

Pandemics and Epidemics

Enduring Understandings:

- Many pandemics and epidemics have occurred throughout human history.
- Human reactions to pandemics and epidemics have changed over time with advancements in medicine and technology.
- The increasingly interconnected nature of the world has affected both the spread of diseases and their treatment and prevention.

Essential questions:

- What is a pandemic? What is an epidemic? What are examples of each?
- How have humans reacted to the threat of pandemics and epidemics throughout history?
- How has globalization affected the spread and treatment of disease?

Notes to the Teacher:

This lesson will help students understand that widespread outbreaks of dangerous diseases have recurred throughout history. The lesson leads to a specific final product—a health-alert pamphlet. However, the information gathering and research process could easily be applied to other final products. For example, you may prefer that students make a webpage to incorporate html skills, or give more elaborate presentations to their classmates to develop public speaking skills.

You can also adapt the lesson in accordance with your preference for print or Internet research. An evaluation sheet for Web resources is included for students. The assumption is made that print resources from the school library are appropriate and selected with assistance from the library staff or teacher.

DURATION OF LESSON:

At least three class periods of 45 to 60 minutes. The duration of the lesson can be adjusted based on the depth of research you wish to require of your students.

ASSESSMENT:

The student will be assessed on the quality of his or her research, the health-alert pamphlet, and the student's presentation of the material. Tools to help in this assessment include separate rubrics for the research process, the final product, and a simulated presentation to the World Health Organization. There is also an essay question to be used as a homework assignment.

WORLD HISTORY STANDARDS

Indicators addressed by this lesson:

STANDARD 23: Understands patterns of crisis and recovery in Afro-Eurasia between 1300 and 1450

LEVEL IV (9–12)

5. Understands perceptions of the Black Death from diverse, contemporaneous sources (e.g., from Boccaccio in Europe and Ibn Battuta in Egypt and Syria)
7. Understands immediate and long-term consequences of the plague on European society (e.g., the medical, administrative, and psychological measures taken to cope with the plague in the 14th century; long-term consequences of recurrent pandemics in the 14th and 15th centuries on Europe society)

STANDARD 26: Understands how the transoceanic interlinking of all major regions of the world between 1450 and 1600 led to global transformations

LEVEL IV (9–12)

Understands the consequences of the spread of disease globally and regionally (e.g., which diseases spread through colonization and exploration in the 16th and 17th centuries, how they were spread, and the effects of these diseases on individual societies, world trade, political expansion, and political control; fundamental plantation systems brought to the New World and how these may be connected to the spread of disease on the continents)

STANDARD 40: Understands the search for peace and stability throughout the world in the 1920s and 1930s

LEVEL IV (9–12)

4. Understands the impact of scientific and technological innovations on early 20th century society (e.g., major medical successes in the treatment of infectious diseases, the causes and social costs of the world influenza pandemic of 1918–1919, how new forms of communication affected the relationship of government to citizens and bolstered the power of new authoritarian regimes)

Materials:

Library or computer lab for research

Access to Microsoft Publisher or similar software

HANDOUT 1: THE HISTORY OF DISEASE

HANDOUT 2: WEBSITE EVALUATION CHECKLIST

HANDOUT 3: RUBRIC FOR THE RESEARCH PROCESS

HANDOUT 4: RUBRIC FOR THE FINAL PRODUCT

Procedure:

DAY ONE

1. Introduce the idea of pandemics and epidemics by asking students if they have heard or can define these words. Some classes may be able to associate the vocabulary with disease; others may be able to define the words more specifically; still others may not have heard the words.
2. When your students have contributed what they can, have them write these definitions of the words in their class notes:
 - Epidemic (noun): an outbreak of disease within a population or area, with cases occurring in excess of the expected number, often with many people affected in a short time.
 - Pandemic (noun): an outbreak of disease that spreads to a large geographic area or throughout the world.

Explain the roots of the words to your students:

“Epidemic” comes from the Greek *epi*, meaning “upon,” and *demos*, “people.” “Pandemic” comes from the Greek *pan*, for “all,” and *demos*, for “people.”

- When you have covered the definitions, label two columns on the board: “Pandemic” and “Epidemic.” With your students, work through the list of disease outbreaks listed below, discussing in which column the outbreaks belong. There will probably be some disagreements, as noted below. Remind students that when looking at such complex subjects, events are not always easy to categorize.

