Welcome to the Praxis® Study Companion

Prepare to Show What You Know

You have been working to acquire the knowledge and skills you need for your teaching career. Now you are ready to demonstrate your abilities by taking a Praxis® test.

Using the Praxis® Study Companion is a smart way to prepare for the test so you can do your best on test day. This guide can help keep you on track and make the most efficient use of your study time.

The Study Companion contains practical information and helpful tools, including:

- An overview of the Praxis tests
- Specific information on the Praxis test you are taking
- A template study plan
- Study topics
- Practice questions and explanations of correct answers
- Test-taking tips and strategies
- Frequently asked questions
- Links to more detailed information

So where should you start? Begin by reviewing this guide in its entirety and note those sections that you need to revisit. Then you can create your own personalized study plan and schedule based on your individual needs and how much time you have before test day.

Keep in mind that study habits are individual. There are many different ways to successfully prepare for your test. Some people study better on their own, while others prefer a group dynamic. You may have more energy early in the day, but another test taker may concentrate better in the evening. So use this guide to develop the approach that works best for you.

Your teaching career begins with preparation. Good luck!

Know What to Expect

Which tests should I take?

Each state or agency that uses the Praxis tests sets its own requirements for which test or tests you must take for the teaching area you wish to pursue.

Before you register for a test, confirm your state or agency’s testing requirements at www.ets.org/praxis/states.

How are the Praxis tests given?

Praxis tests are given on computer. Other formats are available for test takers approved for accommodations (see page 55).
Welcome to the *Praxis*® Study Companion

**What should I expect when taking the test on computer?**

When taking the test on computer, you can expect to be asked to provide proper identification at the test center. Once admitted, you will be given the opportunity to learn how the computer interface works (how to answer questions, how to skip questions, how to go back to questions you skipped, etc.) before the testing time begins. Watch the *What to Expect on Test Day* video to see what the experience is like.

**Where and when are the *Praxis* tests offered?**

You can select the test center that is most convenient for you. The *Praxis* tests are administered through an international network of test centers, which includes Prometric® Testing Centers, some universities, and other locations throughout the world.

Testing schedules may differ, so see the *Praxis* web site for more detailed test registration information at [www.ets.org/praxis/register](http://www.ets.org/praxis/register).
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1. Learn About Your Test

Learn about the specific test you will be taking

Geography (5921)

Test at a Glance

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About This Test

The Praxis Geography test is designed to assess the content knowledge that prospective secondary education geography teachers must have to support student’s learning in the content areas.

The test covers the breadth of material a new teacher needs to know to begin practice and is aligned with the National Geography Standards, as developed by the Geography Education National Implementation Project and its member organizations: the American Geographical Society, the American Association of Geographers, the National Council for Geographic Education, and the National Geographic Society.

The test consists of 120 selected-response questions, each of which assesses one or more of the following five content areas: geography literacy and tools, physical geography, human geography, regional geography, and environment and society. The questions help determine whether the test taker knows the major concepts, has the skills and tools of inquiry in the content areas, knows how to present the content within the classroom setting, and knows how the content is interrelated.

The use of a calculator is not permitted.

The test may contain some questions that will not count towards your score.
Test Specifications

Test specifications in this chapter describe the knowledge and skills measured by the test. Study topics to help you prepare to answer test questions can be found on page 26.

I. Geography Literacy and Tools

The beginning secondary education geography teacher:

A. Knows map types and their uses
   1. Knows the uses of reference or location maps (e.g., road maps, topographic maps, maps in an atlas)
   2. Knows the uses of the main types of thematic maps that show distribution of data
      a. graduated symbol
      b. dot
      c. choropleth
      d. isometric
      e. cartograms

B. Understands distance, direction, and scale
   1. Can differentiate between absolute distance and relative distance
   2. Has knowledge of cardinal and intermediate directions
   3. Has knowledge of relative directions that are culturally based (e.g., out west, down east, up north)
   4. Understands the various uses of scale in geography
      a. local, regional, and global scales
      b. map scales

C. Understands the use of mental maps as a means of organizing information in a spatial context
   1. Knows that mental maps are developed by individuals to organize activities
   2. Understands that sense of place is often influenced by age, gender, location, and socio-economic status

D. Understands the difference between absolute location and relative location

E. Understands the geographic concepts of spatial distribution and density

F. Understands the differences between formal, functional, and perceptual or vernacular regions

G. Understands that geographic models are used for organizing spatial information
   1. Recognizes the uses of urban, agricultural, demographic, and industrial models

H. Can apply geographic concepts to current events (e.g., devolution, environmental stress, globalization)
   1. Understands the impact of devolution and/or supranationalism (e.g., former Soviet Union, former Yugoslavia, European Union)
   2. Comprehends the magnitude and rate of global environmental change
   3. Has knowledge of the increased economic, social, and cultural interactions as related to the process of globalization

I. Recognizes how geographic tools can be used for interpreting the past, understanding the present, and planning for the future
   1. Can use various maps to interpret changes in space and place over time
   2. Recognizes the uses of geospatial technologies, such as
      a. Geographic Information System (GIS)
      b. Global Positioning System (GPS)
   3. Can interpret demographic trends by using census data and population pyramids

J. Can use statistical information to answer geographic questions and infer geographic relationships

II. Physical Geography

The beginning secondary education geography teacher:

A. Recognizes the natural factors that influence weather
   1. Temperature
   2. Humidity
   3. Pressure
   4. Wind

B. Recognizes the natural factors that influence climate
   1. Distribution of landmasses and bodies of water
   2. Latitude
   3. Altitude and elevation
   4. Ocean and atmospheric currents
   5. Earth-Sun relationships
   6. Orographic effect (rain shadow)
Step 1: Learn About Your Test

C. Can identify the key terms used for describing weather and climate
   1. Temperature
   2. Precipitation
   3. Absolute and relative humidity
   4. Atmospheric lifting
   5. Weather fronts, air masses, and pressure systems
   6. Major climate types

D. Can interpret climographs
   1. Interprets temperature and precipitation of locations using climographs

E. Can identify and locate Earth’s biomes or ecosystems
   1. Forest biomes
      a. tropical
      b. midlatitude
      c. coniferous
   2. Grassland biomes
      a. tropical savanna
      b. midlatitude
   3. Desert biomes
   4. Tundra biomes
      a. arctic
      b. alpine
   5. Marine ecosystems

F. Can identify Earth’s primary spheres
   1. Biosphere
   2. Lithosphere
   3. Atmosphere
   4. Hydrosphere

G. Is familiar with geomorphic processes
   1. Internal geomorphic processes:
      a. plate tectonics
      b. extrusive and intrusive volcanism
      c. folding and faulting
   2. External geomorphic processes:
      a. physical or chemical weathering
      b. erosion
      c. glaciation

H. Is familiar with the ways tectonic processes affect the physical environment
   1. Volcanoes
   2. Earthquakes
   3. Tsunamis

I. Understands the differences between various landforms
   1. Can identify and locate major types of landforms on a map
      a. plains
      b. tablelands
      c. hills
      d. mountains
      e. valleys
   2. Can identify the ecoregions of the United States
      a. midlatitude forests
      b. midlatitude grasslands
      c. Mediterranean forests and scrubs
      d. deserts
      e. mountains
      f. plains
      g. lakes and water systems
      h. tundra

J. Is familiar with the processes involved in the hydrologic cycle
   1. Evaporation
   2. Condensation
   3. Precipitation
   4. Runoff

III. Human Geography

The beginning secondary education geography teacher:

A. Understands spatial patterns and variations in characteristics of human populations
   1. Can identify source regions for major language families and has knowledge of patterns of language on a global scale
   2. Can identify source regions for major world religions and has knowledge of patterns and landscapes of religion on a global scale
   3. Can identify cultural landscape patterns in the United States
   4. Understands changing ethnic patterns on varying scales
   5. Can identify changing patterns of economic development on various scales

B. Knows the basic demographic indicators (e.g., age, gender, mortality rates)
   1. Recognizes and can apply data and measurements used by demographers
2. Recognizes the stages of the demographic transition model
3. Recognizes patterns of global population distribution

C. Knows how to interpret population pyramids on four scales
   1. Global
   2. National
   3. Regional
   4. Local

D. Understands patterns of internal and international migration
   1. Can identify major migration patterns within the United States
   2. Has knowledge of historical and current international migration streams, particularly as they apply to the United States
   3. Understands the push-and-pull factors that influence migration

E. Can identify the characteristics of urban and rural settlements
   1. Can distinguish among urban, suburban, and rural settlement patterns
   2. Can recognize interactions among urban, suburban, and rural settlements

F. Understands the development and diffusion of agriculture
   1. Recognizes the different forms of agriculture
      a. subsistence
      b. commercial
      c. intensive
      d. extensive
   2. Can identify hearths of plant and animal domestication
   3. Recognizes historical patterns and current patterns of agricultural diffusion

G. Recognizes how technology affects agricultural production in diverse environments
   1. Terracing
   2. Irrigation systems
   3. Mechanization

H. Understands the industrialization of agriculture
   1. Understands the linkages between production, processing, marketing, and consumption of agricultural commodities

I. Understands concepts of nation, state, nation-state, stateless nations, multistate nations, and multinational states

J. Can identify and locate examples of nation, state, nation-state, stateless nations, multistate nations, and multinational states as recognized by political geographers

K. Recognizes recent conflict and cooperation throughout the world
   1. Recognizes issues that influence conflict and cooperation at various scales throughout the world
   2. Can identify areas of cooperation and conflict
      a. European Union
      b. Arab-Israeli conflict
      c. oil and water rights
   3. Recognizes patterns and effects of industrialization, development, and deindustrialization
   4. Recognizes the relationships between various indicators and the level of a country’s development (e.g., social, economic, demographic)
   5. Understands economic interdependence and can interpret patterns of acquisition and distribution of commodities
   6. Understands spatial examples of globalization
   7. Understands patterns of globalization of human activities
      a. cultural diffusion
      b. global transportation networks
      c. universalizing religions
   8. Recognizes changing global economic patterns (e.g., export processing zones, international division of labor, and outsourcing)
   9. Recognizes the economic and cultural roles of the World Cities in globalization (e.g., New York City, London, and Tokyo)
IV. Regional Geography

The beginning secondary education geography teacher:

A. Understands that regions can be classified according to human or physical characteristics
   1. Economic activity
   2. Linguistic divisions
   3. Religious predominance
   4. Climate
   5. Topography
   6. Biomes

B. Can identify major regions of the world when indicated on a map or described by physical and/or human characteristics (e.g., Southeast Asia, Eastern Europe, Latin America)

C. Knows and can associate the important human and physical characteristics that define the major world regions (e.g., Polynesia, tropical rain forest biomes in South America, the Sahel in Africa)

D. Can identify major regions of the United States (e.g., Midwest, New England, Southwest)

E. Is aware that people’s perceptions of regions differ based on their own culture and experience
   1. Can recognize differing perceptual frameworks for dividing the United States or other areas of the world into regions based on a variety of factors, such as history, religion, and perceived cultural or ethnic traits

V. Environment and Society

The beginning secondary education geography teacher:

A. Understands how human decisions and activities modify the physical environment
   1. Agriculture
   2. Dam construction
   3. Industrialization

B. Understands the interaction between human and physical systems
   1. Understands the effects of physical systems on human activities, such as how climate and weather affect agriculture
   2. Understands the effects of human activities on physical systems, such as how deforestation affects biodiversity

C. Recognizes that physical systems can have a limiting but not a determining effect on human activities
   1. Recognizes the effects of climate, seismic processes, and topography on human activities
   2. Recognizes ways in which humans have sought to mitigate the limiting effects of physical systems and environmental features
   3. Can differentiate between environmental determinism and possibilism

D. Is familiar with ways humans overcome the limitations of the physical environment
   1. Air-conditioning
   2. Greenhouses
   3. Irrigation

E. Recognizes how the positive and negative features of the physical environment affect patterns of human settlement

F. Knows the natural hazards related to settlements near oceans and rivers and recognizes why humans continue to settle in those locations

G. Understands the effects of tectonic processes on human settlements
   1. Earthquakes
   2. Volcanic eruptions
   3. Tsunamis
   4. Nutrient-rich volcanic soil

H. Recognizes the long-term environmental impacts of patterns of industrial concentration
   1. Air pollution
   2. Water contamination
   3. Traffic congestion

I. Understands the effects of chemicals on the environment
   1. Industrial
   2. Agricultural
   3. Household

J. Understands the long-term effects of groundwater pollution and depletion

K. Is familiar with the debates concerning global warming and climate change

L. Recognizes how climate change affects human settlements and ecosystems
   1. Prolonged drought
   2. Excessive precipitation
M. Understands the differences between renewable and nonrenewable resources

N. Knows the factors influencing the search for alternative sources of energy
   1. Production and transport costs
   2. Desire to reduce pollution
   3. Fluctuating prices for fossil fuels

O. Recognizes the effects of population and changes of living
2. Familiarize Yourself with Test Questions

_Become comfortable with the types of questions you’ll find on the Praxis tests_

The _Praxis_ assessments include a variety of question types: constructed response (for which you write a response of your own); selected response, for which you select one or more answers from a list of choices or make another kind of selection (e.g., by clicking on a sentence in a text or by clicking on part of a graphic); and numeric entry, for which you enter a numeric value in an answer field. You may be familiar with these question formats from taking other standardized tests. If not, familiarize yourself with them so you don’t spend time during the test figuring out how to answer them.

**Understanding Computer-Delivered Questions**

Questions on computer-delivered tests are interactive in the sense that you answer by selecting an option or entering text on the screen. If you see a format you are not familiar with, read the directions carefully. The directions always give clear instructions on how you are expected to respond.

For most questions, you respond by clicking an oval to select a single answer from a list of answer choices.

However, interactive question types may also ask you to respond by:

- **Clicking more than one oval** to select answers from a list of choices.
- **Typing in an entry box.** When the answer is a number, you may be asked to enter a numerical answer.
  Some questions may have more than one place to enter a response.
- **Clicking check boxes.** You may be asked to click check boxes instead of an oval when more than one choice within a set of answers can be selected.
- **Clicking parts of a graphic.** In some questions, you will select your answers by clicking on a location (or locations) on a graphic such as a map or chart, as opposed to choosing your answer from a list.
- **Clicking on sentences.** In questions with reading passages, you may be asked to choose your answers by clicking on a sentence (or sentences) within the reading passage.
- **Dragging and dropping answer choices into targets on the screen.** You may be asked to select answers from a list of choices and drag your answers to the appropriate location in a table, paragraph of text or graphic.
- **Selecting answer choices from a drop-down menu.** You may be asked to choose answers by selecting choices from a drop-down menu (e.g., to complete a sentence).

Remember that with every question you will get clear instructions.

