



# The GED Social Studies Test

## *Geography*



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California Distance Learning Project  
[www.cdlonline.org](http://www.cdlonline.org)

# GED

## Video Partner



### Passing the GED Social Studies Test

Nothing has such power to broaden the mind as the ability to investigate systematically and truly all that comes under thy observation in life.

*Marcus Aurelius*

Video 21 Focus: What is geography, and how does it help us understand the world?

#### You Will Learn From Video 21:

- That our geographical location influences who we are.
- That human actions can change our physical environment.
- That maps are used to symbolize what is physically present.
- That the history of map-making is the history of exploration.
- That geography contributes to other disciplines: history, biology, ecology, sociology, anthropology, and more.



#### Words You Need to Know:

While viewing the video, put the letter of the meaning by the correct vocabulary word. Answers are on page 11.

- |                      |   |
|----------------------|---|
| _____ 1. cartography | a. measure of distance east or west from the prime meridian       |
| _____ 2. longitude   | b. a study of the relationships between people and places         |
| _____ 3. latitude    | c. a measure of the distance north or south of the equator        |
| _____ 4. legend      | d. map making; using symbols to describe the physical environment |
| _____ 5. geography   | e. a key to the symbols used on a map                             |

#### Points to Remember:

- Maps may be used in history, government, or economics questions.
- You will need to know the names of continents, states, and regions, and how to read maps.
- To make good use of a map, you must know who created it and for what purpose.
- By thinking critically, you can discover new information from a map.



### **Did You Catch That?**

Test your memory (or previous knowledge) of the following points made in *Program #21 – Geography*. After your first viewing of the video, mark each statement below True or False. If False, write the correct information on the line below the statement. Watch the video again to check your answers, or look on page 15.

- T F** 1. Geography is specialized and does not relate to other scientific areas of study.  
\_\_\_\_\_
- T F** 2. Physical geography looks at the surface of the earth: how physical features got to be there, the distribution of biological species, and hazards like volcanoes.  
\_\_\_\_\_
- T F** 3. Even though we have access to information about cultures and events on the other side of the world, unless we intend to travel, there is no need to worry about them.  
\_\_\_\_\_
- T F** 4. To Native Americans, a sense of place comes out of experience including the experiences of their ancestors.  
\_\_\_\_\_
- T F** 5. Years of adding irrigation water to the Everglades in Florida caused two hurricanes.  
\_\_\_\_\_
- T F** 6. The Florida Water Management District discovered that the flora and fauna that lived in or near the Everglades need times of low water for their life cycles.  
\_\_\_\_\_
- T F** 7. The real power of Geographic Information Systems (GIS) is being able to turn maps into a series of numbers.  
\_\_\_\_\_
- T F** 8. Maps contain symbols that can be grouped in two types—topographical or thematic.  
\_\_\_\_\_
- T F** 9. Dr. John Snow, in his search for the source of a cholera epidemic, was the first person to use mapped information to prove a medical hypothesis.  
\_\_\_\_\_
- T F** 10. The use of longitude and latitude as the basis of our mapping system began with Marco Polo's overland travels.  
\_\_\_\_\_

**Warm-Up Exercises**

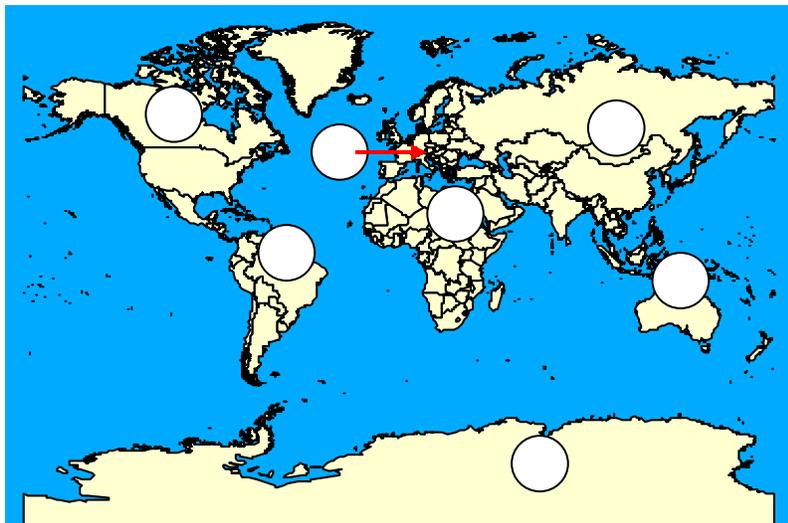


As mentioned in the video, you are expected to recognize and correctly place the names of the continents, states in the United States, and regions of the world. No GED question will ask just for that information, but knowing it will help you narrow down answer choices or better understand questions in history, government, and economics, as well as in geography. If the following exercises are more than a



gentle stretch for you, locate some of the Internet resources that will be introduced in the following pages, a *recent* textbook (many countries on the world map have changed in the last ten years!), or a world atlas. Make up more exercises similar to these and challenge your classmates or a friend to map duels.

**Continents** - Start with naming the continents. Write the names on the numbered list; then write the number for each continent in its correct location on this map of the world. The answers for all the map warm-up exercises are on page 15.



