remediation and development of brownfields, restriction on urban growth in certain areas, and polices made by governments to protect farmland or other non-urban environments.

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UNIT SIX: CITIES AND URBAN LAND USE

ORIGIN & INFLUENCES OF URBANIZATION

Urbanization is the process by which towns and cities develop. Urbanization is an on-going process that continues even after a city has developed.

Historically, the concept of urbanization first arose from the **Fertile Crescent** in modern-day Southwest Asia/ Middle East. It was here that a surplus of agriculture made it possible for humans to stay in one place and create urban centers.

As the concept of urbanization spread across the globe over time, the processes that initiate and drive it changed as well. A location's site can influence the origin, function, and growth of cities. **Site** refers to the unique human and physical characteristics of a place. For example, historically, the single most important factor in a city's location was proximity to water. Water can provide humans with irrigation for crops, food products, and a method for transporting goods and people. Both historically and today, most of the world's population lives near coastal areas or along rivers. **A location's situation has also influenced the origin, function, and growth of cities.** For example, urban areas near NASA in Houston, Texas have grown in number as more people involved in aerospace and engineering fields move, live, and raise families there. Consequently, many of these cities serve a vital role in NASA-related activities. In other words, the growth and function of these cities are largely influenced by their proximity to NASA.

Another factor that influenced the size and distribution of cities were changes in transportation and communication. For example, as people and ideas could travel farther distances over shorter time periods, cities began to cover larger land areas and be spaced farther apart. Architectural improvements, such as high-rise buildings and skyscrapers, have also influenced the location and land-use of urban areas. Generally, the inner core of cities has high-density housing, while the periphery of cities has low-density housing.

Physical geography and resources have long impacted the location and growth of urban areas as human attitudes and values are reflected in the build landscapes of urban areas.

CITIES AND URBAN LAND-USE

With improvements in transportation and technology, urban areas face unique economic, social, political, and environmental changes and challenges.

CITIES & GLOBALIZATION

Two distinct urban concepts related to the population size of a city are megacities and metacities. A **megacity** is a city whose population is between 10–20 million people, and a **metacity** is a city with a population greater than 20 million. Based on 2018 data from the United Nations, the world has 33 urban populations greater than 10 million, with 27 located in the developing world. China was home to 6, while India had 5. Additionally, 9 of the 10 cities projected to have populations over 10 million in the future will be in developing countries. **Cities can be categorized into a hierarchy based upon their role in the global distribution of goods and ideas.** For example, the most important world cities, the ones at the top of the world's urban hierarchy, are London, New York, and Tokyo.

LIST OF WORLD'S METACITIES		
Rank	**City**	**2018 UN Population est.**
1	Tokyo, Japan	37 million
2	Delhi, India	28 million
3	Shanghai, China	25 million
4	Sao Paulo, Brazil	21.6 million
5	Mexico City, Mexico	21.5 million
6	Cairo, Egypt	20 million

Many residents of the developed world are moving away from urban cores to the suburbs—a process known as **suburbanization**. As urban centers lose population, it is referred to as **decentralization**. In other words, people are migrating away from the urban center toward the city periphery. As urban and suburban development increases, it can lead to sprawl. **Sprawl** refers to the continuous and unrestricted build-up of urban and suburban areas across expansive tracts of land. As suburbanization, decentralization, and sprawl increase, it can lead to new forms of urban land use such as edge cities, exurbs, and boomburbs.

GLOBAL MODELS & THEORIES

Since cities first started appearing many thousands of years ago, their design and internal structure have undergone monumental changes. Today, no two cities are spatially organized the same—some cities have very distinct and noticeable patterns of land use. When comparing and studying the **spatial organization** and **internal structure of cities** around the world, geographers rely on various models. The major models and theories used by geographers to explain the spatial organization and internal structure of cities can be found in the table below.

MODEL NAME	BRIEF DESCRIPTION
Burgess concentric zone model	City growth occurs in a series of rings outward from the CBD
Hoyt sector model	City growth occurs in a series of sectors outward from the CBD
Harris & Ullman multiple-nuclei model	City growth occurs around important nodes, which could lead to a city having more than one CBD or other node of importance
Galactic city model	City growth created important nodes in the periphery of cities all linked by a roadway such as a beltway"
Bid-rent theory	Idea that land value decrease as distance from the CBD increases

Latin America city model	Displays characteristics of the typical Latin America city
Southeast Asia city model	Displays characteristics of the typical Southeast Asian city and the role of colonialism/imperialism
Africa city model	Displays characteristics of the typical African city and the role of colonialism/imperialism
Rank-size rule	Inside a country, the nth largest settlement = 1/n the pop. of the largest city (4th largest city = ¼ pop. of largest city)
Primary city rule	Inside a country, the largest city is more than double the pop. of the next largest city
Gravity model	Interactions between cities is based on population size and distance
Christallers central place theory	Theory that uses hexagons to explain the number, size, distribution, and hinterlands (market areas) of cities and settlements

URBAN CHALLENGES

Urban areas face an array of unique economic, social, political, and environmental challenges. As urban populations move within a city, certain economic and social issues arise, such as **housing discrimination** and redlining. **Redlining** is a process by which banks designate areas in which they will not lend money for people to buy or improve properties. Other social and economic problems include **blockbusting, crime, access to services, and housing affordability**. Environmental challenges may include environmental injustices/ increased levels of pollution, as well as the growth of **disamenity zones** or **zones of abandonment**.

