

Teacher's Guide for MUSE

"Outbreaks"

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*Teacher Guide prepared by: Nancy I. Colamussi, Elementary Education, B.S., M.A.
Shoreham Wading River School District, Long Island, New York*

Teacher's Note:

This guide contains project ideas, short answer, extended response, fill-in, and true/false with correction. The variation is designed to have the students think critically, as well as to test their comprehension. An answer key to the short answer sections can be found at the end of the guide.

Extended Response: Comprehension & Critical Thinking

The questions below can be used as written, simply answered in complete sentences or easily transformed into longer essay (ELA) style questions, or even research topics. In any case, have the students support their answers with details from the text or use critical thinking skills to create a thorough and interesting answer. The questions, essays and projects have been aligned with the **Common Core Standards**. Consider the level of your students when deciding how to use the questions.

"Zombie Virus" p. 6-9

1. According to a study published by the American Society for Microbiology, approximately how many mammalian viruses are awaiting discovery?
2. Give at least one characteristic of each of these highly infectious diseases: rabies, Ebola, encephalitica lethargica.
3. Where and how would a zombie-like virus occur?
4. What method is responsible for spreading viruses most quickly?
5. What is necessary in order for a disease to become a pandemic?
6. Explain what specialists think would happen to society in a zombie-like virus outbreak? What do YOU think would happen?
7. What response did the Centers for Disease Control and Prevention receive when they released "Preparedness 101: Zombie Apocalypse" on their Public Health Matters blog.
8. Why did Dr. Ali Khan decide to use the above-mentioned approach to distribute information? Do you think this was an effective strategy?

"Super Sniffers" p. 10-11

Read the article in its entirety and then fill in the blanks. Refer back to the text if necessary.

1. Dogs have up to _____ times more scent receptors in their noses than the average human.
2. Some medical detection dogs work with doctors to help identify cancers. They do this by sniffing out volatile organic compounds; subtle _____ signals that our bodies emit in breath, urine, and sweat. Cancers change these odors.
3. _____ have shown a great talent for sniffing out tuberculosis. TB is an infectious, often fatal disease that affects the lungs.
4. HeroRATS are a nonprofit organization from _____ that is on a mission to eradicate tuberculosis from Sub-Saharan Africa.
5. After nine months of training, a TB-sniffing HeroRATs can evaluate more patients within 10 minutes than a human lab technician could in _____.

"The Godfather of Handwashing" p. 12-13

1. What was the groundbreaking discovery that Dr. Ignaz Semmelweis made at a hospital in Vienna in the mid-1800's?
2. How were germs being spread in Semmelweis' teaching hospital?
3. What two clues helped to solve the mystery of childbed fever?
4. What reaction did Semmelweis receive from his peers?
5. Why do you think that Semmelweis didn't receive recognition and died being thought of as a 'madman'?

"One Dreadful Record" p. 14-16

1. Explain the origin and spreading of the Ebola virus.
2. How can humans catch Ebola from bats?
3. What other animals can catch Ebola?
4. Why are viruses very difficult to treat?
5. How do vaccines for viruses work?
6. What is the current treatment for Ebola?
7. Explain the experimental treatments that have been tried to cure Ebola.
8. What have healthcare workers been focusing on, rather than just treating Ebola?
9. Why is it that most healthcare workers do not catch Ebola?
10. If it is easy to prevent Ebola, why have so many people gotten sick?
11. What evidence supports the hope that the epidemic will end soon?

"Craig Manning: Health Communications Specialist" p. 17-19

Match the term on the left with the correct definition on the right.

- | | |
|--|---|
| 1. _____ Anthropology | A. the government agency that responds to infectious, occupational, or environmental outbreaks and events. They also provide health education and are prepared to respond to all types of health threats. |
| 2. _____ Epidemiologists | B. the clinical term for 'bleeding' |
| 3. _____ Logistics | C. they test blood samples taken from people who are sick. |
| 4. _____ CDC
(Centers for Disease Control and Prevention) | D. the study of societies and cultures |
| 5. _____ Laboratory staff | E. these people communicate to doctors at hospitals and clinics about how to keep themselves and their patients safe. |
| 6. _____ Hospital infection control | F. these people are responsible for getting materials (protective gear, equipment) in and around each county. |
| 7. _____ Hemorrhage | G. these are health workers who study the patterns and causes of diseases. |

"The Case of Something I Ate" p. 22-25

1. How could Karen Niel, Epidemic Intelligence Service officer, be sure that a few scattered people with nasty stomachaches had anything in common?
2. What methods do investigators use to try to determine the cause of a food poisoning outbreak?
3. Explain the advantages and disadvantages of the open-ended method of questioning.
4. What is a 'case-control' study?
5. What is a 'kill step' in regards to an ingredient?
6. What step did the cookie dough company take to prevent a future outbreak of E.coli?

"Yellow Fever, Blue Death p. 30-32

Mark the following statements TRUE or FALSE. Provide the correct answer if false.

1. _____ In August 1793, Albany was the capital of the United States.
2. _____ Doctors prescribed cool drinks, wine, and opium-laced laudanum as people began falling ill a few blocks from the Delaware River. They even cut patients and let some blood drain out.
3. _____ Dr. Benjamin Rush, the most famous physician of all time, was the first to identify the disease as 'yellow fever'.

4. _____ Although yellow fever was a European disease, there had been outbreaks in the American colonies.
5. _____ To try to prevent yellow fever, people filled their houses with smoke sprinkled vinegar in their rooms and wore onions around their necks.
6. _____ Dr. John Snow was a physician who had studied previous cholera outbreaks. Unlike other doctors at the time, he thought that the disease was related to water, not bad air.
7. _____ Because of his research, Snow is considered "the father of modern epidemiology" - the study of the patterns and causes of diseases.
8. _____ Over several months, 5,000 people died, about 10 percent of Philadelphia's population.
9. _____ Cholera is very difficult to treat.
10. _____ Antibiotics don't kill viruses, but vaccines can prevent them.

Essay: *There are currently some very effective medications available for treating many deadly diseases. How can we, as a wealthy nation, do our part to be sure that distribution/delivery isn't an issue? How does such a plan help us all?*

"Sharon DeWitte" p. 34-35

1. What has Dr. Sharon DeWitte discovered that many victims of Black Death had in common?
2. What part of the cadavers is Dr. DeWitte studying to get such information?
3. What made people more vulnerable when the medieval outbreak struck?
4. What can this medieval outbreak teach us about handling modern plagues? What evidence have you seen of our society learning from the past in this regard?
5. How have climate changes historically affected the spread of containment of plagues?

ANSWER KEY

"Super Sniffers"

1. 60
2. chemical
3. rats
4. Belgium
5. a whole day

"Craig Manning"

1. D
2. G
3. F
4. A
5. C
6. E
7. B

"Yellow Fever"

1. False, Philadelphia
2. True
3. True
4. False, African
5. False, camphor around necks
6. True
7. True
8. True
9. False, easy to treat
10. True