- Plague in medieval Europe (pandemic)
- Smallpox in the Americas (pandemic)
- Measles in Hawaii (epidemic)
- WWI influenza outbreak (pandemic)
- Avian flu (Experts disagree, as this disease has affected a small number of people so far (epidemic), but has occurred in several countries and might have the potential to spread worldwide (pandemic))
- West Nile Virus (Experts disagree as to pandemic or epidemic)
- SARS [Severe Acute Respiratory Syndrome] (Experts disagree as to pandemic or epidemic)
- HIV/AIDS [Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome] (pandemic)

Because students may have varying degrees of discomfort with this information, this step may be eliminated to move directly to an explanation of the assignment and the research.

- Distribute **HANDOUT 1: WORLD HEALTH ORGANIZATION CONFERENCE SIMULATION: THE HISTORY OF DISEASE** and review it with your students. Be sure to go over the rubric with them as well as the assignment.
- When you have addressed questions regarding the assignment and your expectations for student research and the final product, split the students into groups and assign each group a topic from the list above. (Note: HIV/AIDS is covered separately in another lesson for *Beat the Drum*. To avoid repetition, don’t include it here as a research topic.) Students can also work independently, depending on the size of the class.
- In the time remaining, review the research materials available to students. Highlight the library materials available to them and review the website evaluation checklist. A list of websites on each topic is provided for your use on pages 42 and 43; you may wish to direct students to these specific websites.

DAYS TWO AND THREE:

1. Write on the board: “If it is on the Internet, it must be true.” Ask students if they have found this to be true. Ask them for examples of things they have found on the Internet that turned out to be false. Explain that for their research project, you want them to evaluate the reliability of the websites they are using.
2. Distribute **HANDOUT 2: WEBSITE EVALUATION CHECKLIST**. Review the checklist with your students and explain why these questions are helpful in evaluating a website.
3. Distribute **HANDOUT 3: RESEARCH RUBRIC**. Explain that you will be using this to judge how the students have approached this project.
4. Have students research the questions posed to them on **HANDOUT 1** and start making their health pamphlet or other final product. If computer use is limited, students may create their health pamphlet by hand.
5. At the end of Day Three, the teacher should gather students together to share and present their research. Tell students that they are going to assume the role of country representatives at the World Health Organization who are attending a conference on the history of disease. They should take notes on the information to take back to their home countries to better prepare for epidemics in the future. If time is limited, create a packet of all of the pamphlets so that students have information on all of the topics.
6. As a closing exercise or for homework, ask the students to respond in an essay or a journal entry to the following questions: Do the reactions of the characters in *Beat the Drum* to HIV/AIDS mirror the human reactions to other pandemics that you learned about? What is the explanation for your answer?

ADDITIONAL RESOURCES:

A. Print materials

General

- *Epidemics: Deadly Diseases Throughout History*, Set 4. Rosen Publishing Group, 2005. ISBN: 1-4042-0375-3.
- Hays, J.N. *Epidemics and Pandemics: Their Impacts on Human History*. New York: ABC-CLIO, 2005. ISBN: 1-85109-658-2.
- Townsend, John. *Pox, Pus, and Plague: A History of Disease and Infection*. Steck-Vaughn, 2006. ISBN: 1-41092546-3.
- Bollet, Alfred. *Plagues and Poxes: The Impact of Human History on Epidemic Disease*. Demos Medical Publishing, 2006.
- Garrett, Laurie. *The Coming Plague: Newly Emerging Diseases in a World out of Balance*, Penguin, 1994.
- Garrett, Laurie. *Betrayal of Trust: The Collapse of Global Public Health*, 2000. This is less directly relevant, but a profound and disturbing book.

Smallpox

- Robertson, R.G. *Rotting Face: Smallpox and the American Indian*. Caxton Press, 2004. ISBN: 0-87004-419-2.

Influenza

- Barry, John M. *The Great Influenza: The Epic Story of the Deadliest Plague in History*. Penguin Group, 2005. ISBN: 0-14-303649-4.
- Kolata, Gina. *Flu: The Story of the Great Influenza Pandemic*, Touchstone, 1999.
- Porter, Katharine Anne. *Pale Horse, Pale Rider* (A fictional work that provides a vivid picture of the emotional experience of an epidemic in the U.S.)

The Plague

- Streissguth, Thomas. *The Black Death*. Greenhaven Press, 2003. ISBN: 0-7377-2252-5.
- Bollet, Alfred. *Plagues and Poxes: The Impact of Human History on Epidemic Disease*. Demos Medical Publishing, 2006.

Measles

- Silverstein, Alvin, et al. *Measles and Rubella*. Enslow Publishers, 1997. ISBN: 0-90490-714-X.

