Chemistry Sem 2

1. Solutions, Acids, and Bases
   1. Solutions and Solubility
      1. Instruction
         1. What factors affect the creation of a solution from matter?
   2. Lab: Solubility
      1. Instruction
         1. What is the effect of temperature on the solubility of a solid in a liquid?
      2. Virtual Lab
         1. Explore the relationship between temperature and solubility by performing a virtual experiment.
   3. Colligative Properties
      1. Instruction
         1. What effect does the number of particles in a solution have on its physical properties?
   4. Arrhenius, Bronsted-Lowry, and Lewis Acids and Bases
      1. Instruction
         1. What are the common acid-base theories, and how are they related to one another?
   5. pH
      1. Instruction
         1. How can you express the concentration of hydrogen and hydronium ions in a solution?
   6. Lab: Measuring pH
      1. Instruction
         1. How can you use a red cabbage solution to determine the pH of a solution?
      2. Virtual Lab
         1. Explore acids and bases using two different pH indicators in a virtual experiment.
   7. Neutralization Reactions
      1. Instruction
         1. How is a neutralization reaction expressed?
      2. Air Quality
         1. Direct Instruction - Running Time: 12 min 30 sec
   8. **Unit Test - (Must be taken in Person)**
2. Organic and Nuclear Chemistry
   1. Organic Compounds
      1. Instruction
         1. What is unique about carbon and its compounds?
   2. Properties and Uses of Saturated Hydrocarbons
      1. Instruction
         1. What are the properties and uses of hydrocarbons that only contain single bonds?
   3. Properties and Uses of Unsaturated Hydrocarbons
      1. Instruction
         1. What are the properties and uses of hydrocarbons that contain at least one double bond?
   4. Macromolecules
      1. Instruction
         1. What are the primary structures and functions of macromolecules?
   5. Types of Radioactive Decay
      1. Instruction
         1. What particles do unstable nuclei release to become stable?
   6. Balancing Nuclear Reactions
      1. Instruction
         1. What is the method for balancing nuclear reactions?
   7. Half-Life
      1. Instruction
         1. Why is it important to know the amount of time that it takes for half a radioisotope's nuclei to decay?
   8. Nuclear Fission and Nuclear Fusion
      1. Instruction
         1. What occurs when a nucleus is split and when nuclei combine?
   9. Nuclear Energy
      1. Instruction
         1. How is nuclear energy created and used?
   10. **Unit Test - (Must be taken in Person)**
3. Cumulative Exam
   1. **Cumulative Exam - (Must be taken in Person)**