Responses to these challenges can come in the form of laws. However, due to the fragmentation of governments (state, county, and city), challenges in addressing these issues may also arise. Additional responses to urban change and challenges include **gentrification** and **urban renewa**l.

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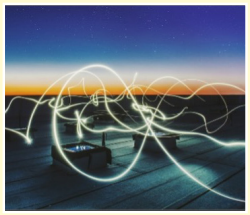
UNIT SEVEN: INDUSTRIAL & ECONOMIC DEVELOPMENT

INDUSTRIALIZATION & ECONOMIC SECTORS

The Industrial Revolution was a series of technological improvements, aided by the use of machines and new energy sources, that increased production. The hearth of the Industrial Revolution is modern-day United Kingdom in the late 1700s. Prior to this, manufacturing was sparsely scattered across the landscape. People made tools, clothing, and farming equipment in their own home in a system called the cottage industry. **The Industrial Revolution was a major turning point in history—it revolutionized virtually all facets of life.** What people ate, where people lived, how people worked, and how goods, information, and people moved across Earth were all significantly impacted.

An economy of a country can be divided into sectors, or categories. **The three major sectors of an economy include the primary, secondary, and tertiary sectors**. The tertiary sector can be further divided into the quaternary and quinary sectors. Each sector is characterized by specific job types and employment, and each sector creates distinct development patterns. For example, countries with high employment in the primary sector are much less developed than countries with high employment in the tertiary sector. **Primary sector jobs** involve the growing and extracting of natural resources. Examples of jobs in the primary sector include farming, mining, logging, and fishing. **Secondary sector jobs** involve the manufacturing process and most take place in factories. An example of a secondary job would be at a paper mill, where paper is made after processing timber. **Tertiary sector jobs** involve the provision of services. Tertiary sector jobs include nurses, waitresses, and cashiers at gas stations. Quaternary sector jobs specifically involve knowledge-oriented types of service jobs. An example of a **quaternary job** would be financial planning, blogging, and business consulting. **Quinary sector** jobs focus on human services and control along with information and new technologies. The highest level of decision-making and policy-creation takes place in the quinary sector. An example of a quinary job would in government, business executives, and legal consultants.



Social and economic development, along with industrialization, happen at different times and rates in different places. This can improve the standards of living in one location while contributing to uneven development in other places.

INDUSTRIAL & ECONOMIC DEVELOPMENT

Sustainable development can help remedy the environmental problems stemming from industrialization.

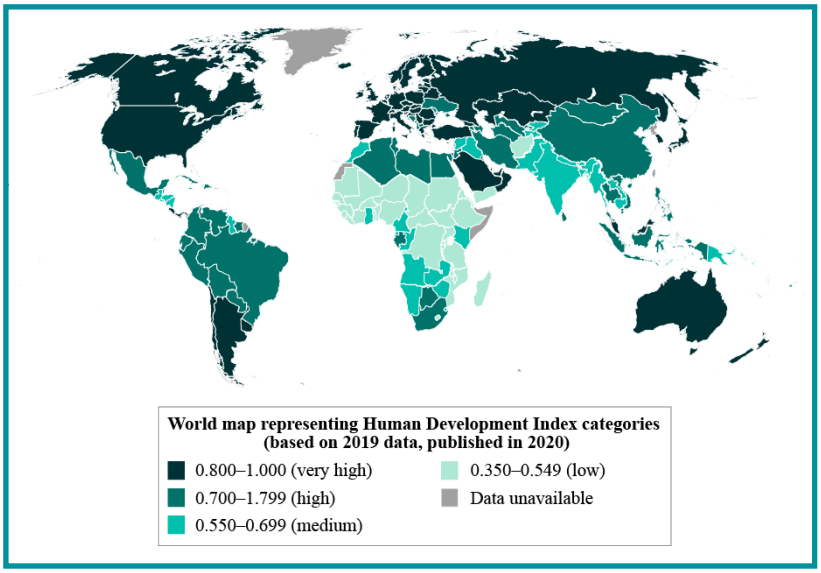
SUSTAINABLE DEVELOPMENT

Policies designed to prevent natural resource depletion, mass consumption, the impact of climate change, and the effects of pollution are considered examples of sustainable development. Many countries will engage in sustainable development measures as a way to ensure prolonged support of human and environmental life. One such measure is **ecotourism**—the tourism of a location's natural environment—a policy employed to help protect the environment while also providing jobs to the local community. The UN (United Nations) has created **Sustainable Development Goals**, to help measure progress in development. There are **17 total** UN Sustainable Goals, which include things such as quality education, no poverty, zero hunger, and gender equality.

