HUMAN GEOGRAPHY
PREPARING FOR THE ADVANCED PLACEMENT® EXAMINATION

DAVID PALMER, SENIOR CONSULTANT
Preventing for the Advanced Placement® Human Geography Examination

Features

• Flexibly designed to use in a one-semester or a one-year course.

• Divided into seven units mirroring the structure of the AP® Human Geography Curriculum Articulation.

• An introduction explains the AP® exam in detail and offers test-taking advice.

• An Essential Question at the beginning of each chapter builds conceptual understanding.

• Opportunities to reflect on the Essential Question at the end of each chapter reinforce learning.

• “Geographic Perspectives” features provide a deeper look into one aspect of spatial reasoning essential for success on the AP® exam.

• “Think as a Geographer” features provide students opportunities to practice critical thinking skills used by geographers.

• “Writing as a Geographer” features build student writing competencies as required on the AP® exam.

• Key Terms, Concepts, and Contributors are reviewed at the end of each chapter.

• Chapter reviews include eight multiple-choice questions and one free-response question.

• Unit-closing free-response questions require students to synthesize topics and concepts across chapters, similar to the AP® exam.

• A complete practice test is included.

• Detailed rubrics for free-response questions are available as reproducibles in the Answer Key.

SPECIAL School Price

Student Edition (softcover) CWZ1866101 $18.95
Student Edition Online (1-year license) CWZ18661D $21.95
Answer Key CWZ18662 $14.95

Available winter 2016/2017
Contents

Introduction  Preparing for the Advanced Placement® Examination in Human Geography

UNIT ONE: How to Think Like a Geographer
  Chapter 1: The Spatial Perspective  A Field of Inquiry • Concepts • Skills • Tools
  Chapter 2: Patterns and Processes  Organization of Space • Maps • Technology

UNIT TWO: Population and Migration
  Chapter 3: Population Distribution  Different Scales • Environment • Distribution • Density
  Chapter 4: Population Growth and Decline  Composition • Trends • Policies • Implications
  Chapter 5: Migration  Causes • Consequences • Historical Migrations

UNIT THREE: Cultural Patterns and Processes
  Chapter 6: Concepts of Culture and Diffusion  Shared Behaviors • Globalization • Variation • Diffusion
  Chapter 7: Culture and Language  Language Families • Interactions among Cultures
  Chapter 8: Religion and Ethnic Landscapes  Ethnic and Universalizing Religions • Cultural Identity

UNIT FOUR: Political Organization of Space
  Chapter 9: The Shape of the Political Map  Contemporary Structure • Evolution • Geopolitical Forces
  Chapter 10: Territory, Power, and Boundaries  Evolution • Geopolitical Forces • Government Forms
  Chapter 11: Globalization  Challenges to Sovereignty • Centrifugal and Centripetal Forces

UNIT FIVE: Agriculture, Food Production, and Rural Land Use
  Chapter 12: The Development of Agriculture  Domestication and Diffusion • Practices • Revolutions
  Chapter 13: Agricultural Regions  Bioclimatic Zones • Economics • Agribusiness • Interdependence
  Chapter 14: Rural Land Use Patterns  Settlement Patterns • Models • Consequences • Issues • Women

UNIT SIX: Industrialization and Economic Development
  Chapter 15: Industrialization and Economic Structure  Revolution • Diffusion • Economic Sectors • Models
  Chapter 16: Measures of Development  Social and Economic • Spatial Patterns • Gender Issues
  Chapter 17: Varieties of Development  Trade • Deindustrialization • Sustainable Development

UNIT SEVEN: Cities and Urban Land Use
  Chapter 18: Urban Location Theory and Interaction  Form, Function, and Size • Urban Areas • Suburbs
  Chapter 19: Urban Land Use Models  Distribution and Size • Urban Development • Built Landscapes
  Chapter 20: Urban Challenges  Growth and Decline • Sustainability in Urban Areas

Practice Test
UNIT 1: How to Think Like a Geographer

Chapter 1 The Spatial Perspective
Chapter 2 Patterns and Processes

Unit Overview

More than others who study people, geographers see the world through a spatial perspective. That means that they focus on questions of where people live and carry on activities, and why.

To understand the spatial aspects of phenomena, geographers use broad set of concepts, skills, and tools. One of the most basic concepts is distance. How far apart in space are houses in a community or cities of over 1 million people in a region. A skill is something such as the ability to recognize a region, such as the regions of the United States in tend to vote for Democrats or tend to vote for Republicans.

