

Unit Conversion Examples

Some General Information:

The last page of this file contains practice problems (with answers) that can be printed. You are also welcome to print this entire file and study it at your leisure.

Assignment # 1 is worksheet that follows the practice problems of this section
Check the Assignment Schedule page.

There are several web sites on the Internet that have explanations and examples of problems.

You may find these Web Sites helpful. Sometimes a different way of explaining an idea helps a student understand the concept better.

You will find these links in the **Activities Page** of the **Chemone Web Site**.

Now for the examples

The conversion table (which you should have printed) is a series of ratios that relate each metric unit within a dimension (length, mass, or volume) to one common unit within the same dimension. Thus in the table below for the dimension of length each column of the table is actually a ratio. All of the ratios are related to one common unit of length measurement and that is the Meter (m). The convenience of the table is that each Acolumn ratio@ can be placed in a problem and used to convert from one metric unit of length to another.

Table # 1 C Metric Conversion Table For Length

<u>Number of Meters in each unit</u>			1 Unit	<u>Number of units in each meter</u>					
1000 m	100 m	10 m	1 m	10 dm	100 cm	1000 mm	$10^6 \mu\text{m}$	10^9 nm	10^{12} pm
1 km	1 hm	1 dam	1 m	1 m	1 m	1 m	1 m	1 m	1 m

Notice also that there is no need to memorize large numbers of individual conversion factors such as:

.1m/dm or **.01m/cm** or **.001m/mm** or **.1dm/cm** or **.01dm/mm** or

Do you see how many conversion factors you would have to know if you chose to use a separate conversion for any two units of measurement? Just think of all of the possible conversion factors that could be written using just the units for the measurement of length in the table below. And to complicate matters, you would need the same types of conversion factors for volume and mass.

So the process that will be illustrated involves less mental anguish for you and some mathematics of ratios (which, in itself, is a good review of basic mathematics for you).

This is also the beginning of **Dimensional Analysis** or the **Factor-Label** method of solving application problems.

Dimension Analysis is a method that you will use often in this chemistry course and in other physical science courses that you may study.

Downloaded the next file B Metric Conversion examples -- for illustrations of conversion with metric units.