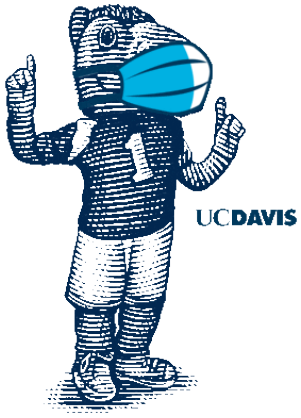
Aggie Public Health Ambassadors



Public Health Education for Schools

Grades 4-12

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UC Davis Aggie Public Health Ambassador Program

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4th – 6th Grade
COVID-19 Pandemic Script

[1]
Hi, I'm Brad Pollock.

I'm going to talk to you today about the COVID-19 pandemic.

I'm actually an epidemiologist.

[2]
Epidemiologists are kind of disease detectives.

The word epidemiology comes from the derivative of epidemic, which means to have a disease upon the people.

We do a lot of work that investigate what's going on with diseases, illness, and health in populations.

That's different than medical doctors who are typically going to treat patients and diagnose patients.

We don't talk about patients. We talk about people in the population.

[3]
Emerging infectious diseases are those that happen out of nowhere; so suddenly you see a big increase, and it affects a lot of people.

Sometimes you'll see an increase in deaths.

Sometimes you'll see an increase in people showing up at the hospital or people that get very sick. Usually when they say emerging, it means it happens over a relatively fixed period of time.

Sometimes it can be very quick, sometimes it can be over the course of 10 or 20 years, but clearly with this, the current COVID-19 pandemic, this happened very, very quickly.

The other thing about emerging infectious diseases is generally they don't know anything about national boundaries.

A disease that crops up in China can easily go and spread to places like Italy, the United States, and all around the world.

[4]
This is a map that was actually drawn up by Dr. Anthony Fauci. You may have seen him on TV.

He works at the National Institutes of Health. He's the director of one of the institutes there.

He drew a map of the world for a presentation that he gave to Congress, a number of years ago, which showed notable infectious diseases that emerged during his job at the NIH. It's really interesting because you'll see on this map there's a couple of these diseases that cropped up during his time as being the director of the NIAID.

One of them was called SARS. That was the original SARS virus, and then there was one called MERS, which was related to (these are both coronaviruses), and right now we're dealing with the SARS-CoV-2 pandemic. It shows you that these can emerge over time, and all of these were ones that emerged during his time on the job at the NIH.

[5]
Let's talk about some definitions here.

One is outbreaks.

An outbreak is a greater than expected increase in the number of endemic cases. If it's not controlled quickly, an outbreak can become a pandemic or an epidemic actually.

Endemic means the normal level of disease in the population. Epidemic means you've got something going on.

Epidemic is defined as, disease that affects many people in the community, in a population, or a whole region.

It's where you have a number of new cases that really exceeds what you would expect. That's called an epidemic.

A pandemic is just a special kind of epidemic that occurs worldwide, where it's spread over a much wider area of the globe, multiple countries.

In this particular pandemic that we're dealing with, the World Health Organization didn't declare a pandemic until a couple of months after we were pretty clear that it had spread across multiple countries.

So, they were a little late to define that.

[6]
This is a map taken just really two days ago of where the new cases have occurred. You can see it's all over the globe, but the places really affected are the United States, Brazil, South America, parts of China, India, Central Europe, and in particular Western Europe got really hit hard (they're still being hit hard by this pandemic).

[7]
I want to talk a little bit about how the coronaviruses work, how the virus is spread to other people, and what you do to protect yourselves. That's something that is also being discussed in some other videos.

[8]
What's a virus? A virus is a smallest type of parasite that's known to exist. The SARS-CoV-2 virus in particular is really small.

It ranges between 50 and 200 nanometers. Those are very, very small units.

They're typically not considered to be living things, and the reason is that a virus by itself cannot reproduce.

To define something as a living thing, it has to have the ability to reproduce.

So, viruses cannot reproduce on their own. They have to infect another animal, or even a plant (because there's plant viruses) in order to reproduce.

They have to use the cellular machinery of a plant or animal in order for the viruses to replicate themselves and to spread.

[9]
The SARS-CoV-2 virus is the one that causes this coronavirus, and it was discovered in 2019. That's why it's called COVID-19.

SARS stands for Severe Acute Respiratory Distress Syndrome and we've had other types of viruses like this.

We had the original SARS epidemic that happened back about 20 some odd years ago. These are viruses that spread very easily from person to person.

The SARS-CoV-2 virus spreads incredibly efficiently between people and unfortunately, there's no natural immunity in humans, so we're all susceptible to getting infected and possibly getting sick.

[10]
The virus itself, as I said, is highly infectious.

In less than a year, it's killed more than 550,000 Americans. That is really devastating. The primary way it's spread is by infected individuals who emit droplets. The droplets contain virus, and if they're actually emitted in an area where there are people that have not been exposed to the virus before, they're considered to be susceptible, they can ingest those viral particles, so a lot of times you can emit these by sneezing or coughing.

We found out that loud talking and even singing and yelling were ways to transmit the virus through your upper respiratory tract into the air, and if you emit those little viral, those little droplets that contain virus inside of them, they can be picked up by other people and ingested directly into their airways, so they pick them up that way.

[11]
The incubation period, which we talk about for viruses, is the time between when the virus enters your body and when you become fully infected, and for this virus, it's about five days.

It's also interesting that about 99 percent of people who do get infected will no longer be infectious within 14 days.

That's why they originally were using a 14-day period of time to quarantine and isolate people because we knew that for the vast majority of people that if they were infected, they could no longer be infectious when you got past that two-week mark.

Unfortunately for this virus, about 30 percent of people who get infected will remain without any symptoms at all.

We call those asymptomatic individuals. There's another 20 percent of the population who get infected, who can shed the virus in the days before they do develop symptoms and that's what we call the pre-symptomatic phase.

That means if you look at the 30 percent that are what we consider to be asymptomatic and 20 percent that are pre-symptomatic, that means that 50 percent (or half the individuals who are infected) can spread the virus to others without knowing it.

That's what makes this virus so dangerous. It's very different than other viruses like influenza, where most of the time that you're able to spread it is really at the point where you've already developed symptoms, so you know, you're sick.

This virus actually spreads very efficiently before anybody has any idea that they're infected.

The other thing that's important is the virus has been mutating fairly quickly, as you've heard about.
These mutations result in what we call variants of the virus or mutant viruses.
Unfortunately, some of the mutations that have occurred have made the virus what we consider to be more successful.

That means the virus can infect other people more efficiently.

That's not good for us. It's good for the virus. These viruses get harder and harder to stop.

As you see, some of these mutations occur in the virus itself and they make them more deadly in some cases and may potentially make them more resistant to the effect of vaccines.

That's why we're very concerned about this.

[12]
Who's at risk for getting an infection? The novel SARS-CoV-2 virus can infect just about anyone, and why is that? Because we consider this to be a novel virus.

Nobody before this pandemic had ever seen this virus before.

Nobody ever had a chance to get infected and to develop immunity to the virus. There's no natural immunity.

Sometimes, other viruses that emerge have enough connection with their previous family members they come from (where they've evolved from) where there's a little what we call cross-reactivity. That means you get a little bit of protection.

For this virus there was no protection whatsoever and some groups certainly do appear to be at higher risk of being infected, but mostly the infection rates have been dictated by health behaviors, not so much by biology.

The exception would be for some of the younger people.

Some of the younger children do not seem to transmit the virus as effectively or get infected as effectively, but for the most part, when you get into high school ages and above, it's really not the biology of the person that it affects, whether or not you're going to get infected, it's actually what kinds of conditions people are in, where they have opportunities to get infected from others.

[13]
The transmission of the virus, as I mentioned, has started originally in animals. We think that bats were the primary source of the virus as it evolved. The bats, of course, can infect other animals, and there was probably animal to human spread to get this thing kicked off.

That's why we're concerned about this, and those are called zoonotic diseases, where you have viruses and bacteria in animals that can cross over and infect humans. These are called zoonotic diseases.

As I said, the virus is generally spread from person to person where the infected person who's emitting or can shed the virus can, you know, cough, they'll sneeze, they may talk loudly, breathe, they may sing and that will put the virus in these little droplets that are emitted out, and then sometimes those droplets, that are very small, can be suspended in the air for a while, so we call those aerosols.

Generally, we thought at the beginning of the pandemic that perhaps people could pick up the virus by touching surfaces around them where people had coughed or sneezed and emitted the virus that way.

That is still theoretically possible, but as the pandemic evolved, there is more and more evidence that that was not the primary way that people picked up the virus.

At the beginning, we were all scrubbing down our groceries we brought home from the store and surfaces, and that's still a good idea to do some of that cleaning, but most of the transmission of this virus has really been from person to person where you're seeing this droplet spread.

Finally, the other way that the virus could theoretically be spread is through poop, through fecal matter, but this is really not a common source and nobody's really documented this as a major problem, but we do look at poop.

Sometimes, we look at the wastewater that comes into the sewer system to detect whether or not a household or a building like a dorm building on a college campus or even a neighborhood might have people that are shedding virus in that area.

So that's one of the ways that we're looking at this. That's called wastewater monitoring and it may be more and more important as we go forward as a pandemic progresses.

[14]
For people who do get infected, there's greater risk for having severe disease, for people that have certain underlying conditions, for example, having heart disease, diabetes, or having a depressed or suppressed immune system.

These are all important indicators of higher risk, but probably the most important thing is (for the elderly in particular) the older people are, the more likely they are to get severe forms of the illness compared to younger people. In fact, for children and really young kids, there's probably a much lower risk of having severe illness, although it's not zero.

There are some kids that do get very, very sick. They're a very small number, but there still are some that do get sick.

[15]
The basic reproduction number, it's also called R-zero, or R-naught, if you are actually from England.

It really refers to how many people one person is likely to infect on average. For this virus, at the beginning, it was really an R-naught or an R-zero of about two or three.

That means for every one person that was infected, on average, two people got infected. In some cases in parts of the world, three or four people may have gotten infected from one case.

[16]
Because of the way the virus grows in the population, through this exponential growth, you can imagine that if you stop one person from getting infected in the first place, that's going to have a really big impact on how many other potential people you've saved from being infected.

[17]
The idea here is that we take the person who has an index case (that's the person infected in the middle here), and we try to do something to prevent them from infecting other people.

So, we take a chopping block or a knife here and we basically stop that transmission. So every time you stop one case from getting infected, you're also stopping those people from infecting others, and that's why it's so important to get a handle on things for this epidemic.

[18]
While the SARS-CoV-2 virus was thought to come from China after crossing over from different animal species to humans, we don't refer to it as the China virus.

The infection rate has changed a lot over the last year, but with vaccination now available, people who are susceptible can gain protection from getting infected and spreading it to others. Until almost everyone in the population is vaccinated, we're going to have to continue to practice safe behaviors.

That includes doing things like wearing masks and staying six feet apart in public, trying to meet in outdoor spaces with people that you don't live with, and of course, getting tested regularly to make sure that you're not infected and have asymptomatic cases.

[19]
So, please be safe and thank you for listening.

4th – 6th Grade
COVID-19 Prevention Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from UC Davis.

Aggie Public Health Ambassadors are UC Davis college students who teach people in Davis about how to stop the spread of COVID-19 and keep our community safe.

[2]
Today we will be learning what COVID-19 is, how it spreads, and who can get it.

We will also talk about the ways that *you* can help stop the spread of COVID-19 to keep yourself, your family, your friends, and your community safe.

[3]
Coronavirus is a virus that causes the disease called COVID-19.

A virus is basically a tiny germ that you can't see with your eyes, and can make you sick.

Scientists call this kind of virus the coronavirus, because Corona means crown in Latin, and under a microscope, these viruses look like a crown with spikes.

When you're sick, you usually have symptoms, which are body changes like a fever that let you know something's not right. Some people may get COVID-19, but never have any symptoms. Other people can get very sick with symptoms like a fever or cough, or they may have a hard time breathing.

Some people are able to feel better quickly by resting and drinking lots of fluids in their own homes. This doesn't mean that the virus is immediately gone from their body, so they still need to be careful to stay home and away from other people for a total of 2 weeks.

While some people can recover at home, in the United States and throughout the world this virus has made many people very sick. Many people have had to go to the hospital because they need doctors to give them medicine, tests and sometimes help from machines to help them breathe.

[4]
COVID-19 spreads very easily from person to person through what are called respiratory droplets, which are drops of fluid from your lungs. Respiratory droplets fly into the air when you cough, sneeze, talk, shout, or sing.

