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.**

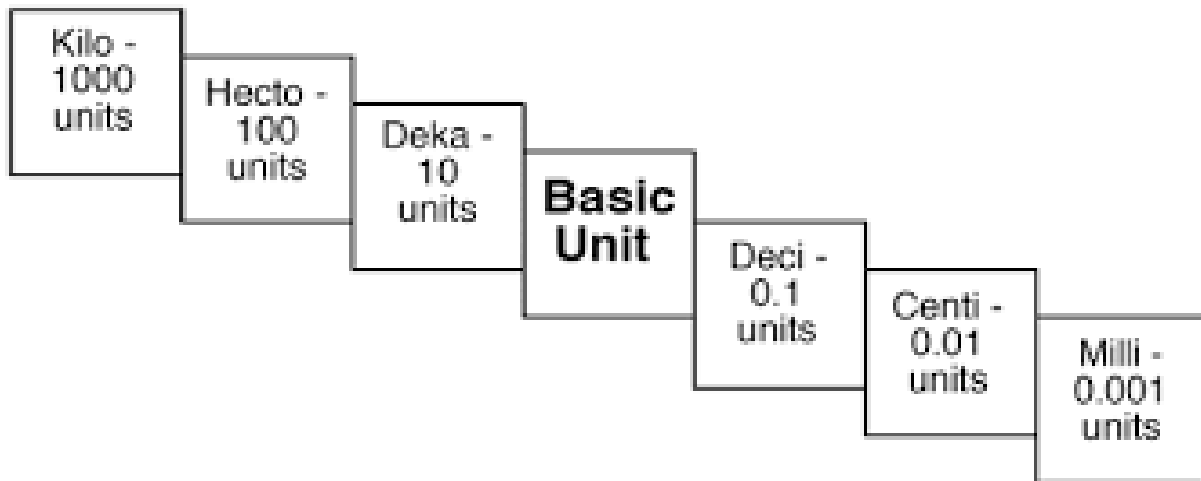- ❖ **Capacity/ volume – how much an object can contain.**
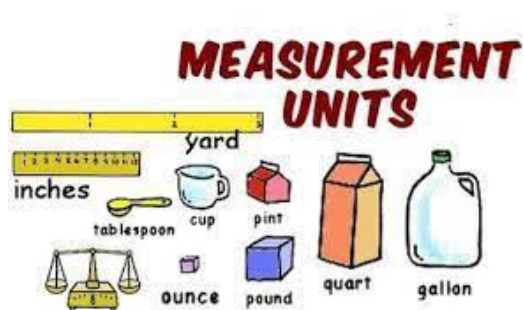
We use different measuring units.

- • **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

Kilo - 1000 units

Hecto - 100 units

Deka - 10 units

Basic Unit

Deci - 0.1 units

Centi - 0.01 units

Milli - 0.001 units

Standard unit

Kilo – 1000
Hector – 100
Deca – 10

Standard unit

Deci - $\frac{1}{10}$
centi - $\frac{1}{100}$
milli - $\frac{1}{1000}$

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

Solution 8.456 could be written as:

$8 + \dfrac{4}{10} + \dfrac{5}{100} + \dfrac{6}{100}$ = **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**

2. Convert 526 cm to metre.

100 cm = 1 m

526 cm = 526 ÷ 100 = **5.26 m**

WHEN WE CONVERT SMALLER UNITS TO BIGGER UNITS WE **DIVIDE.**

Example- 1. Convert 8.023 L to mL.

1 L = 1000 mL

8.023 L = 8.023 x 100 = 8023 mL

2. Convert 4.236 Km to metre.

1 Km = 1000 m

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

WHEN WE CONVERT BIGGER UNITS TO SMALLER UNITS WE **MULTIPLY.**

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

```
    14. 0 0 7
  −
     9. 4 3 8
  _____
     4. 5 6 9
```

Example:

Multiply 43. 89 g by 29

```
      4 3. 8 9
  X       2 9
  _____
     3 9 5 0 1
  + 8 7 7 8 0
  _____
   1 2 7 2 . 8 1
```
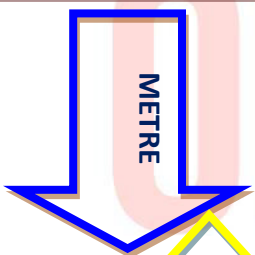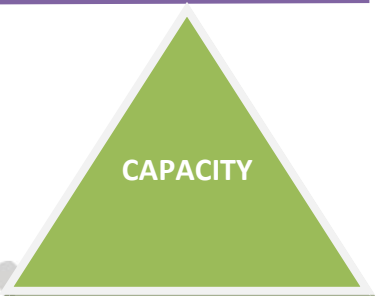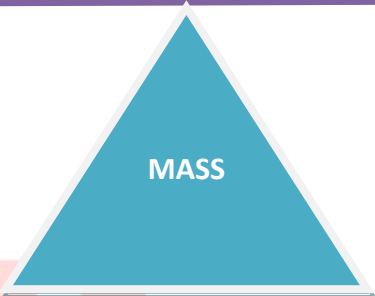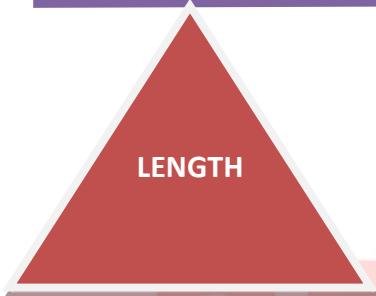
Important notes:

- 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.

MIND MAP

MEASUREMENT

LENGTH

MASS

CAPACITY

METRE

GRAM

LITRE

KILO

HECTO

DECA
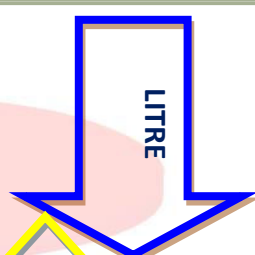
UNIT

GREATER UNITS

SMALLER UNITS

UNIT

DECI

CENTI

MILLI