MEASURING DEVELOPMENT AND INEQUALITY

Development refers to the way of life characterized by the social and economic conditions of a location. In geography, the United Nations (UN) measures development using the **Human Development Index (HDI)**. The UN's HDI focuses on more than just economic well-being. It also examines demographic social measures. The UN will give each country a score based upon the social, demographic, and economic conditions present there.

The **social characteristics** used to calculate a country's HDI include a typical person's access to knowledge—such as average number of years spent in school and literacy rates. The demographic characteristics include life expectancy, fertility rates, and infant mortality rates. The **economic characteristics** include how decent a typical person's standard of living is—such as **Gross National Income (GNI)** and **Gross Domestic Product (GDP**) per capita, along with the sectoral structure of an economy. The scores for each country range from 0–1. The table below showcases the spatial distribution of HDI rankings globally.



The overall status of women is lower than the status of men globally. In most places, men have greater access to economic, political, and educational opportunities. Similar to the Human Development Index (HDI), the **Gender Inequality Index (GII)** measures various characteristics to determine an overall score. The GII specifically measures reproductive health, which includes adolescent fertility rates and maternal mortality ratios. It also measures female empowerment by comparing the amount of men to women in the national legislature and in higher education. Lastly, the GII measures **labor market participation** by examining the percentage of women who are employed or actively seeking employment. Scores on the GII also range between 0–1. The higher a score on the GII, the larger the amount of inequality among men and women. In other words, a high score on the HDI and a low score on the GII are ideal.

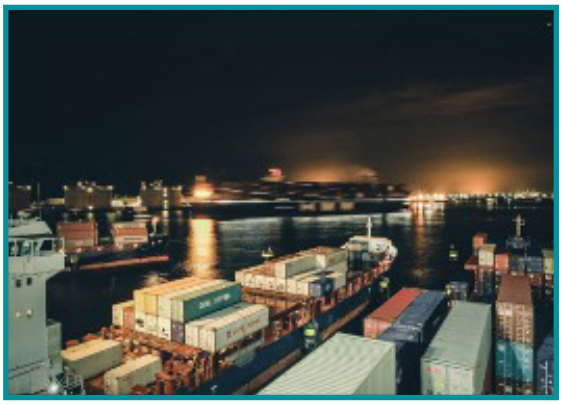
DEVELOPMENT THEORIES

Industrialization, both modern and historic, has helped improve standards of living in some locations while contributing to geographically uneven development. Several major theories are used in geography to explain the **spatial variations in development**. The table below provides details on four major theories that exist to highlight these variations in development.

THEORY	DETAILS
Rostow's Stages of Economic Growth	Developed by W.W. Rostow in 1960; 5-stage model that shows how one country advances economically; stage 1 = traditional society; stage 2 = preconditions for take-off; stage 3 = take-off; stage 4 = drive to maturity; stage 5 = age of mass-consumption
Wallerstein's World System Theory	Developed by Immanuel Wallerstein between 1970–2010; 3-tier model that divides each country into one of three categories based on level of economic development (core countries = most developed countries; periphery countries = least developed countries; semi-periphery countries = countries with medium levels of development)
Dependency Theory	Idea that countries may depend on other countries for economic survival; for example, less developed countries depend on more developed countries for jobs in primary and secondary employment, while more developed countries depend on less developed places to provide them with low-cost items such as crops and manufactured goods
Commodity Dependence	Idea that some countries are too dependent on the sale of commodities (raw materials or agricultural goods); a country whose total exports include 60% or more of commodities are considered "commodity dependent"

THE GLOBAL ECONOMY

In modern times, no one country can completely produce all the goods and services needed to operate efficiently entirely on its own. Countries will engage in **international trade**, creating a complex system of interdependence based on complementarity and comparative advantage. **Complementarity** is the idea that engaging in trade can compliment both parties involved, while **comparative advantage** is the idea that countries should take advantage of what it can do more efficiently than other countries and offer it for trade at the international level. Countries will work with each other to produce, transport, and sell items globally.



Countries will engage in **trade agreements** to increase trade to help foster economic development. Examples of trade agreements include the **EU (European Union), WTO (World Trade Organization), Mercosur, and OPEC (Organization of the Petroleum Exporting Countries)**. Trade agreements such as these help foster an international economy and greater globalization. **A negative consequence of a more globalized economy is the shared effect of a financial crisis—**with many country's economies so interconnected, decreased economic performance in one country can adversely affect other country's economy. For example, the 2008 recession was felt worldwide, not just in isolated countries. Another way to demonstrate how different economies have become more connected can be seen in international lending agencies, such as the **IMF (International Monetary Fund)**, which lends money to countries all over the world.

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