

# N1 - Chemistry Math Review

- Follow formatting requirements written on WS #1 given to you for homework!
- Take NOTES don't copy word for word! Do *not* ask me “can you go back a slide?” The answer is no. If you need more detail add it at home – notes will be on class website. You need to get FAST at note taking! Use abbreviations, shorthand, pictures etc!

**YOU ARE A NOTE TAKER,  
NOT A PHOTOCOPY MACHINE!**

- This “should” be review...we review it quickly to refresh your memory. If you need extra help then come see me!
- We will add “KCQ Boxes” to the end of your notes in class together the next day – it is a note taking technique to help process and retain the information you take notes on. You do not have to do this tonight for homework!

# **N1 - Chemistry Math Review**

**Target: I can use scientific notation and the metric system this year in my chemistry class.**

**Link to YouTube Presentation: <https://youtu.be/IfPJ7xKOfQU>**

# Tired of really big or really small numbers???

- Use scientific notation!
- Move your decimal and rewrite it in “scientific notation format”

$$3 \bullet 54 \times 10^2$$

One  
#

•

Rest of  
the #s

x

10

Exponent

*(telling how many times to move the decimal, and which way to move it!)*

“x 10 EXPONENT” is the same a

E

3.54E<sup>2</sup>

# Nature of Measurement

- Measurement - quantitative observation
- Consisting of 2 parts
  - Part 1 – **number**
  - Part 2 – **scale (unit)**

We will be using a lot of scientific notation for our numbers

Example: **20** grams

We will be using the metric system for our units

# Why the Metric System?

- We all need to speak the same “math language.”
- Everyone else uses it!
- It is easier!

The British: Hey guys, we developed this thing called the metric system...

Americans:

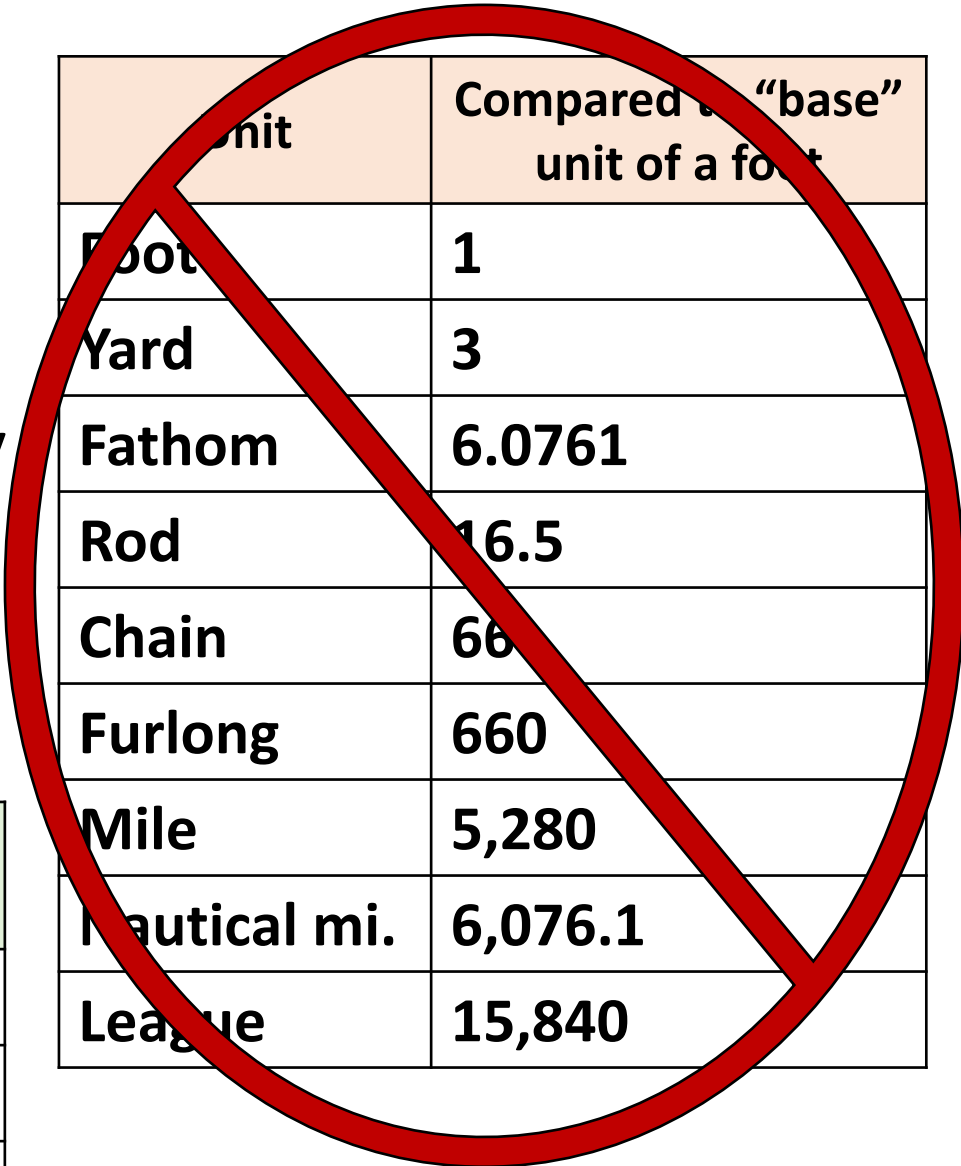


Adult deer are as tall as a bicycle. They weigh as much as 800 hamburgers.

# How is it easier?

- Metric system works on “BASE TEN”
- Everything is changed by a factor of 10
- English system is totally random!

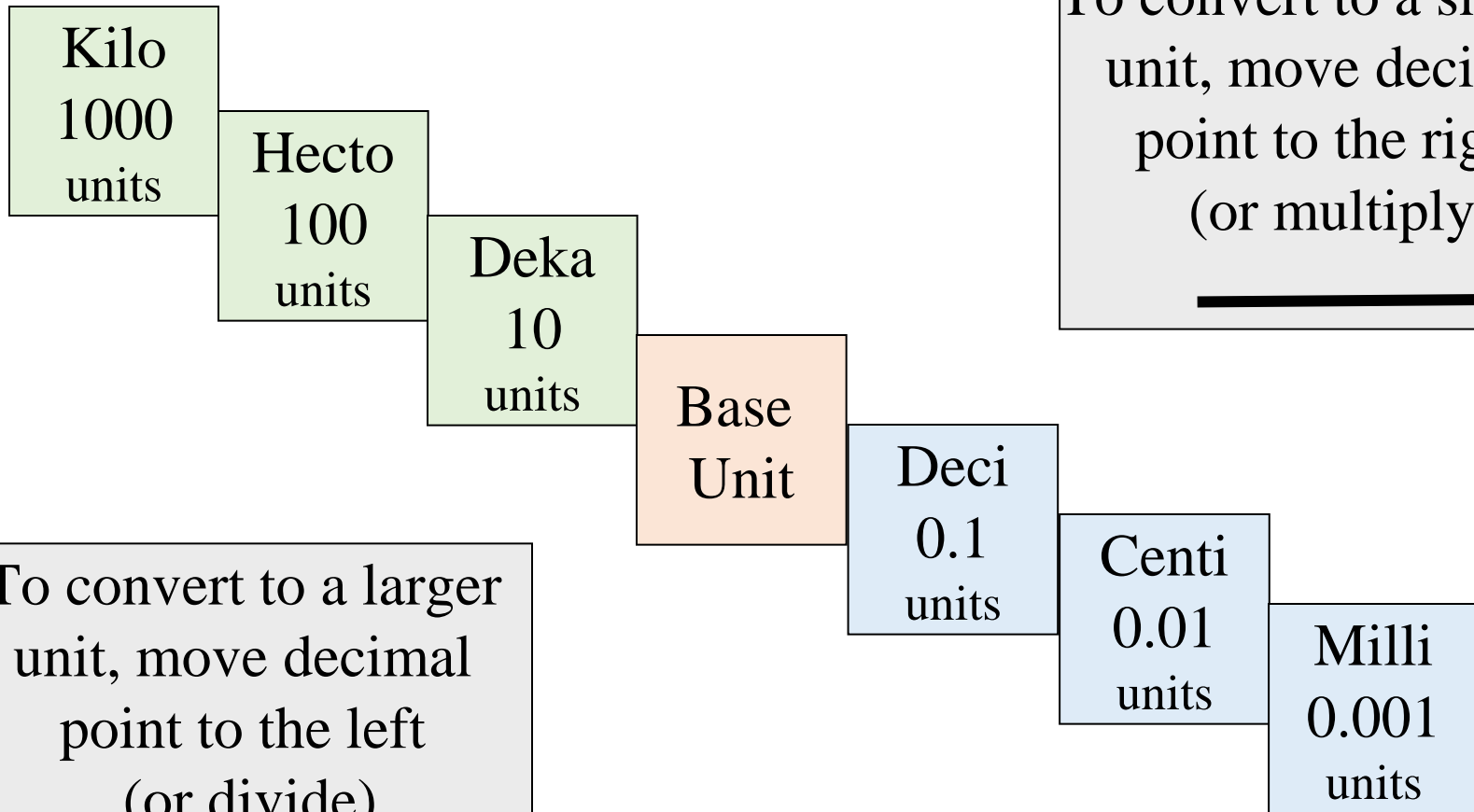
Unit	Compared to “base” unit of a meter
Meter	1
Decameter	10
Hectometer	100
Kilometer	1000



