Table \# 1 - Metric Conversion Table For Length

| Number | Meters | ach unit | 1 Unit | Number of units in each meter |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1000 m | 100 m | 10 m | 1 m | 10 dm | 100 cm | 1000 mm | $10^{6} \mu \mathrm{~m}$ | $10^{9} \mathrm{~nm}$ | $10^{12} \mathrm{pm}$ |
| 1 km | 1 hm | 1 dam | 1 m | 1 m | 1 m | 1 m | 1 m | 1 m | 1 m |

Table \# 2 - Metric Conversion Table For Mass

| Numbe | Grams | ch unit | 1 Unit | Number of units in each Gram |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1000 g | 100 g | 10 g | 1 g | 10 dg | 100 cg | 1000 mg | $10^{6} \mu \mathrm{~g}$ | $10^{9} \mathrm{ng}$ | $10^{12} \mathrm{pg}$ |
| 1 kg | 1 hg | 1 dag | 1 g | 1 g | 1 g | 1 g | 1 g | 1 g | 1 g |

Table \# 3 - Metric Conversion Table For Volume

| Number of Liters in each unit |  |  | 1 Unit | Number of units in each Liter |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 1000 L | 100 L | 10 L | 1 L | 10 dL | 100 cL | 1000 mL | $10^{6} \mu \mathrm{~L}$ | $10^{9} \mathrm{~nL}$ | $10^{12} \mathrm{pL}$ |
| 1 kL | 1 hL | 1 dL | 1 L | 1 L | 1 L | 1 L | 1 L | 1 L | 1 L |

Table \# 4 ---- Metric Volume Conversion Table for $\mathbf{~ d m}^{\mathbf{3}}$

| $100 \mathrm{dm}^{3}$ | $1 \mathrm{dm}^{3}$ | $1 \mathrm{dm}^{3}$ | $1 \mathrm{~cm}^{3}$ | $1 \mathrm{dm}^{3}$ |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | 1000 | 1 L | 1000 mL | 1 mL | $1000 \mathrm{~cm}^{3}$ |
|  |  | $1 \mathrm{~m}^{3}$ |  |  |  |

## For All Tables

1. Each column is a ratio of the different unitsthat are involve in the measurements of length, mass, or volume.
2. To use the table to solve problems you must realize the ratios in the table can be inverted without changing the relationship (although the decimal values will change). However it is the relationship between dimensions that is important.
3. Two ratios and their inverted ratios are presented below:

10 units
$\qquad$ becomes
1 deka

1 deka
10 units

## Notice that the relationships have not changed.

4. Some sample calculations and conversions:
(Point to remember: the words "units" and "unit" are interchangeble.)
A. How many centi's are there in a deka?
$\frac{10 \text { tenits }}{1 \text { deka }} \times \frac{100 \text { centi }}{1 \text { unit }}=\frac{(10)(100) \text { centi }}{1 \text { deka }}=\frac{1000 \text { centi }}{1 \text { deka }}$
B. How many dekas are there in a $\mathbf{3 3}$ kilos?
 3300 dekas

1 unit


100 centi

1 unit
$\qquad$

by memorizing exactly how many centi's there are in a deka or how many dekas there are in a kilo. However, by knowing and understanding the basic relationship between any particular metric prefix and the unit value (1) for each type of measurement, it will not be necessary to memorize a large quantity of conversion factors.

