

Pandemics Through History



Students Read About an Early Pandemic and Create a Timeline

FOR GRADES
3–5 6–8

OVERVIEW

This activity begins with a made-up story about life in and around Rome in the middle of the second century CE. (CE means Common Era. The first century CE began in the year 1.) The main character is an 8-year-old girl living on the outskirts of Rome. The story is set at the beginning of the Antonine Plague, one of the earliest known pandemics. After reading the story, students are challenged to make a timeline of historical pandemics to demonstrate that the current COVID-19 pandemic is not a one-of-a-kind event. Students will reflect upon the ways in which pandemics have shaped the development of scientific and public health knowledge, and the treatments that have resulted.

LEARNING OBJECTIVE

Students will compare past and modern pandemics by constructing a timeline.

SCIENCE, HEALTH AND MATH SKILLS

- Comparing and contrasting
- Interpreting

NGSS SCIENCE AND ENGINEERING PRACTICES

- Asking questions and defining problems
- Developing and using models

TIME

- Set Up: 10 minutes
- Activity: Two 45-minute classes

MATERIALS FOR SCIENCE INVESTIGATION

- Computer for internet searches
- Timeline Assignment student sheet (one copy per student or an electronic copy)
- Assorted supplies such as paper, markers, tape, etc
- Alternate computer with presentation software

PROCEDURE

ENGAGE

1. Begin the class by reading, or giving students the opportunity to read, the story “The Antonine Plague.”
2. After the story, ask, *How was the unknown illness brought to Livia’s town and family? Why do you think Livia’s parents, and her town, succumbed to the illness so quickly?* [Accept all responses. Consider the historical time.] *What are underlying conditions? How do underlying conditions affect a person’s response to disease? Why did Livia survive the pandemic?*

3. Explain that pandemics, which are disease outbreaks that affect people in multiple countries or continents at a time, are different from epidemics that occur in a local community or region. Pandemics have occurred many times throughout history, often with different diseases and separated from each other by many years. This is why the current pandemic seems like something new to many people. As a result, they don't know what to do, what to think, or what to believe. Unfortunately, lessons of the past are sometimes forgotten.
4. Tell the students they will learn more about past pandemics as they organize a timeline of historical occurrences.
5. Project the student Timeline Assignment .docx or provide the information to students. Explain that each student will research pandemics that have occurred throughout history. You, the teacher, may assign the number of pandemics to research, typically between 5 and 10. Read over the list of instructions detailing the information students should collect. You may decide on the format for the timeline. The timeline can be constructed out of paper and other common materials from around the house or it can be constructed on a computer using programs like PowerPoint.
6. The primary source for information for this project is the Internet. Students should use a search term such as "Pandemics in History." As with all Internet searches, more than one source should be used to confirm the accuracy of the information they gather. Students should select scientific or health sources from educational institutions (.edu), government sources (.gov), on-line encyclopedias, etc. Credits for the information must be given. Provide students with any school or school district guidelines or resources for safe searches on the Internet.
7. Assign the due date for completion and sharing of the timeline.

■ EXPLAIN

8. Upon completion, have students present their projects to the class and discuss interesting facts and discoveries they made about pandemics.
9. In a class discussion, compare different methods people used in pandemics to protect themselves from infection. *How far back can students trace the use of facial coverings as a preventative method? During what time period were new treatments used or vaccines introduced and developed?*
10. In a class discussion, compare different methods people used in pandemics to protect themselves from infection. *How far back can students trace the use of facial coverings as a preventative method? During what time period were new treatments used or vaccines introduced and developed?*

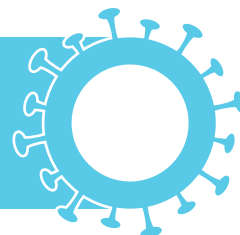
■ EXTEND

11. Student will not have identical pandemic lists. Organize all the different pandemics they identified into a class timeline for a broader perspective.

■ RESOURCES

- Centers for Disease Control and Prevention (CDC). Smallpox.
<https://www.cdc.gov/smallpox/index.html>.
- Centers for Disease Control and Prevention (CDC). Health Equity Considerations and Racial and Ethnic Minority Groups.
<https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/race-ethnicity.html>.
- World Health Organization (WHO). Q&A on Smallpox.
<https://www.who.int/news-room/q-a-detail/q-a-on-smallpox>.

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COVID HEALTHY ACTIONS, COMMUNITY KNOWLEDGE AND SCIENCE

■ A SCIENCE-BASED CURRICULUM FOR THE COVID-19 PANDEMIC

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- Author: **Dolores Garay**
- Web and Design Director: **Travis Kelleher**
- Copy Editor: **James Denk**
- Graphic Design: **Jose Chavero Rivera**
- Technical Reviewers: **Maria Rodriguez-Barradas, Stacey Rubin Rose**
- Project Director and Series Editor: **Nancy Moreno**

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Department of Education, Innovation and Technology
Baylor College of Medicine
One Baylor Plaza, BCM411
Houston, Texas 77030
713.798.8200 | 800.798.8244
bioedonline.org | edoutreach@bcm.edu

Pandemic Timeline Assignment



INSTRUCTIONS

1. Conduct research to identify historical pandemics using informational resources on the Internet or approved sources within your school.
2. Collect and be prepared to discuss the following information about each disease outbreak:
 - *When did the pandemic occur?* (dates)
 - *What were the effects of the pandemic?* (symptoms, places affected, lives lost)
 - *What protections or treatments were available to people at that time?*
 - *What are any other interesting or unique facts?*
3. Create a dated timeline of the events. (Your teacher will provide details about the format.)
4. Project due on the date assigned by the teacher.

