Solutions for World Regional Geography 7th Edition by Hobbs

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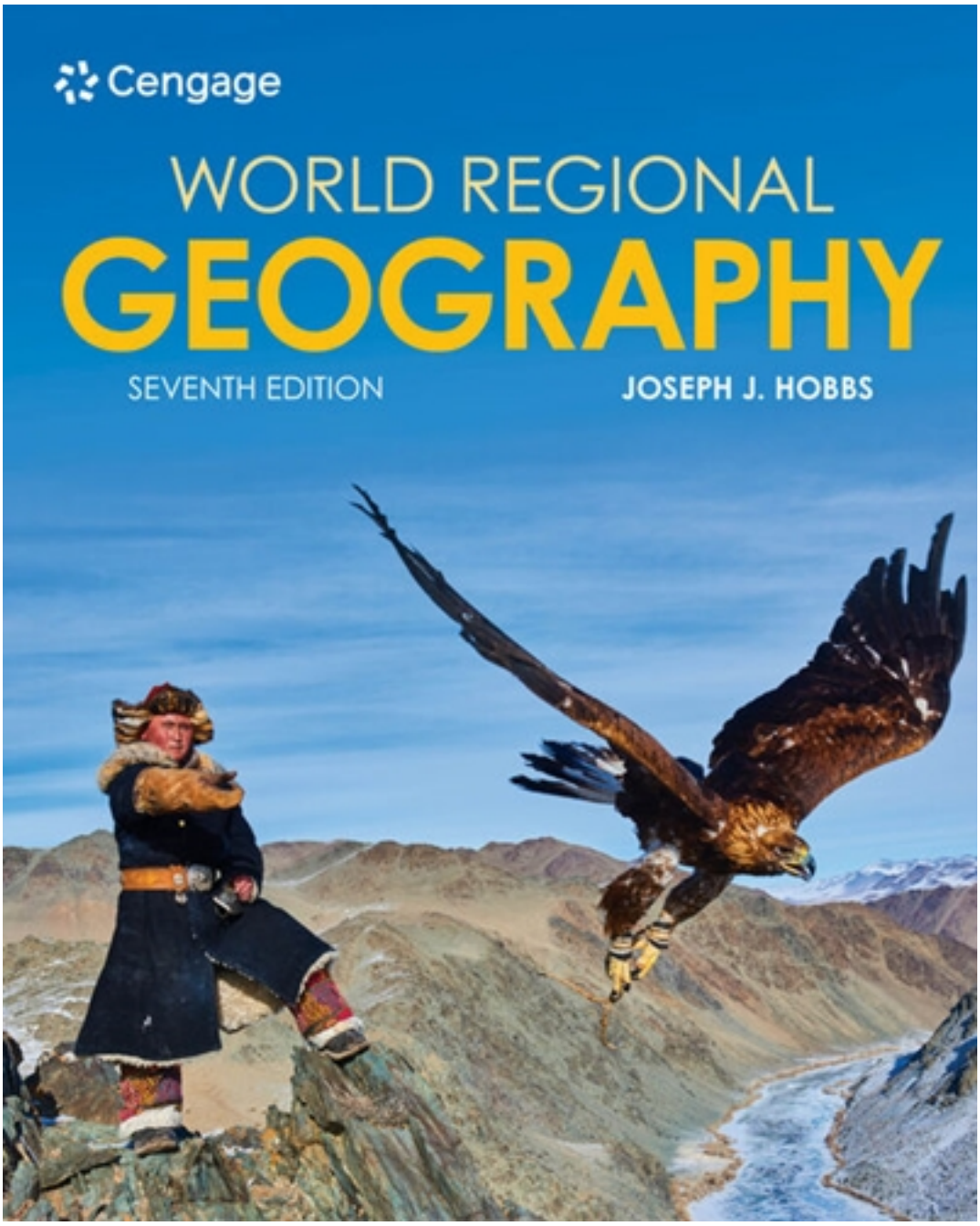

Solutions

Instructor Manual

Hobbs, World Regional Geography 7e © 2022, 9780357034071; Chapter 1: Objectives and Tools of World Regional Geography

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Purpose and Perspective of the Chapter

Recent studies suggest that US citizens generally have poor knowledge of world geography. More, and better, geographic knowledge would serve us well in many contexts.

Geography means "description of the Earth" and is also defined as "the study of the Earth as the home of humankind." Maps are the geographers' most basic tools. The basic language of maps includes the concepts and terms of scale, coordinate systems, projection, and symbolization. Maps can depict spatial data in a variety of ways.

Individuals and cultures generate their own unique "mental maps." Regions are in effect mental maps that help us make sense of a complex world. Modern geographic thought derives from a long legacy of interest in how people interact with the environment. The dominant approach has been to understand how people have changed the landscape or the face of the Earth.

