

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Period: \_\_\_\_\_

### SI Units: How Big is a Nanometer?

Using the Scanning Electron Microscope (SEM), it is possible to study objects that would be too small to investigate using only the naked eye. In this session, we will explore just how big (or small!) a nanometer is.

**Before the presentation begins** answer the following questions.

1. What is an SI unit?
2. Name the common prefixes of the SI units. (There are 10)
3. How many micrometers are in a centimeter? How many nanometers are in a micrometer?
4. Of the following choices, which do you think would be closest to a centimeter? A micrometer? A nanometer?
  - a. The tip of a hair on an ant's leg
  - b. An ant's body, from head to tail
  - c. Bacteria

Answer the following questions **during and after the presentation**.

1. Measure the eye of the ant with the SEM. What SI unit did you use and what was the X-axis measurement?
2. Measure the body, from head to tail. What SI unit did you use and what was the X-axis measurement?
3. Zoom in further and measure the width of a hair on the ant's leg. What SI unit did you use and what was the X-axis measurement?
4. Switch to the bacteria sample. Zoom in until you see the strand of bacteria and measure the width. What SI unit did you use and what was the X-axis measurement?
5. Given your observations, do you think it is possible to see a nanometer without the use of a microscope? Why or why not?