Lesson Plans for October 28th – November 14th

AP Chemistry 2011-2012

Ms. Diane Paskowski

***Stoichiometry – Counting by Weighing***

**Massachusetts Science Curriculum Frameworks**

5. Chemical Reactions and Stoichiometry

*Central Concepts*: In a chemical reaction, one or more reactants are transformed into one or more new products. Chemical equations represent the reaction and must be balanced. The conservation of atoms in a chemical reaction leads to the ability to calculate the amount of products formed and reactants used (stoichiometry).

5.1 Balance chemical equations by applying the laws of conservation of mass and constant composition (definite proportions).

5.2 Classify chemical reactions as synthesis (combination), decomposition, single displacement (replacement), double displacement, and combustion.

5.3 Use the mole concept to determine number of particles and molar mass for elements and compounds.

5.4 Determine percent compositions, empirical formulas, and molecular formulas.

5.5 Calculate the mass-to-mass stoichiometry for a chemical reaction.

5.6 Calculate percent yield in a chemical reaction.

**College Board AP Chemistry Curriculum Standards**

C1 – The course provides instruction in five content areas of which one is the Structure of Matter (Atomic Theory and Atomic Structure, Chemical Bonding).

C2 – The course provides instruction in the five content areas of which one is the States of Matter (Gases, Liquids and solids, Solutions).

C5 – Laboratory (Physical manipulations; Processes and procedures; Observations and data manipulation: Communication, group collaboration, and the laboratory report)

**Essential Questions**

* How can we determine the chemical makeup of a compound?
* How do we determine how much of one reactant is needed to completely react with the other reactants?
* What is a limiting reactant?
* How do we determine the percent yield of a reaction?

Friday, October 28th

Lecture/discussion/problems/activity: Review the Stoichiometry of compounds using food, % composition of bubble gum or sweet tarts or whatever I can find that is interesting. Review percent composition, determining the formula of a compound, molar mass of a compound, and introduce combustion analysis.

Monday, October 31st

Lecture/discussion/problems: Revisit combustion analysis if necessary. Do practice problems on the composition of compounds. Review chemical equation writing including,

* The meaning of a chemical equation.
* The parts of a chemical equation
* Interpreting chemical equations
* Balancing chemical equations

Tuesday, November 1st

**Three dimensional model Assessment**

Thursday, November 3rd

G day

Lecture/Discussion: Review Stoichiometry of reactions – mole ratios, dimensional analysis, limiting reactant problems, % yield.

Friday, November 4th

H day

Lab Activity: Determining the Formula of a Carbonate Compound

Monday, November 7th

A Day

Finish Lab activity – filtering of the product. Review % yield. Practice multiple choice stoichiometry questions – estimating math.

Thursday, November 10th

C day

Complete the Carbonate lab and go over the Mixture lab. Go over lab report instructions again. Practice stoichiometry problems.

Monday, November 14th

D day

Do the Mixture lab

Tuesday, November 15th

E day

Finish the Mixture lab and do the math. Lecture/discussion/practice: Review Types of reactions and net ionic equations.

Thursday, November 17th

G day

Assessment for Chapter 3 – Stoichiometry

Free response type problems during period 5 and the a few multiple choice questions the first half of period 6.

After lunch - If necessary finish the Mixture lab by weighing the dry product and we will prepare

Friday, November 18th

Lab Activity – Making 2.00g of a Compound