Probably the most common tool for geographers is a map. A map can be used to show almost any phenomena that has a spatial distribution. Maps can help people identify and analyze word patterns and processes. For example, mapping the spread of a disease can help public health officials decide what steps to take to counter the spread.

One systematic way to study geographic phenomena, such as why people founded Salt Lake City where they did or the distribution of Buddhists in the world, is to use Four-Level Analysis. The four levels are comprehension of the basic information, identification of patterns, explanation of how individual phenomena might form a pattern, and prediction of what the pattern might lead to.

Traditionally, geographers gathered information through field experiences. Maps were drawn by people who carefully measured distances and drew what they saw. Today, geospatial technologies making gathering and sharing information far simpler.

Enduring Understandings

I. Geography, as a field of inquiry, looks at the world from a spatial perspective.
   A. Geography offers a set of concepts, skills, and tools that facilitate critical thinking and problem solving.
   B. Geographical skills provide a foundation for analyzing world patterns and processes
   C. Geospatial technologies increase the capability for gathering and analyzing geographic information with application to everyday life.
   D. Field experiences continue to be important means of gathering geographic information and data.

Source: CollegeBoard AP®. Human Geography Course Description. 2015.
The Spatial Perspective

*Geography is the “WHY of WHERE.”*

—National Geographic Society

**Essential Question:** How does the way geographers look at the world differ from that of other scientists?

Geography shares content with many other sciences. Geographers are interested in the phenomena studied by climatologists, botanists, economists, sociologists, and demographers, for example. These scientists study the weather, plants, business, human society, and the characteristics of populations. In this sense, geography is a science of synthesis; a field which integrates the learning of many others. What distinguishes geography from all other fields is its unique perspective, or way of looking at things. That perspective is spatial.

A **spatial approach** considers the arrangement of the phenomena being studied across the surface of the earth. Important considerations of this approach are things such as location, distance, direction, orientation, pattern, and interconnections. A spatial approach also looks at elements such as the movements of people and things, changes in places over time, and even human perceptions of space and place. Geographers ask questions such as these:

- why things are where they are
- how they came to be distributed that way
- if the pattern of their location and distribution is changing
- what the implications of any of this might be for humans and the earth

**Geography As a Field of Study**

Geography has been called the “mother of all sciences.” This is partly because it is one of the oldest fields of study but also because geographers are interested in the content of so many other sciences. The word *geography* comes from Greek and combines idea of studying, or writing about (-graphy), the earth (geo-).

**Subfields of Geography**

Geography is commonly divided into two major branches:
• **physical geography**: the study of spatial characteristics of various elements of the physical environment. Physical geographers, like physical scientists, study topics such as weather and climate, ecosystems and biomes, and volcanism and erosion

• **human geography**: the study of the spatial characteristics of humans and human activities

Human geographers share a spatial approach with physical geographers and often rely on information from physical geography and other physical sciences. The concern of human geographers, however, is the human population and the spatial characteristics associated with people. Human geographers specialize in subfields. These subfields include geographers who study population characteristics (including demographic characteristics, health, and movement of those populations), cultural characteristics (such as language and religion), and economics (agriculture, manufacturing, level of development, and service industries). Other subfields of human geography are urban geography and political geography.

The degree of specialization in human geography reflects the wide interests of geographers: there is medical geography, environmental geography, social geography, and even the geography of sports. What all of these subfields of human geography share is their spatial perspective and their interest in human populations.

Since geography studies spatial information, maps are one of the most important tools for geographers. Cartography, the art and science of mapmaking, is closely associated with geography. Many geographers are also cartographers and vice-versa. Geospatial technologies, such as satellite imagery and remotely sensed data, geographic information systems (GIS), and global positioning systems (GPS), can require technical skill on the part of their scientists. Geographers today often rely cartographic specialists, cartographers, to actually create maps while they do the actual “geography.”

**History of Geography**

As long as humans have been able to write they have written “geographies” in their descriptions of place and observations of phenomena on earth. The first maps were probably simply scratched in the soil with sticks by early humans. In the river valleys of the Huang-He in China, Tigris-Euphrates Valley in Mesopotamia (modern-day Iraq), and in Egypt ancient people studied geography and made maps.

The Greeks and Romans were among the first to formalize a study of geography.

