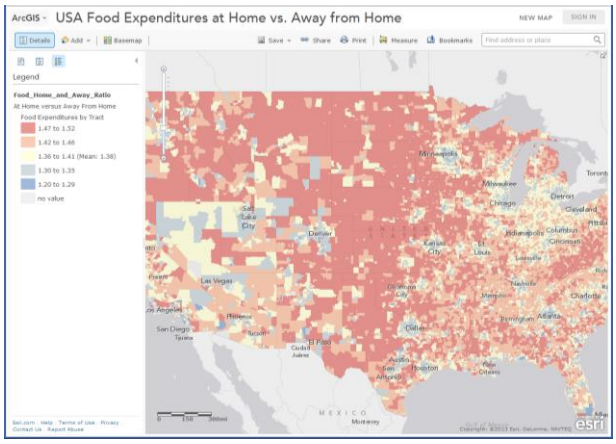
Mapping the Social Studies

Today's web-mapping tools (ArcGIS Online) allow students to investigate issues, compare data, and analyze patterns in dynamic and customizable environments, "to help young people develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world" (NCSS). The 8 activities presented here are a small sample of how social studies education can be enriched with web mapping and spatial analysis. Two lessons in each of the disciplines of geography, history, economics, and civics will be examined.



Analyzing social phenomena, patterns, and processes is a key component of social studies education and one of many components that is enhanced through the use of spatial analysis with GIS. The above map depicts food expenditures at home vs. away from home and was created within seconds in ArcGIS Online.

Geography

Geographic concepts of land use and change, content such as climate, population, and ecoregions, and perspectives of scale and systems can be effectively taught through web mapping. For example, the fundamentals of plate tectonics can be taught through investigating the types and locations of plate boundaries, earthquakes, volcanoes, including the mapping of historical and current data, with this web map: (http://www.arcgis.com/home/webmap/viewer.html?webmap=ce128235174242efbb00ff0d923c6efa). In terms of cultural geography, analyze food expenditures per capita at multiple scales using this web map: Why do food expenditures vary? What physical and cultural phenomena influence where people eat, and why do these influences vary across space and at different scales? (http://www.arcgis.com/home/webmap/viewer.html?webmap=b69d3dbfe28b4bf89a92a2e431b9ab7a)

History

Web mapping can be effectively used to bring historical events to life, as is illustrated with an activity and map depicting Ada Blackjack's survival in the early 1920s on Wrangell Island in the Arctic Ocean: (http://www.arcgis.com/home/item.html?id=4346a19a2c6142378a797686db0cacf0). Analyzing the Titanic's 1912 route, ice warnings, rescue ships, and eventual discovery in 1985 can be conducted using a series of layers inside this map created on the 100th anniversary of its sinking (http://www.arcgis.com/home/webmap/viewer.html?webmap=3183d7c40cb849b2be24a0a29fd0fafc).

Economics

Investigating World Bank data in ArcGIS Online integrates well into economic instruction. Examining the map of agriculture, GDP, life expectancy, median age, growth rate, and other variables allows for these variables and the forces behind them to be analyzed in space and over time (note the time slider bar underneath the map, allowing you to analyze variables from the 1950s to the present): (http://www.arcgis.com/home/webmap/viewer.html?webmap=5bbdd2f927fe4a5abc15beb71755208e) What climate, soil, land use policies, economic factors, and social factors influence the pattern of

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agricultural land use that you see? What is the relationship between median age and growth rate? Why have some countries experienced stagnation in life expectancy advances for many years?

At a more detailed level, examining a map showing labor force participation rates and unemployment (http://www.arcgis.com/home/webmap/viewer.html?webmap=d6c8e31476024a36a8ed32330abe0e92) invites inquiry into not only defining what labor force participation is, but why it varies, and the relationship between it and the unemployment rate. The map allows investigation at the state down to the block group level, and also indicates how people are employed in region through detailed pie charts.

Civics

An activity based on a map showing electoral votes by state back to 1956 can be examined here (http://www.arcgis.com/home/webmap/viewer.html?webmap=9053ad39ee7548509494341d9464f372). How has the pattern of states voting for Democratic or Republican candidates changed or stayed the same over time? Over the past 50 years, which election was electorally the closest? The most one-sided? How has the state where you live voted over time? How has the number of electors in each state changed over time, and why? If you were a candidate, where would you spend most of your time today vs. in 1956? What are the "swing states" and how have they voted recently?

An investigation based on options for a new road through the Serengeti can be examined here (http://www.arcgis.com/home/item.html?id=2c1da31c0ffd4790ad2dec830d4d1eb3). Students examine the two major sides of the issue, investigate reasons for the proposed road, study the history of the proposals, and examine ways for compromise in the civic process. They measure the length of each proposed road and examine the ecoregions that would be impacted by each.

ArcGIS Online

These investigations all use ArcGIS Online (http://www.arcgis.com) a powerful, and easy-to-use web-based toolkit from Esri in which students and educators can construct, save, and share their own customized maps on an infinite variety of topics and scales, all using a standard web browser. Each of the activities described here, and many more, can be accomplished for free with this platform. The rich content ranges from population, natural hazards, land use, agriculture, and more. Data can be compared in many ways, such as via side-by-side maps, through altering transparency or symbology, and through analyzing tabular databases. For more rigorous analysis with additional tools, ArcGIS Desktop (http://www.esri.com/arcgis) offers further capabilities.

Digging Deeper

- ArcGIS Online web mapping platform from Esri: http://www.arcgis.com/home
- GIS in Education Community: http://edcommunity.esri.com
- eNet Colorado courses on spatial thinking: http://enetcolorado.org
- Colorado ArcGIS K-12 statewide license: http://enetcolorado.org/esri
- ArcLessons curriculum library: http://edcommunity.esri.com/arclessons
- 1,500 GIS, Geography, Mapping videos: http://www.youtube.com/geographyuberalles
- ArcGIS Online videos: http://video.arcgis.com

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