

# Citizen U<sup>®</sup>

Preparing tomorrow's citizens today



**Subject:** Science

**Grade Level:** 6-8

**Lesson Title:** *The Scientific Method, School Shootings, and Civic Action*

**Lesson Overview:** This lesson provides students the opportunity to learn the connection between scientific method of thinking and the rights of the American democracy established by the Constitution regarding civic action. Integrating scientific thinking with civic content, students will experience the connection between methods of scientific analysis and civic action. Students will examine the history of school safety in this country, school related violence and death, and legislative efforts to improve school safety. Using Library of Congress resources and other relevant resources, students will generate questions, draw conclusions and develop their own plan to use data for civic action. This activity can be completed in 60 – 80-minutes.

CONCEPT: Civic Action		THEME: Empowerment
<b>Overarching Essential Question:</b> <ul style="list-style-type: none"> <li>How can we build coalitions?</li> </ul>		<b>Lesson Essential Question(s):</b> <ul style="list-style-type: none"> <li>Does science matter to civic action?</li> <li>How can the scientific method help with current problems?</li> <li>What cause will you work to address?</li> </ul>
<b>Lesson Objectives:</b> Students will: <ul style="list-style-type: none"> <li>Define scientific method.</li> <li>Use scientific method to evaluate school violence.</li> <li>Create civic action solutions to current school safety issues.</li> </ul>		
<b>CIVIC KNOWLEDGE</b> <ul style="list-style-type: none"> <li>Purposes, values, and principles of American democracy established by the Constitution</li> <li>Roles of citizens in American democracy</li> </ul>	<b>CIVIC SKILLS</b> <ul style="list-style-type: none"> <li>Identifying and describing information and arguments</li> <li>Explaining and analyzing information and arguments;</li> <li>Evaluating, taking, and defending positions on public issues</li> <li>Working with others</li> <li>Clearly articulating ideas and interests</li> </ul>	<b>CIVIC DISPOSITIONS</b> <ul style="list-style-type: none"> <li>Developing as an independent member of society</li> <li>Respecting individual worth and human dignity</li> <li>Assuming the personal, political, and economic responsibilities of a citizen</li> <li>Participating in civic affairs in an informed, thoughtful, and effective manner</li> <li>Promoting the healthy functioning of American constitutional democracy</li> </ul>

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

Content created and featured in partnership with the TPS program does not indicate an endorsement by the Library of Congress.

## LIBRARY OF CONGRESS RESOURCES & ADDITIONAL RESOURCES

### Library of Congress Resources

Image: Children's protest parade. They want better homes. New York <https://www.loc.gov/item/2017759017/>

Primary Source Analysis Tool <http://www.loc.gov/teachers/primary-source-analysis-tool/>

### Materials Needed

Library of Congress Resources (listed above)

Scientific Method: <http://astro1.panet.utoledo.edu/~ljc/ScientificMethod.htm>

Analysis of School Shootings: <https://everytownresearch.org/documents/2015/04/analysis-of-school-shootings.pdf>

Three-Step Interview Process: [http://www.usd416.org/pages/uploaded\\_files/Three\\_Step\\_Interview.pdf](http://www.usd416.org/pages/uploaded_files/Three_Step_Interview.pdf)

3-2-1 Strategy: <http://www.readingquest.org/pdf/321.pdf>

Supporting Question 1 ENGAGE	Supporting Question 2 EXPLORE	Supporting Question 3 EVALUATE
Does science matter to civic action?	How can the scientific method help with current problems?	What cause will you work to address?
PERFORMANCE TASK 1	PERFORMANCE TASK 2	PERFORMANCE TASK 3
Use <b>Primary Source Analysis Tool</b> to analyze Library of Congress resource picture on young people protest	Use scientific method to analyze data on gun violence in schools in the USA. Use <b>three-step interview process</b> to analyze hypotheses.	Create a hypothesis to solve the problem.