Research

TABLE

QUESTIONS	ANSWERS
<i>When did the pandemic occur?</i> (dates)	
<i>What were the effects of the pandemic?</i> (symptoms, places affected, lives lost)	
<i>What protections or treatments were available to people at that time?</i>	
<i>What are any other interesting or unique facts?</i>	

Timeline

TABLE

DATE	PANDEMIC

Antonine Plague

Part One

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Livia overslept. It was something she almost never did. Usually, roosters in the village would wake her up. But not today. Today, they were quiet.

Livia began her morning routine. Her family jobs were to milk the goats, tend the chickens, and collect eggs.

Livia was eight years old. She lived with her mother and father in a small village several leagues from the outskirts of the great city of Rome.

However, she hardly knew her father. He was a soldier in the Roman army. He would be gone for years at a time fighting in campaigns to conquer foreign countries.

Roman military units, called legions, were known around the world. They invaded and occupied countries surrounding the Mediterranean Sea. They built the Roman Empire that stretched across Europe and parts of Africa and Asia.

Father had returned home the week before, injured during the winter siege of the Mesopotamian city of Seleucia.

Father needed rest. Unknown to him and like many other returning soldiers; he brought something home far more dangerous than battle scars.

As Livia began collecting eggs, she noticed several black plumes of smoke rising in the distance. Some of the village homes were burning and people, carrying bundles or pulling loaded carts, were starting to pass by.



Figure 1. Sculpture of Antoninus Pius, who was Roman emperor from 138-161 CE (Common Era). The Antonine Plague took place after his reign. This marble sculpture is housed in the Prado Museum, Madrid, Spain, and was sculpted in about 140 CE.

Livia ran back to the house to tell her mother, but her mother ordered her to stay back. “Don’t come in!” Livia came in anyway.

She stopped when she saw her mother’s face. It was spotted and had several whitish bumps filled with pus (pustules). There were more on her neck and chest. Father had them too. He was too weak to speak.

Her mother told Livia to stay away. She ordered Livia to leave the village and find someplace else to live. Livia realized her parents were very sick and dying. Reluctantly, she packed a few things.

As Livia and her mother said their good-byes, Livia turned and left. Mother watched her go and then closed her teary eyes. She saw that Livia had a pustule on her shoulder.

Part Two



Livia and her family lived during the second century CE (Common Era). The Common Era began in the year 1. Her father returned from the Mesopotamian wars to rest and heal in the year 165 CE.

The disease he acquired, in Mesopotamia and brought home, was something that Romans had never experienced before. With no resistance to the unknown disease, Romans were susceptible to its worst effects. The disease spread rapidly.

While the story you just read was made up, the events described are true. A new, devastating disease was brought home by the returning Roman legions. It is estimated that as many as five million people died from the disease's effects over the next several decades.

Scholars are not exactly sure what disease the soldiers carried home, but the disease, spread over several countries, was one of the earliest known pandemics. It has since been called the Antonine Plague.

An epidemic is a disease that spreads quickly and affects many people at the same time within a small region or a country. A pandemic is a widespread epidemic affecting not just one region or country but multiple countries in different parts of the world.

People of that time had no idea what caused disease. The germ theory, discovered much later, led to vaccines and other treatments that have saved countless lives.

Scholars do suggest that the most likely culprit for this pandemic was smallpox. Smallpox is a deadly disease that produced rashes, fever and pus-filled bumps that appeared all over the body.

In Rome, it was estimated that smallpox caused the deaths of up to 30 percent of the people who caught it. Smallpox was far more dangerous than the COVID-19 pandemic we are facing now. Like COVID-19, smallpox is caused by a virus. Thanks to vaccines, smallpox no longer occurs naturally. There have been no cases of smallpox infection since the World Health Organization declared the disease eradicated in 1980. Two secure research laboratories have the only remaining stocks of smallpox virus in the world.

COVID-19 has not been eradicated, but scientists and pharmaceutical companies worldwide are working on new vaccines to fight the pandemic. Until they do, wearing masks or facial coverings, physical distancing, and frequent hand washing (always a good idea) are our best defenses.

In case you are wondering about Livia in our story, she was one of the survivors of the pandemic. She was healthy and was able to recover. Smallpox was hard on her, but she was strong and defeated it. Different viruses can cause different types of diseases and can be more serious or even deadly in certain groups of people. In the case of COVID-19, the groups most at risk of dying from the disease include the elderly and those with other health conditions, such as lung or heart disease, diabetes, or a weakened immune system.

There are also social and economic factors that impact the spread of disease. With COVID-19, racial and ethnic minorities have a higher risk of getting sick. Scientists and public health specialists are trying to learn more about the social determinants of health (such as poverty and housing) that may contribute to these inequities. Scientists are also working to develop vaccines to prevent sickness and death from the virus that causes COVID-19, just as vaccines were able to stop the spread of smallpox.





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Antonine Plague

Authors: **Dolores Garay, Gregory Vogt**

Web and Design Director: **Travis Kelleher**

Graphic Design: **Jose Chavero Rivera**

Copy Editor: **James Denk**

Project Director and Series Editor: **Nancy Moreno**

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Department of Education, Innovation and Technology
Baylor College of Medicine
One Baylor Plaza, BCM411
Houston, Texas 77030
713.798.8200 | 800.798.8244
bioedonline.org | edoutreach@bcm.edu