CHARACTERISTICS OF VIRUSES

A virus is a tiny bundle of genetic material—either DNA or RNA—carried in a protein shell called a capsid. Some viruses have an additional layer around this coat called an envelope. The envelope is made of a lipid. Three examples of viruses can be seen in Figure 10.1.

Figure 10.1. An Adenovirus, a Bacteriophage, and the Influenza Virus (These viruses are between 45 and 200 nanometers.)

[A nanometer is 1/1,000,000,000 of a meter].

When a virus enters a cell, the information carried in a virus’s genetic material enables the virus to force the infected cell to make more copies of the virus. The poliovirus, for example, can make over one million copies of itself inside a single human intestinal cell. A virus is usually very, very small compared to the size of the cell it infects.

Viruses can infect the cells of plants, animals, or even bacteria. Moreover, within an individual species, there may be one hundred or more different types of viruses, which can infect that specific species alone. There are viruses that infect only humans (for example, smallpox), viruses that infect humans and one or two additional kinds of animals (for example, influenza), viruses that infect only a certain kind of plant (for example, the tobacco mosaic virus), and some viruses infect only a particular species of bacteria (for example, the bacteriophage which infects E. coli).

These unique traits of viruses have made many scientists wonder: Should a virus be classified as a living thing?

With your group, develop a claim that best answers this research question. Once your group has developed your claim, prepare a poster that you can use to share and justify your ideas. Your whiteboard should include:

- **Claim**: Answer the question in 1 complete sentence.
- **Evidence**: Present your evidence in a clear, organized way. The raw data provided at your tables does not tell a clear story. You need to create a sentence, chart or diagram to present the evidence for your argument.
- **Reasoning**: Explain why your evidence matters. You will use some of the data provided and ignore other data. Explain why the data you picked is most important, relevant or meaningful.

Note: You will have to describe and defend your poster out loud to the class. After hearing all arguments, you will have to write a summary of your final claim, argument and justification in your notebook.
Poster Session Notes and Reflection

As you rotate (or get visited by rotating groups), write down relevant evidence and reasoning you discover.

Evidence

Reasoning

Now that you have seen all the groups and reported back to your home group, make your final claim.

Final Claim:

Reflection: What questions do you still have or anything that you are unsure of?