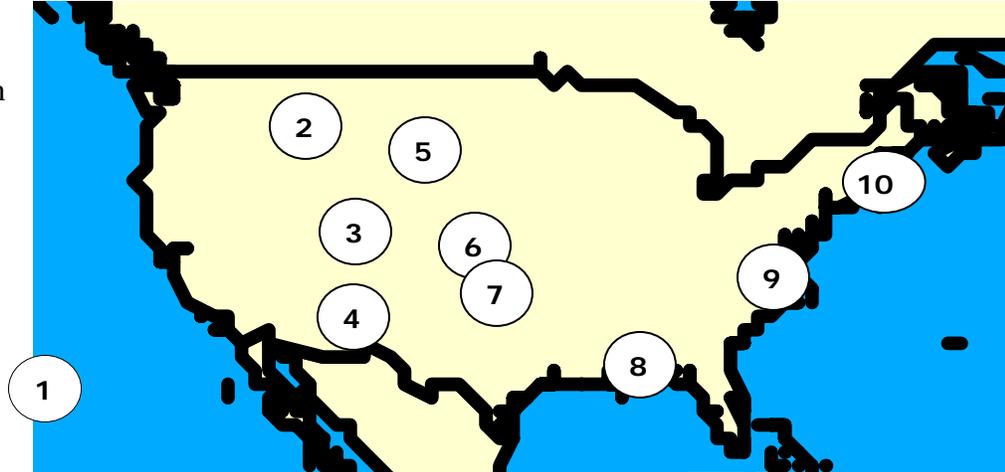
1. \_\_\_\_\_
2. \_\_\_\_\_
3. \_\_\_\_\_
4. \_\_\_\_\_
5. \_\_\_\_\_
6. \_\_\_\_\_
7. \_\_\_\_\_

Source: Pima County, AZ, <http://www.dot.co.pima.az.us/mapdis.htm>

**States of the United States** - Next, see if you have any difficulty placing states in their proper location. This time, the states' names are supplied. In the spaces by their names below, enter the number for their location from the U.S. map on page 4. (These states were selected from an alphabetically ordered list of the fifty states, including every fifth state starting with the first state on the list. If you need more practice, you can set up your own exercises using such a list.)

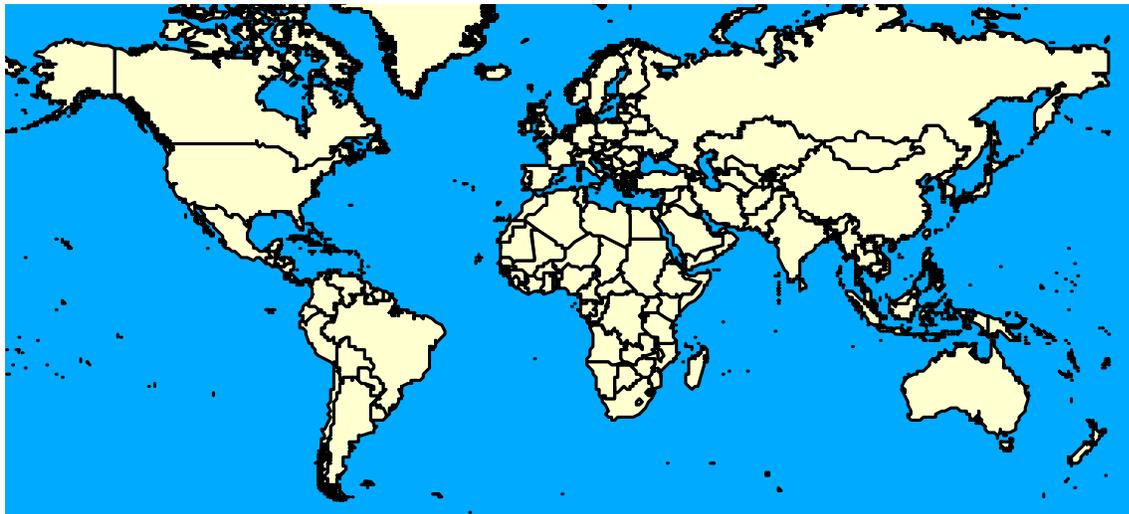
- |                     |                |
|---------------------|----------------|
| _____ Alabama       | _____ Colorado |
| _____ Hawaii        | _____ Kansas   |
| _____ Massachusetts | _____ Montana  |
| _____ New Mexico    | _____ Oklahoma |
| _____ South Dakota  | _____ Virginia |

Use this map to locate the states listed on the previous page:



Source: Pima County, AZ, <http://www.dot.co.pima.az.us/mapdis.htm>

**Regions of the World and a Few Countries** - This exercise will be a bit more challenging. Enter the number of each region or country in the correct general area on the map. Also mark either an “R” or a “C” before the name to indicate if it is a country or a geographic region.



Source: Pima County, AZ, <http://www.dot.co.pima.az.us/mapdis.htm>

- |                        |                              |                  |
|------------------------|------------------------------|------------------|
| 1. ___ the Yukon       | 2. ___ Brazilian Rain Forest | 3. ___ Greenland |
| 4. ___ Sahara Desert   | 5. ___ India                 | 6. ___ Spain     |
| 7. ___ Central America | 8. ___ the Middle East       | 9. ___ Japan     |
|                        | 10. ___ the Outback          |                  |



Have you noticed that the countries toward the top and bottom of the maps appear to be larger compared to the countries across the center? Cartographers have devised various solutions to correct for the distortion that occurs when a curved surface is represented on a flat plane. To see more accurate shapes, distances, and areas, look at a globe. For study, keep the distortion in mind; for instance, Greenland is only one-eighth the size of South America, not about equal size. About.com offers a clear explanation of map projections at: <http://geography.about.com/library/weekly/aa031599.htm>.



### Maps as Tools

Maps are designed for specific purposes: to indicate political boundaries, to assist hikers or mountain climbers, to guide a traveling motorist, for navigation on the ocean, to plan the location of future streets, freeways, commuter trains, to plan where to market a new product or build a store, to decide where to drill for oil—to name a few. With these and other possible maps in mind, make a list in the table below of features that could appear on one or more of these maps. Group these features as either physical or cultural and indicate who might use a map with this item on it. You may want to review the video discussion of physical versus cultural features. Then the sample answers will get you started. A representative list of possible answers appears on page 16.

