Chemistry/Ch. 2/Metric System Reference

Historically metric conversions have been a thorn in the side of many chemistry students. This NEED NOT be the case. I teach the metric conversions a little bit differently than some. I teach the what I call “how many littles in a big” system. I think it is easier to think this way. For example, if I ask you, “How many pennies are in a dollar?” I bet you answer this much faster than , “How many dollars in a penny?”

We’ll start with this:

Mega Kangaroos Hop Down Mountains Drinking chocolate milk & munching nutterbutters.

Note the capital letters represent units that are larger than the base unit of the meter (m), the gram (g), or the liter(L). These prefixes work with ANY of them.

These units are **bigger** than a meter, gram, or liter, so there are many base units *in them*.

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| Mega (M) | How many meters in a Mega meter? | 1 x 106 m = 1 Mm  1 x 106 g = 1 Mg  1 x 106 L = 1 ML |
| Kilo (K) | How many meters in a Kilometer? | 1 x 103 m = 1 Km  1 x 103 g = 1 Kg  1 x 103 L = 1 KL |
| H |  |  |
| D |  |  |
| Meter | How many meters in a meter? | 1 x 100 m = 1 m  1 x 100 g = 1 g  1 x 100 L = 1 L |

These units are **smaller** than a meter, gram, or liter, so there are many of *them* in a base unit.

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| deci (d) | How many decimeters in a meter? | 1 x 101 dm = m  1 x 101 dg = 1 g  1 x 101 dL = 1 L |
| centi (c) | How many centimeters in a meter? | 1 x 102 cm = 1 m  1 x 102 cg = 1 g  1 x 102 cL = 1 L |
| milli (m) | How many millimeters in a meter? | 1 x 103 mm = 1 m  1 x 103 mg = 1 g  1 x 103 mL = 1 L |
| micro (µ) | How many micrometers in a meter? | 1 x 106 µm = 1 m  1 x 106 µg = 1 g  1 x 106 µL = 1 L |
| nano (n) | How many nanometers in a meter? | 1 x 109 nm = 1 m  1 x 109 ng = 1 g  1 x 109 nL = 1 L |

KNOW THESE LIKE THE BACK OF YOUR HAND! They are very useful conversions that you will use in all the science classes that you ever have! We are GETTING THIS THIS YEAR!!! Thank you! :-}