

Disease During Wartime

LESSON CREATED BY

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SUGGESTED GRADE LEVELS

9-12

SUGGESTED TIME FRAME

3 class periods, or
1.5 blocks

Lesson Description/Purpose

This lesson draws a connection between the threat of smallpox during the Revolutionary War and the influenza pandemic during World War I. In this lesson, students will utilize educational technology to consult primary, secondary, and tertiary sources in the completion of a webquest. Writing across the curriculum is a large focus of this lesson. Students will make interdisciplinary connections between history and science (specifically biology).

Objectives

- Students will analyze the connection between war and the spread of disease
- Students will read and interpret primary, secondary, and tertiary sources
- Students will appraise George Washington's handling of the smallpox threat during the Revolutionary War

Related Standards

- Reading and Writing Literacy in History/Social Studies
- Analysis of Primary Sources
- Reading Informational Texts
- Writing Standards
- Time, Continuity, and Change
- Science, Technology, and Society

Materials

- Access to a computer lab or class set of Internet-capable tablets
- Copy of “More destructive ... than the Enemy's Sword” webquest form for each student

Background Information

When the Revolutionary War brought thousands of soldiers from Europe to the American colonies, smallpox inevitably came with them. Although smallpox was a danger in many countries around the world in the late 1700s, the American colonists found themselves at far greater risk of death from smallpox due to their isolated, largely rural lives. George Washington, the Commander in Chief of the Continental Army, was keenly aware of the risk of such an easily communicable disease. He had suffered from smallpox as a youth and was thus immune. His soldiers, however, had no such immunity. Washington had to fight against stiff resistance to the practice of inoculation, but he was eventually able to gradually set into motion a system to try to keep smallpox from taking a large toll on his fighting force. He first required all new recruits to be inoculated for smallpox before joining the ranks of his Continental Army. Later, he called for the inoculation of the rest of his troops in winter encampments in 1777 and 1778.

In 1918, the world saw a mutation of the influenza that killed on a staggering scale. This flu, often inaccurately called the “Spanish Flu,” started in a small town in America, then spread rapidly through the mobilization and training system in place for World War I. American soldiers brought this deadly flu overseas, where it continued to spread. By the time it was done killing, the 1918 strain of influenza had killed millions, sometimes wiping out entire towns. Though doctors and researchers worked feverishly for many months during the pandemic, they were not able to isolate the virus causing the influenza in time to stop its deadly progress.

Procedures

PRE-WRITE

Have students respond to the following pre-write question:

- How does war affect people?

This pre-write question is purposely very broad. It encourages students to think “widely” as well as “deeply.” This writing opportunity is intended to get students thinking about the diverse ways in which war affects soldiers and civilians alike. Give students 3-5 minutes to prepare a written response to this question. Have several students share their answers with the class.

HYPOTHETICAL CONNECTION

Present students with the following hypothetical:

- Imagine that you are the top commander of an army in the midst of a serious war. Your country’s population, soldiers and civilians alike, are faced with a serious challenge. An easily communicable (or spreadable) disease threatens your people, who are particularly susceptible to this illness because they have never been exposed to it before. You know that the war is already giving this disease new opportunities to spread by concentrating large numbers of soldiers in small areas. Now there are rumors that your enemy might even be purposely spreading this disease among your population!

The preventative treatment for this disease, unfortunately, is very unpopular. It has some serious risks, and in some places it is actually illegal.

What would you do?

Give students 5-10 minutes to respond independently to this hypothetical situation in writing. Students should retain their answers; they will be referencing these responses again later in the lesson.

SETTING THE STAGE

Tell students that George Washington faced a similar dilemma as commander in chief of the Continental Army during the Revolutionary War. The following activity will help students explore Washington’s dilemma and decision-making process.

WEBQUEST

Distribute the “More destructive ... than the Enemy's Sword” webquest form to students. Assign students to mixed-ability pairs to complete the webquest. This webquest has students access six digital resources, which include primary, secondary, and tertiary sources. Students will use those

resources to answer questions and complete graphic organizers. Most students will likely need 1-1.5 class periods to complete the webquest.

DEBRIEFING

After giving students ample time to complete their webquests, follow up with them about their answers. An answer key to the webquest is included at the end of this lesson.

