Learner Objective #1: Students will discover the importance of the science of chemistry including scientific methods and research.

Section 1.1 The Stories of Two Chemicals—Ozone and Chlorofluorocarbons

ACTIVITIES
- Discovery Lab: Where is it? (Text p. 3)

ASSESSMENT
- Section Assessment Questions (p.6 #1-5)
- Study Guide

Section 1.2 Chemistry and Matter

ACTIVITIES
- CD Demo: The Magic of Chemistry

ASSESSMENT
- Section Assessment Questions (p. 9 #6-10)
- Study Guide

Section 1.3 Scientific Methods

ACTIVITIES
- Quick Demo (p. 10)
- Demonstration: The Magic of Chemistry (Text p. 10)
- Storyboards Activity
- Carbon Dioxide Boat Activity
- CBL Lab 1: Quantitative and Qualitative Observations (p. 1)

ASSESSMENT
- Section Assessment Questions (p. 13 #11-16)
- Study Guide

Section 1.4 Scientific Research

ACTIVITIES
- Nylon Rope Demonstration
- Chemlab 1: The Rubber Band Stretch
• Minilab 1: Developing Observation Skills
• Lab 1.1 Lab Technology and Lab Safety
• Lab 1.2 Effective Use of a Bunsen Burner

ASSESSMENT
• Section Assessment Questions (p. 17 #17-21)
• Study Guide

Evaluation
• Chapter Review
• Mindjogger Videoquizzes
• Chapter Test
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Learner Objective #2: Students will be able to recognize and use different units of measurement, scientific notation, dimensional analysis, and significant figures.

Section 2.1 Units of Measurement
ACTIVITIES
- Discovery Lab: Layers of Liquids (Text p. 25)
- CD Experiment: Measurement of Density
- Measure Like an Egyptian Lab
- Minilab 2: Density of an Irregular Object
- Chemlab 2: Using Density to Find the Thickness of a Wire
- Lab 2.1: Density
- Demonstration of Temperatures (Text p. 28)

ASSESSMENT
- Practice Problems (p. 29 #1-3)
- Section Assessment Questions (p. 30 #4-11)
- Study Guide

Section 2.2 Scientific Notation and Dimensional Analysis
ACTIVITIES

ASSESSMENT
- Practice Problems (p.32 #12-14, p. 33 #15-16, p.34 #17-18, p.35 #19-21)
- Section Assessment Questions (p. 35 #22-28)

Section 2.3 Significant Figures
ACTIVITIES
- Who’s Ruling Who Activity (CRISTAL)
- Precision Fine Tuning Activity (CRISTAL)
ASSESSMENT
- Practice Problems (p.38 #29-30, p.39 #31-32, p.41 #33-36, p.42 #37-38)
- Section Assessment Questions (p.42 #39-44)

Evaluation
- Chapter Review
- Mindjogger Videoquizzes
- Chapter Test
Learner Objective #3: Students will identify the properties and changes in matter, mixtures of matter, and elements and compounds.

Section 3.1 Properties of Matter

**ACTIVITIES**
- Discovery Lab: Observing Chemical Change (p.55)
- Lab 3.1: The Density of Wood
- Lab 2 Comparing the Density of Metals (Small Scale)
- Quick Demo (p. 55, 57)
- CD Exploration: Separating Substances
  - Video: Physical and Chemical Properties
- Crazy Colloid Lab

**ASSESSMENT**
- Section Assessment Questions (p. 60 #1-5)
- Study Guide

Section 3.2 Changes in Matter

**ACTIVITIES**
- Quick Demo (p. 61, 62)
- Demonstration: Atoms in Motion (p. 62)
- Lab 3.2 Properties of Water

**ASSESSMENT**
- Practice Problems (p.65 #6-9)
- Supplemental Problems
- Section Assessment Questions (p.65 #10-14)
- Study Guide

Section 3.3 Mixtures of Matter

**ACTIVITIES**
- Quick Demo (p. 67)
- Minilab: Separating Ink Dyes (p.68)
- Lab 3 Separation of Aspirin (Small Scale)
- CD Exploration: Separating Mixtures
  Experiment: Metal Alloys

**ASSESSMENT**
- Section Assessment Questions (p.69 #15-19)
- Study Guide

**Section 3.4 Elements and Compounds**

**ACTIVITIES**
- Chemlab 3 Matter and Chemical Reactions (p.78)

**ASSESSMENT**
- Practice Problems (p.76 #20-24)
- Section Assessment Questions (p.77 #25-30)
- Study Guide

**Evaluation**
- Chapter Review
- Mindjogger Videoquizzes
- Chapter Test
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Learner Objective #4: Students will explain early theories of the atom, identify the structure of the atom, how atoms differ, and radioactive decay of atoms.