## TEACHING PLAN

### PART 1 – INQUIRY INTRODUCTION

1. Begin this lesson by sharing that students will examine the six steps of the [scientific method](#). **(5 minutes)**  
The six steps include:
  - a. Ask question
  - b. Do research
  - c. Construct a hypothesis
  - d. Test hypothesis
  - e. Analyze data
  - f. Communicate conclusions
2. Ask students for examples of a scientist who uses this method and how. **(5 minutes)**
3. Ask students: “What examples do they know of the use of the scientific method in civic action?” (Students may mention political campaigns, voting, protests, petitions, and other examples.) **(5 – 10 minutes)**

### PART 2 – INQUIRY EXPLORATION WITH PRIMARY SOURCES

4. Provide students the Library of Congress photo of “[Children’s Protest Parade](#)”. Break students into small groups. Give students the [Primary Source Analysis Tool](#) and ask them to use this tool in small groups to answer the questions: “What do you see first?” and “Who do you think was the audience for this image?” **(10 minutes)**
5. Ask groups to share their analysis results. **(4 – 5 minutes)**
6. Ask students how they imagine the students in the photo could have used the scientific method for their civic action. **(4 – 5 minutes)**

7. Have students use the [Three-Step-Interview Process](#) to ask each other the questions they created in their scientific method. As they move from group to group they should note the similarities and differences in response. **(5 - 10 minutes)**

### PART 3 – APPLYING INQUIRY AND ACTION

8. Give students the data resource on [Analysis of School Shootings](#). Break students into small groups and guide students to focus on the data on the 2<sup>nd</sup> page of the report. Given the type of shootings and result, ask students “How can the scientific method be used to approach current problems?” **(3 – 5 minutes)**

9. Ask students to find a problem they would like to solve in our country. Ask “What cause or problem can you work to change?” Give students time to use the scientific method to create a hypothesis about how to solve the problem. Ask them to generate two questions that support their hypothesis. **(10 minutes)**

#### **PART 4 – INQUIRY TO DRAW CONCLUSIONS**

10. Close the lesson with the inquiry exit strategy of [3-2-1 Strategy](#) : which typically asks 3 things you found out, 2 interesting things, and 1 question you still have. Rather than 1 question you have, direct students to determine one action they can take toward making schools safer. **(2 – 3 minutes)**

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## Citizen U Teacher Guide

**Lesson Title:** *The Scientific Method, School Shootings, and Civic Action*

**Subject:** *Science*

**Grade Level:** 6-8

## Overview

If your students are learning to analyze data and apply that data to real world solutions, this lesson provides students the opportunity to learn the connection between scientific method of thinking and the rights of the American democracy established by the Constitution regarding civic action.

## Learning Objectives

- Define scientific method.
- Use scientific method to evaluate school violence.
- Create civic action solutions to current school safety issues.

## Teacher Instructions

- Make copies (one for each student) of Children's Protest Parade. They Want Better Homes. New York. <https://www.loc.gov/item/2017759017/>.
- Make copies (one for each student) of Analysis of School Shootings\_ <https://everytownresearch.org/documents/2015/04/analysis-of-school-shootings.pdf>.
- Make copies (one for each student) of 3-2-1 Strategy <http://www.readingquest.org/pdf/321.pdf>.
- If students do not have access to a computer, make copies (one for each student) of Primary Source Analysis Tool <http://www.loc.gov/teachers/primary-source-analysis-tool/>.

