

## Dr. Drake's Prefix Cancel method

Most often used metric equalities in Chem 1406

$1 \text{ Km} = 1000 \text{ m}$	$1 \text{ KL} = 1000 \text{ L}$	$1 \text{ Kg} = 1000 \text{ g}$
$1 \text{ m} = 10 \text{ dm}$	$1 \text{ L} = 10 \text{ dL}$	$1 \text{ g} = 10 \text{ dg}$
$1 \text{ m} = 100 \text{ cm}$	$1 \text{ L} = 100 \text{ cL}$	$1 \text{ g} = 100 \text{ cg}$
$1 \text{ m} = 1000 \text{ mm}$	$1 \text{ L} = 1000 \text{ mL}$	$1 \text{ g} = 1000 \text{ mg}$
$1 \text{ m} = 1,000,000 \text{ mcm}$	$1 \text{ L} = 1,000,000 \text{ mL}$	$1 \text{ g} = 1,000,000 \text{ mcg}$
$1 \text{ m} = 1,000,000,000 \text{ nm}$	$1 \text{ L} = 1,000,000,000 \text{ nL}$	$1 \text{ g} = 1,000,000,000 \text{ ng}$

Finding equalities between units (only for large  $\rightarrow$  large prefixes or small  $\rightarrow$  small prefixes)

1. To convert between the small units (you cannot use a large unit and a small unit for this trick) say  $\text{cg} \rightarrow \text{mg}$  you just select the two equations from the list above or that you "learned".

$$\begin{aligned} 1 \text{ g} &= 100 \text{ cg} \\ 1 \text{ g} &= 1000 \text{ mg} \end{aligned}$$

2. Then you merge the two equations together removing the side of the equation containing the one (1).

$$100 \text{ cg} = 1000 \text{ mg}$$

3. Now cancel the zeroes on either side of the equation until one side of the equation is just the number one.

$$\cancel{100} \text{ cg} = \cancel{1000} \text{ mg}$$

4. Now rewrite the NEW equality using the numbers and units remaining. You can now use this equality to solve in your problem.

$$1 \text{ cg} = 10 \text{ mg}$$

# Drake