Perhaps the best way to understand computer-delivered questions is to view the [Computer-delivered Testing Demonstration](https://www.usa.gov) on the Praxis web site to learn how a computer-delivered test works and see examples of some types of questions you may encounter.
Understanding Selected-Response Questions

Many selected-response questions begin with the phrase “which of the following.” Take a look at this example:

Which of the following is a flavor made from beans?

(A) Strawberry
(B) Cherry
(C) Vanilla
(D) Mint

How would you answer this question?

All of the answer choices are flavors. Your job is to decide which of the flavors is the one made from beans.

Try following these steps to select the correct answer.

1) **Limit your answer to the choices given.** You may know that chocolate and coffee are also flavors made from beans, but they are not listed. Rather than thinking of other possible answers, focus only on the choices given ("which of the following").

2) **Eliminate incorrect answers.** You may know that strawberry and cherry flavors are made from fruit and that mint flavor is made from a plant. That leaves vanilla as the only possible answer.

3) **Verify your answer.** You can substitute “vanilla” for the phrase “which of the following” and turn the question into this statement: “Vanilla is a flavor made from beans.” This will help you be sure that your answer is correct. If you’re still uncertain, try substituting the other choices to see if they make sense. You may want to use this technique as you answer selected-response questions on the practice tests.

Try a more challenging example

The vanilla bean question is pretty straightforward, but you’ll find that more challenging questions have a similar structure. For example:

Entries in outlines are generally arranged according to which of the following relationships of ideas?

(A) Literal and inferential
(B) Concrete and abstract
(C) Linear and recursive
(D) Main and subordinate

You’ll notice that this example also contains the phrase “which of the following.” This phrase helps you determine that your answer will be a “relationship of ideas” from the choices provided. You are supposed to find the choice that describes how entries, or ideas, in outlines are related.

Sometimes it helps to put the question in your own words. Here, you could paraphrase the question in this way: “How are outlines usually organized?” Since the ideas in outlines usually appear as main ideas and subordinate ideas, the answer is (D).
**QUICK TIP:** Don’t be intimidated by words you may not understand. It might be easy to be thrown by words like “recursive” or “inferential.” Read carefully to understand the question and look for an answer that fits. An outline is something you are probably familiar with and expect to teach to your students. So slow down, and use what you know.

**Watch out for selected-response questions containing “NOT,” “LEAST,” and “EXCEPT”**

This type of question asks you to select the choice that does not fit. You must be very careful because it is easy to forget that you are selecting the negative. This question type is used in situations in which there are several good solutions or ways to approach something, but also a clearly wrong way.

**How to approach questions about graphs, tables, or reading passages**

When answering questions about graphs, tables, or reading passages, provide only the information that the questions ask for. In the case of a map or graph, you might want to read the questions first, and then look at the map or graph. In the case of a long reading passage, you might want to go ahead and read the passage first, noting places you think are important, and then answer the questions. Again, the important thing is to be sure you answer the questions as they refer to the material presented. So read the questions carefully.

**How to approach unfamiliar formats**

New question formats are developed from time to time to find new ways of assessing knowledge. Tests may include audio and video components, such as a movie clip or animation, instead of a map or reading passage. Other tests may allow you to zoom in on details in a graphic or picture.

Tests may also include interactive questions. These questions take advantage of technology to assess knowledge and skills in ways that standard selected-response questions cannot. If you see a format you are not familiar with, **read the directions carefully.** The directions always give clear instructions on how you are expected to respond.

**QUICK TIP:** Don’t make the questions more difficult than they are. Don’t read for hidden meanings or tricks. There are no trick questions on Praxis tests. They are intended to be serious, straightforward tests of your knowledge.
3. Practice with Sample Test Questions

Answer practice questions and find explanations for correct answers

Sample Test Questions

The sample questions that follow illustrate the kinds of questions on the test. They are not, however, representative of the entire scope of the test in either content or difficulty. Answers with explanations follow the questions.

Directions: Each of the questions or statements below is followed by four suggested answers or completions. Select the one that is best in each case.

1. An isobar map shows lines connecting all points of equal
   (A) atmospheric pressure
   (B) surface temperature
   (C) elevation
   (D) precipitation

2. On which of the following can one most accurately depict true geographical distance, true direction, true size, and true shape?
   (A) A Mercator projection
   (B) A globe
   (C) A conic projection
   (D) A gnomonic projection

3. The climate of Great Britain is milder than most other places along the same latitude for which of the following reasons?
   (A) The Gulf Stream brings warm waters to Great Britain, raising the temperature of winds that blow onto the island.
   (B) Hot springs throughout the country raise the temperature of the surrounding land and air.
   (C) Mountain ranges in the north of Great Britain act as a barrier to cold winds blowing from the Arctic.
   (D) Small landmasses generate their own local climate and are largely unaffected by latitude.

4. Which of the following is LEAST associated with the development of alluvial landscapes?
   (A) A deep cover of loose materials
   (B) A predominance of gentle slopes
   (C) Frequent flooding
   (D) Deep dissection and erosion

5. One of the effects of the east–west orientation of the Alpine mountain system and the northern plains of western and central Europe is that it
   (A) limits the marine climate of Europe to coastal areas
   (B) provides a corridor for communication between southern and northern Europe
   (C) enables marine-like climatic conditions to extend eastward into Germany and Poland
   (D) effectively prevents population movement between parts of the Mediterranean region

6. The irregularity of the wet monsoon in South Asia in recent years may have a significant negative effect on which of the following?
   (A) Food production
   (B) Population patterns
   (C) Wildlife conservation efforts
   (D) Tourism

7. Which of the following is LEAST self-sufficient in the natural resources needed for modern industry?
   (A) United States
   (B) Japan
   (C) France
   (D) United Kingdom
8. Early settlements and high population density along coastlines and rivers are best attributed to which of the following?
(A) Mediterranean climate
(B) Limited forest cover
(C) Growth of manufacturing
(D) Access to trade routes

9. In which of the following regions is subsistence agriculture being replaced by large-scale commercial development?
(A) The Swiss Alps
(B) The Amazon Basin
(C) North Africa
(D) The Alaskan tundra

10. The cities of Varanasi (Benares) in India and Mecca in Saudi Arabia are alike because both are
(A) capitals of countries formerly colonized by the English
(B) destinations for vast numbers of pilgrims
(C) financial centers for a large fraction of the world's economy
(D) examples of modern urban planning

11. Walter Christaller developed central place theory as a tool to describe the spatial relationships between
(A) central business districts and suburbs
(B) a market and its sources for raw materials
(C) cities of different sizes and functions
(D) the hubs of airline transportation systems

12. When a new fashion design is introduced globally, the information initially travels through a process known as
(A) contagious diffusion
(B) relocation diffusion
(C) innovative diffusion
(D) hierarchical diffusion

13. Spanish colonial architecture, uneven economic development, and rural-to-urban migration flows are most commonly found in which of the following?
(A) Southeast Asia
(B) Sub-Saharan Africa
(C) North America
(D) Latin America

14. The migration streams into the United States between 1980 and the present have been primarily composed of emigrants from which of the following regions?
(A) Europe and North Africa
(B) Asia and Latin America
(C) Sub-Saharan Africa and Oceania
(D) Central Europe and Australia

15. Due to a decrease in population, the city of Detroit, Michigan, has proposed to shrink its physical size by bulldozing abandoned neighborhoods and selling the vacant land to farmers. The cause of Detroit's shrinking population can be attributed to
(A) gentrification
(B) agglomeration
(C) deindustrialization
(D) conurbation

16. Which of the following countries is situated in the region of tectonic activity known as the Pacific Ring of Fire?
(A) Brazil
(B) Australia
(C) Chile
(D) India
17. Which of the following sets of countries are contained within the same geographic region?
   (A) Pakistan, India, Nepal, and Afghanistan
   (B) Uruguay, Ecuador, Guinea, and Chile
   (C) Thailand, Laos, Falkland Islands, and Philippines
   (D) Namibia, Gabon, New Guinea, and Tanzania

18. The effects of the Great Mississippi Flood of 1927 and Hurricane Katrina in 2005 are similar because
   (A) the deep-sea fishing industry never fully recovered
   (B) a breach in levees increased the severity of the flooding
   (C) they were caused by tsunamis
   (D) they created a shortage in agricultural exports

19. Which of the following best illustrates the definition of a functional region?
   (A) A map showing Atlanta as a hub for Delta Airlines
   (B) An article describing the region referred to as the South
   (C) A map showing North Carolina’s one hundred counties
   (D) An essay explaining the region known as the Bible Belt

20. The official languages of Guyana, Suriname, and French Guiana are English, Dutch, and French, respectively. On what continent are those countries located?
   (A) North America
   (B) South America
   (C) Africa
   (D) Asia

21. Why are perceptual or vernacular regions so difficult to identify?
   (A) Boundaries are constantly being redrawn.
   (B) Physical features, such as rivers, are constantly shifting.
   (C) Defining criteria are subjective and differ among researchers.
   (D) Antecedent boundaries were drawn before humans were located in the regions.

22. Which of the following energy resources has the smallest remaining amount of proven reserves?
   (A) Petroleum
   (B) Natural Gas
   (C) Coal
   (D) Wood

23. Which of the following regions is the culture hearth for three of the world’s main religions?
   (A) Horn of Africa
   (B) Indus River valley
   (C) Huang He valley
   (D) Eastern Mediterranean

24. Which of the following experiences the greatest temperature extremes due to continentality?
   (A) Maritime provinces of Canada
   (B) Siberia in Russia
   (C) La Mancha in Spain
   (D) Patagonia in Argentina
Step 3: Practice with Sample Test Questions

Answers to Sample Questions

1. The correct answer is (A). An isobar is a line drawn on a map to connect all points of equal atmospheric pressure.

2. The correct answer is (B). Only the globe can depict all the characteristics of size, shape, distance, and direction almost accurately.

3. The correct answer is (A). The Gulf Stream is a warm current that flows northeast past the west coast of Great Britain. It brings milder climates to this landmass than would be expected given its northerly location.

4. The correct answer is (D). The features described in (A), (B), and (C) are common in landscapes that have been deposited by water. Deep dissection and erosion are NOT associated with the development of alluvial landscapes.

5. The correct answer is (C). The physiogeography of Europe creates a corridor from the western coast eastward into Germany and Poland, enabling those countries to experience marine-like climate conditions.

6. The correct answer is (A). Many crops, especially rice, are dependent on the regularity of wet and dry seasons.

7. The correct answer is (B). Japan must import nearly all the raw materials needed for its industrial economy.

8. The correct answer is (D). Trade was an important activity for the success of early settlements.

9. The correct answer is (B). The Amazon basin is the only region listed in which subsistence agriculture is widely practiced. This form of agriculture is under threat as the commercial development of the rain forest for cattle and rubber increases.

10. The correct answer is (B). Varanasi (Benares) is a holy city of the Hindus and the object of constant pilgrimages; Mecca is a holy city and the principal pilgrimage destination of Islam.

11. The correct answer is (C). Christaller’s primary goal in developing the model was to explain how and where central places (cities or towns) in the urban hierarchy would be functionally and spatially distributed with respect to one another.

12. The correct answer is (D) because hierarchical diffusion is a form of diffusion in which the adoption of an innovation or new idea occurs first in larger cities and then trickles down to smaller cities.

13. The correct answer is (D). Latin America is the only region in the answer choices listed in which all three of the characteristics are found.

14. The correct answer is (B). Currently, Asia and Latin America are the primary source regions for immigration to the United States.

15. The correct answer is (C). Deindustrialization is the process by which companies move manufacturing jobs to regions with cheaper labor. In the 1960s and 1970s, the industrial zone of the United States that includes Detroit, Michigan, lost many of its manufacturing jobs to areas of the world with lower wages. This led to abandoned factories and high unemployment in Detroit.

16. The correct answer is (C). About three-quarters of all active volcanoes in the world lie within the Pacific Rim. Plate boundaries are found all the way around the Pacific basin, and it is along these plate boundaries that the many volcanoes and earthquakes take place in what is commonly called the Pacific Ring of Fire. Chile lies along the Peru-Chile Trench along the eastern edge of the Pacific basin.

17. The correct answer is (A). Pakistan, India, Nepal, and Afghanistan are all located in south Asia.

18. The correct answer is (B). The failure of the levee system was the primary cause of the extensive flooding in both cases. Faulty design, inadequate construction, or some combination of the two was the likely cause of the breaching of the floodwalls.

19. The correct answer is (A). A functional region is defined by the particular set of activities or interactions that occur within it. A hub for an airline carrier is an example of the functional region.

20. The correct answer is (B). Guyana, Suriname, and French Guiana are located along the northeastern coast of South America.

21. The correct answer is (C). A perceptual region is not a physically demarcated entity. It exists as a conceptualization or an idea. In the United States, the South is a perceptual region.
22. The correct answer is (A). Petroleum has the smallest volume of proven reserves around the world, of any major fuel source. Given increasing consumption and decreasing reserves of petroleum, practical use may end before the year 2100.

23. The correct answer is (D). Judaism, Christianity, and Islam have their origins in the eastern Mediterranean. Thus, the eastern Mediterranean is the culture hearth for these religions.

24. The correct answer is (B). Continentality is the tendency of areas remote from the ocean to have large annual and daily temperature ranges. These areas experience little maritime influence because the general atmospheric circulation is westerly. Siberia is located in the subarctic climate zone where annual temperatures can range from over 90° F in the summer down to −50° F in the winter.
4. Determine Your Strategy for Success

Set clear goals and deadlines so your test preparation is focused and efficient

Effective Praxis test preparation doesn’t just happen. You’ll want to set clear goals and deadlines for yourself along the way. Otherwise, you may not feel ready and confident on test day.

1) Learn what the test covers.

You may have heard that there are several different versions of the same test. It’s true. You may take one version of the test and your friend may take a different version a few months later. Each test has different questions covering the same subject area, but both versions of the test measure the same skills and content knowledge.

You’ll find specific information on the test you’re taking on page 5, which outlines the content categories that the test measures and what percentage of the test covers each topic. Visit www.ets.org/praxis/testprep for information on other Praxis tests.

2) Assess how well you know the content.

Research shows that test takers tend to overestimate their preparedness—this is why some test takers assume they did well and then find out they did not pass.

The Praxis tests are demanding enough to require serious review of likely content, and the longer you’ve been away from the content, the more preparation you will most likely need. If it has been longer than a few months since you’ve studied your content area, make a concerted effort to prepare.

3) Collect study materials.

Gathering and organizing your materials for review are critical steps in preparing for the Praxis tests. Consider the following reference sources as you plan your study:

• Did you take a course in which the content area was covered? If yes, do you still have your books or your notes?
• Does your local library have a high school-level textbook in this area? Does your college library have a good introductory college-level textbook in this area?