Most of the time, COVID-19 is spread through close contact, which is when someone who does not have COVID-19 is around someone who does have it. Close contact means touching, hugging, or just sitting or standing closer than 6 feet to someone for 15 minutes or more.

COVID-19 is very contagious, which means that it is very easy for one person to get COVID-19 from another person. In fact, it is more contagious than the flu!

Respiratory droplets can also land on surfaces and objects. It is possible that a person could get COVID-19 by touching a surface or object that has the virus on it, like a table or a toy, and then touching their own mouth, nose, or eyes.

However, COVID-19 is spread most commonly by close contact with someone who has COVID-19.

[5]
Anybody can get COVID-19. However, it can affect everyone differently.

Although not many kids get COVID-19, young and healthy people can still get very sick or die from the virus.

Some people get mild symptoms, which means you may feel sick with something similar to the flu, but you'll be able to get over it with some rest at home.

However, other people, especially those who are much older or who already have health problems are more likely to get very sick or die if they get COVID-19.

[6]
There are many ways you can help stop the spread of COVID-19 to protect yourself and other people.

The most important things you can do are: Wear a face covering, distance yourself from others, wash your hands often, get tested for COVID-19 regularly, stay home if you're sick, and get vaccinated when you are able.

[7]
Wearing a mask is a simple way to help prevent your respiratory droplets from reaching others. With more people getting the COVID vaccine, masking rules have started to change a little bit.

People who have been vaccinated do not need to wear a mask except certain places like indoors at schools, hospitals and doctor's offices, and public transit like on a bus, train, or airplane or at public transportation hubs like a train station or airport.

People who have not been vaccinated need to wear a mask inside at places like movie theaters, restaurants, and other more crowded indoor spaces.

In general, both people who are vaccinated and people who are not vaccinated do not need to wear a mask outdoors.

Make sure that you are wearing your mask correctly – this means it needs to cover your nose, mouth, and chin.

Make sure your face covering fits snugly, but it's not so tight that you can't breathe. You also want to make sure it's not too loose, which would allow your respiratory droplets to escape. Your mask is too loose if the material does not touch your face on the top, bottom, and on both sides.

[8]
Limiting close contact with others is the best way to reduce the spread of COVID-19, especially if you are not fully vaccinated yet.

Since people can spread the virus before they know they are sick, it is important to physically distance yourself from others when possible, even if you—or they—do not feel sick.

While at school, this means sitting or standing at least 3 feet apart from your classmates and teachers while in your classroom, or 6 feet apart while outside the classroom during breaks or lunch.

To practice physical distancing: stay at least 6 feet from other people, do not hang out in groups, and stay out of crowded places and avoid big gatherings of people.

Physical distancing is especially important to protect elderly adults, like your grandparents, and people who have health problems.

[9]
There are many different ways to easily visualize what 6 feet looks like. This could include the length of 3 dachshund dogs, one bicycle, or, since we're in Davis - one cow.

[10]
Washing your hands often can slow the spread of COVID-19.

Often means washing before and after eating a meal, after using the bathroom, sneezing, coughing or blowing your nose, and right after coming inside from playing outdoors, especially if you have been playing in a public park or at your school.

Wash your hands with soap and water for at least 20 seconds, which is about the time it takes to sing the ABC's or the Birthday Song twice.

If soap and water are not available, you can use hand sanitizer. Also, make sure if you have to sneeze or cough, you do it into your elbow and not your hands.

[11]
We are very lucky in Davis to have access to free and fast COVID-19 testing, which makes it easy for the Davis community to get tested often.

Since you are back in school where physical distancing isn't always possible, you should get tested for COVID-19 once or twice a week even if you do not feel sick.

The test we do is a saliva test, so you just need to spit into a tube, which is then taken to a lab to examine. It's painless, quick and easy! You then find out if you do or do not have COVID-19 in 1-2 days.

UC Davis and the city of Davis work together to provide the testing, and you may have seen ads for it on TV and signs in Davis. You can get tested many different places, like Montgomery Elementary, Emerson Junior High, Harper Junior High, Davis High School, and the Mondavi Center.

[12]
Every day, it is important to pay attention to whether you have any symptoms that could be from COVID-19. This means to look for a cough, runny nose, or a fever.

If you feel sick, let your family know. They can help you figure out what you should do, which will most likely be staying home and resting.

[13]
You might have heard news about a new type of coronavirus, the Delta variant.

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

All of the behaviors we just talked about like wearing a mask, keeping 6-feet apart, washing your hands, and getting tested are all ways that we can continue to stay safe from COVID-19 including the Delta variant.

[14]
So remember, the most important thing you can do to keep yourself, your family, your friends, and your community safe is to wear a mask, stay more than 6 feet from other people you don't live with, wash your hands often, get tested once or twice a week, stay home if you feel sick, and get vaccinated when you are able.

We're all in this together, and everyone can help stop the spread of COVID-19. As you can see in the picture, the Swiss Cheese Model shows us that we are most safe when we follow the recommendations of masking, physical distancing, hand washing, and testing.

The more we follow these recommendations, the quicker we can get back to normal.

[15]
Here is the list of sources that provided the information for this lesson. It is important to get your information about COVID-19 from scientific sources, like the Centers for Disease Control (CDC), universities like UC Davis, and county and state agencies.

4th – 6th Grade
COVID-19 Vaccine Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from UC Davis.

Aggie Public Health Ambassadors are UC Davis college students who teach people in Davis about how to stop the spread of COVID-19 and keep our community safe.

Today, we will be learning about the newest way to protect ourselves from COVID: (**pause*)* COVID-19 vaccines.

[2]
Here is an overview of our lesson for today.

First, I'll explain what COVID-19 is.

Then we will talk about how vaccines work.

From there, we'll discuss the benefits of vaccines for both a person and a group of people.

We'll help you learn how not to be tricked by some vaccine myths.

And we will end with sharing how you and your family can get the vaccine.

[3]
Let's start with the basics. What is COVID-19?

Coronavirus (or COVID-19) is an infectious respiratory disease that is caused by a germ (or virus) named SARS-CoV-2.

"Infectious" is just a long word that means able to spread from person-to-person.

Your respiratory system is made up of the body parts that help you breathe: everything from your nose, down through your throat, and to your lungs.

Coronavirus gets its name from the crown-like spike proteins on its surface.

COVID-19 can look different for different people when they get sick with this disease:

Some people might get infected but not feel sick at all.

Some only experience mild, flu-like symptoms such as cough, fever, runny nose, or tiredness.

And then there are others who need to go to the hospital for difficulty breathing and other more serious problems.

[4]
How can we stay healthy and safe from COVID-19?

The virus spreads via respiratory droplets (or tiny spit particles) which are made anytime a person breathes, coughs, sneezes, or speaks.

The best ways to protect yourself are washing your hands wearing a mask, staying 6-feet apart from others, getting tested for COVID-19 regularly, and staying home when you feel sick.

These behaviors can keep you and your social bubble (like your parents, grandparents, siblings or other people who live with you) healthy and safe from COVID-19.

[5]
In addition to these health behaviors, we now have the COVID-19 vaccines to help us stay healthy and safe.

Getting the COVID-19 vaccine is one of the most important things each of us can do to end the COVID-19 pandemic. Your families and loved ones may have started talking about the COVID-19 vaccines recently, and you might have some questions too.

In the first place, how do COVID-19 vaccines work?

Here's the short answer:

You visit the doctor, and they give you a shot.

Then, the vaccine guides your body on how to protect you.

Your body then makes antibodies that are able to kill the real virus if you get it.

I'll explain some of the meanings of these vaccine words on the next few slides.

[6]
Vaccines and Your Immune System.

Inside our bodies, we all have cells and molecules that make sure that everything is working correctly so that we can breathe, eat, move, sleep, and think properly.

To make you feel sick, viruses copy themselves and attack your healthy cells, trying to take control of your body.

Your immune system is made up of superhero cells and molecules in your body that protect you from getting sick.

It is difficult for your immune system to protect you from germs that it hasn't prepared for yet.

This is where vaccines can help. Vaccines are really important because they train your immune system to recognize the germs that make you sick. Then, the cells fight the virus (after they have had practice).

After you're vaccinated, your immune cells are ready to fight the germs away!

[7]
So how do vaccines train our immune cells to fight the virus?

Right now, there are two types of vaccines that work in similar ways: mRNA vaccines and viral vector vaccines.

mRNA is basically a messenger molecule that can carry protein-making instructions to the cells in your body.

Viral vectors also carry instructions for making proteins, but in the form of harmless versions of a different, non-COVID-19 virus.

Both types of vaccines give our cells instructions to make harmless spike proteins that look like those found on coronavirus. These will serve as target practice.

Once these “target practice” cells are covered in spike proteins (or crowns), antibodies (or special virus-searchers) mark these infected cells.

More immune cells come in as back-up to eliminate the marked, infected cells.

In other words, the antibodies are like the sidekicks who put signals on the infected cells. These signals help the superhero immune cells easily find and kill the infected cells.

After you're vaccinated, you might be tired or feel side effects like fever, chills or body aches. These are signs that your immune cell team is training and building up protection for you. Side effects may last a couple days, and then it takes a couple weeks for your body to build immunity against COVID-19.

After a couple weeks, your immune system is now ready to fight the real virus!

[8]
COVID-19 vaccines are important for your health and safety and the health and safety of people around you.

For individuals, a vaccine protects you from COVID-19 infection and can protect you from becoming very sick.

On a community level, as your family, friends, and neighbors are vaccinated here in Davis, the spread of COVID-19 will slow down.

Besides your family and friends and the Davis community, once many people are vaccinated all over California, the U.S., and across the world, there will be hardly anywhere the virus can live. This is herd immunity.

[9]
What exactly is herd immunity?

A simple definition of herd immunity is this: "when a group of people is protected from a disease because most of the group has already been sick or vaccinated."

Here is a visual that should help us understand this definition a little better.

When no one gets vaccinated, the disease can spread easily.

When some people get vaccinated, the disease spreads a little slower.

When most people get vaccinated, the disease can't spread.

In other words, a certain number of people need to be vaccinated in order to protect the population from mass infection.

[10]
You might have a couple questions about herd immunity.

First off, how many people need to be vaccinated to achieve herd immunity for a disease?

The answer really depends on how quickly the disease can travel from person to person.

A disease like measles spreads quickly. That means it requires about 95% of people to be vaccinated to achieve herd immunity.

A disease like seasonal flu might change from year to year and so we do not know exactly how many people need to be vaccinated. This is why we want everyone to have an annual flu shot. This will protect you, your family and friends, and your community.

For COVID-19, research is helping us to learn how many people need to be vaccinated to achieve herd immunity.

Remember, becoming sick or getting vaccinated are ways to reach herd immunity.

Why don't we just reopen all public places and let everyone get sick to achieve herd immunity?

Given how seriously sick some people can become from COVID-19, herd immunity by infection is unsafe.

When you get sick with COVID-19 and recover from it, your body can mark and identify COVID-19-infected cells for the immune cell superheroes to fight them.

However, researchers are still figuring out how long your body can fight COVID-19 after you recover from COVID-19 **pause** (if you get sick).

The important thing to remember is: it is important for as many people as possible to be vaccinated.

[11]
Let's talk about some questions you might have about the vaccines.

The COVID-19 vaccines were developed really quickly. Are they safe?

Yes! These vaccines were tested and evaluated in tens of thousands of people who volunteered to be part of the research to test them. To be used all over the world, the vaccines had to meet strict safety, effectiveness, and quality standards.

Will I get infected with COVID-19 or test positive for COVID-19 from the vaccine?

No, the COVID-19 vaccines currently in use do not use live virus. You would not test positive since there is no virus inside of you when you get a shot.

[12]
Should I still get vaccinated if I've already had COVID-19?

Yes! It is important to be vaccinated, even if you've had COVID-19 before.

As we discussed earlier, we still do not know how long you are protected from COVID-19 after recovering from it.

Once I'm vaccinated, can I stop wearing my mask? Should I still get tested regularly for COVID-19?

Before and even after vaccination, it is really important for everyone to continue to get tested regularly, wear face coverings, keep physical distance and keep your hands clean to help continue to keep our community healthy.

So even though we might be eager to get back to "normal" life, we still need be cautious and keep ourselves and our community safe.

[13]
You may have heard of the Delta Variant in the news recently.

What exactly is the Delta variant?

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

Many unvaccinated folks have become sick with this strain of COVID.