• Homer’s *Iliad* and *Odyssey* is geographic in nature and points to Greek interest in descriptions of the world.

• Aristotle was a keen observer of the earth and its features and interested in finding evidence to support his theories and explanations of nature and humans.
• Using geometry, **Eratosthenes** calculated the circumference of earth from Alexandria in Egypt during the 3rd century B.C.E. and he was very nearly correct.

• Ptolemy, another Greek who lived about 500 years after Eratosthenes, recalculated the earth’s circumference but greatly underestimated the distance.

• Strabo wrote descriptions of various areas of the Roman Empire and proposed theories about how geography influenced history.

During the European Middle Ages (roughly 500 C.E. to 1450 C.E.) Europeans demonstrated less interest in geographic study because they rarely ventured into the larger world. But the Muslim culture that flourished in the Middle East and North Africa built strong trading ties with Africa and East Asia. As they traveled, they collected information about new places, created maps, and wrote books about geography. Scholars such as Muhammad al-Idrisi (in the 12th century) and Ibn-Battuta (in the 14th century) acted as both physical and human geographers.

The voyages of Christopher Columbus and other Europeans starting in 1492 launched a new era in exploration, description, and mapping. Early geographers of the modern period include the Dutchman Gerardus Mercator, who created the Mercator map projection, a very effective tool for sailors but which greatly exaggerates area in polar regions. In the late 18th century, the German Alexander von Humboldt, was an explorer, naturalist, and geographer. In geography, he is best remembered for his travels through South American in 1799 to 1804. His study of plants and his careful measurements of longitude were valuable. But beyond that, he saw the world as a connected whole, in which all types of knowledge contributed to understanding. It is this approach that has inspired geographers ever since.

In the early 19th century geographers in several European countries established formal geographical societies, marking the birth of the formal
academic discipline of geography. Early efforts remained focused on the great themes of the discipline which had emerged up to that point: exploration, mapping, gathering data about physical and human geography, and seeking to analyze and understand the diversity of the world’s regions.

Since that time, scholarship in geography has become increasingly specialized. Physical and human geography diverged emphases in cultural, economic, political, and urban geography all emerged and developed. Nevertheless, all remain united by a spatial perspective and approach.

**Concepts Underlying the Geographic Perspective**

If the perspective of historians is to look through the lens of time to understand the past, the perspective of geographers is to look through the lens of space to understand place. In this case, “space” means the more-or-less two-dimensional surface of the earth and “place” could mean something as specific as precise location, or as large as a continent.

**Location and Place**

Locations may be absolute or relative. Absolute location refers to the global grid of lines known as latitude and longitude. Absolute location is calculated using distance north or south of the equator, an imaginary line which runs around the globe precisely halfway between the North and South Poles. The equator is designated as 0° latitude and the poles as 90° north and 90° south. Absolute location is also calculated using distance east or west of the Prime Meridian which runs from pole to pole. The Prime Meridian runs through Greenwich, England and is designated as 0° longitude. On the opposite side of the globe from the Prime Meridian is 180° longitude; the International Date Line roughly follows this line, but makes deviations to accommodate international boundaries. Thus, the absolute location of Mexico City, which is not too far north of the Equator and about ¼ of the way around the globe to the west from Greenwich is 19° North latitude and 99° West longitude.

**THE GLOBAL GRID**
Relative location is a description of where something is in relation to other things. To describe Salt Lake City, Utah as being “just south of the Great Salt Lake and just West of the Rocky Mountains, on Interstate 15 about halfway between Las Vegas, Nevada and Butte, Montana” is one (of many) ways to describe its relative location. Relative location is often described in terms of accessibility, or the ability to have contact, interaction, and exchange with other locations.

Relative locations can change over time and accessibility changes. For example, the many ghost towns (abandoned settlements) of the Western United States once had relative locations near water sources (which dried up), along trade routes (which changed), or near mines (which closed). Their good relative locations lost the advantages-access to resources or trade that they once had. However, their absolute locations, as described by the global grid of latitude and longitude, remained the same.