Practice materials are available for purchase for many Praxis tests at www.ets.org/praxis/testprep. Test preparation materials include sample questions and answers with explanations.

4) Plan and organize your time.

You can begin to plan and organize your time while you are still collecting materials. Allow yourself plenty of review time to avoid cramming new material at the end. Here are a few tips:

• Choose a test date far enough in the future to leave you plenty of preparation time. Test dates can be found at www.ets.org/praxis/register/centers_dates.
• Work backward from that date to figure out how much time you will need for review.
• Set a realistic schedule—and stick to it.
5) Practice explaining the key concepts.

*Praxis* tests with constructed-response questions assess your ability to explain material effectively. As a teacher, you'll need to be able to explain concepts and processes to students in a clear, understandable way. What are the major concepts you will be required to teach? Can you explain them in your own words accurately, completely, and clearly? Practice explaining these concepts to test your ability to effectively explain what you know.

6) Understand how questions will be scored.

Scoring information can be found on page 58.

7) Develop a study plan.

A study plan provides a road map to prepare for the *Praxis* tests. It can help you understand what skills and knowledge are covered on the test and where to focus your attention. Use the study plan template on page 24 to organize your efforts.

And most important—get started!

**Would a Study Group Work for You?**

**Using this guide as part of a study group**

People who have a lot of studying to do sometimes find it helpful to form a study group with others who are working toward the same goal. Study groups give members opportunities to ask questions and get detailed answers. In a group, some members usually have a better understanding of certain topics, while others in the group may be better at other topics. As members take turns explaining concepts to one another, everyone builds self-confidence.

If the group encounters a question that none of the members can answer well, the group can go to a teacher or other expert and get answers efficiently. Because study groups schedule regular meetings, members study in a more disciplined fashion. They also gain emotional support. The group should be large enough so that multiple people can contribute different kinds of knowledge, but small enough so that it stays focused. Often, three to six members is a good size.

Here are some ways to use this guide as part of a study group:

- **Plan the group’s study program.** Parts of the study plan template, beginning on page 24, can help to structure your group’s study program. By filling out the first five columns and sharing the worksheets, everyone will learn more about your group’s mix of abilities and about the resources, such as textbooks, that members can share with the group. In the sixth column (“Dates I will study the content”), you can create an overall schedule for your group’s study program.

- **Plan individual group sessions.** At the end of each session, the group should decide what specific topics will be covered at the next meeting and who will present each topic. Use the topic headings and subheadings in the Test at a Glance table on page 5 to select topics, and then select practice questions, beginning on page 14.

- **Prepare your presentation for the group.** When it’s your turn to present, prepare something that is more than a lecture. Write two or three original questions to pose to the group. Practicing writing actual questions can help you better understand the topics covered on the test as well as the types of questions you will encounter on the test. It will also give other members of the group extra practice at answering questions.
Step 4: Determine Your Strategy for Success

- **Take a practice test together.** The idea of a practice test is to simulate an actual administration of the test, so scheduling a test session with the group will add to the realism and may also help boost everyone's confidence. Remember, complete the practice test using only the time that will be allotted for that test on your administration day.

- **Learn from the results of the practice test.** Review the results of the practice test, including the number of questions answered correctly in each content category. For tests that contain constructed-response questions, look at the Sample Test Questions section, which also contain sample responses to those questions and shows how they were scored. Then try to follow the same guidelines that the test scorers use.

- **Be as critical as you can.** You're not doing your study partner(s) any favors by letting them get away with an answer that does not cover all parts of the question adequately.

- **Be specific.** Write comments that are as detailed as the comments about the sample responses. Indicate where and how your study partner(s) are doing an inadequate job of answering the question. Writing notes in the margins of the answer sheet may also help.

- **Be supportive.** Include comments that point out what your study partner(s) got right.

Then plan one or more study sessions based on aspects of the questions on which group members performed poorly. For example, each group member might be responsible for rewriting one paragraph of a response in which someone else did an inadequate job.

Whether you decide to study alone or with a group, remember that the best way to prepare is to have an organized plan. The plan should set goals based on specific topics and skills that you need to learn, and it should commit you to a realistic set of deadlines for meeting those goals. Then you need to discipline yourself to stick with your plan and accomplish your goals on schedule.
5. Develop Your Study Plan

Develop a personalized study plan and schedule

Planning your study time is important because it will help ensure that you review all content areas covered on the test. Use the sample study plan below as a guide. It shows a plan for the Core Academic Skills for Educators: Reading test. Following that is a study plan template that you can fill out to create your own plan. Use the “Learn about Your Test” and “Test Specifications” information beginning on page 5 to help complete it.

Use this worksheet to:
1. Define Content Areas: List the most important content areas for your test as defined in chapter 1.
2. Determine Strengths and Weaknesses: Identify your strengths and weaknesses in each content area.
3. Identify Resources: Identify the books, courses, and other resources you plan to use for each content area.
4. Study: Create and commit to a schedule that provides for regular study periods.

| Praxis Test Name (Test Code): | Core Academic Skills for Educators: Reading (5712) |
| Test Date: | 9/15/15 |

<table>
<thead>
<tr>
<th>Content covered</th>
<th>Description of content</th>
<th>How well do I know the content? (scale 1–5)</th>
<th>What resources do I have/need for the content?</th>
<th>Where can I find the resources I need?</th>
<th>Dates I will study the content</th>
<th>Date completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Close reading</td>
<td>Draw inferences and implications from the directly stated content of a reading selection</td>
<td>3</td>
<td>Middle school English textbook</td>
<td>College library, middle school teacher</td>
<td>7/15/15</td>
<td>7/15/15</td>
</tr>
<tr>
<td>Determining ideas</td>
<td>Identify summaries or paraphrases of the main idea or primary purpose of a reading selection</td>
<td>3</td>
<td>Middle school English textbook</td>
<td>College library, middle school teacher</td>
<td>7/17/15</td>
<td>7/17/15</td>
</tr>
<tr>
<td>Determining ideas</td>
<td>Identify summaries or paraphrases of the supporting ideas and specific details in a reading selection</td>
<td>3</td>
<td>Middle and high school English textbook</td>
<td>College library, middle and high school teachers</td>
<td>7/20/15</td>
<td>7/21/15</td>
</tr>
<tr>
<td><strong>Craft, Structure, and Language Skills</strong></td>
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<tr>
<td>Interpreting tone</td>
<td>Determine the author’s attitude toward material discussed in a reading selection</td>
<td>4</td>
<td>Middle and high school English textbook</td>
<td>College library, middle and high school teachers</td>
<td>7/25/15</td>
<td>7/26/15</td>
</tr>
<tr>
<td>Analysis of structure</td>
<td>Identify key transition words and phrases in a reading selection and how they are used</td>
<td>3</td>
<td>Middle and high school English textbook, dictionary</td>
<td>College library, middle and high school teachers</td>
<td>7/25/15</td>
<td>7/27/15</td>
</tr>
<tr>
<td>Analysis of structure</td>
<td>Identify how a reading selection is organized in terms of cause/effect, compare/contrast, problem/solution, etc.</td>
<td>5</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/1/15</td>
<td>8/1/15</td>
</tr>
<tr>
<td>Author’s purpose</td>
<td>Determine the role that an idea, reference, or piece of information plays in an author’s discussion or argument</td>
<td>5</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/1/15</td>
<td>8/1/15</td>
</tr>
</tbody>
</table>

(continued on next page)
<table>
<thead>
<tr>
<th>Content covered</th>
<th>Description of content</th>
<th>How well do I know the content? (scale 1–5)</th>
<th>What resources do I have/need for the content?</th>
<th>Where can I find the resources I need?</th>
<th>Dates I will study the content</th>
<th>Date completed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language in different contexts</td>
<td>Determine whether information presented in a reading selection is presented as fact or opinion</td>
<td>4</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/1/15</td>
<td>8/1/15</td>
</tr>
<tr>
<td>Contextual meaning</td>
<td>Identify the meanings of words as they are used in the context of a reading selection</td>
<td>2</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/1/15</td>
<td>8/1/15</td>
</tr>
<tr>
<td>Figurative language</td>
<td>Understand figurative language and nuances in word meanings</td>
<td>2</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/8/15</td>
<td>8/8/15</td>
</tr>
<tr>
<td>Vocabulary range</td>
<td>Understand a range of words and phrases sufficient for reading at the college and career readiness level</td>
<td>2</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/15/15</td>
<td>8/17/15</td>
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<tr>
<td>Integration of Knowledge and Ideas</td>
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<tr>
<td>Diverse media and formats</td>
<td>Analyze content presented in diverse media and formats, including visually and quantitatively, as well as in words</td>
<td>2</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/22/15</td>
<td>8/24/15</td>
</tr>
<tr>
<td>Evaluation of arguments</td>
<td>Identify the relationship among ideas presented in a reading selection</td>
<td>4</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/24/15</td>
<td>8/24/15</td>
</tr>
<tr>
<td>Evaluation of arguments</td>
<td>Determine whether evidence strengthens, weakens, or is relevant to the arguments in a reading selection</td>
<td>3</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/27/15</td>
<td>8/27/15</td>
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<tr>
<td>Evaluation of arguments</td>
<td>Determine the logical assumptions upon which an argument or conclusion is based</td>
<td>5</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/28/15</td>
<td>8/30/15</td>
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<tr>
<td>Evaluation of arguments</td>
<td>Draw conclusions from material presented in a reading selection</td>
<td>5</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>8/30/15</td>
<td>8/31/15</td>
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<tr>
<td>Comparison of texts</td>
<td>Recognize or predict ideas or situations that are extensions of or similar to what has been presented in a reading selection</td>
<td>4</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>9/3/15</td>
<td>9/4/15</td>
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<tr>
<td>Comparison of texts</td>
<td>Apply ideas presented in a reading selection to other situations</td>
<td>2</td>
<td>High school textbook, college course notes</td>
<td>College library, course notes, high school teacher, college professor</td>
<td>9/5/15</td>
<td>9/6/15</td>
</tr>
</tbody>
</table>
**My Study Plan**

Use this worksheet to:
1. Define Content Areas: List the most important content areas for your test as defined in chapter 1.
2. Determine Strengths and Weaknesses: Identify your strengths and weaknesses in each content area.
3. Identify Resources: Identify the books, courses, and other resources you plan to use for each content area.
4. Study: Create and commit to a schedule that provides for regular study periods.

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# Step 5: Develop Your Study Plan

<table>
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<tr>
<th>Content covered</th>
<th>Description of content</th>
<th>How well do I know the content? (scale 1–5)</th>
<th>What resources do I have/need for the content?</th>
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6. Review Study Topics

*Review study topics with questions for discussion*

Preparing for the *Praxis®* Geography Test

The *Praxis*® Geography test is designed to measure the subject-area knowledge and competencies necessary for a beginning teacher of geography in a middle or high school. The test contains all selected-response questions.

Selected-Response Questions

This part of the chapter is intended to help you organize your preparation for the test and to give you a clear indication about the depth and breadth of the knowledge required for success on the selected-response questions.

The Geography test contains 120 selected-response questions that constitute 100 percent of the test taker’s total exam score. It is expected that 120 minutes will be spent on the selected-response questions. Each question will have four options. There is only one correct answer to each question. Expect many questions to include a graphic, such as a map, diagram or geographical model.

The selected-response questions on the test focus on understanding important physical, environmental, social, economic, cultural, and political concepts. There are also questions on geographical thinking. Many questions require the test taker to blend major concepts with real-world examples, drawn from the United States and regions around the world.

The Connectedness of Things

The subjects within geography are interdisciplinary and mutually enriching. While some questions on the test use a single concept, many questions require the integration of two or more areas of knowledge. Each geographical feature or model may have multiple connections to other features, concepts or models. In preparation for the test, take note of connections between concepts. It can also help to know example locations related to concepts in this study guide.

Test-Taking Strategy

In selecting answers, some selected-response sets have you compare locations that are similar or share a number of characteristics. The conditions set in the question help you identify the correct answer. The question and answers are based on a process, where the question specifies a set of conditions that are fully met by only one answer. If you know the correct answer automatically, fill in the corresponding letter on the answer sheet and continue to the next question.

However, if you are not sure about the correct choice of answer, identifying each of the question conditions is your next step. Then evaluate each answer based on those conditions to select the correct response. Examine the following political geography question:

Sample Question

Which of the following countries would be classified as a constitutional monarchy?

- (A) United States
- (B) France
- (C) United Kingdom
- (D) Saudi Arabia
The sample question is based on the following conditions:

Condition 1: A constitution defines the role and selection of an executive head of government.

Condition 2: In a monarchy, the country has a king, queen, emperor, or similar aristocratic head of state.

The correct answer is (C). The United Kingdom is the only choice where both conditions are met.

**Caution: Distracters**

The incorrect options above are selected to potentially distract the test taker away from the correct answer. The answers above are in part correct but incomplete due to a historical fact or difference in political systems. The United States has a strong constitutional government and was once under the control of the British monarchy. France had a long monarchical history and lies in close proximity to several constitutional monarchies, such as Belgium, Luxembourg, Spain, and the United Kingdom. Until its revolution, France had an absolute monarchy, where kings ruled and did not share power with an elected government. Saudi Arabia's government is one of the world’s few remaining absolute monarchies. The Saudi king appoints individuals to leadership positions in the government, in lieu of national political elections.

**Studying for the Exam**

**Using topic lists**

You are not expected to be an expert on all aspects of the content categories. You should understand the major characteristics or aspects of each content category and be able to respond to various situations presented in the test questions; e.g., a map, picture, graph, table, or model. For instance, here is a sample using one of the topics in “Environment and Society,” under “Tectonic Process Effects on Human Settlements.”

**Types of Seismic Hazards**

A. Volcanoes  
B. Earthquakes and tsunamis

Ask yourself the following question regarding your subject knowledge:

What factors determine the amount of damage caused by an earthquake?

Then list potential answers, making sure to draw from all content categories: physical, human, regional and environmental geographies.

1. Magnitude measured by the Richter Scale, time duration and epicenter depth.  
2. Tsunami tidal waves and coastal flooding caused by oceanic earthquakes.  
3. Liquefaction. Sedimentary soils may liquefy, during long duration events of 10 seconds or longer, and damage building foundations.  
4. Population density and level of economic development in affected areas.  
5. The release of hazardous materials from infrastructure, like fuel pipelines or nuclear power plants.

Note that the questions in this chapter are not short-answer or selected-response, and this study guide does not provide all the possible answers. These questions are intended as study questions, not practice questions. Thinking about the answers to them should improve your understanding of fundamental concepts and likely help you answer a broad range of questions on the test.

