

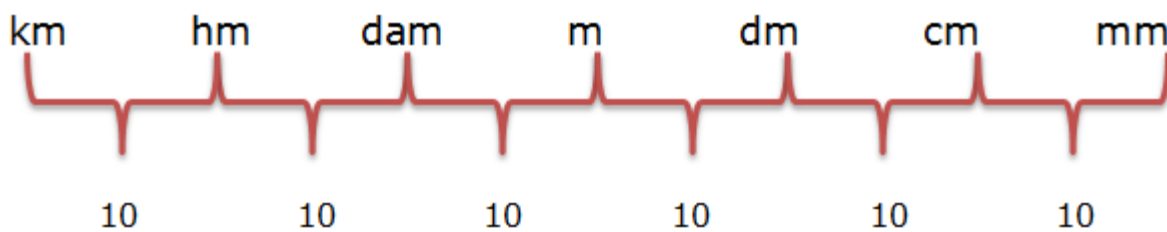
Measurement of Length

We measure small lengths in cm and mm and large lengths (i.e. distances) m and km. Standard unit of length is 'Meter' which is written in short as 'm'.

1 m length is divided into 100 equal divisions. Each division is known as centimeter and written as 'cm'. Therefore $1\text{ m} = 100\text{ cm}$

The largest distance is measured in kilometer. 1 km length is divided into 1000 equal divisions. Each division is termed as meter. Therefore $1\text{ km} = 1000\text{ m}$

Unit of length conversion table



According to the length conversion charts, units of lengths and their equivalents are:

1 kilometer (km) = 10 Hectometers (hm) = 1000 m

1 Hectometer (hm) = 10 Decameters (dam) = 100 m

1 Decameter (dam) = 10 Meters (m)

1 Meter (m) = 10 Decimeters (dm) = 100 cm = 1000 mm

1 Decimeter (dm) = 10 Centimeters (cm)

1 Decimeter = 0.1 Meter (m)

1 Centimeter (cm) = 10 Millimeters (mm)

1 Centimeter = 0.01 Meter (m)

1 Millimeter = 0.001 Meter (m)

While converting from a larger unit to a smaller unit, we multiply

Example 1:

5 km = _____ m

Put 1 at the given unit (km) and keep putting 0 till the corresponding unit (m)

Km	hm	dam	m	dm	cm	mm
1	0	0	0			

km \rightarrow m (larger unit to a smaller unit, we multiply)

$$1 \text{ km} = 1000 \text{ m}$$

$$\text{Therefore, } 5 \text{ km} = 5 \times 1000 = 5000 \text{ m}$$

Example 2:

$$4 \text{ m} = \underline{\hspace{2cm}} \text{ cm}$$

Put 1 at the given unit (m) and keep putting 0 till the corresponding unit (cm)

Km	hm	dam	m	dm	cm	mm
			1	0	0	

m → cm (larger unit to a smaller unit, we multiply)

$$1 \text{ m} = 100 \text{ cm}$$

$$\text{Therefore, } 4 \text{ m} = 4 \times 100 = 400 \text{ cm}$$

Example 3:

$$20 \text{ hm} = \underline{\hspace{2cm}} \text{ dm}$$

Put 1 at the given unit (hm) and keep putting 0 till the corresponding unit (dm)

Km	hm	dam	m	dm	cm	mm
	1	0	0	0		

hm → dm (larger unit to a smaller unit, we multiply)

$$1 \text{ hm} = 1000 \text{ dm}$$

$$\text{Therefore, } 20 \text{ hm} = 20 \times 1000 = 20000 \text{ dm}$$

While converting from a smaller unit to a larger unit, we divide

Example 1:

$$20 \text{ mm} = \underline{\hspace{2cm}} \text{ cm}$$

Put 1 at the given unit (mm) and keep putting 0 till the corresponding unit (cm)

km	hm	dam	m	dm	cm	mm
					0	1

mm → cm (a smaller unit to a larger unit, we divide)

