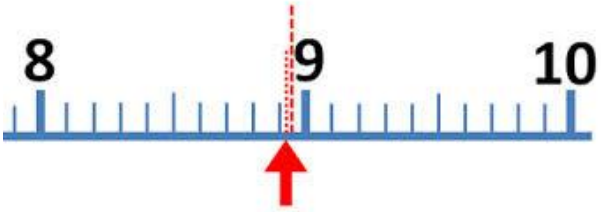
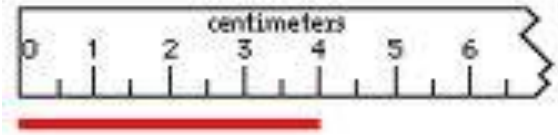
Better Measuring Techniques using Scales optimally



Label the Major and Minor scales on this and this

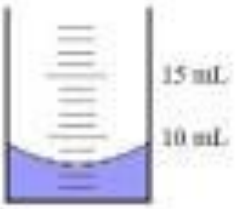
Reading for the 8-10 picture above is __8.92__ units

Reading for the line below is __4.0___ cm



Reading for the volume below is _13.0_ mL

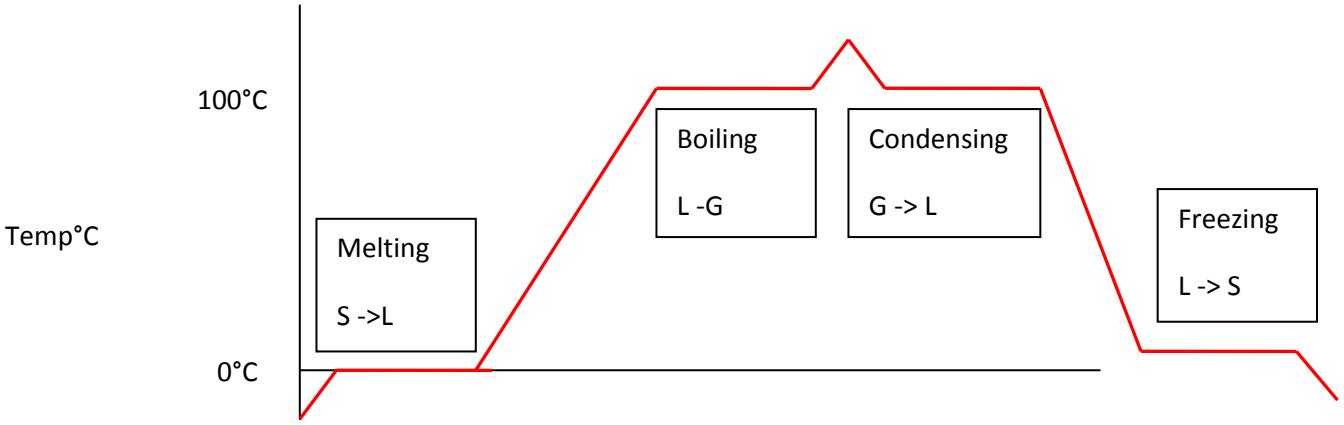
The liquid curve is called a _meniscus



Significant digits and their use

GIVEN measurement in m	How many significant figures?	How many cm? Show correct sig figs	Write in scientific notation
3.1	2	310	3.1×10^2 cm
3.0	2	3$\bar{0}$0	3.0×10^2 cm
3.01	3	301	3.01×10^2 cm
3.10	3	31$\bar{0}$	3.10×10^2 cm
.0031	2	.31	3.1×10^{-1} cm
30	1	300	3×10^2 cm
2.30 m x 9.101 m	3 x 4 = 3 in answer	2090 cm	2.09×10^3 cm
2.67 m + 9.0 m	Tenths place after add	11.7 m = 1170 cm	1.17×10^3 cm

Heating and cooling curves (ch 3) "sketch the heating and cooling curve for ice at -5 °C as it melts and continues to warm through boiling into steam". Identify the changes of state and the terms for the plateaus. REVERSE the process Title:The Heating and Cooling of Water Through 4 phase changes .



Sublimation and deposition are not in the sketch… what are they and which requires energy in and which release energy out to the environment? Sublimation S -> G and lots of energy in

Deposition G -> S and lots of energy out

Scientific method (use independent and dependent variables)

Which axis has the independent variable? _X_ Which axis has the dependent variable? _Y__

How many variables should you test at a time? __one_

All other potential variables need to be _controlled__

Conservation of Mass and Energy

If the reactants have 61.2 g, the products of any physical change should have __61.2_g.

If the reactants have 61.2 g, the products of any chemical change should have __61.2_g.

Mole Calculation (ch 4)

A mole, also known as Avagadro's number, has 6.022x 10^{23} items. A mole of copper has a mass of 63.5 g.

1.0 mole of S = _32.1_ g 2.0 moles of S = _64.2__ g .50 mol of S = _16.1_ g

1.0 mole $CuSO_4$ = __159.5__ g .75 moles H_20 = ___119.6__ g

63.5 + 32+4(16) = 159.5 159.5 g/mol * .75 mol = 119.6 g

Hydrogen gas has a formula of __H_2__. One mole of the diatomic hydrogen gas is _2.0_ g.

10.0 g of Cd = __.0890__ moles. 10.0g/ 112.4 g/mol 765 g $CuSO_4$ = 4.80 mol 765g/159.5g/mol

Light and atoms (ch 4) Electrons absorb/release energy when they jump energy levels and absorb/release energy in the form of photons when they fall back to ground state. When these photons are the frequency of visible light, we see them like we did in the gas tubes or firecrackers. Energy is stored as electrons jump up/ fall down energy levels.

Periodic table names of fam ilies, trends and valence electrons

Metals, nonmetals, metalloids (semi-conductors)

Cations and Anions

Alkali metals, Alkaline-Earth metals, transition metals, halogens, noble gases

FOR PERIOD 2	Group 1	Group 2	Group 13	Group 14	Group 15	Group 16	Group 17	Group 18
# valence e-	1	2	3	4	5	6	7	8
Ion formed	1+	2+	3+	4±	3-	2-	1-	None-0
Noble gas structure spdf	$1s^2 2s^1$	$1s^2 2s^2$	$1s^2 2s^2 p^1$	$1s^2 2s^2 p^2$	$1°s^2 2s^2 p^3$	$1s^2 2s^2 p^4$	$1s^2 2s^2 p^5$	$1s^2 2s^2 p^6$
Bohr Model	3p+)) 2 1	4p+)) 2 2	5p+)) 2 3	6p+)) 2 4	7p+)) 2 5	8p+)) 2 6	9p+)) 2 7	10p+)) 2 8
Lewis Dot Structure	Li ∘	∘ Be ∘	∘ ∘ B ∘	∘ ∘ C ∘ ∘	∘ ∘ N : ∘	∘∘ ∘ O : ∘	∘∘ : F : ∘	∘∘ : Ne : ∘∘