Section 4.1 Early Theories of Matter

ACTIVITIES
- Discovery Lab: Observing Electrical Charge (p.87)
- CD Video: History of the Atomic Theory
- Quick Demo (p.90)
- Chemlab 4 Very Small Particles (p.108)

ASSESSMENT
- Section Assessment Questions (p.91 #1-5)
- Study Guide

Section 4.2 Subatomic Particles and the Nuclear Atom

ACTIVITIES
- Demo: Thomson’s Experiment
- CD Experiment: Discovery of the Electron
  Demo: Thomson’s Experiment
  Animation: Rutherford’s Gold
- A Tom in a Box (CRISTAL)

ASSESSMENT
- Section Assessment Questions (p.97 #6-10)
- Study Guide

Section 4.3 How Atoms Differ

ACTIVITIES
- Minilab: Modeling Isotopes (p.102)
- Bean Salad Lab (CRISTAL)

ASSESSMENT
- Practice Problems (p.99 #11-13, p.101 #14, p.104 #15-17)
Supplemental Problems
Section Assessment Questions (p. 104 #18-21)
Study Guide

Section 4.4 Unstable Nuclei and Radioactive Decay

ACTIVITIES
- CD Demo: Evidence for Alpha Particles
- Demonstrate the Geiger Counters
- Licorice Activity
- Lab 4.2 Half-life of Barium-137

ASSESSMENT
- Section Assessment Questions (p.107 #23-27)
- Study Guide

Evaluation
- Chapter Review
- Videoquizzes
- Chapter Test
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Learner Objective #5: Students will identify the wave-particle nature of light, the quantum theory of the atom, and write electron configurations.

Section 5.1 Light and Quantized Energy

ACTIVITIES
- Discovery Lab: What’s Inside? (p.117)
- Quick Demo (p. 119, 120)
- Minilab: Flame Tests (p. 125)
- Chemlab 5: Line Spectra (p. 142)
- CD Video: Flame Tests
  - Video: The Aurora
  - Video: Atomic Emissions

ASSESSMENT
- Section Assessment Questions (p.126 #7,8,10,12)
- Study Guide

Section 5.2 Quantum Theory and the Atom

ACTIVITIES
- Quick Demo (p.129, 131)

ASSESSMENT
- Section Assessment Questions (p.134 #13-17)
- Study Guide

Section 5.3 Electron Configurations

ACTIVITIES
- CD Animation: Electrons and Energy Levels
  Exploration: Building Atoms

ASSESSMENT
- Practice Problems (p. 139 #18-22, p. 141 #23)
- Supplemental Problems
- Section Assessment Questions (p. 141 #24-28)
- Study Guide

Evaluation
- Chapter Review
- Videoquizzes
- Chapter Test
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Learner Objective #6: Students will describe the modern periodic table and identify periodic trends.

Section 6.1 Development of the Modern Periodic Table

ACTIVITIES
- Discovery Lab: Versatile Metals (p. 151)
- Problem Solving Lab (p. 155)
- CD Exploration: The Periodic Table
  Video: Transuranium Elements
  Demo: Activity of Alkali Metals
- Chemlab 6: Descriptive Chemistry of the Elements (p. 170)

ASSESSMENT
- Section Assessment Questions (p. 158 #2-6)
- Study Guide

Section 6.3 Periodic Trends

ACTIVITIES
- Lab 6.1 Properties of the Periodic Table
- Lab 6.3 Periodic Trends in the Periodic Table
- Demo: Activity of Alkali Metals (p. 166)
- Quick Demo (p.168)

ASSESSMENT
- Practice Problems (p. 165 #16-18)
- Supplemental Problems
- Section Assessment Questions (p. 169 #19,21,22)
- Study Guide

Evaluation
- Chapter Review
- Videoquizzes
- Chapter Test
Learner Objective #7: Students will apply the definition of chemical bond to ion formation, and naming and writing formulas of ionic compounds.

