

## Conversion of Units

We are familiar with the metric units of length and mass and also know that the metric system of measurement is based on decimal number system. Now let us study the system of measures further and introduce you to some more units, some of which are higher than the basic unit and some lower than it.

The **standard** or basic **unit** of *length* is **metre**, that of mass is **kilogram** and of capacity is **litre**.

Now look at the chart below to understand the relationship between the various units.

	Kilo	Hecto	Deca	Unit	Deci	Centi	Milli
Meaning	<b>One thousand</b>  1000	<b>One hundred</b>  100	<b>Ten</b>  10	  1	<b>One-tenth</b>  $\frac{1}{10}$	<b>One-hundredth</b>  $\frac{1}{100}$	<b>One-thousandth</b>  $\frac{1}{1000}$
<b>Length</b>	kilometre <b>km</b>	hectometre <b>hm</b>	decametre <b>dam</b>	metre <b>m</b>	decimetre <b>dm</b>	centimetre <b>cm</b>	millimetre <b>mm</b>
<b>Weight</b>	kilogram <b>kg</b>	hectogram <b>hg</b>	decagram <b>dag</b>	gram <b>g</b>	decigram <b>dg</b>	centigram <b>cg</b>	milligram <b>mg</b>
<b>Capacity</b>	kilolitre <b>kL</b>	hectolitre <b>hL</b>	decalitre <b>daL</b>	litre <b>L</b>	decilitre <b>dL</b>	centilitre <b>cL</b>	millilitre <b>mL</b>

The most commonly used metric measures are:

**Length:** Kilometres, metres, centimetres and millimetres.

**Weight:** Kilograms, grams and milligrams.

**Capacity:** Kilolitres, litres and millilitres.

The relationships between the different units of length can be stated as:

$$1 \text{ km} = 10 \text{ hm} = 100 \text{ dam} = \mathbf{1000 \text{ m}}$$

$$1 \text{ dam} = 10 \text{ m}$$

$$1 \text{ dm} = 10 \text{ cm} = 100 \text{ mm}$$

$$1 \text{ hm} = 10 \text{ dam} = \mathbf{100 \text{ m}}$$

$$1 \text{ m} = 10 \text{ dm} = \mathbf{100 \text{ cm} = 1000 \text{ mm}}$$

$$1 \text{ cm} = \mathbf{10 \text{ mm}}$$

$$1 \text{ mm} = \frac{1}{10} \text{ cm} = \mathbf{0.1 \text{ cm}} = \frac{1}{100} \text{ dm} = 0.01 \text{ dm} = \frac{1}{1000} \text{ m} = \mathbf{0.001 \text{ m}}$$

$$1 \text{ cm} = \frac{1}{10} \text{ dm} = 0.1 \text{ dm} = \frac{1}{100} \text{ m} = 0.01 \text{ m}$$

$$1 \text{ dm} = \frac{1}{10} \text{ m} = 0.1 \text{ m}$$

Similar relationships exist between the units of mass and capacity. Instead of metre(m), for mass we take gram(g) and for capacity we take litre(L).

Seeing the above conversion tables, we conclude that:

1. To convert from a higher unit to a lower unit, we multiply by 10, 100, 1000, etc., as the case may be.
2. To convert from a lower unit to a higher unit, we divide by 10, 100, 1000, etc., as the case may be.

To carry out the desired conversions, it will be easy for you to do it, if you draw a chart as under:

