

GENIP Online Mapping “Book”

The Internet Map is a Snap

Or

Maps for Success on Your AP Test

Book Contents

Each of these bolded areas will have narrative that will explain to teachers what online mapping is all about, where it came from, and who are the “players” and online map sources. These areas will prepare the teacher for entry into online mapping with their students.

The online map revolution and other educational movements

Mapquest, Yahoo maps, MSN Virtual Earth, Google, AAA, National Atlas, PASDA, TNRIS, AmericaView, Geography Network, Project 2061, Benchmarks, Standards, Revolutions in Earth Science, 7 themes Nation at Risk, Goals2000, NCLB, Thinking Spatially

The Players and other Trusted Sources

USGS, EPA, CIA Factbook, WorldBank, UNESCO, WWF, National Geographic, WHO, County Assessors, TIGER, US Census Bureau, Country Watch, Nation Master/State Master, State Game and Fish/Natural Resource Management, City Council of Governments, David Rumsey, Perry Casteneda, University GIS consortia, NOAA, UCAR, GLOBE, ESRI, Intergraph, State atlas, EROS Data Center, WorldWind, Blue Marble, CIESIN, Dougherty Spatial, Blue Marble, NASA, Earthexplorer (Satellite imagery search Engine), Live LandSat download

Teaching with Online Maps and Advanced Placement Courses

The College Board has published outlines that describe and guide teachers in the scope and breadth of the topics that should be covered in AP Geography and AP Environmental Science courses. While not exhaustive in nature, the outlines do provide a substantive guide for teachers to follow. Each chapter in this book will include the outline numbers (below) for both AP Geography and AP Environmental Science to aid in locating the lessons that will be most helpful to cover or enrich certain content or concept areas that need to be covered during an AP course. The following outlines have been included for your convenience and cross-referencing and can also be found on the AP Central home page (apcentral.collegeboard.com).

AP Geography Content Areas

- I. Geography: Its Nature and Perspectives
 - A. Geography as a field of inquiry
 - B. Evolution of key geographical concepts and models associated with notable geographers
 - C. Key concepts underlying the geographical perspective: location, space, place, scale, pattern, regionalization, and globalization
 - D. Key geographical skills
 1. How to use and think about maps and spatial data
 2. How to understand and interpret the implications of associations among phenomena in places
 3. How to recognize and interpret at different scales the relationships among patterns and processes
 4. How to define regions and evaluate the regionalization process
 5. How to characterize and analyze changing interconnections among places
 - E. New geographic technologies, such as GIS and GPS
 - F. Sources of geographical ideas and data: the field, census data
- II. Population
 - A. Geographical analysis of population
 1. Density, distribution, and scale
 2. Consequences of various densities and distributions
 3. Patterns of composition: age, sex, race, and ethnicity
 4. Population and natural hazards: past, present and future
 - B. Population growth and decline over time and space
 1. Historical trends and projections for the future
 2. Theories of population growth, including the Demographic Model
 3. Patterns of fertility, mortality, and health
 4. Regional variations of demographic transitions
 5. Effects of population policies
- III. Cultural Patterns and Processes
 - A. Concepts of culture
 1. Traits
 2. Diffusion
 3. Acculturation
 4. Cultural regions
 - B. Cultural differences
 1. Language
 2. Religion
 3. Ethnicity
 4. Gender
 5. Popular and folk culture
 - C. Environmental impact of cultural attitudes and practices
 - D. Cultural landscapes and cultural identity
 1. Values and preferences
 2. Symbolic landscapes and sense of place
- IV. Political Organization of Space
 - A. Territorial dimensions of politics
 1. The concept of territoriality
 2. The nature and meaning of boundaries
 3. Influences of boundaries on identity, interaction, and exchange
 - B. Evolution of the contemporary political pattern
 1. The nation-state concept

- 2. Colonialism and imperialism
- 3. Federal and unitary states
- C. Challenges to inherited political-territorial arrangements
 - 1. Changing nature of sovereignty
 - 2. Fragmentation, unification, alliance
 - 3. Spatial relationships between political patterns and patterns of ethnicity, economy, and environment
 - 4. Electoral geography, including gerrymandering
- V. Agricultural and Rural Land Use
 - A. Development and diffusion of agriculture
 - 1. Neolithic Agricultural Revolution
 - 2. Second Agricultural Revolution
 - B. Major Agricultural production regions
 - 1. Agricultural systems associated with major bioclimatic zones
 - 2. Variations within major zones and effects of markets
 - 3. Linkages and flows among regions of food production and consumption
 - C. Rural land use and settlement patterns
 - 1. Models of agricultural land use, including von Thünen's model
 - 2. Settlement patterns associated with major agriculture types
 - D. Modern commercial agriculture
 - 1. Third Agricultural Revolution
 - 2. Green Revolution
 - 3. Biotechnology
 - 4. Spatial organization and diffusion of industrial agriculture
 - 5. Future food supplies and environmental impacts of agriculture
- VI. Industrialization and Economic Development
 - A. Key concepts in industrialization and development
 - B. Growth and diffusion of industrialization
 - 1. The changing roles of energy and technology
 - 2. Industrial Revolution
 - 3. Evolution of economic cores and peripheries
 - 4. Geographic critiques of models of economic localization (i.e., land rent, comparative costs of transportation), industrial location, economic development, and world systems
 - C. Contemporary patterns and impacts of industrialization and development
 - 1. Spatial organization of the world economy
 - 2. Variations in levels of development
 - 3. Deindustrialization and economic restructuring
 - 4. Pollution, health, and quality of life
 - 5. Industrialization, environmental change, and sustainability
 - 6. Local development initiatives government policies
- VII. Cities and Urban Land Use
 - A. Definitions of urbanism
 - B. Origin and evolution of cities
 - 1. Historical patterns of urbanization
 - 2. Rural-urban migration and urban growth
 - 3. Global cities and megacities
 - 4. Models of urban systems
 - C. Functional character of contemporary cities
 - 1. Changing employment mix
 - 2. Changing demographic and social structures
 - D. Built environment and social space
 - 1. Comparative models of internal city structure
 - 2. Transportation and infrastructure
 - 3. Political organization of urban areas
 - 4. Urban planning and design
 - 5. Patterns of race, ethnicity, gender, and class
 - 6. Uneven development, ghettoization, and gentrification
 - 7. Impacts of suburbanization and edge cities

