

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 ● 54 x 10²

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

3.54E²

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:



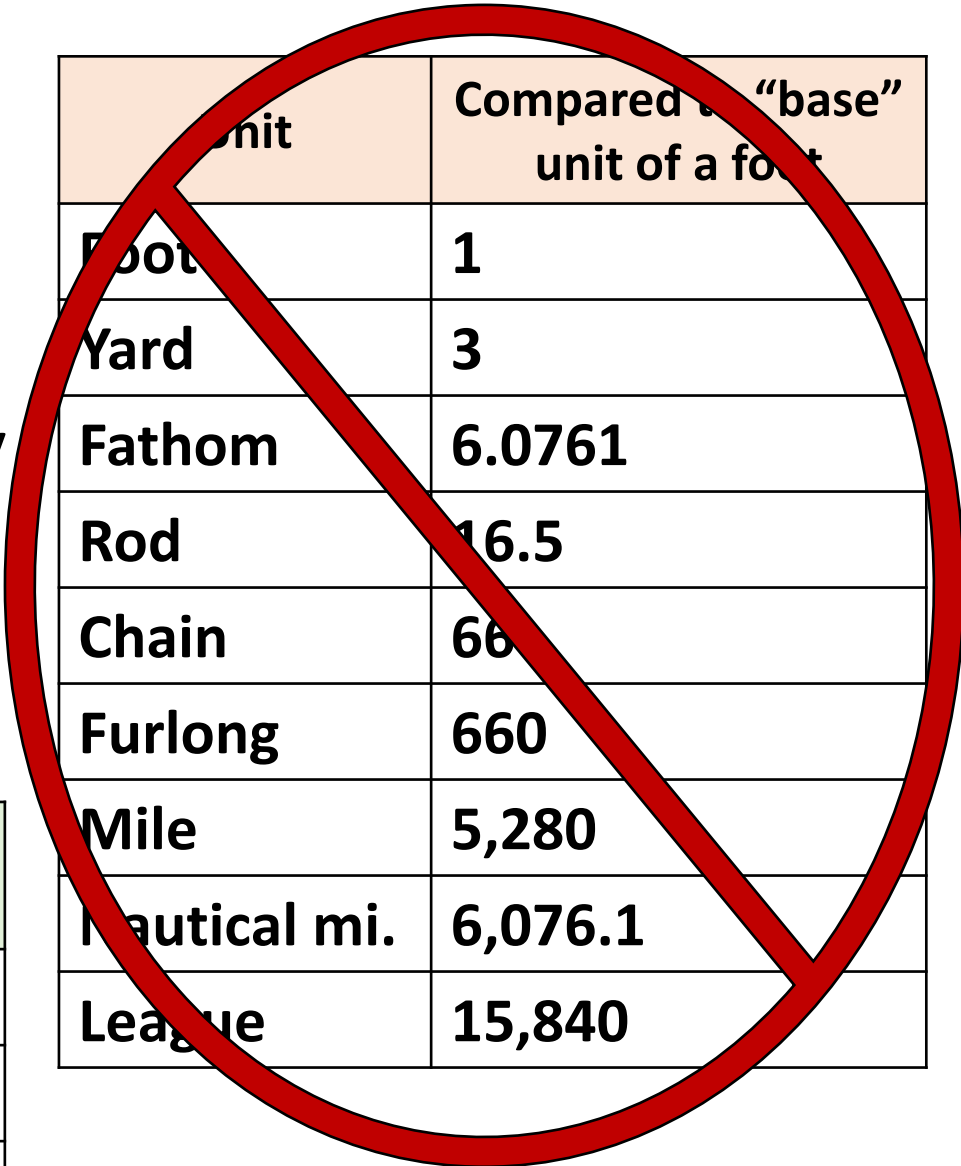
Adult deer are as tall as a bicycle. They weigh as much as 800 hamburgers.

How is it easier?

