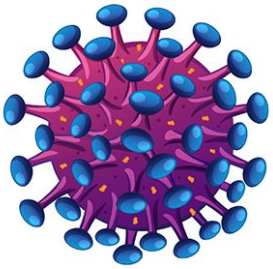
Name:_____Date:_____

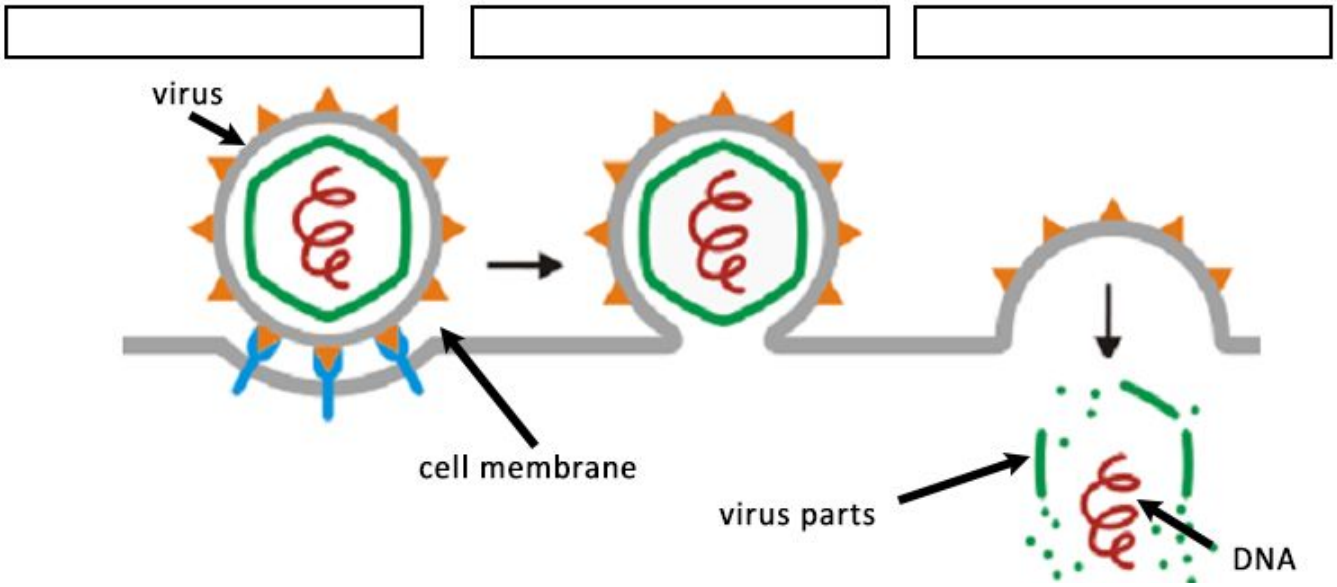
How Do Viruses Infect Cells? (Coloring)



Viruses are nonliving organisms that can infect the cells of living organisms. Viruses are usually specific to the **host**. For example, the chickenpox virus infects humans, but does not infect dogs. Some viruses can jump species, like the swine flu which originated in pigs and then jumped to human hosts. Viruses make a person sick when they get into the cells and make more viruses, which kills the cells. As the virus multiplies, your **immune system** attempts to find the viruses and the cells infected and kill them before they can make more viruses. This "war" is what makes you feel bad and causes symptoms like running nose, fever, and congestion.

Viruses have a wide variety of shapes, but most follow the same basic pattern. Each has an envelope with proteins. These proteins act like a key where they attach to the host cell. A respiratory virus like the common cold enters the body when you breath in particles or transfer it from surfaces to your eyes or nose. Once inside the body, the virus proteins attach to the cell surface and the cell takes in the virus where it then releases its contents. Those contents include DNA that will integrate with the host DNA and change the cell's activities, causing it to make more viruses using the cell's own machinery.. These newly assembled viruses leave the cell and then infect other cells.