AP Environmental Science Topic Areas

- I. Earth Systems and Resources
 - A. Earth Science Concepts
(Geologic time scale; plate tectonics, earthquakes, volcanism; seasons; solar intensity and latitude)
 - B. The Atmosphere
(Composition; structure; weather and climate: atmospheric circulation and the Coriolis Effect; atmosphere-ocean interactions; ENSO)
 - C. Global Water Resources and Use
(Freshwater/saltwater; ocean circulation; agricultural, industrial, and domestic use; surface and groundwater issues; global problems; conservation)
 - D. Soil and Soil Dynamics
(Rock cycle; formation; composition; physical and chemical properties; main soil types; erosion and other soil problems, soil conservation)
- II. Ecosystem Structure
 - A. Ecosystem Structure
(Biological populations and communities; ecological niches; interactions among species; keystone species; species diversity and edge effects; major terrestrial and aquatic biomes)
 - B. Energy Flow
(Photosynthesis and cellular respiration; food webs and trophic levels; ecological pyramids)
 - C. Ecosystem Diversity
(biodiversity; natural selection; evolution; ecosystem services)
 - D. Natural Ecosystem Change
(Climate shifts; species movement; ecological succession)
 - E. Natural Biogeochemical Cycles
(Carbon, nitrogen, phosphorus, sulfur, water, conservation of matter)
- III. Population
 - A. Population Biology Concepts
(Population ecology; carrying capacity; reproductive strategies; survivorship)
 - B. Human Population
 - 1. Human population dynamics
(Historical population sizes; distribution; fertility rates; growth rates and doubling times; demographic transition; age-structure diagrams)
 - 2. Population size
(Strategies for sustainability; case studies; national policies)
 - 3. Impacts of population growth
(Hunger; disease; economic effects; resource use; habitat destruction)
- IV. Land Use
 - A. Agriculture
 - 1. Feeding a growing population
(Human nutritional requirements; types of agriculture; Green Revolution; genetic engineering and crop production; deforestation; irrigation; sustainable agriculture)
 - 2. Controlling pests
(Types of pesticides; costs and benefits of pesticide use; integrated pest management; relevant laws)
 - B. Forestry
(Tree plantations; old growth forests; forest fires; forest management; national forests)
 - C. Rangelands
(Overgrazing; deforestation; desertification; rangeland management; federal rangelands)
 - D. Other Land Use
 - 1. Urban land development
(Planned development; suburban sprawl; urbanization)
 - 2. Transportation infrastructure
(Federal highway system; canals and channels; roadless areas; ecosystem impacts)
 - 3. Public and federal lands
(Management; wilderness areas; national parks; wildlife refuges; forests; wetlands)
 - 4. Land conservation options
(Preservation; remediation; mitigation; restoration)
 - 5. Sustainable land-use strategies
 - E. Mining
(Mineral formation; extraction; global reserves; relevant laws and treaties)
 - F. Fishing
(Fishing techniques; overfishing; aquaculture; relevant laws and treaties)
 - G. Global Economics

(Globalization; World Bank; Tragedy of the Commons, relevant laws and treaties)

- V. Energy Resources and Consumption
 - A. Energy Concepts
(Energy forms; power; units; conversions; Laws of Thermodynamics)
 - B. Energy Consumption
 - 1. History
(Industrial Revolution; exponential growth; energy crisis)
 - 2. Present global energy use
 - 3. Future energy needs
 - C. Fossil Fuel Resources and Use
(Formation of coal, oil, and natural gas; extraction/purification methods; world reserves and global demand; synfuels, environmental advantages/disadvantages of sources)
 - D. Nuclear Energy
(Nuclear fission processes; nuclear fuel; electricity production; nuclear reactor types; environmental advantages/ disadvantages; safety issues; radiation and human health; radioactive wastes; nuclear fusion)
 - E. Hydroelectric Power
(Dams; flood control; salmon; silting; other impacts)
 - F. Energy Conservation
(Energy efficiency; CAFÉ standards; hybrid electric vehicles; mass transit)
 - G. Renewable Energy
(Solar energy; solar electricity; hydrogen fuel cells; biomass; wind energy; small-scale hydroelectric; ocean waves and tidal energy; geothermal; environmental advantages/disadvantages)
- VI. Pollution
 - A. Pollution Types
 - 1. Air pollution
(Sources – primary and secondary; major air pollutants; measurement units; smog; acid deposition – causes and effects; heat islands and temperature inversions; indoor air pollution; remediation and reduction strategies; Clean Air Act and other relevant laws)
 - 2. Noise pollution
(Sources; effects; control measures)
 - 3. Water pollution
(Types; sources, causes, and effects; cultural eutrophication; groundwater pollution; maintaining water quality; water purification; sewage treatment/septic systems; Clean Water Act and other relevant laws)
 - 4. Solid waste
(Types; disposal; reduction)
 - B. Impacts on the Environment and Human Health
 - 1. Hazards to human health
(Environmental risk analysis; acute and chronic effects; dose-response relationships; air pollutants; smoking and other risks)
 - 2. Hazardous chemicals in the environment
(Types of hazardous waste; treatment/disposal of hazardous waste; cleanup of contaminated sites; biomagnification; relevant laws)
 - C. Economic Impacts
(Cost-benefit analysis; externalities; marginal costs; sustainability)
- VII. Global Change
 - A. Stratospheric Ozone
(Formation of stratospheric ozone; ultraviolet radiation; causes of ozone depletion; effects of ozone depletion; strategies for reducing ozone depletion; relevant laws and treaties)
 - B. Global Warming
(Greenhouse gases and the greenhouse effect; impacts and consequences of global warming; reducing climate change; relevant laws and treaties)
 - C. Loss of Biodiversity
 - 1. Habitat loss; overuse; pollution; introduced species; endangered and extinct species
 - 2. Maintenance through conservation
 - 3. Relevant laws and treaties

Teaching with Online Maps and National Standards

Online map machines are natural resources to address national standards of virtually all courses that are taught in the secondary classroom and in many courses taught in the elementary classroom as well. Throughout the book, we will include a text box of standards addressed for various courses to help visualize how standards are addressed through these lessons. The matrices included for each lesson should not be considered to be the only courses that address national standards. With a visit to your course standards, you will find many courses standards met by these lessons or with a bit of adjustment, your standards can readily be addressed by your new lesson.