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

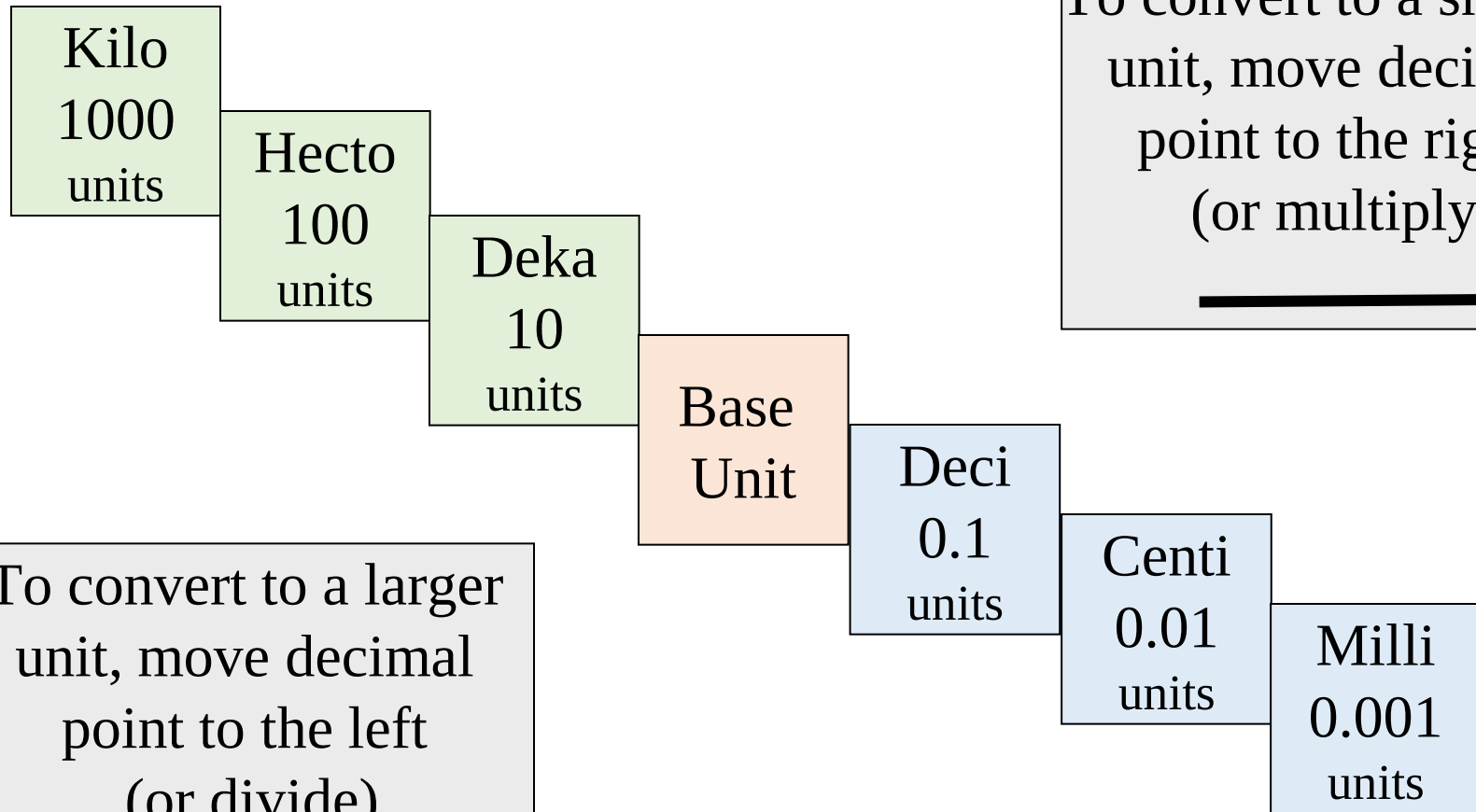
Unit	Compared to “base” unit of a meter
Meter	1
Decameter	10
Hectometer	100
Kilometer	1000

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!



To convert to a smaller unit, move decimal point to the right (or multiply)



To convert to a larger unit, move decimal point to the left (or divide)



How do I remember the prefixes?

