Subject Areas: Social Studies

Grade Levels: The lesson can be adapted for grades 4–12 (ages 9–18).

Time: At least two 50-minute class periods; time outside of class as necessary

Lesson Objectives:

Students will:

- Analyze historical population for the 50 U.S. states in dynamic, visual plots (graphs).
- Conduct historical and geographic research to better understand observed trends.
- Explain their findings in writing and visual slide shows.

Standards:

National Council for the Social Studies Standards1:

The Ten Themes of Social Studies

Theme 2: Time, Continuity, and Change
- Social studies programs should include experiences that provide for the study of the past and its legacy.

Theme 3: People, Places, and Environments
- Social studies programs should include experiences that provide for the study of people, places, and environments.

Common Core State Standards2:

Common Core State Standards for Mathematics:

Mathematical Practices
- Reason abstractly and quantitatively.
- Use appropriate tools strategically.

Measurement and Data
- Represent and interpret data.

College and Career Readiness Anchor Standards for Writing:

Standard 6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Standard 7. Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
Overview:
Why has the population of some U.S. states—such as California—exploded in recent decades, while the population of others—such as West Virginia—has remained the same or has even shrunk over the same period? In this lesson, students will first explore InspireData’s Historical U.S. Population database to better understand U.S. population changes from 1790 to 2000, then do further research using the U.S. Census Bureau’s website and other resources to add the latest Census data to the database and analyze the changes. How do population changes and migration flows in your state compare to current and historical national trends, and what factors account for the differences? A variety of visualizations, including animated time series axis plots, will help students to better understand and remember the historical and current developments. Discoveries will be documented in annotated slide shows.

Preparation:
• This lesson requires the InspireData® software application published by Inspiration Software, Inc. You can download a 30-day trial at http://www.inspiration.com/InspireData.
• Arrange access to library resources and/or the Internet for student research.
Lesson:

1. Divide the class into small groups of two or three students and ask them to spend 5 or 10 minutes preparing a brief summary, complete with simple visuals, of how they think the United States has been settled, including details about the settlement of your state. For example, they can add details from their past study of history such as the settlement of the original 13 colonies, the Louisiana Purchase, Westward Expansion, and so forth, and how those events affected population changes in the various states. Circulate among the groups to answer questions and monitor the development of the summaries, and when students have completed them, call for volunteers to share them with the class.

   Note: Students should rely only on each other—and perhaps U.S. maps in the room—to generate details, as opposed to conducting research. See the Adaptations/Extensions section at the end of this lesson for alternative ways to start the lesson.

2. Congratulate students on what they already know about the settlement history of the United States, and explain that today they will explore the actual Census data gathered by the U.S. government as far back as 1790 to better understand the patterns and trends. To begin this process, demonstrate for students how to open InspireData’s Historical U.S. Population database located here:

   InspireData Starter>Databases>Social Studies>Historical U.S. Population.

3. Briefly investigate the first tab of the database, Historical U.S. Population, together as a class in Table View. Discuss how the table lists all 50 states with their population data arranged in time series.
4. Call on volunteers to come up to the presentation computer and/or interactive whiteboard and answer the following questions based on the data in this view:
   - How many states had recorded their populations in 1790? In what geographic areas of the United States can these states be found and why?
   - Which two states have population data beginning in 1900? Where are these states located, and what events might have triggered their inclusion in that year?

   The rest of the class can help with answering if necessary.

5. Briefly discuss the data tables in the other tabs. The database contains another table of historical U.S. population data arranged in multi-series, which makes it easier to plot population changes for one state at a time; another table with regional and total U.S. population changes; and a fourth showing the changes in the urban and rural populations over time.

6. Click back on the first tab, and demonstrate for students how to switch to Plot View and use the Axis plot tool to show population changes over time. To do this, click the Plot Options button that appears in the lower-left corner of the plot and select Instant Plot. An animated time series plot that shows the population changes in the states by year will appear.
7. Demonstrate for students how states can also be labeled by name and/or how the **Color by Field** tool can be used to color the states by region and add additional visual information to the plot. **Zoom In** can also be used to show only one or a smaller group of states, or certain states can be excluded from the analysis.
8. Discuss any initial observations students have about the changes, and show students how to record them in the Notes area. Be sure to show students how to capture a slide for each plot, including their notes, by clicking the Slide Sorter button to open the Slide Sorter and then the Capture Slide button.