Geography – Geography for Life – www.genip.org

Biology
Chemistry
Earth Science
Economics
Environmental Science
Fine Arts
Government
Health and Physical Education
History
Language Arts
Mathematics
Physics
Social Studies
Technology
Vocational

Inquiry and Online Maps

If copyright permits, we will include these resources in the book as well to remind teachers of existing models to aid in creating inquiry based lessons for the classroom using online maps. This section might also have a brief “reminder” or introductory on inquiry based learning in the classroom.

Blooms Taxonomy
Levels of inquiry: 5E
Question words to encourage a certain level of thinking

Grading and Online Maps (Rubrics)

We will include several examples of available rubrics to give teachers ideas on how to “grade” work they do with their students using internet resources.

Readily available tools students can use to create homework from Online Maps

Screen Capturing,
Image Editing in Word,
Irfanview, Paint, Photoshop...
Excel (data to columns)

From Online Maps to Software Analysis

CAD
ArcView
AEJEE,
ArcGIS Explorer
Image J
Multi Spec
Leica

Adding GPS Data or other Coordinate Data

DNR Garmin, RoboGeo, Sketchup

Inquiry examples (Fun with Online Maps!) Working Titles

This section will be the building blocks of the Table of Contents. We may not use all of these resources and in fact in the past six months, there are several sites that will warrant addressing in the book. A final decision will need to be made on if there is a page constraint. We were thinking originally of 125 pages and with the two to three page length the lessons are turning out to be, that may be a sound target length.

Lessons	Tool
1. Spread of Languages <i>Watch that tongue!</i>	MLA language map
2. Urban Sprawl <i>City's Sagging Beltline</i>	Terraserver, Maptech, Topos, CA historic Aerials
3. City Plans and Changes <i>From Hamlet to Metropolis: The Changing Shape of the City</i>	Google, Victorian London, Rumsey
4. US Agriculture Land Use <i>A Land of Milk and Honey</i>	National Atlas
5. How We Farm the Land <i>Hamburger on Whole Wheat: Or Pigs from Space.</i>	Seamless.usgs.gov
6. World Demographics <i>Smorgasbord of Humanity</i>	Nationmaster, CIA Factbook
7. Local Demographics <i>My Kind o' Town</i>	American Fact Finder

College town, retirement commun, industrial
Eastern old cities, midwestern, newer city layouts

8. Cultural maps
Makin Dixie line.
Pop vs Soda, Sweet Tea, dialects
KanGIS Student Data Mapper
8. Financial Lay of the Land
There goes the neighborhood!
Assessors Housing Values
9. Local Municipal mapping
Chicago is My Kinda Town!
Chicago GIS
10. Biome Mapping
The Rain in Spain Makes Mainly Medi"terrain"
Confluence.org
11. Phys Geography Glacial Forms
Worlds in Greenhouses Shouldn't Throw Stones
Geocaching.org
12. Location: Where is Waldo?
DC or not DC, That is the Question!
Mapquest, MSN Virtual Earth
13. Historical Politics
Whistle Stop Through History
NGS Map Machine, Rumsey,
and Nat. Atlas
14. Refugees (movement)
Struggle to Survive
Refugee migration site
15. The Great Wonders of the World
They Built These Cities With Rock and Stone
Google Earth
16. Crime Mapping
CSI (yourstate, yourcounty, yourcity)
National Atlas, Google Earth
17. Live Weather
Some like it Hot!
Weather.com, Weatherbug,
www.project2010
18. Seasonal Hurricane Analysis
EnGulfed!
AEJEE hurricanes
19. Tornado season
Toto, we're not in Kansas anymore!
AEJEE tornados
19. Climate
Is it just me or is it a little warm in here?
NGS Map Machine, UCAR models
20. Global Change Ozone, CO₂, etc NOAA
An Atmosphere We've Brewed

- | | | |
|-----|--|-----------------------------------|
| 20. | Land Apportionment
<i>My Piece of the Pie</i> | Terraserver |
| 21. | California Coastline
<i>Hang "1": Rippin' California's Coastline</i> | Google Earth |
| 22. | Worldwide Earthquakes
<i>What's Shakin'?</i> | USGS earthquake viewer (NEIC) |
| 23. | The Making of a Continent
<i>How Old Are the Hills?</i> | USGS Tapestry of Time |
| 23. | Landforms
<i>Like Sands Through the Hourglass...</i> | NASA Worldwind |
| 24. | Treasure Maps for a Lost world.
<i>Yo ho ho, Lads a Pirate's Life for Me</i> | NASA Worldwind |
| 25. | Landform Recognition
<i>TOPO BINGO</i> | NASA Worldwind |
| 26. | Water Flow and Water Quality
<i>How High's the Water Mama? 6 ft High and Risin'</i> | USGS NWIS streamgauges |
| 27. | Physical properties of world oceans
<i>Over the Ocean Blew</i> | NGS Map Machine |
| 28. | US Watersheds
<i>Rollin' on the River</i> | AEJEE + NHD |
| 29. | Our earthly footprints on the Ecosystem
<i>Prime Mover</i> | Earthshots: Aral Sea, Amazonia... |
| 30. | Energy consumption and reserves
<i>Running on Empty</i> | AEJEE |
| 31. | Spread of Disease
<i>Airborne!</i> | National Atlas |

Map Tool Summary: Index

We could include two sections in the Index: the sites actually used or addressed in the lessons, and other sites not used in the lessons.

