HIGH SCHOOL COVID-19 UNIT STORYLINE

How can we slow the spread of the COVID-19 virus to protect our communities?

How students will engage with each of the phenomena

HANDS-ON/ LAB ACTIVITIES | VIDEOS OR IMAGES | DATA SETS | READINGS | COMPUTER INTERACTIVES

Lesson question	Phenomena or design problem	What we do and figure out	Social Emotional Learning
Lesson 1 4 days **How has the COVID-19 virus impacted people in different communities?** Anchoring phenomenon	**Community Data for COVID-19 Cases** Community | Confirmed COVID-19 cases from March to July (data from 7/22/20) | Case/person (Percent positive cases in the population) Pilsen (Chicago) | 1944 people | 2.4% South Shore (Chicago) | 935 people | 2.0% Lincoln Park (Chicago) | 363 people | 0.5% Newton County (Indiana) | 104 people | 0.7% Lake County (Indiana) | 6590 people | 1.3% Porter County (Indiana) | 1012 people | 0.6% *Students investigate and then analyze COVID-19 case data and other data from six communities in Chicago and NW Indiana.*	We share the impacts we felt from the COVID-19 virus. Then we brainstorm why the virus impacts different communities differently. We analyze data from different communities and notice the virus is spreading differently through these communities. We look at more data to try to figure out which factors may be influencing the difference in the spread of the COVID-19 virus. We hear stories from members of these communities and look at how the COVID-19 virus is affecting their communities. We find out that the virus is impacting Black, Hispanic or Latinx, and Indigenous people disproportionately more than White and Asian people throughout the United States. We wonder how systemic inequities contribute to the disproportionate spread of the COVID-19 virus.	Students share how the COVID-19 virus has impacted their life. They will respond to a series of prompts to identify the emotions they feel while hearing stories of COVID-19 impacts in Chicago (self awareness) and reflect on how it might feel to be those people sharing their stories (social awareness). In the last SEL prompt, students reflect on how hearing a different perspective might change their own perspective (social awareness).
⇓ **Navigation to the next lesson:** We have some ideas for what causes the COVID-19 virus to spread through communities. We think it has to do with people being closer to each other, not wearing masks, not staying home, or not going to the doctor if they're sick, but we're not sure exactly how the virus spreads. We have some questions: How do people get the virus? How does the virus spread from person to person?			
Lesson 2 2 days **How does the COVID-19 virus spread from person to person?** Investigation	**Patient A** Demographic Data — Today's Date: May 20 Patient Name: [redacted] Age: 36 | Height: 5'6 | Weight: 145 lbs Biological Sex: F | Gender: X | Race/Ethnicity: Non Hispanic White Vital Signs Temperature: 96°F | Heart Rate: 75 BPM | Blood Pressure: 120/80 mmHg O_2 saturation: 99% Medical History Allergic to latex Non smoker Active 5 days a week Symptoms none Summary/Notes Went to a social gathering May 10 and someone there has since tested positive Works from home Diagnosis/Treatment COVID-19 test administered, Results: positive Patient released *Students analyze patient charts of people with COVID-19 infections.*	We decide we need to know more about the virus and the disease it causes to slow its spread. We brainstorm what we know about symptoms of COVID-19. We analyze patient charts to find patterns in symptoms and use the patterns in symptoms to generate ideas about transmission. We develop initial models to explain the relationship between symptoms and transmission. We watch two short videos to help us understand respiratory droplets and their role in the transmission of the virus. We update our models, reflect on our role in slowing the spread of the virus, and discuss next steps.	Students respond to a prompt about what steps they can take personally to prevent the spread of the COVID-19 virus to protect themselves and others.
⇓ **Navigation to the next lesson:** In this lesson, we figured out how the COVID-19 virus is transmitted person to person through respiratory droplets and we wonder, *Now that we've figured out how transmission works, what are some ways individuals and/or communities have attempted to slow or stop the spread and how effective are these measures?*			