The discipline of geography may be divided into regional and systematic specialties, with the systematic fields having the most followers. Their concerns overlap many disciplines in the natural and social sciences. Geographers are employed in many private and public capacities. The strongest growth area with the most jobs is in geographic information systems (GIS). The "geospatial revolution" employs many geographic tools and touches many parts of our daily lives.

Cengage Supplements

The following product-level supplements provide additional information that may help you in preparing your course. They are available in the Instructor Resource Center.

- PowerPoint presentation
- Cognero Test Bank files
- World Regional Geography in Context short-answer essay activity
- Map Labeling activities

Chapter Objectives

The following objectives are addressed in this chapter:

01.01 Describe the scope of geography as an academic discipline.

01.02 Define these key terms in geography: map; region; landscape; culture; space; place; geospatial.

01.03 Describe two or three key concepts in geography, including the different types of regions, how maps display various kinds of spatial information, and how geography is both a physical and a social science.

01.04 Identify the roles of *scale, projections,* and *symbolization* on maps.

01.05 Define "geospatial revolution," geographic information systems (GIS), and remote sensing.

01.06 List two or three professions that use geographic knowledge.

Complete List of Chapter Activities and Assessments

For additional guidance refer to the Teaching Online Guide.

Chapter Objective	PPT Slide	Activity/Assessment	Duration in Minutes
		Knowledge Check	3-5
		Check Your Understanding	10-15
01.01, 01.03		Concept Animation Quiz: National Geography Bee	5-10
01.06		Video Quiz: What Can You Do with Geography?	5-10
01.03		World Regional Geography in Context	20-30
		Map Analysis	20-30
	2	Icebreaker: Interview Simulation	10
01.01	10	Discussion Activity: The Purpose of Studying Geography	5-10
01.03	13	Discussion Activity: Geography as a Social Science	5-10
01.02	25	Class Activity: Maps	5-10
01.04	30-31	Knowledge Check: Projections	5
01.05	37-38	Knowledge Check: GIS and Traditional Maps	5
01.06	41	Think, Pair, Share: Careers in Geography	5-10
	42	Self-Assessment	5-10

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Key Terms

Antarctic Circle: A line of longitude (65.56° S) commonly used to divide the southern middle latitudes to the north from the southern high latitudes to the south.

Arctic Circle: A line of longitude (65.56° N) commonly used to divide the northern middle latitudes to the south from the northern high latitudes to the north.

attributes: Various types of information about each individual geographic feature stored in tables.

cartography: The science, technology, and art of designing and making maps, the basic language of geography.

choropleth map: A kind of thematic map that uses shades of color to represent the values of some phenomenon across statistical areas.

coordinate systems: A grid consisting of horizontal and vertical lines used to establish absolute location. On the Earth's surface, latitude and longitude lines form the coordinate system.

core location: An area of the world with significant importance due to a central location relative to others.

culture area: Any region inhabited by people of a particular culture, the land upon which the visible imprint of that culture has been placed.

cultural landscape: The landscape modified by human transformation, thereby reflecting the cultural patterns of the resident culture.

cultural landscape theory: A theory developed by Carl Sauer based on the method of studying the transformation, over time, of a natural landscape to a cultural landscape.

culture: The values, beliefs, aspirations, modes of behavior, social institutions, knowledge, and skills that are transmitted and learned within a group of people.

culture area: Any region inhabited by people of a particular culture, the land upon which the visible imprint of that culture has been placed.

degrees: Unit of measurement for longitude and latitude. There are 180 degrees of latitude (90 degrees north of the Equator, and 90 degrees south) and 360 degrees of longitude (180 degrees east of the Prime Meridian, 180 degrees west).

distance decay: The geographical concept that the interactions between places (and the people that occupy them) decline as the distance between them grows.

dot density map: Type of map that uses dots to represent a stated amount of some phenomenon within a political unit.

Equator: A line or latitude on the Earth's surface (0 degrees) halfway between the North and South Poles. The dividing line between the northern and southern hemispheres.

Five Themes of Geography: A list created by the National Council for Geographic Education and the Association of American Geographers, summarizing what geography is all about: location; place; human environment interaction; movement; and region.

flow map: A type of map that uses arrows to indicate movement of people or goods from one place to another.

formal region (uniform region or homogeneous region): A region that has a unitary quality that derives from a homogeneous characteristic.

functional region (nodal region): A coherent structure of areal units organized into a functioning system by lines of movement or influence that converge on a central node or trunk.

geographic information systems (GIS): A computerized system for storing, analyzing, and displaying spatial data.

geography: The study of the spatial order and associations of things. Also defined as the study of places, the study of relationships between people and environment, the study of spatial organization, and the study of Earth as the home of humankind.

geo-literacy: Geographic literacy.

geopolitics: The struggle for space and power played out in a geographical setting.

geospatial: A term pertaining to the geographic location and characteristics of natural or constructed features and boundaries on, above, or below the Earth's surface, especially referring to data that are geographic and spatial in nature.

graduated symbol map: A type of map that uses symbols such as circles scaled proportionally to the quantity of the attribute being mapped.

hemisphere: Half of the Earth's surface.

