



Subject: *Mathematics*

Grade Level: 3-5

Lesson Title: *Using Math to Build Community*

Lesson Overview: In this lesson, students will use percentages to examine data on bullying while building civic skills of explaining and analyzing information and arguments. Using previous knowledge of fractions and percentages, students will examine current data about bullying from the CDC. Students will create a campaign for the school community that would provide data on bullying in the school. As a follow up students can present their campaign to the larger governing bodies in their schools.

CONCEPT : Community		THEME: Belonging
Overarching Essential Question: <ul style="list-style-type: none"> How do our lives connect with others in this country? 		Lesson Essential Question(s): <ul style="list-style-type: none"> How can we stop bullying and create tolerance? How can data help to inform our decisions? How can we work together?
Lesson Objectives: Students will: <ul style="list-style-type: none"> Express data as a percentage. Define bullying. Analyze data about bullying using percentages. Create a campaign to stop bullying using data. 		
CIVIC KNOWLEDGE <ul style="list-style-type: none"> Purposes, values, and principles of American democracy established by the Constitution Roles of citizens in American democracy 	CIVIC SKILLS <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 	CIVIC DISPOSITIONS <ul style="list-style-type: none"> Developing as an independent member of society Respecting individual worth and human dignity Assuming the personal, political, and economic responsibilities of a citizen Participating in civic affairs in an informed, thoughtful, and effective manner Promoting the healthy functioning of American constitutional democracy
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: Bullying Statistics https://www.stopbullying.gov/media/facts/index.html#stats Article: What is Bullying? https://www.stopbullying.gov/what-is-bullying/index.html Quick write https://ablconnect.harvard.edu/quick-write		

Funded by a grant from the Library of Congress as part of its *Teaching With Primary Sources* program, the Barat Education Foundation, in collaboration with the Constitutional Rights Foundation and the DePaul University College of Education, has developed this lesson as part of a larger initiative, *Citizen U*[®], which aims to integrate civic learning across the curriculum for students in grades 3-12. Content created and featured in partnership with the TPS program does not indicate an endorsement by the Library of Congress.

Handout A – National Statistics on Bullying Handout B – What is Bullying?		
Supporting Question 1 ENGAGE	Supporting Question 2 EXPLORE	Supporting Question 3 EVALUATE
How can we stop bullying and create tolerance?	How can data help to inform our decisions?	How can we work together?
PERFORMANCE TASK 1	PERFORMANCE TASK 2	PERFORMANCE TASK 3
Quick write Defining bullying Develop data sets of bullying Primary source analysis	Create a picture of percent data	Use data and pictures to create public service campaign

TEACHING PLAN

PART 1 – INQUIRY INTRODUCTION

1. Begin by asking students, “What is bullying?” Ask students to do a [quick write](#) of how they define bullying. (2 minutes)
2. Ask students to share some of the key characteristics of bullying. List them on the board. (2 minutes)
3. Ask students to vote as to whether they believe there is a bullying problem in this classroom and in the school.
4. Ask students to guess how many students in this class have been bullied. Share numbers, then ask students to guess how many in the school. (2 minutes)
5. Ask students how math percent may help to get rid of bullying. Share answers and explain this lesson will use math and civics to look at bullying. (2 minutes)

PART 2 – INQUIRY EXPLORATION WITH PRIMARY SOURCES

6. Divide the students into groups. Provide students the Library of Congress primary resource, the

[Brown vs. Board \(Dr. Helma Harrington\) Political Cartoon](#)

7. Have students use the [Primary Source Analysis Tool](#) to examine the cartoon. (10 minutes)
8. Lead students in a discussion of the many types of bullying. (5 minutes)
9. Tell students math and data can help us get information on bullying. Share with students the government [Bullying Statistics](#). (2 minutes)
10. In small groups, ask students to draw a picture of how the percent can be seen. For example, show students a drawing of 10 stick figure students. Ask them how many of these would equal 25%. Then color those students a different color. Ask students to take one piece of data for each group and draw the picture. (10 minutes)
11. Do a group share of pictures and data about bullying. (5 minutes)

PART 3 – APPLYING INQUIRY AND ACTION

12. Provide the class with the article, [“What is Bullying?”](#) Facilitate a class reading of the article.
13. In small groups, ask students to think of how they could use the statistical pictures they created about bullying data and the information about bullying to stop bullying in the school, community, or country. For example, create a brochure with data and with steps to avoid bullying. (10 minutes)

PART 4 – INQUIRY TO DRAW CONCLUSIONS

14. As a closing, have students share their ideas with the class and perhaps the student council and/or school administration.

CitizenU Teacher Guide

Lesson Title: *Using Math to Build Community*

Subject: *Mathematics*

Grade Level: 3-5

Overview

If you're working with students on statistics, percentages, and/or creating models 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:

- Express data as a percentage.
- Define bullying.
- Analyze data about bullying using percentages.
- Create a campaign to stop bullying using data.

Standards

- CCSS.MATH.CONTENT.3.MD.B.3 - Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories.

