

COVID-19 Vaccination



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Word Bank

coronavirus

mRNA

population immunity

reproduction number (R_0)

effective reproduction number (R_T)

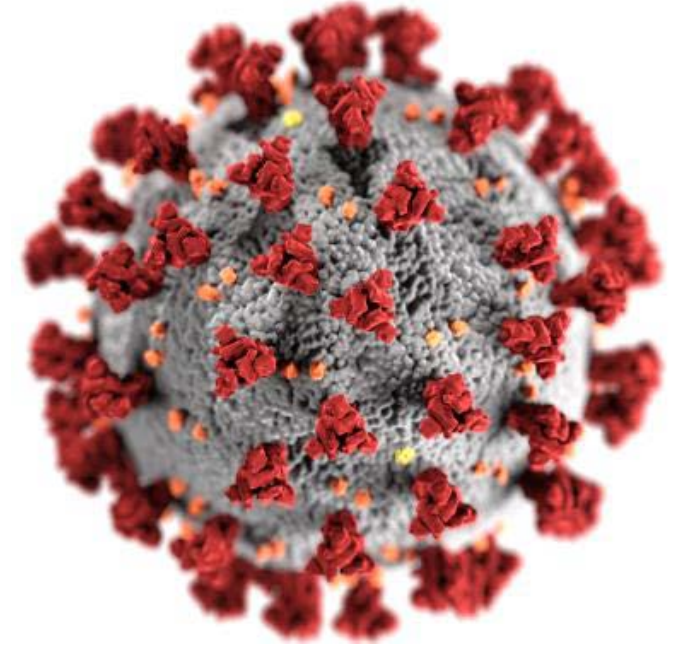
vaccine confidence

white cells

	molecule that is the blueprint for making proteins
	the average number of people that one person with a virus is likely to infect
	the trust that patients, their families, and providers have in recommended vaccines
	a family of viruses characterized by a crown of spikes on the outside
	when an entire population is resistant to a disease
	the average number of people that one person with a virus SARS-CoV-2 is likely to with mitigation measures in place
	cells that fight infection

Understanding COVID-19

- **Coronaviruses** are a type of virus with a crown of spike proteins sticking out
 - There are many types, including SARS, MERS, and viruses that cause colds
 - SARS-CoV-2 is the specific **coronavirus** that causes COVID-19
- COVID-19 causes respiratory symptoms but can also harm other parts of the body
- More than 4.5 million people have died from COVID-19 worldwide





Think About It

1. How do you think vaccines prevent illness?
2. What are some reasons that a person might get a COVID-19 vaccine?
3. How safe and effective are vaccines against COVID-19?

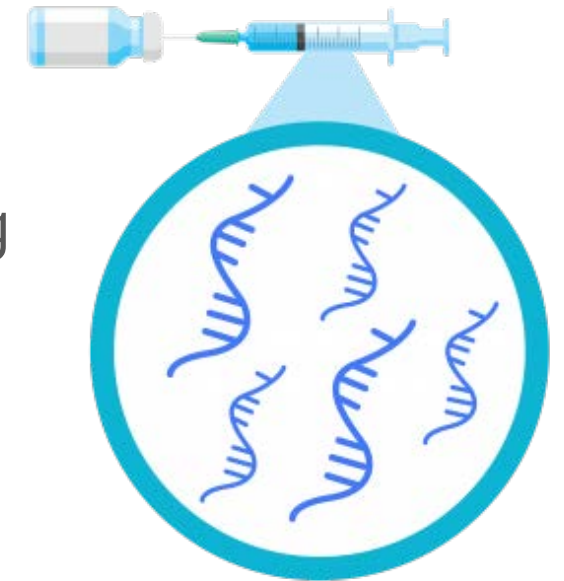
COVID-19 Vaccination and CDC

- COVID-19 vaccines help the body develop immunity to the SARS-CoV-2 virus
- Vaccines are safe and effective
- Side effects are generally mild
- No vaccine is 100% effective
- Provide strong protection against serious illness, hospitalization, and death



COVID-19 Vaccination and CDC

- Vaccines from Pfizer-BioNTech and Moderna are both **mRNA** vaccines
- Vaccine includes **mRNA** sequence from virus's spike proteins
- Cells produce the spike protein using the instructions from **mRNA**
- Immune system builds antibodies to fight against the spike protein
- If person is exposed to SARS-CoV-2 later, the immune system remembers the spike protein and can quickly build antibodies against it





Think About It

1. How is CDC supporting the efforts to vaccinate all Americans against COVID-19?
2. Why is getting a COVID-19 vaccine important?
3. How are **mRNA** vaccines different from most other vaccines?