9. Have students work with the same small groups from the beginning of the lesson and open the Historical U.S. Population database. Have students collect the latest U.S. Census data and add it to the database. It can be found on many websites, but the most authoritative is the U.S. Census Bureau’s site: http://2010.census.gov/2010census/data. The latest data can be compared to the historical trends.

10. Ask students to construct at least six plots that they find interesting with the data in the four tabs and create their own slides with notes discussing the population changes through history. For example, how has the population of states in different regions of the country been changing over time, and what factors are likely to explain the regional differences? How has the population of individual states such as your own been changing, and what factors might explain the varying rates over time?

11. On the second day of the lesson, ask students to research migration to and from the states and regions to help them explain the changes in state population over time. One excellent source of information is the Migration Data and Reports page on the U.S. Census Bureau’s website: http://www.census.gov/population/www/cen2000/migration. Students can use the data they gather to add additional fields to the existing tables, or create a new table or tables within the database. To do so, students can simply copy and paste data from the site into the database, or data files can be saved and imported into InspireData.

12. Have students create plots with notes, and analyze and interpret the new data in comparison to the other data in the database. Students can also use updated 2010 Census data and other information on the Census Bureau’s website, in addition to historical sources, to add to their analyses in the notes accompanying their plots. In particular, students should comment on specific historical developments where possible, such as the large-scale migrations that have occurred as a result of the change to mechanized agriculture and the resulting reduction in the need for farm workers. See the Adaptations/Extensions section at the end of this lesson for additional databases that might help with this analysis.
13. Ask each group to create at least six slides with written analyses. Tell students that the quality of their writing is important in addition to their analysis of the data, so they should write in complete sentences and be as clear as possible. Emphasize with students that for each plot they should:
   • Add a title (Plot menu>Plot Title…).
   • Record an analysis in the Notes area.
   • Add statistics such as mean, median, and percent as appropriate.
   • Capture a slide.

14. If time allows, have student groups present their work to the class in a slide show and discuss their findings. Ask individual students or student groups to explain which plot or plots they found most interesting and describe what finding(s) that plot supports.

15. Close with a discussion about the exercise, including questions such as the following:
   • What interesting trends were discovered, and what was likely to account for them?
   • How does population and migration data in the students’ state and/or region compare to the national trends?
• How are population growth rates similar to and different from how it was in the past, and what factors might explain the differences?
• What region(s) of the country have experienced the most dramatic changes and why?
• What geographic and historical factors might explain the trends?
• How have migration and immigration impacted the history of the United States and the students’ state?

Adaptations/Extensions:
• Have students use Inspiration® or Kidspiration® to help them brainstorm and organize their ideas more quickly in step 1. One or more of the diagrams and/or outlines they create can then be shown to the class as a visual aid to support the warm-up process. After the InspireData activity is complete, students can modify their diagrams and/or outlines to add new information they learned—or correct misunderstandings they had—about the settlement of the United States. Graphics can also be added to the diagrams to help students better understand and retain the information.
• Create an outline map of the United States on the floor of the classroom using masking tape. Students can use this large “map” of the United States to act out the settlement of the United States as part of the warm-up activity or as a culminating activity for the lesson.
• Students can investigate the Agriculture Then and Now and U.S. Immigration databases, which may be helpful in explaining the population changes. They can be accessed here: InspireData Starter>Databases>Social Studies>Agriculture Then and Now and U.S. Immigration. Students can also analyze the U.S. States database for additional information about their chosen state. It can be found here: InspireData Starter>Databases>Social Studies>U.S. States. Fields in the database can be copied and pasted into the Historical U.S. Population database if desired.
• When students research migration data, have them focus on one state or a small group of states in a particular region. The data can be gathered with the e-Survey tool and compared by individual student groups or as a class.
• Class presentations can be assigned to explain three or more interesting observations with the likely geographic and historical reasons for the developments. Presentations can be assessed on successfully relating the information, speaking clearly, developing rapport with the audience, etc. Students can take notes on their classmates’ presentations, which can be submitted for credit, or they can be expected to integrate their classmates’ observations into their own InspireData projects.
• Refer students to the “Learn to Use” handouts for help with plotting and analysis 
(Help>Documentation>Handouts). You may want to print one or more sets of handouts to 
make them available for students.

• For younger students, consider analyzing more of the data as a whole class, at least until 
students understand the process. The entire lesson could also be conducted as a class.