Lesson Plans for November 26th – December 14th

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**

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

**Monday, November 26th**

D day, Period 3

Can you make 2.00 g of a compound? Lab activity: Measure the needed reactants, combine the reactants in water. Let form overnight.

**Tuesday, November 27th**

E day, Period 2 and 3

Filter the precipitate and dry in the oven overnight.

Continue solution stoichiometry. Make sugar solutions, calculate molarity. Using the sugar solutions as an example, calculate dilutions, M1V1 = M2V2 where M = molarity and V = volume of solution

**Wednesday, November 28th**

F day, Periods 2 and 3

Weigh the precipitate from the 2.00 g of a compound lab.

Lecture/discussion/problems: Continue with solution stoichiometry and apply it to reaction stoichiometry.

**Thursday, November 29th**

G day, Period 2

Quiz on solution stoichiometry

**HW due Aqueous Solutions and Weak Electrolytes: 171 #17a-e, Solution Concentration: Molarity p. 171-172 #21a-b, 23, 29a-b, 31**

When complete, work on the ChemMatters Assignment.

**Friday, November 30th**

H day, Period 3

Lecture/discussion/problems: Prepare for Beer’s Law Lab. Making stock solutions. Review types of reactions and equations

**Monday, December 3rd**

A day, Periods 2 and 3

D day

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

**Tuesday, December 4th**

B day, Periods 2 and 3

Lecture/discussion/practice: Using net ionic equations in determining the stoichiometry of reactions in solutions and predicting products of reactions.

**Wednesday, December 5th**

C day, Period 2

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

**Thursday, December 6th**

D day, Period 3

Lab: Standardizing a Sodium Hydroxide solution using Titration. Practice the stoichiometry of an acid-base reaction.

**Friday, December 7th**

E day, Periods 2 and 3

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

**Monday, December 10th**

F day, Periods 2 and 3

Lecture/discussion/demonstration: Demonstration – using redox reactions to determine concentration. Same Titration, different type of reaction. Stoichiometry of redox reactions (no different). Predicting products – electrochemistry.

**HW due Monday, December 10th**

**Chapter 4**

**Precipitation Reactions p. 172-173 #34, 37, 39 net ionic only, 43, 45, 47, 53.**

**Acid –Base Reactions p. 173-174 # 55, 57 net ionic only, 59, 61, 63, 65**

**Tuesday, December 11th**

G day, Period 2

Online labs with concurrent demonstration.

**Wednesday, December 12th**

H day, Period 3

Continue online labs and demonstrations.

**Thursday, December 13th**

A day, Periods 2 and 3

Catch up and Review for test

**HW due Chapter 4 Oxidation-Reduction Reactions p. 174-175 # 67f-j, 69a-e, 71, 73, 75**

**Friday, December 14th**

B day, Periods 2 and 3

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