Name: _____ Date: _____

Measurement

Science Literacy Article

Measurement is an important part of our daily lives. Measurements can be very small (i.e. the size of an atom) or extremely large (i.e. the size of Earth) and a variety of tools can be used to determine these measurements. There are two main systems of measurement in the world which are known as the **metric system** and the **customary system**.

1. The **metric system's** basic units include the meter (length), liter (volume), and gram (mass). The *majority* of countries in the world use this system and it is the international standard used in the field of science. This allows scientists to accurately compare data with one another around the world. The metric system is based on a measure of 10. This is very beneficial because it *makes conversions from one unit to another much easier*. To convert a unit, simply move the decimal point to the left if you are going to bigger units or to the right if you are going to smaller units. For example, 1 meter is equal to 1,000 millimeters (going smaller/right) or 100 centimeters (going smaller/right) or .001 kilometers (going bigger/left).
2. The **customary system** (sometimes called the imperial system) has basic units which include the yard (length), gallon (volume), and pound (mass). The United States is *one of three* countries in the world that use this system. The customary system is not based on a measure of 10 like the metric system. Instead, it *originated from the measurements of everyday natural units* such as the length of a person's foot and width of a thumb. Conversions can be quite difficult since they are not based on anything standard. For example, 1 yard is equal to 36 inches or 3 feet or .000568 miles.

Common **measurements** taken in both the metric system and customary system include length, volume, and mass.

- **Length** is the measurement of something from one end to the other. Length can be measured with a meter stick or metric ruler (metric system) or a yard stick or customary ruler (customary system). Some common lengths that can be measured include the distance from one place to another, a person's height, and a section of fabric.
- **Volume** is the measurement of the amount of space taken up by a solid, liquid, or gas. Volume can be measured with a graduated cylinder or beaker (metric system) or measuring containers that use ounces, cups, pints, or quarts (customary system). Some common volumes that can be measured include the amount of water in a pool, the amount of gas in a tank, and the amount of soda in a can.
- **Mass** is the measurement of the amount of matter in an object. Mass can be measured with a triple beam balance or electronic scale (metric system) or a scale that uses pounds and ounces (customary system). Some common masses that can be measured include the mass of a vehicle, the mass of a person, and the mass of a package.

As you have read, there are numerous measurements that can be obtained using a variety of different tools. Regardless of the system of measurement you prefer, it is important to be as precise as possible when determining measurements. **You should always be mindful to include the correct units of your measurements**.

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