



Subject: *Mathematics*

Grade Level: 6-8

Lesson Title: *Graphing Bullying Data to Create Change*

Lesson Overview: In this lesson, students will use skills in calculating percentages and graphing to examine data on bullying while building civic skills of examining issues about bullying. Students will define types of bullying using inquiry and a primary source from the Library of Congress and look at current data of bullying from the Center of Disease Control (CDC). Students will create a poll for the school community that would provide data on bullying in the school. As a follow up, students can implement the poll and create reports and solutions. The length of this lesson is 60 – 80 minutes and can have follow-up activities to extend the poll implementation.

CONCEPT: Action	THEME: Empowerment
<p>Overarching Essential Question:</p> <ul style="list-style-type: none"> What can we do to make positive change? 	<p>Lesson Essential Question(s):</p> <ul style="list-style-type: none"> Does data matter? How can data be used for positive change? How can young people use math to create a better country?

Lesson Objectives:
Students will:

- Apply skills of graphing percentages.
- Analyze data about bullying.
- Apply inquiry to clearly define bullying using primary source material.
- Create a data driven public service campaign against bullying.

<p>CIVIC KNOWLEDGE</p> <ul style="list-style-type: none"> Identifying and describing information and arguments Explaining and analyzing information and arguments Evaluating, taking, and defending positions on public issues Working with others Clearly articulating ideas and interests 	<p>CIVIC SKILLS</p> <ul style="list-style-type: none"> Explaining and analyzing information and arguments; Evaluating, taking, and defending positions on public issues Working with others Clearly articulating ideas and interests 	<p>CIVIC DISPOSITIONS</p> <ul style="list-style-type: none"> Developing as an independent member of society Respecting individual worth and human dignity Participating in civic affairs in an informed, thoughtful, and effective manner
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LIBRARY OF CONGRESS RESOURCES & ADDITIONAL RESOURCES

Library of Congress Resources
Brown vs. Board (Dr. Helma Harrington) Political Cartoon:
<http://www.loc.gov/exhibits/brown/images/br0172s.jpg>
Primary Source Analysis Tool: <http://www.loc.gov/teachers/primary-source-analysis-tool/>

Materials Needed
Library of Congress Resources (listed above)
Handout A – Bullying Statistics <https://www.stopbullying.gov/media/facts/index.html#stats>
Handout B – What is Bullying? <https://www.stopbullying.gov/what-is-bullying/index.html>
Handout C – Exit Slip

Supporting Question 1 ENGAGE	Supporting Question 2 EXPLORE	Supporting Question 3 EVALUATE
Does data matter?	How can data be used for positive change?	How can young people use math to create a better country?

PERFORMANCE TASK 1	PERFORMANCE TASK 2	PERFORMANCE TASK 3
Discussion Class poll on bullying	Create a public service campaign	Evaluate lesson Share with administration of school

TEACHING PLAN

PART 1 – INQUIRY INTRODUCTION

1. Share the question, “Does data matter to you?” and ask students to share ways that data matters to them. **(2-3 minutes)**
2. Ask students to vote as to whether they believe there is a bullying problem in this classroom? In the school? In the nation? **(3 minutes)**
3. Have students count the votes. Have students then use percentage calculation to display the results. **(5-10 minutes)**
4. Tell students that they will be using statistical math to decide if bullying can be stopped. Explain this lesson will use math and civics to look at bullying. **(2 minutes)**

PART 2 – INQUIRY EXPLORATION WITH PRIMARY SOURCES

5. Divide the students into groups. Provide students the Library of Congress primary resource, the [Brown vs. Board \(Dr. Helma Harrington\) Political Cartoon](#).
6. Have students use the [Primary Source Analysis Tool](#) to examine the cartoon. Have students share their findings. **(10 minutes)**
7. Tell students data can help us stop bullying. Share with students the

government [Bullying Statistics](#).

8. In small groups, ask students to use the data in the report to create graphs for the data. Assign each group a different section of data. Tell students they may need to do further investigation to create their graph. Along with the graph, each group should draw a conclusion from the graph. **(10 minutes)**
9. Do a group share of graphs and conclusions. **(5 minutes)**
10. For homework, assign students the task of polling other students and teachers, while at lunch and on the playground, as well as their family members, whether they believe there is a bullying problem in their class, in the school, and in the nation. Each student should obtain responses from at least 20 individuals from across all grades at the school.

