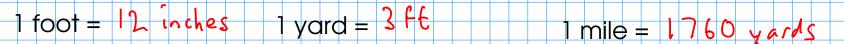
Measurements are comparisons of properties against accepted standards, called units.

ENGLISH / US SYSTEM OF UNITS:



5280 Ft = 1 mile

So what's the problem? The English system of units is a big mess. Units do not relate to each other in a manner that is easily remembered and used.

English units are nonstandard and difficult to use. Solution?

THE METRIC SYSTEM

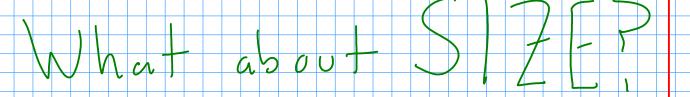
 All metric units are made up of COMBINATIONS of

 Metric Base Units:
 BASE UNITS!

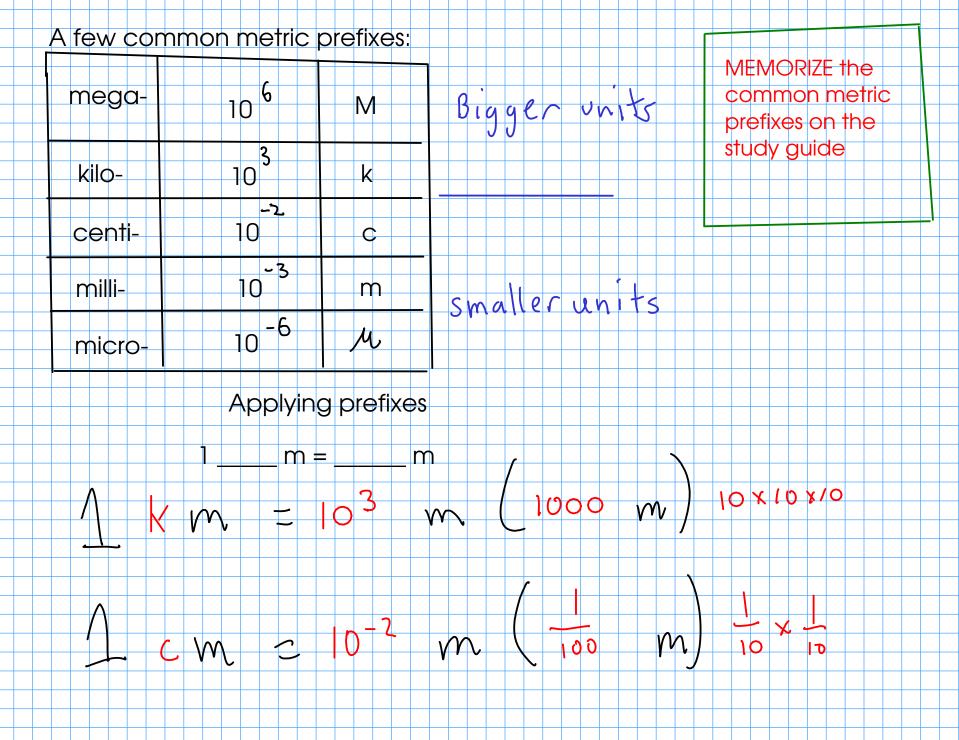
Length meter m

Mass kilogram kg for mass!

Time second s



Metric units may be made larger or smaller by adding PREFIXES.



Scaling units with metric prefixes ... examples

The distance between here and Columbia, SC is about 107,000 meters. What metric unit would be best suited for a distance like this?

km = 103 (1000) m

07 Km

A piece of chalk is 0.080 meters long. What metric unit would be best suited for this length? $(\begin{array}{c} L \\ L \end{array}) \\ C \end{array}) \\ C \end{array}$

- are units that are made up of combinations of metric base units with each other and/or with prefixes

Two derived units are particularly important in introductory chemistry:

1) VOLUME

2) DENSITY