

The West: Infectious Disease

Grade Level: 6-8

Estimated Time

Three class periods: one for viewing the recommended video clips, present and discuss background information, and organize data about cholera; one class period to collect data on a selected communicable disease; one class period to write either a letter “home” from the wagon train, or a series of personal journal entries while on the wagon train describing their disease.

Correlation to National Standards

Curriculum Standards for Health (<http://www.mcrel.org>)

Grades 6-8

Content Standard 7:

- Knows how to maintain and promote personal health

Students will be able to demonstrate positive health practices and appropriate health care in an effort to reduce health risks

Students will be able to conclude that health is influenced by body systems working together

Content Standard 8:

- Knows essential concepts about the prevention and control of disease

Students will be able to recognize that pathogens and other risk factors are related to the cause or prevention of disease and other health problems

Students will be able to define communicable disease and understand how it progresses

Need specifics for this standard as you did for the science standard below. Is there only one health standard that is addressed by this lesson? It would be nice if you could squeeze out one more

Curriculum Standards for Science (National Science Content Standards)

[<http://www.nap.edu/readingroom/books/nses/html>]

Grades 5-8

Content Standard C:

- Structure and function of living systems

Students will be able to identify several organisms responsible for infectious disease

Students will be able to describe symptoms, progression, and treatment for various infectious diseases

Objectives

Students will be able to:

- Define infectious disease, re-emergence
- Describe symptoms, mode of transmission, and causes of the disease cholera
- Explain the destruction cholera had on the people living in and traveling through the West in the 1800's
- Compare the cholera outbreaks of the 1800's to the 1990's
- Examine the symptoms of, modes of transmission, and causes of several (selected) infectious diseases

Background Information

Throughout time disease has played a role in the lives and deaths of people. During the 1800's, there were a variety of diseases that found their way to this soil. Once here, diseases spread across the lands sparing no one. White man was responsible for

introducing several diseases to the Native American population. A disease of particular concern, cholera, wiped out 50% of the Northern Shyans and killed many others along the wagon trails. Cholera is an infectious disease transmitted through contaminated food and water. (for more information on cholera, go to

www.cdc.gov/ncido/dbmd/diseaseinfo/cholera)

Cholera, which had been almost completely wiped out, has re-emerged as an infectious disease in those countries where there exist deficient food regulations and/or water and sanitation systems are not maintained. (for the entire document surrounding re-emerging infectious diseases, go to www.who.int/inf-fs/en/fact097.html)

Materials

- Journals
- Video: The West Episode 3 “My share of the Rocks”(optional: printed dialog of William Swains letters)
www.pbs.org/weta/thewest/wpages/wpags100/w13_002.htm
- Blank white paper
- Cholera resource sheet: Centers for Disease Control and Prevention (www.cdc.gov/ncido/dbmd/diseaseinfo/cholera)
- Emerging and re-emerging infectious diseases resource sheet: World Health Organization (www.who.int/inf-fs/en/fact097.html)
- Several infectious disease resources (either from your media center or on line sources)
- Optional: computers
- Data collection paper for disease **Are you including this? I didn't see it. When you make it up, save it as a PDF file so the teacher can print it out. If you are not including this, you at least have to specify what you mean by a data collection sheet. What should be on this sheet? What data do you intend for students to collect?**

Procedure

Day One

1. Write the following journal prompt on the board or overhead; “Using a paragraph format, how would you describe the term infectious disease?”
2. Pair students: have them discuss their responses and come up with a definition of infectious disease to share with the class.
3. Write each definition of infectious disease on the board or overhead. (Edit as needed in order to get an appropriate definition)

*Definition from Disease “diseases caused by living organisms or pathogens such as bacteria or viruses. Infectious diseases can be either communicable or noncommunicable depending on their mode of transmission.” (Miner, Kathleen and Stang, Lucas, “Disease,” ETR Associates, 1994. p 7)