PART 3 – APPLYING INQUIRY AND ACTION

11. Provide the class with the article, [“What is Bullying?”](#) In small groups, have students read the article and surface 3 questions they now have. **(5 minutes)**

12. Give each group a small object that will be a “Hot Potato.” Have everyone stand, play a quick couple rounds of Hot Potato, and have the representative from each group holding the object share one of their questions. **(5 minutes)**
13. Discuss “How can the data and the information in the article, be used for positive change?” **(2 minutes)**
14. In small groups, have students compile the data from their homework assignment, using percentage calculations to display the results...by grade, school, nation, and by students, teachers, and parents...and create graphs to accompany the data. **(10 minutes)**
15. Ask students to think of how they could use the statistical data they created about bullying and the information from the article to create a public service campaign, with data, to stop bullying in the classroom, school, or nation. For example, create a brochure with data and with steps to avoid bullying. **(10 minutes)**

PART 4 – INQUIRY TO DRAW CONCLUSIONS

16. As a closing, have students share their ideas with the class and perhaps the school administration. Have students complete an exit slip that asks the question, “How can young people use data for positive change?” **(10 minutes)**

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Find additional materials and resources at the <https://Citizen-U.org/> and <https://PrimarySourceNexus.org>.

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Preparing tomorrow's citizens today



Citizen U Teacher Guide

Lesson Title: *Graphing Bullying Data to Create Change*

Subject: *Mathematics*

Grade Level: 6-8

Overview

If you're working with students on statistics, percentages, and/or creating graphs to visually represent data, this lesson will provide students the opportunity to examine and represent data on bullying and use that data to help educate their school community and put a stop to bullying in their school.

Learning Objectives

Students will be able to:

- Apply skills of graphing percentages.
- Analyze data about bullying.
- Apply inquiry to clearly define bullying using primary source material.
- Create a data driven public service campaign against bullying.

Standards

- CCSS.MATH.CONTENT.6.RP.A.3.C - Find a percent of a quantity as a rate per 100 (e.g., 30% of a quantity means 30/100 times the quantity); solve problems involving finding the whole, given a part and the percent.

Teacher Instructions

- Make copies (one for each student) of:
 - Brown vs. Board (Dr. Helma Harrington) Political Cartoon <http://www.loc.gov/exhibits/brown/images/br0172s.jpg>
 - Handout A – National Statistics on Bullying
 - Handout B – What is Bullying?
 - Handout C – Exit Slip: What I Learned NOTE: Exit Slip handouts are printed two per page, so they will need to be cut in half.

Library of Congress Resources

- Brown vs. Board (Dr. Helma Harrington) Political Cartoon <http://www.loc.gov/exhibits/brown/images/br0172s.jpg>
- Primary Source Analysis Tool <http://www.loc.gov/teachers/primary-source-analysis-tool/>

Materials Needed

- Library of Congress Resources (listed above)
- Handout A – National Statistics on Bullying <https://www.stopbullying.gov/media/facts/index.html#stats>
- Handout B – What is Bullying? <https://www.stopbullying.gov/what-is-bullying/index.html>
- Handout C – Exit Slip: What I Learned

I. Introduction

Begin the lesson by presenting students with a prompt about data. Conduct an informal vote about views on bullying, followed by student calculations of the data. Introduce the idea of using mathematical statistics to combat bullying.

A. Introduce Students to relationship of data in their lives. **(2-3 Minutes)**

Ask the students: *Does data matter to you? What are some ways that data matters to you?*

B. Conduct an informal poll about views on bullying. **(3 Minutes)**

Ask students to vote by raise of hands:

Who believes there is a bullying problem...

...in the classroom?

...in the school?

...in the Nation?

Have the students count and record the votes on the board.

C. Introduce mathematical statistics concept of calculating percentages. **(5-10 Minutes)**

Have students use percentage calculation to display the results of the vote.

Example: 5 out of 25 students voted that they think there is a bullying problem in the classroom.

$$5/25 = 20\%$$

D. Tell the students that they will be using statistical math to decide if bullying can be stopped. Explain this lesson will use math and civics to look at bullying. **(2 Minutes)**

How do you find a percentage?

Calculate Percentage of Two numbers

Divide the first number by the second number, then move the decimal point two places to the right.

Examples:

What percentage is 75 of 100? $75/100 = .75$, which is 75%.

What percentage is 63 of 89? $63/89 = .708$, which is 70.8%

What percentage is 52 of 40? $52/40 = 1.3$, which is 130%

(Percentage, Wikipedia, <https://en.wikipedia.org/wiki/Percentage>)

**PART 2 – INQUIRY EXPLORATION
WITH PRIMARY SOURCES**

II. Exploration with Primary Sources

Have students examine a Political Cartoon from Brown vs. Board and reflect on how it relates to Bullying. Facilitate discussion on the types of bullying. Then briefly examine Statistics on Bullying and have students create graphs of bullying data and draw conclusions from the data.