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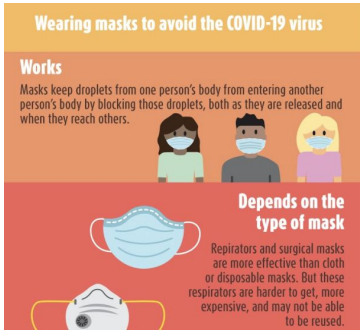
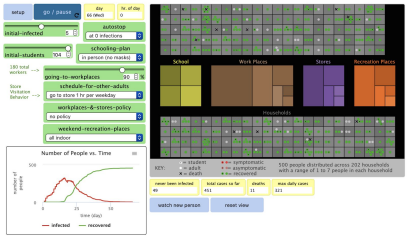
Lesson 3 1 day **How can we slow the virus from spreading person to person?** Investigation	 *Students explore how different strategies for slowing transmission lower the probability that the virus will spread.*	Using infographics about several of these strategies, we see that each strategy lowers the probability that the virus will spread from person to person compared to the probability if people interact without using any of the strategies. In particular, we identify wearing masks and social distancing as two effective strategies that lower the chance that the virus will spread between people. We use the probabilities of the virus spreading when using each strategy to calculate that using multiple strategies lowers the risk of transmission even further. But, we know that not everyone in a community will or even can use these strategies. So, we plan out how we could use a simulation to see how implementing these strategies could reduce the spread of the virus in a community, including when not everyone in the community is able to use all the strategies.	Students will be prompted to analyze and compare actions that they can take to measurably change the likelihood that they and other members of their community become infected with COVID-19. They will also reflect on how others, with different perspectives, resources, and access, have to consider different factors when making those decisions.
⇓ **Navigation to the next lesson:** We figured out there are a few ways to effectively stop the spread of the virus, 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 this out and plan to use a simulation of these different situations.			
Lesson 4 2 days **How does the virus spread or not spread in a community?** Investigation	 *Students use simulations to collect data and analyze what would happen to COVID-19 cases given the implementation of public health measures.*	Using simulations, we see that cases of COVID-19 grow at an increasing rate through communities unless they 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 - this is called "flattening the curve". After seeing this pattern in our simulations, we decide we want to see what the case curves look like for real communities to see if they track with our predictions.	Students will be prompted to reflect on how the outcomes of the simulations make them feel, what steps they might take to increase the implementation of strategies to slow the spread of the virus, and why these strategies are important if there are people, such as people working in jobs that are deemed essential, who cannot adopt each strategy all of the time.
⇓ **Navigation to the 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. We ask, "How have strategies to slow the spread of the COVID-19 virus changed how the virus has spread in real communities?"			

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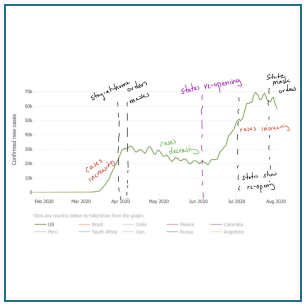
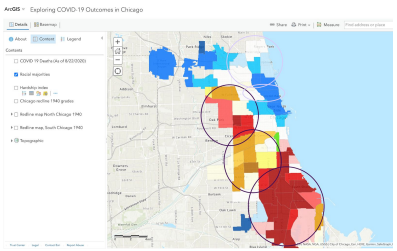
Lesson 5 1 day **How have strategies to slow the spread of the COVID-19 virus changed how the virus has spread in real communities?** Investigation	 *Students explore data to see what happened to the number of cases when public health measures were put into place and relaxed.*	We compare patterns in a graph of the spread of the COVID-19 virus in the United States and the curve we saw in our simulation and find that the United States managed to slow the spread of the virus but then experienced a resurgence in cases. By lining up this graph with information on when communities implemented and removed strategies to slow the spread, we saw that the number of COVID-19 cases decreased when communities used these strategies and increased when the strategies were removed. This led us to wonder why the number of cases did not decrease similarly in some communities, like those we read about in Lesson 1, even though those communities tried to implement similar strategies.	Students are prompted to consider why strategies to slow the spread of the COVID-19 virus have not led to universal decreases in cases across different communities. Students take the perspectives of those living in impacted communities and consider the issues of equity and access that could affect how effectively a community could implement these strategies.
⇓ **Navigation to the next lesson:** In our simulation and in the US data, we saw that the number of cases decreased when we implemented strategies to slow the spread of the virus. But despite those strategies, we saw that some communities, especially those with more People of Color, were impacted more by the COVID-19 virus. We ask what might be causing this difference and how could we investigate it further.			
Lesson 6 3 days **Why has the spread of the COVID-19 virus not slowed in all communities?** Investigation	 *Students explore maps of Chicago and make connections between COVID-19 deaths, racial majority groups by zip code, the hardship index.*	We wonder why the number of cases didn't decrease similarly in some communities, like those we read about in Lesson 1. We examine maps of Chicago that show data for the deaths from COVID-19, the racial majorities in each zip code, the hardship index in each zip code as a proxy for economic conditions, and we see that the areas with higher deaths from COVID-19 are also areas with high racial and ethnic majorities of Black and Hispanic/Latinx populations and a higher hardship index, indicating difficult economic conditions. From here, we wonder why we are seeing these patterns and explore how historical and current policies rooted in racism affect the disinvestment we see in communities today. We develop a class explanatory model of how segregation and disinvestment contributed to the impacts of the COVID-19 virus on communities. Finally, we explore how communities are taking action and what actions we can take.	As students are analyzing maps in this lesson, they will complete Notice-Wonder-Feel charts in order to reflect on how looking at these data makes them feel. Examining the impacts of systemic inequities on COVID-19 cases and deaths can bring up emotional responses for everyone and these embedded SEL moments help to honor and support that.
⇓ Navigation to the next lesson: (Optional) In order to protect our communities fully, the pandemic will need to end. We explore the ways in which the COVID-19 pandemic could end. In the culminating lesson, we come together as a class for a public health forum to discuss how everything we've learned about protecting our communities from the COVID-19 virus could help us prepare for a future pandemic.			