
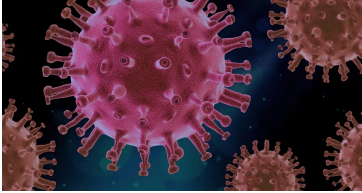

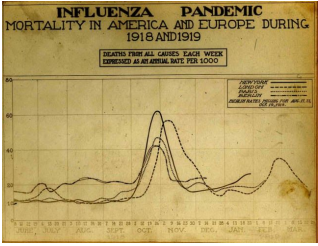


MIDDLE SCHOOL UNIT STORYLINE

How can people help end pandemics?

How students will engage with each of the phenomena



Lesson question	Phenomena or design problem	What we do and figure out	Social Emotional Learning
<p>Lesson 1 2 days</p> <p>How have our lives changed because of COVID-19?</p> <p>Anchoring phenomenon</p> 	 <p><i>Students share what has changed for them, friends, family, and other people due to the COVID-19 pandemic and construct a timeline of events.</i></p>	<p>We discuss as a group the changes in our lives and the lives of other people. We develop a timeline of what has happened in our area, the country, and the world since the pandemic began. We add personal events to this timeline at home. We discuss our timeline and realize one of the most important events is missing: how the pandemic ends. We develop a Driving Question Board with our questions about the COVID-19 pandemic and how it will end. We realize that this is not the first pandemic that has ever happened, and after watching a video we realize that we might be able to learn useful information from other pandemics.</p>	<p>Students answer prompts to reflect on how both their and others' lives have changed because of the COVID-19 pandemic. Students will be invited to consider how specific groups of people - friends, family, and strangers, both nearby and far away - have also been affected by COVID-19.</p>
<p>↓ Navigation to the next lesson: We wonder what we could learn from other pandemics in history? Would they help us figure out how this is all going to end?</p>			
<p>Lesson 2 2 days</p> <p>How can past pandemics help us learn about the COVID-19 pandemic?</p> <p>Investigation</p> 	 <p><small>Image: courtesy of the National Museum of Health and Medicine</small></p> <p><i>Students read case studies of past pandemics and epidemics.</i></p>	<p>We share what we know about COVID-19. Then based on what we know, we brainstorm a list of criteria that we could use to compare epidemics and pandemics from the past to the COVID-19 pandemic to help us think about how the COVID-19 pandemic might end. We analyze information about past epidemics and pandemics and then look across the different cases. We find out that the 1918 influenza pandemic symptoms were similar to COVID-19 and the virus caused a lot of cases of illness and death and affected people worldwide. We also learn that communities responded to the pandemic by asking citizens to wear masks and closing schools and businesses. Based on these criteria, we argue that the 1918 influenza pandemic is most relevant as we try to determine how the COVID-19 pandemic will end. Then, we consider people's experiences during the 1918 flu and journal about our own.</p>	<p>Students will compare their experiences, thoughts, and emotions to an imagined person of their same age from the 1918 influenza pandemic. They will be prompted to identify the emotions (self awareness) they feel while hearing the stories of individuals who experienced the 1918 influenza pandemic and be asked to reflect how the different experiences connect with or are different than their own (social awareness).</p>
<p>↓ Navigation to the next lesson: Now that we have spent some time considering and writing about our own experiences and the experiences of others in what we think is a similar time - the 1918 influenza pandemic. We wonder if looking back at the 1918 flu more closely would give us some information about what to expect moving forward and to help us understand even more about the COVID-19 pandemic.</p>			

Lesson 3

2 days

What can we learn from how the 1918 influenza pandemic ended?

Investigation



Otis Historical Archives, National Museum of Health and Medicine

Students create a timeline of the 1918 influenza pandemic and then explore data about strategies for ending the pandemic when people didn't even know what was making them sick.

We make a timeline of the 1918 influenza pandemic like the timeline we have for the COVID-19 pandemic. We figure out some major things happened during the 1918 pandemic - including many people died, there were multiple waves of the pandemic, people didn't know what was making them sick, and a lot of social changes arose during this time. We read about what people did to try to end the pandemic and see some similar strategies to what happened during the COVID-19 pandemic like social distancing and masks. We noticed that the pandemic seemed to end in 1920 and we wonder how it could just end without treatments or vaccines. We read an article and realize that the pandemic didn't really end. It became less dangerous and still comes back during some flu seasons today. We decide to start tracking as a class the ways we might know that a pandemic is over.

Students will return to their journals with an opportunity to reflect on how they feel about gatherings being limited in the pandemic. They will also be prompted to reflect on how cultural assets, their relationships, and technological tools have helped support them in this time.