Will the COVID-19 vaccine protect me from the Delta variant?

Yes. As more people are vaccinated, it becomes harder for any form of COVID-19, including the Delta variant, to spread from person to person.

If the virus can't spread, it won't have the chance to mutate or change into new versions of itself.

Vaccination is an important way to protect as many people as possible from COVID-19.

[14]
Over the past couple months, you've probably heard your parents, grandparents, aunts, and uncles making vaccine appointments.

There is a schedule of when people are allowed to get the vaccine.

In California, priority was first given to the following groups:

Phase 1A included healthcare workers & long-term care residents.

Phase 1B includes people 65+ years old and people working in Agriculture/Food, Education/Childcare, Emergency Services

Appointments are now open for all people 12 years old and older.

As of April 1, 2021, Individuals who are 50 years old and older are able to get vaccinated.

As of April 15, 2021: Everyone who are 16 years old and older are able to get vaccinated.

[15]
Here is a screenshot of the *MyTurn* site.

You can select the website language on this first page.

From there, you answer questions about the different eligibility criteria and then type in your zip code.

The site will then tell you if it's your turn to get vaccinated.

If you are eligible to be vaccinated, you can select from many vaccine clinics.

Check it out with your family to find appointments near you!

[16]
Here is a list of the references we used to write these slides. Remember that it is very important to do research carefully and to get information from experts so that you know what you are learning and reading is true.

[17]
Thank you for watching this presentation! We hope you had fun learning about vaccines with us. Stay healthy and safe!

4th – 6th Grade
Discussion Questions

The COVID-19 Pandemic Discussion Questions:

Question: What is an epidemic?

Answer: An epidemic is when there are lots of people getting sick, more than you would normally expect in a community, state or country.

Question: What is a pandemic?

Answer: A pandemic is a special kind of epidemic on a larger scale: people all over the world getting sick with the same disease.

Question: Are viruses living things?

Answer: No, they are not. A living thing is something that can reproduce, making more of itself. Viruses cannot do this. They are tiny parasites that must take over living things like animals, plants, or humans to grow more viruses.

Question: What animal do scientists think that COVID-19 came from?

Answer: Scientists think that COVID-19 came from bats that infected other animals and then infect humans. Zoonotic diseases happen when viruses and bacteria cross over from animals to humans.

Question: How does COVID-19 spread?

Answer: COVID-19 spreads by little particles that come out of our mouths when we breathe, cough, sneeze, talk, or sing.

COVID-19 Prevention Questions:

Question: What are some examples of things you can do to protect yourself and others from COVID-19?

Answer: Social distancing, washing hands, using sanitizer, wearing a mask, avoiding groups, getting the vaccine.

Question: What is something you like that can be done outside with your family or friends?

Answer: With family or friends, you can do activities like going on a walk, hike, bike or rollerblade. You can also play sports outdoors (where there is no close contact necessary to play the game) like frisbee, kickball, etc.

With your friends and family, you can also garden together, have a distanced picnic in the park at 6ft apart, or play noodle tag with pool noodles that are regularly disinfected.

At school, you can play outside sports or games like distanced Simon Says or a Scavenger Hunt.

Question: What are some symptoms to watch out for that could mean you have COVID-19? How should you check this?

Answer: Some symptoms to watch out for are sore throat, runny nose, headache, fatigue, eye redness, shortness of breath, fever or chills, muscle aches, loss of taste or smell.

You can check if you have COVID-19 with a free COVID test! You and your family can get tests done though Health UC Davis at the Davis Senior Center, the Mondavi Center at UC Davis, Montgomery Elementary School, and the Veteran's Memorial Center.

It is recommended that you get tested at least once per week, even if you have received the vaccine.

COVID-19 Vaccine Questions:

Question: When is a good time to get the COVID-19 vaccine?

Answer: Whenever it is available to you and is safe to do so.

Question: What is something new you learned about the COVID-19 vaccine?

Answer: Could be any of the myth busting points. Or anything to do with herd immunity or community protection.

Question: Why is the COVID-19 vaccine important?

Answer: It helps you from getting the virus. It also helps protect others from getting the virus (you can help keep others safe).

It can also make COVID-19 weaker (even if you do get sick).

Aggie Public Health Ambassadors

7th – 9th Grade

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7th – 9th Grade
COVID-19 Pandemic Script

[1]
Hi, I'm Brad Pollock.

I'm going to talk to you today about the COVID-19 pandemic.

I'm actually an epidemiologist.

[2]
Epidemiologists are kind of disease detectives.

The word epidemiology comes from the derivative of epidemic, which means to have a disease upon the people.

We do a lot of work that investigate what's going on with diseases, illness, and health in populations.

That's different than medical doctors who are typically going to treat patients and diagnose patients.

We don't talk about patients. We talk about people in the population.

[3]
Emerging infectious diseases are those that happen out of nowhere; so suddenly you see a big increase, and it affects a lot of people.

Sometimes you'll see an increase in deaths.

Sometimes you'll see an increase in people showing up at the hospital or people that get very sick. Usually when they say emerging, it means it happens over a relatively fixed period of time.

Sometimes it can be very quick, sometimes it can be over the course of 10 or 20 years, but clearly with this, the current COVID-19 pandemic, this happened very, very quickly.

The other thing about emerging infectious diseases is generally they don't know anything about national boundaries.

A disease that crops up in China can easily go and spread to places like Italy, the United States, and all around the world.

[4]
This is a map that was actually drawn up by Dr. Anthony Fauci. You may have seen him on TV.

He works at the National Institutes of Health. He's the director of one of the institutes there.

He drew a map of the world for a presentation that he gave to Congress, a number of years ago, which showed notable infectious diseases that emerged during his job at the NIH. It's really interesting because you'll see on this map there's a couple of these diseases that cropped up during his time as being the director of the NIAID.

One of them was called SARS. That was the original SARS virus, and then there was one called MERS, which was related to (these are both coronaviruses), and right now we're dealing with the SARS-CoV-2 pandemic. It shows you that these can emerge over time, and all of these were ones that emerged during his time on the job at the NIH.

[5]
Let's talk about some definitions here.

One is outbreaks.

An outbreak is a greater than expected increase in the number of endemic cases. If it's not controlled quickly, an outbreak can become a pandemic or an epidemic actually.

Endemic means the normal level of disease in the population. Epidemic means you've got something going on.

Epidemic is defined as, disease that affects many people in the community, in a population, or a whole region.

It's where you have a number of new cases that really exceeds what you would expect. That's called an epidemic.

A pandemic is just a special kind of epidemic that occurs worldwide, where it's spread over a much wider area of the globe, multiple countries.

In this particular pandemic that we're dealing with, the World Health Organization didn't declare a pandemic until a couple of months after we were pretty clear that it had spread across multiple countries.

So, they were a little late to define that.

[6]
This is a map taken just really two days ago of where the new cases have occurred.
You can see it's all over the globe, but the places really affected are the United States, Brazil, South America, parts of China, India, Central Europe, and in particular Western Europe got really hit hard (they're still being hit hard by this pandemic).

[7]
I want to talk a little bit about how the coronaviruses work, how the virus is spread to other people, and what you do to protect yourselves. That's something that is also being discussed in some other videos.

[8]
What's a virus? A virus is a smallest type of parasite that's known to exist. The SARS-CoV-2 virus in particular is really small.

It ranges between 50 and 200 nanometers. Those are very, very small units.

They're typically not considered to be living things, and the reason is that a virus by itself cannot reproduce.

To define something as a living thing, it has to have the ability to reproduce.

So, viruses cannot reproduce on their own. They have to infect another animal, or even a plant (because there's plant viruses) in order to reproduce.

They have to use the cellular machinery of a plant or animal in order for the viruses to replicate themselves and to spread.

[9]
The SARS-CoV-2 virus is the one that causes this coronavirus, and it was discovered in 2019. That's why it's called COVID-19.

SARS stands for Severe Acute Respiratory Distress Syndrome and we've had other types of viruses like this.

We had the original SARS epidemic that happened back about 20 some odd years ago.
These are viruses that spread very easily from person to person.

The SARS-CoV-2 virus spreads incredibly efficiently between people and unfortunately, there's no natural immunity in humans, so we're all susceptible to getting infected and possibly getting sick.

[10]
The virus itself, as I said, is highly infectious.

In less than a year, it's killed more than 550,000 Americans. That is really devastating.
The primary way it's spread is by infected individuals who emit droplets. The droplets contain virus, and if they're actually emitted in an area where there are people that have not been exposed to the virus before, they're considered to be susceptible, they can ingest those viral particles, so a lot of times you can emit these by sneezing or coughing.

We found out that loud talking and even singing and yelling were ways to transmit the virus through your upper respiratory tract into the air, and if you emit those little viral, those little droplets that contain virus inside of them, they can be picked up by other people and ingested directly into their airways, so they pick them up that way.

[11]
The incubation period, which we talk about for viruses, is the time between when the virus enters your body and when you become fully infected, and for this virus, it's about five days.

It's also interesting that about 99 percent of people who do get infected will no longer be infectious within 14 days.

That's why they originally were using a 14-day period of time to quarantine and isolate people because we knew that for the vast majority of people that if they were infected, they could no longer be infectious when you got past that two-week mark.

Unfortunately for this virus, about 30 percent of people who get infected will remain without any symptoms at all.

We call those asymptomatic individuals. There's another 20 percent of the population who get infected, who can shed the virus in the days before they do develop symptoms and that's what we call the pre-symptomatic phase.

That means if you look at the 30 percent that are what we consider to be asymptomatic and 20 percent that are pre-symptomatic, that means that 50 percent (or half the individuals who are infected) can spread the virus to others without knowing it.

That's what makes this virus so dangerous. It's very different than other viruses like influenza, where most of the time that you're able to spread it is really at the point where you've already developed symptoms, so you know, you're sick.

This virus actually spreads very efficiently before anybody has any idea that they're infected.

The other thing that's important is the virus has been mutating fairly quickly, as you've heard about.

These mutations result in what we call variants of the virus or mutant viruses. Unfortunately, some of the mutations that have occurred have made the virus what we consider to be more successful.

That means the virus can infect other people more efficiently.

That's not good for us. It's good for the virus. These viruses get harder and harder to stop.

As you see, some of these mutations occur in the virus itself and they make them more deadly in some cases and may potentially make them more resistant to the effect of vaccines.

That's why we're very concerned about this.

[12]
Who's at risk for getting an infection? The novel SARS-CoV-2 virus can infect just about anyone, and why is that? Because we consider this to be a novel virus.

Nobody before this pandemic had ever seen this virus before.

Nobody ever had a chance to get infected and to develop immunity to the virus. There's no natural immunity.

Sometimes, other viruses that emerge have enough connection with their previous family members they come from (where they've evolved from) where there's a little what we call cross-reactivity. That means you get a little bit of protection.

For this virus there was no protection whatsoever and some groups certainly do appear to be at higher risk of being infected, but mostly the infection rates have been dictated by health behaviors, not so much by biology.

The exception would be for some of the younger people.

Some of the younger children do not seem to transmit the virus as effectively or get infected as effectively, but for the most part, when you get into high school ages and above, it's really not the biology of the person that it affects, whether or not you're going to get infected, it's actually what kinds of conditions people are in, where they have opportunities to get infected from others.

[13]
The transmission of the virus, as I mentioned, has started originally in animals. We think that bats were the primary source of the virus as it evolved. The bats, of course, can infect other animals, and there was probably animal to human spread to get this thing kicked off.

That's why we're concerned about this, and those are called zoonotic diseases, where you have viruses and bacteria in animals that can cross over and infect humans. These are called zoonotic diseases.

As I said, the virus is generally spread from person to person where the infected person who's emitting or can shed the virus can, you know, cough, they'll sneeze, they may talk loudly, breathe, they may sing and that will put the virus in these little droplets that are emitted out, and then sometimes those droplets, that are very small, can be suspended in the air for a while, so we call those aerosols.

Generally, we thought at the beginning of the pandemic that perhaps people could pick up the virus by touching surfaces around them where people had coughed or sneezed and emitted the virus that way.

That is still theoretically possible, but as the pandemic evolved, there is more and more evidence that that was not the primary way that people picked up the virus.

At the beginning, we were all scrubbing down our groceries we brought home from the store and surfaces, and that's still a good idea to do some of that cleaning, but most of the transmission of this virus has really been from person to person where you're seeing this droplet spread.

Finally, the other way that the virus could theoretically be spread is through poop, through fecal matter, but this is really not a common source and nobody's really documented this as a major problem, but we do look at poop.