Place refers to the specific human and physical characteristics of a location. Two ways to refer to place are its site and situation. Site can be described as the characteristics at the immediate location—for example the soil type, climate, labor force, human structures. In contrast, situation refers to the location of a place relative to its surroundings. The situation of Riyadh, Saudi Arabia is roughly in the center of the Arabian Peninsula; the situation of the Arabian Peninsula is between the continent of Africa and the Asia. When the Interstate highway system was created in the United States in the 1950s, the situation of many small towns changed dramatically. Towns along old railroad lines became less important as centers of trade while towns along the new interstate suddenly became more important.
Related to the concept of place is the phenomenon referred to as **sense of place**. Humans tend to perceive the characteristics of places in different ways based on their personal beliefs. For example, the characteristics of Rome, Italy might be identified and described differently by a local or an outsider, or by a Catholic, and a person with no religious affiliation.

Finally, locations can also be designated using **toponyms**, or place names. Some toponyms provide insights into the physical geography the history, or the culture of the location. The entire coast of Florida is dotted with communities with beach in the name, Fernandina Beach, Miami Beach, Pensacola Beach—all of which are on beaches. Salt Lake City is named for a lake with unusually salty water. Iowa is named for a Native American tribe. Pike’s Peak is named for an explorer, Zebulon Pike. Sometimes toponyms get confusing. Greenland is icier than Iceland. Iceland is greener than Greenland. And some toponyms are deceiving. Lake City, Iowa, is not on a lake, and few people consider Mount Prospect, Illinois, at an elevation of 665 feet above sea level, on a mountain.

**Distance**

A consideration of **distance** is an important part of the geographic perspective and spatial approach. Distance is a measurement of how far or how near things are to one another. The term **proximity** indicates the degree of nearness. Distance can be measured in terms of geography and is given in a type of measurement such as meters, miles, or kilometers. It may be straight-line distance (“as the crow flies”), or travel distance using a route which turns and twists. Milwaukee to Kalamazoo is 150 miles by air, but 250 miles by car, because the normal route goes around the southern tip of Lake Michigan.

Distance may also be given in terms of time; a certain place may be “a two-hour drive” from another place. **Time-space compression** is the phenomenon of shrinking “time distance” between locations because of improved methods of transportation and associated infrastructure. Two places that are well-connected by roads or airports may be close to each other “in time” but rather far apart in actual distance. New York City and London are separated by an ocean, but with more than two dozen flights between them each day, they are very close.

In contrast, places which might not be too far away physically, but which aren’t connected by roads can be very far away terms of travel time. Cities on either side of a high mountain range, for example, are close in straight-line distance, but much farther in time distance to someone walking along a winding trail between them. Building a road and using a car would shrink the time distance and illustrate the effect of time-space compression. Milwaukee to Kalamazoo might be a four-hour drive—or an eight-hour drive, depending on traffic through the heavily congested Chicago metro area.

The increasing connection between places is reflected in the growth of **spatial interaction**. Spatial interaction refers to the contact, movement, and flow of things between locations which are geographical separated. Connections can be physical, such as roads, bridges, and airports. Connections can also be radio
and television, cellular or internet service, or access to satellite information. Places with more of these things will have increased spatial interaction because they are better connected to other places.

The friction of distance indicates that when things are farther apart they tend to be less well-connected. This inverse relationship between distance and connection is a concept called distance-decay. A clear illustration of this concept is that at a radio tower the signal is strong but as it travels across space it weakens. This is the effect of the friction of distance causing the decay, or weakening, of the signal. Natural characteristics like waves, earthquakes, and storm systems exhibit the distance-decay function. Human characteristics also exhibit distance-decay. For example, the diminishing influence of a city, a religious center, or a shopping mall, as distance increases. Improvements in transportation, communication, and infrastructure have greatly reduced the friction of distance between places as they have increased the spatial interaction.

Concepts such as accessibility and remoteness are changing. The world is more spatially connected than ever before in history. The internet can be used to illustrate several of these concepts. It allows a person living in El Paso, Texas, to shop at a store in New York City (via its website), and receive a product shipped from a warehouse in Atlanta, Georgia. And this can all happen in just two days! This is a good example of the increase in spatial interaction due to improved connections—technological, communication, and transportation—and a great reduction of distance-decay.

**Density and Distribution**

**Density** is the number of something in a specifically defined area. Population density (the number of people per square mile) is an example. Densities are often compared to one another and described using terms such as “higher” or “lower.” The population density in a ten-acre city block of apartment buildings is likely higher than the population density of a ten-acre block in a suburb. Consider a ten-acre area in which there are some apartments, parking lots, and also single-family houses. A simple density can be calculated for this area by counting the people and dividing by the area. In this case, geographers would also be interested in the distribution of the people.

