Curriculum Map: AP Chemistry

Course: AP CHEM Sub-topic: Uncategorized

Grade(s): 11

Course

Description:

AP Chemistry is a continuation of the Honors Chemistry course. We will continue learning about the different properties/compositions of matter and the interactions it undergoes. A variety of laboratory experiments will be performed to further the understanding of the concepts discussed during classroom instruction. The topics to be covered include: intermolecular forces, thermodynamics, kinetics, equilibrium, acid/base chemistry, electrochemistry and more!

Unit: Unit 1 - Intermolecular Forces Timeline: Week 4

Topic: Types of Intermolecular Forces

Topic: Surface Tension

Topic: Polarizability

- **Topic: Chromatography Review**
- **Topic: Dissolving Process Review**

Topic: Solubility Curves

Unit: Unit 2 - Thermochemistry Timeline: Week 6

Topic: Energy and Energy Diagrams

Topic: Specific Heat

Topic: Calorimetry

Topic: Phase Diagrams Review

Topic: Enthalpy

Topic: Thermochemical Equations and Diagrams

Topic: Hess's Law

Topic: Enthalpy of Formation and Reaction

Unit: Unit 3 - Kinetics Timeline: Week 8

Topic: Collision Theory

Topic: Factors Impacting Reaction Rate

Topic: Reaction Rates

Topic: Rate Expressions and Stoichiometry

Topic: Rate Laws and the Rate Constant

Topic: Determining Rate Law from Experimental Data

Topic: Integrated Rate Laws and Graphing

Topic: Reaction Coordinate Diagrams

Topic: Reaction Mechanisms

Unit: Unit 4 - Equilibrium Timeline: Week 10

Topic: Concepts of Equilibrium

Topic: The Equilibrium Constant (K)

Topic: Manipulating Equilibrium Constants

Topic: Heterogeneous Equilibrium

Topic: Equilibrium Calculations (ICE Tables)

Topic: Le Chatelier's Principle

Unit: Unit 5 - Acid/Base Chemistry Timeline: Week 12

Topic: Arrhenius and Bronsted/Lowry Definition

Topic: Acid/Base Conjugates

Topic: Acid/Base Strength

Topic: Acidic, Basic, and Neutral Salts

Topic: Ion-Product Expressions and Constants

Topic: pH and pOH

Topic: [H+] and [OH-]

Topic: Dissociation Constant and Calculations

Topic: Percent Ionization

Topic: pKa and pKb

Unit: Unit 6 - Aqueous Equilibria Timeline: Week 14

Topic: The Common-Ion Effect and Calculations

Topic: Buffer Calculations

Topic: Titrations and Calculations

Topic: Solubility Products and Calculations

Unit: Unit 7 - Thermodynamics Timeline: Week 17

Topic: Laws of Thermodynamics

Topic: Entropy

Topic: Gibb's Free Energy

Topic: Free Energy and Equilibrium

Topic: Arrhenius Equation

Unit: Unit 8 - Electrochemistry Timeline: Week 18

Topic: Electrochemical Equations

Topic: Oxidation Numbers

Topic: Balancing Oxidation/Reduction Equations

Topic: Cell Potential

Topic: Standard Reduction Potential Calculations

Topic: Free-Energy and Cell Potential Relationship