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

$$\text{Therefore, } 20 \text{ mm} = 20/10 \text{ cm} = 2 \text{ cm}$$

Example 2:

$$300 \text{ dm} = \underline{\quad\quad} \text{ dam}$$

Put 1 at the given unit (dm) and keep putting 0 till the corresponding unit (dam)

km	hm	dam	m	dm	cm	mm
		0	0	1		

dm \rightarrow dam (a smaller unit to a larger unit, we divide)

$$1 \text{ dm} = 1/100 \text{ dam}$$

$$\text{Therefore, } 300 \text{ dm} = 300/100 \text{ dam} = 3 \text{ dam}$$

Example 3:

$$150 \text{ cm} = \underline{\quad\quad\quad} \text{ m}$$

Put 1 at the given unit (cm) and keep putting 0 till the corresponding unit (m)

km	hm	dam	m	dm	cm	mm
			0	0	1	

cm \rightarrow m (a smaller unit to a larger unit, we divide)

$$1 \text{ cm} = 1/100 \text{ m}$$

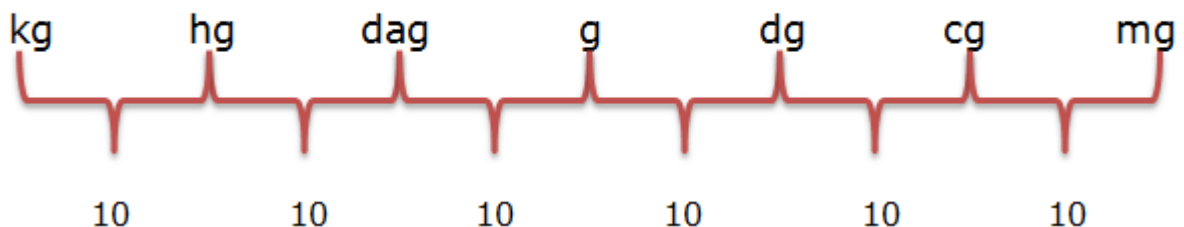
$$\text{Therefore, } 150 \text{ cm} = 150/100 \text{ m} = 1.50 \text{ m}$$

Measurement of Weight

Standard unit of weight is kilogram. We commonly use grams and kilograms to measure weight. Gram is the basic/standard unit of weight which is written as 'g'. All units of weight are related to each other.

We measure small weights in cg and mg and large weights g and kg.

Unit of Weight Conversion Table



According to the weight conversion charts, units of weights and their equivalents are:

$$1 \text{ kilogram (kg)} = 10 \text{ Hectograms (hg)} = 1000 \text{ g}$$

$$1 \text{ Hectogram (hg)} = 10 \text{ Decagrams (dag)} = 100 \text{ g}$$

1 Decagram (dag) = 10 Grams (g)

1 Gram (g) = 10 Decigrams (dg) = 100 cg = 1000 mg

1 Decigram (dg) = 10 Centigrams (cg)

1 Decigram = 0.1 Gram

1 Centigram (cg) = 10 Milligrams (mg)

1 Centigram = 0.01 Gram

1 Milligram = 0.001 Gram

Conversion

While converting from a larger unit to a smaller unit, we multiply

Example 1:

3 g = _____mg

Put 1 at the given unit (g) and keep putting 0 till the corresponding unit (mg)

kg	hg	dag	g	dg	cg	mg
			1	0	0	0

g → mg (a larger unit to a smaller unit, we multiply)

1 g = 1000 mg

Therefore, 3 g = 3 x 1000 = 3000 mg

Example 2:

2.5 kg = _____g

Put 1 at the given unit (kg) and keep putting 0 till the corresponding unit (g)

kg	hg	dag	g	dg	cg	mg
1	0	0	0			

kg → g (a larger unit to a smaller unit, we multiply)

1 kg = 1000 g

Therefore, 2.5 kg = 2.5 x 1000 = 2500 g

While converting from a smaller unit to a larger unit, we divide

Example 1:

20 g = _____hg

Put 1 at the given unit (g) and keep putting 0 till the corresponding unit (hg)

kg	hg	dag	g	dg	cg	mg
	0	0	1			

g → hg (a smaller unit to a larger unit, we divide)

$$1 \text{ g} = 1/100 \text{ hg}$$

$$\text{Therefore, } 20 \text{ g} = 20/100 \text{ hg} = 0.2 \text{ hg}$$

Example 2:

$$5 \text{ g} = \text{ ____ } \text{ kg}$$

Put 1 at the given unit (g) and keep putting 0 till the corresponding unit (kg)

Kg	hg	dag	g	dg	cg	mg
0	0	0	1			

g → kg (a smaller unit to a larger unit, we divide)

