Unit 9 Special Topics in Chemistry - Cool Down

Content Area: **Science**
Course(s): **AP Chemistry**
Time Period: **June**
Length: **6 weeks**
Status: **Published**

Transfer Skills

Cool- Down: Special Topics in Chemistry

During this time after the AP exam. The students will complete the remainder of the required laboratory experiments required by the College Board. A qualitative analysis of a chemical mixture requires the knowledge of chemical reactions, solubility rules, ion recognition and laboratory techniques

Enduring Understandings

Detailed experimental notes are useful reference tools.

Clear, accurate, organized, and concise communication is essential for scientist.

Safety in the chemistry laboratory requires using your commons sense at all times.

Essential Questions

To what extent should lab experiments be repeated?

Is a confirmatory step in an experiment a misuse of lab time?

Are all laboratory activities approached in the same manner?

Why doe we need to practice safe habits in the chemistry laboratory?

Content

Vocabulary:

Centrifuge, supernatant, policeman, aspirator, desiccant

Skills

Analyze solutions that contain any combination of cations and anions.

Determine the ions that are present ad which are absent.

Properly use common laboratory equipment

Demonstrate proficient setup and data collection

Resources

Standards

Big Idea 1: The chemical elements are fundamental building materials of matter, and all matter can be understood in terms of arrangements of atoms. These atoms retain their identity in chemical reactions.
1.E.2 Learning Objectives:
LO 1.19 The student can design, and/or interpret data from, an experiment that uses gravimetric analysis to determine the concentration of an analyte in a solution. [See SP 4.2, 5.1]

LO 1.20 The student can design, and/or interpret data from, an experiment that uses titration to determine the concentration of an analyte in a solution. [See SP 4.2, 5.1]

Big Idea 2: Chemical and physical properties of materials can be explained by the structure and the arrangement of atoms, ions, or molecules and the forces between them.
2.A.3 Learning Objectives:
LO 2.10 The student can design and/or interpret the results of a separation experiment (filtration, paper chromatography, column chromatography, or distillation) in terms of the relative strength of interactions among and between the components. [See SP 4.2, 5.1]

Big Idea 3: Changes in matter involve the rearrangement and/or reorganization of atoms and/or the transfer of electrons.

3.A.1 Learning Objective:
LO 3.2 The student can translate an observed chemical change into a balanced chemical equation and justify the choice of equation type (molecular, ionic, or net ionic) in terms of utility for the given circumstances. [See SP 1.5, 7.1]

3.A.2 Learning Objectives:
LO 3.3 The student is able to use stoichiometric calculations to predict the results of performing a reaction in the laboratory and/or to analyze deviations from the expected results. [See SP 2.2, 5.1]

3.B.3 Learning Objectives:
LO 3.9 The student is able to design and/or interpret the results of an experiment involving a redox titration. [See SP 4.2, 5.1]

Big Idea 4: Rates of chemical reactions are determined by details of the molecular collisions.
4.B.1 Learning Objective:
LO 4.4 The student is able to connect the rate law for an elementary reaction to the frequency and success of molecular collisions, including connecting the frequency and success to the order and rate constant, respectively. [See SP 7.1, connects to 4.A.3, 4.B.2]

4.B.2 Learning Objective:
LO 4.5 The student is able to explain the difference between collisions that convert reactants to products and those that do not in terms of energy distributions and molecular orientation. [See SP 6.2]