Sometimes, we look at the wastewater that comes into the sewer system to detect whether or not a household or a building like a dorm building on a college campus or even a neighborhood might have people that are shedding virus in that area.

So that's one of the ways that we're looking at this. That's called wastewater monitoring and it may be more and more important as we go forward as a pandemic progresses.

[14]
For people who do get infected, there's greater risk for having severe disease, for people that have certain underlying conditions, for example, having heart disease, diabetes, or having a depressed or suppressed immune system.

These are all important indicators of higher risk, but probably the most important thing is (for the elderly in particular) the older people are, the more likely they are to get severe forms of the illness compared to younger people. In fact, for children and really young kids, there's probably a much lower risk of having severe illness, although it's not zero.

There are some kids that do get very, very sick. They're a very small number, but there still are some that do get sick.

[15]
The basic reproduction number, it's also called R-zero, or R-naught, if you are actually from England.

It really refers to how many people one person is likely to infect on average. For this virus, at the beginning, it was really an R-naught or an R-zero of about two or three.

That means for every one person that was infected, on average, two people got infected. In some cases in parts of the world, three or four people may have gotten infected from one case.

[16]
Because of the way the virus grows in the population, through this exponential growth, you can imagine that if you stop one person from getting infected in the first place, that's going to have a really big impact on how many other potential people you've saved from being infected.

[17]
The idea here is that we take the person who has an index case (that's the person infected in the middle here), and we try to do something to prevent them from infecting other people.

So, we take a chopping block or a knife here and we basically stop that transmission.
So every time you stop one case from getting infected, you're also stopping those people from infecting others, and that's why it's so important to get a handle on things for this epidemic.

[18]
While the SARS-CoV-2 virus was thought to come from China after crossing over from different animal species to humans, we don't refer to it as the China virus.

The infection rate has changed a lot over the last year, but with vaccination now available, people who are susceptible can gain protection from getting infected and spreading it to others. Until almost everyone in the population is vaccinated, we're going to have to continue to practice safe behaviors.

That includes doing things like wearing masks and staying six feet apart in public, trying to meet in outdoor spaces with people that you don't live with, and of course, getting tested regularly to make sure that you're not infected and have asymptomatic cases.

[19]
So, please be safe and thank you for listening.

7th – 9th Grade
COVID-19 Prevention Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from UC Davis.

Aggie Public Health Ambassadors are UC Davis college students who teach people in Davis what they can do to stop the spread of COVID-19 and keep our community safe.

[2]
Preventing the spread of COVID-19 is everyone's job—and that means everyone should follow COVID-19 recommendations from health experts.

Today we will begin with the basics of COVID-19, including what it is, how it spreads and who it affects, and then we will go into detail on the main ways you can help prevent the spread of COVID-19.

These are: wearing a mask, physical distancing, washing your hands, and getting tested for COVID-19 regularly.

We'll also talk about COVID-19's incubation period, which is the number of days between when you're infected with something and when you might feel sick.

Finally, we'll talk about the importance of paying attention to when you feel sick and staying home if your symptoms, or signs that you're sick, could be a result of COVID-19.

[3]
SARS-COV-2 is a virus that causes COVID-19. It is in a group of viruses known as coronaviruses. Scientists call this kind of virus coronavirus, because Corona is Latin for "crown", and under a microscope, these viruses look like a crown with spikes.

There are many different symptoms that people with COVID-19 can experience, but some of the most common ones are fever, cough, difficulty breathing and loss of taste or smell.

Some people may get COVID-19, but never feel sick. However, throughout the world, this virus has made many people get very sick, have to go to the hospital, and even die.

[4]
COVID-19 spreads very easily from person to person through respiratory droplets, which are drops of fluid from your lungs. Respiratory droplets travel into the air when you cough, sneeze, talk, shout, or sing.

These droplets can then land in the mouths or noses of people who are near you.

The larger droplets are concentrated around a person, which is why physical distancing is important.

The smaller droplets can be carried through the air, which is why masks are important.

COVID-19 is spread most commonly through close contact, which happens when someone who does not have COVID-19 interacts with someone who does have it.

Close contact means touching, hugging, or just sitting or standing closer than 6 feet to someone for 15 minutes or more.

COVID-19 is very contagious, which means that it is easy for one person to get COVID-19 from another person. In fact, it is more contagious than the flu!

Respiratory droplets can also land on surfaces and objects. It is possible that a person could get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes.

Spread from touching surfaces, however, is not thought to be the most common way that COVID-19 spreads. The most common way it spreads is through close contact.

[5]
Anybody can get COVID-19. However, it can affect everyone differently.

Although not many kids get COVID-19, young and healthy people can still get very sick or die from the virus.

Some people get mild symptoms, which means you may feel sick with something similar to the flu, but you'll be able to get over it with some rest at home.

Even if someone does not have symptoms, they can still give COVID-19 to other people.

This is why it’s important for everyone to follow COVID-19 prevention recommendations like masking and physical distancing, because people who are much older or who already have health problems are more likely to get very sick or die if they get COVID-19.

While anybody can get infected with COVID-19, it's important to realize that not everyone is affected the same, and this is not just referring to symptoms.

People from ethnic or racial minority groups are often more affected by COVID-19 due to less access to healthcare, higher risk jobs, less access to accurate information, and crowded housing.

[6]
There are many things you can do to stop the spread of COVID-19 and protect yourself and other people, including wearing a mask. With more people getting the COVID vaccine, masking rules have started to change a little bit.

People who have been vaccinated do not need to wear a mask except certain places like indoors at schools, hospitals and doctor's offices, and Public transit like on a bus, train, or airplane or at public transportation hubs like a train station or airport.

People who have not been vaccinated need to wear a mask inside at places like movie theaters, restaurants, and other more crowded indoor spaces.

In general, both people who are vaccinated and people who are not vaccinated do not need to wear a mask outdoors.

Make sure that you are wearing your mask correctly – it needs to cover your nose, mouth and chin. Make sure your face covering fits snugly, without any gaps to allow air or respiratory droplets to get through.

You also should wear a face covering that has multiple layers to keep your respiratory droplets in and others' respiratory droplets out.

It is not recommended to wear a mask with only one layer of cloth, with exhalation valves or vents, or to wear a mask that doesn't fit your face properly (such as one that is too tight or loose).

[7]
Limiting close contact with others is the best way to reduce the spread of COVID-19, especially if you are not fully vaccinated yet.

Since people can spread the virus before they know they are sick, it is important to stay away from others when possible, even if you—or they—have no symptoms.

While at school, this means sitting or standing at least 3 feet apart from others while in your classroom or 6 feet apart while outside the classroom during breaks or lunch.

Physical distancing is especially important for people who are at higher risk for severe illness, like elderly adults and people who have health problems.

Physical distancing means keeping space between yourself and other people outside of your home. To practice physical distancing: stay at least 6 feet (about 2 arms' length) from other people, do not gather in groups, and stay out of crowded places and avoid big gatherings.

Similar to masking, physical distancing rules have changed as more people get the COVID vaccine. Vaccinated folks do not need to practice physical distancing in most places unless the specific business or workplace requires it.

[8]
There are many different ways to easily visualize what 6 feet looks like. This could include the length of 3 dachshund dogs, one bicycle, or, since we're in Davis - one cow.

[9]
Washing your hands often can slow the spread of COVID-19. *Often* means washing before and after eating a meal, after using the bathroom, sneezing, coughing or blowing your nose, and immediately after touching surfaces that other people have touched, like a public bathroom door.

If soap and water are not available, you can also use hand sanitizer.

Wash your hands with soap and water for at least 20 seconds, which is about the time it takes to sing the ABC's or the Birthday Song twice. If soap and water are not available, you can use hand sanitizer.

[10]
We mentioned that you can pass COVID-19 to others even if you do not feel sick. This is because of what we call an incubation period.

An incubation period is the time it takes between the day a person is infected with a pathogen (which is something that causes a disease, like a virus), and the day that the person starts having symptoms of the disease.

For example, if a person is infected with a cold, it usually takes about one to three days for the person to start having cold symptoms which could be a cough, runny nose or sneezing. This means that the common cold's incubation period is one to three days.

COVID-19 has a 14-day incubation period! This means that it can take up to 14 days after someone had contact with COVID-19 to show symptoms, and you may not test positive immediately after you had that close contact.

On average, symptoms show up in the newly COVID-19 infected person about 5 days after contact. You can see this in the picture on the screen.

Kate was tested 5 days after she was exposed to COVID-19, but her test results came back negative. Because of that test result, and because she didn't feel sick, on Day 8 she spent time with coworkers and family members. At this point on Day 8 she was actually positive, and

exposed 22 other people to COVID-19. It wasn't until Day 10 that she had symptoms and tested positive.

What does all this mean? It means that **symptom-free doesn't mean COVID-19-free.**

You could have COVID-19 and be potentially passing it onto others without feeling sick.

If you are not vaccinated, this is where it's important to get tested regularly, because if you are getting tested regularly even when you don't feel sick, you could find out early if you have COVID-19 and know to stay home away from others before you pass it to other people like your friends, classmates or others in your community.

[11]
There are two different types of tests that can tell you if you are positive or negative for COVID-19: a viral test and an antibody test.

A viral test will tell you if you have a current infection, and an antibody test will tell you if you had a past infection.

The testing that we do at UC Davis on campus and at the community testing sites ((like the testing at the Mondavi Center or local Davis school testing sites) is considered a diagnostic test, because it tells you if you have a current infection.

An important thing to remember is that when you get tested for COVID-19, that test only tells you if you are infected at that moment. That means you could still get infected after that test, and if you start to feel sick even after you test negative, you will need to get tested again.

[12]
We mentioned that it is recommended you get tested regularly if you are not vaccinated even if you do not show symptoms.

The current recommendation is to get tested for COVID-19 at least once a week, but twice is better so we can catch an infection even faster.

In a lot of areas throughout California and the rest of the United States, it is hard to get a COVID test unless you are actually showing symptoms, making regular testing difficult.

However, we are very lucky in Davis to have access to free, convenient and fast COVID-19 testing, which makes it easy for the Davis community to get tested regularly.

UC Davis and the city of Davis have partnered together in a project called Healthy Davis Together, which you may have seen advertised on social media, TV, and signs and billboards throughout Davis.

Healthy Davis Together provides the free testing for the Davis community at different locations throughout the city like Montgomery Elementary, Emerson Junior High, Harper Junior High, Davis High School, and the Mondavi Center.

[13]
Every day, regardless of how often you are getting tested, it is important to pay attention to whether you have any of the COVID-19 symptoms. If you feel sick, let your family know. They can help you figure out what you should do, which will most likely be staying home and resting.

[14]
You might have heard news about a new type of coronavirus, the Delta variant.

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

The Centers for Disease Control declared that the Delta variant is a "variant of concern" on June 15, 2021, because it is highly transmissable or contagious.

All the behaviors we just talked about like wearing a mask, keeping 6-feet apart, washing your hands, and getting tested are all ways that we can continue to stay safe from COVID-19 including the Delta variant.

[15]
While experts learn more about the protection that COVID-19 vaccines provide as more and more people get them, it will be important for everyone to continue using all the tools available to us to help stop this pandemic.

So remember, the most important thing you can do to keep yourself, your family, your friends, and your community safe is to wear a mask, stay more than 6 feet from other people you don't live with, wash your hands often, get tested at least once if not twice a week, and get vaccinated when you are able.

We're all in this together, and everyone can help stop the spread of COVID-19. As you can see in the picture, the Swiss Cheese Model shows us that we are most safe when we follow the recommendations of masking, physical distancing, hand washing, and testing.

The more we follow these recommendations, the quicker we can get back to normal.

[16]
Here is the list of sources that provided the information for this lesson.

It is important to get your information about COVID-19 from scientific sources, like the Centers for Disease Control (CDC), universities like UC Davis and county and state agencies.

7th – 9th Grade
COVID-19 Vaccine Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from the UC Davis Department of Public Health Sciences.

Aggie Public Health Ambassadors are UC Davis college students who teach people in Davis about how to stop the spread of COVID-19 and keep our community safe.

Today, we will be learning about the newest way to protect ourselves from COVID: (**pause**) COVID-19 vaccines.

[2]
Here is an overview of our lesson for today.

First, I'll explain what COVID-19 is.

Then we will talk about how vaccines work.

From there, we'll discuss the benefits of vaccines for both individuals and communities.

We'll debunk some common vaccine myths.

And we will end with checking out vaccine eligibility for you and your family.