Physical Feature	Potential Map User	Cultural Feature	Potential Map User
lakes	fisherman	population density	school board planner

### Man-Made Changes

Did you have any difficulty deciding whether a map feature should be considered physical or cultural? What about physical aspects of the environment that humans have changed? Is Hoover Dam or the Panama Canal cultural or physical? Is the presence of thousands of head of cattle in Kern County physical or cultural? What do you think about streets, highways, railroad tracks, and airport landing strips? These all change the physical environment to a greater or lesser degree. When you look at a map that depicts cultural features, it will still retain physical aspects, or it won't convey much meaning. The urban planner must be aware of a steep hillside next to a neighborhood in order to restrict building in that direction. Likewise, a pilot studying a physical map to determine elevations necessary to avoid mountains must also be aware of tall buildings and radio towers.



**Discussion Topic:** What are some of the benefits and/or negative results when humans change physical features of the environment? Talk about these and your own examples with classmates or friends:

- California Aqueduct
- Alaskan oil pipeline
- reduction of rainforest acreage
- forest fires caused by arson

## Map Reading Skills

Consider this nightmare: with his dying breath, the pirate hands you his map to the buried treasure. It shows an island, a group of three palm trees, a large rock twenty steps from the palm trees, and the notation that the chest is buried five paces beyond the rock, three feet deep. You are going to be rich! Except...

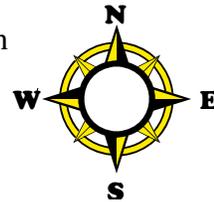


What did he forget to put on his map? Think for a minute about what else you would like to know. It would certainly take the mystery out of it, but it would be helpful if he had added:

- |                          |  |
|--------------------------|--|
| ⇒ the name of the ocean  | ⇒ a direction indicator                            |
| ⇒ the name of the island | ⇒ a legend explaining any symbols used on the map. |
| ⇒ a map scale            |  |

Sometimes multipurpose maps will include items not helpful to every reader, but every item showing on a map should have been put there for a purpose.

The symbol to the right evolved from the “compass rose,” an aid to navigation drawn on maps since the 1300s to indicate the orientation of the map. It was also known as the “wind rose” because it showed the directions from which the winds blew, a matter of concern to sailors. For centuries it has been standard that the top of the map is north; the only reason the compass rose is needed on a map is to verify which edge of the map *is* the top.



Source: <http://quake.wr.usgs.gov/recenteqs/Maps/SFBav.html>

The **map scale** indicator usually looks like a simple thin ruler with marks indicating the units of measurement. In this map of the San Francisco Bay area, both miles and kilometers are represented. Try estimating the straight-line distance in miles from Lodi to Morgan Hill.

Now use the map scale: lay a straight edge of paper across the points for the two cities, and mark the paper edge at each point. Then lay the paper next to the map scale with the left-hand mark at the zero. Mark your paper at the 25-mile point; then slide your 25-mile mark to the zero and make another mark next to the new position of the 25-mile point. Do this until the remaining space to the second city mark is less

than 25 miles and estimate the fraction remaining. Did you measure about 72 miles? It is difficult to be perfectly accurate with such a small map, but the scale gives you a general idea of the distances indicated.



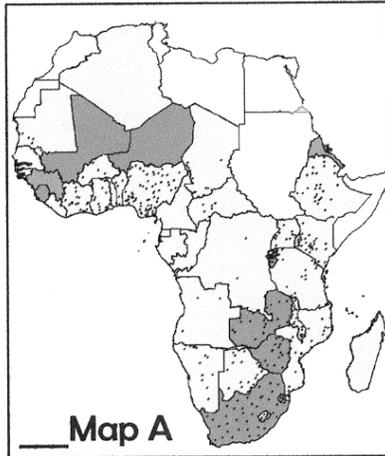
**Test Tip:** The rule for GED map reading is simple—read everything. Read the title, any accompanying description, the legend, the map scale, and the source of the map. Note what kind of features are included on the map—physical features, political boundaries, or other cultural aspects. Then read the question to find out what you must do with that map.

**Map legends** can be the key to understanding what a map is all about. Below are three map titles, three portions of maps, and three legends. Using the numbers of the map titles, indicate which maps and legends belong to each title. Then answer the questions below the maps. The answers are on page 16.

**1. Map to Adult Education Sites**

**2. Pesticides: Endangered Species Protection Program by County**

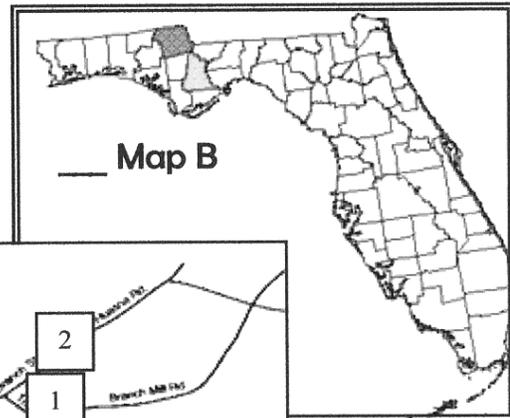
**3. HIV surveillance activity in the WHO African Region 2001 – 2002**



Source: <http://www.afro.who.int/aids/surveillance/resources/>.

\_\_\_ Legend A

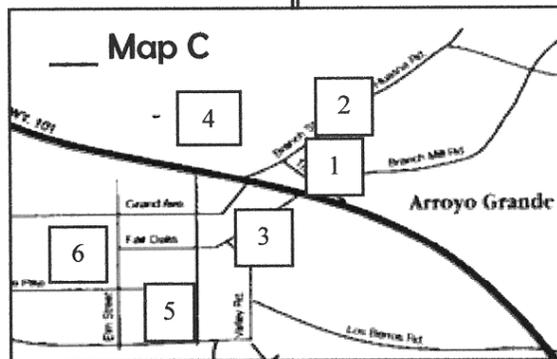
- KEY**
1. Bridge Street Learning Ctr
  2. Paulding Middle School
  3. Arroyo Grande High School
  4. Grace Bible Church
  5. Hiawatha Lodge
  6. Creative Patches



Source: <http://www.epa.gov/espp/florida/florida.htm>

\_\_\_ Legend B

- ANC Sentinel sites
- National population based survey
- Special populations survey
- WHO African Region



Source: Lucia Mar Adult Education, Brochure, Spring 2004

\_\_\_ Legend C

- Gadsden
- Jackson
- Liberty

1. Which part of Africa has more African National Congress (ANC) Sentinel sites for the surveillance of HIV outbreaks: the World Health Organization (WHO) African Region or the National population based survey areas? \_\_\_\_\_
2. What are the names in Legend A describing? \_\_\_\_\_
3. What are the names in Legend C describing? \_\_\_\_\_



## Latitude & Longitude

You are probably familiar with the system of lines circling the globe from north to south and from east to west. These are arbitrary lines that have been agreed upon by geographers and other scientists as a means of describing locations on the earth's surface. If two people planned to meet at  $42^{\circ}\text{S}$   $147^{\circ}\text{E}$ , they would both end up on the island of Tasmania, Australia, because there is only one such "address" in the world.