Section 8.1 Forming Chemical Bonds

**ACTIVITIES**
- Quick Demo (p.211)
- Large Combo to Go (CRISTAL)

**ASSESSMENT**
- Section Assessment Questions (p. 214 #1-6)
- Study Guide

Section 8.2 The Formation and Nature of Ionic Bonds

**ACTIVITIES**
- Lab 8.1 Properties of Ionic Compounds
- Lab 8.2 Formation of a Salt
- Quick Demo (p.216)
- Chemlab 8 Making Ionic Compounds (p. 232)
- CBL Lab 2: Conductivity
- CD Experiment: Forming an Ionic Compound

**ASSESSMENT**
- Practice Problems (p. 217 #7-11)
- Section Assessment Questions (p.220 #12-18)
- Study Guide

Section 8.3 Names and Formulas for Ionic Compounds

**ACTIVITIES**
- CD Demo: Variable Oxidation States
  Exploration: Determining a Formula
  Demo: Oxidation States of Vanadium
- Quick Demo (p. 224)
- Formula Mania (CRISTAL)
ASSESSMENT
  ● Practice Problems (p.224 #19-23, p.225 #24-28, p. 226 #29-33)
  ● Supplemental Problems
  ● Section Assessment Questions (p. 227 #34-39)
  ● Study Guide

Evaluation
  ● Chapter Review
  ● Videoquiz
  ● Chapter Test
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Learner Objective #8: Students will apply the definition of a covalent bond to name covalent compounds, determine the molecular shape, and identify the type of bond in a compound.

Section 9.1 The Covalent Bond

ACTIVITIES
- Quick Demo (p.242)
- CD Animation: Covalent Bonding

ASSESSMENT
- Practice Problems (p.244 #1-5)
- Supplemental Problems
- Sections Assessment Questions (p. 247 #6-12)
- Study Guide

Section 9.2 Naming Molecules

ACTIVITIES
- Demo: Forming Ionic and Covalent Bonds (p.248)
- CD Video: Ionic and Covalent Compounds
  Demo: Forming Ionic and Covalent Bonds

ASSESSMENT
- Practice Problems (p. 249 #13-17, p. 250 #18-22)
- Supplemental Problems
- Section Assessment Questions (p.251 #23-29)
- Study Guide

Section 9.3 Molecular Structures

ACTIVITIES
- CD Video: Lewis Structures

ASSESSMENT
- Practice Problems (p. 255 #30-34, p. 256 #35-38, p.258 #39-41)
Supplemental Problems
Sections Assessment Questions (p.258 #42-48)
Study Guide

Section 9.4 Molecular Shape

ACTIVITIES
- Quick Demo (p. 259)
- Lab 9.1 Covalent Bonding in Medicines
- CD Experiment: Molecular Geometry
- Molecular Model Sets

ASSESSMENT
- Practice Problems (p. 262 #49-53)
- Supplemental Problems
- Section Assessment Questions (p.262 #54-59)
- Study Guide

Section 9.5 Electronegativity and Polarity

ACTIVITIES
- Quick Demo (p. 263, 265-both)
- Lab 9.2 Covalent Compounds
- Chemlab 9: Chromatography

ASSESSMENT
- Practice Problems (p. 266 #60-63)
- Supplemental Problems
- Section Assessment Questions (p.267 #64-70)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test
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Learner Objective #9: Students will identify, write balanced equations, and classify chemical reactions including those in aqueous solutions.

