Table 1

Lesson number Lesson question Duration	What students explore	What students do and figure out
Lesson 1 How did the COVID-19 virus impact people in the first 12 months? 135 min	Students share their own stories of the pandemic. Then, they investigate and analyze COVID-19 case data from three areas of the United States with different experiences of the pandemic.	We figure out that the spread of the COVID-19 virus impacts Black, Hispanic or Latinx, and Indigenous People disproportionately more than White and Asian people throughout the United States.
Navigation to next lesson: We have some ideas about what might impact the spread of the COVID-19 virus. Now, we wonder: How does the virus spread from person to person? What causes people to get sick?		
Lesson 2 How does the COVID-19 virus spread from person to person? 90 min	Students engage in contact tracing by analyzing patient charts of people with COVID-19 infections and revising a model for how it transmits person-to-person. Students deepen understanding through content area extensions.	We figure out that the virus spreads from person to person in respiratory droplets and that we can model this from a life science, physical science, or earth science perspective.
Navigation to next lesson: Now that we understand how the virus is transmitted, we wonder: How well do the strategies for slowing or stopping the spread of the virus work?		
Lesson 3 How do we slow the COVID-19 virus and other viruses spreading from person to person? 45 min	Students explore how different strategies for slowing transmission lower the probability that the virus will spread person-to-person. Students plan a simulation for investigating community transmission.	We figure out that a combination of mitigation strategies lowers the risk of transmission, knowing that not everyone in a community can or will use these strategies.
Navigation to next lesson: We figured out that strategies to slow the spread of the virus should work, but efficacy depends on how many people are following each strategy, how many people are together, and other factors that could affect the probability of transmission when using each strategy. We brainstorm ways that a simulation could help us figure out how strategies and behavior impact the spread.		
Lesson 4 How can the COVID-19 virus spread in a community? 90 min	Students use simulations to collect data on community transmission and COVID-19 cases given the implementation of public health measures. Students analyze data to refine a model for community transmission and mitigation.	We figure out that cases of COVID-19 grow at an increasing rate through communities unless those communities put into place strategies to slow the spread of the virus. When they implement these strategies, the number of cases in communities grows at lower rates until the number of cases stays nearly the same.
Navigation to next lesson: Our simulations show that implementing strategies to prevent the spread of the COVID-19 virus should bring the number of cases down over time before eventually flattening out. However, we know from experience that this didn't happen in the United States. What did happen?		

Lesson 5 How have mitigation strategies impacted the spread of the COVID-19 virus in real communities? 45 min	Students explore real-world data of Covid-19 case counts in the three communities being investigated to see what happened to the number of cases when public health measures were put into place and relaxed.	We figure out that some communities were able to slow the spread with mitigation strategies, but then all the communities experienced an increase in cases. We see that COVID-19 cases decreased when communities used strategies such as social distancing and requiring masks or when vaccinations were introduced and increased when the strategies were removed.
Navigation to next lesson: We reflected on the ways in which information and misinformation spread and how that could impact the spread of the COVID-19 virus. We wonder how this and other factors impact how people experience pandemics.		
Lesson 6 What impacts how people experience a pandemic? 135 min	Students investigate data and other sources of information to consider how information spread throughout a community can affect the response to and experience of the pandemic. Students develop a conceptual model for how misinformation and other community factors, like investment and disinvestment in communities, adds up to greater threat and less protection for people in those communities.	We figure out that misinformation is one example of investment and disinvestment in communities. Over time, investments add up and lead to greater protections for the community during an emergency like a pandemic, while disinvestments add up and lead to fewer protections for the community during that same emergency.
Navigation to next lesson: What has happened in past pandemics? We wonder what we can learn from historical pandemics about how pandemics end.		
Lesson 7 How can a pandemic end? 90 min	Students explore video and article resources to answer their own questions about how a pandemic ends, investigating the role of vaccines and herd immunity in particular.	We figure out that pandemics do not end suddenly. Instead, over time there is a gradual change in how the virus is impacting communities due to the use of mitigation strategies, vaccines, viral mutation, the percent of the population that was infected and recovered or died, and other factors.