Unit	Compared to “base” unit of a foot
Foot	1
Yard	3
Fathom	6.0761
Rod	16.5
Chain	66
Furlong	660
Mile	5,280
Nautical mi.	6,076.1
League	15,840

# Converting Metric System

- Just move the decimal!



# How do I remember the prefixes?

**K**ing **H**enry **D**ied **B**y **D**rinking **C**hocolate **M**ilk

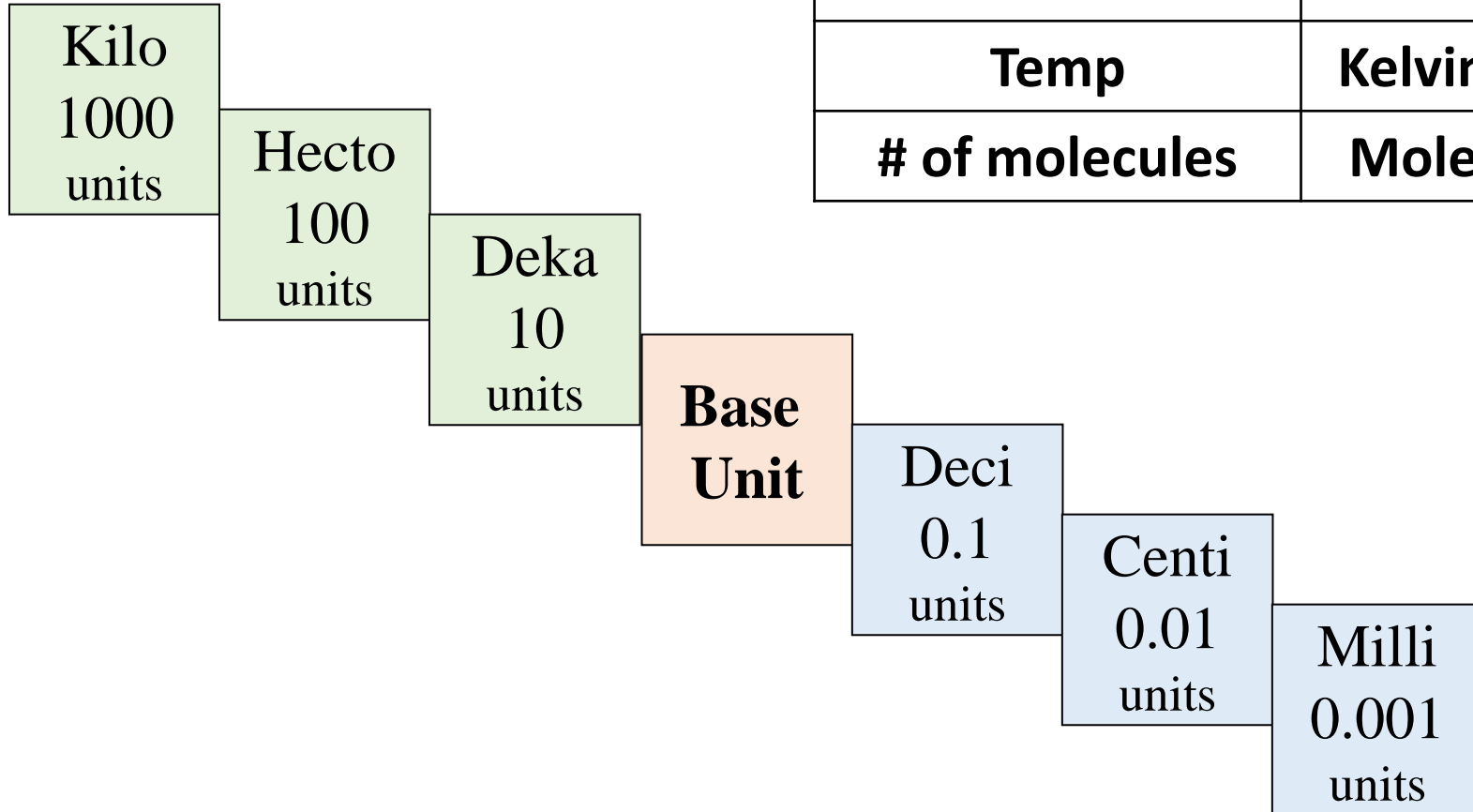
K	H	D	B	D	C	M
I	E	E	a	E	E	I
L	C	K	s	C	N	L
O	T	A	e	I	T	L
	O				I	I