Google Earth	World Wind	MSN virtual Earth
Mapquest	AAArouteplanner	Arc View
AEJEE	Arc Web Services	ArcGIS Explorer.
Robogeo	DNR garmin	NGS Map Machine
NGS My Wonderful World	Nationmaster.com	Statemaster.com
GMAC fire mapping	Seamless.usgs.gov	EarthExplorer.org
Earthcache.org	Geocache.org	Confluence.org
David Rumsey	Perry Casteneda	TNRIS
PASDA,	NDSpatialHub	OhioView
Texas View	Native View	LA Atlas
NOAA	TerraServer	EarthShots/BlueMarble
Student Mapper	GLOBE	Language Dialect Maps
USGS Stream Gauge	Earthquake Visualizer	City Sites
County Assessor	Language Dialect Maps	Historic States/Europe
DNR data deli	Whalenet.org	Animal tracking sites
Weather.com	Weatherbug.com	www2010project.com
National Atlas		

What To Do if a Web Link Changes

This section will address the inevitable changing of web links to web pages on the internet. This is a regular occurrence no matter how large the organization sponsoring the site or how stable the site has been in the past. This section will empower teachers to find the new link for the site and to change the materials for their students.

Questions for committee:

Will the materials be in Word format (or unlocked PDF?) so teachers will be able to adapt or change the materials for their students or correct web links that change?

Watch That Tongue!

Analyzing language patterns with the Modern Language Association Map of Languages in the United States
<http://www.mla.org/map>

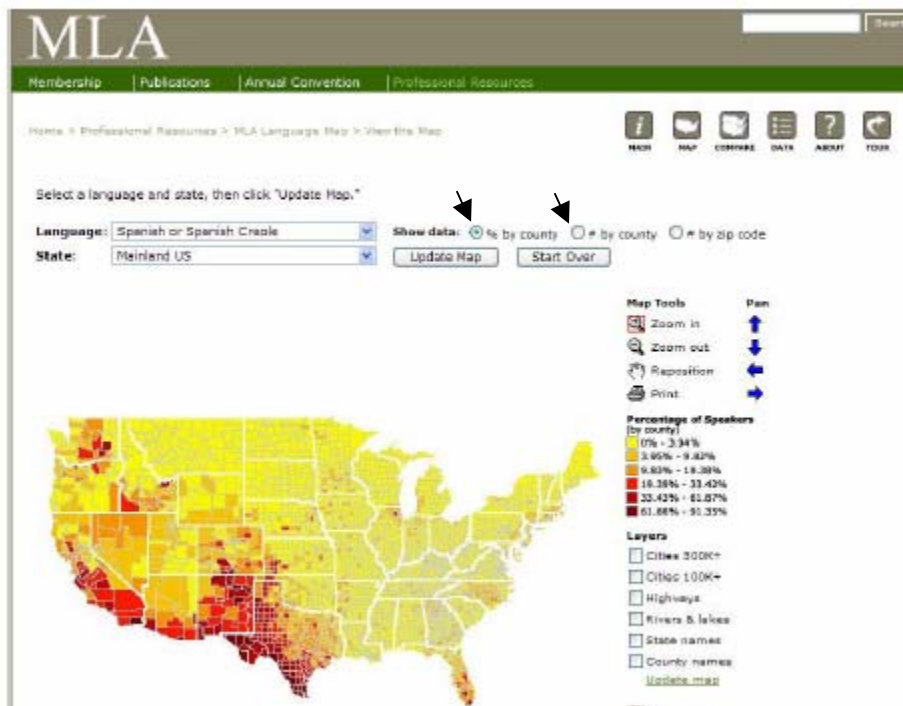
Buenos dias, Jen dobry, Guten tag, Bienvenue! What languages do you speak? Do you speak more than one? What about your friends or relatives? What languages are offered in your school? Do you think it is important to study and to speak several different languages?

Have you ever thought about where these languages are still used around the US? While English is the language of business and entertainment for a large portion of Americans, some still remember their language of origin. Where other languages are spoken, indicates many things about the influences of cultures on the creation of regions within the United States. These language maps provide faint fingerprints of the groups that settled and are still settling America and may give clues to what types of local celebrations of culture are held in the region.

Where would you hear that? The Language Map from the Modern Language Association provides information on languages spoken across the US. Tools offered on this site can be used to explore cultures that have been part of creating the diversity of populations here in this country. Open http://www.mla.org/map_single to map the location, numbers, and percentages of speakers of one of the 30 languages and three groups of less commonly spoken languages in the USA.

What difference do you find between the maps of raw numbers of speakers vs maps showing the *percentage* of speakers?

How does the raw number map compare to a map of the cities over 500K? (500,000+)

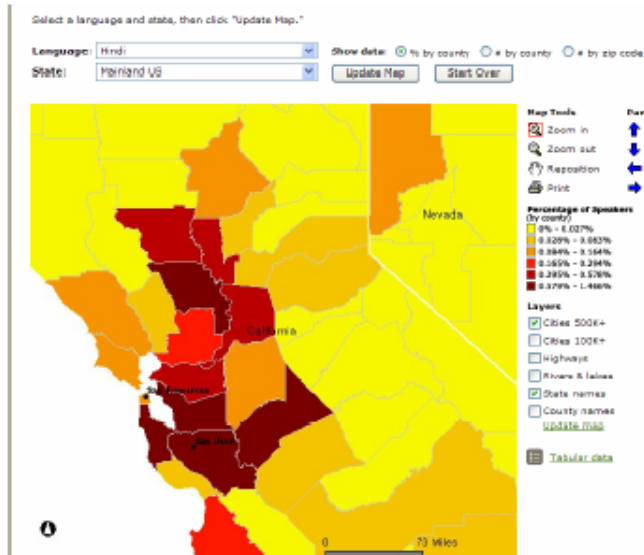


Do the languages spoken always indicate where people groups are from?

Take the top five language groups outside of English and list areas these languages are spoken:

- 1.
- 2.
- 3.
- 4.
- 5.

