

Study Guide: Scientific Skills

Scientific Method

1. List the steps often used in the scientific method.
2. Describe the difference between an independent and dependent variable in an experiment.
3. Explain why all variables are controlled, except being tested.
4. Explain why control groups are used.

Analyzing Data Numerically

1. How do you find the mean or average of a data set?
2. How do you find the median of a data set?
3. How do you find the mode of a data set?
4. How do you find the mode on a line plot?
5. How do you find the range of a data set?

Analyzing Data with Graphs

1. When do you use a circle graph?
2. How do you find the differences in numbers, if given percentages?
3. When do you use a bar graph?
4. When do you use a line graph?
5. Which variable goes on the Y axis and which variable goes on the X axis?
6. What must every graph always include?

Metric System

1. List the six most common metric prefixes, along with their values.
2. List the base unit used for length, mass, and volume.
3. List the phrase used to help remember the order of the metric prefixes.
4. Convert 3 grams (g) into milligrams (mg), by moving the decimal point.
5. Convert 5 decimeters (dm) into meters (m), by moving the decimal point.
6. List the measuring devices used to measure length, mass, and volume.
7. Describe how to use the water displacement method to measure the volume of an irregular shaped object.
8. Explain the difference between mass and weight.

Density

1. Describe what density means.
2. Calculate the density of a substance that has a mass of 20 grams (g) and a volume of 40 milliliters (mL).
3. Decide whether the substance in question 2 would sink or float when placed in water.