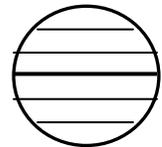
The horizontal bars, referred to as latitude, are measured from the equator, which is 0 degrees, and end at 90 degrees North ( $90^{\circ}\text{N}$ ) at the North Pole and  $90^{\circ}\text{S}$  at the South Pole. The latitude is also known as a "parallel," because it runs parallel to the equator, as in the 45th Parallel. The *GED Connection Program 21* video describes the first tools navigators used to track their position at sea—the astrolabe and later the cross-staff. These instruments could only measure the latitude, how far north or south of the equator they were.

**FYI** — The Internet article at <http://www.wurlington-bros.com/45th/> explains that although 45 is half-way to 90, the  $45^{\text{th}}$  parallel is not exactly half-way between the equator and the pole. If you have Internet access, you might find the explanation interesting.

The vertical bars, the longitude, reach from pole to pole and describe how far a point is from the zero line, which is called the prime meridian. The location of the prime meridian was an arbitrary man-made choice, made in 1884 by 25 nations meeting in Washington, D.C., for the International Meridian Conference. Before that, several different locations were being used, potentially leading to misunderstanding and expensive errors. A Transit Instrument at Greenwich, England's observatory became the zero point. The longitude is measured east or west from the line that passes through Greenwich for 180 degrees in either direction. Because the longitude divides the earth along the direction of its spin, it becomes a measure of time: the earth spins a full 360 degrees each day.

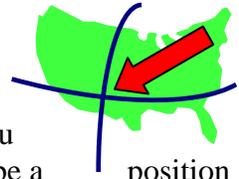
Source: <http://millennium-dome.com/info/conference.htm>

In addition to having only 180 degrees of latitude versus 360 degrees of longitude, the two sets of lines differ in another important respect. Every line of longitude runs perpendicular to the equator, curving around the earth to the poles. As the lines of longitude approach the poles, they become closer and closer together, until they all meet at those invisible points, the North and South Poles. Sketch in a few longitude lines on the globe to the right, starting with the very center. That line will look like just a straight line on this flat map projection.



1. If an airplane flew around the equator and then around the 45th Parallel, would both trips be the same number of miles? \_\_\_\_\_ Why not? \_\_\_\_\_
2. Which lines meet somewhere on the earth, those of latitude or of longitude? \_\_\_\_\_ Where do they meet? \_\_\_\_\_

## Degree Confluence Project



Now that you understand the numbering system for latitude and longitude, you can locate any point of degree confluence in the world. (If you want to describe a position between these crossing points, you must divide the degrees into minutes and seconds, much like time is divided.) You may recall the Degree Confluence Project from the geography video. Since the young man Alex Jarrett started the project in 1996, 2928 primary confluence points in 139 countries (and it will be more by the time you read this) have been visited and recorded.

Did you notice the word “primary”? That has to do with the fact that as the longitudinal lines approach the poles of the earth, they draw closer together. To keep the distance between reported confluence points about equal over the earth’s surface, a mathematical formula is applied. Referring to it as the “Pole Problem,” the project information states:

Starting at the equator, all degree confluences are designated as Primary until the distance between degrees of longitude drops below  $\frac{2}{3}$  of the distance at the equator. At that point, two thirds of the confluences will be designated as Primary, so every third confluence will be designated as Secondary. ... The next change occurs when the distance between degrees of longitude drops below  $\frac{2}{3}$  of  $\frac{2}{3}$  of the distance at the equator. At that point, half the confluences will be designated as Primary.

Source: <http://www.confluence.org/infoconf.php#poles>

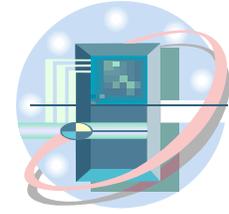
Otherwise, a single person taking a short hike around the North Pole could garner 360 points of confluence!



If you have access to the Internet, go to the Degree Confluence Project website (<http://www.confluence.org/>). This exercise would be worth a visit to the library if you can access the Internet there. Answers or explanations are on page 16.

1. What was the first point in California visited for the project? \_\_\_\_\_
2. What is the most recent point visited?  
Location: \_\_\_\_\_ Date: \_\_\_\_\_
3. Under *Confluences: Worldwide Maps*, click on the different types of maps available: Composite World Map, Worldwide Mapguide Map, and Worldwide Confluence Navigator. Name 4 layers of information available on the Worldwide Mapguide Map – *Interactive Maps of Pima County*. \_\_\_\_\_
4. What political entity maintains this map? \_\_\_\_\_
5. Find the degree confluence closest to where you live, using either the Worldwide Mapguide Map (which requires downloading a mapviewer) or the Worldwide confluence Navigator. What is it? \_\_\_\_\_ Has it been visited yet? \_\_\_\_\_ If so, describe briefly what the visitor found there: \_\_\_\_\_  
\_\_\_\_\_
6. What is the nearest degree confluence to where you live for which a completed visit has not yet been recorded? \_\_\_\_\_ Why do you think it hasn’t been completed? \_\_\_\_\_  
\_\_\_\_\_