From the
Expert

BUILD **TRUST** AND
VACCINE CONFIDENCE

https://youtu.be/EH_qjp5u030



Think About It

1. Why is it important to identify vulnerable populations when administering vaccines?
2. Who are trusted community members who help people make vaccine decisions?
3. Why are vaccines our best defense against **coronavirus**?

Call to Action!

1. Build a model for population immunity.
2. Publish your vaccine story.
3. Share your findings.

Why do you think participation is important?

Give it a
Try

Use the Engineering Design Process



Define

Define the problem



Research

Do background research



Requirements

Specify requirements



Brainstorm

Develop solutions



Build

Build a prototype



Test

Test and redesign



Share

Communicate results

1. Build a Model for Population Immunity

- Cut out the 64 vaccine tiles
- See how vaccination affects the way a disease moves through a population
 - Round 1: 50% vaccinated
 - Round 2: 75% vaccinated

Give it a
Try

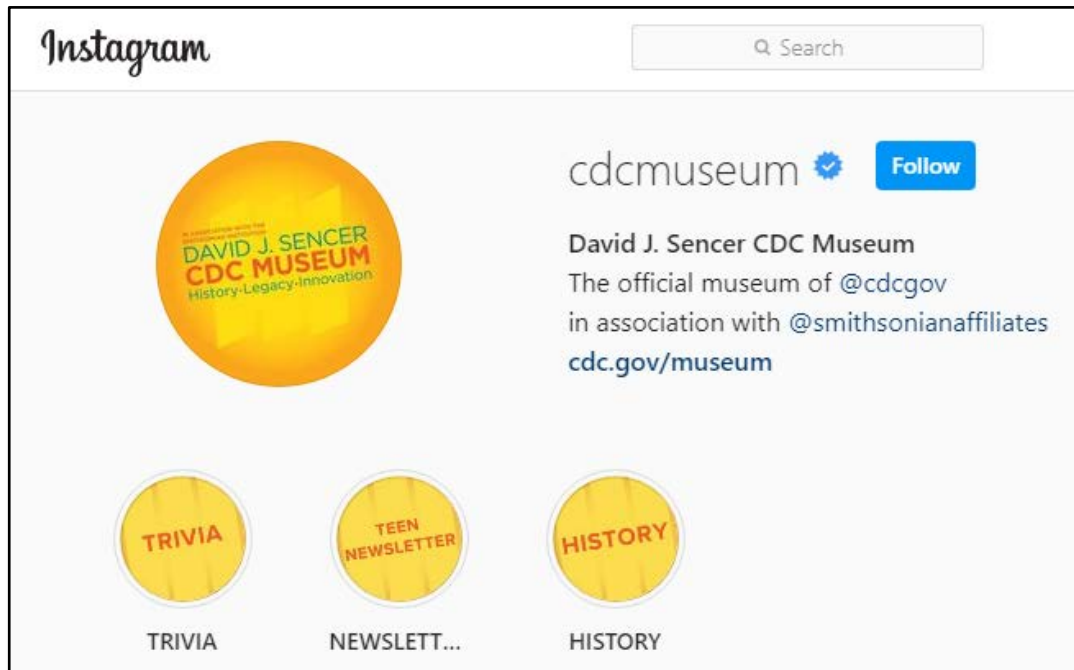
2. Publish your Vaccine Story

- Tell your vaccine story
- Describe how the vaccine has impacted you
- Convince others to get vaccinated
- Share your story with others

Give it a
Try

3. Share Your Findings

- Instagram @CDCmuseum



Give it a
Try

Questions?

