GEOSTAC Teaching Guide

Lesson Developer: Lynn Songer
Lesson Title: Spatial Patterns of Ancestry in US Counties
Subject Area: Geography – Introduction to Human Geography
Grade Level: High School (9-12) – Introductory College Geography

Lesson Description: Students describe spatial data patterns representing ethnicity and ancestry. The data for this exercise is form the 2005 U.S. Census self identified Ancestry. Students describe the spatial distribution as dispersed, clustered, or random. Students explore the different minimums and maximums of data ranges and discuss how a lack of awareness of these differences can mislead a map reader. Students learn about normalizing data, develop Boolean logic queries to explore correlations.

Education Standards:

Common Core Standard English Language Arts Standards: English language Arts Standards ».History / Social Studies » Grade 12

CCSS.ELA-Literacy.RH.11-12.7: Integrate and evaluate multiple sources of information presented in diverse formats and media (e.g., visually, quantitatively, as well as in words) in order to address a question or solve a problem**.**

Common Core Standard English Language Arts Standards: English Language Arts Standards » Science & Technical Subjects » Grade 11-12

CCSS.ELA-Literacy.RST.11-12.3: Follow precisely a complex multistep procedure when carrying out experiments, taking measurements, or performing technical tasks; analyze the specific results based on explanations in the text.

ITSE National Technology:

3. Research and Information Fluency
    a. Plan strategies to guide inquiry
    b..Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
    c. Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
    d. Process data and report results
4. Critical Thinking, Problem Solving, and Decision Making
    c. Collect and analyze data to identify solutions and/or make informed decisions
5. Digital Citizenship
    b. Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity

6. Technology Operations and Concepts
    a. Understand and use technology systems
    b. Select and use applications effectively and productively

National Geography Standards

1) How to use maps and other geographic representations, geospatial technologies, and spatial thinking to understand and communicate information
2) How to analyze the spatial organization of people, places, and environments on Earth's surface
3) How to apply geography to interpret the present and plan for the future

Objectives: The students will be able to:

1) Describe the spatial patterns of ethnic and ancestry identity in the United States.
2) Evaluate data ranges of spatial data.
3) Design Boolean Logic queries.
4) Evaluate correlations as positive, negative or non existent.

Prerequisites:

1) Students should have completed the GIS Tutorial activity and be familiar with geospatial skill such as viewing data layers, performing a Boolean logic queries and analyzing spatial patterns.
2) Students should be familiar with basic concepts of immigration and migration as discussed in an introduction human geography course.

Materials: Computer access with high-speed internet, student activity sheet.

Geospatial Tools and Questions – Pattern, correlations, description – Identify, query.

Lesson Estimated Time: Approximately 60 minutes outside of class, 30 minutes in class

Lesson Procedure: After discussing migration and immigration, students will be given this activity as a homework assignment. They are asked to read the US 2000 Census pdf, which explains the ancestry data. In class, following the completion of the assignment, the class will discuss the overall patterns and correlations they uncovered. Students are asked to reflect on the data quality and how this type of data and geospatial analysis is used.