> **Eastern Hemisphere:** All of Earth's surface eastward from the Prime Meridian to 180°.
>
> **land hemisphere:** The half of Earth's surface containing the largest possible area of land. The defined points of its center vary.
>
> **Northern Hemisphere:** The half of Earth's surface between the Equator and the North Pole.
>
> **Southern Hemisphere:** The half of Earth's surface between the Equator and the South Pole.
>
> **water hemisphere:** The half of Earth's surface containing the largest possible area of water. The defined points of its center vary.
>
> **Western Hemisphere:** All of Earth's surface westward from the Prime Meridian to 180°.

human–environment interaction: Study of the ways human beings use and change the natural environment.

human geography: One of the two major branches of geography, primarily studying the world's peoples, their spatial relationships, and their usage of the natural environment.

International Date Line: Line roughly concurrent with the 180-degree line of longitude (with several deviations for political and practical reasons) where the beginning of one day and the end of another day meet. The date west of the International Date Line is one day ahead of the date east of the line.

isarithmic map: A type of map that uses lines or bands of color to join the points of equal value of some phenomenon across a mapped area.

landscape: A portion of the earth's land surface. Geographers are interested in the transformation of natural landscapes into cultural landscapes.

large-scale map: A map constructed to show considerable detail in a small area.

latitude: A measurement that denotes position with respect to the equator and the poles. Latitude is measured in degrees, minutes, and seconds, which are described as parallels.

> **high:** Places near the poles
>
> **low:** Places near the Equator
>
> **middle:** Places occupying an intermediate position with respect to the poles and the Equator
>
> **north:** Places north of the Equator
>
> **south:** Places south of the Equator

lines of latitude: Also called parallels, they are lines in increments of 30 degrees that run from the Equator (0 degrees) to the North Pole.

lines of longitude: Also called meridians, they are lines that run due north–south connecting the poles. All meridians converge at the poles and are farthest apart at the Equator.

location: A concept central to all geographic analysis. Where something is relates to all manner of influences, from climate to migration routes, and is a crucial component in trying to understand patterns of historic and economic development.

absolute location (mathematical location): Determined by the intersection of lines, such as latitude and longitude, providing an exact point expressed in degrees, minutes, and seconds.

relative location: The location of a place defined by relationship to other places.

longitude: A measurement that denotes a position east or west of the Prime Meridian. Longitude is measured in degrees, minutes, and seconds, with the Prime Meridian set at 0°, and 180° situated directly opposite the Prime Meridian. Meridians of longitude extend from pole to pole and intersect parallels of latitude.

> **east:** Places east of the Prime Meridian
>
> **west:** Places west of the Prime Meridian

map: A representation of various phenomena over all or a part of the Earth, either on a globe or a flat surface.

map projection: Mathematical ways to minimize the distortion that arises when the curved surface of the Earth is represented on a flat surface.

> **azimuthal:** A type of map projection in which the developable surface is based on a geometric plane.

compromise: A map projection that does not preserve any one metric, but is designed to distort all metrics roughly equally to achieve a map that "looks right."

conformal: A map projection that preserves shape.

conic: A type of map projection in which the developable surface is based on a cone.

cylindrical: A type of map projection in which the developable surface is based on a cylinder.

equal-area: A type of map projection that preserves area.

equidistant: A type of map projection that preserves distance from one specific point to all other points.

Mercator: A cylindrical, conformal map projection intended to be used for navigation developed by Gerardus Mercator in 1569.

mathematical location: Determined by the intersection of lines, such as latitude and longitude, providing an exact point expressed in degrees, minutes, and seconds.

mental map: A term used to define the geographies encompassed in every individual's mind as a series of locations, access routes, physical and cultural characteristics of places, and often a general sense of the good or bad locales.

meridian: Lines of longitude running north–south, connecting the poles.

minutes: One of three measurements of latitude and longitude, consisting of 60 seconds. 60 minutes make a degree.

National Geography Standards: A set of 18 standards drafted in 2012 by the National Council for Geographic Education to guide teaching of and literacy in geography.

natural landscape: An environment without (or before) transformations caused by humans.