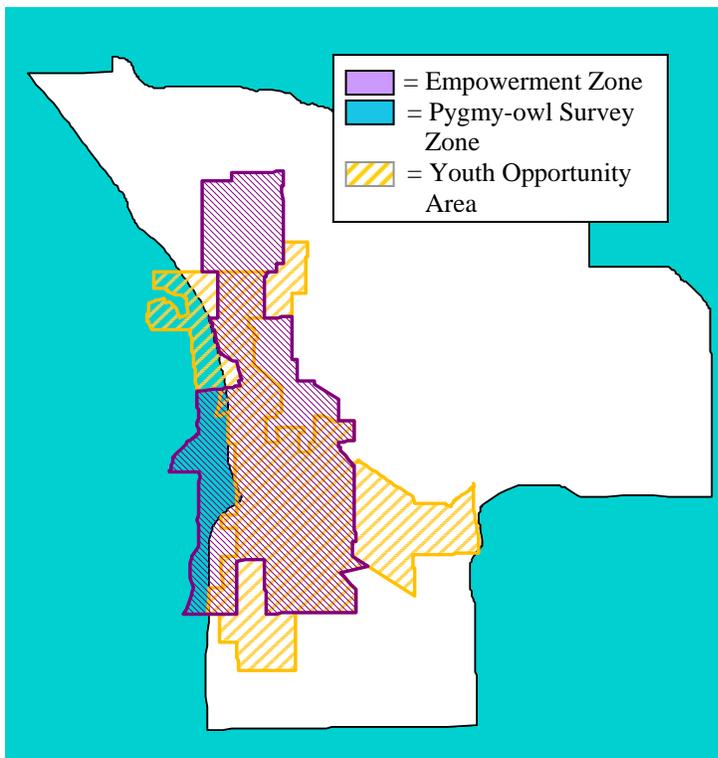
## The Value of GIS— Geographic Information Systems



Using global positioning systems to play a worldwide game of hide-and-seek may be a fun activity, but it is not the most exciting use of the latest map-making technology. GIS.com, a website dedicated to expanding the use of Geographic Information Systems (the site was developed by ESRI, a developer of GIS software), explains that

“A GIS combines layers of information about a place to give you a better understanding of that place. What layers of information you combine depends on your purpose—finding the best location for a new store, analyzing environmental damage, viewing similar crimes in a city to detect a pattern, and so on.”

In glancing through the layers of data available on the Pima County, Arizona map (<http://www.dot.co.pima.az.us/gis/maps/mapguide/>), you may have noticed the variety of types of information it shows. For example, selecting *Pygmy-owl Survey Zones*, *Youth Opportunity Area*, and *Empowerment Zone – Tucson* and zooming in to about a 1:200,000 range generates this map:



Tucson youth agencies might need to know where the Youth Opportunity area overlaps with the Empowerment Zone to avoid duplicating efforts or conflicting with existing programs. Both the Youth Opportunity and Empowerment areas overlap the Pygmy-owl Survey Zone along their western edges. These agencies might need to consider the ramifications of scheduling certain types of economic activities in a Pygmy-owl Survey Zone.

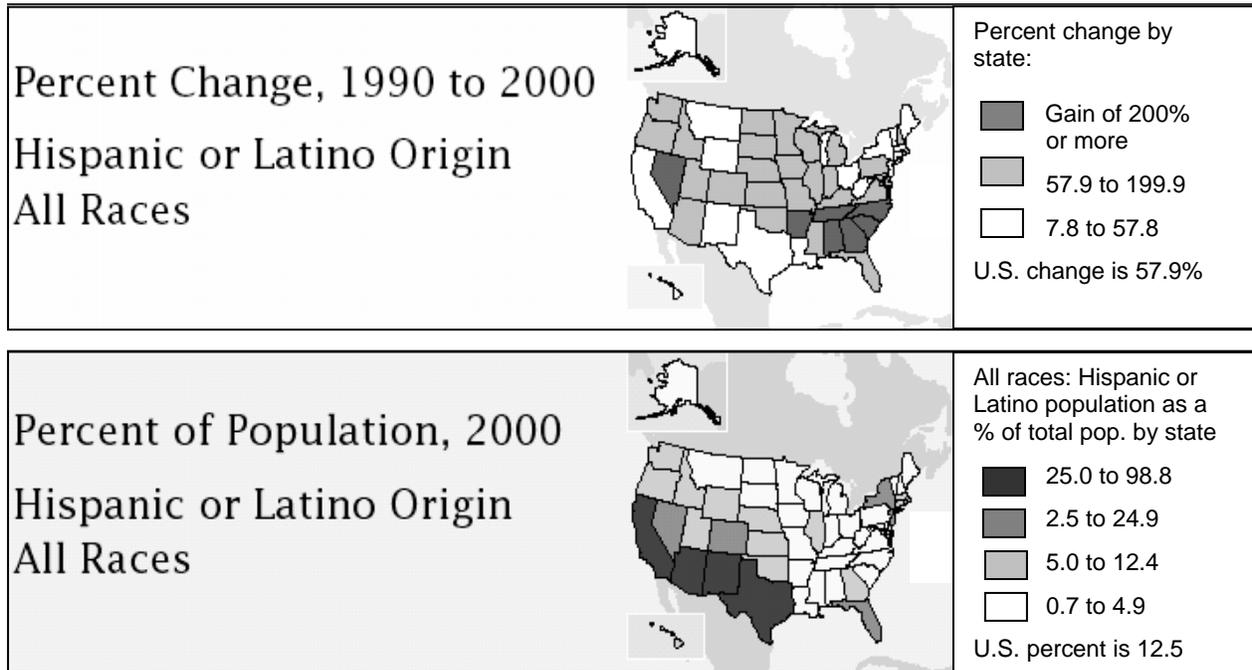
The geography video described Dr. John Snow’s use of mapping information to discover the source of cholera in London. GIS mapping is now used extensively to track infectious diseases such as Polio, SARS, and Avian Flu. The Centers for Disease Control and Prevention (CDC), working to finally eradicate

polio, has joined an international program called Stop Transmission of Polio Initiative (STOP). Their mapping tracks the location of cases of polio and of polio vaccination efforts. (See their map at <http://www.cdc.gov/nip/global/stopteam/stop-map.htm>.)