Teacher Instruction

- Make copies (one for each student) of:
 - Brown vs. Board (Dr. Helma Harrington) Political Cartoon
<http://www.loc.gov/exhibits/brown/images/br0172s.jpg>
 - Bullying Statistics <https://www.stopbullying.gov/media/facts/index.html#stats>
 - Article What is Bullying? <https://www.stopbullying.gov/what-is-bullying/index.html>
 - Handout A – National Statistics on Bullying
 - Handout B – What is Bullying?
- If students for not have access to a computer, make copies (one for each student) of the Primary Source Analysis Tool: <http://www.loc.gov/teachers/primary-source-analysis-tool/>

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)
- Bullying Statistics <https://www.stopbullying.gov/media/facts/index.html#stats>
- Article: What is Bullying? <https://www.stopbullying.gov/what-is-bullying/index.html>
- Handout A – National Statistics on Bullying
- Handout B – What is Bullying?

**PART 1 – INQUIRY
INTRODUCTION**

I. Introduction

Begin the lesson by presenting students with a prompt about bullying. Have them do a quick write, followed by discussion about characteristics of bullying and incidents of bullying they've experienced or know of. Introduce the idea of using mathematical data to combat bullying.

A. Introduce Bullying with prompt with quick write. (2 Minutes)

Ask the students: *What is bullying?*

Direct students to do a [quick write](#) of how they define bullying by writing their thoughts on paper or in a notebook. *A quick write provides an opportunity for students to reflect on and respond to a prompt by writing for a couple minutes, and informally assesses student thinking on the topic.*

B. Explore the characteristics of bullying. (2 Minutes)

Ask students: *What are some of the key characteristics of bullying?*

List characteristics on the board.

C. Poll students about bullying they've experienced or know of. (2 Minutes)

Ask students to vote as to whether they believe there is a bullying problem in the classroom and in the school.

Ask students to guess how many students in the class have been bullied. Share the numbers.

Ask students to guess how many students in the school have experienced bullying.

D. Introduce mathematical data and how it can be used to alleviate the problem of bullying in the community. (2 Minutes)

Ask students: *How can math and percentages be used to help to get rid of bullying?*

Have the students share their answers.

Explain this lesson will use math and civics to look at bullying...

*"In 2014, the Centers for Disease Control and Department of Education released the first federal uniform definition of bullying for research and surveillance. The core elements of the definition include: unwanted aggressive behavior; observed or perceived power imbalance; and repetition of behaviors or high likelihood of repetition. There are many different modes and types of bullying."
(Facts About Bullying, <https://www.stopbullying.gov/media/facts/index.html#stats>)*

*Quick write is a "brief written response to a question or probe" that requires students to rapidly explain or comment on an assigned topic (Green, Smith & Brown, 2007; Nunan, 2003).
Quick write <https://ablconnect.harvard.edu/quick-write>*

**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 represent portions of bullying data as percentages.

“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 [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. Lead students in a discussion of the many types of bullying. (5 Minutes)

“The current definition [of bullying] acknowledges two modes and four types by which youth can be bullied or can bully others. The two modes of bullying include direct (e.g., bullying that occurs in the presence of a targeted youth) and indirect (e.g., bullying not directly communicated to a targeted youth such as spreading rumors). In addition to these two modes, the four types of bullying include broad categories of physical, verbal, relational (e.g., efforts to harm the reputation or relationships of the targeted youth), and damage to property.

Bullying can happen in any number of places, contexts, or locations. Sometimes that place is online or through a cellphone. Bullying that occurs using technology (including but not limited to phones, email, chat rooms, instant messaging, and online posts) is considered electronic bullying and is viewed as a context or location.

Electronic bullying or cyberbullying involves primarily verbal aggression (e.g., threatening or harassing electronic communications) and relational aggression (e.g., spreading rumors electronically). Electronic bullying or cyberbullying can also involve property damage resulting from electronic attacks that lead to the modification, dissemination, damage, or destruction of a youth’s privately stored electronic information. Some bullying actions can fall into criminal categories, such as harassment, hazing, or assault.”

(Facts About Bullying, <https://www.stopbullying.gov/media/facts/index.html#stats>)

- C. Present students with statistics on bullying and inform them you will explore how math and data can help us get information on bullying. (15 Minutes)

Share with the students the **Handout A – National Statistics on Bullying**.

In small groups, ask students to draw a picture representing a percentage.

For example, show students a drawing of 10 stick figure students.

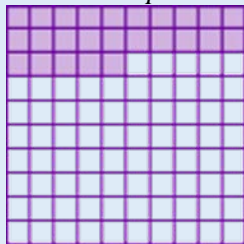
Ask how many of these would equal 25%.

Then color those students a different color.

Ask the students to take one piece of data for each group and draw the representative picture.

Do a group share of the pictures representing the bullying data.

“Many tools can be used to visually represent percentages; for example, a 100-grid (a grid containing 100 squares) that is shaded to represent a percent. The grid below represents 25%, or 25 out of 100:



This grid also represents the fraction $1/4$ and the decimal 0.25.”

(Decimals and Percents, Annenberg Lerner,

https://www.learner.org/courses/learningmath/number/session9/part_b/models.html)

PART 3 – APPLYING INQUIRY AND ACTION

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?**

Do a class reading of the material.

- B. 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 statistical pictures you created about bullying data and the information from the article to stop bullying in the school, community or country?*

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 percentages can be expressed as a graph or picture.

Those pictures 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.

National Statistics on Bullying

- **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

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](#)
- [Where and When Bullying Happens](#)
- [Frequency of Bullying](#)

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.