**SCH 3U**

**Final Exam – What you need to know**

**Unit 1:**

* Mixtures Vs. Pure substances
* Isotopes
* Relative atomic mass
* Atomic radius
* Ionization energy
* Electronegativity
* Valence electrons
* Lewis symbols for elements
* Lewis dot diagrams - ionic and molecular
* Number of atoms
* Naming ionic compounds - multivalent metals (stock and classic), polyatomic ions and hydrates
* Naming molecular compounds

**Unit 2:**

* chemical reactions
* definitions of:  precipitate, endothermic, exothermic and catalyst
* namining binary acids and oxyacids
* naming bases
* balancing chemical equations

**Unit 3:**

* mole calculations - find # of mols, # atoms, # molecules and mass (make sure you have a calculator handy before starting!)
* Law of Constant Composition
* Law of Definite Proportions
* Percentage Composition
* Determining Empirical and Molecular Formulas
* Stoichiometry calculations involving balanced chemical equations
* Limiting/excess reagent calculations

**Unit 4:**

* Nature of Solutions
* Solubility
* Water as a solvent
* Dissociation reactions
* Effect of temperature and pressure on solubility
* Calculating molar concentration
* Percent Composition - %v/v, %m/v, %m/m
* Precipitation reactions and net ionic equations with spectator ions
* Acids/Bases and neutral pH
* Arrhenius theory of acids and bases
* pH calculations

**Unit 5:**

* Air composition
* States of matter - solid/liquid/gas characteristics
* 3 types of particle movement - translational, vibrational, and rotational
* Kinetic Molecular Theory
* Gas Laws - Boyle's Law, Charles' Law and Avogadro's Law Calculations
* Combined Gas Laws calculations

***Just a reminder, that the final exam will also be on the honour system.  You will be permitted to use:***

* ***a periodic table***
* ***a calculator***
* ***scrap paper***

**Final Exam Breakdown**

**30 Marks:  True or False Questions**

**30 Marks:   Multiple Choice Questions**

**10 Marks:  Matching Questions**

**10 Marks:  Short Answer**

**20 Marks:  Calculations**

**Total:  100 Marks**