



NUMBERS THAT TELL A STORY

TEACHER VERSION

Subject Level:

Middle School English

Grade Level:

6

Approx. Time Required:

90 minutes

Learning Objectives:

- Students will be able to analyze census data for their state, focusing on how aspects of the data have changed over time.
- Students will be able to make opinion statements in order to develop explanations for changes in data over time.
- Students will be able to evaluate classmates' opinion statements by asking clarifying questions and/or providing comments that defend or refute the statements based on census data.

Activity Description

Using *State Facts for Students*, a data access tool from the U.S. Census Bureau, students will explore data about their state and voice their opinions on how the population has changed over time. Students will work in small groups to share their opinions, practicing oral communication and small-group discussion skills.

Suggested Grade Level:

6

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Topics:

- Data tables
- Demographics
- Population change
- Using data to find answers

Skills Taught:

- Analyzing change over time
 - Comparing and contrasting data
 - Using data to develop an informed opinion
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Materials Required

- The student version of this activity, 5 pages

A computer with Internet access for each student is optional.

Activity Item

This activity uses the following online tool:

- State Facts for Students
www.census.gov/schools/facts

For more information to help you introduce your students to the Census Bureau, read "[Census Bureau 101 for Students](#)." This information sheet can be printed and passed out to your students as well.

Standards Addressed

See chart below. For more information, read "[Education Standards and Guidelines Addressed by Statistics in Schools](#)."

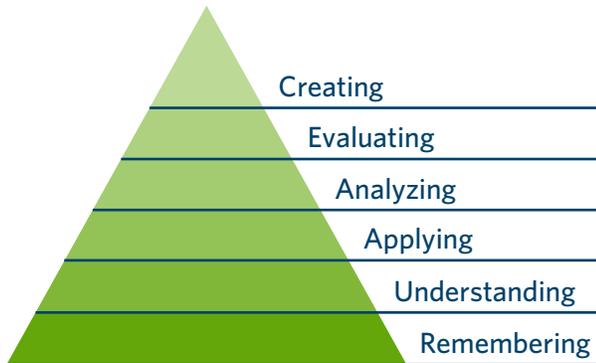
Common Core State Standards for English Language Arts & Literacy in History/Social Studies, Science, and Technical Subjects

Standard	Strand	Cluster
<p>CCSS.ELA-LITERACY.SL.6.2 Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.</p>	Speaking & Listening	Comprehension and Collaboration

Bloom's Taxonomy

Students will **create** hypotheses that could explain changes in census data.

Students will **analyze** census data for their state, focusing on changes in the data over time.



Teacher Notes

Before the Activity

Teachers should explain to students that they will be exploring data from the Census Bureau. To help students understand what the Census Bureau is and what kind of data it collects, teachers should read and summarize “Census Bureau 101 for Students” (link above, in Materials Required section) or instruct students to read it on their own.

Students must understand the following key terms:

- **Census Bureau** – a government agency that collects data about people, places, and the economy through various surveys
- **Demographics** – information about human population characteristics (e.g., age, race, and sex)
- **Median** – a measure of center in a set of numerical data, identified as the value appearing at the middle of a sorted version of the list (or the mean of the two middle values if the sorted list contains an even number of values).
- **Population** – the number of people living in an area
- **Statistics** – numerical data

If students have access to computers with Internet, teachers should help them navigate to the State Facts for Students Web page, www.census.gov/schools/facts, and then to their state by using the drop-down menu or clicking on the map. If this activity is being completed without computers, teachers should print and pass out copies of the Web page for the state where their school is located.

Teachers should be aware that the data for some states are not as compelling as the data for other states. (In some states, the data do not change much from one year to another.) If this is the case, teachers may want to pick a different state for students to analyze.

During the Activity

Part 1: Teachers should guide students through the questions in this section, modeling how to write about data.

Part 2: Teachers should model how to fill in the first row of each of the tables (for question 7 and question 8a). If students get stuck, teachers should mention that they can use their answers from Part 1 to help them.

Part 3: For this part, teachers should divide students into groups of three or four. Then, teachers should spend a few minutes showing students how to complete this part of the activity. Teachers should have a student volunteer share one of his/her opinion statements from Part 2; then the teacher should pose a question or make a comment using the prompts in the student version of this activity and have the student respond. After that, teachers can call on another student to ask a question or make a comment about the opinion statement and then have the first student respond.

Next, teachers should instruct students to start Part 3: Students should take turns sharing one of their opinions aloud in their group. After each student shares one, each group member should respond with a question or comment. The student sharing his or her opinion statement should then respond to each question or comment.

After the Activity

Teachers should bring the class back together and instruct students to look back at their opinion statements from Part 2, asking them to think of questions they have about their statements. Is there anything they could research or additional data they could look for to strengthen their statements? Teachers should have students brainstorm and then share their thoughts with the class as time allows.

Extension Idea

Teachers could ask students to conduct research in the library on one of their opinion statements to determine its validity. If students have access to computers with Internet, this research could be done online, using resources including State Facts for Students.

Student Activity

Click [here](#) to download a printable version for students.

This activity uses the following online tool:

- State Facts for Students
www.census.gov/schools/facts

Student Learning Objectives

- I will be able to analyze census data for my state, focusing on what has changed over time.
- I will be able to make opinion statements in order to develop explanations for changes in data over time.
- I will be able to evaluate my classmates' opinion statements by asking clarifying questions and/or providing comments that back up or disprove the statements based on census data.