4. Show The West Episode 3, “My Share of the Rocks” [13:25-24:05] (This segment follows William Swain and his travels from NY to CA, along the journey, he documents the cholera outbreak he encountered along the wagon trail- before showing the video, cue students into listening to William Swain tell his ordeal with

the disease- he gives details on symptoms he experienced, and how he treated his ailment- the students final product will be to create a dialog just as William Swain - so be sure they pay particular attention to that dialog). **Can you include here the particular segment that the students would watch. To do this, put the tape in a machine with a counter and start from the beginning, note the beginning and ending segments of the particular part you want the teacher to use. This is vital in case the teacher can't use the whole film because of time constraints.** (Other segments that provide information/statistics of the cholera outbreak include: The Right of Conquest [48:20-49:15] (the very beginning), and The Great Emporium [1:11:14-1:11:20] (toward the end). **Same thing here for each of these segments.** William Swains writings are available on the PBS West web site as well in the archives:

www.pbs.org/weta/thewest/wpages/wpgs100/w13_002.htm

5. Hold a class discussion on cholera; ask students the following information about cholera (that they should have picked up from the video) write their responses on the board:
 1. Is cholera an infectious disease? How do you know?
 2. What are some symptoms of cholera?
 3. Is cholera a potentially fatal disease? Always?
 4. What conditions from the wagon trails or life during that time might lead to getting this disease?
 5. How do they treat this disease?
6. **Hand out the Cholera resource sheet** Centers for Disease Control and Prevention **Title of this site?** (www.cdc.gov/ncido/dbmd/diseaseinfo/cholera) repeat the questions, this time using the information sheet with the questions: add any new information on the board next to their previous answers. They should have a bit more data using the information from the resource sheet. Tell students that cholera was almost wiped out in the late 1800's and most of the 1900's.
7. Share with the class "What are re-emerging infectious diseases?" and the specific selection on cholera World Health Organization **Title of site?** (<http://www.who.int/inf-fs/en/fact097.html>).
8. Have students brainstorm what they think might cause a re-emergence of a particular disease...then have the entire class read the section "What causes emergence or re-emergence of infectious diseases?" Add any pieces of information that they may have previously overlooked.
9. Conclude today's session with a preview of tomorrow's "research" activity.

Day 2

1. As students enter class, give each student a slip of paper with the name of an infectious disease. This will be the disease they are responsible for researching. They should fill out the "data collection paper" for their disease. These are a few suggestions for gathering data:
 - 1) they can go to a computer lab and research on line resources for the information (some recommended sites include:
 - National Association for Public Health Statistics and Information Systems
www.naphsis.org

- Centers for Disease Control and Prevention
(www.cdc.gov/ncido/dbmd/diseaseinfo/cholera)
 - Intellihealth www.intelihealth.com
 - Health Finder www.healthfinder.gov
- 2) the entire class could spend a day in the school library
 - 3) you could go to the media center ahead of time and check out the books needed for the research and keep them in the classroom for this activity
2. As students finish their research, they may begin a rough draft of their final project.

Day 3

Students are to take the information from their research and write an article for a medical journal. Students should write the article from the prospective of a doctor who has been following the progression of their assigned disease in a fictitious patient. The article should be similar to the dialog recorded by William Swain from the wagon trails (optional: replay that segment of the video [13:25-24:05] **Give segment times again here**). The article should be written in the following format:

- An introduction of the disease researched, background information (populations effected, historical outbreaks, etc...), general data about disease (typical symptoms, progression, etc...nonspecific to the patient).
- A series of recorded visits with the patient. There should be at least three recorded “visits” with the patient, which should include the following: background data on the fictitious patient (age, gender, behaviors which may have put this individual at risk), dates of doctor visits, a daily observation (patient mood, general health, observations of symptoms etc...). This portion of the article should be written with a personal touch- NOT just restating the information from the data sheet). The entries should progress with the disease, through recovery/maintenance.
- Conclusion: discuss a recent outbreak of their infectious disease, where the outbreak occurred, what led to the outbreak, and how it was contained. Finally, they should predict where they believe the next outbreak may occur, why they believe this, and what they recommend be done in order to prevent the outbreak from happening.