# What are the “Base Units?”

Measuring	Unit
Length	Meter
Volume	Liter
Mass	Gram
Time	Second
Temp	Kelvin
# of molecules	Mole



# Guided Practice

27500 mg  $\rightarrow$  g

## STEP 1

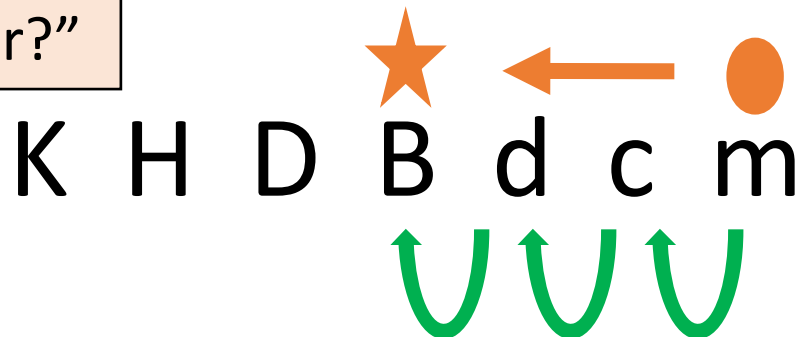
Are you going up or down the "ladder?"

## STEP 2

How many steps to get there?

## STEP 3

Move decimal that many times, in that direction



2 7 5 0 0 .

2 7 5 0 0 .

Blue U-shaped arrows point up from the decimal point to the 5, then to the 7, and finally to the 2.

27.500 g

# Guided Practice

$$0.15 \text{ DL} = \underline{\hspace{2cm}} \text{ mL}$$

## STEP 1

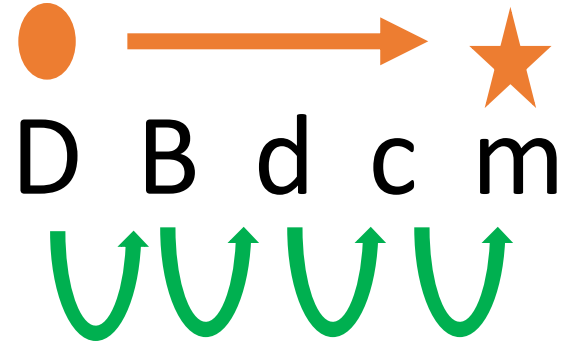
Are you going up or down the "ladder?"

## STEP 2

How many steps to get there?