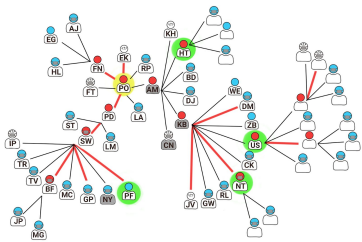
↓ **Navigation to the next lesson:** In 1918, scientists and doctors didn't know what was causing people to get sick, they did not have any specific treatments, or a vaccine. They tried masks and distancing, but how do you even know that people are getting each other sick? Let us back up and see if we can follow one person and figure out how they might have gotten sick.

Lesson 4

2 days

How did people figure out how to flatten the curve if they did not know what was making people sick?

Investigation



Students work with a card-based contact tracking simulation to figure out how the COVID-19 virus spreads through a group of people.

We realize that we have a lot more technology during the COVID-19 pandemic than we had during the 1918 pandemic. We wonder how they figured out how to recommend effective guidelines to slow the spread of disease when they knew so little about what they were fighting. Comparing information about individuals (e.g., their jobs, who they interacted with, mask wearing) who were exposed to the disease and seeing different individual outcomes could help us understand how the disease is transmitted in order to recommend effective guidelines to reduce transmission. We engage in a simulation to experience contact tracing. Patterns emerge that can be used as evidence to support ideas about the mechanism of disease transmission, allowing for the proposal of practices to reduce transmission. We compare the assumptions made in the contact tracing activity to the actual data about contact tracing during COVID-19 pandemic and notice that there are a number of people who do not want to participate in contact tracing. Students read an article about privacy laws and the lack of trust people have with providing their personal information.

In their journals, students choose a prompt to respond to that supports them in reflecting on their experiences with the contact tracing activity and how the lack of trust in sharing information with other people, companies, institutions, and governments impacts our ability to slow the spread of the COVID-19 virus.

↓ **Navigation to the next lesson:** We figure out some ways to slow the spread of a virus but we still need to figure out how that virus is getting from one person to another. How did we get the virus? How does it get into us? Out of us?

Lesson 5

2 days

How does the virus get from person to person?

Investigation

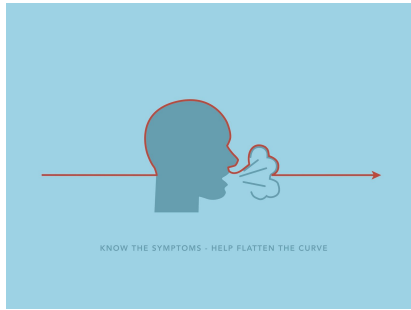


Image created by Jack Adamson. Submitted for United Nations Global Call Out To Creatives - help stop the spread of COVID-19.

Students plan and carry out an investigation about how far virus-carrying droplets can travel between people.

We read about how a person can get infected when the COVID-19 virus gets inside their body. We wonder how that virus then gets into someone else's body. We zoom in on someone coughing or sneezing and see what stuff leaves their body - we learn these are respiratory droplets. We develop a model of how the virus spreads from person to person. We wonder if these droplets can stay up in the air and how far they travel from person to person. We plan and carry out an investigation to figure out how far droplets can travel - how far people need to be away from each other to stay safe. We have a Building Understanding Discussion and update our model.

Students can complete optional prompts reflecting on how our decisions matter because they impact us and others and that means that we have a responsibility to our community to keep each other healthy.

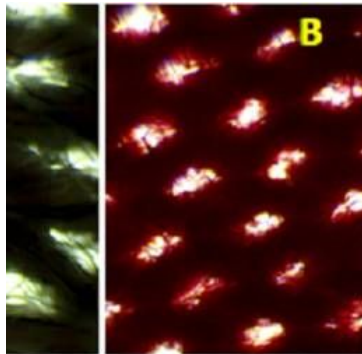
↓ **Navigation to the next lesson:** How can people protect themselves when these droplets, which we know can carry the virus between people, can travel so far? We think when people cannot stay home they should wear a mask so that droplets from other people's bodies do not get into theirs and so that droplets do not leave people's bodies. But droplets are really small, do masks work to block them?

Lesson 6

1 day

How do masks work to block the droplets coming from our bodies when we sneeze, cough, and talk?

Investigation



Neupane, Mainali, Sharma, & Giri (2019)

Students plan and conduct an investigation to test if and how masks work to block virus-carrying droplets.

We plan an investigation to test if face coverings, like the masks that many people are wearing during the pandemic, work to block droplets like those that come from our bodies when we sneeze, cough, or talk. When we compare our results with those from scientists, we learn that masks help to block many of these droplets. We also learn that different types of masks block different numbers of droplets depending on the masks' materials and structures. We model how these masks work at a zoomed-in level to show how some droplets are still able to go through while others are blocked. Lastly, we reflect on scientists' recommendations that all people wear masks when they're going to be near others.

In this lesson, students can complete optional prompts reflecting on the idea of mask mandates as a solution for keeping people safe and whether or not those types of mandates are fair for everyone.

↓ **Navigation to the next lesson:** We can see how the COVID-19 virus can spread from person to person. How does that work in a whole community? How can we protect our community and make our community safe?