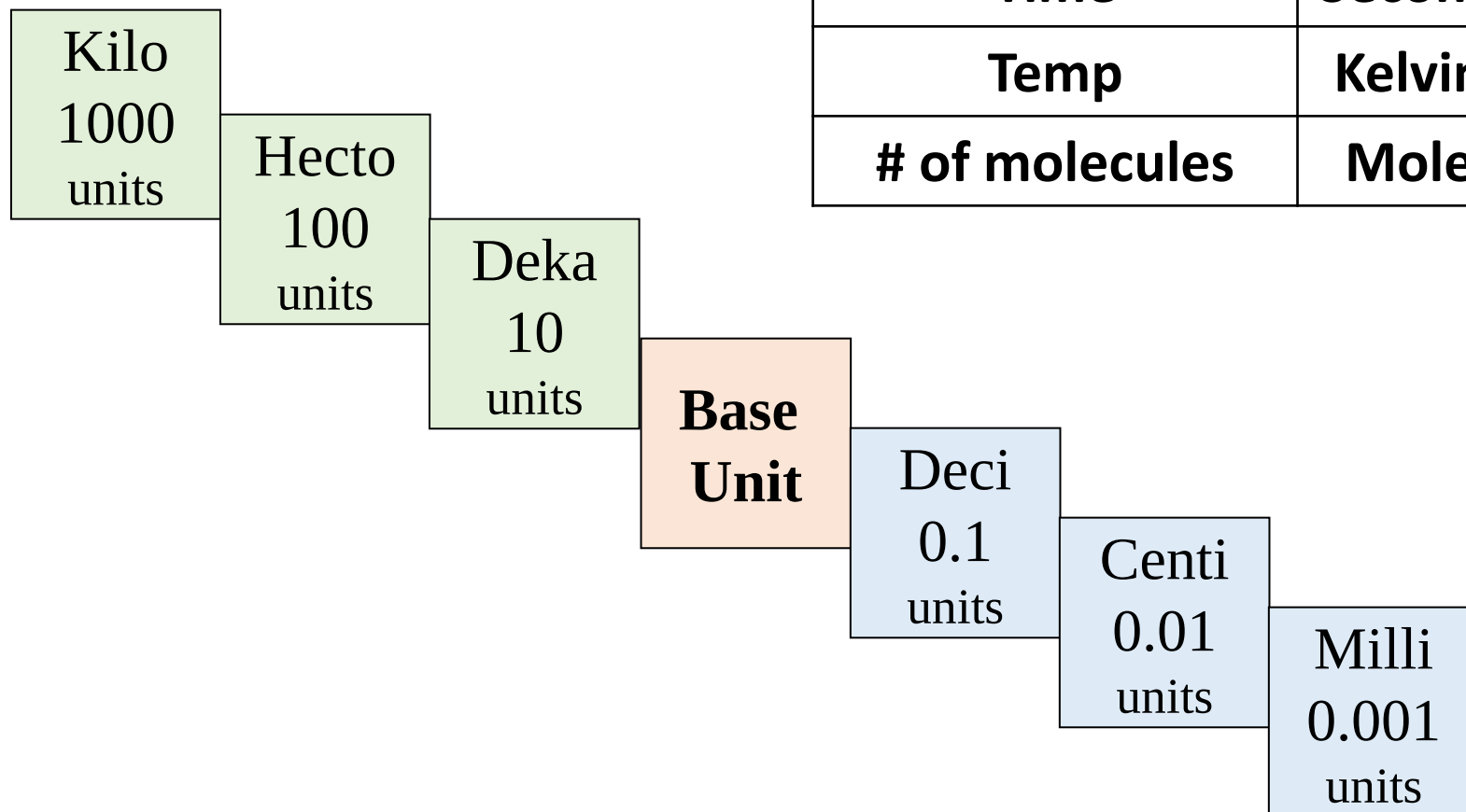
King **H**enry **D**ied **B**y **D**rinking **C**hocolate **M**ilk

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

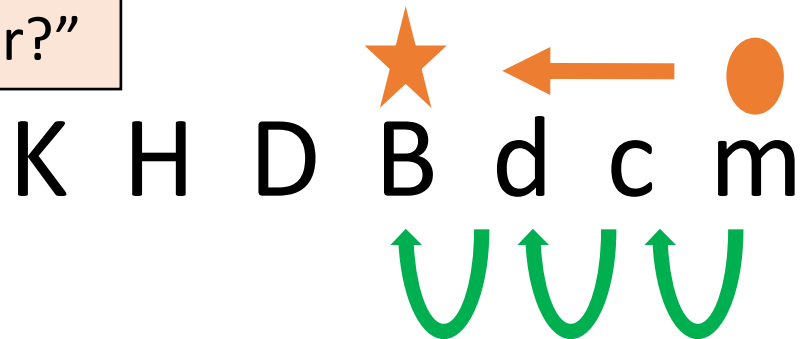
Are you going up or down the “ladder?”

STEP 2

How many steps to get there?

STEP 3

Move decimal that many times, in that direction



2 7 5 0 0 .

The diagram shows the number 27500. with three blue U-shaped arrows pointing upwards from the decimal point to the 5, then to the 0, and finally to the 7, indicating the movement of the decimal point three places to the left.

27.500 g

Guided Practice

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

STEP 1

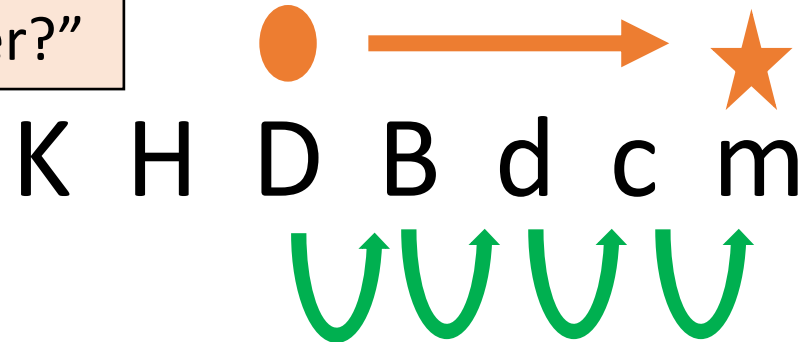
Are you going up or down the “ladder?”

