



Model Viruses

Hands-On Activity

Background Information

Viruses come in many shapes and sizes—all so small they are measured in nanometers (nm). Many viruses, such as the polio virus, are shaped like an isohedron, a polyhedron that has 20 triangular faces. Rod-shaped viruses, such as the tobacco mosaic virus, have spiral strands of nucleic acids that run through a spiral-shaped protein coat. In this activity, you'll create a larger-than-life virus model.

What You Need

- ◆ clay
- ◆ pipe cleaners
- ◆ construction paper
- ◆ foam balls
- ◆ wooden dowels
- ◆ tape
- ◆ general art supplies

What to Do

1. Review the information sheet (Virus Sizes and Shapes) to learn what the assigned virus looks like.
2. Using the following scale, figure out how large your model of the virus must be (the virus' overall size and the size of its components).
$$1 \text{ mm} = 1 \text{ nm}$$
3. Using the clay, pipe cleaners, and other art supplies, build a scale model of your virus.
4. Compare your finished virus model with those created by your classmates. Describe the range of sizes and shapes in this sampling of viruses.

Virus Sizes and Shapes

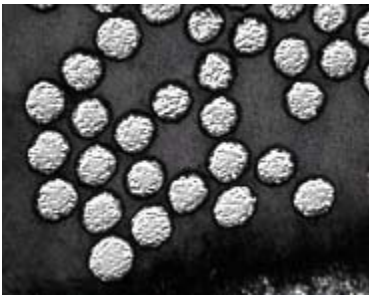
What's a nanometer?

Viruses are so small that they are measured in nanometers, the smallest unit of measurement in the metric system. There are 10 million nanometers in a centimeter. To get some sense of how small nanometers are, refer to the scale at right.

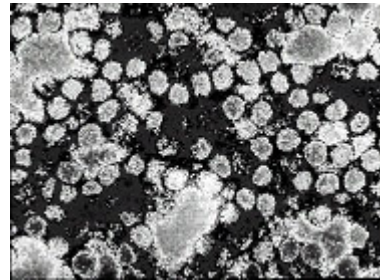
1,000 nanometers	=	1 micrometer
1,000 micrometers	=	1 millimeter
10 millimeters	=	1 centimeter
10,000,000 nanometers	=	1 centimeter

Some Common Viruses

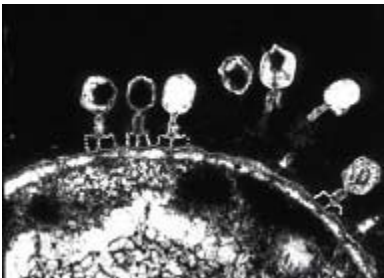
Poliomyelitis (20-27nm)



Yellow Fever (22nm-30nm)



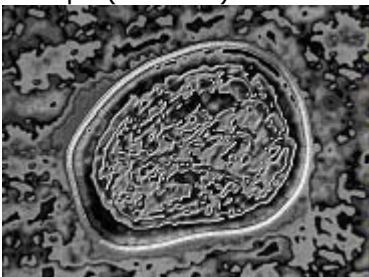
Bacteriophage (60nm x 90nm)



Influenza (100nm)



Mumps (100 nm)



HIV (110 nm)