**Distribution** refers to the way a phenomenon is spread out over an area. Distributions are described by identifying areas of clustering as compared to areas over which something is dense, sparse, or absent. A ten-acre city block
might have a cluster of apartment buildings where everyone lives and a parking area or city park where no one lives.

Geographers look for patterns in the distribution of phenomena across space. Patterns may be clues about causes or information about possible effects of the distribution. Common patterns include:

- linear: phenomena are arranged in a straight line, such as the distribution of towns along a railroad line
- circular: phenomena are equally spaced from a central point, forming a circle, such as the distribution of the homes of people who shop at a particular store
- geometric: phenomena are in a regular arrangement, such as the squares formed by roads in the Midwest
- random: phenomena appear to have no order to their position, such as the distribution of pet owners in a city

Matching patterns of distribution is called spatial association and indicates that two (or more) phenomena may be related, or associated with one another. For example, the distribution of malaria matches the distribution of the mosquito which carries it. However, just because two distributions have a similar pattern one is not necessarily the cause of the other. The distribution of bicycle shops in a large city might be similar to the distribution of clothing stores—but one probably does not cause the other. They both might reflect the distribution of young people.

**Human-Environmental Interaction**

The dual relationship between humans and the natural world are at the heart of human geography. The connection and exchange between them is referred to as **human-environment interaction**.

The belief that human behavior and societal development are strongly effected by natural elements such as landforms and climate is called **environmental determinism**. Popular in the early part of the 20th century, this view was believed to explain why cultures of some climates were more “successful” than and superior to those of other climates. Reactions against environmental determinism were expressed in a view of human-environment interaction known as **possibilism**. This view acknowledges the limits and effects of the natural environment while also noting the role that human culture plays. Different cultures may respond to the same natural environment in diverse ways depending on their beliefs, goals, and technologies available to them.

**Cultural ecology** is a geographic approach which emphasizes human-environment interaction. Human alteration of the environment and nature’s effects on human society are important parts of the work of contemporary geographers who are interested in issues such as sustainability, pollution, and environmental hazards and disasters.
Landscape Analysis

The word “landscape” comes from older Germanic words that refer to the condition, the “shape,” of the land. The term can also imply a specific area; as in, a “desert landscape” or the “landscape of Tuscany.” Because landscapes occur over areas and are therefore spatial, landscape regions can be defined, described, and mapped. The task of defining and describing landscapes is called landscape analysis.

Observation and Interpretation

The first part of landscape analysis is careful observation. Geographers are keen observers of the phenomena and collect data about what they see. The term field observation is used to refer to the act of physically visiting a location, place, or region and recording, first-hand, information there. Geographers can often be found taking notes, sketching maps, counting and measuring things, and interviewing people as they walk through an area that they are interested in studying. For most of the history of geography, this was the only way to gather data about places. All of this information, which can be tied to specific locations, is called spatial data.

Modern technology has increased the ways in which geographers can obtain spatial data. Remotely sensed information from satellites which orbit the earth above the atmosphere and aerial photography (professional images captured from planes within the atmosphere) are important sources of observed data available today. Ground-level photography has replaced sketching as a tool for capturing information about landscapes. Sound recordings and the ability to get chemical analysis of air, water, and soil have also changed the way geographers conduct observation of a landscape.

Once data has been gathered, it must be interpreted. Geographers depend on their skill of synthesizing and integrating, or putting together, all of the collected information in order to better understand the place, area, or landscape being studied. A common example which is clearly observable today is the changes which occur in the landscapes of rural and urban areas over time. A geographer may be interested in understanding what changes are likely to occur as people move into or out of an area.

- Who are the people migrating into this area? Who is leaving?
- What is the culture of these groups of people?
- What effects with the changes have on the local economy?
- What are the causes of people moving?
- What types of human-environment interaction are occurring?

The Built Environment

When we use the word “environment,” we usually think of nature and natural things. Plants, the air, water, and animals are all part of the natural environment. Human geographers often refer to the built environment by which they mean
to refer to the physical artifacts which humans have created and which form part of the landscape. Buildings, roads, signs, and fences are examples of the built environment.

The architectural style of buildings varies from place to place. Think of typical homes and buildings in China and then think of homes and buildings in Germany. These differences occur because people with different cultures living in different physical landscapes construct buildings, roads, and other elements to create a unique built environment which is referred to as the cultural landscape.