Extension Activities

Younger students:

What are some infectious diseases they/people they know have had? What were some of the symptoms that they had with that illness? How did they treat it? What can be done to limit the outbreak of a particular infectious disease?

Students should create a disease prevention poster. This poster should include a “tip” on how to avoid getting or spreading an infectious disease. (for example, a person washing their hands with soap & warm water or someone covering their mouth as they sneeze)

Option: post their work in the school as reminders to other students and staff or create a class book.

Older Students:

- Using the web, **please include a couple of URLs that students can use** investigate epidemics from the past and present. Compare the past epidemics to current ones. Do any similarities exist? Are there any obvious differences. Create a class timeline of epidemics throughout history. Do any patterns emerge? How can collecting and organizing data like this help people?
Epidemics in US 1657-1918
www.geocities.com/Heartland/Plains/9467/epidemic.htm
Class 5: Some Historically Significant Epidemics www.botany.duke.edu
World Health Organization www.who.int/disease.outbreak-news
- Using the web, investigate the infectious disease Ebola. Compare the characteristics of this disease to that of Cholera. How are these two diseases similar? How are they different?
Centers for Disease Control and Prevention
www.cdc.gov/ncidod/dvrd/spb/mnpages/dispages/ebola.htm
World Health Organization www.who.int/inf-fs/en/fact103.html
- Tell students: You have been hired to get information to the public about Ebola; you must come up with a public education campaign that educates people about the disease. You have the difficult task of providing the facts without creating fear and panic. You may write a TV commercial, radio announcement, or billboard in order to complete this task. **This is a super idea! Very creative and gives the students options. Please include a couple of web links where students could go for information about Ebola. You could list these under the second bullet.**

Suggested Assessment:

- Journal entry should be evaluated on writing and content. Students should have a topic sentence, supporting data (facts), and a concluding sentence. Their writing should exhibit knowledge of the topic (infectious disease).
- Data collection paper should be evaluated on content **What content? You haven't specified what should be collected?**
- Final product should be evaluated on content (are all the facts **(again what facts should the teacher expect that the student will have found)** from the data collection paper included?), creativity (is it unique/personalized) and style (does it include all parts of the required format). See grading rubric for content at end. **This is fine but would be easier for the teacher to use if you put it at the end of the lesson so it can print out on a separate page. Also put it in a chart form i.e. characteristic format for all rubrics.**

Resources:

Print:

Miner, Kathleen and Stang, Lucas, "Disease," ETR Associates, 1994. p 7)

Online Sites

THE WEST <http://www.pbs.org/weta/thewest.htm>

Centers for Disease Control and Prevention www.cdc.gov/ncido/dbmd/diseaseinfo/cholera)

World Health Organization <http://www.who.int/inf-fs/en/fact097.html>).

Rubric for content of final product:

Introduction:			✓
	3	Includes name of disease, background information, and general data (facts) about disease	
	2	Includes name of disease, and either background information or general information about disease	
	1	Includes name of disease	
Dr. "Visits"			
	3	Includes 3 visits with the fictitious patient. Each visit includes factual information about the progression of the disease/treatment (from the data collection sheet)	
	2	Includes either: 3 visits with the fictitious patient (but missing a few facts from data collection sheet) or 2 visits with factual information from data collection sheet.	
	1	Includes 2 or 3 visits, but missing a significant amount of the factual information from the data collection sheet, or 1 visit with the factual information.	
Conclusion:			
	3	Includes recent outbreak of their disease, prediction of next outbreak, and proposal to avoid outbreak.	
	2	Includes only 2 of the above	
	1	Includes only 1 of the above	

Total points: / 9