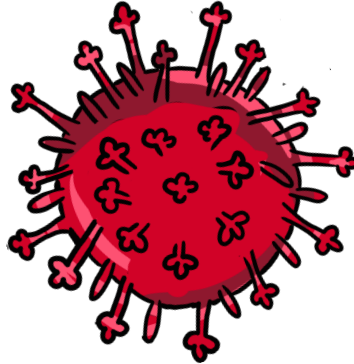


# COVID-19 Classroom Worksheet

*For Middle School Students*



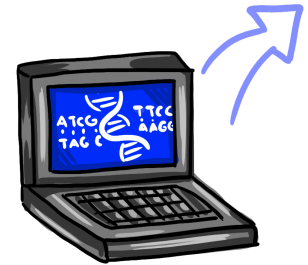
After watching the first video on viruses, complete the TRUE/FALSE questions below:

1. Viruses can replicate on their own.      **TRUE**      or      **FALSE**
2. Viruses can change (or mutate) over time.      **TRUE**      or      **FALSE**

3. After watching the second video about our immune response to viruses, match the following terms to their correct definition:

Genetic material	Contains DNA within our cells
Antibody	Special cells that produce antibodies in response to viral infection nearby
Messenger RNA	Proteins that attack and kill neighboring virus
B Cells	Copy of the DNA that brings the instructions to the machines that will make the proteins
Nucleus	Also known as the <b>genome</b> , the instructions that the cells use to make proteins. It can be made of DNA (ex. For humans) or RNA (ex. For certain viruses like the coronavirus).

4. Why is it important that China shared the genomic sequence with the world?



5. How has this time made you feel? You can use sentences, bullet points, pictures, anything that helps you express your emotions...get creative!

**6. Stress Action Plan:**

Brainstorm things that make you feels better when you are stressed below:

- 1.
- 2.
- 3.
- 4.
- 5.



## 7. Scientific Discovery:

1. **Ask a question.** *Write it down here.*
2. **Do background research.** *Take notes on the scientific information you learn here.*
3. **Create a hypothesis.** *What do you predict is the answer to your question?*
4. **Test with an experiment.** *How are you going to test if your hypothesis is correct?*
5. **Analyze data and draw conclusions.** *What do the results of your experiment tell you?*
6. **Share your results.** *How will you share your findings with others?*

# COVID-19 Classroom Answer Key

*For Middle School Students*

1. TRUE OR FALSE? Viruses can replicate on their own.

- Answer: False. Viruses do not have the machinery necessary to replicate on their own. They need to use a host cell's machinery (otherwise known as organelles) to replicate. When a virus infects a cell (whether that be a cell from a bacteria, plant, or animal), the virus will give the cell the genome that it carries. The virus will "hack" the cell and force it to create more viruses.

2. TRUE OR FALSE? Viruses can change (or mutate) over time.

- Answer: True. As viruses replicate, they need to copy their instructions (their genome, made of DNA or RNA depending on the virus). Everytime the genome is copied, the machinery can make mistakes resulting in small changes. As more "mistakes" are made in the genome, the virus made by the cell changes. This is what we call mutation and it is why some medications against viruses may initially work but can stop working if a virus mutates over time.

3.

**Antibody** - proteins that attack and kill neighboring virus

**B Cells** - special cells that produce antibodies in response to viral infection nearby

**Nucleus** - contains DNA within our cells

**Messenger RNA** - copy of the DNA that brings the instructions to the machines that will make the proteins

**Genetic material** - also known as the **genome**, the instructions that the cells use to make proteins. It can be made up of DNA (ex. For humans) or RNA (ex. For certain viruses like the coronavirus).

4. Why is it important that China shared the genome sequence with the world?

- The genome is the set of instructions that the virus uses to make our cells produce more viruses. In the case of COVID-19, its genome is made of RNA.
- This information helps scientists understand where in nature the virus came from, how quickly it mutates or changes, and how to develop better tests and medicines for it.

5. No right or wrong answers

6. No right or wrong answers

7. An example of the Scientific Discovery activity can be found in the curriculum.