Honors Chemistry

Chemical Reactions

Honors Chemistry Curriculum

Power Objectives

P.O. # 4: Connect the law of conservation of mass to chemical reactions, as well as establish a conceptual relationship between chemical compounds (formula units and molecules) and reaction types. (P.O. # 4 Proficiency Rubric)

Academic Vocabulary

- ❑ electrolyte
- ❑ monatomic ion
- ❑ polyatomic ion
- ❑ chemical reaction
- ❑ reactant
- ❑ product
- ❑ chemical equation
- ❑ coefficient
- ❑ synthesis reaction
- ❑ combustion reaction
- ❑ decomposition reaction
- ❑ single-replacement reaction
- ❑ double-replacement reaction
- ❑ precipitate
- ❑ aqueous solution
- ❑ solute
- ❑ solvent
- ❑ complete ionic equation
- ❑ spectator ion
- ❑ net ionic equation
- ❑ subscript
- ❑ Law of Conservation of Mass

Enduring Understandings

Students understand that...

- Nothing is ever created or destroyed. It is simply changed from one form to a different form.
- The amount of matter in the universe is constant and disseminated from the Big Bang at the creation of the universe.
- In a chemical reaction, the resulting products may not have any properties similar to those of the starting reactants.
- Life could not exist if it were not for chemical reactions acting spontaneously (and non-spontaneously) in an organism.

Essential Questions

- What is a formula unit and how does it relate to an ionic compound's composition?
- How do you write the formulas for compounds formed from different ions?
- What holds atoms together in a chemical bond?
- What rules do you follow to name a binary molecular compound from its molecular formulas?
- What is evidence of a chemical reaction?
- Why do chemical reactions need to be balanced and how is this accomplished?
- How are chemical reactions classified?
- What are the characteristics of different classes of chemical reactions?
- What are aqueous solutions?
- How are complete ionic and net ionic equations written for chemical reactions in aqueous solutions?
- How can you predict whether reactions in aqueous solutions will produce a precipitate, water or gas?