

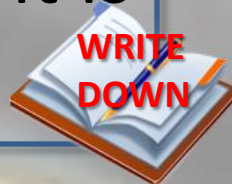


SI UNITS

The Metric System

SI, BY ANY OTHER NAME ...

- S.I. is an abbreviation that comes from the French “*Le Système International d'Unités.*” (The International System of Units)
- It is often called the *Metric System*.
- The SI system or metric system is used all over the world and in the sciences too, because it is a decimal system.



THE THINGS WE MEASURE

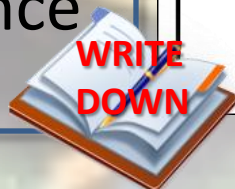
- There are a lot of different things we measure in physical science. Some of them are:

- Distance
- Mass
- Pressure
- Energy
- Time
- Volume

- The metric units and their abbreviations are found on Table D of your reference tables.

Table D
Selected Units

Symbol	Name	Quantity
m	meter	length
kg	kilogram	mass
Pa	pascal	pressure
K	kelvin	temperature
mol	mole	amount of substance
J	joule	energy, work, quantity of heat
s	second	time
L	liter	volume
ppm	part per million	concentration
M	molarity	solution concentration



METRIC PREFIXES

- Basic metric units may be too big or too small to be convenient to use.
- Metric units are modified by prefixes.
- *Table C of the Reference Tables* lists the prefixes used to modify basic metric units.



Kilo (k)	= 1,000	= 10^3
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Deci (d)	= 0.1	= 10^{-1}
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Centi (c)	= 0.01	= 10^{-2}
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Milli (m)	= 0.001	= 10^{-3}
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micro (μ)	= 0.000001	= 10^{-6}
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nano (n)	= 0.000000001	= 10^{-9}
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pico (p)	= 0.000000000001	= 10^{-12}
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CONVERTING AMONG METRIC UNITS



- An easy way to convert among metric units is to list factors of 10 from high to low, including the prefixes.

10^3	10^2	10^1	1	10^{-1}	10^{-2}	10^{-3}	10^{-4}	10^{-5}	10^{-6}	10^{-7}	10^{-8}	10^{-9}	10^{-10}	10^{-11}	10^{-12}
<i>k</i>	-	-	no prefix	<i>d</i>	<i>c</i>	<i>m</i>	-	-	μ	-	-	<i>n</i>	-	-	<i>p</i>



- Then when you do a conversion the list shows you how many places and in what direction to move the decimal.
- Example: 1,370. μm = -?- nm **1370 nm**



Place holder