1. Label the stages of infection on the image (use the underlined words above).



2. Why is it that a virus that infects humans, is not likely to infect a dog or a cat?

3. What eventually stops the spread of the virus in the host?

4. What occurs after DNA is released into the host cell?

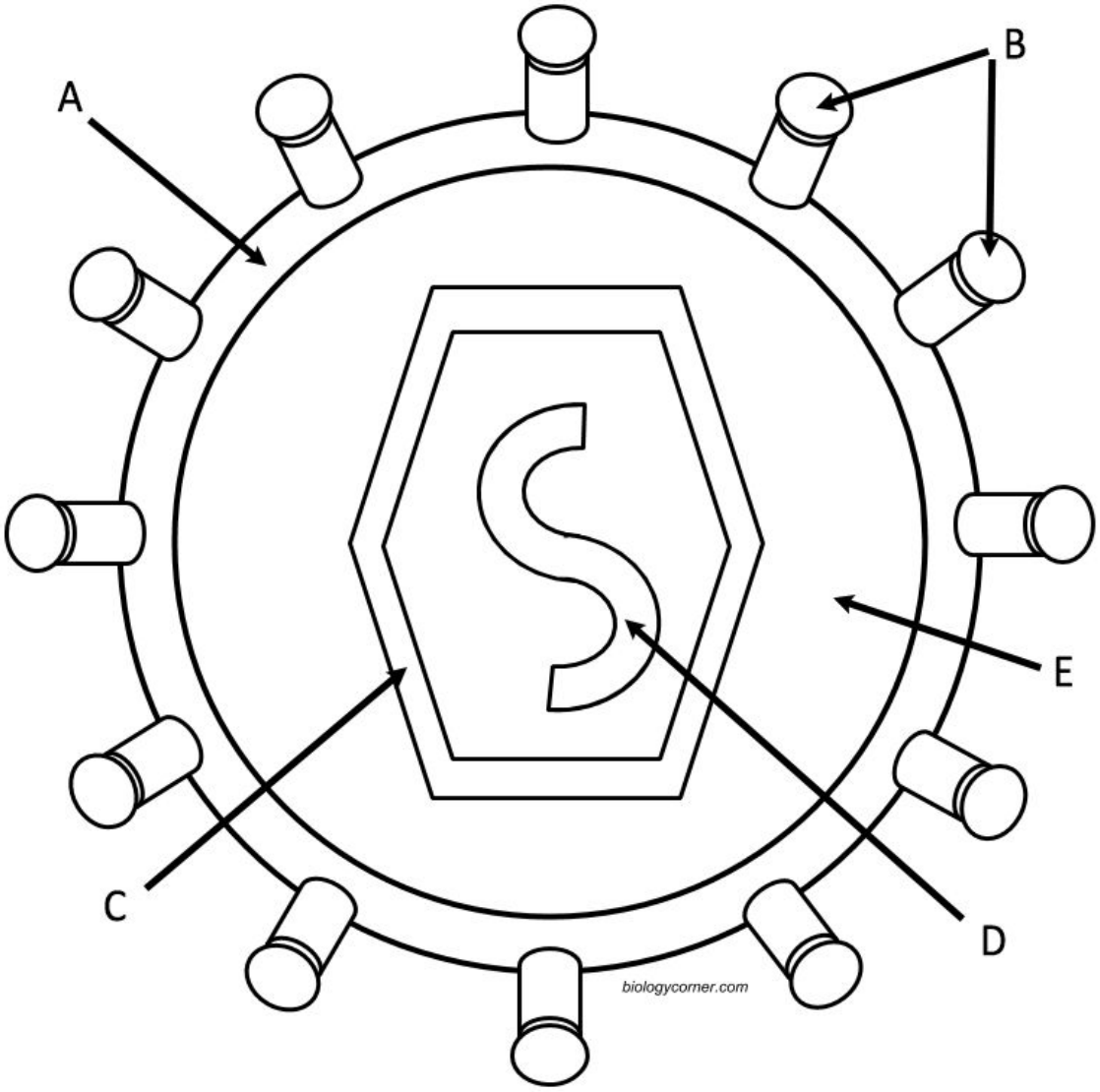
5. The virus uses the cell's machinery to do what?

Virus Coloring Shown below is an image of a typical virus. Color the virus according to the directions.

The **envelope** of the virus contains **proteins** that can be used to attach to the host cell. These proteins are actually what is used to name viruses. For example. H1N1, is the name for a flu virus that has a particular set of proteins. These proteins can be used to attach to the cell surface and gain entry.

☐ Color the viral envelope (A) yellow. and the attached proteins (B) red.

All viruses contain a genetic sequence inside another inner shell called the **capsid**. This genetic sequence is made of **DNA** (deoxyribonucleic acid) in some viruses, but other viruses might contain a similar molecule called RNA. Once the virus is taken into the cell, the capsid opens and releases the DNA. The space between the capsid and the envelope also contains proteins and is called the **tegument**.

☐ Color the capsid (C) green and the DNA (D) blue and the tegument (E) purple.

DNA released into the cell integrates with the cell's DNA. From there, the virus controls the cell and makes the cell produce more virus particles. When the process is completed, the cell will release the new viruses which will then infect other cells.