Another effective tool is to ask what would be an incorrect answer to the question. What might be a distracter used to divert your attention away from the correct answer? After reviewing the study guide and making lists of correct and potential incorrect answers, write a few test questions with one precise answer and three distracters. This type of exercise may help prepare you for the pressure of the exam and increase your test-taking skills.
Process-based Answers

Rarely will answers to the study questions be simple or single items. Most questions on the Geography test involve some knowledge of processes, such as cause and effect, tied to a particular geographic concept, feature, or event. For instance, if event A occurs, then feature B may result. Under condition Z, during event A, feature C may result in addition to B. Apply these processes to real-world examples, and be sure to know a few examples of each concept. Remember:

Concept → Process → Examples

Here’s an example of process-based thinking using the earthquake damage topic:

Measurement Concepts

1. Magnitude: shaking is exponentially more powerful up each number on the Richter scale.
2. Duration: a long-duration, low-magnitude quake can do more damage than a short, powerful quake.
3. Epicenter depth: shallow epicenters cause more damage over a wider area.

Damage Process for Tsunami

1. Epicenter underwater?
2. Tsunami waves generated?
3. Coastal and low-lying populated areas exposed?

Damage Process for Soil Liquefaction

1. Duration longer than 10 seconds?
2. Sedimentary soils in built areas?

Damage Multiplier Process

1. Epicenter location relative to human population
2. Population density of affected area
3. Country’s level of economic development
4. Location’s vulnerable hazardous infrastructure

Famous Examples

Less Developed Countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Location, Magnitude, Duration</th>
<th>Fatalities</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>Sumatra Indonesia, 9.1, 8.3 minutes</td>
<td>230,000</td>
<td>Oceanic earthquake with powerful tsunami that spread across the Indian Ocean, damaging coastal communities in South and Southeast Asia and as far as East Africa. Few receive tsunami warnings.</td>
</tr>
<tr>
<td>2010</td>
<td>Port-au-Prince, Haiti, 7.0, 35 seconds</td>
<td>223,000</td>
<td>Epicenter in densely populated urban area. Large numbers of poorly constructed buildings collapse.</td>
</tr>
</tbody>
</table>
More Developed Countries

<table>
<thead>
<tr>
<th>Year</th>
<th>Location, Magnitude, Duration</th>
<th>Fatalities</th>
<th>Features</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011</td>
<td>Tōhoku, Japan, 9.0, 6 minutes</td>
<td>16,000</td>
<td>Off-shore earthquake. High tsunami tidal wave damaged coastal cities, factories, railroads and seven nuclear power plants. Tsunami warning system and evacuation plans utilized around the Pacific Rim.</td>
</tr>
<tr>
<td>1906</td>
<td>San Francisco, California, 7.9, 42 seconds</td>
<td>3,000</td>
<td>Fires from natural gas pipes, ruptured by soil liquefaction, burned over half of the city's buildings.</td>
</tr>
</tbody>
</table>

Sample Questions

Here are two sample test questions related to the topic above:

1. Tsunamis pose the greatest risk of damage in which of the following locations?
   - (A) Cities that have tall buildings
   - (B) Cities that are located on coastlines and harbors
   - (C) Cities that are built upon sedimentary soils
   - (D) Cities that are located within 50 miles of the earthquake epicenter

   Answer: (B)

   The answer is (B) because tsunami can threaten any city near a large water body. Tall buildings may provide a place of refuge from tsunami flooding. Sedimentary soils are at risk of liquefaction due to the physics of the earth shaking, not flooding waters. Tsunamis can affect locations thousands of miles from an earthquake epicenter.

2. The high numbers of fatalities from the 2010 Haiti Earthquake and the 2004 Indonesia Earthquake are similar because of which of the following?
   - (A) Tsunamis inundated coastal regions in countries far from the epicenter
   - (B) Damage to factories, utilities, communication lines, road and rail transportation systems
   - (C) Limited emergency management agencies
   - (D) Epicenters were located directly under large cities with many buildings

   Answer: (C)

   The answer is (C) because the question asks you to integrate your knowledge of economic geography with the earthquake topic. Governments in less developed countries tend to lack the funds needed for engineering inspections, disaster planning programs, and emergency medical and rescue systems with the capability to respond to large disasters. The earthquake in Haiti produced only a small localized tsunami. Not all earthquakes near or underwater produce tidal waves. Damage to infrastructure listed in (B) did occur in both cases, but were not a significant factor in the large numbers of fatalities. The epicenter of the earthquake in Indonesia was in the Indian Ocean off the western coast of the island of Sumatra.

Additional Test Preparation Resources

You are likely to find that earthquakes and tsunamis are covered by most “introductory to geography” textbooks or “introduction to physical geography” textbooks. However, a single general introductory textbook may not cover all of the topics in sufficient depth. Likewise, an “introduction to human geography” or “world regional geography” may not cover many physical geography topics. Consult multiple textbook sources, maps, atlases, and other resources, including lecture notes from your geography, earth sciences, history and other social science coursework. You should be able to match up specific topics and concepts in this guide with what you have covered in your courses. Compare and contrast the information from the different sources while reviewing the study topics.
Using the Study Topics That Follow

The Geography test is designed to measure the knowledge and skills necessary for a beginning teacher.

This chapter is intended to help you organize your preparation for the test and to give you a clear indication of the depth and breadth of the knowledge required for success on the test.

Virtually all accredited programs address the topics covered by the test; however, you are not expected to be an expert on all aspects of the topics that follow.

You are likely to find that the topics that follow are covered by most introductory textbooks. Consult materials and resources, including lecture and laboratory notes, from all your coursework. You should be able to match up specific topics and subtopics with what you have covered in your courses.

Try not to be overwhelmed by the volume and scope of content knowledge in this guide. Although a specific term may not seem familiar as you see it here, you might find you can understand it when applied to a real-life situation. Many of the items on the actual test will provide you with a context to apply to these topics or terms.

Remember as you prepare, follow the steps of knowing concepts, processes, and examples for each topic.

Discussion Areas

Interspersed throughout the study topics are discussion areas, presented as open-ended questions or statements. These discussion areas are intended to help test your knowledge of fundamental concepts and your ability to apply those concepts to situations in the classroom or the real world. Most of the areas require you to combine several pieces of knowledge to formulate an integrated understanding and response. If you spend time on these areas, you will gain increased understanding and facility with the subject matter covered on the test. You may want to discuss these areas and your answers with a teacher or mentor.

Note that this study companion does not provide answers for the discussion area questions, but thinking about the answers to them will help improve your understanding of fundamental concepts and will probably help you answer a broad range of questions on the test.

Study Topics

An overview of the areas covered on the test, along with their subareas, follows.

The beginning secondary school Geography teacher should be prepared to offer learning content from the following five major content categories. The Geography test will assess the test-taker’s knowledge and skills from the content categories and subcategories listed in these topics. Terms in bold are important keywords to understand.

I. Geography Literacy and Tools

A. Map types and their uses

1. Knows reference maps show location and detailed information.
   a. road maps are used for highway navigation
   b. topographic maps show elevation (using contour lines called isohyets), landforms, groundcover, land use, and resources
   c. political maps display state, county and country boundaries, city limits, and voting districts
   d. ocean, coastal or sea charts show bathymetry (water depth), coastlines and aids to navigation such as lighthouses, buoys, and shipping channels
   e. plat maps show property line and land ownership information

2. Knows that thematic maps show distributions of data and simplify information.
   a. graduated symbol maps have symbols that are scaled by the volume of the feature (e.g., a one-inch diameter circle equals 1,000 people) or sized by order of magnitude (e.g., high, medium, low)
   b. dot distribution maps use one dot that equals a certain number of items, such as population, crop acreage, or tons of resources
c. **choropleth maps** have a set of colors or color-ramps that show map data. Varying colors can be used to identify different symbol, line or polygon features. Colors or color ramps can be scaled to show statistical distributions.

d. **isometric maps** have line contours called **isolines** that show variations in map data. Isolines go by different names depending upon what factor is measured on the map. A barometric pressure map uses lines called **isobars** to show variations in atmospheric pressure.

e. **cartograms** show geometric shapes and standard angles to simplify lines. Modern subway maps are linear cartograms. An **area cartogram** shows the relative size or scale of a place based upon a particular statistic such as population.

**B. Concepts of location**

![Map Image]

1. Knows that **absolute location** is determined by coordinate intersections of latitude and longitude.

2. Knows that **relative location** is determined by the characteristics, such as site and situation. **Site** is the physical description of a place, such as a harbor or forest region. **Situation** is the description of the place in its relationship to other locations.

**C. Geographical concepts of distance**

1. Knows that **absolute distance** is measured in linear units such as miles or kilometers.

2. Knows that **relative distance** is measured in units of time, inputs or financial cost.
   a. the farther two locations are from each other, the less interaction will occur between them. This is known as the principle of **distance decay** or the **friction of distance**.

b. **space-time compression** occurs when transportation technologies reduce the travel communication time between places.

**D. Concepts of direction**

1. Knows that **absolute direction** is used in mapping and navigation.
   a. **cardinal directions** are the main of the compass: north, south, east, and west.

   b. **intermediate directions** are halfway in between cardinal points: northeast, southeast, southwest, and northwest.

2. Knows that **relative directions** are often culturally based and vary between culture regions or social groups.
   a. “out west” or “upstate” are commonly used relative directional terms in the United States.

   b. directions in some cultures are associated with certain colors or deities.

   c. upwind and downwind are used in marine locations, upstream and downstream along rivers.

**E. Scale concepts**

1. Knows that **map scale** measures the relationship between distance on a map and distance on Earth’s surface in absolute terms.
   a. **ratio scale** is the mathematical ratio of map and Earth distances, e.g., 1:250,000.

   b. a **linear scale** describes a map unit of distance to the real world, e.g., 1 inch equals 10 miles, or represented by a scale bar (— = 1 mile).

2. Knows that relative scales describe the **scale of analysis** or level of geography.
   a. local, regional, or global

   b. city, county, or state

   c. census block, census tract, or metropolitan statistical area (MSA)

**F. Mental maps are perceived and used by people to navigate and organize social and economic activities**

1. Knows that individuals and culture groups develop a **sense of place** about locations, often influenced by:
   a. the person’s age, gender, and socioeconomic status

   b. a location’s spatial characteristics defined by **terrain** and **land use** (e.g., rural, urban, residential, commercial, retail, offices)
2. Knows that people use the **landmarks**, **corridors**, and barriers stored in their mental maps as a means of navigation, using relative directions from or along these landscape features.
   a. landmark examples: town square, shopping center, train station, lake, water tower, signpost, rock outcropping
   b. corridors include roadways, rail lines, rivers, trails

G. **Some regional concepts are based upon form and function**, such as economy, environment, or politics, while other regions are the result of human perception, the result of social or cultural patterns

1. Knows that a **formal region** is at least one homogenous feature spread across the region
2. Knows that a **functional region** is a node and its sphere of influence or a core area and its periphery
   a. urban metropolitan areas are often described as functional regions
   b. market areas and distribution systems are also functional regions

3. Knows that a **vernacular region** is the result of peoples perceived characteristics about an area

H. **General models are used to describe commonalities between places, geographic features or events**

1. Spatial models (see diagrams in the section on Human Geography)
   a. models of urban form that describe the structure of cities (e.g., **concentric zones**, **sector model**, and **multiple nuclei model**)
   b. **von Thünen's model** of agricultural land use

2. Non-spatial models
   a. demographic transition model of population change over time

I. **Geopolitical changes viewed through the lens of long-term geographic trends**

1. Devolution of communism in Eastern Europe, or the devolution of states into nation-states, known as **Balkanization**
2. State devolution where countries become divided along ethnic or religious differences (see Study with Maps on the next page)

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**Study with Maps:** Be able to explain how geography can be used for interpreting the past, understanding the present, and planning for the future. Various maps can be used to interpret changes in space and place over time. One such process would be balkanization, where the large empire states of early twentieth century Europe devolved into smaller sovereign states over the century. In a number of cases nation-states, where a single culture is represented by a single government, now span across areas where once larger countries exited. For instance, nation-states like Hungary, Austria, Czech Republic, Slovakia, and several other countries now stand within the borders of the old Austro-Hungarian Empire. Consider how ethnic nationalism might one day change the map of the Russian Federation.
Step 6: Review Study Topics

3. **Supranationalism** in the formation of such entities as the European Union, NAFTA, or OPEC

J. **Global environmental change as the interaction of physical and human geographic processes**
   1. Climate change in relation to **fossil fuel** use and **greenhouse gas** emissions
   2. **Deforestation** and **habitat loss** as a function of expanding agricultural land and natural resource demand
   3. Pollution of land, air and water with toxic and hazardous materials.

K. **The process of globalization of economic, social, and cultural interactions becoming more similar across world regions. Local and regional traditions becoming limited or threatened with extinction**
   1. Global spread of fast food restaurant chains effect on regional food culture
   2. Impact of cable and satellite television as well as movies on ethnic languages
   3. The use of English as a **lingua franca**, or common language, on the Internet

L. **Geographical research can utilize spatial analysis incorporating statistical data to examine patterns or relationships between different quantifiable variables**
   1. Common patterns are often seen in the results of spatial analyses.
      a. random
      b. clustered
      c. linear
      d. core and periphery
   2. Measures of density
      a. **arithmetic density** in persons per unit of land
      b. **agricultural density** of farming people per unit of actively farmed land
      c. **physiologic density** in persons per unit of **arable** (farmed and farmable) land

M. **Geospatial technologies resulted from the development of more powerful computers, imaging systems, space satellite remote sensing, and navigation systems.**
   1. **Geographic Information Systems (GIS)** greatly impact multiple areas of commerce, government and the military. Examples of GIS applications:
      a. emergency telephone systems with precise location data

b. land cover analysis of forest resource management and habitat protection
c. analysis of logistics, cargo and package delivery along least-cost shipping routes
d. business marketing data analysis of consumer patterns and real estate
e. mapping of utility lines, energy resources, and electrical grid power flows
f. crime data analysis
g. urban transportation planning

2. **Global Positioning System (GPS)** is based on a series of 24 space satellites around the globe which provide signals used to fix the location using GPS receivers.
   a. GPS provides accurate navigation for ships and aircraft.
   b. combined with data on traffic and road construction, GPS aids real-time driving directions for motorists, trucking companies, and emergency responders.
   c. recreational uses of GPS include navigation support for fishing spots, hiking trails, geocaching, golf course layouts. GPS receivers can be placed on dog collars to track retrievers.

