

The SI (System International) or Metric Measurement System

The United States is the only major country on Earth that does not use the metric or SI (System International) system of measurements.

Length: The basic unit of measurement for length in the SI system is the meter (m). A meter is about 39.5 inches long. For shorter distances, the centimeter (cm), which is one hundredth of the meter, is used. There are 2.54 cm in an inch. For even smaller measurements, the millimeter (mm), one thousandth of a meter, is used.

Mass: The basic unit of measurement for mass in the SI system is the gram (g). A penny has a mass of about 1.5 grams. There are 454 grams in a pound. For larger masses, the kilogram (kg) is used. There are 1000 grams in a kilogram. The prefix “kilo-” means “times 1000.” There are about 2.1 pounds in a kilogram. The kilogram unit is based on the mass of water: one liter of water has a mass of one kilogram.

Solid Volume: Since volume of a rectangular solid object is equal to its length times width times height, it follows that the SI units of length cubed are used for measurement of volume. If the size of the object is measured in meters, then the volume will be in cubic meters (m^3). If the size of the object is measured in centimeters, then the volume will be in cubic centimeters (cm^3).

Liquid Volume: In the SI system, the liter (L) is the basic unit of measurement. A liter is about 1.1 quarts in the American system. For small volumes of liquid, the milliliter (mL) is used. There are 1000 milliliters in a liter. A cubic centimeter (cm^3) and a milliliter (mL) have the same volume.

Temperature: In the SI system, degrees of temperature are usually measured on the Celsius ($^{\circ}C$) (sometimes called centigrade) scale. On this scale, the freezing point of water is $0^{\circ}C$, and the boiling point of water is $100^{\circ}C$. For comparison, in the American system, water freezes at $32^{\circ}F$ and boils at $212^{\circ}F$. Some scientists also use the Kelvin scale, which starts at absolute zero, the coldest temperature that can exist ($-273^{\circ}C$). The size of a Kelvin degree is the same as in the Celsius scale.

Accuracy / Precision: Accuracy describes how close a measurement is to the actual amount. For example, the more decimal points the readout of a scale has, the more accurate it can be. Precision describes how close each measurement taken with a device is to all other measurements taken with the same device. If a scale always gives exactly the same measurement of the same object, we say it is precise, even if that measurement is not correct (accurate).