North Pole: A point at 90 degrees north latitude. The highest latitude in the northern hemisphere.

orientation: The relationship between direction on a map and the corresponding compass direction in reality.

parallel: A line of latitude, so named because all such lines run parallel to the Equator.

peripheral location: An area of the world with less importance because of a distant location relative to others.

physical geography: The subdiscipline of geography most concerned with the climate, landforms, soils, and physiography of the earth's surface.

place: In geographic analysis of a given locale, the nature of place identity becomes a means of understanding people's response to that particular place. Determination of the

environmental and cultural characteristics that are most frequently associated with a certain place helps establish that "sense of place" for a given location.

Prime Meridian (Greenwich Meridian): The line of zero degrees longitude, which passes through Greenwich, England. It separates the Western Hemisphere from the Eastern.

projection: Mathematical ways to minimize the distortion that arises when the curved surface of the Earth is represented on a flat surface.

reference map: A type of map primarily depicting the locations of various features on the Earth's surface.

region: A "human construct" that is often of considerable size, that has substantial internal unity or homogeneity, and that differs in significant respects from adjoining areas. Regions can be classed as formal (homogeneous), functional, or vernacular.

remote sensing (Earth observation): Remote sensing is the science of acquiring and analyzing data without being in contact with the subject. It is used in the study of patterns of land use, seasonal change, agricultural activity, and even human movement along transport lines.

scale: The size ratio represented by a map; for example, a map with a scale of 1:12,500 is portrayed as 1/12,500 of the actual size.

seconds: The smallest measurement of latitude and longitude. Sixty seconds make up one minute.

sense of place: The perceived combination of physical and human characteristics that makes a place special and unique.

Six Essential Elements of Geography: (1) The world in spatial terms; (2) places and regions; (3) physical systems; (4) human systems; (5) environment and society; (6) uses of geography.

small-scale map: A map constructed to give a highly generalized view of a large area.

South Pole: A point at 90 degrees south latitude, the highest latitude in the southern hemisphere.

space: In geography, the exact placement of locations on the face of the Earth.

spatial: The term *spatial* comes from the noun *space*, and it relates to the distribution of various phenomena on Earth's surface. Geographers portray spatial data cartographically—that is, with maps.

symbolization: Representation of spatial phenomena on maps with the use of symbols such as lines, fill, shape, colors, and type.

systematic geography: Systematic geography deals thematically with issues such as politics, urbanization, and climate, with the premise that these phenomena are universal and operate in the same way everywhere.

thematic map: A type of map showing the spatial distribution of one or more attributes across a given area.

Tobler's First Law of Geography: The Swiss-American geographer Waldo Tobler's axiom that "Everything is related to everything else, but near things are more related than different things."

Tropic of Cancer: A line of latitude located at 23.448N. The general dividing line in the northern hemisphere between the tropics to the south and the mid-latitudes to the north.

Tropic of Capricorn: A line of latitude located at 23.448S. The general dividing line in the southern hemisphere between the tropics to the north and the mid-latitudes to the south.

vernacular region (perceptual region): Vernacular, or perceptual, regions are areas that possess regional identity, such as the Sun Belt, but share less objective criteria in the use of this regional name.

world regional approach to geography: Geography's tradition of understanding human-environment interaction on a regional basis.

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What's New in This Chapter

The following elements are improvements in this chapter from the previous edition:

- In Chapter 1, human–environment interaction is identified as the key concern of geography. There is a new discussion on the sense of place, and more information about the relevance of geography to other courses and to daily life, as well as encouragement to consider further studies and careers in this growing field. The definitive 18 Standards of Geography (authored by the National Council for Geographic Education) along with the Five Themes of Geography are introduced and intended to serve as a constant reference for instructors and students.

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Chapter Outline

In the outline below, each element includes references (in parentheses) to related content. "CH.##" refers to the chapter objective; "PPT Slide #" refers to the slide number in the PowerPoint deck for this chapter (provided in the PowerPoints section of the Instructor Resource Center); and, as applicable for each discipline, accreditation or certification standards ("BL 1.3.3"). Introduce the chapter and use the Ice Breaker in the PPT if desired, and if one is provided for this chapter. Review learning objectives for Chapter 1. (PPT Slides 1-3).

1.1 Welcome to World Regional Geography (01.01, 01.03, PPT Slides 5-14)
- 1.1a How to Use This Book (01.01, PPT Slide 6)
- 1.1b What Is Geography? (01.01, PPT Slides 7-10)

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Discussion Questions

You can assign these questions several ways: in a discussion forum in your LMS; as whole-class discussions in person; or as a partner or group activity in class.

1. Icebreaker: Interview Simulation. Ask students to break up into pairs. Each student should interview their partner to discover interesting or unusual facts about them. Think about sharing how a knowledge of geography could be relevant to your future career or life goals. Then, each student will introduce their partner to the class. (Chapter Introduction, 01.01, PPT Slide 2) Duration: 10 minutes
    a. Students may struggle identifying how geography could be relevant to their careers or life goals if they aren't pursuing geography or a related career field. The students may need to be encouraged to think outside their careers to see how the study of geography could be useful to them. Some examples could include a better understanding of international relations and politics, having greater regional awareness as a traveler, and having a greater knowledge of cultural diversity. Students will likely find connections between the study of geography and related fields such as anthropology, history, linguistics, geology, and political science.