Countries historically involved in imperial expansion such as England, France, Spain, and Portugal have left remnants of their empires that add to the immigration picture in these language map.

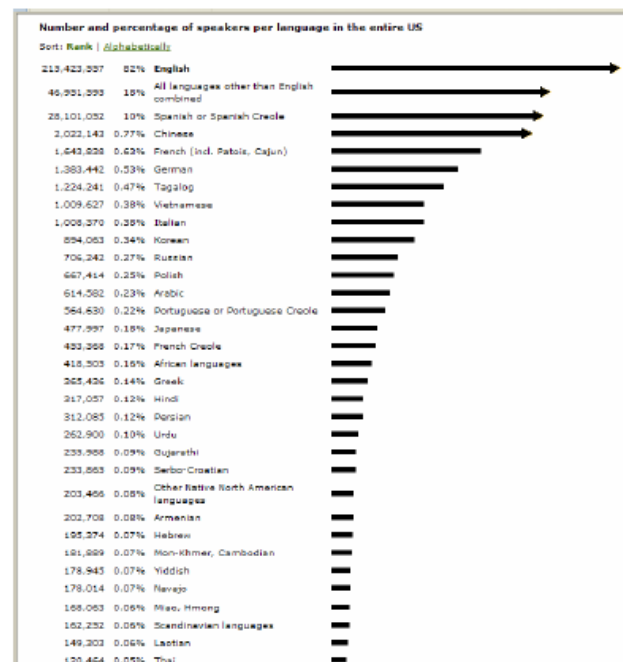


You can also zoom in to certain regions to better analyze what languages are spoken. Why do you think there are more Hindi speakers in the San Francisco Bay region than in other places around the US?

Side by Side. Use http://www.mla.org/map_compare for this next exercise. This page works the same as the previous map pages but allows you to bring up two maps so you can compare language regions. Try German and Italian by percentage. Come up with plausible theories why these areas were settled by these immigrants. Some ideas include:

- Find out the peak immigration rates for these two language groups. See if something during this period in US history would help make sense for why these areas were being settled at this time.
- Research the type of economic activities centered in these regions that might have attracted these cultures.
- What other reasons might attract people of one culture to move into an area of a foreign country where they know little about?

Get to the source. Besides making maps, you can use http://www.mla.org/map_data to examine spreadsheets and graphs for further analysis. The Data Center provides census data about over three hundred languages spoken in the United States, including actual numbers and percentages of speakers. Examine the ranking of languages spoken in the USA (below). Why are there arrows at the heads of the bar graphs in the table below?



Does anything surprise you about these rankings? From what you've learned about the US' immigration in history or geography class, what were some of the top secondary languages spoken 100 years ago?

What has happened to the percentages of the population that spoke these languages after a few generations have passed?

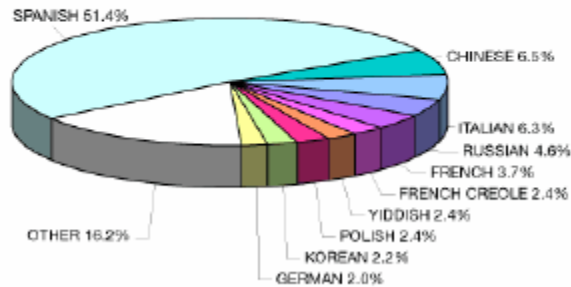
Will this trend continue?

Analyze the distribution of languages other than English in New York, below.

Describe how it is different from your own state?

Most spoken languages in New York

English is spoken by 72.04% of people over 5 years old in New York. Languages other than English are spoken by 27.95%. Speakers of languages other than English are divided up as follows.



Use http://www.mla.org/map_data to determine which languages are spoken in your area, use the search for your own zip code. Compare this to a zip code where you were born, or where friends or family members live. Are there any differences? If so, how are they different?

You can also use http://www.mla.org/map_data to investigate where a particular language group is spoken. Why do nearly one-fourth of all people who speak Greek as their primary language live in New York?

This data comes from the question people are asked on the Census questionnaire, "Does this person speak a language other than English at home?"

What do you think the limitations are from such a question, and from any typical Census-type of survey? How might those limitations affect the data you are analyzing in these maps and tables?

Where Can I Go to Learn More? What else do the folks at the Modern Language Association do?

See <http://www.mla.org/about> for more information. How many languages can you name? How many languages do you think are spoken in the world? 500? 1,000? You may be surprised to find that you are way off base! Investigate who speaks what around the globe at Ethnologue (http://www.ethnologue.com/country_index.asp)

The answer? 7,299 languages exist in Ethnologue's database!

