# **Units of Measurement Discussion Guide (for use during or after reading)**

1. What is the metric system? Use examples to support your answer. (The Metric System, p. 6-9)
   1. The metric system is a measurement system used throughout the majority of the world. It is used to measure length, distance, area, volume, mass, and temperature. For example, the metric system measures length and distance using meters.
2. Describe how the metric system uses prefixes to represent different measurements. (The Metric System, p. 8-9)
   1. The metric system uses prefixes to represent different amounts and measurements. A prefix comes at the beginning of a word and provides a clue about its meaning. For example, the prefix centi- stands for and a centimeter is one one-hundredth of a meter. The metric system uses other prefixes, too! For example, milli- stands for , deci- stands for , and kilo- stands for 1,000.
3. What is the US customary system? Use examples to support your answer. (Measuring Length and Distance, p. 12-15)
   1. The US customary system is another measurement system, often used in the United States of America. This system can also measure length, distance, area, volume, mass, and temperature. For example, the US customary system measures length and distance using yards.
4. What is a conversion? Use what you know about conversions to determine how many inches are in 2 feet as well as how many yards are in 6 feet. (Measuring Length and Distance, p. 12-15)
   1. In math, a conversion can be used to change one form of measurement into another. For example, we can convert a measurement made in feet to yards by applying what we know about the ratio of feet to yards: 3 to 1.
   2. Because there are 12 inches in each foot, I know 2 feet contain 24 inches.
   3. Because there are 3 feet in each yard, I know 6 feet make up 2 yards.
5. What is area and how is it measured? Use an example to support your answer. (Measuring Area, p. 16-19)
   1. Area is a measurement of a two-dimensional, flat space. It is represented by square units, sometimes written as units2. Even though area is measured in square units, area can be used to describe the space covered by any shape, including circles and irregular polygons!
6. What are volume and capacity and how are they measured? Use an example to support your answer. (Measuring Volume and Capacity, p. 20-23)
   1. Volume and capacity are both measures of three-dimensional space. Volume is the amount of space something fills, and capacity is the maximum volume a given space can hold. Volume and capacity are both represented by cubic units, or units3. Volume can be used to describe any three-dimensional space that can be filled, including cones, pyramids, and cylinders.
7. Milo has 5,500 milliliters (ml) of soda. How any liters (L) is that? Use what you know about conversions to solve. (Measuring Volume and Capacity, p. 20-23)
   1. To convert from milliliters to liters, we must first understand that the conversion rate is 1,000:1, for every 1,000 milliliters, we have one liter. We can use ratios and proportional reasoning to determine that 5,500 ml is equivalent to 5.5 L.
8. What do weight and mass both measure? What are the basic units of measurement for weight and mass in the metric system as well as the US customary system? (Measuring Mass and Weight, p. 24-25)
   1. Although weight and mass measure slightly different properties, they are often thought of similarly, especially in everyday life. Both weight and mass show how heavy or light something is. In the metric system, weight and mass are often measured in grams, whereas in the US customary system, they are often measured in pounds.
9. How can we measure temperature? What are the basic units of measurement for temperature in the metric system as well as the US customary system? (Measuring Temperature, p. 26-27)
   1. Temperature can be measured using a thermometer. The metric system measures temperature using Celsius and the US customary system uses Fahrenheit. In the metric system, water freezes at 0 degrees Celsius, but water at 0 degrees Fahrenheit would be well past frozen!
10. What is a central angle in a circle? How can you determine the measure of the central angles in a circle divided into 6 equal portions? (Measuring Circles and Angles, p. 28-29)
    1. In a circle, the central angle refers to any angle with a vertex at the center. Because we know a circle has a total of 360 degrees, if it were divided into 6 equal portions, we could determine the measure of the central angles by dividing 360 degrees by 6 to get 60-degree central angles.