Environmental efforts include the tracking of endangered species, coordinating efforts to control erosion, asbestos, hazardous chemical waste disposal, and many other applications of GIS. At

www.climatehotmap.org, a map records sites of actual global warming and locations with early danger signs.

**Demographics** - The U.S. Census Bureau maps the demographic information gathered in its national censuses. Below are insets from two thematic maps included in the bureau's Census 2000 Special Reports – Hispanic or Latino Origin (<http://www.census.gov/population/cen2000/atlas/censr01-111.pdf>).



Putting together the two maps makes it possible to look at differences from state to state and over time. Using these maps, answer the following questions. The answers are on page 16.

1. Which western state had a gain of 200 percent or more of Hispanic or Latino population between 1990 and 2000? \_\_\_\_\_
2. What are the two largest states that had less than 57.9 percent gain in Hispanic or Latino population? \_\_\_\_\_ and \_\_\_\_\_
3. What is the largest state with less than 5 percent Hispanic or Latino population in the year 2000? \_\_\_\_\_
4. Name two states on the Canadian border that experienced less than 57.9 percent gain in Hispano or Latino population since 1990 and had populations less than 5% Hispanic or Latino in the year 2000. \_\_\_\_\_ and \_\_\_\_\_
5. Given Georgia's Hispanic or Latino population gain of over 200 percent, does it now have a greater percent of Hispanic or Latino population than Florida? \_\_\_\_\_ Can you determine if Georgia has more Hispanics and Latinos than Florida? \_\_\_\_\_ Why or why not? \_\_\_\_\_
6. Who might use this information? \_\_\_\_\_
7. Who published these maps? \_\_\_\_\_

## Resources for Further Study

Geography offers literally a whole world to learn about. The key to geography is that the whole purpose of mapping is to see the interplay of various systems—physical and cultural. Very possibly a site exists in California that could be mapped for earthquake activity, drought, brush fires, oil deposits, erosion, air pollution, chemical waste disposal, irrigation districts, fruit-fly infestation, demographic shifts due to immigration, gentrification (new owners improving a run-down area), national historical monuments, and Native American burial grounds. Geography is the science that allows consideration of how the solution to problems in one area will impact the present situation in other areas.



Explore some of geography's applications on the Internet. The list below starts with general information sites and then includes some special applications that you might find intriguing.

<http://geography.about.com> offers a glossary, atlases, and geography topics including Cartography, Census/Population, Cultural Geography, Weather, Disasters, GIS & GPS, Latitude/Longitude, Time Zones, Topographic Maps, and more.

<http://www.smithsonianmag.si.edu>, Smithsonian Magazine's website, includes geography issues.

<http://www.geographynetwork.com> provides maps and a variety of links to other resources.

<http://www.census.gov> and particularly <http://www.census.gov/population/cen2000/atlas/> allow you to see geography at work in the study of demographics (the description of the vital statistics of an audience or population such as age, race, income, and other qualities).

<http://www.cia.gov/cia/publications/factbook/geos/ay.html#Intro> is a great website for checking out basic facts about any country. It includes maps and a concise description of each country's political, economic, geographic, and cultural aspects.

<http://www.earthspan.org/AboutEarthspan.htm> is the site for "Analysis of the satellite-derived animal location data with geographic information systems [that] can relate animal movements and activities to geo-political boundaries, habitats, ecological community structures, land use activities and virtually any geographically discrete database."

<http://www.confluence.org> is the site of the Degree Confluence Project. Besides the excitement of hands-on exploration, it offers links to excellent map links including the following site.

<http://www.dot.co.pima.az.us/gis/maps/mapguide>, besides its highly detailed GIS map of Pima County, Arizona, provides access to a world map of degree confluence points, as well as several layers of information in the United States and world maps.

<http://www.cdc.gov/>, the Centers for Disease Control and Prevention web site, includes various maps related to health issues. To find them, search on the word "maps."

<http://landsat.gsfc.nasa.gov/earthasart/mississippi.html> captures the beauty of the planet Earth in a way never before possible—photographed from satellites.

**Sample Test** - When you have worked through Workbooks #16-21, you should be ready to take a sample GED test. If your score on that test shows you need more study in the geography area, work through the geography section of another GED preparation textbook. Don't forget that you can also study geography and take practice GED tests at [www.pbs.org/literacy](http://www.pbs.org/literacy).

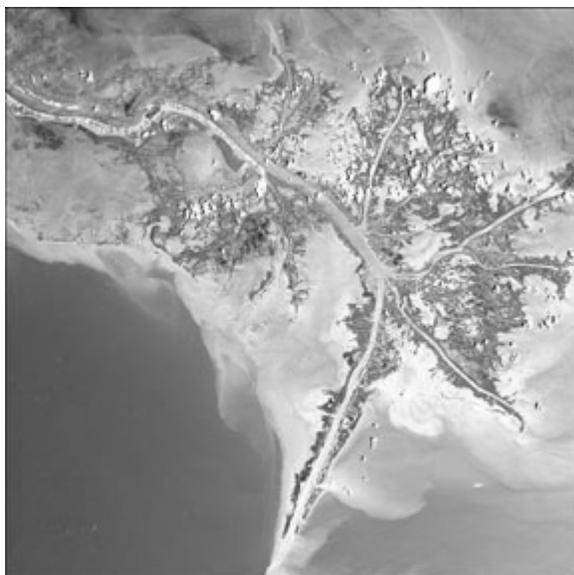


## Exercise

Now it's time to try your geography skills on a few questions in the GED format. Remember to read all the parts of maps or other graphics, formulate a possible answer in your mind before reviewing the answer choices, and verify that your choice is exactly answering the question before finalizing your decision. The answers and explanations are on page 16.