## Library of Congress Resources

- Children's Protest Parade. They Want Better Homes. NYC <https://www.loc.gov/item/2017759017/>
- Primary Source Analysis Tool <http://www.loc.gov/teachers/primary-source-analysis-tool/>

## Materials Needed

- Library of Congress Resources (listed above)
- Scientific Method <http://astro1.panet.utoledo.edu/~ljc/ScientificMethod.htm>
- Analysis of School Shootings <https://everytownresearch.org/documents/2015/04/analysis-of-school-shootings.pdf>
- Three Step Interview Process [http://www.usd416.org/pages/uploaded\\_files/Three\\_Step\\_Interview.pdf](http://www.usd416.org/pages/uploaded_files/Three_Step_Interview.pdf)
- 3-2-1 Strategy <http://www.readingquest.org/pdf/321.pdf>

**PART 1 – INQUIRY  
INTRODUCTION**

**I. Introduction**

*Begin the inquiry introduction by having students examine the six steps of the scientific method and its context in civic action.*

- A. Begin this lesson by sharing that students will examine the six steps of the [scientific method](#). **(5 minutes)**

*Ask: What are the steps of the scientific method?*

- B. The six steps include:

- Ask question
- Do research
- Construct a hypothesis
- Test hypothesis
- Analyze data
- Communicate conclusions

- C. Ask students for examples of a scientist who uses this method and how.

- D. Examine the scientific method. **(4 – 5 minutes)**

*Ask the students a question: Can you think of examples of a scientist who uses this method?  
How does the scientist use this?*

- E. Have the students think about examples of the scientific method in civic action. **(5-10 minutes)**

*Ask the students a question: What examples do you know of that use the scientific method in civic action?*

*For part C – Students may mention political campaigns, voting, protests, petitions, and other examples.*

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

**II. Exploration with Primary Sources**

*Students will analyze the LOC resource using the Primary analysis tool. The students will share their results and use the [Three-Step-Interview Process](#) to apply the scientific method in an inquiry-based exercise.*

- A. Provide students the Library of Congress photo of [Children’s Protest Parade](#).
- B. Break students into small groups.
- C. Give students the [Primary Source Analysis Tool](#) and ask them to use this tool in small groups to answer the questions, “*What do you see first? Who do you think was the audience for this image?*” **(10 minutes)**
- D. Ask groups to then share their analysis results. **(4-5 minutes)**
- E. Ask students how they imagine the students in the photo could have used the scientific method for their civic action. **(4-5 minutes)**
- F. Have students use the [Three-Step-Interview Process](#) to ask each other the questions they created in their scientific method. As they move from group to group they should note the similarities and differences in response. **(5 – 10 minutes)**

*“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/>)*

## PART 3 – APPLYING INQUIRY AND ACTION

### III. Applying Inquiry and Action

*Students should analyze the data on school shootings. Students should use their analysis of the LOC resource and their knowledge of the scientific method to identify a problem. Students will create a hypothesis on how to use scientific approach and coalition building to address a problem.*

- A. Give students the data resource on [Analysis of School Shootings](#).
- B. Break students into small groups and guide students to focus on the data on the 2<sup>nd</sup> page of the report. Given the type of shootings and result, ask students “*How can the scientific method be used to approach current problems?*” (3-5 minutes)
- C. Ask the students to identify a problem in our country they could address. Ask the students to apply the LOC material analysis and the scientific method to hypothesize a couple possible solutions. (10 minutes)
- D. Ask students to find a problem they would like to solve in our country. Ask “*What cause or problem can you work to change?*”
- E. Give students time to use the scientific method to create a hypothesis about how to solve the problem. Ask them to generate two questions that support their hypothesis.

*This portion of the lesson brings in real-world data on school shootings. Students will use a scientific mindset to brainstorm actionable steps towards a problem in the world they identify.*

## PART 4 – INQUIRY TO DRAW CONCLUSIONS

### IV. Draw Conclusions

*Close the lesson with an inquiry exit strategy.*

- A. Close the lesson with the inquiry exit strategy of [3-2-1 Strategy](#). Rather than 1 question you have, direct students to determine one action they can take toward making schools safer. (2 – 3 minutes)

*The 3-2-1 Strategy typically asks 3 things you found out, 2 interesting things, and 1 question you still have. This strategy provides a structure for students to record their own comprehension and summarize their learning. It also gives teachers the opportunity to identify areas that need re-teaching, as well as areas of student interest.*