2. Discussion Activity: The Purpose of Studying Geography. Break the students up into groups to discuss the purposes and objectives of studying geography. Ask the students to discuss what they expect to gain from studying geography and what the point of studying geography is for those who are not majoring in geography or a closely related field. Student groups should report the results of their discussion back to the entire class. (The Objectives of this Book, 01.01, PPT Slide 10) Duration: 10 minutes
    a. For those who are majoring in geography, the purpose of studying geography will be clear. Other students may need to be prompted to see the connection between geography and their fields of study. Students may identify reasons to study geography such as a greater understanding of international politics, diplomacy, or business, greater cultural awareness, or a greater understanding of historical and current events.

3. Discussion Activity: Geography as a Social Science. This activity is set up as a whole class discussion, but it could be done in small groups as well. Ask students to think about geography as a social science, focusing on the reasons why geography could be considered a social science as well as a physical science. (What is Geography?, 01.03, PPT Slide 13) Duration: 10 minutes
    a. Figure 1.2 in the textbook provides a good list of both the social science and physical science aspects of geography. Geography is a social science in many ways because it deals not only with the physical regions of the earth but also with the interactions of humans with the environments in which they live. Geography plays a large role in understanding the other social sciences and provides important contextual information for understanding history, current events, politics, economics and other fields.

4. Class Activity: Maps. This can be an activity with the entire class or in small groups. Ask students to draw a world map as best they can without looking at a map. An outline of the continents is adequate. It is anticipated that students will struggle to draw the continents they are less familiar with and will do better with North America (or their home continent for international students). (The Language of Maps, 01.02, PPT Slide 25) Duration: 10-15 minutes
    a. This activity can form the foundation for a discussion of how most people are generally familiar with the geography in their country or continent and less familiar with the geography of the rest of the world. The lack of knowledge of the geography of the rest of the world can make it hard to understand international events, business, and culture.

5. Knowledge Check: Projections. What task was the Mercator projection designed for? What does this projection sacrifice to be good for its intended purpose? (The Mercator Projection, 01.04, PPT Slides 30-31) Duration: 5 minutes
    a. The Mercator projection was developed to aid in navigation by showing compass bearings as straight lines. The Mercator projection sacrifices scale to show these straight lines. Distortion increases as the map approaches the poles.

6. Knowledge Check: GIS and Traditional Maps. Can you think of any applications that are better suited to traditional paper maps than GIS? (The Geospatial Revolution, 01.05, PPT Slides 37-38) Duration: 5 minutes
    a. Students' answers may vary. One situation in which paper maps are more useful than GIS is when electrical or computer service is unavailable, for example, when hiking in the wilderness.

7. Think, Pair, Share: Careers in Geography. Break students up into pairs or small groups and ask them to think about jobs that would benefit from a knowledge of geography besides the potential careers mentioned in the textbook. Then, ask the groups to share their ideas with the class. (Jobs and Careers in Geography, 01.06, PPT Slide 41) Duration: 5-10 minutes

a. A wide variety of jobs could benefit from a knowledge of geography, so students' answers will vary. Some possible responses include international law, travel writers and travel agents, elementary and secondary teachers, humanitarian aid workers, and linguists.

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Suggested Usage for Lab Activities

The Map Analysis activity for this chapter could be used as a lab.

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Additional Resources

Lecture Suggestions

- Make a timeline of the history of geography.
- Discuss geography's transition from a predominantly descriptive discipline to analysis-based discipline.
- Describe the major subdivisions of the discipline.
  - Physical
  - Cultural / Human
- Is geography a science or social science?
  - Varying degrees and options from one institution to another BS / BA, MS / MA
- How does geography relate to other disciplines and how is this course is relevant to student's individual majors?
- What does the term spatial mean? Sometimes, students associate spatial with outer space until the term is explained.
- Discuss the significance of maps.
  - The role of maps in history
  - Current uses of maps
- How is geospatial technology used?
  - Applications and uses of this technology by private companies
  - Other disciplines that utilize geospatial technology
- What are the jobs in geography and related fields?
  - The Department of Labor projects growth of over 30% in geography jobs during the next decade.

Answers to Review Questions

1. What is geography? How does it bridge both natural and social sciences? What are some of its characteristic approaches to the world around us?

   ANS: The Greek Scholar Eratosthenes used the term in 300 B.C. to mean "description of the Earth". As society evolved, so did the definition of geography. Geography became known as "the study of the Earth as the home of humankind". Currently, the focus has been on an interaction between people and the environment in which they live.

