High School Science Virtual Learning

Applied Biological Science

Virus Structure

April 21, 2020

High School Applied Biological Science
Lesson: April 21, 2020

Objective/Learning Target:
Students will be able to understand the various structures and parts of a virus.

Let's Get Started:

1. What does something need to have in order to be considered alive?

2. What viruses do you know of that cause disease in humans?

Let's Get Started: Answers

1. Growth, Reproduction, Adaptation, Cells, Interaction with environment, Energy usage

2. Coronavirus, Flu, HIV, Hepatitis, Measles, Mumps

Lesson Activity:

Directions: Read the article posted below. Use it to answer the questions on the following page.

Link(s): Virus Structure

Practice

You will use the information from the activity on slide 5 to answer the following questions.

Practice Questions

1. Using the answer key to the “let’s get started” questions, which of the characteristics of living things do the viruses have?
2. What structures do all viruses have?
3. What are the two main shapes of viruses?
4. What 3 main parts does animal virus have and what do they do? Make sure to include the main FUNCTION of each of the 3 parts.

Practice Questions Answer Key

1. Using the answer key to the “let’s get started” questions, which of the characteristics of living things do the viruses have? Reproduction (although not on their own, they need a host), adaptation (they do have genetic material)
2. What structures do all viruses have? Genetic material (either DNA or RNA) and a protein coat (which holds the DNA)
3. What are the two main shapes of viruses? Rods or spheres
4. What 3 main parts does animal virus have and what do they do? Make sure to include the main FUNCTION of each of the 3 parts.
    a. Capsid- Protein layer that encloses and holds the nucleic acids
    b. Envelope- Lipid layer that surrounds and holds the capsid. Also contains glycoproteins for cell communication
    c. Nucleic Acid- genetic material, holds information for creating more viruses

More Practice

You will watch this video on viruses. Write 5 important things you learned about the structure and function of a virus.

More Practice

Once you have completed the video, write 5 important things you learned.

1.
2.
3.
4.
5.

Answer Key

Below are many examples of sentences you could have written.

1. Viruses are not living things. They are not a cell, but they do have genetic material.
2. Viruses are SUPER small. You cannot see it in a normal microscope.
3. Capsid is a protein coat that protects the DNA or RNA.
4. Viruses cannot replicate without a host. They don't have the cell parts or machinery to replicate on their own.
5. Viruses attach to cell receptors and inject their own genetic material into the host cell. (sometimes it takes the whole virus inside.
6. When a cell makes millions of viruses, the cell will lyse. This means that the cell membrane breaks and the cell spills its material out.
7. A normal healthy immune system is usually the only treatment for a virus like the common cold.
8. HIV is an example of a virus that is not attacked by your immune system
9. Many viruses can mutate, meaning that treatments are not effective 100% of the time.
10.

Additional Resources

TedEd- How a virus jumps between species

Virus Structure