AP Geography Content Items

I. A. 3.

II. A. 4.

II. B. 1.

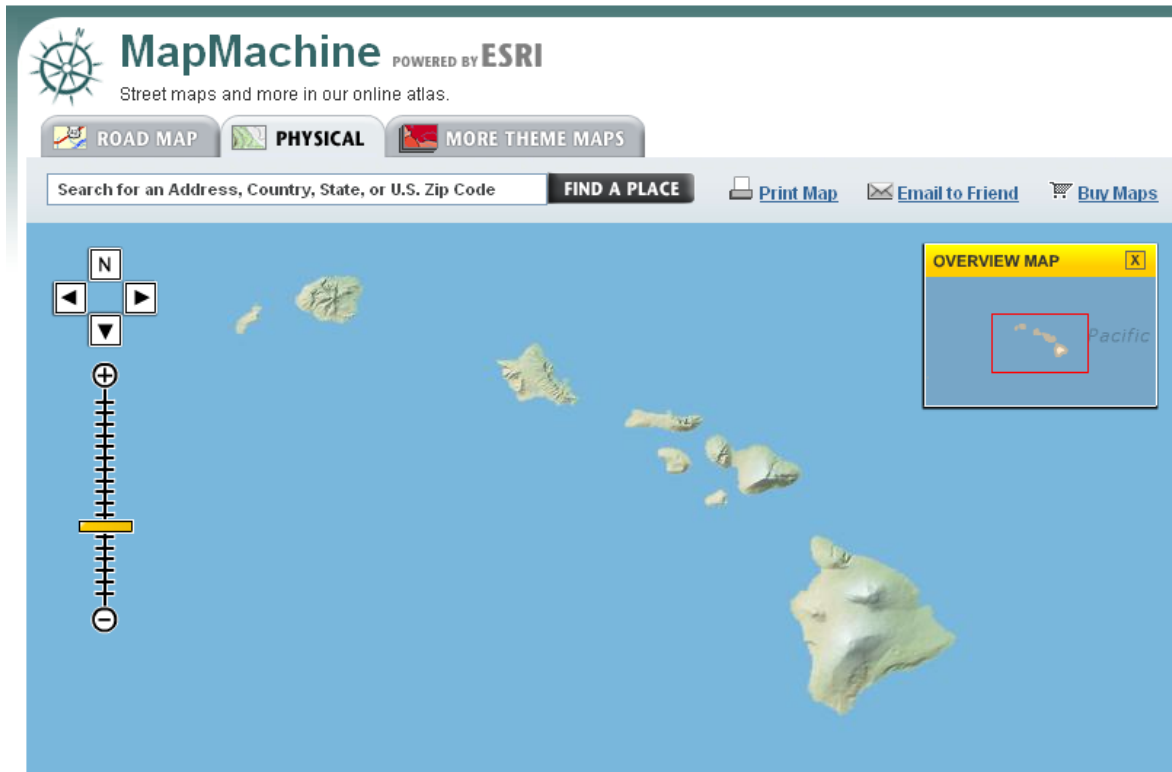
Over the Ocean Blew!

Investigating physical properties of world oceans

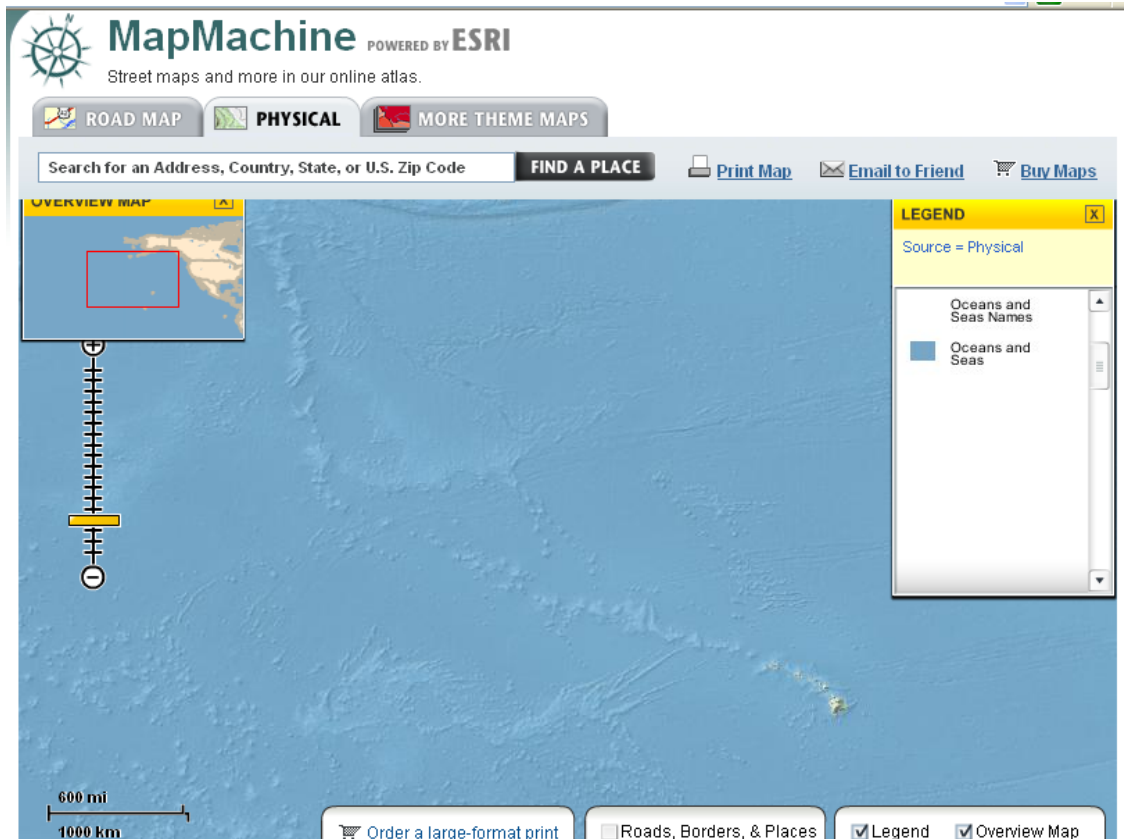
<http://www.nationalgeographic.com/mapmachine>

Native legends show keen insight into understanding of how lands are formed in ways that scientists sometimes take for granted. Through careful measurement it has taken the scientific community quite some time to propose a theory of how the Hawaiian Island chain has formed.

Science is interested in how it approaches problems. Some have felt it to be a superior way of knowing because it depends on measurement and representation of data to show patterns. Sometimes what hard work and careful representation find out is that native understanding of homelands was based on more careful observation than was originally thought. Compare the story below to the data of topography and sea floor depths information that has been captured on the National Geographic Map machine shown below.



One story of creation of the Hawaiian Islands involves Pele, the daughter of the Hina. Pele's grandfather was the god of sky (Papa) and grandmother was god of earth (Wakea). Pele was fleeing her angry sister who was the god of the sea when she landed on the island of Kaua'I the island on the upper left of the Hawaiian chain. Her sister would flood and tear down the homes she tried to form on the island so Pele would move further along the Hawaiian chain as she was chased by her sister. This continued through Oahu, Molokai, Maui, until she finally found a safe home on Hawaii at the peak of Mt. Kilauea. This being the largest peak on earth when measured from the ocean floor proved a safe retreat from her angry sister and she is said to live there ever since.



What happens to land forms exposed to the wave action of rough seas?