Part 1: State Facts for Students

1. How does the U.S. Census Bureau collect these statistics?

The Census Bureau collects them through sample surveys that businesses and households complete. The Census Bureau conducts more than 100 sample surveys.

2. How has the median age changed from 2010 to 2019 in your state? Write your answer in a complete sentence and support it with data.

Student answers will vary depending on the state selected, but students should note if the median age has risen, decreased, or stayed the same (providing the numbers to support that).

3. What changes do you notice in the rest of the population data for your state? Choose one change and write a sentence explaining it. For example, you could compare the same data point in two different years to see how something changed over time.

Student answers will vary but could include the following:

- **In Illinois in 2010, there were 171,594 total 8-year-olds, but in 2019 there were only 155,612.**
- **Illinois had 83,934 8-year-old girls in 2010, and that number changed a lot over the next 9 years. In 2019, there were 75,652 8-year-old girls.**

4. Look through the data in the "How People Get to Work" section (Under "Population"). What has changed? For example, did the numbers in one category increase over time while the numbers in another category decreased over time? Summarize the changes you see, and be sure to use at least three pieces of data to support your summary.

Student answers will vary but could include the following: In the District of Columbia, in 2010,

the most common way to get to work was through public transportation, with 38.3 percent of people using it. In 2019, public transportation was still the most popular way to get to work, but the percentage of people using it dropped to 34.2 percent. Also between 2010 and 2019, the percentage of people working at home increased from 5 to 7.4 percent. This could mean that working at home is on the rise in the District of Columbia and taking public transportation to get to work is slowly becoming less popular.

5. In the main “Business” section, how has the number of video/disc rental stores changed from 2010 to 2018? What do you think caused this change?

Student answers will vary, but for most states students should note that the number of video/disc rental stores has drastically decreased. Student answers might also include the hypothesis that advances in technology have made people less likely to buy videos or CDs, which has reduced the need for video/disc rental stores.

Note: A value of NA indicates that there is no data for that time period, due to there being less than three establishments.

6. Choose another line of data in the “Business” section and describe how the data changed from 2010 to 2018. Be sure to explain why you think the change happened.

Student answers will vary but could include the following:

- **Vermont had 341 fast-food restaurants in 2010 and 426 in 2018. This increase could be because people have gotten busier over time and are going to fast-food restaurants more often.**
- **Wisconsin had 158 pet and pet supply stores in 2010 and 182 in 2018. This increase could be because the state population increased, but it could also be because more people had pets in 2018 than in 2010.**

Part 2: Making Opinion Statements Using Data

7. Choose any two pieces of State Facts for Students data from your state that have changed over time and that you can voice an opinion about. For example, did the number of ice cream and frozen dessert makers decrease in your state, and do you have an idea why? Fill in the table with your answers. (You can use data points that you already used in Part 1, or new ones.)

	The data say ...	I know that ...	My opinion is ...
Answer 1	There are fewer video/disc rental stores in my state.	People listen to music on their phones and watch movies online through Netflix.	Video/disc rental stores have been shutting down because music and video technology changed between 2010 and 2018.
Answer 2			

8.

- a. Choose two pieces of data (different from those in the table above) from your state that could be related to each other. For example, did the population of your state increase over a period of time, and did the number of dentist offices also increase over that same time period? And could these two data points be related? How? Fill in the table with your answers.

Student answers will vary. Sample student answers (for South Dakota) appear below.

	Change in 1st Piece of Data	Change in 2nd Piece of Data
Answer 1	In 2010, 10% of people carpoled to work, and in 2019, 9% of people carpoled.	In 2010, 78.2% of people drove alone to work, and in 2019, 79.8% of people drove alone.
Answer 2		

- b. Using the data points you put in the table above, explain how the changes in data may be related, or how they may have a direct effect on each other. Explain your hypothesis in a two- to three-sentence summary.

Student answers will vary, but students could say the following: In South Dakota, from 2010 to 2019, the percentage of people carpooling to work decreased. The percentage of people who drove alone to work increased from 2010 to 2019. This could mean that the increase in the percentage of people driving alone to work in 2019 is directly related to the decrease in the percentage of people carpooling to work in 2019 because people who used to carpool to work drove themselves to work instead.

Part 3: Presenting Your Ideas

Take turns explaining one of your answers for Part 2 to the people in your group. After each person shares one, each group member should provide a comment or ask a question. See the sentence starters below to help you brainstorm questions and comments, and feel free to use the space provided below that to write them down. After a question is asked or a comment is made, the person who shared his or her answer should then respond.

Sentence Starters:

- I agree with **Michelle** because **there isn't a need for video stores since there are lots of videos and ways to watch movies online.**
- I agree with **Michelle**, but I want to add **that video stores might be more common in places that don't have Internet.**
- I don't understand **why the percentage of people who carpoled decreased and the percentage of people who drove alone increased.**
- Looking at the data, I think that **it's strange that more people are driving alone to work than carpooling; I was thinking the opposite would be the case because it would be cheaper and better for the environment.**

My Questions/Comments:

- 1. How are people who don't carpool, drive alone, take public transportation, or work at home getting to work? What about people who bike or walk?**