[3]
Let's start with the basics. What is COVID-19?

Coronavirus (or COVID-19) is an infectious respiratory disease that is caused by a germ (or virus) named SARS-CoV-2.

"Infectious" is just a long word that means able to spread from person-to-person.

Your respiratory system is made up of the body parts that help you breathe: everything from your nose, down through your throat, and to your lungs.

Coronavirus gets its name from the crown-like spike proteins on its surface.

Over the past year, you may have noticed that COVID-19 can look different from person-to-person when someone gets sick with this disease:

Some people might get infected but not feel sick at all.

There are folks who only experience mild, flu-like symptoms such as cough, fever, runny nose, or tiredness.

And then there are others who need to go to the hospital for difficulty breathing and other more serious symptoms.

The virus spreads via respiratory droplets (or tiny spit particles) which are made anytime a person breathes, coughs, sneezes, or speaks.

The best ways to protect yourself are washing your hands, wearing a mask, staying 6-feet apart from others, getting tested for COVID-19 regularly, and staying home when you feel sick.

These behaviors can keep you and your social bubble (like your parents, grandparents, siblings or other people who live with you) stay healthy and safe from COVID.

[4]
In addition to these health behaviors, we now have the COVID-19 vaccines to help us stay healthy and safe.

Getting the COVID-19 vaccine is one of the most important things each of us can do to end the COVID-19 pandemic. Over the past year, scientists have been working hard to create a safe and effective COVID-19 vaccine. As vaccines are becoming more widely available, it is important to know some key facts about them.

To make you feel sick, viruses make copies of themselves to overwhelm your body. Vaccines train our bodies to stop viruses from taking over.

So how do COVID-19 vaccines work?

As a brief overview:

You visit the doctor, and they vaccinate you.

Then, the vaccine launches an immune response.

Your immune system is a team of cells and molecules that protects you from getting sick.

The vaccine gives your immune system the information it needs to protect you.

This immune response produces antibodies that help your body fight the real virus if you encounter it.

We'll go into more detail in the next couple slides.

[5]
There are a couple types of COVID vaccines that are now being used to protect the population.

For many vaccines, weakened or inactivated virus is introduced to your bodies. This weakened virus mimics what the real virus would do so that your immune system can fight the real thing if you encounter it.

MRNA vaccines work a little differently.

MRNA is genetic material with protein-making instructions for our cells.

Our cells are already used to reading instructions from mRNA, and so the mRNA vaccines are a neat way to teach our immune systems how to fight COVID.

There are two mRNA vaccines currently approved to be given to people from Moderna and Pfizer, two major pharmaceutical companies.

COVID-19 mRNA vaccines tell the cells in our bodies to produce harmless spike proteins, mimicking those on SARS-CoV-2.

The spike proteins trigger an immune response that prompts antibodies (our special virus-searcher proteins) to recognize and tag these proteins that do not belong on our cells.

T-cells (our "killer" immune cells) eliminate the tagged, infected cells.

In other words, the antibodies are like sidekicks who put signals on the infected cells. These signals help the superhero immune cells easily find and get rid of the infected cells.

The two mRNA vaccines from Moderna and Pfizer come in two doses. After your second dose, you might experience side effects like fever, chills, fatigue, or body ache. These are signs that your immune cell team is training and building up protection for you. Side effects may last a couple days, and then it takes a couple weeks for your body to build immunity against COVID-19.

After a couple weeks, your antibodies are now prepared to recognize real SARS-CoV-2 and protect you from becoming seriously ill.

[6]
There is also a viral vector COVID-19 vaccine.

A viral vector is a modified, harmless version of a different virus with instructions to make proteins.

There is one viral vector vaccine currently in use from Johnson & Johnson.

This vaccine comes in one dose instead of two.

Viral vector vaccines work in a really similar way to mRNA vaccines.

They tell our immune cells to produce harmless spike proteins, trigger an immune response, and activate antibodies that are now able to recognize real SARS-CoV-2.

[7]
This table summarizes some key points about the vaccines. Although the vaccines differ in how effective they are, all of them will protect you from COVID-19.

[8]
COVID-19 vaccines are important for your health and safety and the health and safety of people around you.

The COVID-19 vaccines benefit us on an individual level, community level, and population level.

For individuals, a vaccine protects you from COVID-19 infection and can protect you from severe illness from this disease.

On a community level, as more people are vaccinated, the spread of COVID-19 will slow down.

For the broader population, herd immunity is created once a certain proportion of people is vaccinated.

[9]
What exactly is herd immunity?

The Centers for Disease Control and Prevention define herd immunity as "a situation in which a sufficient proportion of a population is immune to an infectious disease (through vaccination and/or prior illness) to make its spread from person to person unlikely."

Here is a visual that should help us understand this definition a little better.

When no one gets vaccinated, the disease can spread easily.

When some people get vaccinated, the disease spreads a little slower.

When most people get vaccinated, the disease can't spread.

In other words, a certain proportion of people need to be vaccinated in order to protect the population from mass infection.

[10]
You might have a couple questions about herd immunity.

First off, how many people need to be vaccinated to achieve herd immunity for a disease?

The answer really depends on how infectious the disease is or how quickly the disease can travel from person to person.

A disease like measles spreads quickly and so requires about 95% of the population to be vaccinated to achieve herd immunity.

A disease like seasonal flu might change from year to year and so there isn't a clear percentage of people who need to be vaccinated, but this is why you're encouraged to have your annual flu shot to protect yourself and your community.

For COVID-19, researchers are still figuring out how much of the population needs to be vaccinated to achieve herd immunity.

If previously infected people might be protected, why don't we just reopen everything and see what happens?

Given how seriously sick some people can become from COVID-19, herd immunity by infection is not ideal and unsafe.

When you get sick with COVID and recover from it, you do have antibodies for the disease and have built up an immune response.

However, researchers are still figuring out how long these antibodies protect people after they recover from COVID-19.

The key takeaway from these two questions: it is important for as many people as possible to be vaccinated.

[11]
Let's talk about some other questions you might have about the vaccines.

The COVID-19 vaccines were developed really quickly. Are they safe?

Yes! These vaccines were tested and evaluated in tens of thousands of clinical trial participants. To be used on a mass scale, the vaccines had to meet strict safety, effectiveness, and manufacturing quality standards.

Will I get infected with COVID or test positive for COVID from the vaccine?

No, the COVID vaccines currently in use do not use live virus. You would not test positive on a viral test.

You mentioned genetic material earlier. Will the vaccines alter my DNA?

No, neither the mRNA vaccine nor the viral vector vaccine will affect your DNA. Your body gets rid of the vaccine instructions once your immune cells are activated.

[12]
Should I still get vaccinated if I've already had COVID-19?

Yes! It is important to be vaccinated, even if you've previously had COVID.

As we discussed earlier, we still do not know how long you are protected from COVID after recovering from it.

Once I'm vaccinated, can I stop wearing my mask? Should I still get COVID-tested regularly?

Before and even after vaccination, it will be essential for everyone to continue to get tested regularly, wear face coverings, maintain physical distance and practice good hand hygiene to help continue to keep our community healthy.

So even though we might be eager to get back to "normal" life, we still need be cautious and keep ourselves and our community safe with these preventative health behaviors.

[13]
You may have heard of the Delta Variant in the news recently.

What exactly is the Delta variant?

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

It is currently the most prevalent, or widely spread, strain of COVID in the U.S.

Will the COVID-19 vaccine protect me from the Delta variant?

Yes. As more people are vaccinated, it becomes harder for any form of COVID-19, including the Delta variant, to spread from person to person.

If the virus can't spread, it won't have the opportunity to mutate or change into new versions of itself.

Vaccination is an important way to protect as many people as possible from COVID-19.

[14]
You might have already discussed getting vaccinated with your parents, grandparents, or other family members.

There is a schedule of when people are allowed to get the vaccine.

In California, priority was first given to the following groups:

Phase 1A included healthcare workers & long-term care residents.

Phase 1B includes people 65+ years old and people working in Agriculture/Food, Education/Childcare, Emergency Services

Appointments are now open for all people 12 years old and older.

As of April 1, 2021, Individuals who are 50 years old and older are able to get vaccinated.

As of April 15, 2021: Everyone who are 16 years old and older are able to get vaccinated.

As of May 12, 2021: The CDC announced that it is safe for 12 to 15 year olds to get vaccinated, too.

We encourage you to check out the California Department of Public Health MyTurn site at myturn.ca.gov to determine your or a family member's eligibility, find a local clinic, and make a vaccine appointment.

[15]
Here is a screenshot of the *MyTurn* site.

You can select the website language on this first page.

From there, you answer questions about the different eligibility criteria and then type in your zip code.

The site will then tell you if it's your turn to get vaccinated.

If you are eligible to be vaccinated, you can select from many vaccine clinics.

Check it out with your family to find appointments near you!

[16]

Here is a list of the references we used to write these slides. Remember that it is very important to choose sources with a critical eye and from reputable sources to find the most accurate information.

[17]

Thank you for watching this presentation! We hope you had fun learning about vaccines with us. Stay healthy and safe!

7th – 9th Grade
Discussion Questions

The COVID-19 Pandemic Discussion Questions:

Question: What is the difference between an epidemic and a pandemic?

Answer: An epidemic is when there are lots of people getting sick, more than you would normally expect in a community, state or country.

Conversely, a pandemic is a special kind of epidemic on a larger scale: people all over the world getting sick with the same disease.

Question: Why are viruses not considered living things?

Answer: Viruses cannot reproduce or make more of themselves. They are tiny parasites that need to take over living things like animals, plants, or humans to grow in numbers.

Question: Why is COVID-19 considered a zoonotic disease?

Answer: Zoonotic diseases are illnesses that come from viruses and bacteria crossing over from animals to humans.

COVID-19 is theorized to have started in bats and then spread to other animals to eventually infect humans.

Question: What are some factors that put people at higher risk for severe sickness COVID-19?

Answer: Elderly people and those with underlying health conditions like heart disease, diabetes, and other health issues have a higher risk for getting seriously ill from COVID.

People your age can still get very sick, but there are many fewer cases.

COVID-19 Prevention Questions:

Question: What is something you've always wanted to learn? How could you use this time of social distancing to develop that skill now? Is this something you can use to help others through this time as well?

Answer: Any example the student comes up with would be great!

Example 1: learning an instrument and playing for your family.

Example 2: Taking up knitting and making hats or scarves for a good cause.

Example 3: Working on art and sending it to friends and family.

Question: What is something safe that you can do to help your classmates or community?

Answer: There are many ways to help!

Example 1: You can get groceries for an elderly neighbor or relative.

Example 2: You can throw a Zoom Netflix Watch Party.

Example 3: You can play games together online.

Example 4: Maybe you can help raise money for someone that needs help. A teen from Illinois live-streams her harp playing in order to raise money for the local homeless shelter. Another teen who is passionate about woodworking started a small non-profit in order to raise money for the local homeless shelter. Teens can also help seniors find scarce COVID shots (see https://www.scientificamerican.com/article/teens-and-other-volunteers-help-seniors-find-scarce-covid-shots/)

Question: Why is it important to wear a mask, especially if you are unvaccinated?

Answer: You protect others and could help save lives! Even if you don't know you have an infection, you could still pass it on during the incubation period.

Masks show others in the community that you care about their safety, while protecting yourself as well.

COVID-19 Vaccine Questions:

Question: How are the 3 main vaccines (Moderna, Pfizer, and Johnson & Johnson) different from each other? How are they similar?

Answer: They each have different effectiveness, but they all work to protect you from COVID and/or serious problems from COVID.

Key Point: Getting any vaccine protects you.

Question: Why is the COVID-19 vaccine important?

Answer: The COVID-19 vaccine is important because it helps protect you from getting the virus, and it helps protect others from getting the virus.

Preliminary studies show that vaccines can slow transmission of COVID between people. Most importantly, by protecting yourself, you are helping children, older adults, and other people around you from becoming ill with COVID.

Question: What is one myth you have heard before today, and what do you now know?

Answer: Could reference any of the "debunking vaccine myths slides.

Question: Imagine that you are in charge of getting vaccines to everyone. How would you do it in a fast and convenient way?

Answer: This is a very current issue for the different states, counties, and cities to manage. Three example answers are below:

Example 1: Partnerships and collaboration between those making the vaccine, those transporting the vaccine, those giving the vaccine and those getting the vaccine

Example 2: making sure there are enough doses of the vaccine. For example, Yolo County has reached a peak of hosting 6+ first and second dose vaccine clinics per week, reaching communities like agriculture workers, homebound residents, high school students, and the general public. By utilizing the *MyTurn* website, Yolo County can be efficient with the vaccine.