3. **Remote sensing** satellites and cameras or sensors based on aircraft collect digital images of the Earth’s surface.
   a. data is used to monitor environmental changes to forests, parks, and wetlands.
   b. uses visible light and infrared to determine vegetation health or heat signatures, or radar sensors which penetrate vegetation to map topography.
   c. NASA LANDSAT, France’s SPOT, EOSAT, and RADARSAT are examples.
   d. aerial photographs are used by governments to update maps, assess property values, and enforce building codes.
   e. remote sensing imagery and aerial photography are used extensively by military, intelligence, and law enforcement to detect combatant or criminal activity.
N. Geographic Methods

1. **Quantitative data**, such as census results, are often used in concert with GIS to analyze and describe the attributes of a location or set of locations at a certain scale of analysis.
   a. **Spatial analysis** is the science of using quantitative methods to study geographic patterns using a mixture of statistics and geometry.
   b. Population Geography is also called **demography** or demographics.

2. Geographers also use **qualitative data** such as interviews, document archives, and visual observations to study places and events.

3. Maps are a product or form of output that distinguishes geography from other academic fields. The art and science of mapmaking is called **cartography**.

**Discussion areas: Geography Literacy and Tools**

- How are maps used to communicate different types of information, such as location or statistical data?
- What are the differences between the absolute and relative concepts of location, distance, direction, and geographic scale?
- How are mental maps a useful tool in organizing spatial information?
- How are regions perceived? What are the differences between the several types of regions? What are examples of each type of region?
- How are theoretical models used to organize and display geographic information?
- In what ways can geographic concepts be applied to current or historical events
- How are spatial patterns and density used to describe and measure landscapes?
- What technological tools are used to perform spatial analysis and apply principles of geography? How are these geographic tools used and in what ways are they useful to society?

II. Physical Geography

A. **Earth’s primary spheres**

1. Atmosphere, the layers of air surrounding the planet
2. Biosphere, the land surface, soils, and oceans
3. Lithosphere, the Earth’s crust, mantle, and core
4. Hydrosphere, oceans, atmosphere, and aquifers where water is transported

B. **Factors that influence weather events**

1. Temperature
2. Humidity
3. Precipitation
4. Atmospheric Pressure
5. Wind
6. Atmospheric lifting
7. Weather fronts, air masses, and pressure systems
8. Jet stream
9. Albedo

C. **Location of landmasses and bodies of water to prevailing winds which vary in direction based upon location by latitude.**

1. The lower 48 United States receive westerlies, a wind pattern which generally brings weather from west to east. These occur between 30° and 60° north or south of the equator.
2. Easterly trade winds blow from east to west, from West Africa to Northern Brazil and the Caribbean. These occur between the equator and 30º north or south.
   a. The “Trades” are so named because they enabled European sailing ships to sail south to Africa and then to the Americas with the wind speeding the journey. Ships then sailed to North American ports, from which the westerlies blew them back to Europe.
   b. Atlantic hurricanes are blown by trade winds into the Caribbean and Gulf of Mexico.

D. Latitude, the further north or south from the equator a location is, the cooler the climate.

E. Altitude and elevation, higher elevations have cooler climate zones and lower atmospheric pressure.

F. Ocean and atmospheric currents
   1. Warm currents provide for wetter, warmer climate on adjacent landmasses.
      a. The Gulf Stream, also known as the North Atlantic Drift, creates a marine climate effect in western and northern Europe, referred to as a marine west coast climate. This causes warmer temperatures than would be expected at higher latitudes.
   2. Cold currents tend to create more dry conditions on nearby landscapes due to a lack of evaporation of water into the atmosphere.
      a. The Peru Current, also known as the Humboldt Current, affects the western coast of South America and the Atacama Desert of Northern Chile and Peru.
   3. Inland areas away from oceans have a continental climate with less moisture and greater seasonal differences in temperature with colder winter temperatures and hotter summers.

G. Lake effect snow occurring downwind from large lakes.
   1. Cold air masses travel over relatively warm water.
   2. Water vapor rising off the lake soon freezes and precipitates down range.

H. Earth-Sun relationships
   1. The Earth’s tilted axis and annual position as it orbits the sun creates seasonal changes.
   2. Seasons are opposite in Northern and Southern Hemispheres.

I. Orographic effect
   1. Areas on the windward side of mountains tend to have wetter conditions with relatively high rain and snowfall known as orographic precipitation.
   2. Areas downwind of mountains tend to have relatively dryer conditions, referred to as the rain-shadow effect. Rain-shadow areas can extend well into a continental region such as the Upper Great Plains of the United States and Canada.

J. El Niño – La Niña
   1. El Niño years occur when abnormally warm ocean currents move to the western coasts of Peru, changing the evaporation patterns in the tropics. In many areas El Niño is attributed to abnormally wet conditions in normally dry regions around the world and unusually dry conditions in wetter climates.
   2. La Niña is the return of cold ocean currents to the Peruvian coast and a reversal of the precipitation changes brought on by the El Niño.

K. There are six major climate types, which are coded by the Köppen climate classification system using the letters A-E and H, in parentheses below.
   1. Humid Low Latitude (climate classification A)
   2. Dry Climates (climate classification B)
   3. Warm Mid-latitude Climates (climate classification C)
4. Cold Mid-latitude Climates (climate classification D)
5. Polar (climate classification E)
6. Highland (climate classification H)

The Köppen climate classification can be subdivided into more detailed categories, such as:

a. **tropical monsoon climates** (Am) like those in India, West Africa, the Amazon Basin and Southeast Asia have a 3-5 month rainy season followed by a dry season. Vegetation and farming is adapted to the extremes in moisture, or lack thereof, during the year.

b. **marine west coast climates** (Cfb) found in Western Europe, the Pacific Northwest, Chile, and New Zealand have ocean-fed precipitation and mild to cool temperatures, optimal for dairying and fruit orchard crops.

c. **Mediterranean climates** (Csa) are warm and humid with dry summer conditions, which are optimal for growing **Mediterranean agriculture** crops, such as olives, artichokes, avocados, almonds, pistachio and date palms. Example areas include Southern Europe, North Africa, Southern California, and the southern coasts of South Africa and Western Australia.

d. **coniferous forest** in higher latitudes or coastal areas composed of cone-bearing needle-leaf trees, also known as evergreens.
   - taiga in Siberia
   - boreal forest in Canada
   - sea pines in South Carolina and Georgia

e. **grassland biomes**
   - tropical savanna
   - midlatitude prairie, steppe, pampa, veldt

f. **desert biomes**
   - hot deserts like the Sahara, Arabian, or Great Indian deserts
   - cold deserts like the Gobi or Taklimakan deserts

g. **tundra biomes**
   - arctic, in higher latitudes
   - alpine, in higher altitudes

h. **marine ecosystems**
   - coral reefs
   - Monterey Bay, California
   - Hawaiian Islands

i. **wetlands**
   - southern Louisiana
   - the Everglades
   - Okefenokee Swamp
   - Yukon River Delta
   - Great Salt Lake

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L. **The Earth’s larger ecosystems are known as bioregions or biomes**

1. **Forest biomes**
   - **rain forests** can occur in wet tropical areas and colder climates.
     - tropical rain forest, in the Amazon and Congo River basins and in the Indonesian islands
     - “old-growth” cold rain forest in areas such as southern Alaska, coastal British Columbia, and the Olympic Peninsula in Washington state.
   - tropical scrub forest and tropical deciduous forests occur in dryer or mountainous tropical areas.
   - midlatitude forests with deciduous tree species, which annually drop their leaves, mixed with some conifers like pine, cedar, and spruce.
M. Climographs show total monthly precipitation and monthly average temperature.

N. Compare climographs from different regions to tell more about the physical geography of a place.

1. In the climographs above, notice the seasonal variations in temperature in London compared to the extreme dry season in Los Angeles and the heavy monsoon season in New Delhi.
   a. London is in a marine west coast climate zone.
   b. Los Angeles is in a Mediterranean climate zone.
   c. New Delhi is in a humid subtropical climate affected by annual monsoon rains.

O. Common landforms in the United States

1. Plains
2. Tablelands (plateaus)
3. Hills
4. Mountains
5. Valleys
6. Deserts

P. Long-term internal geomorphic processes

1. Plate tectonics
2. Extrusive and intrusive volcanism
3. Folding and faulting

Q. Long-term external geomorphic processes

1. Physical or chemical weathering
2. Erosion
3. Sedimentation
4. Glaciation, resulting in formations such as terminal moraines, fjords, and eskers
5. Wind deposition of loess

R. Evidence of tectonic activity

1. Fault zones along plate boundaries
   a. San Andreas fault
   b. Mid-Atlantic Ridge
   c. Aleutian Islands
2. Hot spots within plate boundaries are areas of magma close to the Earth’s surface
   a. the island of Hawaii
   b. Yellowstone National Park

S. Short-term natural hazards that affect the physical environment

1. Volcanoes
   a. lava and ashfall create new landforms
   b. volcanic material can add richness to farm soils
Step 6: Review Study Topics

THE HYDROLOGIC CYCLE

1. Evapotranspiration
2. Condensation
3. Precipitation
4. Surface runoff
5. Water storage in snowpack
6. Artesian spring (groundwater discharge)

U. Factors which contribute to the hydrologic cycle in different regions
1. Evaporation
2. Condensation
3. Precipitation
4. Runoff

Discussion areas: Physical Geography
- What are the Earth's primary spheres?
- What are the factors that influence and characterize weather events? Consider how these factors contribute to weather events such as blizzards and hurricanes.
- What are the natural factors that influence regional climate differences?
- What are the main types of climate zones and where are they located? How are these related to the major ecosystems or bioregions? Where are these regions located and what differences between biomes? Use an atlas to locate climate zones listed above and bioregions listed below.
- How are climographs used to detail or compare climates between places?
- What are the major types of landforms? What are the natural processes which change the topography of landmasses? Consider examples of the topics from the United States.
- What are the different types of ecoregions in the United States? How does the availability of water determine these classifications?

T. Ecoregions
1. Midlatitude forests
   a. Eastern woodland forest of the Appalachian Mountains
   b. Cold rain forest of southern Alaska
2. Midlatitude grasslands
   a. Great Plains
   b. Columbia River Plains
3. Mediterranean forests and scrubs
   a. Chaparral of Southern California
4. Deserts
   a. Sonoran
   b. Mojave
5. Mountains
   a. Rocky Mountains
   b. Cascades
6. Lakes and inland water systems
   a. Great Lakes
   b. Gulf Coast wetlands
   c. Puget Sound
   d. Chesapeake Bay
7. Tundra
   a. North Slope of Alaska

c. Ash ejected into the upper atmosphere can create global cooling by blocking sunlight.

2. Earthquakes can result in thrust faults which change topography.
3. Tsunamis, tidal waves resulting from underwater earthquakes or landslides.
4. Floods can realign river courses and deposit sediment that enrich farm soils.
5. Hurricanes (typhoons in the Asian Pacific and cyclones in South Asia and Australia) can modify coastal landforms such as beaches and barrier islands.
6. Wildfires reshape forest, scrub and grasslands.
   a. Fires can be started naturally by lightening or by humans
   b. Often wildfires are driven by high winds.
   c. Wildfires are considered part of the natural ecology of some bioregions, such as the chaparral of southern California.
III. Human Geography

A. Culture

Important cultural geography concepts include:

1. **Ethnicity** as a culture group’s shared identity.
2. The **cultural landscape** as expressed in cultural signs and symbols on the land and in architecture.
3. **Cultural globalization** as a process of cultural change and potential conflict.
   a. the spread of global media and popular culture.
   b. the impacts on folk culture and local resistance to the negative effects of global media and popular culture.

B. Language

Important linguistic concepts include:

1. Large **language families**, such as the Indo-European, Afro-Asiatic, Niger-Congo, and Sino-Tibetan.
2. Patterns of languages
   a. regional **dialects**
   b. **lingua franca**
   c. **indigenous languages** and other small language groups at risk of extinction
   d. Mixed languages, such as creole, pidgin, or other mixtures which combine two or more languages.

C. Religion

Major concepts in the geography of religion include:

1. The divisions and patterns of major world religions.
2. Historical diffusion of major religions.
   a. the **relocation diffusion** patterns of early Buddhism
   b. the **expansion diffusion** pattern of early Sunni Islam
   c. the **hierarchical diffusion** pattern of early Roman Catholicism.
3. Religious **landscapes** that include sacred spaces, pilgrimage sites, and places of worship.

D. Politics

Major concepts within political geography include:

1. Nationalism
   a. ethnicity and language as the organizing factors of nations or nationalist groups
   b. nationalism leading to the devolution of larger countries
2. Geopolitics and conflicts
   a. the rise of supranational organizations established to prevent and mediate conflicts
   b. armed conflicts resulting from social differences in
      – ethnicity
      – religion
      – economic class and political systems
   c. military strategic alliances between countries
3. Electoral Politics
   a. the decennial United States Census use for congressional redistricting
   b. gerrymandering
4. Human rights and equality for different social groups

E. Economy

1. Levels of development comparing **more developed countries** to **less developed countries**, and **newly industrialized countries**.
2. Measures of development
   a. gross domestic product per capita (GDP per capita)
   b. literacy rates
   c. Human Development Index (HDI)
3. Economic globalization
   a. global trade systems, the World Trade Organization (WTO)
   b. Regional trading blocs, such as the European Union and the North American Free Trade Agreement (NAFTA)

F. Rural and urban landscapes

1. Suburbanization
2. Sustainability
   a. Environmental sustainability of farming practices and urban transportation development.
   b. Economic sustainability of development, farm and home loans, and defaults on loan repayment
3. Farmland preservation
G. Basic demographic indicators
1. Age, in terms of average life expectancy.
2. Gender, in terms of the roles of women in different communities and the level of equality between women and men in society.
3. Mortality rates
4. Economic levels

H. Population growth statistics
1. Rate of natural increase (RNI) determined by the birth rate minus the death rate and divided by 10 to calculate the annual percentage growth rate of a country’s population, not including transnational migration.
   a. A positive RNI shows annual population growth.
   b. A negative RNI shows a population reduced in number from the previous year.
2. Total fertility rate (TFR) which calculates the average number of children born to each female of birthing age (ages 15-45)
   a. The replacement rate is a TFR of 2.1.
   b. Places above the replacement rate will have long-term population growth.
   c. Below a TFR of 2.1 and the population is not replacing itself and population growth will slow over time.

I. The demographic transition model
1. The model shows the expected changes in birth rates, death rates and total population over time as a country develops economically.
   a. Less developed countries tend to fall in Stage 2.
   b. Newly industrialized countries (NICs) fall in Stage 3.
   c. More developed countries mostly fall in Stage 4.
      - Some Stage 4 countries have birth rates values below death rates and thus shrinking populations. Some geographers consider this a 5th stage of demographic transition. Examples include Germany, Italy, and Russia.

