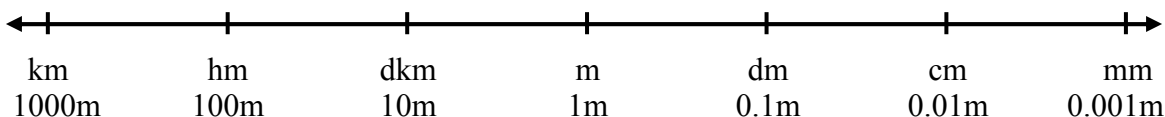


The Metric System

When the French overthrew Louis XVI, they also threw out the previous system of measures, since many of those units had been decreed by kings (Think “Rulers”). They wanted to have a system built on nature, so they chose as their basic unit of length a fraction of the distance from the North Pole to the equator along the meridian through Paris, France. They named this distance the “metre,” which is the French word for “measure. They also developed systems for measuring mass and volume, using a base of ten for each system. The systems could also be converted from one to another.

Observe the diagram below. The basic unit is placed in the middle. To the left, we use the Greek prefixes “Kilo-” (1000), “Hecto-” (100), and “Deka-” (10). On the right we use the Latin prefixes “Deci-” (10), “Centi-” (100), and “Milli-” (1000). However, the Latin terms are now used for division, so we consider them “tenths, hundredths, and thousandths.” We will use meters for our example.



To move from one value to the next, we multiply by 10 to move left, and divide by 10 to move right. The beauty of this chart is that, since it is based on ten, and the decimal system is based on ten, we can do conversions in a very simple way.

Suppose we had 338.7cm and we wanted to convert that to meters.

$$338.7\text{cm} = \underline{\hspace{2cm}} \text{m}$$

Place your pencil at the cm mark on the diagram. Move it to the m mark. Notice that you moved 2 units, and you moved to the left.

Now do the same move on the number you were given. Place your pencil on the decimal point in 338.7. Then move the pencil point two places to the left. You have 3.387, and that is your answer. You ended at meters, so it is now in meters.

$$338.7\text{cm} = 3.387\text{m} \quad (\text{Since cm are smaller than m, you will need more of them.})$$

Now try changing 0.0049km to cm. (Put your pencil on km and move one step at a time to cm. Count the places and notice the direction. Five to the right, right?)

$$0.0049 \text{ km} = 0.\underbrace{0049}_{\text{5 places}} = 490 \text{ cm}$$

Works every time.