- Task 1: Have students share and discuss their answers.
- Task 2: Construct a flowchart on the board for all students to follow along. Ask students about the difficulties of reading this primary source. Discuss why consulting primary sources is valuable to historians.
- Task 3: After students share and discuss their answers for the graphic organizer and questions, ask students to refer back to their answer to the hypothetical at the beginning of the lesson. Ask students to compare and contrast their own decisions with Washington's.
- Task 4: Have students share and discuss their answers.
- Task 5: Have students share and discuss their answers.
- Task 6: Have students share and discuss their answers.

REFLECTION

Have students respond to the following reflection question:

- Do you agree with George Washington's handling of the smallpox problem? Why or Why not?

Give students 5-10 minutes to respond to this question in writing. This question is meant to give students the opportunity to reflect on what they learned about the smallpox problem and Washington's response to it by integrating their learning from several different sources from the webquest. Have students share their answers. Encourage students to respond to one another's writing by citing specific statements from classmates to agree with or challenge.

POST-WRITE:

To wrap up the lesson, have students answer the following post-write question:

- How does wartime affect disease?

This question reinforces the connection between the smallpox problem during the Revolutionary War and the influenza pandemic during World War I. Have students share their answers with the class.

Assessments

FORMATIVE: pre-write, hypothetical answer, webquest answers

SUMMATIVE: reflection answer, post-write answer

Accommodations

EXCEPTIONAL EDUCATION STUDENTS: Complete Task 2 together as a class. Begin by explicitly teaching students about some unique challenges of reading 18th century text, such as the font used for the letter “s” when it is used at the beginning or middle of a word. Then read the text aloud to your students while they follow along. Stop frequently to check for understanding by having students summarize the section just heard.

ENGLISH-LANGUAGE LEARNERS: Explicitly pre-teach students some of the academic vocabulary they will encounter in this lesson. Examples include *disease*, *immune*, *inoculation*, *smallpox*, and *influenza*.

GIFTED STUDENTS: Have students study sequences 9-18 of Cotton Mather’s *Some account of what is said of inoculating or transplanting the small pox*. Students should be prepared to answer the following questions:

- Why did Mather write this book?
- What was the history of inoculation, as known to Mather?
- What treatments were recommended for patients before and after inoculation?

Suggestion for Extension

While inoculation was tremendously better than suffering smallpox “the natural way,” it still had significant risks. Have students research and prepare reports on the life and work of Edward Jenner, the scientist who developed the much safer *vaccination* method.

Webquest Answer Key

TASK 1:

1. What disease was threatening the prospects of success for the American Revolution?

Smallpox

2. Why was the American population particularly susceptible to smallpox?

The American population was relatively spread out and isolated on farms and plantations.

3. Why was George Washington immune to the disease?

He had contracted it as a young man when he traveled to Barbados.

4. How did war impact the spread of this disease?

Soldiers from Europe brought the disease with them to America. In America the disease could spread quickly and widely since American soldiers were coming from all over the colonies into one centralized army.

5. What evidence do we have that Washington was concerned about controlling the disease among his troops from the very beginning of his military leadership?

One of the first things Washington did was write the President of the Continental Congress, telling him that he was being "particularly attentive to the least Symptoms of the Small Pox" and would "continue the utmost Vigilance against this most dangerous enemy." Washington also took action, quarantining soldiers as necessary.