J. Major centers of population
1. Cities ranked by total population in urban and suburban areas
   a. Tokyo
   b. New York
   c. Mexico City
   d. Mumbai
   e. Sao Paolo
2. Clusters of cities that merge together known as a megalopolis
   a. Osaka-Kobe-Kyoto in Japan
   b. BosWash, Boston to Washington, D.C. corridor
   c. Bay Area of San Francisco, Oakland, and San Jose
   d. Pearl River Delta, Hong Kong Macau, Shenzhen, and Guangzhou in China
   e. Ruhr Valley in Germany, including Essen, Dortmund, and Duisburg
3. Agricultural areas of high population
   a. North China Plain
   b. Sichuan Plain in Southern Central China
   c. Gangetic Plains, along the Ganges River in India
   d. Indus Valley in Pakistan
   e. Nile Valley and Delta in Egypt
   f. Java and Sumatra in Indonesia

K. India surpassing China as the world’s largest country by population
1. Although China is currently the world’s largest country in terms of population, India will one day surpass China in size. China’s former one-child policy significantly reduced the country’s total fertility rate. India’s fertility rate remains high compared to China.
2. By comparing rates of natural increase, this event is predicted to occur by 2040.
L. Interpreting population pyramid shapes can inform the economic characteristics of a country or place.

1. **Less developed countries** tend to have population pyramids similar to an equilateral triangle.
2. **Newly industrialized countries** tend to have population pyramids a narrow triangle or pentagonal shape.
3. **More developed countries** have population pyramids that are column-shaped.
4. More developed countries with negative rates of natural increase are column-shaped with an inverted pyramid at the bottom.
5. Retirement communities can have age diagrams the shape of an inverted pyramid.
6. College towns are distinguished by the long bar graphs in the 15–30 age cohorts.
7. Places located in oil fields, near mines, fishing ports, military bases or towns with prisons may have disproportionate numbers of men, shown in an asymmetrical population pyramid.

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M. Major migration patterns within the United States

1. Historical migrations to the United States
   a. westward expansion
   b. the Great Migration of African American from the South to northern industrial cities
   c. the Frost Belt to Sun Belt migration
N. Migration and settlement patterns
1. Chain migration
2. Ethnic neighborhoods
3. Historical de jure segregation in cities
   a. Jim Crow laws in the southern United States
   b. Chinatowns and Japantowns in Pacific Coast cities

O. Push-and-pull factors that influence migration
1. Push factors are forces that push people away from places.
   a. increasing cost of land, taxes, and rents
   b. low prices for farm products holding down farm profits
   c. armed conflicts
   d. natural disasters
   e. environmental pollution
   f. loss of job opportunities
   g. declining wages
2. Pull factors are forces that draw people to places.
   a. employment opportunities
   b. access to medical services
   c. educational opportunities
   d. entertainment and sporting events
   e. access to communications
   f. better quality schools
   g. lower cost land to build homes

P. Different forms of agriculture
1. Subsistence agriculture, farming to feed a household or village
2. Commercial agriculture, farming intended for mass consumption or export
3. Intensive farming typically requires large amounts of human labor on a limited amount of land.
   a. wet rice
   b. fruit or vegetable crops
   c. dairy farming
4. Extensive farming uses less human labor per square unit of land and is spread over a large area.
   a. wheat farming
   b. corn and soybeans
   c. cattle ranching

Q. Hearths of plant and animal domestication
1. Culture hearths defined by the common staple food crop, or domesticated animal of the civilization
   a. wheat in Indus Valley, Mesopotamia and Egyptian civilizations
   b. potatoes in the Andean highlands cultures of the Inca
   c. yams in West African civilizations of the Niger River Basin and Bight of Benin
   d. rice in South, Southeast and East Asia civilizations
   e. corn (maize) in the Central American civilizations of the Toltec, Maya, and Aztec
   f. horses in Central Asian and Eurasian Steppe cultures
2. Historical patterns of agricultural diffusion
   a. wheat is first domesticated in the Tigris and Euphrates River valley of Mesopotamia. This cultivation of wheat diffuses across the Fertile Crescent to the eastern Mediterranean and Egypt, then to North Africa and Europe
   b. Columbian Exchange of plants and animals between the Old World (Eurasia, Africa) and New World (North and South Americas) after 1492
      - corn, squash, turkey, tomatoes, tobacco, and potatoes from the New World
      - horses, cattle, wheat, apples, chicken, and sheep from the Old World

R. Increases in technology affecting agricultural production in diverse environments
1. Terracing turns highland areas on steep slopes into farmable step-like features on the hillsides that increase the amount of arable land.
2. Irrigation systems to divert water from rivers and underground aquifers.
3. Chemical inputs such as pesticides and fertilizers decrease crop losses to infestation and poor soil conditions.
4. Mechanization decreases the amount of labor required to farm a single square unit of land. This requires expensive machinery, fuel and larger plots than traditional farms.
5. The industrialization of agriculture includes the above mentioned technological inputs as well as indoor factory farming and industrial processing of plant and animal products.
Step 6: Review Study Topics

S. Green Revolution impacts in less developed countries during the late twentieth century
   1. Plant and animal hybrids specifically bred for subtropical and tropical climates
   2. Widespread use of pesticides and fertilizers
   3. Mechanized irrigation but few tractors or combines

T. Genetically modified organisms (GMOs) affecting agriculture in more developed countries
   1. Genetic modification has been used primarily to increase the pest resistance and drought resistance of many crops, including corn, rice and wheat.
   2. Some genetically modified cattle, sheep and salmon have been produced for human consumption in the United States.
   3. Genetically modified crops have had limited success in less developed countries due to their high cost.
   4. GMO products sold in the European Union must carry warning labels.

U. Von Thünen’s model of agricultural land use from the Isolated State
   1. Model shows the patterns of rural land use in the historical European setting.
   2. The type of farming is dependent upon a location’s distance from the village or marketplace.
      a. more labor-intensive farming, such as dairy production, will occur close to the center
      b. extensive agriculture, such as grazing beef cattle, will occur in more distant and open areas.

V. Political geography concepts
   1. A nation is a population represented by a single culture or ethnicity.
   2. A state is a population represented by a single government and controls territory.
   3. A nation-state is a country where a single ethnic group is represented by a single government, such as Iceland or Japan.
   4. A nation without a representative state is a stateless nation.
      a. for example, ethnic Kurds in northern Iraq, western Iran and eastern Turkey have limited self-government in Iraq with assistance from the United States military. Kurds in the region desire their own independent sovereign state. However, Iraq, Iran and Turkey will not allow a loss of territory to create a new country.
   5. Multinational states are where several ethnic groups are under a single government.
      a. the state known as The United Kingdom is home to the nations of England, Wales, Scotland, Northern Ireland, and the Isle of Man.
   6. The southern three-fourths of Ireland is a separate and independent sovereign state known as the Republic of Ireland.
   7. The Irish people are a multistate nation split between the Republic of Ireland and the United Kingdom. Many descendants of Irish immigrants live in the United States and Canada.

W. Different types of international organizations
   1. Supranational organizations are composed of sovereign states for a common purpose, such as economic trade or military strategic partnerships.
      a. the United Nations is a multipurpose supranational organization with diplomatic, peacekeeping, refugee, food, health, education, and environmental divisions.
      b. economic and trade partnerships
         – the European Union (EU)
         – the North American Free Trade Agreement (NAFTA)
         – the Organization of Petroleum Exporting Countries (OPEC)
      c. military-strategic organizations
         – North Atlantic Treaty Organization (NATO)
         – the former Warsaw Pact
2. Environmental and humanitarian relief organizations are often **non-governmental organizations (NGOs)**
   a. World Wildlife Fund
   b. Conservation International
   c. International Committee of the Red Cross and Red Crescent (ICRC)
   d. Doctors Without Borders (MSF—from the French name Médecins sans Frontières)

**X. Types of international conflicts**

1. Ethnic and religious over cultural differences
   a. Israeli-Palestinian conflict over control of land considered sacred to both groups. Contested places include the Temple Mount in Jerusalem, the historic site of the Temple of Solomon considered holy in the Old Testament and in the Koran.
   b. Chechnya conflict within the Russian federation. Chechens, who are ethnically Turkic and predominantly Islamic, are attempting to break away from the Russian Federation, which is mainly an Eastern Orthodox Christian and Slavic culture.

2. Resource conflicts over energy and other natural resources
   a. oil conflicts such as the first Gulf War in Kuwait and Iraq during 1991
   b. potential conflict areas, such as the Spratly Islands in the South China Sea, and the Arctic Ocean, where oil exploration and fisheries are contested by seven neighboring countries

3. Territorial conflicts over historical or political land claims
   a. Kashmir conflict between Pakistan and India over disputed territorial claims in the Himalayan Mountains following the British partition of the region
   b. the Aozou Strip between Libya and Chad over the Tibetsi Highlands in the central Sahara Desert

**Y. Economic classifications of countries**

1. **Less developed countries (LDC)** are primary economies based upon agriculture and resource extraction

2. **Newly industrialized countries (NIC)** are where the economy is **industrializing**, that is to say, transitioning away from agriculture toward manufacturing as the primary source of national income. NIC’s include:
   a. Mexico
   b. Brazil
   c. China
   d. India
   e. Indonesia
   f. Malaysia

**Z. Measures of economic production**

1. **Gross domestic product (GDP) or gross national income (GNI)**
   a. to compare one country to another, GDP or **GNI per capita** is used to measure the economic productivity per person in a country. GNI may also be adjusted to reflect the relative cost-of-living between countries as **GNIPPP** or gross national income purchasing power parity.

2. **Human Development Index (HDI)**

3. Literacy rates are used to measure education levels between countries.

4. Child or infant mortality rates measure the development of health and nutrition in countries.

**AA. Cultural globalization is a process where dominant global cultures diffuse around the world and displace local and ethnic cultures.**

1. English is utilized heavily by broadcasters and exported globally through various forms of print and electronic media.
2. Non-English speaking governments seek to protect their culture by promoting media and education in ethnic and regional languages.
3. **Universalizing religions** also diffuse globally through the use of television media, radio and missionary work aims at gaining new members.

4. Advancements in technology that quickly broadcast global media, such as communications satellites, cell phones, and laptop computers.

**AB. International transportation systems are a part of globalization by providing food and other products that displace local goods, change diets, and modify ethnic culture.**

1. Cultural products move globally in shipping containers, overnight packages, printed mail and through the Internet.

2. **Export processing zones** are international locations where manufacturing takes place in a least cost location. Cost reduction factors include:
   a. inexpensive land
   b. low-cost labor
   c. limited regulation of labor laws and environmental rules
   d. close access to ports or international airports

3. **Off-shoring or outsourcing of work** to international locations has become a standard practice and as only a few products are now manufactured close to consumers, an **international division of labor** has emerged to manufacture these goods.
   a. this system involves manufacturing companies outsourcing to foreign subcontractor firms in an effort to seek the least-cost production location.
   b. workers in these offshore locations are subject to short-term employment in predominantly export-based factories. If a lower cost manufacturing location emerges then manufacturers will switch factory locations, leaving workers behind.
   c. many non-governmental organizations have raised concerns regarding worker conditions in offshore factories over low pay, child labor, and unsafe working conditions.

**AC. The economic and cultural products of the World Cities as centers of globalization**

1. New York City is a center of stock markets, business finance, banking, insurance, as well as advertising, TV, film and music production and Internet content. New York is also a major print publication center.

2. Los Angeles is the most valuable global center of investment in moviemaking and TV productions.

3. London is a global stock market, finance, banking and insurance center, as well as a major center of TV, radio, film and Internet content production. London is the leading global city in book publication.

4. Tokyo is a global stock market, business finance, banking, insurance center; and global production center of TV, film production, Manga comics, animation, video gaming, and Internet content.

5. Mumbai is a stock market, business finance and banking center. Mumbai is the highest volume film production center in the world, earning it the nickname "Bollywood." Music and publishing closely tied to the film industry are also important.

**AD. Models of Urban Form**

1. There are a number of urban models depicting the general form of cities in different regions around the world. Two of the North American city models are depicted here:
2. **Concentric zone model** is a diagram of economic land use based upon distance to the central business district (CBD). Commercial land is more valuable real estate and thus located near the city center. Land used for residential purposes is less valuable and located further out from the CBD.

![Concentric Zone Model Diagram]

3. **Multiple-nuclei model** is a diagram combining economic and social categories to generalize commonly found urban districts and neighborhoods. The model gets its name from the depiction of added business districts in suburban areas.

4. Other urban models include the sector model and model of the Latin American city.

**AE. Urban geography concepts**

1. The **rank-size rule** is a concept of urban hierarchy within countries. In many countries, the second largest city, in terms of population, is half the size of the largest city; the third largest is then one-third the size of the largest city. Formulaically, the rank size rule is expressed as: nth largest city is 1/n the size of the country's largest city.

2. **Suburbanization** is the process of growth in housing areas and service centers on the urban periphery. Suburbs are a part of all cities, but differ widely in form and function between countries. Comparative suburbanization studies these differences in the structure and population characteristics of suburbs.
   a. for instance, suburbs in the United States are typified by detached single-family homes occupied by middle to upper-class residents.
   b. in France, suburban areas tend to have multiunit row houses and apartment blocks occupied by working-class and immigrant communities.

3. **Edge cities** are suburban business districts which have grown into large and economically important office and retailing centers, such as Tysons Corner, Virginia. To be considered an edge city, a place should have the following characteristics:
   a. over five million square feet of commercial office space
   b. over 600,000 square feet of retail store space
   c. at the intersection of two or more major lines of transportation
   d. are places of work and have few residential buildings
   e. tend not to have their own municipal governments

**Discussion areas: Human Geography**

- What are the major factors that define human geographic patterns? Consider how these many human dimensions interact to create geographic patterns.
- How do demographers track population growth and predict changes in population over time? How are population growth rates related to a country's level of economic development?
- Where are the major centers of population and population growth around the world?
- How does migration affect population and the cultural landscape? What causes people to migrate?
- How have technological inputs changed the practice of agriculture over time? How did the Green Revolution improve food production in the developing world?
- What factors affect the patterns of agricultural land use?
- What are the different ways in which countries are classified by their cultural and political status?
- What are the forms of cooperation and conflict throughout the world? What are the root causes of recent transnational and internal civil conflicts?
- How are countries compared based upon their level of economic development? How economies are measured to rate development levels?
Step 6: Review Study Topics

- How is globalization both a cultural and economic process? What impact does globalization have on smaller cultures and economies?
- In what ways can we compare and contrast cities? How have cities changed in form and function over time?