Section 10.1 Reactions and Equations

ACTIVITIES
- Discovery Lab: Observing a Change (p.277)
- Quick Demo (p.279)
- Demo: A Metal and a Nonmetal React
- CD Demo: A Metal and a Nonmetal React
- Exploration: Balancing an Equation

ASSESSMENT
- Practice Problems (p.279 #1-3, p. 282 #4-6)
- Supplemental Problems
- Section Assessment Questions (p. 283 #7-13)
- Study Guide

Section 10.2 Classifying Chemical Reactions

ACTIVITIES
- CD Demo: Properties of Oxygen Gas
  - Demo: Combustion of Ethanol
  - Video: Exothermic Reactions
  - Animation: Five Types of Chemical Reactions
  - Video: Types of Chemical Reactions
- Quick Demo (p.287)
- Chemlab 10: Activities of Metals (p.300)
- Lab 10.1 Single Replacement Reactions
- Lab 10.2 Double Replacement Reactions

ASSESSMENT
- Practice Problems (p.285 #14-17, p. 286 #18-20, p.289 #21-23, p.291 #24-26)
- Supplemental Problems
- Section Assessment Questions (p. 291 #27-32)
Section 10.3 Reactions in Aqueous Solutions

ACTIVITIES
- Quick Demo (p.293)
- CD Experiment: Precipitation Reaction
- Lab 7 Solutions and Precipitates (Small Scale)
- Minilab: Observing a Precipitate-Forming Reaction (p. 295)

ASSESSMENT
- Practice Problems (p.294 #33-37, p.296 #38-42, p.299 #43-46)
- Supplemental Problems
- Section Assessment Questions (p.299 #47-51)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test
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Learner Objective #10: Students will define and apply the mole to calculations and formula writing.

Section 11.1 Measuring Matter

ACTIVITIES
- Discovery Lab: How Much is a Mole? (p.309)
- Quick Demo (p.310)
- CD Video: Avogadro’s Number
- Determining the Avogadro Constant Lab

ASSESSMENT
- Practice Problems (p.311 #1-3, p.312 #4)
- Supplemental Problems
- Section Assessment Questions (p.312 #5-10)
- Study Guide

Section 11.2 Mass and the Mole

ACTIVITIES
- Quick Demo (p.313)
- CD Video: Molar Mass

ASSESSMENT
- Practice Problems (p.316 #11-12, p.318 #13-14)
- Supplemental Problems
- Section Assessment Questions (p.319 #15-19)
- Study Guide

Section 11.3 Moles and Compounds

ACTIVITIES
- Lab 11.1 Estimating the Size of a Mole
- CD Experiment: Combustion Analysis

ASSESSMENT
- Practice Problems (p.321 #20-24, p.322 #25-26, p.323 #27-29, p.324 #30, p.326 #31-35)
- Supplemental Problems
Section 11.4 Empirical and Molecular Formulas

ACTIVITIES

- CD Demo: Percent Sugar in Bubblegum
- Minilab: Percent Composition and Gum (p.329)
- Quick Demo (p.330)
- Demo: Empirical Formulas (p.332)
- Lab 11.2 Mole Ratios
- Determining the Empirical Formula of Magnesium Oxide Lab

ASSESSMENT

- Practice Problems (p. 331 #42-45, p.333 #46-50, p.335 #51-53, p.337 #54-57)
- Supplemental Problems
- Section Assessment Questions (p.337 #58-62)
- Study Guide

Section 11.5 The Formula of a Hydrate

ACTIVITIES

- Chemlab 11: Hydrated Crystals (p.342)
- Quick Demo (p.339)

ASSESSMENT

- Practice Problems (p.340 #63-64)
- Supplemental Problems
- Section Assessment Questions (p.341 #65-69)
- Study Guide

Evaluation

- Chapter Review
- Videoquiz
- Chapter Test
Learner Objective #11: Students will use mole ratios to perform stoichiometric calculations that identify the limiting reactant and percent yield of a chemical reaction.

Section 12.1 What is Stoichiometry?

**ACTIVITIES**
- Discovery Lab: Observing a Chemical Reaction (p.353)
- Quick Demo (p.354)
- CD Experiment: How Much Oxygen is Available?
  Exploration: Predicting Mass of Products
- Totally Up Front Lab (CRISTAL)

**ASSESSMENT**
- Practice Problems (p.356 #1, p.357 #2-3)
- Supplemental Problems
- Section Assessment Questions (p.357 #4-8)
- Study Guide

