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# Metrology

**Metrology** is the science of Weight and measures.

Mathematics is important in pharmacy practice. A mistake in calculations or measurement could lead to serious consequences such as under dosing or Over dosing. This in turn lead to, in adequate treatment or drug toxicity.

**the distinct system of weight and measures are used at the present time.**

1. Old apothecaries system.
2. The classical metric system.
3. Household (domestic) measurement.

## **Apothecaries**

The apothecary system of measure is a very old English system. It has slowly been replaced by the metric system.

Units of weights	
Units name	abbreviation
Ounce	Oz.
Pound	Ib.

Units of measuring liquids	
Units name	abbreviation
Fluid ounce	Fl.oz.
Pint	o.

## Metric system

The classical metric system The metric system has become the system of choice for dealing with weights and measures involved in the calculation of drug dosage. This is because of its accuracy and simplicity.

Introduced by the French since 1791 in an effort to simplify measurements. At the present time it is official system of weight and measures

The metric system is a decimal system. To convert g (large) to mg (small), multiply by 1000 ( $\times$ ).

or move the decimal point 3 places to the right (for 1000 times smaller.) The units are smaller so the number of them is larger.

To convert mg (small) to g (large), divide by 1000 ( $\div$ ) or move the decimal point 3 places to the left (for 1000 times greater). The units are larger so the number of them is smaller.

### 1. Base units:

length - meter  
weight - gram  
volume - liter

### Prefixes indicating multiples:

1000 - kilo  
100 - hecto  
10 - deka

### Prefixes indicating divisions:

1/10 - deci  
1/100 - centi  
1/1000 - milli  
1/1,000,000 - micro

## 2. Commonly used units:

<u>Weight</u>		<u>Volume</u>	
<u>Unit</u>	<u>Abbreviation</u>	<u>Unit</u>	<u>Abbreviation</u>
kilogram	kg	liter	L
gram	g	milliliter	mL
milligram	mg	or	
microgram	mcg	**cubic centimeter	cc

### **Household system**

**Household (domestic) measurement. The household measures are not accurate enough to use in the calculation of drug dosage in hospital. However, its easy for the patients to understand and deal with it. Therefore, its used by physician to prescribe the dose to their patients.**

<b>Units</b>	<b>Abbreviation</b>
<b>drops</b>	<b>gtt</b>
<b>Teaspoon</b>	<b>tsp</b>
<b>Tablespoon</b>	<b>Tbs</b>
<b>Ounce</b>	<b>oz</b>
<b>pint</b>	<b>pt</b>
<b>quart</b>	<b>qt</b>
<b>gallon</b>	<b>gal</b>