**METRIC CONVERSIONS**

* Based on multiples of \_\_\_\_\_\_\_\_\_\_\_​
* The basic unit of length is the metre ​
* Larger units are based on metres \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by 10, 100, 1000 etc​
* Smaller units are based on metres \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ by 10, 100, 1000 etc​
* Each multiple has its own \_\_\_\_\_\_\_\_\_\_\_\_\_ (syllable joined to the beginning of a word)​
* Base units: mass 🡪\_\_\_\_\_\_ ; length 🡪\_\_\_\_\_\_ ; volume 🡪\_\_\_\_\_\_ ; energy 🡪\_\_\_\_\_\_\_

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| --- | --- | --- |
| Prefix | Symbol | Relationship to the base unit\* |
| giga- | G | 109 = 1 000 000 000 |
| mega- | M | 106 = 1 000 000 |
| kilo- | k | 103 = 1 000 |
| hecto- | h | 102 = 100 |
| deca- | da | 101 = 10 |
| -- | -- | 100 = 1 |
| deci- | d | 10-1 = 0.1 = $\frac{1}{10}$ |
| centi- | c | 10-2 = 0.01 = $\frac{1}{100}$ |
| milli- | m | 10-3 = 0.001 = $\frac{1}{1 000}$ |
| micro- | μ | 10-6 = 0.000 001 = $\frac{1}{1 000 000}$ |
| nano- | n | 10-9 = 0.000 000 001 = $\frac{1}{1 000 000 000}$ |

**Example #1**: A student measures 459 mL of water. Express this value in L.

1 L = \_\_\_\_\_\_\_\_\_\_\_\_mL          ***Strategy Plan****:  we want to be able to cancel out like units*

 *vertically, so decide what unit factor to use:*

       $\frac{1000 mL}{1 L}$ *or* $\frac{1 L}{1000 mL}$

     459 mL x

**Example #2** : A student needs to measure 0.4 kg of salt. Express this mass in g.