“Primary sources are the raw materials of history — original documents and objects which were created at the time under study. They are different from secondary sources, accounts or interpretations of events created by someone without firsthand experience.

Examining primary sources gives students a powerful sense of history and the complexity of the past. Helping students analyze primary sources can also guide them toward higher-order thinking and better critical thinking and analysis skills.”

(Using Primary Sources, Library of Congress, <https://www.loc.gov/teachers/usingprimarysources/>)

A. Divide the students into groups. (10 Minutes)

Provide the Library of Congress primary resource, the [Brown vs. Board Political Cartoon](#). Have students use the [Handout – Primary Source Analysis Tool](#) to examine the cartoon.

Ask: *What do you see?*

Ask: *Why do you think this image was made? When?*

Ask: *What do you wonder about? How do you think this image depicts bullying?*

Have the students share their findings.

B. Present students with statistics on bullying and inform them you will explore how data can help us get information on bullying that can be used to stop it. (15 Minutes)

Share with the students the [Handout A – National Statistics on Bullying](#).

In small groups, ask students to use the data in the report to create graphs for the data.

Assign each group a different section of data.

Tell the students they may need to do further investigation to create their graph.

Along with the graph, each group should draw a conclusive statement from the data.

Do a group share of graphs and conclusions.

“Graphs and charts are great because they communicate information visually. For this reason, graphs are often used in newspapers, magazines and businesses around the world. Sometimes, complicated information is difficult to understand and needs an illustration. Graphs or charts can help ... get your point across quickly and visually.”

For detailed information on how to create bar graphs, line graphs, pie charts, and more:

Create a Graph Tutorial, Kids’ Zone Learning with NCES, <https://nces.ed.gov/nceskids/createagraph/>

C. Homework Assignment: Assign students the task of polling other students and teachers, while at lunch and on the playground, as well as their family members, whether they believe there is a bullying problem in their class, in the school, and in the nation. Each student should obtain responses from at least 20 individuals from across all grades at the school.

III. Applying Inquiry and Action

Dive deeper into what bullying is, and explore how data on bullying could be used to help bring it to an end.

- A. Examine what bullying is and the types of bullying. **(5 Minutes)**

Provide the class with the **Handout B - What is Bullying?**

In small groups, have the students read the article and surface 3 questions they now have.

- B. Hot Potato: Have small groups share their questions.

Give each group a small object that will be a “Hot Potato.” Have everyone stand, play a quick couple rounds of Hot Potato, and have the representative from each group holding the object share one of their questions. **(5 minutes)**

Discuss: *How can the data and the information in the article be used for positive change?* **(2 minutes)**

- C. Compile Data from Homework Assignment **(10 minutes)**

In small groups, have students compile the data from their homework assignment, using percentage calculations to display the results...by grade, school, nation, and by students, teachers, and parents...and create graphs to accompany the data.

- D. Explore actions that can be taken to stop bullying using graphs of data created. **(10 Minutes)**

Divide class into small groups.

Ask students: *How could you use the graphs you created about bullying data and the information from the article to create a public service campaign to stop bullying in the school, classroom, or nation?*

Example: Create a brochure with data and with steps to avoid bullying.

**PART 4 – INQUIRY TO DRAW
CONCLUSIONS**

IV. Draw Conclusions

Summarize the main points of the lesson, and provide students the opportunity to share the anti-bullying campaigns they created using representations of bullying data.

A. Summarize key points (**2 Minutes**)

Bullying is unwanted, aggressive behavior among people that involves a real or perceived power imbalance, and the behavior is repeated.

Bullying data can be expressed as a graph, which can be used to tell a story and to help stop bullying.

B. Have students share their ideas with the class. (**10 Minutes**)

C. Extend the learning opportunity and suggest they bring their anti-bullying campaign to the student council and/or school administration.