As you look at the ocean floor around Hawaii is there any evidence that their might have been other islands that may have been part of the Hawaiian islands in the distant past?

What forces could have plunged these features under the oceans surface?

Current theories suggest there is a hot spot under the Earth's crust. Imagine that this spot is similar to a smoking chimney but instead of smoke, hot liquid rock rises and cools.

With a chimney, what would cause a drifting pattern in the smoke coming out of the top?

Looking at the pattern above, does this imply anything about the Earth's surface?

Has the Earth's surface always moved in the same direction over time?

The National Geographic Map Machine has other features such as land use, soil types, climate data, biomes, and threat indexes to the ability to support life in this area. Other maps show great human geography concepts such as population density, political boundaries, road maps and many more are being added daily to help you explore reasons resources are placed around the globe where they are and what impact they are having on other resources.

http://pikoi.hawaii.edu/pikoi6/lessons/napua_islands_form.doc

<http://pubs.usgs.gov/publications/text/hotspots.html>

<http://www.coffeetimes.com/pele.htm>

**AP Env. Science
Concept Items**

I. A

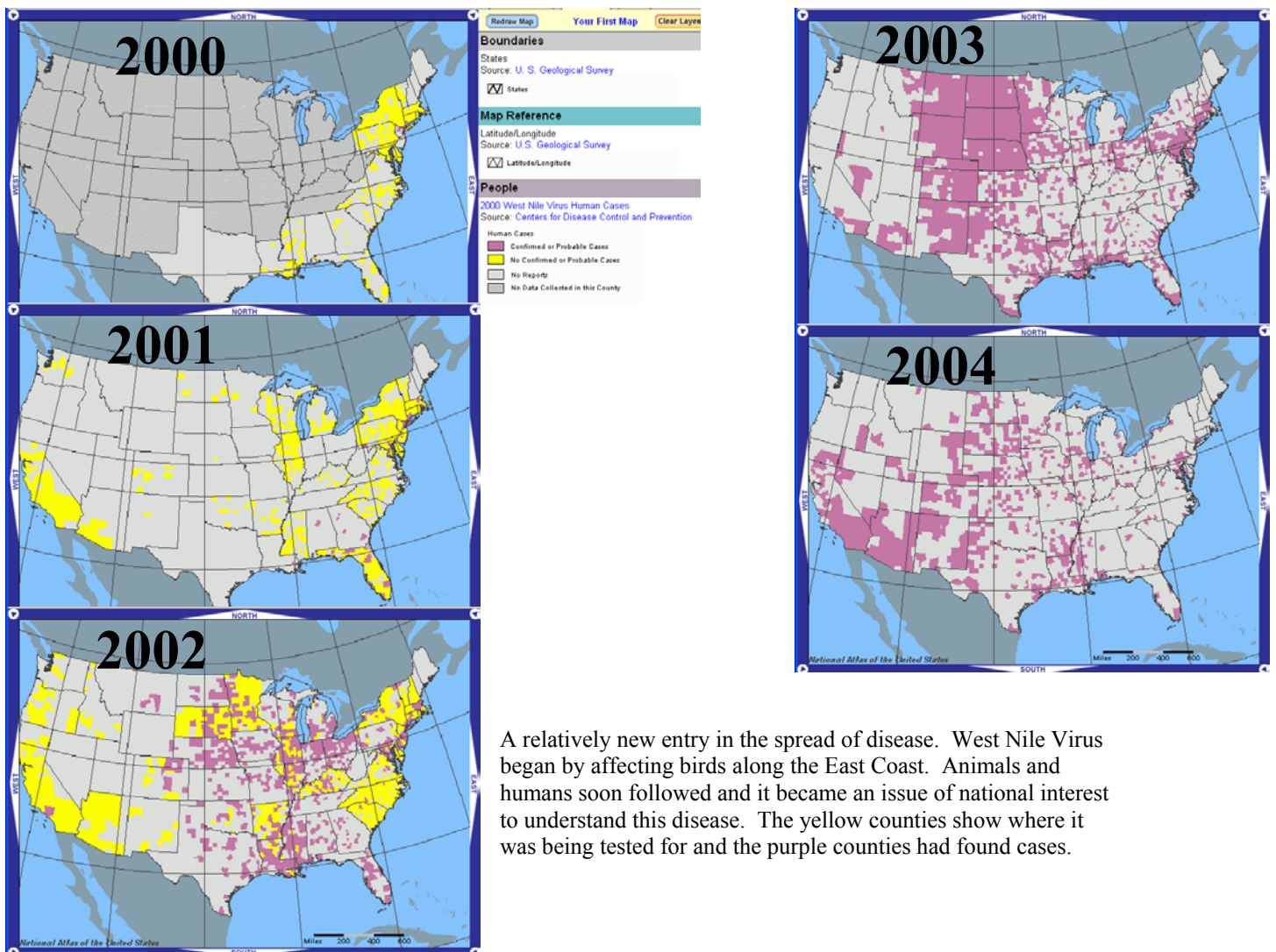
**AP Geography
Content Items**

III. D. 2.

Airborne!

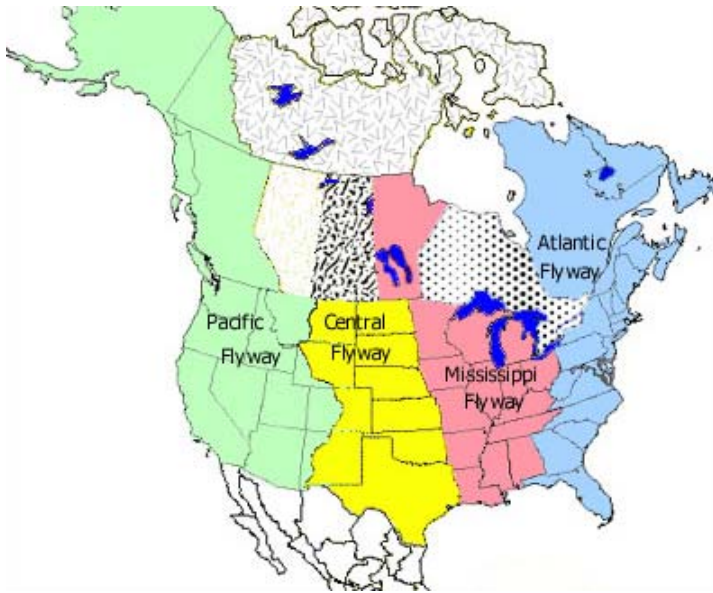
Searching for patterns in the spread of disease
<http://www.nationalatlas.gov>

Disease has always been a part of human history. Plagues in the middle ages decimated populations in Europe by half. European diseases effectively erased Native American cultures on early contact. Tropical diseases are in part a reason for their slow development. Disease has always played a large part in the shaping of history, here we can see a recent story unfold of just one of many new diseases surfacing at various places in the world and transported by many means to new lands.



