Chapter- 16

Measurement

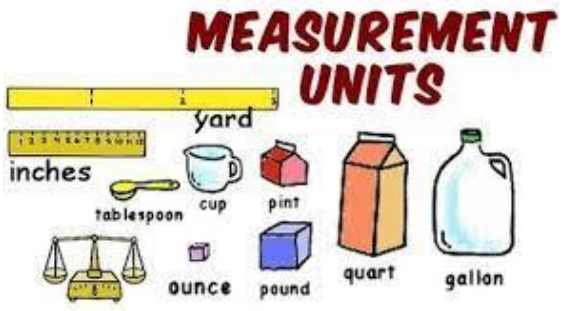
STUDY NOTES

This lesson will help you to:

- **Know the different units of measure**
- **Use measuring tools**
- **Convert the units of measure.**
- **Use the decimal form of measuring units.**
- **Use the measuring units in fundamental operation.**

Important terms:

- **Length / height - how long or short an object is.**
- **Weight/ mass – how heavy or light an object is.**
- **Capacity/ volume – how much an object can contain.**



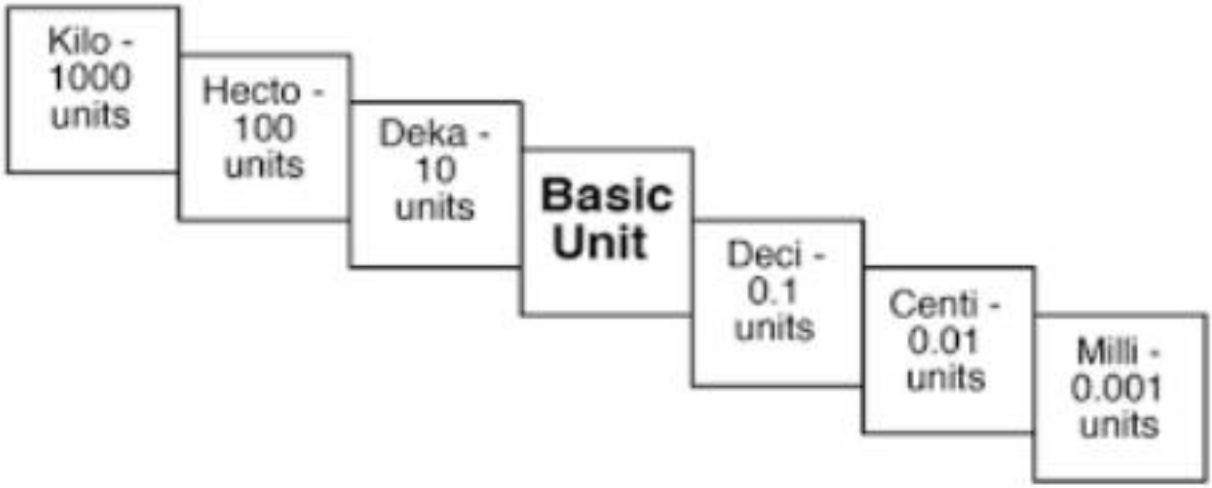
We use different measuring units.

- **To measure length – cm, m, km, etc.**
- **To measure weight/ mass – mg, gram, kg etc.**
- **To measure capacity / volume – mL, Litre or kL.**

THE STANDARD UNIT

- **LENGTH –METRE**
- **WEIGHT – GRAM**
- **CAPACITY – LITRE**

METRIC CHART



Standard unit	Standard unit
Kilo – 1000	Deci - $\frac{1}{10}$
Hector – 100	centi - $\frac{1}{100}$
Deca – 10	milli - $\frac{1}{1000}$

Example – Express 8. 456 m in m, dm, cm and mm

Solution 8.456 could be written as:

$8 + \frac{4}{10} + \frac{5}{100} + \frac{6}{100}$ = 8 m 4 dm 5 cm 6 mm [From the above chart]

CONVERSION OF UNITS

Example- 1. Convert 5212 L to kL.

1000 L = 1 kL

5212 L = 5212 ÷ 1000 = **5. 2 12 kL**

WHEN WE CONVERT SMALLER UNITS TO BIGGER UNITS WE DIVIDE.

2. Convert 526 cm to metre.

100 cm = 1 m

526 cm = 526 ÷ 100 = **5.26 m**

Example- 1. Convert 8.023 L to mL.

1 L = 1000 mL

8.023 L = 8.023 x 100 = 8023 mL

WHEN WE CONVERT BIGGER UNITS TO SMALLER UNITS WE MULTIPLY.

2. Convert 4.236 Km to metre.

1 Km = 1000 m

4.236 Km = 4.236 X 1000 = **4236 m**

FUNDAMENTAL OPERATIONS IN METRIC MEASURE.

It's exactly same like the other fundamental operations.

1st arrange in column [according to place value]

2nd find the answer according to the operation given.

Example:

Subtract 9 kg 4 hg 3 dag 8 g from 14 kg 7 g

14 kg 7 g = 14. 0 0 7

9kg 4 hg 3 dag 8 g = 9. 4 3 8

$$\begin{array}{r} 14.007 \\ - \\ 9.438 \\ \hline \end{array}$$

4. 5 6 9

Example:

Multiply 43. 89 g by 29

$$\begin{array}{r} 43.89 \\ \times \quad 29 \\ \hline 39501 \\ +\ 87780 \\ \hline \end{array}$$

1 2 7 2 . 8 1

Important notes:

- We use the metric system of measurement to measure length, mass and capacity.
- The standard unit of measuring length, mass and capacity is metre, gram and litre respectively.
- When it's not possible to measure smaller or bigger quantities using standard unit, we use other units of measurement.
- Kilo is the highest measuring value while milli is the lowest value.
- We measure almost everything that we see/ use in our daily lives.