IV. Regional Geography

A. Factors in defining a region or comparing one region to another
   1. Economic activity
   2. Linguistic divisions
   3. Religious predominance
   4. Climate
   5. Topography
   6. Biomes

B. Major regions of the world
   1. East Asia
   2. Southeast Asia
   3. South Asia
   4. Eastern Europe
   5. Western Europe
   6. The Russian Federation
   7. Southwest Asia
   8. North Africa
   9. Sub-Saharan Africa
   10. North America
   11. Latin America
   12. The Caribbean
   13. Central America
   14. South America
   15. Oceania
   16. Australia and New Zealand
   17. Antarctica

C. Important smaller world regions defined by human or physical characteristics
   1. The culture areas of Polynesia, Melanesia and Micronesia
   2. Insular Southeast Asia versus mainland Southeast Asia, including Weber’s line within the region as biogeographical border
   3. Himalaya Mountains, tectonic uplift and important human geography in the diffusion of Buddhism
   4. The Sahel as an environmental and cultural transition zone between the Sahara Desert and the African savannas
   5. The Great Rift Valley as a tectonic feature, chain of lakes and population centers
   6. Within Southwest Asia regions, such as the Levant along the eastern Mediterranean, the Persian Gulf and the Arabian Peninsula
   7. Serengeti Plains animal migration routes
   8. West African areas, including urbanization areas along the Bight of Benin
   9. Congo Basin rain forest
   10. The Alps, as a tectonic, climate and cultural boundary
   11. Amazon Basin rain forest
   12. Patagonia and the Pampas as dry grassland and grazing regions
   13. The Altiplano of the Andes as a cold tropical highland climate zone and center of Quechua culture
   14. Eurasian Steppe grasslands as a breadbasket region and historical migration route
   15. Turkestan, linguistic region from Turkey, across central Asia to the Uyghur area of western China
   16. Scandinavia, and arctic culture area of the Sami people
   17. Northern European Plain, including the Low Countries and British Isles

D. Major regions of the United States
   1. Northeast
   2. Mid-Atlantic
   3. The South
   4. Midwest
   5. Great Plains
   6. Southwest
   7. Rocky Mountains
   8. Pacific Northwest
   9. Alaska
   10. Hawaii

E. Minor regions of the United States
   1. Delmarva Peninsula
   2. Long Island
   3. Piedmont
   4. The Tennessee Valley
   5. Finger Lakes
   6. Great Lakes
   7. Gulf Coast
   8. Florida Keys
Step 6: Review Study Topics

9. Puerto Rico
10. United States Virgin Islands
11. Southern California
12. Bay Area
13. The Columbia River Valley
14. Cascades
15. Puget Sound
16. American Samoa
17. Northern Mariana Islands
18. Guam

F. Differing perceptual frameworks divide the United States and other areas of the world into vernacular regions based on a combination of factors perceived by people, such as history, landforms, climate, religion, and other cultural or ethnic traits.

1. Examples of vernacular regions of the United States:
   a. New England, as a culture region with inland and coastal divisions
   b. Southern California, as an urban and cultural region
   c. Sea Island or Gullah culture and island region
   d. Appalachia, as a mountain range, fossil fuel resource area, and culture region
   e. Tidewater of Virginia and Chesapeake Bay, as resource area and culture
   f. Upper Rio Grande Valley, early Spanish settlements and Native American pueblos
   g. Mississippi Delta (the inland delta of the lower Mississippi River along Arkansas, Mississippi, and often including Memphis, Tennessee) agricultural and music culture region
   h. Four Corners Region, Native American culture region and seat of ancient civilizations
   i. Wasatch Front, Mormon core region

Discussion areas: Regional Geography

• What are the different ways in which the United States is divided regionally? Use an atlas to identify on a map the different major and minor regions within the United States. What are the physical and human geographies that define these areas?

• How do people’s perceptions of regions differ based on their own culture and social interactions? What are the locations and many characteristics which define the regions listed below?

V. Environment and Society

A. The environmental impacts of technology, harnessing of natural resources and adapting environments for human purposes

1. Agriculture
   a. agricultural activities, such as plowing natural groundcover, adding nutrients to soil, diverting waters for irrigation and applying pesticides, all have considerable impact on the natural environment.
   b. farming can eliminate habitat and forage for native animals, pollute water supplies with sediment and chemicals and introduce nonnative or exogenous species to the area.

2. Exogenous species
   a. exogenous species are plants and animals introduced to an area from another part of the world. Often called invasive species, these plants and animals drive out native species and change the character of the natural environment.
   b. examples include European rabbits and cane toads in Australia, the brown tree snake in Hawaii, and kudzu in the southern United States.

3. Irrigation
   a. irrigation projects divert water from rivers and underground aquifers to allow for extensive agriculture in typically dry regions. Over-use of irrigation water can lead to downstream drought conditions.
   b. an example is the depletion of the Aral Sea in Central Asia, which has nearly emptied as the result of irrigation projects upstream on the Amu Darya and Syr Darya Rivers.
4. Dam construction
   a. Dams are beneficial to humans as a means of flood prevention, creating navigable waterways, and as a source of hydroelectric power. However, dams disrupt the natural ecology of rivers by interrupting downstream sediment flows and preventing migratory fish from swimming or spawning upstream.
   b. Dam breaks, which can occur during earthquakes, pose flash flood risks to downstream communities.

5. Industrialization
   a. Industrialization is the development of an economy using natural resources and technology to manufacture goods for commercial and individual customers.
   b. Industrial pollution as a byproduct contributes waste chemicals to water, air, and land resources.
   c. Acid rain is the result of sulfur dioxide air pollution from coal-burning power plants and factories. The sulfur mixes with water vapor in clouds to produce sulfuric acid. The acidic rain or snow can fall hundreds of miles downwind from the pollution source and can severely damage forest and lake ecosystems.
   d. Toxic and hazardous materials are frequently released into the environment as the results of industrial production.

6. Climate-controlled indoor environments
   a. Air-conditioning and greenhouses are two examples of human adaptation to adverse climate conditions.
   b. Greenhouse agriculture, which allows the farming of fruits and vegetables indoors when they are out of season, is not related to the greenhouse effect.

C. Similarly, human activities have direct impacts on physical systems. However, human activities can be controlled to reduce impacts on the physical environment.
   1. For example, deforestation severely impacts the biodiversity and quality of habitats for wild plants and animals. Reforestation, resource conservation, and habitat preservation efforts can restore damaged ecosystems.
   2. Some species have been driven to extinction as a result of deforestation, industrial pollution or overhunting. Laws to protect endangered and threatened plants, animals and their habitats can help prevent species loss.

D. Environmental determinism
   1. An early scientific view on human environment relations is described as environmental determinism. Its proponents theorized that differences between human societies and cultures were the direct result of the different surrounding physical environments, such as climate, soils, mineral and forest resources. However, this thinking led to ethnocentric and racist viewpoints.

E. Possibilism
   1. By comparison, the theory of possibilism contends that humans have heavily modified the surface of the Earth, its climates, and oceans. Possibilism shows that different cultures and societies modify the physical world around them in culturally different ways. Resource and land use, as well as forestry and architecture, show signs and symbols of culturally specific physical impacts upon the earth.

F. Positive and negative features of the physical environment affect patterns of human settlement. Some physical features, such as the volume and availability of water, can influence the location of settlement. In addition to water as a resource, waterways also facilitate transportation.
   1. Snowpack in the ranges of the Rocky Mountains provide year-round drinking water and irrigation supply for populations in Colorado, Utah, and Nevada.
   2. Ninety percent of Canada’s population lives in close proximity to the Great Lakes-St. Lawrence Seaway.
Step 6: Review Study Topics

The Greenhouse Effect

- Some sunlight that hits the earth is reflected.
- Some becomes heat.
- CO₂ and other gases in the atmosphere trap heat, keeping the earth warm.

G. The Earth’s atmosphere acts like a greenhouse, allowing solar energy in and trapping heat.

H. Research by atmospheric and other scientists shows that the global average temperature has increased significantly during the last two centuries of industrialization.

1. The rate of temperature increase correlates highly with the amount of carbon dioxide released into the atmosphere.
2. Much of the carbon released into the atmosphere is the result of burning non-renewable fossil fuels, such as coal for electricity, natural gas (methane) for heat and electricity, and petroleum for vehicle fuels and heating.

I. Proposed policies to control carbon dioxide, methane and other industrial outputs include a carbon tax that would charge polluters based upon the volume of carbon released into the atmosphere. The policy goal would be to incentivize energy alternatives to fossil fuels and ways to minimize carbon outputs.

1. Wind, solar, hydroelectric, geothermal and tidal energy sources are alternative energy sources and renewable resources.
2. Increasing tree cover can capture additional atmospheric carbon dioxide.
3. Industries such as electric power utilities and petroleum refineries see the carbon tax as a significant cost increase and are resistant to proposed tax policy changes.

J. Hazards is the geographical term used to describe natural- and human-caused disasters.

1. Natural hazards tend to have multiple dimensions which can affect societies and economies for periods long after the disaster event.
2. Seismic Hazards
   a. volcanoes
      - lava flows, occur in some but not all volcanoes
      - ash falls, areas downwind can receive inches to several feet of ash
      - pyroclastic flows and heat surges, where superheated gasses can burn over and suffocate areas around volcanoes.
      - lahars are mudflows often from melting snow or glaciers during eruptions.
   b. earthquakes and tsunamis
      - magnitude measured by the Richter Scale, time duration, and epicenter depth
      - population density and level of economic development in affected areas
      - liquefaction. Sedimentary soils may liquefy, during long duration events of 10 seconds or longer, and damage building foundations.
      - tsunami tidal waves and coastal flooding caused by oceanic earthquakes
      - the release of hazardous materials from infrastructure, like fuel pipelines or nuclear power plants
3. Climatic Hazards
   a. prolonged drought damages agriculture and water supply systems. Famine may occur as a result of drought if drinking water and food supplies are not transported to areas of drought.
   b. excessive precipitation causes floods from rainfall or the melting of large snowfalls.
c. cyclonic storms (hurricanes, typhoons, and cyclones) have heavy rain (creating one flood hazard), damaging winds, spawn tornadoes, lightening and are often accompanied with storm surge (creating another flood hazard).

d. storm surge occurs as the abnormally low air pressure results in higher than normal sea levels and tides. Coastal regions and inland waterways can be inundated by high salt water flooding damaging buildings and crops.

e. tornadoes are measured in intensity with the Enhanced Fujita Scale, which confirms the estimated wind speed by examining storm damage.

f. hail, blizzards, and ice storms do much damage to homes and utilities, but have low fatality incidence other than vehicle accidents.

g. heat waves are silent killers especially among the elderly, infirmed and young children. High numbers of fatalities occur each year from heat events in the United States. In 2003, over 3,000 died in France during an unusually severe heat wave.

h. global climate change affects human and natural systems as average global temperatures increase
   – Coastal settlements can be permanently flooded as a result of sea-level rise, the result of melting ice caps and glaciers.
   – Agricultural regions may shift as growing conditions and planting seasons change over time.
   – Ecosystems transition as temperature and moisture variation cause changes in species composition within plant and animal habitats.

K. Human impacts on natural hazards
1. Human actions to modify landscapes and build infrastructure often multiply the potential damage and loss of life caused by natural hazards.

2. The vast majority of people in hazard zones continue to live and work there despite the danger posed by natural hazards. Settlements and urban areas in hazard zones may incur a higher cost of living due to increased insurance costs and taxes to pay for emergency management and preparedness.

L. Many human-caused hazards are long-term environmental impacts of patterns of industrial and transportation activity.

1. Air pollution
   a. smog, the combination of soot particulate and lower-level ozone with water vapor that produces haze and potentially dangerous urban air quality
   b. acid rain from burning high-sulfur coal
   c. industrial air pollution, pesticide use, and vehicle exhausts that contribute to bird and insect species loss, as well as damaging human health

2. Water pollution
   a. fish, insect, amphibian, and reptile species loss
   b. urban drinking water contamination
   c. groundwater and stream pollution can harm downstream agriculture by introducing toxins to irrigation water, animal feed or milk supplies.

3. Traffic congestion
   a. increases smog
   b. idling vehicles waste fuel supplies

4. Potential industrial disasters
   a. factory and refinery fires, explosions, toxic gas or hazardous material releases
   b. fuel or hazardous material leaks and spills involving pipelines, ships, oil and gas wells, trains or trucks
   c. mine cave-ins and explosions
   d. illegal dumping of hazardous wastes that can affect the health of communities
   e. radiation leaks from nuclear plant accidents
M. Increased global population and increases in
per capita standard of living put further
pressure upon Earth's energy, agricultural,
forests, oceans, air, and freshwater resources.

1. Population growth increases the need for land
to house, feed and provide resources for a
growing global population and economy.
2. Natural habitats in growing urban and
agricultural areas are increasingly under threat
of damage or loss.
3. As large newly industrialized countries such as
China, India, Indonesia, and Brazil grow in
economic prominence, so does the affluence
of their populations. Increased affluence can
be seen in the ownership of cars, increased
use of electricity, and the increased
consumption of food and meat-based diets.
4. As industrial production and vehicle use
increases, so does the growing dependency
on fossil fuels.
5. Extensive commercial agriculture, and
industrial poultry, egg and meat production
requires large vehicle fuel resources, large
plots of uninterrupted farmland, and large
amounts of fresh water.

Discussion areas: Environment and Society

• How do human activities modify the physical
environment? In what ways do humans
attempt to overcome the limitations of the
physical environment?

• How do physical and human systems
interact? In what ways do physical systems
limit or enable culture and economy but are
not determining effects on human activities?

• What is the source of debate concerning
global warming and climate change? How
are governments responding to the
warnings of the science community?

• What are the different types of natural
hazards? What factors determine the amount
of damage caused by an earthquake or other
hazard event?

• How do humans increase the damage
potential of natural disasters? What are types
of human-caused hazards?

• What additional effects do population and
economic growth have on the global
environment?
7. Review Smart Tips for Success

Follow test-taking tips developed by experts

Learn from the experts. Take advantage of the following answers to questions you may have and practical tips to help you navigate the Praxis test and make the best use of your time.

Should I guess?
Yes. Your score is based on the number of questions you answer correctly, with no penalty or subtraction for an incorrect answer. When you don’t know the answer to a question, try to eliminate any obviously wrong answers and then guess at the correct one. Try to pace yourself so that you have enough time to carefully consider every question.

Can I answer the questions in any order?
You can answer the questions in order or skip questions and come back to them later. If you skip a question, you can also mark it so that you can remember to return and answer it later. Remember that questions left unanswered are treated the same as questions answered incorrectly, so it is to your advantage to answer every question.

Are there trick questions on the test?
No. There are no hidden meanings or trick questions. All of the questions on the test ask about subject matter knowledge in a straightforward manner.

Are there answer patterns on the test?
No. You might have heard this myth: the answers on tests follow patterns. Another myth is that there will never be more than two questions in a row with the correct answer in the same position among the choices. Neither myth is true. Select the answer you think is correct based on your knowledge of the subject.