A relatively new entry in the spread of disease. West Nile Virus began by affecting birds along the East Coast. Animals and humans soon followed and it became an issue of national interest to understand this disease. The yellow counties show where it was being tested for and the purple counties had found cases.

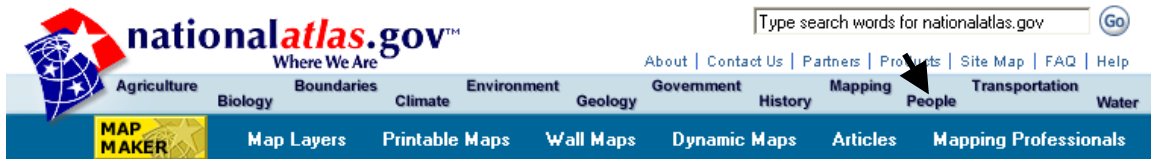
As the name implies, West Nile originated out of Northern Africa. What area makes most sense to have been its entry point into the US? What factors make this site a good entry point for disease? From this foundation describe it's spread throughout the US.



How would a map of bird migrations modify your model of West Niles spread?

www.lintonnd.org/recreation.htm

Maps of the spread of the West Nile virus were created using the Map Maker function of National Atlas. You can explore other maps of diseases in the People category under the Health statistics. Cancer statistics can provide many other diseases that have patterns awaiting analysis. Seeing the patterns of disease distribution may give clues on how to slow or stop it's progress.



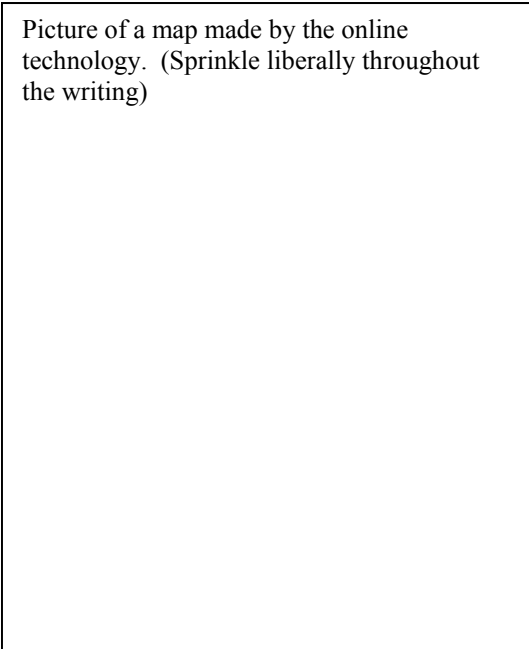
Other interesting reading on disease and it's possible impact can be found in "The HotZone" by Richard Preston. Other topics where this theme has impacted world history include Finding the source of the Great Plague. The invention of Penicillin. The discovery of the the cause of Cholera. Modern Day equivalents include ex President Carter's work ridding Africa of the Guinea Worm, ex President Clinton's work with the aids epidemic in Africa, or the solutions to cholera in India that Dr. Rita Colwell has provided in her hard fought but much distinguished career of community health.

Basic template design. The three lessons included in this draft all generally follow the template so that each lesson will have the same basic components. We are not too concerned about modeling the “step-by-step” approach used in books such as Mapping Our World but rather modeling the opportunities available on the Internet. As each of us get a chance to review each other’s lessons, the lessons will be “tweaked” to make sure that we have included all of the basic components of the template. Our goals are to get teachers excited about online mapping, to provide ready-made lessons they can photocopy for their students, to allow them to adapt the lessons provided, and to empower them to write their own lessons for these websites.

Title

Website used for this lesson

Start off with the lesson idea using the data from the site you are describing. This can be in a story format, a simulated case study where someone has to solve a problem using the data, a mystery story (CSI style), a simulated classroom experiment, or possibly a fictitious story format of how a class would operate using this data. (Perhaps it will reflect some experience we’ve had at a training only with the names changed to protect the innocent...my name is Friday, I wear a badge.)



Picture of a map made by the online technology. (Sprinkle liberally throughout the writing)

Short description of what is in this picture, leave any details to be described in the text.

Ask a few questions along the way about the data from the posted map. Look for patterns, ask if there are other places showing the same phenomena, give background about the data showing, ask questions requiring understanding about the data.

Screen shots of the interface and highlight any quirks or tricks in the interface to expand its usefulness.

Describe the data this interface works with and any other links that might be useful for more background on the topics covered by this site.

Shoot for no more than two pages of writing, less is better if screen shots of data or the interface are shown. A few steps can be elaborated on but we are trying to give ideas of where spatial data can be used anywhere in the curriculum as opposed to how to manipulate software for this project.

Finish out by brainstorming a short list of other ways this data might be used in various other subjects around the school. This will be great for teachers of younger students who can then incorporate these technologies in many different subjects throughout the day.

Another picture of classroom use or students in action would be great towards the end. Wouldn't have to be on every lesson but regularly showing students or teachers doing something similar to the exercise would communicate well and help fill these spaces with non text instruction on how to do these lessons. If we need to go into some classrooms and get some pictures we'll leave that towards the end of the book but we should have lots of institute shots to choose from.