



Tikrit University  
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# Metrology

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Subject year:2024

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Font type (times new roman)



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# Metrology

**Metrology** is the science of Weight and measures. the distinct system of weight and measures are used at the present time.

-**Apothecaries' system**

-**metric system**

The former is older and still in fairly general use among physicians and pharmacists

## **Apothecaries**

This based upon the theory of weight and measures  
APOTHECARY SYSTEM

1. Base units:

Weight - grain

Volume – minim

The basic of weight is the grain which is define as the weight of a grain of wheat.

Amounts are written as Arabic numerals and fractions or Roman numerals. The symbol precedes the number.

The fraction one-half is abbreviated ss, or ss when used alone or with Roman numerals in the apothecary system

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Example: gr xv means 15 grains

gr ss means  $\frac{1}{2}$  grain

gr 1/4 means  $\frac{1}{4}$  grain

$\mathcal{Z}$  i means 1 dram

Common units:

<u>Weight</u>		<u>Volume</u>	
<u>Unit</u>	<u>Abbreviation</u>	<u>Unit</u>	<u>Abbreviation</u>
grain	gr	minim	m, min
dram	dr or $\mathcal{Z}$	dram	$\mathcal{Z}$ , f $\mathcal{Z}$
ounce	oz or $\mathcal{Z}$	ounce	$\mathcal{Z}$ , f $\mathcal{Z}$
		pint	pt
		quart	qt
		gallon	gal

## Metric system

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 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 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.

### Metric system

#### 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**

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<b>Units</b>	<b>Abbreviation</b>
<b>drops</b>	<b>gtt</b>
<b>Teaspoon</b>	<b>tsp or t</b>
<b>Tablespoon</b>	<b>Tbs or Tbsp or tbsp or T</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>

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