Can I write on the scratch paper I am given?
Yes. You can work out problems on the scratch paper, make notes to yourself, or write anything at all. Your scratch paper will be destroyed after you are finished with it, so use it in any way that is helpful to you. But make sure to select or enter your answers on the computer.

Smart Tips for Taking the Test

1. Skip the questions you find extremely difficult. Rather than trying to answer these on your first pass through the test, you may want to leave them blank and mark them so that you can return to them later. Pay attention to the time as you answer the rest of the questions on the test, and try to finish with 10 or 15 minutes remaining so that you can go back over the questions you left blank. Even if you don’t know the answer the second time you read the questions, see if you can narrow down the possible answers, and then guess. Your score is based on the number of right answers, so it is to your advantage to answer every question.
2. **Keep track of the time.** The on-screen clock will tell you how much time you have left. You will probably have plenty of time to answer all of the questions, but if you find yourself becoming bogged down, you might decide to move on and come back to any unanswered questions later.

3. **Read all of the possible answers before selecting one.** For questions that require you to select more than one answer, or to make another kind of selection, consider the most likely answers given what the question is asking. Then reread the question to be sure the answer(s) you have given really answer the question. Remember, a question that contains a phrase such as “Which of the following does NOT …” is asking for the one answer that is NOT a correct statement or conclusion.

4. **Check your answers.** If you have extra time left over at the end of the test, look over each question and make sure that you have answered it as you intended. Many test takers make careless mistakes that they could have corrected if they had checked their answers.

5. **Don’t worry about your score when you are taking the test.** No one is expected to answer all of the questions correctly. Your score on this test is not analogous to your score on the GRE® or other tests. It doesn't matter on the Praxis tests whether you score very high or barely pass. If you meet the minimum passing scores for your state and you meet the state's other requirements for obtaining a teaching license, you will receive a license. In other words, what matters is meeting the minimum passing score. You can find passing scores for all states that use the Praxis tests at [http://www.ets.org/s/praxis/pdf/passing_scores.pdf](http://www.ets.org/s/praxis/pdf/passing_scores.pdf) or on the web site of the state for which you are seeking certification/licensure.

6. **Use your energy to take the test, not to get frustrated by it.** Getting frustrated only increases stress and decreases the likelihood that you will do your best. Highly qualified educators and test development professionals, all with backgrounds in teaching, worked diligently to make the test a fair and valid measure of your knowledge and skills. Your state painstakingly reviewed the test before adopting it as a licensure requirement. The best thing to do is concentrate on answering the questions.
8. Check on Testing Accommodations

See if you qualify for accommodations that may make it easier to take the Praxis test

What if English is not my primary language?

Praxis tests are given only in English. If your primary language is not English (PLNE), you may be eligible for extended testing time. For more details, visit https://www.ets.org/praxis/register/plne_accommodations.

What if I have a disability or other health-related need?

The following accommodations are available for Praxis test takers who meet the Americans with Disabilities Act (ADA) Amendments Act disability requirements:

- Extended testing time
- Additional rest breaks
- Separate testing room
- Writer/recorder of answers
- Test reader
- Sign language interpreter for spoken directions only
- Perkins Brailler
- Braille slate and stylus
- Printed copy of spoken directions
- Oral interpreter
- Audio test
- Braille test
- Large print test book
- Large print answer sheet
- Listening section omitted

For more information on these accommodations, visit www.ets.org/praxis/register/disabilities.

Note: Test takers who have health-related needs requiring them to bring equipment, beverages, or snacks into the testing room or to take extra or extended breaks must request these accommodations by following the procedures described in the Bulletin Supplement for Test Takers with Disabilities or Health-Related Needs (PDF), which can be found at http://www.ets.org/s/disabilities/pdf/bulletin_supplement_test_takers_with_disabilities_health_needs.pdf.

You can find additional information on available resources for test takers with disabilities or health-related needs at www.ets.org/disabilities.
9. Do Your Best on Test Day

Get ready for test day so you will be calm and confident

You followed your study plan. You prepared for the test. Now it’s time to prepare for test day.

Plan to end your review a day or two before the actual test date so you avoid cramming. Take a dry run to the test center so you’re sure of the route, traffic conditions, and parking. Most of all, you want to eliminate any unexpected factors that could distract you from your ultimate goal—passing the Praxis test!

On the day of the test, you should:

- be well rested
- wear comfortable clothes and dress in layers
- eat before you take the test
- bring an acceptable and valid photo identification with you
- bring an approved calculator only if one is specifically permitted for the test you are taking (see Calculator Use, at http://www.ets.org/praxis/test_day/policies/calculators)
- be prepared to stand in line to check in or to wait while other test takers check in

You can’t control the testing situation, but you can control yourself. Stay calm. The supervisors are well trained and make every effort to provide uniform testing conditions, but don’t let it bother you if the test doesn’t start exactly on time. You will have the allotted amount of time once it does start.

You can think of preparing for this test as training for an athletic event. Once you’ve trained, prepared, and rested, give it everything you’ve got.

What items am I restricted from bringing into the test center?

You cannot bring into the test center personal items such as:

- handbags, knapsacks, or briefcases
- water bottles or canned or bottled beverages
- study materials, books, or notes
- pens, pencils, scrap paper, or calculators, unless specifically permitted for the test you are taking (see Calculator Use, at http://www.ets.org/praxis/test_day/policies/calculators)
- any electronic, photographic, recording, or listening devices

Personal items are not allowed in the testing room and will not be available to you during the test or during breaks. You may also be asked to empty your pockets. At some centers, you will be assigned a space to store your belongings, such as handbags and study materials. Some centers do not have secure storage space available, so please plan accordingly.

Test centers assume no responsibility for your personal items.
If you have health-related needs requiring you to bring equipment, beverages or snacks into the testing room or to take extra or extended breaks, you need to request accommodations in advance. Procedures for requesting accommodations are described in the Bulletin Supplement for Test Takers with Disabilities or Health-related Needs (PDF).

Note: All cell phones, smart phones (e.g., Android® devices, iPhones®, etc.), and other electronic, photographic, recording, or listening devices are strictly prohibited from the test center. If you are seen with such a device, you will be dismissed from the test, your test scores will be canceled, and you will forfeit your test fees. If you are seen using such a device, the device will be confiscated and inspected. For more information on what you can bring to the test center, visit www.ets.org/praxis/test_day/bring.

Are You Ready?

Complete this checklist to determine whether you are ready to take your test.

☐ Do you know the testing requirements for the license or certification you are seeking in the state(s) where you plan to teach?

☐ Have you followed all of the test registration procedures?

☐ Do you know the topics that will be covered in each test you plan to take?

☐ Have you reviewed any textbooks, class notes, and course readings that relate to the topics covered?

☐ Do you know how long the test will take and the number of questions it contains?

☐ Have you considered how you will pace your work?

☐ Are you familiar with the types of questions for your test?

☐ Are you familiar with the recommended test-taking strategies?

☐ Have you practiced by working through the practice questions in this study companion or in a study guide or practice test?

☐ If constructed-response questions are part of your test, do you understand the scoring criteria for these questions?

☐ If you are repeating a Praxis test, have you analyzed your previous score report to determine areas where additional study and test preparation could be useful?

If you answered “yes” to the questions above, your preparation has paid off. Now take the Praxis test, do your best, pass it—and begin your teaching career!
10. Understand Your Scores

Understand how tests are scored and how to interpret your test scores

Of course, passing the Praxis test is important to you so you need to understand what your scores mean and what your state requirements are.

What are the score requirements for my state?
States, institutions, and associations that require the tests set their own passing scores. Visit www.ets.org/praxis/states for the most up-to-date information.

If I move to another state, will my new state accept my scores?
The Praxis tests are part of a national testing program, meaning that they are required in many states for licensure. The advantage of a national program is that if you move to another state that also requires Praxis tests, you can transfer your scores. Each state has specific test requirements and passing scores, which you can find at www.ets.org/praxis/states.

How do I know whether I passed the test?
Your score report will include information on passing scores for the states you identified as recipients of your test results. If you test in a state with automatic score reporting, you will also receive passing score information for that state.

A list of states and their passing scores for each test are available online at www.ets.org/praxis/states.

What your Praxis scores mean
You received your score report. Now what does it mean? It’s important to interpret your score report correctly and to know what to do if you have questions about your scores.

To access Understanding Your Praxis Scores, a document that provides additional information on how to read your score report, visit www.ets.org/praxis/scores/understand.

Put your scores in perspective
Your score report indicates:
- Your score and whether you passed
- The range of possible scores
- The raw points available in each content category
- The range of the middle 50 percent of scores on the test

If you have taken the same Praxis test or other Praxis tests in the last 10 years, your score report also lists the highest score you earned on each test taken.
Content category scores and score interpretation

Questions on the Praxis tests are categorized by content. To help you in future study or in preparing to retake the test, your score report shows how many raw points you earned in each content category. Compare your “raw points earned” with the maximum points you could have earned (“raw points available”). The greater the difference, the greater the opportunity to improve your score by further study.

Score scale changes

ETS updates Praxis tests on a regular basis to ensure they accurately measure the knowledge and skills that are required for licensure. When tests are updated, the meaning of the score scale may change, so requirements may vary between the new and previous versions. All scores for previous, discontinued tests are valid and reportable for 10 years, provided that your state or licensing agency still accepts them.

These resources may also help you interpret your scores:

- Understanding Your Praxis Scores (PDF), found at www.ets.org/praxis/scores/understand
- The Praxis Passing Scores (PDF), found at www.ets.org/praxis/scores/understand
- State requirements, found at www.ets.org/praxis/states
Appendix: Other Questions You May Have

Here is some supplemental information that can give you a better understanding of the Praxis tests.

What do the Praxis tests measure?
The Praxis tests measure the specific knowledge and skills that beginning teachers need. The tests do not measure an individual’s disposition toward teaching or potential for success, nor do they measure your actual teaching ability. The assessments are designed to be comprehensive and inclusive but are limited to what can be covered in a finite number of questions and question types. Teaching requires many complex skills that are typically measured in other ways, including classroom observation, video recordings, and portfolios.

Ranging from Agriculture to World Languages, there are more than 80 Praxis tests, which contain selected-response questions or constructed-response questions, or a combination of both.

Who takes the tests and why?
Some colleges and universities use the Praxis Core Academic Skills for Educators tests (Reading, Writing, and Mathematics) to evaluate individuals for entry into teacher education programs. The assessments are generally taken early in your college career. Many states also require Core Academic Skills test scores as part of their teacher licensing process.

Individuals entering the teaching profession take the Praxis content and pedagogy tests as part of the teacher licensing and certification process required by many states. In addition, some professional associations and organizations require the Praxis Subject Assessment tests for professional licensing.

Do all states require these tests?
The Praxis tests are currently required for teacher licensure in approximately 40 states and United States territories. These tests are also used by several professional licensing agencies and by several hundred colleges and universities. Teacher candidates can test in one state and submit their scores in any other state that requires Praxis testing for licensure. You can find details at www.ets.org/praxis/states.

What is licensure/certification?
Licensure in any area—medicine, law, architecture, accounting, cosmetology—is an assurance to the public that the person holding the license possesses sufficient knowledge and skills to perform important occupational activities safely and effectively. In the case of teacher licensing, a license tells the public that the individual has met predefined competency standards for beginning teaching practice.

Because a license makes such a serious claim about its holder, licensure tests are usually quite demanding. In some fields, licensure tests have more than one part and last for more than one day. Candidates for licensure in all fields plan intensive study as part of their professional preparation. Some join study groups, others study alone. But preparing to take a licensure test is, in all cases, a professional activity. Because a licensure exam surveys a broad body of knowledge, preparing for a licensure exam takes planning, discipline, and sustained effort.

Why does my state require the Praxis tests?
Your state chose the Praxis tests because they assess the breadth and depth of content—called the “domain”—that your state wants its teachers to possess before they begin to teach. The level of content knowledge, reflected in the passing score, is based on recommendations of panels of teachers and teacher educators in
The Praxis® Study Companion

Appendix: Other Questions You May Have

each subject area. The state licensing agency and, in some states, the state legislature ratify the passing scores that have been recommended by panels of teachers.

How were the tests developed?

ETS consulted with practicing teachers and teacher educators around the country during every step of the Praxis test development process. First, ETS asked them what knowledge and skills a beginning teacher needs to be effective. Their responses were then ranked in order of importance and reviewed by hundreds of teachers.

After the results were analyzed and consensus was reached, guidelines, or specifications, for the selected-response and constructed-response tests were developed by teachers and teacher educators. Following these guidelines, teachers and professional test developers created test questions that met content requirements and ETS Standards for Quality and Fairness.*

When your state adopted the research-based Praxis tests, local panels of teachers and teacher educators evaluated each question for its relevance to beginning teachers in your state. During this “validity study,” the panel also provided a passing-score recommendation based on how many of the test questions a beginning teacher in your state would be able to answer correctly. Your state’s licensing agency determined the final passing-score requirement.

ETS follows well-established industry procedures and standards designed to ensure that the tests measure what they are intended to measure. When you pass the Praxis tests your state requires, you are proving that you have the knowledge and skills you need to begin your teaching career.

How are the tests updated to ensure the content remains current?

Praxis tests are reviewed regularly. During the first phase of review, ETS conducts an analysis of relevant state and association standards and of the current test content. State licensure titles and the results of relevant job analyses are also considered. Revised test questions are then produced following the standard test development methodology. National advisory committees may also be convened to review and revise existing test specifications and to evaluate test forms for alignment with the specifications.

How long will it take to receive my scores?

Scores for tests that do not include constructed-response questions are available on screen immediately after the test. Scores for tests that contain constructed-response questions or essays aren't available immediately after the test because of the scoring process involved. Official score reports are available to you and your designated score recipients approximately two to three weeks after the test date for tests delivered continuously, or two to three weeks after the testing window closes for other tests. See the test dates and deadlines calendar at www.ets.org/praxis/register/centers_dates for exact score reporting dates.

Can I access my scores on the web?

All test takers can access their test scores via My Praxis Account free of charge for one year from the posting date. This online access replaces the mailing of a paper score report.

The process is easy—simply log into My Praxis Account at www.ets.org/praxis and click on your score report. If you do not already have a Praxis account, you must create one to view your scores.

Note: You must create a Praxis account to access your scores, even if you registered by mail or phone.

Your teaching career is worth preparing for, so start today! Let the *Praxis Study Companion* guide you.

To search for the *Praxis* test prep resources that meet your specific needs, visit:  
[www.ets.org/praxis/testprep](http://www.ets.org/praxis/testprep)

To purchase official test prep made by the creators of the *Praxis* tests, visit the ETS Store:  
[www.ets.org/praxis/store](http://www.ets.org/praxis/store)

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