**Four-Level Analysis**

One systematic way to study geographic phenomena is to use Four-Level Analysis. This method is summarize in the chart below.

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
<th>Key Questions</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Comprehension</td>
<td>Establish the basic information clearly</td>
<td>• What?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Where?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• When?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Who?</td>
</tr>
<tr>
<td>2. Identification</td>
<td>Identify patterns in phenomena and describe</td>
<td>• Are phenomena connected?</td>
</tr>
<tr>
<td>3. Explanation</td>
<td>Explain how individual phenomena might form a pattern</td>
<td>• Why is something where it is?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• How did something get where it is?</td>
</tr>
<tr>
<td>4. Prediction</td>
<td>Explain why a pattern is important and predict what it might lead to.</td>
<td>• So what?</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• What if?</td>
</tr>
</tbody>
</table>

**GEOGRAPHIC PERSPECTIVES: THINKING ABOUT DISTANCE**

Geographers use the concept of distance to study the spatial distribution of phenomena. The perception of distance reflects context. Neighboring families in a small town in Iowa might live 50 feet apart. To a family in a high-rise apartment in Manhattan, 50 feet might seem like a long distance. To a family living on a ranch in Wyoming, miles from their nearest neighbor, 50 feet might feel uncomfortably close.

In addition, what people consider a long distance changes over time. In the mid-1800s, Irish families held funeral-like ceremonies for emigrants leaving for the United States, Australia, and elsewhere. Trips...
by ship to these other lands were so long, expensive, and dangerous that families expected they would never see the departing person again. And they often didn’t. But what seemed far away in the 1800s seems much closer today. A flight by jet from Dublin to Boston takes about seven hours, costs only two day’s pay for many people, and it is remarkably safe.

A third factor shaping the perception of distance is scale. At a personal level, eight people crowded into an elevator, separated by inches, probably feel close together. At the community level, Tampa and Orlando seem close together, even though they are about 85 miles apart. At the global level, the countries of Mali and Chad seem close together, separated by only 1,500 miles.

Geographers are not alone in studying distance. Historians might research the change over time in how immigrants viewed distance. Sociologists might focus on how distance affects how neighbors interact. However, unlike others who study human actions, geographers emphasize the role of distance and other concepts that describe spatial distribution.

### KEY TERMS

<table>
<thead>
<tr>
<th>GENERAL</th>
<th>toponyms</th>
<th>environmental</th>
</tr>
</thead>
<tbody>
<tr>
<td>spatial approach</td>
<td>distance</td>
<td>determinism</td>
</tr>
<tr>
<td>physical geography</td>
<td>proximity</td>
<td>possibilism</td>
</tr>
<tr>
<td>human geography</td>
<td>time-space compression</td>
<td>cultural ecology</td>
</tr>
<tr>
<td>accessibility</td>
<td>spatial interaction</td>
<td>landscape analysis</td>
</tr>
<tr>
<td>ghost towns</td>
<td>friction of distance</td>
<td>field observation</td>
</tr>
<tr>
<td>place</td>
<td>distance-decay</td>
<td>built environment</td>
</tr>
<tr>
<td>site</td>
<td>spatial association</td>
<td>cultural landscape</td>
</tr>
<tr>
<td>situation</td>
<td>human-environment interaction</td>
<td></td>
</tr>
<tr>
<td>sense of place</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### MAPS AND DATA

<table>
<thead>
<tr>
<th>satellite imagery</th>
<th>Gerardus Mercator</th>
<th>longitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>remotely sensed data</td>
<td>Alexander von Humboldt</td>
<td>International Date Line</td>
</tr>
<tr>
<td>GIS</td>
<td>absolute location</td>
<td>relative location</td>
</tr>
<tr>
<td>GPS</td>
<td>equator</td>
<td>density</td>
</tr>
<tr>
<td>Eratosthenes</td>
<td>latitude</td>
<td>distribution</td>
</tr>
<tr>
<td>Ptolemy</td>
<td>spatial data</td>
<td></td>
</tr>
<tr>
<td>al-Idrisi</td>
<td>aerial photography</td>
<td></td>
</tr>
<tr>
<td>Ibn-Battuta</td>
<td>Prime Meridian</td>
<td></td>
</tr>
</tbody>
</table>
MULTIPLE-CHOICE QUESTIONS

Questions 1 to 3 refer to the map below.