STEP 2

How many steps to get there?

STEP 3

Move decimal that many times, in that direction



0.1500

Four blue curved arrows point from the decimal point to the right, indicating the movement of the decimal point to the right.

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

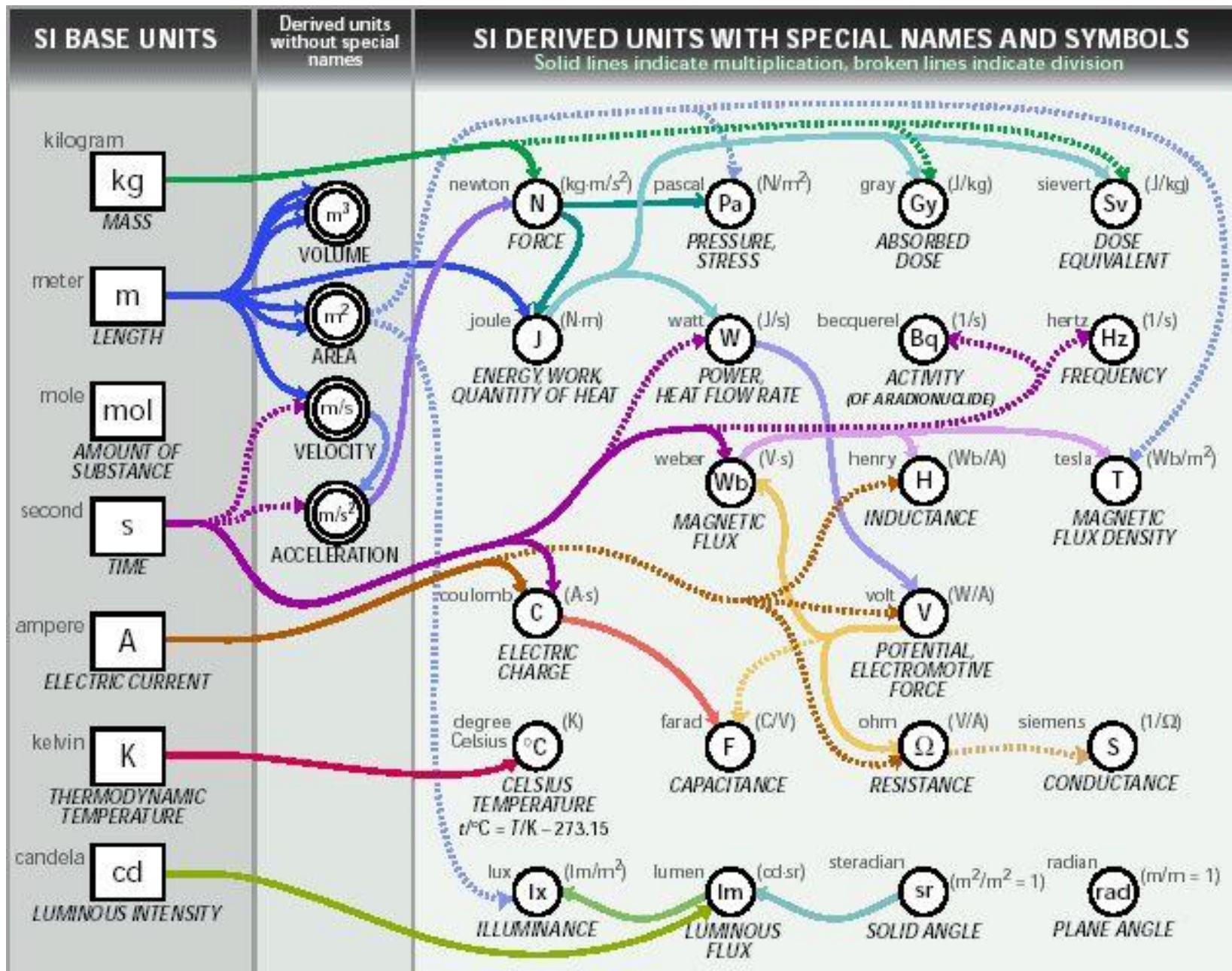
- Examples:

miles/hour = speed in our cars in US

cm^3 = volume

m/s^2 = acceleration

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



YouTube Link for this Presentation

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