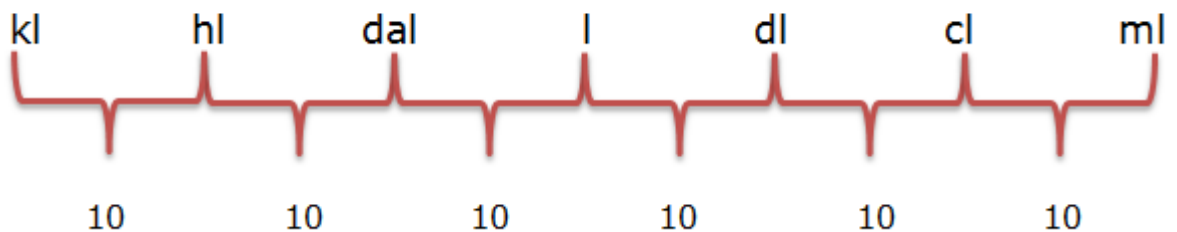
$$1 \text{ g} = 1/1000 \text{ kg}$$

$$\text{Therefore, } 5 \text{ g} = 5/1000 \text{ kg} = 0.005 \text{ kg}$$

Measurement of Capacity

The maximum amount that something can hold is called capacity. The standard unit of capacity is liter. Milliliter, centiliter, deciliter are smaller unit used to measure smaller capacity, liter is commonly used to measure capacity, whereas units like decaliter, hectoliter and kiloliter are used to measure larger capacity. All these units are related to each other.

Unit of Capacity Conversion Table



According to the capacity conversion charts, units of capacities and their equivalents are:

$$1 \text{ kiloliter (kl)} = 10 \text{ Hectoliters (hl)} = 1000 \text{ l}$$

$$1 \text{ Hectoliter (hl)} = 10 \text{ Decaliters (dal)} = 100 \text{ l}$$

$$1 \text{ Decaliter (dal)} = 10 \text{ Liters (l)}$$

$$1 \text{ Liter (l)} = 10 \text{ Deciliters (dl)} = 100 \text{ cl} = 1000 \text{ ml}$$

$$1 \text{ Deciliter (dl)} = 10 \text{ Centiliters (cl)}$$

1 Deciliter = 0.1 Liter

1 Centiliter (cl) = 10 Milliliters (ml)

1 Centiliter = 0.01 Liter

1 Milliliter = 0.001 Liter

Conversion

While converting from a larger unit to a smaller unit, we multiply

Example 1:

3.1 kl = _____ l

Put 1 at the given unit (kl) and keep putting 0 till the corresponding unit (l)

kl	hl	dal	l	dl	cl	ml
1	0	0	0			

kl → l (a larger unit to a smaller unit, we multiply)

1 kl = 1000 l

Therefore, 3.1 kl = 3 x 1000 = 3100 l

Example 2:

4 l = _____ ml

Put 1 at the given unit (l) and keep putting 0 till the corresponding unit (ml)

kl	hl	dal	l	dl	cl	ml
			1	0	0	0

l → ml (a larger unit to a smaller unit, we multiply)

1 l = 1000 ml

Therefore, 4 l = 4 x 1000 = 4000 ml

While converting from a smaller unit to a larger unit, we divide

Example 1:

10 l = _____ kl

Put 1 at the given unit (l) and keep putting 0 till the corresponding unit (kl)

kl	hl	dal	l	dl	cl	ml
0	0	0	1			

l → kl (a smaller unit to a larger unit, we divide)

1 l = 1/1000 kl

Therefore, 10 l = 10/1000 kl = 0.010 kl

Example 2:

$$3 \text{ ml} = \underline{\quad} \text{ l}$$

Put 1 at the given unit (ml) and keep putting 0 till the corresponding unit (l)

Kl	hl	dal	l	dl	cl	ml
			0	0	0	1

ml \rightarrow l (a smaller unit to a larger unit, we divide)

$$1 \text{ ml} = 1/1000 \text{ l}$$

$$\text{Therefore, } 3 \text{ ml} = 3/1000 \text{ l} = 0.003 \text{ l}$$

Basic Conversion Rule

The basic rule is:

If you need to convert from a larger unit to a smaller unit, multiply.

If you need to convert from a smaller unit to a larger unit, divide. You will make the number smaller and, as you already know, division is all about making numbers smaller.

Points to remember:

- To convert bigger units to a smaller unit multiply.
- To convert a smaller unit to a bigger unit divide.