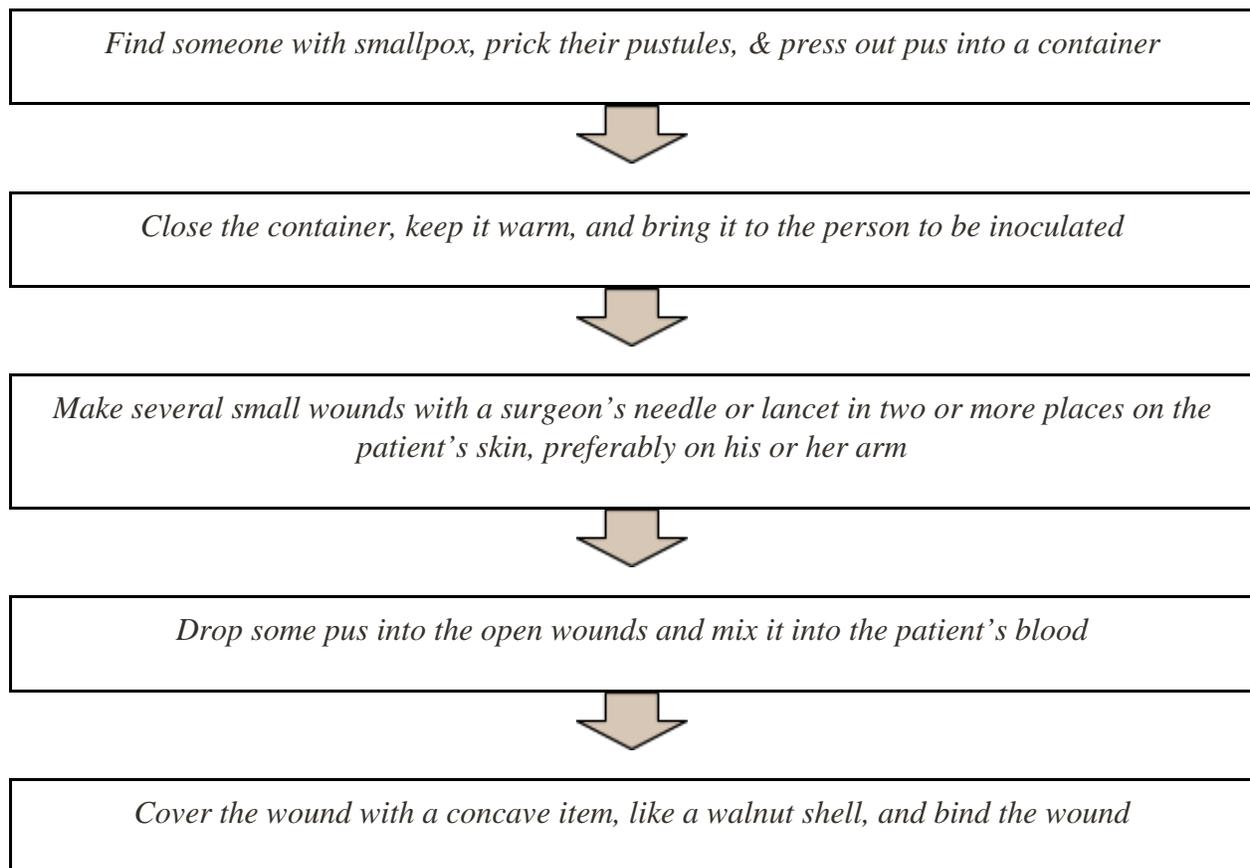
6. How did Washington deal with the 1775 Boston epidemic?

He forbade anyone from Boston to come near his troops and sent only immune soldiers back into the city.

7. How did the disease continue to affect Americans into 1776?

Epidemics broke out in Philadelphia and Boston. American troops were forced to retreat from Quebec in part because of the large number of soldiers suffering from smallpox.

TASK 2:



TASK 3:

Benefits	Risks
Immunity	Can cause death
Save lives	Those inoculated can spread the disease to others if not properly quarantined, even to the point of causing an epidemic
Keep the disease from spreading so rapidly	It incapacitated soldiers for weeks while they recovered, leaving the already

If you were a Revolutionary soldier, would you have wanted to be inoculated? Why or why not? Cite textual evidence from the websites and/or Cotton Mather’s book to support your argument.

Answers will vary.

What did George Washington ultimately decide to do?

He ultimately decided to order his troops to be inoculated. He started with all recruits to the Continental Army, who could be inoculated while they were still preparing to enter the main Army. Later he ordered the rest of his troops inoculated during the winter or early spring, when the fighting took a seasonal hiatus.

TASK 4:

Summarize the state of smallpox preventative treatment today.

We now have a vaccine for smallpox made from the cowpox (vaccinia) virus, which is less dangerous to humans than the smallpox virus. The vaccine makes you immune to smallpox for 3-5 years. The vaccination is delivered by dipping a two-pronged needle into vaccinia, then pricking the skin a number of times with the needle. People vaccinated against smallpox will have a scar, and there are some side effects those vaccinated may experience. The US currently has enough smallpox vaccine to vaccinate the entire population if needed, though smallpox was eradicated in the US in the 1970s.

TASK 5:

1. How did WWI increase the number of people who got the flu?

The military training camps in America and the trench-based battlefields of Europe provided very crowded conditions, in which the flu could easily pass from one person to the next.

2. How did the war widen the scope (or geographical area) of the flu's impact?

Soldiers went through various military camps in their training and preparation. Then they went into foreign countries across the Atlantic. This took the flu from an isolated problem to a national then international one.