Although geographers are classified as social scientists, they often bridge the social and natural sciences and even the humanities in research, publication, and teaching.

A characteristic method is the geographical method of analysis, which is the unique way in which a geographer will analyze a particular phenomenon utilizing multiple geographic factors.

Geographical factors

- Agriculture
- Animals
- Climate
- Communication
- Culture
- Economy
- Education
- Energy
- Geology
- Government
- Gross National Product (GNP)
- History
- Income
- Industry
- Land Use
- Language
- Medical
- Military
- Pollution
- Population
- Recreation
- Relative Location
- Religion
- Resources
- Soil
- Size
- Topography
- Transportation
- Unemployment
- Vegetation

2. What transformation was Carl Sauer concerned with in his cultural landscape theory?

   ANS: Sauer, a geographer at the University of California, focused geographers' attention on how the forces of nature and culture shape the landscape—the collection of physical and human geographic features on Earth's surface. Sauer is credited with founding the cultural landscape theory in American geography, based on the method of studying the transformation, over time, of a natural landscape to a cultural landscape. Culture—the system of values, beliefs, and attitudes that shapes and influences perception and behavior—underlies many of our decisions about how to use and modify the landscape.

3. What does *spatial* mean, and how does geography's interest in space differentiate it from other disciplines?

   ANS: Spatial means "pertaining to space". Everything is located somewhere in space. This location is often influenced by physical and cultural factors. However, geographers not only look at exact location, but they also look at the situation or how a place is influenced by the area.

4. What geographic features make the United Kingdom and New Zealand different?

   ANS: Even though both countries have numerous similarities, such as the facts that both are islands and the climates are about the same, there are important differences which should be noted as well. The United Kingdom has better situation relative to

other countries. The United Kingdom is located on the fringe of the Eurasian continent and the European region. This is where the main centers of industry and population are found, as the North Atlantic and Mediterranean have long been centers of commerce and trade.

On the other hand, New Zealand is located off the beaten path, and is not situated along major trade routes. New Zealand is located in the Oceania or Pacific region, with Australia is to its northwest and Antarctica to its south. The New Zealand economy is hurt by the isolation of its location relative to major areas of industry, high population, and trade or commerce.

5. What are the major terms and concepts associated with scale, coordinate systems, projections, and symbolization?

   ANS: Map scale is the map distance compared to earth distance. It is generally expressed as a ratio. For example, in a 1:10,000 ratio, one unit on the map represents 10,000 units on the ground. Ratio map scales are common, but often require conversions to employ. A line / bar scale or a statement of equivalency is often easier to work with. For example, one inch on the map equals one mile on the ground. A map of our campus, on a standard sheet of paper, would be an example of a large scale map. To put the Earth on the same size page would be an example of a small scale map.

   Maps are very effective in conveying information about space and location.

   Two types of location:
   Relative Location: The position of one object relative to the location of another. Town A is 20 miles south of Town B, I parked my car by the blue truck, or my house is the third house on the right. If the blue truck moved or if one of the houses on my street was demolished, then I would need to modify my locational description. A place is influenced by the area around it. Example: Two neighboring cities influence one another; along the border between the United States and Mexico you can see the influence of both cultures and countries.

   Absolute Location: The exact mathematical location using a coordinate system. A coordinate system typically utilizes a grid network consisting of horizontal and vertical lines covering the earth. A common example of a coordinate system is latitude and longitude, which measures in degrees, minutes, and seconds.

   The earth is spherical in shape; therefore, any map created on a flat surface will have some distortion. On a map of a city, the distortion will be small; however, on a map of the world, the distortion will be much greater.

   Maps are not a complete record of an area; items are left off either on purpose or accidentally. There is no such thing as a perfect map; all maps contain some distortion. The challenges of converting from our earth (three dimensional sphere) to a flat map (two dimensional) can easily be demonstrated by peeling an orange or cutting a beach

ball open and then attempting to lay them out flat. Map projections are the mathematical process for converting a 3D earth to a 2D map. No map projection is perfect, nor is one map projection suitable for all locations around the world. Multiple map projections have been developed, some are more accurate for certain map characteristics, like area or direction, while others are better suited for a specific geographic location on the surface of the earth, like polar or equatorial.

6. Why is a map made with the Mercator projection more suitable for navigation than a map made with a comprehensive projection, such as the Winkel Tripel?

   ANS: A map made with the Mercator project was designed to show lines of congruent compass bearing; latitude and longitude lines intersect at right angles. Longitude lines actually converge at the poles, since longitude lines are equally spaced and they do not curve in at the poles, shapes, size, and distance at the poles are grossly distorted. The area between these longitude lines becomes stretched and exaggerated in the Polar Regions; the most obvious example is that polar landmasses look much larger on a Mercator projection map than they actually are relative to landmasses at a more equatorial latitude. Map projections that do not preserve any one metric, or try to distort all properties about equally for aesthetic purposes are called “compromise projections”. The Winkel Tripel projection used for world maps is an example of a compromise projection.

