Lesson Plans for November 18th – December 13th

AP Chemistry 2011-2012

Ms. Diane Paskowski

***Types of Reactions and Solution Stoichiometry***

**Massachusetts Science Curriculum Frameworks**

7.1 Describe the process by which solutes dissolve in solvents.

7.2 Calculate concentration in terms of molarity. Use molarity to perform solution dilution and solution stoichiometry.

7.3 Identify and explain the factors that affect the rate of dissolving (e.g., temperature, concentration, surface area, pressure, mixing).

**College Board AP Chemistry Curriculum Standards**

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

C3 – The course provides instruction in the five content areas of which one is Reactions (**Reaction types**, **Stoichiometry**, Equilibrium, Kinetics, Thermodynamics).

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

**Essential Questions**

* How do scientists classify chemical reactions?
* Why do so many reactions only take place in solution?
* What is the stoichiometry of a solution?

Tuesday and Thursday, November 15th and 16th

Review of chemical reactions, types, net ionic equations, precipitation reactions and factors affecting solubility and predicting products of metatheses reactions

Friday, November 18th

H day

Lecture/discussion/problems: What is a solution? Making solutions, conversions and dilution calculations.

Monday, November 21st

A day

Lecture/discussion/problems: Review solution chemistry and prepare for Beer’s Law Lab.

Monday, November 28th

D day

Lab Activity: Beer’s Law Computer-based Lab – making dilutions, creating a standard curve, and determining the concentration of a unknown solution using Beer’s Law. Group Lab

Tuesday, November 29th

E day

Lecture/discussion/practice: Stoichiometry of reactions in solutions and predicting products of reactions.

Thursday, December 1st

G day

Lecture/Discussion/demonstration: Acid – Base Titrations. Writing acid-base reactions equations. Demonstration of titration procedure.

Friday, December 2nd

Hday

Lecture/Discussion/demonstration: Standardizing a NaOH solution using Titration

Monday, December 5th

A day

Lecture/discussion/practice: Oxidation-Reduction Reactions – balancing equations using half-reactions. Identifying reducing and oxidizing agents.

Wednesday, December 7th

C day

Lecture/discussion/demonstration: Demonstration – using redox reactions to determine concentration. Stoichiometry of redox reactions (no different). Prediciting products – electrochemistry.

Thursday, December 8th

D day

Redox Lab – Titration

Friday, December 9th

E day

Lecture/discussion/practice: Applying oxidation-reduction principles to electrochemistry. Demonstration of an electrolytic and voltaic cells. Determining cell potential from redox tables.

Tuesday, December 13th

G day

Assessment: MC solution chemistry period 5. Free response questions on solution chemistry period 6.