1. "Between 1974 and 1990, the land loss rate in the Mississippi River Delta Basin averaged 1,072 acres per year, or 1.69 percent of existing land area (Dunbar, Britsch, and Kemp 1992). Between the mid-1950s and 1974, the estimated land loss rate for the basin was 2,890 acres per year. This loss is the result of compaction, subsidence, hurricanes, tidal erosion, sea level rise, and human activities. The loss has been aggravated by maintenance of navigation channels and construction of canals for mineral exploration. The total land area lost in this basin over the last 60 years has been approximately 113,300 acres."

Source: <http://lacoast.gov/geography/mr/thenapub.com/rivmiss2.htm>



Source: <http://landsat.gsfc.nasa.gov/earthasart/mississippi.html>. Image courtesy of NASA Landsat Project Science Office and USGS EROS Data Center.

This birds-eye view of the Mississippi River Delta emphasizes its organic nature. Which of the following statements summarizes the forces at work in this area?

1. The force of the river current continually carries sediment into shipping lanes that are dredged to accommodate human economic needs.
  2. The lighter areas on the edge of the smooth dark area are constantly shifting sand dunes.
  3. The Delta is gradually taking over the Gulf of Mexico.
  4. The vein-like lines are all naturally occurring.
  5. Human intervention in the Delta has helped to maintain its existing land area.
2. National malaria control programs are now using the [HealthMapper] system to
    - identify populations at risk..
    - assess access of communities to health care.
    - target and monitor implementation of control interventions including use of bednets, larvicide spraying.
    - monitor drug resistance to first-line drugs.
    - integrate environmental data (such as rainfall) to serve as alert for epidemics.
    - monitor rainfall variability to support early warning of malaria epidemics.
    - assess impact of irrigation and other environmental factors on transmission.

The information systems needed to apply the HealthMapper system to malaria control include the following:

1. census data, geology surveys, irrigation maps
2. weather data, economic activity data, medical reports
3. census data, global warming maps, political maps, medical reports
4. irrigation maps, transportation systems, medical reports, religious systems
5. census data, political maps, transportation systems, weather data, irrigation maps, medical reports

3.



“The Lewis and Clark Expedition was the first of many government surveys of natural resources in the American West. The U.S. Geological Survey (USGS) was established on March 3, 1879 in response to a report from the National Academy of Sciences, which had been asked by the Congress in 1878 to provide a plan for surveying and mapping the Territories of the United States that would secure the best possible results at the least possible cost....Because of its origin in natural resource surveys and the similarity of the USGS mission to Thomas Jefferson's charge to Meriwether Lewis, the USGS can be seen as the organizational successor to Lewis and Clark.” Source of map and excerpt: <http://www.usgs.gov/features/lewisandclark.html>

What was Congress's main motivation in asking Lewis and Clark to survey the western territories?

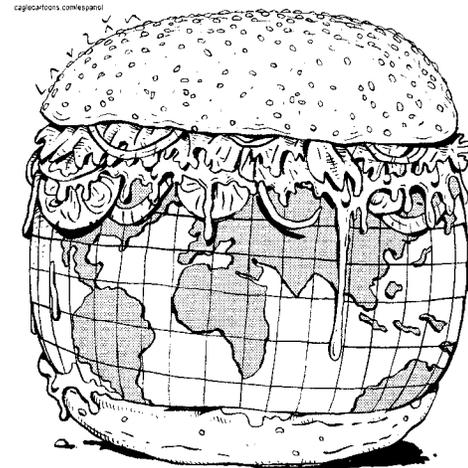
1. discover where to find gold
  2. prove the National Academy of Sciences wrong
  3. develop a map database that would help protect endangered species
  4. obtain reliable maps of the West at the least possible cost
  5. provide honorable employment for Lewis and Clark
4. GIS provides the analytical capabilities that form the hub of a successful precision agriculture system. GIS lets farmers perform site-specific spatial analyses of agronomic data. The study of geographic features and the relationship between them can be applied to all agriculture sectors. By better understanding how features within the landscape interact, decision-makers can

optimize efficiency and improve economic returns. Regardless of scale, whether at the subfield level analyzing crop yield information or internationally assisting government organizations with commodity subsidy programs, organizations such as the USDA, Lava Cap Winery, and the Bangladesh Agricultural Research Council benefit from GIS. Source: <http://www.gis.com/whatisgis/geographymatters.pdf>

What barriers would most likely keep individual third-world subsistence farmers from applying GIS precision farming techniques to their fields?

1. conflicting religious beliefs
2. lack of capital and education
3. inability to read English instructions
4. lack of desire to get ahead
5. uncertainty about the legality of using such technology

5.



Source: Best of Latin America, 3/1/2004 (Caglecartoons.com). Reprinted with permission.

The message the cartoonist wishes to convey with the above cartoon might be:

1. The whole world enjoys Big Mac hamburgers.
2. Eating too many hamburgers is causing obesity throughout the world.
3. The U.S. is quickly consuming the world's natural resources to enjoy Americans' fast-paced, fast-food lifestyle.
4. What tastes good for the United States is good for the world.
5. McDonald's stores are improving countries' economies around the world.

## Answers and Explanations

Page 1, Words You Need to Know

1. d    2. a    3. c    4. e    5. b

Page 2, Did You Catch That?

2. T    4. T    6. T    8. T    9. T

1. F—Geography brings together history, biology, ecology, sociology, and anthropology.
3. F—*Because* Internet communication allows instant contact with any country in the world, we need to be aware of their cultures and of how events around the world affect us.
5. F—The hurricanes, causing flooding and loss of life, added to the Everglades’ problems, but human action did not cause them.
7. F—The real power is being able to turn number data into maps, allowing visualization of the information.
10. F—The mapping system was started by seafaring mapmakers.