3. How did the 1918 flu impact US troop effectiveness?

Large percentages of US soldiers and civilians were sick at any given time. This made it more difficult to recruit, train, and induct new soldiers, slowing down America's efforts to prepare and introduce new soldiers into the conflict. Also, because so many of our troops both in America and abroad were sick, they were unable to contribute fully to the war effort. America also diverted resources "from combat support" to dealing with the sick.

4. Did more American troops die of the flu or from combat?

The flu

5. What were some diseases and infections the US military did not need to worry too much about by WWII?

Yellow fever, typhus, cholera, typhoid, and smallpox

6. Aside from the flu, what other diseases and infections flourished during WWI?

Diarrhea, dysentery, typhus, trench foot, venereal diseases, and trench fever

7. How many productive days did the American Army lose to the flu in 1918 alone?

8,743,102 days

8. How did WWI make it harder to control the flu pandemic?

It was hard to enforce virus-controlling policies like banning large crowds and quarantining sick people.

9. Click on the line graph at the bottom of the screen (“Figure 2”). Describe at least two reasonable explanations for the spike of deaths.

Possible answer: The flu or another disease or infection could have hit our soldiers hard over the course of a couple of weeks. Alternatively, a major battle could have been fought.

10. Which of your explanations from Question 9 is the better explanation, and why?

Possible answer: The flu explanation is better because most battles of modern wars do not last as long as that spike indicates. Furthermore, that spike would have to indicate a huge loss of life since it is showing the number of deaths per 1000 soldiers, and American soldiers were spread out in many locations. The spike would practically have to have been a decimation of our troops if it were all to be accounted for in one location.

TASK 6:

1. Why couldn't doctors and researchers isolate the virus causing the influenza in 1918?

The virus was too small to be detected by the available microscopes.

2. What frightening pattern did Surgeon General of the US Army Victor Vaughan observe about the 1918 influenza?

That year's flu was more likely to kill "young, vigorous, robust adults" -- people who normally were not greatly affected by the flu -- instead of children and the elderly -- the populations most at risk during typical flu seasons.

3. What were some methods to try to prevent the spread of the flu in 1918?

Gargling with mouthwash, wearing masks, covering coughs and sneezes with handkerchiefs, avoiding crowds (walking to work was better than public transportation), not spitting, avoiding the use of common cups and towels, avoiding excessive fatigue

4. What deadly flu was discovered in 2004?

H5N1 (also called "Avian Flu" or "Bird Flu")

5. Do you typically get a flu shot each year? Why or why not?

Answers will vary.

* Note: There are many correct ways for students to word or express their answers for these questions. Therefore, this answer key is merely a guideline to help you evaluate your students' work. Many answers given here include direct quotation from the articles students are using:

- "A Deadly Scourge: Smallpox During the Revolutionary War." *Education Materials Index*. Army Heritage Center Foundation, n.d. Web. 28 Nov. 2016.
<https://www.armyheritage.org/education-and-programs/educational-resources/education-materials-index/50-information/soldier-stories/282-smallpox>

- Byerly, Carol R. "The U.S. Military and the Influenza Pandemic of 1918-1919." *Public Health Rep* 125.3 (2010): 82-91. Web. 28 Nov. 2016.
<https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2862337/?report=reader>
- Mather, Cotton. *Some account of what is said of inoculating or transplanting the small pox*. Boston : Sold by S. Gerrish at his shop in Corn-Hill, 1721. AC7.M4208.721s. Houghton Library, Harvard University, Cambridge, Mass. [Body], seq. 12-14. n.d. Web. 28 Nov. 2016
[https://iif.lib.harvard.edu/manifests/view/drs:7910093\\$12i](https://iif.lib.harvard.edu/manifests/view/drs:7910093$12i)
- "Photo Gallery: Medical Investigation of Influenza." *American Experience: Influenza 1918*. PBS, n.d. Web. 28 Nov. 2016.
<http://www.pbs.org/wgbh/americanexperience/features/photo-gallery/influenza/>
- "Smallpox Disease Overview." *CDC Smallpox*. Centers for Disease Control and Prevention, 15 Jan. 2016. Web. 28 Nov. 2016
<https://emergency.cdc.gov/agent/smallpox/overview/disease-facts.asp>
- Thompson, Mary V. "Smallpox." *Digital Encyclopedia*. George Washington's Mount Vernon, n.d. Web. 28 Nov. 2016.
<http://www.mountvernon.org/digital-encyclopedia/article/smallpox/>