D. Have students complete an **Exit Slip (Handout C)** that asks the question: *How can young people use data for positive change?*

National Statistics on Bullying

<https://www.stopbullying.gov/media/facts/index.html#stats>

- **Been Bullied**
 - 28% of U.S. students in grades 6–12 experienced bullying.²⁻
 - 20% of U.S. students in grades 9–12 experienced bullying.¹⁵
- **Bullied Others**
 - Approximately 30% of young people admit to bullying others in surveys.³
- **Seen Bullying**
 - 70.6% of young people say they have seen bullying in their schools.³⁻
 - 70.4% of school staff have seen bullying. 62% witnessed bullying two or more times in the last month and 41% witness bullying once a week or more.³
 - When bystanders intervene, bullying stops within 10 seconds 57% of the time.¹⁶
- **Been Cyberbullied**
 - 9% of students in grades 6–12 experienced cyberbullying.²⁻
 - 15% of high school students (grades 9–12) were electronically bullied in the past year.¹⁶
 - However, 55.2% of LGBTQ students experienced cyberbullying.¹⁷
- **How Often Bullied**
 - In one large study, about 49% of children in grades 4–12 reported being bullied by other students at school at least once during the past month, whereas 30.8% reported bullying others during that time.
 - Defining "frequent" involvement in bullying as occurring two or more times within the past month, 40.6% of students reported some type of frequent involvement in bullying, with 23.2% being the youth frequently bullied, 8.0% being the youth who frequently bullied others, and 9.4% playing both roles frequently.³⁻

Types of Bullying

- The most common types of bullying are verbal and social. Physical bullying happens less often. Cyberbullying happens the least frequently.
- According to one large study, the following percentages of middle schools students had experienced these various types of bullying: name calling (44.2 %); teasing (43.3 %); spreading rumors or lies (36.3%); pushing or shoving (32.4%); hitting, slapping, or kicking (29.2%); leaving out (28.5%); threatening (27.4%); stealing belongings (27.3%); sexual comments or gestures (23.7%); e-mail or blogging (9.9%).³

• Where Bullying Occurs

- Most bullying takes place in school, outside on school grounds, and on the school bus. Bullying also happens wherever kids gather in the community. And of course, cyberbullying occurs on cell phones and online.
- According to one large study, the following percentages of middle schools students had experienced bullying in these various places at school: classroom (29.3%); hallway or lockers (29.0%); cafeteria (23.4%); gym or PE class (19.5%); bathroom (12.2%); playground or recess (6.2%).³

• How Often Adult Notified

- Only about 20 to 30% of students who are bullied notify adults about the bullying.¹³

What Is Bullying

<https://www.stopbullying.gov/what-is-bullying/index.html>

Bullying is unwanted, aggressive behavior among school aged children that involves a real or perceived power imbalance. The behavior is repeated, or has the potential to be repeated, over time. Both kids who are bullied and who bully others may have serious, lasting problems.

In order to be considered bullying, the behavior must be aggressive and include:

- **An Imbalance of Power:** Kids who bully use their power—such as physical strength, access to embarrassing information, or popularity—to control or harm others. Power imbalances can change over time and in different situations, even if they involve the same people.
- **Repetition:** Bullying behaviors happen more than once or have the potential to happen more than once.

Bullying includes actions such as making threats, spreading rumors, attacking someone physically or verbally, and excluding someone from a group on purpose.

Types of Bullying

There are three types of bullying:

- **Verbal bullying** is saying or writing mean things. Verbal bullying includes:
 - Teasing
 - Name-calling
 - Inappropriate sexual comments
 - Taunting
 - Threatening to cause harm

- **Social bullying**, sometimes referred to as relational bullying, involves hurting someone's reputation or relationships. Social bullying includes:
 - Leaving someone out on purpose
 - Telling other children not to be friends with someone
 - Spreading rumors about someone
 - Embarrassing someone in public
- **Physical bullying** involves hurting a person's body or possessions. Physical bullying includes:
 - Hitting/kicking/pinching
 - Spitting
 - Tripping/pushing
 - Taking or breaking someone's things
 - Making mean or rude hand gestures

Where and When Bullying Happens

Bullying can occur during or after school hours. While most reported bullying happens in the school building, a significant percentage also happens in places like on the playground or the bus. It can also happen travelling to or from school, in the youth's neighborhood, or [on the Internet](#).

Frequency of Bullying

There are two sources of federally collected data on youth bullying:

- The 2014–2015 [School Crime Supplement - PDF](#) (National Center for Education Statistics and Bureau of Justice Statistics) indicates that, nationwide, about 21% of students ages 12-18 experienced bullying.
- The 2015 [Youth Risk Behavior Surveillance System](#) (Centers for Disease Control and Prevention) indicates that, nationwide, 20% of students in grades 9–12 report being bullied on school property in the 12 months preceding the survey.

Exit Slip: What I Learned

After you have looked at Bullying Statistics and created graphs to represent the data, answer the question:

How can young people use data for positive change?

Exit Slip: What I Learned

After you have looked at Bullying Statistics and created graphs to represent the data, answer the question:

How can young people use data for positive change?
