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SCOPE & SEQUENCE

Unit 1 — Introduction to Chemistry

1A: What is Chemistry?
1B: Hypotheses and Models
1C: Investigating the Problem
1D: Experimental Design
1E: Performing an Experiment
1F: Analyzing Data

Closer Looks

-Significant Figures Practice

1G: Engaging in Argumentation

Closer Looks

-Metric System and Conversions
-Scientific Notation Practice

Unit 2 — Introduction to Matter

2A: Properties of Matter
2B: Density Lab Results and Crush Lab
2C: Physical Properties and Phase Change
2D: Phase Change Demonstrations
2E: Chemical Properties
2F: Mixtures
2G: Separating Mixtures
2H: Chromatography Results and Mixtures Challenge
2I: Mixtures Challenge Results and Water Treatment

Unit 3 — Atomic Structure

3A: Atomic Models
3B: The Periodic Table
3C: Characteristics of Electrons

Closer Looks

-Wavelength, Frequency, and Energy Calculations

3D: Periodic Trends Part I
3E: Periodic Trends Part II
3F: Electron Configuration Part I
3G: Electron Configuration Part II
3H: Configuration Lab Results and Fireworks

Closer Looks

-Calculating Average Atomic Mass

Unit 4 — Bonding

4A: Introduction to Bonding
4B: Chemical Bonding

Closer Looks

-Diagramming Lewis Structures

4C: Intramolecular Bonding
4D: Comparing Types of Bonds
4E: Intermolecular Bonding
4F: Melting Results and Molecular Modeling

Unit 5 — Chemical Reactions

5A: Balancing Equations

Closer Looks

-Balancing Equations

5B: Types of Reactions
5C: Reactivity and Predicting Products

Closer Looks

-Net Ionic Equations

5D: Identifying Unknown Samples Part I
5E: Identifying Unknown Samples Part II

Closer Looks

-Conservation of Matter

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Unit 6 — The Mole and Stoichiometry

6A: Dimensional Analysis
6B: The Mole

Closer Looks

-Converting Moles to Particles
-Molar Mass and Mole to Gram

6C: Percent Composition and Empirical Formulas

Closer Looks

-Percent Composition and Empirical Formulas
-Hydrates and Molecular Formulas

6D: Stoichiometric Calculations

Closer Looks

-Mole to Mole Stoichiometry

6E: Limiting Reactants

Closer Looks

-Limiting Reactant Stoichiometry

6F: Combustion Lab
6G: Combustion Lab Results

Closer Looks

-Converting Moles to Volume
-Mass to Mass Practice With Percent Yield

Unit 7 — Solutions, Acids, and Bases

7A: What is a Solution?
7B: Solubility
7C: Solution Concentration

Closer Looks

-Molarity Calculations

7D: Dilution
7E: Dilution Lab Results
7F: Colligative Properties

Closer Looks

-Colligative Property Calculations

7G: Acids and Bases Part I
7H: Acids and Bases Part II

Closer Looks

-pH Calculations
-Titration Calculations

7I: Titration Lab Results and pH
7J: pH Lab Results

Unit 8 — Chemical Thermodynamics

8A: The Laws of Thermodynamics
8B: Specific Heat
8C: Heat Transfer
8D: Greenhouse Lab Results and Calorimetry
8E: Calorimetry Lab
8F: Calorimetry Lab Results

Closer Looks

-Gibbs Free Energy

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Unit 9 — Kinetics and Gases

9A: Reaction Rates
9B: Reaction Rate Lab
9C: Reaction Rate Lab Results and Catalysts
9D: Kinetic Molecular Theory
9E: Ideal Gas Law
9F: Air Bag Lab

Closer Looks

-Gas Laws Calculations

9G: Air Bag Lab Results

Unit 10 — Introduction to Equilibrium

10A: Chemical Equilibrium
10B: The Equilibrium Constant Part I
10C: The Equilibrium Constant Part II
10D: Le Chatelier's Principle
10E: Smog Lab
10F: Smog Lab Results
10G: How Temperature Affects Equilibrium

Closer Looks

-Equilibrium Calculations

Unit 11 — Nuclear Chemistry

11A: Radioactivity
11B: Nuclear Fission and Types of Radiation
11C: Half-Life
11D: Nuclear Fusion
11E: Real World Nuclear Chemistry

Unit 12 — Chemistry Matters Recap

12A: Introduction to Chemistry Review
12B: Introduction to Matter Review
12C: Atomic Structure Review
12D: Bonding Review
12E: Chemical Reactions Review
12F: The Mole and Stoichiometry Review
12G: Solutions, Acids, and Bases Review
12H: Chemical Thermodynamics Review
12I: Kinetics and Gases Review
12J: Introduction to Equilibrium Review
12K: Nuclear Chemistry Review

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