7. What is the difference between a dot map and a choropleth map?

   ANS: Although both dot maps and choropleth maps are considered thematic maps, these two types of maps differ and are classified based on the symbols which they use.

   For example, Dot maps use actual dots to represent a stated amount, of some type of phenomenon, such as population within a political unit. On this type of map, if one dot equaled 1,000 people, then twelve dots would equal 12,000 people. In contrast, Choropleth maps display their data units with different colors.

8. What is a mental map?

   ANS: Each person uses mental maps. When someone asks you for directions, you reference your mental map. This is your personal collection of geographic information. It is individually organized data about specific places, directions, or distance. Mental maps are constantly updated by the individual, and the accuracy of this type of map varies based on different individuals.

9. What is GIS, and what typically makes it different from old-fashioned manual cartography? What are some applications of GIS and remote sensing?

   ANS: GIS, an acronym for geographic information systems, is perhaps a modern geographer’s most powerful tool and the leading area of growth within the field of geography. GIS is a complex computer based tool, created by individuals which allows

someone to manipulate, analyze, and store a wealth data in databases which can then be utilized for a variety of reasons, such as solving real world problems.

For a given town, a GIS database could include roads and streets, water and sewer lines, electric and gas lines, property ownership, land use, economic neighborhoods, industrial locations, and many other attributes. This data can be arranged in any combination to form layers. The database could be used by anyone from the local tax assessor to the fire department.

The use of old-fashioned manual cartography was a slow process involving surveying and manual data tabulations. The older style of cartography, which could show the latitude-longitude coordinates for a specific feature on Earth's surface has now been transformed by a tool which can not only show the coordinates of a feature but can also even identify many other attributes or types of information which have been created and compiled by individuals. Specific advantages of GIS and computer cartography include easily updated or modified maps, easily shared or transferred digital data, and the computing and analysis capabilities of computers. Thus GIS has truly revolutionized cartography and allowed it to become more up to date, with the use of computer technology and satellite data.

a. What are some applications of remote sensing?

   Basically, remote sensing involves obtaining information about a place or object from a distant place. Most remote sensing data is obtained via aerial photography from planes and images from satellites. Remote sensing can also include radar, lidar, microwave, infrared, and other portions of the electromagnetic spectrum. Remote sensing can be used in almost any geographic project. Some examples of application are forestry, transportation, population, land use, flooding, weather, agriculture, environmental monitoring, and many others.

b. How can modern geospatial tools help us with longstanding concerns in geography?

   Geospatial tools allow us to use advances in technology to evaluate, analyze, and address specific concerns and planning. Specific advantages of geospatial tools include easily updated or modified maps, easily shared or transferred digital data, and the computing and analysis capabilities of computers. Geospatial tools can help with almost any and every geographic concern, such as natural resources, weather, agriculture, forestry, natural disasters, military, land use, business and commerce, and many others.

10. What do geographers study, and what do they do for a living?

    ANS: Geographers study people, places, and environments, and usually (but not always) collect and depict information that can be mapped. In other words, they are interested in the spatial context of things.

Jobs in many areas of geography have seen growth over the past years, and the employment trends since 2000 have been very favorable in this field. In fact, in 2010, the U.S. Department of Labor projected that jobs for geographers, geoscientists, cartographers, urban and regional planners and other geographic professions would grow by more than thirty-percent for the decade of 2010 through 2020. In addition to growth in the afore mentioned areas, geospatial technology, which encompasses GIS, GPS, and Remote Sensing, was identified as one of the most important emerging and evolving fields within the technology industry.

11. What are the six "essential elements" of geography as defined by the National Council for Geographic Education? What does each element indicate about geography's concern with space, place, or the environment? How do the 18 standards help inform geographic literacy?

ANS:

Theme One: The World in Spatial Terms

- ✓ *How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information.*
- ✓ *How to use mental maps to organize information about people, places, and environments.*
- ✓ *How to analyze the spatial organization of people, places, and environments on Earth's surface.*

Theme Two: Places and Regions

- ✓ *The physical and human characteristics of places.*
- ✓ *That people create regions to interpret Earth's complexity.*
- ✓ *How culture and experience influence people's perception of places and regions.*

Theme Three: Physical Systems

- ✓ *The physical processes that shape the patterns of Earth's surface.*
- ✓ *The characteristics and spatial distribution of ecosystems on Earth's surface.*