Avian Flu

- Murphy, Colum. *The Coming Plague: Everything You Need to Know About Avian Flu*. John Wiley and Sons, 2006. ISBN: 0-470-82202-3.

West Nile Virus

- Sfakianos, Jeffrey N. *West Nile Virus*. Facts on File, 2005. ISBN: 0-7920-8381-0.

SARS

- Serradell, Joaquina. *SARS*. Facts on File, 2005. ISBN: 0-7910-8389-2
- Thomas, Abraham. *Twenty-First Century Plague: The Story of SARS*. Johns Hopkins University Press, 2005. ISBN: 0-8018-8124-2.

AIDS

- Yount, Lisa. *The Discovery of the AIDS Virus*. Greenhaven Press, 2002. ISBN: 0-7377-1352-6.
- Verghese, Abraham. *My Own Country: A Doctor's Story*. Vintage, 1995. ISBN: 0-6797-5292-7.
- Hunter, Susan S. *Black Death: AIDS in Africa*. Palgrave Macmillan, 2003. ISBN: 1-4039-6717-2.
- Walker, Liz, et al. *Waiting to Happen: HIV/AIDS in South Africa: The Bigger Picture*. Lynne Rienner Publishers, 2004. ISBN: 1-5882-6263-4.

B. Internet resources

General

- U.S. Department of Health and Human Services—History of Pandemics: <http://www.pandemicflu.gov/general/>
- World Health Organization—Global Atlas of Infectious Diseases
<http://gamapserver.who.int/GlobalAtlas/home.asp>
- MedlinePlus (National Library of Medicine and the National Institutes of Health) <http://medlineplus.gov/>
- National Geographic Society
<http://www.nationalgeographic.com/>

1918 Influenza

- Influenza 1918: The Worst Epidemic the United States Has Ever Known...
<http://www.pbs.org/wgbh/amex/influenza/index.html>
- The Influenza Epidemic of 1918
<http://virus.stanford.edu/uda/333>
- Naval Historical Center—The Influenza Epidemic of 1918 <http://www.history.navy.mil/photos/events/ev-1910s/ev-1918/influenz.htm>

Avian Flu

- “Health Officials Prepare for Bird Flu Pandemic”
http://www.pbs.org/newshour/extra/features/july-decos/birdflu_10-12.html

Smallpox

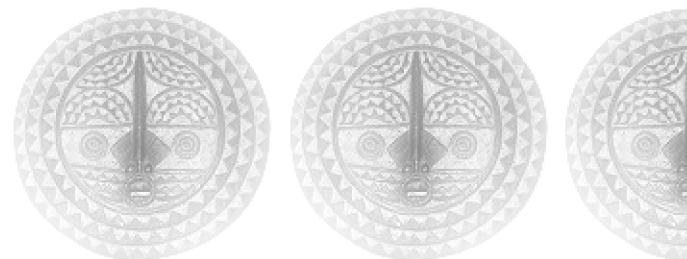
- Centers for Disease Control and Prevention—Smallpox <http://www.bt.cdc.gov/agent/smallpox>
- Smallpox: Eradicating the Scourge, by Collette Flight (BBC). Access at http://www.bbc.co.uk/history/discovery/medicine/smallpox_01.shtml

West Nile Virus

- Centers for Disease Control and Prevention—West Nile Virus: Fight the Bite!
<http://www.cdc.gov/ncidod/dvbid/westnile/index.htm>
- U.S. Food and Drug Administration—West Nile Virus
<http://www.fda.gov/oc/opacom/hottopics/westnile.html>
- National Institute of Allergy and Infectious Diseases—West Nile Virus <http://www.niaid.nih.gov/publications/wnile/default.htm>
- West Nile Fever <http://www.westnilefever.com/>

SARS

- World Health Organization—Severe Acute Respiratory Syndrome <http://www.who.int/csr/sars/en/>



Measles

- Hawaii State Department of Health—Fact Sheet
<http://www.hawaii.gov/health/family-child-health/contagious-disease/comm-disease/factsheet/measles.pdf>
- CDC: Morbidity and Mortality Weekly Report
<http://www.cdc.gov/mmwr/preview/mmwrhtml/00000455.htm>
- The CDC’s page on measles, including history of outbreaks <http://www.cdc.gov/nip/diseases/measles/default.htm>
- World Health Organization report on measles
<http://www.who.int/mediacentre/factsheets/fs286/en/>