The hard work of public health officers in the Davis area has ensured that all doses are utilized, and that the county receives the right number of vaccines.

Example 3: Making sure that all communities and all community members have access to vaccines. For example, a large majority of farmworkers are over 65, and are 112 times more likely to die of COVID. Yolo County has made progress to vaccinate agriculture workers. So far, because of this vaccination push, over 73% of Yolo County agriculture workers are vaccinated.

Aggie Public Health Ambassadors

10th – 12th Grade

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10th – 12th Grade
COVID-19 Pandemic Script

[1]
Hi, I'm Brad Pollock.

I'm going to talk to you today about the COVID-19 pandemic.

I'm actually an epidemiologist.

[2]
Epidemiologists are kind of disease detectives.

The word epidemiology comes from the derivative of epidemic, which means to have a disease upon the people.

We do a lot of work that investigate what's going on with diseases, illness, and health in populations.

That's different than medical doctors who are typically going to treat patients and diagnose patients.

We don't talk about patients. We talk about people in the population.

[3]
Emerging infectious diseases are those that happen out of nowhere; so suddenly you see a big increase, and it affects a lot of people.

Sometimes you'll see an increase in deaths.

Sometimes you'll see an increase in people showing up at the hospital or people that get very sick. Usually when they say emerging, it means it happens over a relatively fixed period of time.

Sometimes it can be very quick, sometimes it can be over the course of 10 or 20 years, but clearly with this, the current COVID-19 pandemic, this happened very, very quickly.

The other thing about emerging infectious diseases is generally they don't know anything about national boundaries.

A disease that crops up in China can easily go and spread to places like Italy, the United States, and all around the world.

[4]
This is a map that was actually drawn up by Dr. Anthony Fauci. You may have seen him on TV.

He works at the National Institutes of Health. He's the director of one of the institutes there.

He drew a map of the world for a presentation that he gave to Congress, a number of years ago, which showed notable infectious diseases that emerged during his job at the NIH. It's really interesting because you'll see on this map there's a couple of these diseases that cropped up during his time as being the director of the NIAID.

One of them was called SARS. That was the original SARS virus, and then there was one called MERS, which was related to (these are both coronaviruses), and right now we're dealing with the SARS-CoV-2 pandemic. It shows you that these can emerge over time, and all of these were ones that emerged during his time on the job at the NIH.

[5]
Let's talk about some definitions here.

One is outbreaks.

An outbreak is a greater than expected increase in the number of endemic cases. If it's not controlled quickly, an outbreak can become a pandemic or an epidemic actually.

Endemic means the normal level of disease in the population. Epidemic means you've got something going on.

Epidemic is defined as, disease that affects many people in the community, in a population, or a whole region.

It's where you have a number of new cases that really exceeds what you would expect. That's called an epidemic.

A pandemic is just a special kind of epidemic that occurs worldwide, where it's spread over a much wider area of the globe, multiple countries.

In this particular pandemic that we're dealing with, the World Health Organization didn't declare a pandemic until a couple of months after we were pretty clear that it had spread across multiple countries.

So, they were a little late to define that.

[6]
This is a map taken just really two days ago of where the new cases have occurred.
You can see it's all over the globe, but the places really affected are the United States, Brazil, South America, parts of China, India, Central Europe, and in particular Western Europe got really hit hard (they're still being hit hard by this pandemic).

[7]
I want to talk a little bit about how the coronaviruses work, how the virus is spread to other people, and what you do to protect yourselves. That's something that is also being discussed in some other videos.

[8]
What's a virus? A virus is a smallest type of parasite that's known to exist. The SARS-CoV-2 virus in particular is really small.

It ranges between 50 and 200 nanometers. Those are very, very small units.

They're typically not considered to be living things, and the reason is that a virus by itself cannot reproduce.

To define something as a living thing, it has to have the ability to reproduce.

So, viruses cannot reproduce on their own. They have to infect another animal, or even a plant (because there's plant viruses) in order to reproduce.

They have to use the cellular machinery of a plant or animal in order for the viruses to replicate themselves and to spread.

[9]
The SARS-CoV-2 virus is the one that causes this coronavirus, and it was discovered in 2019. That's why it's called COVID-19.

SARS stands for Severe Acute Respiratory Distress Syndrome and we've had other types of viruses like this.

We had the original SARS epidemic that happened back about 20 some odd years ago.
These are viruses that spread very easily from person to person.

The SARS-CoV-2 virus spreads incredibly efficiently between people and unfortunately, there's no natural immunity in humans, so we're all susceptible to getting infected and possibly getting sick.

[10]
The virus itself, as I said, is highly infectious.

In less than a year, it's killed more than 550,000 Americans. That is really devastating.
The primary way it's spread is by infected individuals who emit droplets. The droplets contain virus, and if they're actually emitted in an area where there are people that have not been exposed to the virus before, they're considered to be susceptible, they can ingest those viral particles, so a lot of times you can emit these by sneezing or coughing.

We found out that loud talking and even singing and yelling were ways to transmit the virus through your upper respiratory tract into the air, and if you emit those little viral, those little droplets that contain virus inside of them, they can be picked up by other people and ingested directly into their airways, so they pick them up that way.

[11]
The incubation period, which we talk about for viruses, is the time between when the virus enters your body and when you become fully infected, and for this virus, it's about five days.

It's also interesting that about 99 percent of people who do get infected will no longer be infectious within 14 days.

That's why they originally were using a 14-day period of time to quarantine and isolate people because we knew that for the vast majority of people that if they were infected, they could no longer be infectious when you got past that two-week mark.

Unfortunately for this virus, about 30 percent of people who get infected will remain without any symptoms at all.

We call those asymptomatic individuals. There's another 20 percent of the population who get infected, who can shed the virus in the days before they do develop symptoms and that's what we call the pre-symptomatic phase.

That means if you look at the 30 percent that are what we consider to be asymptomatic and 20 percent that are pre-symptomatic, that means that 50 percent (or half the individuals who are infected) can spread the virus to others without knowing it.

That's what makes this virus so dangerous. It's very different than other viruses like influenza, where most of the time that you're able to spread it is really at the point where you've already developed symptoms, so you know, you're sick.

This virus actually spreads very efficiently before anybody has any idea that they're infected.

The other thing that's important is the virus has been mutating fairly quickly, as you've heard about.

These mutations result in what we call variants of the virus or mutant viruses.
Unfortunately, some of the mutations that have occurred have made the virus what we consider to be more successful.
That means the virus can infect other people more efficiently.

That's not good for us. It's good for the virus. These viruses get harder and harder to stop.

As you see, some of these mutations occur in the virus itself and they make them more deadly in some cases and may potentially make them more resistant to the effect of vaccines.

That's why we're very concerned about this.

[12]
Who's at risk for getting an infection? The novel SARS-CoV-2 virus can infect just about anyone, and why is that? Because we consider this to be a novel virus.

Nobody before this pandemic had ever seen this virus before.

Nobody ever had a chance to get infected and to develop immunity to the virus. There's no natural immunity.

Sometimes, other viruses that emerge have enough connection with their previous family members they come from (where they've evolved from) where there's a little what we call cross-reactivity. That means you get a little bit of protection.

For this virus there was no protection whatsoever and some groups certainly do appear to be at higher risk of being infected, but mostly the infection rates have been dictated by health behaviors, not so much by biology.

The exception would be for some of the younger people.

Some of the younger children do not seem to transmit the virus as effectively or get infected as effectively, but for the most part, when you get into high school ages and above, it's really not the biology of the person that it affects, whether or not you're going to get infected, it's actually what kinds of conditions people are in, where they have opportunities to get infected from others.

[13]
The transmission of the virus, as I mentioned, has started originally in animals. We think that bats were the primary source of the virus as it evolved. The bats, of course, can infect other animals, and there was probably animal to human spread to get this thing kicked off.

That's why we're concerned about this, and those are called zoonotic diseases, where you have viruses and bacteria in animals that can cross over and infect humans. These are called zoonotic diseases.

As I said, the virus is generally spread from person to person where the infected person who's emitting or can shed the virus can, you know, cough, they'll sneeze, they may talk loudly, breathe, they may sing and that will put the virus in these little droplets that are emitted out, and then sometimes those droplets, that are very small, can be suspended in the air for a while, so we call those aerosols.

Generally, we thought at the beginning of the pandemic that perhaps people could pick up the virus by touching surfaces around them where people had coughed or sneezed and emitted the virus that way.

That is still theoretically possible, but as the pandemic evolved, there is more and more evidence that that was not the primary way that people picked up the virus.

At the beginning, we were all scrubbing down our groceries we brought home from the store and surfaces, and that's still a good idea to do some of that cleaning, but most of the transmission of this virus has really been from person to person where you're seeing this droplet spread.

Finally, the other way that the virus could theoretically be spread is through poop, through fecal matter, but this is really not a common source and nobody's really documented this as a major problem, but we do look at poop.

Sometimes, we look at the wastewater that comes into the sewer system to detect whether or not a household or a building like a dorm building on a college campus or even a neighborhood might have people that are shedding virus in that area.

So that's one of the ways that we're looking at this. That's called wastewater monitoring and it may be more and more important as we go forward as a pandemic progresses.

[14]
For people who do get infected, there's greater risk for having severe disease, for people that have certain underlying conditions, for example, having heart disease, diabetes, or having a depressed or suppressed immune system.

These are all important indicators of higher risk, but probably the most important thing is (for the elderly in particular) the older people are, the more likely they are to get severe forms of the illness compared to younger people. In fact, for children and really young kids, there's probably a much lower risk of having severe illness, although it's not zero.

There are some kids that do get very, very sick. They're a very small number, but there still are some that do get sick.

[15]
The basic reproduction number, it's also called R-zero, or R-naught, if you are actually from England.

It really refers to how many people one person is likely to infect on average. For this virus, at the beginning, it was really an R-naught or an R-zero of about two or three.

That means for every one person that was infected, on average, two people got infected. In some cases in parts of the world, three or four people may have gotten infected from one case.

[16]
Because of the way the virus grows in the population, through this exponential growth, you can imagine that if you stop one person from getting infected in the first place, that's going to have a really big impact on how many other potential people you've saved from being infected.

[17]
The idea here is that we take the person who has an index case (that's the person infected in the middle here), and we try to do something to prevent them from infecting other people.

So, we take a chopping block or a knife here and we basically stop that transmission.
So every time you stop one case from getting infected, you're also stopping those people from infecting others, and that's why it's so important to get a handle on things for this epidemic.

[18]
While the SARS-CoV-2 virus was thought to come from China after crossing over from different animal species to humans, we don't refer to it as the China virus.

The infection rate has changed a lot over the last year, but with vaccination now available, people who are susceptible can gain protection from getting infected and spreading it to others. Until almost everyone in the population is vaccinated, we're going to have to continue to practice safe behaviors.

That includes doing things like wearing masks and staying six feet apart in public, trying to meet in outdoor spaces with people that you don't live with, and of course, getting tested regularly to make sure that you're not infected and have asymptomatic cases.

[19]
So, please be safe and thank you for listening

10th – 12th Grade
COVID-19 Prevention Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from the UC Davis Department of Public Health Sciences.

Aggie Public Health Ambassadors are UC Davis college students who teach people in Davis what they can do to stop the spread of COVID-19 and keep our community safe.

Today we will be learning about the prevention measures you can take to keep yourself and your community safe from COVID-19.

[2]
Slowing the spread of COVID-19 requires a comprehensive approach, which means that we have to get information from many different places to help us keep everyone healthy.

We have to look at information from COVID-19 testing, which tells us how many people are testing positive or negative for COVID-19.

We also have to look at data from contact tracing, which is the process of identifying people who may have come into contact with a COVID-19 positive person. Contact tracers instruct people if they need to stay home away from others or get tested for COVID-19.

Finally, we do environmental monitoring by looking at things like wastewater to determine if there are more cases of COVID-19 in one area compared to another area.

This comprehensive approach can help communities better monitor the spread and make decisions that protect people.

Preventing the spread of COVID-19 is everyone's job—and that means everyone should follow recommendations from health experts to prevent the spread of COVID-19.

In this lesson we will go into detail on the 4 main ways you and your family can take action to prevent the spread of COVID-19. These measures are: wearing a face covering, physical distancing, hand hygiene practices, and regular testing.