Theme Four: Human Systems

- ✓ *The characteristics, distribution, and migration of human populations on Earth's surface.*
- ✓ *The characteristics, distributions, and complexity of Earth's cultural mosaic.*
- ✓ *The patterns and networks of economic interdependence on Earth's surface.*
- ✓ *The process, patterns, and functions of human settlement.*
- ✓ *How forces of cooperation and conflict among people influence the division and control of Earth's surface.*

Theme Five: Environment and Society

- ✓ *How human actions modify the physical environment.*
- ✓ *How physical systems affect human systems.*
- ✓ *The changes that occur in the meaning, use, distribution, and importance of resources.*

Theme Six: The Uses of Geography

- ✓ *How to apply geography to interpret the past.*
- ✓ *To apply geography to interpret the present and plan for the future.*

a. What does each element indicate about geography's concern with space, place, or the environment?

Geography is almost always concerned with the theme of human-environment interaction. This concern has put geographers at the cutting edge of science and policy in the 21st century because many of the Earth's most pressing problems—climate change, population growth, and hunger, for example—involve the coupling of human and environmental systems.

b. How do the eighteen standards help inform geographic literacy?

- The World in Spatial Terms
  - Geographers study the relationship among people, places, and environments and use maps to convey information.
- Places and Regions
  - Groups of people are often connected with a particular place or region. This could be related to structures, religion, or emotional attachment.
- Physical Systems
  - The topography and geographical processes affect plant and animal life in an area and the ecosystems that develop.
- Human Systems
  - People are central to any geographical study. Humans build cities, roads, and are involved in agriculture.
- Environment and Society
  - Humans have affected the environment in any place they have settled.
- Uses of Geography
  - Understanding the relationship among people, places, and the environment; the environment is greatly enhanced over time, by an increased knowledge of geography.

Internet Resources

- Course Standards: National Geography Standards - **www.ncge.org**
- National Geographic Xpeditions - **http://www.nationalgeographic.com/xpeditions/standards/**
- AAGS Specialty Groups - **http://www.aag.org/cs/membership/specialty_groups**
- United States Department of Labor (DOL) Occupational Outlook Handbook, Geography Outlook - **http://www.bls.gov/ooh/life-physical-and-social-science/geographers.htm**

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Appendix

Generic Rubrics

Providing students with rubrics helps them understand expectations and components of assignments. Rubrics help students become more aware of their learning process and progress, and they improve students' work through timely and detailed feedback.

Customize these rubrics as you wish. The writing rubric indicates 40 points and the discussion rubric indicates 30 points.

Standard Writing Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Content	The assignment clearly and comprehensively addresses all questions in the assignment. 15 points	The assignment partially addresses some or all questions in the assignment. 8 points	The assignment does not address the questions in the assignment. 0 points
Organization and Clarity	The assignment presents ideas in a clear manner and with strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are logically related and consistent. 10 points	The assignment presents ideas in a mostly clear manner and with a mostly strong organizational structure. The assignment includes an appropriate introduction, content, and conclusion. Coverage of facts, arguments, and conclusions are mostly logically related and consistent. 7 points	The assignment does not present ideas in a clear manner and with strong organizational structure. The assignment includes an introduction, content, and conclusion, but coverage of facts, arguments, and conclusions are not logically related and consistent. 0 points
Research	The assignment is based upon appropriate and adequate academic literature, including peer reviewed journals and other scholarly work. 5 points	The assignment is based upon adequate academic literature but does not include peer reviewed journals and other scholarly work. 3 points	The assignment is not based upon appropriate and adequate academic literature and does not include peer reviewed journals and other scholarly work. 0 points
Research	The assignment follows the required citation guidelines. 5 points	The assignment follows some of the required citation guidelines. 3 points	The assignment does not follow the required citation guidelines. 0 points
Grammar and Spelling	The assignment has two or fewer grammatical and spelling errors. 5 points	The assignment has three to five grammatical and spelling errors. 3 points	The assignment is incomplete or unintelligible. 0 points

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Standard Discussion Rubric

Criteria	Meets Requirements	Needs Improvement	Incomplete
Participation	Submits or participates in discussion by the posted deadlines. Follows all assignment. instructions for initial post and responses. 5 points	Does not participate or submit discussion by the posted deadlines. Does not follow instructions for initial post and responses. 3 points	Does not participate in discussion. 0 points
Contribution Quality	Comments stay on task. Comments add value to discussion topic. Comments motivate other students to respond. 20 points	Comments may not stay on task. Comments may not add value to discussion topic. Comments may not motivate other students to respond. 10 points	Does not participate in discussion. 0 points
Etiquette	Maintains appropriate language. Offers criticism in a constructive manner. Provides both positive and negative feedback. 5 points	Does not always maintain appropriate language. Offers criticism in an offensive manner. Provides only negative feedback. 3 points	Does not participate in discussion. 0 points

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