AP Chemistry

 2012-2013

Ms. Diane Paskowski

Lesson Plans for October 17th – 29th

***007 – Chemical Bond (continued)***

**Massachusetts Science Curriculum Frameworks**

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

4.1 Explain how atoms combine to form compounds through both ionic and covalent bonding. Predict chemical formulas based on the number of valence electrons.

4.2 Draw Lewis dot structures for simple molecules and ionic compounds.

4.3 Use electronegativity to explain the difference between polar and nonpolar covalent bonds.

4.4 Use valence-shell electron-pair repulsion theory (VSEPR) to predict the molecular geometry (linear, trigonal planar, and tetrahedral) of simple molecules.

**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).

**Essential Questions**

* What is the relationship between bond type, geometry and polartity of a molecule to its physical and chemical properties?
* The orientation of atomic orbitals is not the same within a molecule as within the single atom. How do the atomic orbitals change when a bond is formed between 2 atoms and the electrons are attracted to 2 nuclei instead of one?

**Lesson Plans**

Wednesday, October 17th, D day

Period 3

Lecture/discussion/problems/activity: Using models, determine the polarity of a molecule using molecular geometry and lone pairs. Do practice problems.

Thursday, October 18th, E day

Periods 2 and 3

Lecture/discussion/problems: Use the hybridization model to explain molecular geometry. Demonstrate the single, double, and triple bond models for carbon. Show how atoms break the octet rule and the corresponding hybridization of orbitals. Begin Molecular Geometry activity (model building).

Friday, October 19th, F day Half-day

Lecture/discussion/demonstration: Complete and reinforce the hybridization model of molecular geometry using models. Count sigma and pi bonds. Complete the Molecular Geometry activity.

 Monday, October 22nd, G day

Period 2

Lecture/Discussion: Molecular Orbital Theory – explain using computer simulations, diagrams, and practice problems. Determine Bond Order. Molecular orbital electron configuration.

**HW – Chapter 9: Localized Electron Model and Hybrid Orbitals #15, 27, 33 (diagram to be provided)**

Tuesday, October 23rd, H day

Period 3

Lecture/Discussion: Molecular Orbital Theory – explain using computer simulations, diagrams, and practice problems. Determine Bond Order. Predict para- or diamagnetism in molecules using MO. Practice MO electron configuration.

Wednesday, October 24th, A day

Periods 2 and 3

Lecture/Discussion: Compare and contrast MO and LE bonding models. Link VSEPR, Localized Electron Model, and Hybridization of Atomic orbitals to molecular geometry and properties. Practice, practice, practice. Build models for the hands-on assessment.

**HW – Chapter 9: Molecular Orbital Model #37, 41, 45, and 47**

Thursday, October 25th, B day

Period 2 and 3

Test on all bonding models – Chapter 8 and Chapter 9 multiple choice questions (25 minutes) and one or two free response (20 minutes).

 **All summaries and key terms are due.**

Friday, October 26th – NO CLASS

Monday, October 29th, C day

Period 2

Molecular geometry hands-on assessment. Need to complete 10 stations before the end of the period.