AIDS

- AIDS Education Global Information System
<http://www.aegis.com/>
- Centers for Disease Control HIV/AIDS updates
<http://www.cdc.gov/hiv/dhap.htm>
- World Health Organization’s annual reports on AIDS
<http://www.who.int/hiv/epiupdates/en/index.html>
- World Health Organization’s page of links for additional information
http://www.who.int/topics/hiv_infections/en/
- Disease Control Priorities Project
<http://www.dcp2.org/pubs/DCP/18>
- Home page of an international AIDS charity
<http://www.avert.org>

The Plague

- National Park Service (The Bubonic Plague in the U.S. Today...)
http://www.nps.gov/public_health/inter/info/factsheets/fs_plague.htm
- The Internet Medieval Sourcebook—Late Medieval States and Society
<http://www.fordham.edu/halsall/sbook1w.html>

C. Media

Influenza 1918

- Secrets of the Dead IV: The Killer Flu (Item # SEDE742—PBS DVD) Available from
<http://teacher.shop.pbs.org/product/index.jsp?productId=1756741>

The Black Death

- Scourge of the Black Death (The History Channel DVD) Available from <http://www.libraryvideo.com>

AIDS

- Pandemic: Facing AIDS. (HBO DVD) Winner of the 2003 CINE Golden Eagle Award. Available from
<http://www.libraryvideo.com>

HANDOUT 1 ► P. 1 World Health Organization Conference Simulation: The History of Disease

Congratulations! You have been selected as an expert epidemiologist and historian to testify at a World Health Organization (WHO) conference on the history of pandemics and epidemics.

The information you present will benefit representatives of countries around the world who are planning strategies to deal with outbreaks of disease in the future. The organizers of the conference expect that you will have prepared the following prior to the conference:

- A Health-Alert Pamphlet to inform the country representatives about a specific disease that was considered a pandemic or epidemic at some point in history
- A presentation of information to the panel of country representatives highlighting the most important information about the disease

Rubrics for the final product and presentation are attached, but please read the descriptions below carefully.

The Health-Alert Pamphlet should include the following:

- Text and pictures that function together to communicate the information effectively
- Current research that demonstrates you know how to locate and evaluate Web and print resources
- Answers to these questions:
 1. What are the symptoms of this disease?
 2. Was the disease considered a pandemic or an epidemic?
 3. When and where was the disease most prevalent?
 4. Is the disease currently a threat? If yes, where? And, if yes, what plans and strategies are in place to prevent its spread?
 5. How have communities and countries reacted to the outbreak of the disease in the past?
 6. Has the treatment of, and reaction to, the disease changed over time? If yes, how?
 7. Has globalization changed the way we think about this disease? If yes, how?

The Presentation to the World Health Organization Conference should

- Highlight the most important information from your pamphlet.
- Be presented formally. (Use specific vocabulary and clear diction. Try to convey the interest and confidence you feel regarding your assigned topic.)
- Include visuals in addition to the pamphlet.
- Take 3–4 minutes.

HANDOUT 1 ▶ P. 2

Final Product Rubric— Health-Alert Pamphlet

	NEEDS IMPROVEMENT	FAIR	Good	EXCELLENT
CONTENT	The pamphlet does not adequately address the questions outlined in the assignment.	The pamphlet addresses some of the questions outlined in the assignment.	The pamphlet addresses the questions outlined in the assignment.	The pamphlet goes beyond the questions in the assignment and incorporates other useful and interesting information.
GRAPHICS/PICTURES	Graphics and pictures appear to have been chosen randomly and do not complement the text.	Graphics complement the text, but more graphics and pictures would have improved the pamphlet.	Graphics are sufficient and complement the text, but may distract the reader.	Graphics are well chosen to accompany the text and there is an appropriate balance of text and graphics.
SPELLING AND PROOFREADING	The pamphlet has more than 5 spelling and/or grammatical errors.	The pamphlet has 3–5 spelling and/or grammatical errors.	The pamphlet has 1–3 spelling and/or grammatical errors.	The pamphlet has no spelling or grammatical errors.
ORGANIZATION AND OVERALL PRESENTATION	The layout, formatting, and organization of the pamphlet are confusing to the reader.	The pamphlet is organized and communicates the important information through text and pictures.	The pamphlet is attractive and the organization serves to communicate the important information.	The publication looks professional in its content, organization, and use of graphics.