Page 3-4, Warm-Up Exercises

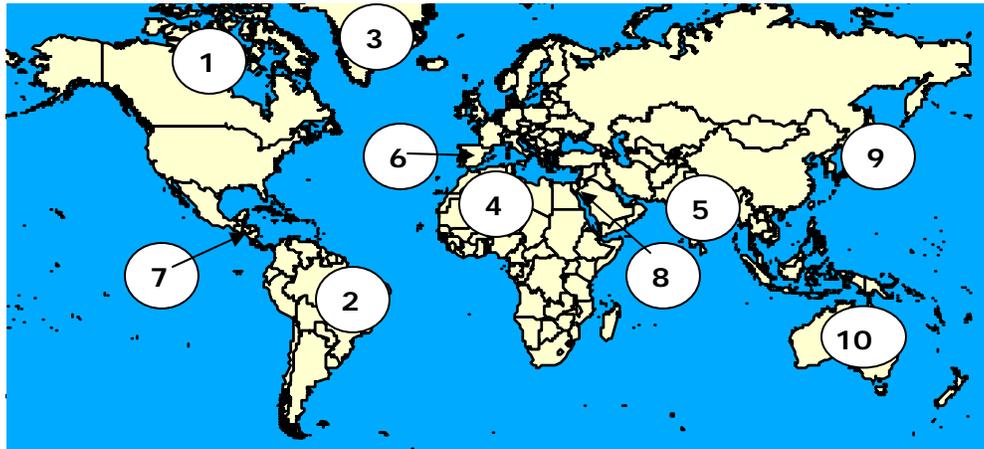
Continents (This list goes left to right on world map. Your numbers may be different, but make sure the location is correct.):

- |                  |                  |
|------------------|------------------|
| 2. South America | 1. North America |
| 4. Africa        | 3. Europe        |
| 6. Asia          | 5. Antarctica    |
|                  | 7. Australia     |

States:

- |                    |              |
|--------------------|--------------|
| _8_ Alabama        | _3_ Colorado |
| _1_ Hawaii         | _6_ Kansas   |
| _10_ Massachusetts | _2_ Montana  |
| _4_ New Mexico     | _7_ Oklahoma |
| _5_ South Dakota   | _9_ Virginia |

Regions and Countries:



Source: Pima County, <http://www.dot.co.pima.az.us/mapdis.htm>

- |                             |                                   |
|-----------------------------|-----------------------------------|
| 1. <u>R</u> The Yukon       | 2. <u>R</u> Brazilian Rain Forest |
| 3. <u>C</u> Greenland       | 4. <u>R</u> Sahara Desert         |
| 5. <u>C</u> India           | 6. <u>C</u> Spain                 |
| 7. <u>R</u> Central America | 8. <u>R</u> The Middle East       |
| 9. <u>C</u> Japan           | 10. <u>R</u> The Outback          |

Physical Feature	Potential Map User	Cultural Feature	Potential Map User
lakes	fisherman	population density	school board planner
elevations	hikers, hunters	district boundaries	state assemblyman
rivers	fish and game dept.	industrial-zoned areas	manufacturer
vegetation	agriculturalist	property lines	urban planner
seismic faults	emergency preparedness planners	manmade parks and playgrounds	recreation departments
waterways	fishermen	churches	religious products co.
freeways	drivers	zip codes	person sending a letter
spotted owl habitat	lumber company	area codes	long distance caller

Page 7, Map Reading

Title 1 – Map C – Legend A

Title 2 – Map B– Legend C

Title 3 – Map A – Legend B

1. national population-based survey areas
2. locations of adult education classes
3. names of counties in Florida

Page 8, Latitude & Longitude

1. No. The equator trip would be longer because it encircles the world at its circumference, its widest girth.
2. The longitude lines meet at the North and South Poles. The lines of latitude never meet because they are parallel to each other.

Page 9, Degree Confluence Project

1. What was the first point in California visited for the project? 33N 117W on 15 September 1998
2. Location & Date: Answers will vary depending on date site is accessed.
3. Sample of 4 layers of information: Sanitary Sewers, Police Stations, Adopt-a-Roadway, Schools
4. Pima County, Arizona
5. Answers will vary depending on location of student's home.
6. Answers will vary depending on location of student's home.

Page 11, Geographic Information Systems

1. Nevada
2. California and Texas
3. Alaska
4. Possible choices include Montana, Alaska, Vermont, New Hampshire, and Maine.
5. No: in the year 2000, Georgia had less than 12.5 percent and Florida had between 12.5 and 25 percent Hispanic or Latino population. No: the actual population numbers are not given on these two maps, only percents.
6. Possible answers include social services agencies, educators, and marketers.
7. U.S. Bureau of Census

Page 13, Exercise

1. 1) is correct. The lighter areas are underwater deposits of sediment; the Delta is a small encroachment in no way endangering the Gulf of Mexico; the vein-like lines are manmade shipping channels and canals; and human intervention has contributed to the *reduction* of the Delta's land area.
2. 5) is the only choice that does not include an unnecessary source of information. Geology surveys, economic activity data, global warming maps, and religious systems do not help in the mapping of malaria incidence.
3. 4) is a valid restatement of Congress's motivation as stated in the passage, to "secure the best possible results at the least possible cost."
4. 2) is correct. The GIS tools used to provide subfield data, and the leveling equipment, fertilizer, and pesticides needed to make use of the data once it is available, require both education and capital. While many subsistence farmers might be capable of understanding the technology if they had access to it and received instruction, as individuals they would probably not have the capital needed to apply the new information.
5. 3) Placing the world in the middle of a sandwich indicates it is going to be eaten—consumed. The use of the hamburger connects the image to America and fast foods. 1) may be a true statement to the extent that McDonald's stores are thriving in 119 different countries, but in this cartoon the world is not doing the eating. In the U.S., eating too many hamburgers is contributing to obesity, but this is not yet true worldwide; nor is the cartoon image depicting human obesity. 4) and 5) are also not supported by the cartoon image and would be hard to accept as a true statements.