We'll also talk about COVID-19's incubation period, which is the number of days between when you're infected with something and when you might see symptoms, and the importance of paying attention to when you feel sick and staying home if your symptoms could be a result of COVID-19.

[3]
SARS-COV-2 is a virus that causes COVID-19. It is in a group of viruses known as coronaviruses.

Scientists call this kind of virus coronavirus, because Corona is Latin for "crown", and under a microscope, these viruses look like a crown with spikes.

There is a range of different symptoms that people with COVID-19 can experience, but some of the most common ones are fever, cough, shortness of breath and loss of taste or smell.

Some people may get COVID-19, but never develop symptoms.

However, many others in the United States and the world have gotten very sick or died from COVID-19.

[4]
COVID-19 spreads very easily from person to person through respiratory droplets, which are drops of fluid from your lungs.

Respiratory droplets travel into the air when you cough, sneeze, talk, shout, or sing. These droplets can then land in the mouths or noses of people who are near you.

The larger droplets are concentrated around a person, which is why physical distancing is important.

The smaller droplets can be carried through the air, which is why masks are important.

COVID-19 is spread most commonly through close contact, which happens when someone who does not have COVID-19 interacts with someone who does have it.

Close contact means touching, hugging, or just sitting or standing closer than 6 feet to someone for 15 minutes or more.

COVID-19 is very contagious, which means that it is easy for one person to get COVID-19 from another person. In fact, it is more contagious than the flu!

Respiratory droplets can also land on surfaces and objects. It is possible that a person could get COVID-19 by touching a surface or object that has the virus on it and then touching their own mouth, nose, or eyes.

However, close contact is still considered the most common way that COVID-19 spreads.

[5]
This kind of virus can affect anybody.

Younger children and adults often experience no to mild symptoms, but there have still been young and healthy people that have gotten seriously ill or died from this virus.

Even if someone does not have symptoms, they can still pass COVID-19 to other people.

This is why it's important for everyone to follow COVID-19 prevention recommendations like masking and physical distancing.

Older people or people with existing health problems are more likely to experience more severe symptoms or die if they get COVID-19.

While anybody can get infected with COVID-19, it's important to realize that not everyone is affected the same, and this is not just referring to symptoms.

People from ethnic or racial minority groups are often more affected by COVID-19 due to due to less access to healthcare, higher risk jobs, less access to accurate information, and crowded housing.

[6]
Masks are a simple barrier to help prevent your respiratory droplets from reaching others. Studies show that masks reduce the spray of droplets when worn over the nose and mouth. With more people getting the COVID vaccine, masking rules have started to change a little bit.

People who have been vaccinated do not need to wear a mask except certain places like indoors at K – 12 grade schools, hospitals and doctor's offices, and public transit like on a bus, train, or airplane or at public transportation hubs like a train station or airport

People who have not been vaccinated need to wear a mask inside at places like movie theaters, restaurants, and other more crowded indoor spaces.

In general, both people who are vaccinated and people who are not vaccinated do not need to wear a mask outdoors.

The infographic on the right is a great quick guide about safe activities based on your vaccine status.

To improve mask efficiency, make sure your face covering fits snugly and covers your nose, mouth and chin, without any gaps to allow air or respiratory droplets to get through.

The mask should fit tightly against the face. This means there should be no gaps or openings along the sides of the mask.

Select a face covering that has multiple layers to keep your respiratory droplets in and others' respiratory droplets out.

It is not recommended to wear a mask with only one layer of cloth, or with breathing valves or vents which can allow your respiratory droplets to escape.

[7]
Limiting close contact with others is the best way to reduce the spread of COVID-19.

Since people can spread the virus before they know they are sick, it is important to stay physically distanced from others when possible, even if you—or they—have no symptoms.

While at school, this means sitting or standing at least 3 feet apart from others while in your classroom or 6 feet apart while outside the classroom during breaks or lunch.

Physical distancing is especially important for people who are at higher risk for severe illness, like elderly adults and people who have existing health problems.

Physical distancing means keeping space between yourself and other people outside of your home.

To practice physical distancing: stay at least 6 feet (about 2 arms' length) from other people, do not gather in groups, and stay out of crowded places and avoid big gatherings.

Similar to masking, physical distancing rules have changed as more people are COVID vaccinated. Vaccinated folks do not need to practice physical distancing in most settings unless the specific business or workplace requires it.

[8]
There are many different ways to easily visualize what 6 feet looks like. This could include the length of 3 dachshund dogs, one bicycle, or, since we're in Davis - one cow.

[9]
Practicing good hand hygiene is an important preventative action that slows the spread of COVID-19.

Wash your hands often with soap and water for at least 20 seconds.

Often means washing before and after eating a meal, after using the bathroom, sneezing, coughing or blowing your nose, and immediately after touching surfaces that other people have touched, like a public bathroom door.

If soap and water are not available, use a hand sanitizer that contains at least 60% alcohol.

Carrying around an alcohol-based hand sanitizer is a great idea, as it allows you to sanitize your hands when you are not able to wash immediately after coming in contact with surfaces that many other people also touch, like public restroom doors or tables at your school.

[10]
We mentioned that you can pass COVID-19 to others even if you don't feel sick. This is because of what we call an incubation period.

An incubation period is the time it takes between the day a person is infected with a pathogen (which is something that causes a disease, like a virus), and the day that the person starts having symptoms of the disease.

For example, if a person is infected with a cold, it usually takes about one to three days for the person to start having cold symptoms which could be a cough, runny nose or sneezing. This means that the common cold's incubation period is one to three days.

COVID-19 has a 14-day incubation period!

This means that it can take up to 14 days after someone had contact with COVID-19 to show symptoms, and you may not test positive immediately after you had that close contact.

On average, symptoms show up in the newly COVID-19 infected person about 5 days after contact with someone with COVID-19.

You can see this in the picture on the screen. Kate was tested 5 days after she was exposed to COVID-19, but her test results came back negative. Because of that test result, and because she didn't feel sick, on Day 8 she spent time with coworkers and family members.

At this point on Day 8 she was actually positive, and exposed 22 other people to COVID-19. It wasn't until Day 10 that she had symptoms and tested positive.

What does all this mean? It means that symptom-free doesn't mean COVID-19-free.

You could have COVID-19 and be potentially passing it onto others without feeling sick.

If you are not vaccinated, This is where it's important to get tested regularly, because if you are getting tested regularly even when you don't feel sick, you could find out early if you have COVID-19 and know to stay home away from others before you pass it to other people like your friends, classmates or others in your community.

[11]
There are two different types of COVID-19 tests – diagnostic tests and antibody tests.

A diagnostic test can show if you have a current COVID-19 infection. Currently there are two types of diagnostic tests– molecular tests, such as PCR, or polymerase chain reaction tests, that detect the virus's genetic material, and antigen tests that detect specific proteins from the virus.
A diagnostic test can be done by doing a saliva or nasal swab test.

Antigen tests are rapid and will usually deliver results within an hour, and diagnostic tests can take multiple days to get results.

The testing that we do at UC Davis on campus and at the community testing sites (like the testing at the Mondavi Center or local Davis school testing sites) is considered a PCR molecular test.

Testing done through a nasal swab is also considered a PCR molecular test.

One thing to note is that when you get tested for COVID-19 through a diagnostic test, that test only tells you if you are infected at that specific moment.

That means you could still get infected after that test, and if you start to feel sick even after you test negative, you will need to get tested again.

An antibody test looks for antibodies that are made by your immune system in response to a threat, such as a specific virus. Antibodies can help fight infections.

Antibodies can take several days or weeks to develop after you have an infection and may stay in your blood for several weeks or more after recovery.

Because of this, antibody tests should not be used to diagnose COVID-19. They can only tell you if you've had a past COVID-19 infection.

[12]
We mentioned that it is recommended you get tested regularly if you are not vaccinated even if you do not show symptoms.

The current recommendation is to get tested for COVID-19 at least once a week, but twice is better so we can catch an infection even faster.

In a lot of areas throughout California, it is hard to get a COVID-19 test unless you are actually showing symptoms, making regular testing difficult.

However, we are very lucky in Davis to have access to free, convenient and fast COVID-19 testing, which makes it easy for the Davis community to get tested regularly.

UC Davis and the city of Davis have partnered together in an initiative called Healthy Davis Together, which you may have seen advertised on social media, TV, and signs and billboards throughout Davis.

Healthy Davis Together provides free testing for the Davis community at different locations throughout the city like Montgomery Elementary, Emerson Junior High, Harper Junior High, Davis High School, and the Mondavi Center.

Like we just talked about, the community testing we do in Davis is a PCR molecular saliva test, where you spit into a tube that is then taken to UC Davis' genome center to examine. Results are usually given 1-2 days after your test.

[13]
Regardless of how often you are getting tested, it is important to pay attention to whether you have any of the COVID-19 symptoms on a daily basis, and if you feel sick let your family know.

They can help you figure out what you should do, which will most likely be staying home and resting.

[14]
You might have heard news about a new type of coronavirus, the Delta variant.

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

The Centers for Disease Control declared that the Delta variant is a "variant of concern" on June 15, 2021 because it is highly transmissible or contagious.

All the behaviors we just talked about like wearing a mask, keeping 6-feet apart, washing your hands, and getting tested are all ways that we can continue to stay safe from COVID-19 including the Delta variant.

[15]
While experts learn more about the protection that COVID-19 vaccines provide under real-life conditions, it will be important for everyone to continue using all the tools available to us to help stop this pandemic.

So remember, the most important thing you can do to keep yourself, your family, your friends, and your community safe is to wear a mask, stay more than 6 feet from other people you don't live with, wash your hands often, get tested at least once if not twice a week, and get vaccinated when you are able.

As you can see in the picture, the Swiss Cheese Model shows us that we are most safe when we follow the recommendations of masking, physical distancing, hand washing, and testing. The more we follow these recommendations, the quicker we can get back to normal.

[16]
Here is the list of sources that provided the information for this lesson.

It is important to get your information about COVID-19 from scientific sources, like the Centers for Disease Control (CDC), universities like UC Davis, and county and state agencies.

10th – 12th Grade
COVID-19 Vaccine Script

[1]
Hello there! My name is [APHA Name], and I am an Aggie Public Health Ambassador from the UC Davis Department of Public Health Sciences.

The Aggie Public Health Ambassadors are a group of UC Davis students who educate and encourage Davis community members on healthy behaviors like mask wearing, physical distancing, hand washing, and routine COVID testing to stay safe from COVID-19.

Today, we will be learning about the newest way to protect ourselves from COVID: (**pause**) COVID-19 vaccines.

[2]
Here is an overview of our lesson for today.

First, I'll explain what COVID-19 is.

Then we will talk about how vaccines work.

From there, we'll discuss the benefits of vaccines for both individuals and communities.

We'll debunk some common vaccine myths.

And we will end with checking out vaccine eligibility for you and your family.

[3]
Let's start with the basics. What is COVID-19?

Coronavirus (or COVID-19) is an infectious respiratory disease that is caused by a germ (or virus) named SARS-CoV-2.

"Infectious" is just a long word that means able to spread from person-to-person.

Your respiratory system is made up of the body parts that help you breathe: everything from your nose, down through your throat, and to your lungs.

Coronavirus gets its name from the crown-like spike proteins on its surface.

Over the past year, you may have noticed that COVID-19 can look different from person-to-person when someone gets sick with this disease:

Some people might get infected but not feel sick at all.

There are folks who only experience mild, flu-like symptoms such as cough, fever, runny nose, or tiredness.

And then there are others who need to go to the hospital for difficulty breathing and other more serious symptoms.

The virus spreads via respiratory droplets (or tiny spit particles) which are made anytime a person breathes, coughs, sneezes, or speaks.

The best ways to protect yourself are washing your hands, wearing a mask, staying 6-feet apart from others, getting tested for COVID regularly, and staying home when you feel sick.

These behaviors can keep you and your social bubble (like your parents, grandparents, siblings or other people who live with you) stay healthy and safe from COVID.

[4]
In addition to these health behaviors, we now have the COVID-19 vaccines to help us stay healthy and safe.

Getting the COVID-19 vaccine is one of the most important things each of us can do to end the COVID-19 pandemic. Over the past year, scientists have been working hard to create a safe and effective COVID-19 vaccine. As vaccines are becoming more widely available, it is important to know some key facts about them.

To make you feel sick, viruses make copies of themselves to overshadow your healthy cells and take control of your body. Vaccines train our bodies to stop viruses from taking over.

So how do COVID-19 vaccines work?

As a brief overview:

You visit the doctor, and they vaccinate you.

