Type of Measurement	Unit (symbol)	Equivalents	Metric/English Conversions
Length Length is the distance from one point to another. The SI unit of length in the metric system is the meter. The meter is divided into 100 equal parts called centimeters; one centimeter is divided into 10 equal parts called millimeters. The unit for measuring large distances is the kilometer, which is 1000 meters.	• nanometer (nm) • micrometer (μm) • millimeter (mm) • centimeter (cm) • meter (m) • kilometer (km)	• 1 nm = 0.001 μm • 1 μm = 0.001mm • 1 mm = 0.001 m • 1 cm = 10 mm • 1 m = 100 cm • 1 km = 1000 m • 1 mm is about the thickness of a dime • 1 cm is about the width of a fingernail • 1 m is about half the height of a tall adult • 1 km is about 7 city blocks	• 1 cm = 0.39 inches (in.) • 1 m = 39.37 in. •1 km = 0.62 miles (mi) For rough estimates: • 1 cm ~ 1/2 in (NOTE: The symbol ~ means “is approximately equivalent to.”) • 1 m ~ 1 yard (yd) • 1 mi ~ 1.5 km

Volume of Solids Volume is the amount of space taken up by an object. The SI unit of volume is the cubic meter. The volume of rectangular solid objects can be determined by multiplying length by width by height.	• cubic millimeter (mm^3) • cubic centimeter (cm^3) • cubic meter (m^3)	1 cm^3 = 1000 mm^3 • 1 m^3 is about the volume of a washing machine.	1 cm^3 = 0.061 cubic inches ($in.^3$)
Volume of Liquids The metric base unit of liquid volume is the liter.	• milliliter (mL) • liter (L)	• 1 L = 1000 mL • Solid volume and liquid volume are related as follows: 1 mL = 1 cm^3 1 L = 1000 cm^3	• 1 L = 1.06 quarts (qt) For rough estimates: 1 L ~ qt 4 L ~ 1 gallon (gal)
Mass Mass is the amount of matter in any object. The SI unit of mass is the kilogram. Note that while mass and weight measurements are often used interchangeably, they are the same. Weight is a measure of the force of gravity pulling on an object, which means that an object's weight can change under different gravitational pulls (such as in space, where without gravity objects are "weightless"). In contrast, mass does not change in different environments.	• gram (g) • kilogram (kg)	• 1 kg = 1000 g • 1 g is about the mass of a paper clip. • 1 kg is about the mass of a wooden baseball bat.	On Earth's surface, 1 kg weighs about 2.2 pounds (lb) and 30 g weigh about 1 ounce (oz).

Temperature Although the SI unit for temperature is the Kelvin (K), in biology you will generally use the metric unit for temperature, the Celsius degree. One Celsius degree is 1/100 of the temperature difference between freezing water and boiling water.	degree Celsius (°C)	No other units are commonly used. • 0^{o}C is the freezing point of water. • 25^{o}C is about room temperature. • 37.5^{o}C is human body temperature. • 100^{o}C is the boiling point of water.	The following formula converts a Fahrenheit temperature to Celsius: $^{o}C = 5/9 \times (^{o}F - 32)$