## STEP 3

Move decimal that many times, in that direction




0.1500

**1500 mL**

# The Fundamental SI Units (le Système International, SI)

<u>Physical Quantity</u>	<u>Name</u>	<u>Abbrev.</u>
Mass	kilogram	kg
Length	meter	m
Time	second	s
Temperature	Kelvin	K
Electric Current	Ampere	A
Amount of Substance	mole	mol
Luminous Intensity	candela	cd



**Careful – what we call the “Base Unit” for conversions is GRAMS but the “SI Base Unit” for mass is KILOGRAMS**

# Derived Units

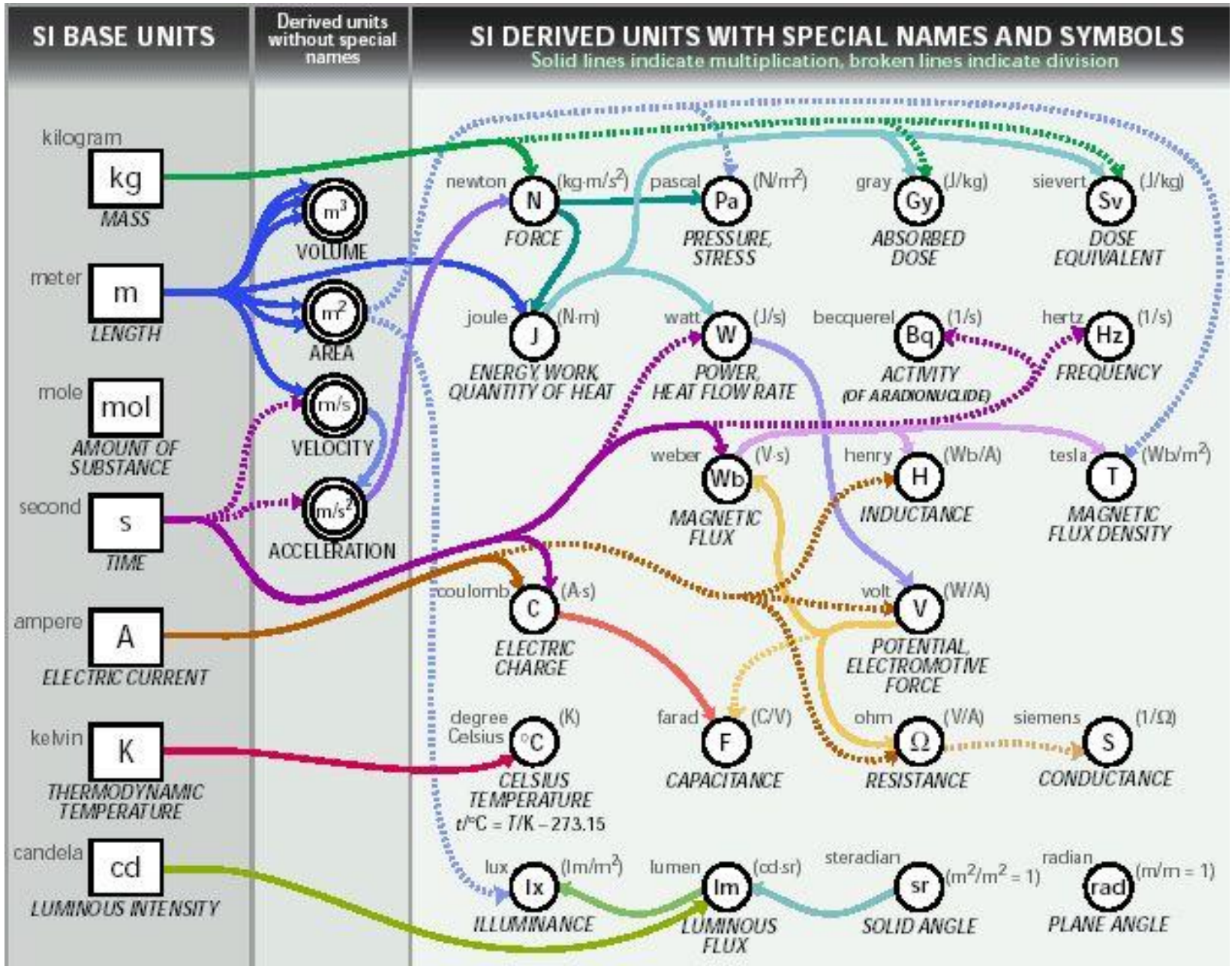
- Made by combining multiple units together
- Examples:

miles/hour = speed in our cars in US

$\text{cm}^3$  = volume

$\text{m/s}^2$  = acceleration

$\text{kg}\cdot\text{m/s}^2$  = newton (measures force)



# YouTube Link for this Presentation

- <https://youtu.be/IfPJ7xKOfQU>