HANDOUT 1 ▶ P. 3 World Health Organization Presentation Rubric
Beat the Drum

Student Name/Group Name: _____

Date: _____

Topic: _____

	NEEDS IMPROVEMENT	FAIR	GOOD	EXCELLENT
CONTENT				
Introduction				
Main point				
Supporting details				
Organization				
Conclusion				
DELIVERY				
Eye contact				
Reliance on notes/outline				
Enthusiasm				
Clear diction and proper speech, appropriate vocabulary				
VISUAL AIDS				
Added value				
Clear and appealing				
LENGTH OF PRESENTATION				

HANDOUT 2 ▶ P. 1 Website Evaluation Checklist

Fill out this sheet for each website you use to research your Health-Alert Pamphlet. Answering the questions in each section will allow you to decide

- Which websites contain information within the **SCOPE** of your project.
- Which websites contain information that is **VALID** and **ACCURATE**.
- Which websites are written by an **AUTHORITATIVE** source.
- Which websites are free of unnecessary **BIAS**.

GENERAL INFORMATION		
Name of the website:		
Organization/Author:		
Date accessed:		
URL:		
SCOPE	YES	NO
Does this page contain information that will help you answer the questions outlined in the assignment?		
Is the information well organized—for example, with headings and subheadings?		
Does the site include text, graphics, and pictures that help the reader to understand?		
Is the language clear and understandable?		
Did the page refer you to other sources (Web, print, or other media) that were useful?		
VALIDITY AND ACCURACY		
Does the page contain information that is confirmed by one or more other sources you have looked at?		
When was the page created/last updated?		
Does the page contain information that you can recognize as incorrect or out of date?		
Does the page have a bibliography or works-cited page?		

HANDOUT 3

Research Rubric

	NEEDS IMPROVEMENT	FAIR	GOOD	EXCELLENT
COLLECTING INFORMATION	Student has located few materials to appropriately address the questions asked in the assignment. Student had difficulty designing and/or implementing an effective search strategy.	Student has located appropriate materials but has not expanded the search to include both print and Web resources. Some of the information found does not pertain to the topic and cannot help the student answer the questions.	Student has located and accessed several different sources, including both print and Web. Most information found relates directly to the questions asked of the student.	Student has located and accessed a variety of sources, both print and Web. Student demonstrated the ability to revise search strategies to find materials and has researched beyond the scope of the assignment.
EVALUATING SOURCES	The student has relied on sources that he or she has not evaluated. Some sources contain information that is not valid or accurate, or it contains significant bias.	The student has partially located and relied on sources that were evaluated for scope, validity, accuracy, and bias.	The student has attempted to evaluate all sources for scope, validity, accuracy, and bias. For the most part, the student's research is based on accurate information.	The student has successfully evaluated all sources for scope, validity, accuracy, and bias. The student has compared information from several different sources to further confirm validity.
EXTRACTING AND USING INFORMATION	The student was unable to access the relevant information within the sources he or she located.	The student has used one or two resources to answer the bulk of the questions. The student has pulled both relevant and irrelevant information from the sources he or she used.	The student has relied heavily on a few key resources, but has clearly consulted a wide variety of resources. He/she understands what information is helpful to answer the question, but has not synthesized information from various sources.	The student has successfully extracted and synthesized pertinent information from a variety of sources. The student is aware of what information supports his or her research.
CITING INFORMATION	The student has not followed the format for citations.	The student has followed the format for citations, but has made errors.	The student has followed the correct format for citations and most are done correctly.	The student has correctly cited all of his or her resources. No errors are evident.

HANDOUT 4

Final Product Rubric— Health-Alert Pamphlet

	NEEDS IMPROVEMENT	FAIR	Good	EXCELLENT
CONTENT	The pamphlet does not adequately address the questions outlined in the assignment.	The pamphlet addresses some of the questions outlined in the assignment.	The pamphlet addresses the questions outlined in the assignment.	The pamphlet goes beyond the questions in the assignment and incorporates other useful and interesting information.
GRAPHICS/PICTURES	Graphics and pictures appear to have been chosen randomly and do not complement the text.	Graphics complement the text, but more graphics and pictures would have improved the pamphlet.	Graphics are sufficient and complement the text, but may distract the reader.	Graphics are well chosen to accompany the text and there is an appropriate balance of text and graphics.
SPELLING AND PROOFREADING	The pamphlet has more than 5 spelling and/or grammatical errors.	The pamphlet has 3–5 spelling and/or grammatical errors.	The pamphlet has 1–3 spelling and/or grammatical errors.	The pamphlet has no spelling or grammatical errors.
ORGANIZATION AND OVERALL PRESENTATION	The layout, formatting, and organization of the pamphlet are confusing to the reader	The pamphlet is organized and communicates the important information through text and pictures.	The pamphlet is attractive and the organization serves to communicate the important information.	The publication looks professional in its content, organization, and use of graphics.