1. Which statement describes the absolute location of Paris, France?
   (A) 127 miles away from the English Channel
   (B) northern hemisphere and eastern hemisphere
   (C) 41.5° N, 2.2° E
   (D) capital of France
   (E) in the heart of France

2. Which statement describes the relative location of Barcelona, Spain?
   (A) 386 miles west of Madrid and 644 miles south of Paris
   (B) northern hemisphere and eastern hemisphere
   (C) 41.2° N, 2.1° E
   (D) capital of the Catalonia region
   (E) one of the largest cities in Spain

3. Which statement uses Madrid as a toponym?
   (A) Madrid is the name of the capital of Spain.
   (B) Madrid can be found at 40.2°N, 3.4°W.
   (C) Madrid is the third largest city in the European Union.
   (D) Madrid was founded in the 9th century.
   (E) Madrid is part of a region called the Iberian Peninsula.
Questions 4 and 5 refer to the following images.

4. The development of which technology pictured above most increased time-space compression?
   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4  
   (E) 5

5. The development of which technology shown above most directly reduced the distance-decay function?
   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4  
   (E) 5

6. Which of the images shows the clearest example of the built environment?
   (A) 1  
   (B) 2  
   (C) 3  
   (D) 4  
   (E) 5
7. The frequency of occurrence of something within a specifically defined area is the
   (A) density
   (B) distribution
   (C) pattern
   (D) interconnection
   (E) incidence

8. One way that possibilism differs from environmental determinism is that it emphasizes
   (A) culture
   (B) climate
   (C) history
   (D) regions
   (E) trade

Free-Response Question

The geographic perspective consists, in part, of concepts relating to place, or location, and distance.

A. Identify and describe a similarity between the concepts of absolute location and site.
B. Identify and describe a similarity between the concepts of relative location and situation.
C. Identify the relationship between time and distance as used in the concept of distance-decay and describe an example from the real world.
THINK AS A GEOGRAPHER: GROUPING DATA

How people group information can emphasize certain patterns in the data. In turn, this can influence how readers interpret it. Imagine you are creating a map based on the data in the table.

<table>
<thead>
<tr>
<th>City</th>
<th>Population in 1900</th>
<th>Population in 2015 (estimate)</th>
<th>Total Change</th>
<th>Percentage Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York</td>
<td>3,437,202</td>
<td>8,550,405</td>
<td>+5,113,203</td>
<td>+149%</td>
</tr>
<tr>
<td>Chicago</td>
<td>1,698,575</td>
<td>2,720,546</td>
<td>+1,021,971</td>
<td>+60%</td>
</tr>
<tr>
<td>Philadelphia</td>
<td>1,293,697</td>
<td>1,567,442</td>
<td>+273,745</td>
<td>+21%</td>
</tr>
<tr>
<td>St. Louis</td>
<td>575,238</td>
<td>315,685</td>
<td>-259,553</td>
<td>-45%</td>
</tr>
<tr>
<td>Boston</td>
<td>560,892</td>
<td>667,137</td>
<td>+106,245</td>
<td>+19%</td>
</tr>
<tr>
<td>Baltimore</td>
<td>508,957</td>
<td>621,849</td>
<td>+112,892</td>
<td>+22%</td>
</tr>
<tr>
<td>Cleveland</td>
<td>381,768</td>
<td>388,072</td>
<td>+6,304</td>
<td>+2%</td>
</tr>
<tr>
<td>Buffalo</td>
<td>352,387</td>
<td>268,071</td>
<td>-84,316</td>
<td>-27%</td>
</tr>
<tr>
<td>San Francisco</td>
<td>342,782</td>
<td>864,816</td>
<td>+522,034</td>
<td>+152%</td>
</tr>
<tr>
<td>Cincinnati</td>
<td>325,902</td>
<td>298,550</td>
<td>-27,352</td>
<td>-8%</td>
</tr>
</tbody>
</table>

1. If you use large dots to show cities of 3 million or more people in 1900, and small dots for the other cities, what impression would the map give readers about the relative size of cities?

2. If you use large dots to show cities of 600,000 or more people in 1900, and small dots for the other cities, what impression would the map give readers about the relative size of cities?

3. If you used an upward pointing arrowhead for cities that increased in population and a downward pointing arrowhead for cities that decreased in population, what would you be emphasizing?

4. If you use large, medium, and small dots, into what three classes would you divide the cities based on their population in 2015?

5. If you divided the cities into three categories by percentage of change, what classes would you use? Explain.