Quarterly #3: List of Topics: Chapters 12-15
Open Ended & Multiple Choice

Chapters 12 &13

-State of Matter

-Gas Laws

- · Compare and contrast the properties and structure of solids, liquids and gases
- · Understand the principles of the Kinetic Molecular Theory
- · Use given variables, pressure, volume or temperature, to calculate the missing variable
- · Calculate amounts using the ideal gas law
- · Calculate the total pressure of a mixture of gases using the individual gas pressures
- · Use stoichiometry in conjunction with the ideal gas law to solve a given problem
- · Determine the fastest moving gas using the masses of those gases
- · Understand the properties of atmospheric pressure and how it can be used to calculate the pressure of a gas in an open manometer.
- · Combined Gas Law: $P_1V_1/T_1 = P_2V_2/T_2$
- · Ideal Gas Law : $PV = nRT$ (CAREFUL WITH UNITS!)

  - n= moles (if given grams, you must convert to moles)!

  -R= 0.0821 atm•L/mol •K

- · Mole Fraction: partial pressure/total pressure
- - Calculations involving Manometers
- - Intermolecular Forces
  - · Analyze how intermolecular forces will change physical properties of a compound.

Chapters 14 & 15

-Mixtures and Solutions

-Energy and Chemical Changes

- · Compare and contrast the properties and structure of solids, liquids and gases
- · Understand the principles of the Kinetic Molecular Theory
- · $q = mc\Delta T$ calculations
- · Interpret heating curves and phase diagrams

-Mixtures and Solutions

- · Identify what intermolecular forces are present in a given compound (Dipole-Dipole, Hydrogen, Dispersion Forces)
- · Intermolecular forces effect on physical properties, i.e., boiling point, vapor pressure, viscosity
- · Definition of Molarity
- · Molarity Calculations
- · How to prepare a solution
- · How to read a solubility graph
- · Writing net ionic equations
- · Colligative Properties (freezing point depression, boiling point elevation, vapor pressure lowering)