Then, the vaccine launches an immune response. An immune response means:

Your immune system is a team of cells and molecules that protects you from getting sick.

The vaccine gives your immune system the information it needs to protect you.

This immune response produces antibodies that help your body fight the real virus if you encounter it.

We'll go into more detail in the next couple slides.

[5]
There are a couple types of COVID vaccines that are now being used to protect the population.

For many vaccines, weakened or inactivated virus is introduced to your bodies. This weakened virus mimics what the real virus would do so that your immune system can fight the real thing if you encounter it.

MRNA vaccines work a little differently.

MRNA is genetic material with protein-making instructions for our cells.

Our cells are already used to reading instructions from mRNA, and so the mRNA vaccines are a neat way to teach our immune systems how to fight COVID.

There are two mRNA vaccines currently approved to be given to people from Moderna and Pfizer, two major pharmaceutical companies.

COVID-19 mRNA vaccines tell the cells in our bodies to produce harmless spike proteins, mimicking those on SARS-CoV-2.

The spike proteins trigger an immune response that prompts antibodies (our special virus-searcher proteins) to recognize and tag these proteins that do not belong on our cells.

T-cells (our "killer" immune cells) eliminate the tagged, infected cells.

In other words, the antibodies are like sidekicks who put signals on the infected cells. These signals help the superhero immune cells easily find and get rid of the infected cells.

The two mRNA vaccines from Moderna and Pfizer come in two doses. After your second dose, you might experience side effects like fever, chills, fatigue, or body aches. These are signs that your body is building up an immune response. Side effects may last a couple days, and then it takes a couple weeks for your body to build immunity against COVID-19.

After a couple weeks, your antibodies are now prepared to recognize real SARS-CoV-2 and protect you from severe infection.

[6]
There is also a viral vector COVID-19 vaccine.

A viral vector is a modified, harmless version of a different virus with instructions to make proteins.

There is one viral vector vaccine currently approved for use: Johnson & Johnson.

This vaccine comes in one dose instead of two.

Viral vector vaccines work in a really similar way to mRNA vaccines.

They tell our immune cells to produce harmless spike proteins, trigger an immune response, and activate antibodies that are now able to recognize real SARS-CoV-2.

[7]
This table summarizes some key points about the vaccines. Although the vaccines differ in how effective they are, all of them will protect you from COVID-19.

[8]
COVID-19 vaccines are important for your health and safety and the health and safety of people around you.

The COVID-19 vaccines benefit us on an individual level, community level, and population level.

For individuals, a vaccine protects you from COVID-19 infection and can protect you from severe illness from this disease.

On a community level, as more people are vaccinated, the spread of COVID-19 will slow down.

For the broader population, herd immunity is created once a certain proportion of people is vaccinated.

[9]
What exactly is herd immunity?

The Centers for Disease Control and Prevention define herd immunity as "a situation in which a sufficient proportion of a population is immune to an infectious disease (through vaccination and/or prior illness) to make its spread from person to person unlikely."

Here is a visual that should help us understand this definition a little better.

- When no one gets vaccinated, the disease can spread easily.
- When some people get vaccinated, the disease spreads a little slower.
- When most people get vaccinated, the disease can't spread.
- In other words, a certain proportion of people need to be vaccinated in order to protect the population from mass infection.

[10]
You might have a couple questions about herd immunity.

First off, what proportion of the population needs to be vaccinated to achieve herd immunity for a disease?

The answer really depends on how infectious the disease is or how quickly the disease can travel from person to person.

A disease like measles spreads quickly and so requires about 95% of the population to be vaccinated to achieve herd immunity.

A disease like seasonal flu might change from year to year and so there isn't a clear percentage of people who need to be vaccinated, but this is why you're encouraged to have your annual flu shot to protect yourself and your community.

For COVID-19, researchers are still figuring out how much of the population needs to be vaccinated to achieve herd immunity.

If previously infected people might be protected, why don't we just reopen everything and see what happens?

Given the severity of many COVID-19 cases, herd immunity by infection is not ideal and unsafe.

Additionally, researchers are still determining how long individuals are protected after recovering from COVID-19.

The antibodies we discussed earlier might not last as long in our bodies as for other infectious diseases.

The key takeaway from these two questions: it is important for as many people as possible to be vaccinated.

[11]
Let's talk about some other questions you might have about the vaccines.

The COVID-19 vaccines were developed really quickly. Are they safe?

Yes! These vaccines were tested and evaluated in tens of thousands of clinical trial participants.

To be used on a mass scale, the vaccines had to meet strict safety, effectiveness, and manufacturing quality standards.

Will I get infected with COVID or test positive for COVID from the vaccine?

No, the COVID vaccines currently in use do not use live virus. You would not test positive on a viral test.

You mentioned genetic material earlier. Will the vaccines alter my DNA?

No, neither the mRNA vaccine nor the viral vector vaccine will affect your DNA. Your body gets rid of the vaccine instructions once your immune cells are activated.

[12]
Should I still get vaccinated if I've already had COVID-19?

Yes! It is important to be vaccinated, even if you've previously had COVID-19.

As we discussed earlier, we still do not know how long you are protected from COVID-19 after recovering from it.

Once I'm vaccinated, can I stop wearing my mask? Should I still get COVID-19-tested regularly?

Before and even after vaccination, it will be essential for everyone to continue to get tested regularly, wear face coverings, maintain physical distance and practice good hand hygiene to help continue to keep our community healthy.

So even though we might be eager to get back to "normal" life, we still need be cautious and keep ourselves and our community safe with these preventative health behaviors.

[13]
You may have heard of the Delta Variant in the news recently.

What exactly is the Delta variant?

The Delta variant is the most contagious form of coronavirus yet, meaning that it is spreading faster than other forms of coronavirus before it.

It is currently the most prevalent, or widely spread, strain of COVID in the U.S.

Will the COVID-19 vaccine protect me from the Delta variant?

Yes. As more people are vaccinated, it becomes harder for any form of COVID-19, including the Delta variant, to spread from person to person.

If the virus can't spread, it won't have the opportunity to mutate or change into new versions of itself.

Vaccination is an important way to protect as many people as possible from COVID-19.

[14]
You might have already discussed getting vaccinated with your parents, grandparents, or other family members.

There is a schedule of when people are allowed to get the vaccine.

In California, priority was first given to the following groups:

Phase 1A included healthcare workers & long-term care residents.

Phase 1B includes people 65+ years old and people working in Agriculture/Food, Education/Childcare, Emergency Services

Appointments are now open for all people 12 years old and older.

As of April 1, 2021, Individuals who are 50 years old and older are able to get vaccinated.

As of April 15, 2021: Everyone who are 16 years old and older are able to get vaccinated.

As of May 12, 2021: The CDC announced that it is safe for 12 to 15 year olds to get vaccinated, too.

We encourage you to check out the California Department of Public Health MyTurn site at myturn.ca.gov to determine your or a family member's eligibility, find a local clinic, and make a vaccine appointment.

[15]
Here is a screenshot of the *MyTurn* site.

You can select the website language on this first page.

From there, you answer questions about the different eligibility criteria and then type in your zip code.

The site will then tell you if it's your turn to get vaccinated.

If you are eligible to be vaccinated, you can select from many vaccine clinics.

Check it out with your family to find appointments near you!

[16]
Here is a list of the references we used to write these slides. Remember that it is very important to choose sources with a critical eye and from reputable sources to find the most accurate information.

[17]
Thank you for watching this presentation! We hope you had fun learning about vaccines with us. Stay healthy and safe!

10th – 12th Grade

Discussion Questions

The COVID-19 Pandemic Discussion Questions:

Question: What does it mean to be an "asymptomatic individual"? Why is this definition important to know in the context of COVID-19?

Answer: About 20% of people who become infected with COVID-19 experience no symptoms. People who are sick but feel fine are called "asymptomatic individuals."

A person can be infected but not even know it because they do not feel sick at all.

This is why it is so important to wear a mask, to stay physically distanced, to get tested regularly, and (more recently) to get vaccinated.

Question: How has science contributed to the fight against COVID-19?

Answer: At the beginning of the pandemic, no one knew how the virus was transmitted. By collecting data, researchers began to discover how the virus is transmitted.

Research has also helped us understand the effectiveness of masks and the materials that make masks most effective. It has also helped us understand why six feet is an effective physical distance to prevent spread of COVID-19.

By working together, scientists from different research groups have been able to quickly develop and test effective vaccinations.

Question: Why is it important that we never refer to COVID-19 as the "China virus" or refer to it as the "Kung Flu"?

Answer: This careless use of words and labeling resulted in hate, prejudice, and violent attacks against innocent Asian Americans.

For example, over the past year, we have seen a rise in anti-Asian violence which is due to harmful messaging that suggests Asian Americans are responsible for the pandemic and all the suffering we have experienced because of it.

Words are important. Careless use of words can give people a false belief that is justified to harm and to hate.

It is important to use the scientific name for this disease, COVID-19, in order to not harm entire groups of people.

COVID-19 Prevention Questions:

Question: What are some of your favorite pre-pandemic activities/hobbies and how have you or can you adapt them to keep yourself and others safe during this time?

Answer: Encourage all student answers. Help brainstorm how their hobbies and activities can be modified if not COVID-19 safe.

Question: To keep everyone safe, what would you do if you were a healthcare professional, food service worker, sanitation worker, or any other high risk essential service worker?

Answer: Wearing a mask at all times, social distancing whenever possible, showering and sanitizing before seeing your family or household members, get vaccinated.

Question: What aspects about living in this community (Davis/California/United States) make it easier/harder for you and your family to stay safe during this time?

Answer: Factors that contribute to safety are access to masks, access to testing, people believing in the disease, and the community working together toward building a safer environment for all.

There are also education opportunities in classes about COVID-19 and vaccines. For example, the UC Davis Aggie Public Health Ambassador Program encourages community building and public awareness, while providing makes, educational materials, and distancing protocols on the Davis campus and downtown. The UC Davis campus also provides COVID testing for students and their families.

Healthy Davis Together (HDT) also encourages community testing with free testing sites for Davis residents, provides masks, and educates the public.

There are many opportunities to get vaccinated within the Davis community.

COVID-19 Vaccine Questions:

Question: What is one myth you have heard before today, and how did this presentation clarify things for you?

Answer: Could reference any of the “debunking vaccine myths” slides.

Question: What are some reasons for not being vaccinated?

Answer: There are several reasons an individual may not be vaccinated. Important factors include that vaccination centers across the United States are not equally distributed in all

neighborhoods, and that vaccination centers are not always open at times when people are able to access them.

Additionally, not everyone has transportation to vaccination centers, and not everyone has access or knows how to use the technology to make appointments for the vaccine. Some news stories also provide potentially confusing information about the safety of vaccines.

Question: How would you recommend getting vaccines to everyone in a fast way that ensures everyone has equal access to appointments and vaccines?

Answer: This can be any public health program and/or initiative the students can think of! This is a very current issue for the different states, counties, and cities to manage.

Example 1: getting government and private entities to work together. *ApoYolo*, a local immigration rights group, played a crucial role in helping Yolo County Dept. of Public Health in educating and distributing vaccines to Spanish speaking agriculture workers.

Example 2: organizing shuttles and transportation services to help people get to vaccination sites. Through June 30th, *Yolobus* will be providing free rides to common vaccine clinics in the county

Example 3: Online registration systems where people can sign up for vaccine appointments. Those under UC Davis Health. can use their *MyTurn* portal to make an appointment Yolo County residents can also use *MyTurn* to make their appointment.

Bonus Question: How could students help people who are not comfortable using computers? See https://abc7.com/vaccine-teens-covid-19-vaccines-appointments-helping-seniors/10432805/

Example 4: incentive and informational programs that help make people want to get vaccinated. For example, some big employers have announced that they will encourage employees to get vaccinated, offering cash, paid time off or extra vacation time to help stop the spread of the coronavirus. Local companies like Amtrack are offering paid leave, while California company Kroger's is offering cash incentives.

Question: How is getting a COVID-19 vaccine different from other vaccines or health decisions? HINT: Does your decision affect more than just you?

Answer: Getting the vaccine helps everyone in your community and the whole world in eradicating COVID-19.

How is this different from the flu shot? COVID-19 has a higher infectivity rate than the flu, and is deadlier than the flu.

The COVID vaccine is proving to be even more effective at preventing severe disease (up to 95% versus 40-60% for the flu vaccine)

The COVID vaccine uses mRNA, which is new and helped the vaccine be able to be developed faster.

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