

Vaccinations, Science, and the Law

Interdisciplinary Subject: Science

Grade Level: 6-8

Duration: 80-100 minutes

Lesson Overview: In this two-part lesson students will be able to explain the role of science in informing public policy. In Part I, students discuss their prior knowledge of vaccinations and the purpose of vaccinations. In Part II, students assume the roles of members of Congress to determine if they will support a bill to require the federal government to compare the health outcomes of vaccinated and unvaccinated children. Then they will interview an adult about their knowledge and opinion of science and public policy, particularly related to vaccinations.

Essential Question

How should science inform public policy decisions?

Lesson Objectives

Students will be able to:

- Analyze sources to gain understanding about an issue.
- Understand different points of view on the issue.
- Participate in an academic discussion.
- State and support an informed opinion.

Materials Needed

- Slide Pack
- Handout A: Instructions – 1 per student.
- Handout B: Source Pack – 1 per pair of students (includes Sources B & C)

Library of Congress Resources

Source A: "Is your child vaccinated? Vaccination prevents smallpox (Chicago Department of Health)." (Poster for Chicago Department of Health showing large red question mark.) Chicago: Illinois WPA Art Project, [between 1936 and 1941] (Date stamped on verso: Mar 20 1941). <https://www.loc.gov/item/98507705/>

Source B: H. R. 1636: A BILL To direct the Secretary of Health and Human Services to conduct or support a comprehensive study comparing total health outcomes, including risk of autism, in vaccinated populations in the United States with such outcomes in unvaccinated populations in the United States, and for other purposes. <https://www.congress.gov/bill/114th-congress/house-bill/1636/text>

Source C: Vaccines Do Not Cause Autism: A report from the Center for Disease Control. <https://www.cdc.gov/vaccinesafety/concerns/autism.html>

Standards

C3 Indicators

D2.Civ.2.6-8 Explain specific roles played by citizens (such as voters, jurors, taxpayers, members of the armed forces, petitioners, protesters, and office-holders).

D3.1.6-8 Gather relevant information from multiple sources while using the origin, authority, structure, context, and corroborative value of the sources to guide the selection.

D3.3.6-8 Identify evidence that draws information from multiple sources to support claims, noting evidentiary limitations.

D4.1.6-8 Construct arguments using claims and evidence from multiple sources, while acknowledging the strengths and limitations of the arguments.

D4.4.6-8 Critique arguments for credibility.

Teacher's Guide

Part I: Spark Inquiry

A. Focus Discussion

1. Conduct a brief class discussion asking:
 - Can you think of any laws that are based on science?
(Federal Food and Drug Administration requirements for labeling; disposing of certain products including electronics, oil, batteries; cannot take someone else's medicine; underage drinking; use of tobacco products; use of certain insecticides; laws about clean water/air, etc.)
2. Explain that there are almost always disagreements when new laws are made.
 - For example, science tells us that eating foods high in fat and sodium are not good for you. What if a new law was going to be made that would not allow Americans to eat more than one juicy bacon cheeseburger per month?

Would you agree with that law? Why or why not? (Accept all answers and probe for understandings about personal preferences and how such a law would be enforced.)
3. Explain that sometimes laws, including those that are based on science, cause controversy. (If necessary, define "controversy" as strong feelings and beliefs on a topic causing disagreement.)
Assess students' prior knowledge about vaccinations before proceeding. Ask:
 - Do any students recall getting vaccinations? "Booster shots"? *(Explain if necessary.)*
 - What is the purpose of a vaccination? *(Vaccinations provide immunity to diseases, such as measles or the flu. Smallpox is a disease that caused full-body blisters, blindness, and death. Smallpox was eradicated from the globe in the 20th century thanks to vaccinations against the disease.)*

B. Source Discussion

1. Project an image for the whole class to see of Source A.

NOTE: This image is provided on slide 1 of the slide pack provided for this lesson.

2. Read aloud the text that appears in the image.
 - Ask students:
 - What do you see? *(This is a sign or a poster asking if children have been vaccinated. Have a student read aloud the text they see in the image.)*
 - Who created the poster? *(Chicago Department of Health.)*
 - Why do you think it was created? *(To encourage parents to have their children vaccinated because "vaccination prevents smallpox.")*
3. Tell students the image was created in 1941 with funds from the federal government. Show that the image states it was created with funds from the WPA Art Project (the Works Progress Administration during the New Deal). Laws had to be passed to provide the funds to create the poster.
 - Tell the students that today they are going to explore a controversial law about vaccinations that has scientific implications.
4. Optional transition activity: Have each student complete an inquiry exit slip using the following prompts:
 - *All the new ideas or topics I learned:*
 - *My prediction for what I'll learn next:*

Part II: Deepen Inquiry

A. Welcome to Congress!

1. Explain to the students that they are going to take the roles of members of Congress and decide whether or not they will vote for a bill to provide government funding for a research study on the health impacts of vaccines.
2. Distribute **Handout A: Instructions** and **Handout B: Source Pack** to each student.
3. Tell the students that they will work independently to complete Step 1, then will join a group to complete Step 2. (Students should work in groups of 3-4 each.)
4. Let students know how much time they have to complete Step 1. Students could be grouped for the discussion in Step 2 as they finish Step 1.

B. Debriefing

1. Ask the students:
 - What was the bill you were deciding?
 - What was the controversy?
 - What were the most compelling arguments for opposing the bill? For supporting the bill?
 - Which of the two source documents do you think was based on stronger scientific evidence? Why?
 - What other sources or information might have been helpful to you in making your decision?
 - What did you learn about science and the law from this lesson?

NOTE: These questions are listed on slides 2 and 3 of the slide pack provided for this lesson.

Part III: Connection and Action

1. Collect Handout A and look for:
 - Accurate summary of Source B: The Vaccine Safety Study Act (H. R. 1636).
 - Accurate/appropriate answers to prompts for Sources B and C.
 - Clear articulation of most compelling arguments in favor and opposed to the bill.
 - Effectiveness in stating an opinion and supporting it with evidence from sources/text.
2. **Assessment.** Have students interview an adult about (1) their knowledge of vaccines; (2) their opinion of how important science is in support of making laws for public health; and (3) one way their lives have benefitted from science. Students should take notes during their interview and write a paragraph on the interview results. Discuss interesting and surprising results in class.