Section 12.2 Stoichiometric Calculations

**ACTIVITIES**
- Quick Demo (p.359, 360)
- Chemlab 12: A Mole Ratio (p.374)
- Minilab: Baking Soda Stoichiometry (p.362)

**ASSESSMENT**
- Practice Problems (p. 359 #9-10, p.360 #11-12, p.361 #13-14)
- Supplemental Problems
- Section Assessment Questions (p.363 #15-19)
- Study Guide

Section 12.3 Limiting Reactants

**ACTIVITIES**
- Lab 12.1 Observing a Limiting Reactant
- Demo: Limiting Reactants (p.366)
- Investigating Which Reactant is in Excess Lab

**ASSESSMENT**
- Practice Problems (p.368 #20-21)
- Supplemental Problems
- Section Assessment Questions (p.369 #22-26)
- Study Guide

**Section 12.4 Percent Yield**

**ACTIVITIES**
- Quick Demo (p.371)

**ASSESSMENT**
- Practice Problems (p.372 #27-29)
- Supplemental Problems
- Section Assessment Questions (p.373 #30-34)
- Study Guide

**Evaluation**
- Chapter Review
- Videoquiz
- Chapter Test
Learner Objective #12: Students will explain the physical properties of gases, liquids, and solids through kinetic energy and comparing the types of intermolecular forces.

Section 13.1 Gases

**ACTIVITIES**
- Discovery Lab: Defying Density (p. 385)
- CD Animation: Three States of Matter
- Quick Demo (p.387)
- Problem Solving Lab: How are the Depth of a Dive and Pressure Related? (p. 390)

**ASSESSMENT**
- Practice Problems (p. 392 #4-6)
- Supplemental Problems
- Section Assessment Questions (p. 392 #7-12)
- Study Guide

Section 13.2 Forces of Attraction

**ACTIVITIES**
- Quick Demo (p.393)

**ASSESSMENT**
- Section Assessment Questions (p.395 #13-16)
- Study Guide

Section 13.3 Liquids and Solids

**ACTIVITIES**
- CD Demo: Surface Tension
- Quick Demo (p.398)
- Demo: Surface Tension (p.398)
- Minilab: Crystal Unit Cell Models (p.401) (DEMO)
ASSESSMENT
- Section Assessment Questions (p.403 #17-23)
- Study Guide

Section 13.4 Phase Changes

ACTIVITIES
- Chemlab: Comparing Rates of Evaporation (p.410)
- Small Scale Lab: Measuring Boiling Point
- Quick Demo (p.406)
- CD Experiment: Phase Changes
  - Video: Changes of State
  - Demo: Superheated Steam

ASSESSMENT
- Section Assessment Questions (p.409 #24-28)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test
Learner Objective #13: Students will use the gas laws to calculate how pressure, temperature, volume, and number of moles of a gas will change when one or more of the variables are altered.

Section 14.1 The Gas Laws

ACTIVITIES
- Discovery Lab (p. 419)
- CD Demo: Demonstrating Boyle’s Law
  Video: Charles’s Law
  Animation: Pumping Gas
- Demo: Demonstrating Boyle’s Law
- CBL Lab: Boyle’s Law
- Quick Demo (p.425)
- CBL Lab: Gay-Lussac’s Law

ASSESSMENT
- Practice Problems (p.422 #1-5, p.425 #6-8, p.427 9-13)
- Supplemental Problems
- Section Assessment Questions (p.427 #14-18)
- Study Guide

Section 14.2 The Combined Gas Law and Avogadro’s Principle

ACTIVITIES
- Quick Demo (p.429)
- CD Demo: Gas Volume and the Mole
  Experiment: Ideal Gas Laws

ASSESSMENT
- Practice Problems (p.430 #19-23, p.432 #24-28, p.433 #29-33)
- Supplemental Problems
- Section Assessment Questions (p. 433 #34-40)
Section 14.3 The Ideal Gas Law

ACTIVITIES
- Quick Demo (p. 434)
- Quick Demo (p.435)
- Chemlab: Using the Ideal Gas Law (p. 444)
- CD Exploration: Using the Gas Laws
- Minilab: The Density of Carbon Dioxide (p. 439)

ASSESSMENT
- Practice Problems (p.437 #41-45, p.438 #46-50)
- Section Assessment Questions (p. 439 #51-55)
- Study Guide

Section 14.4 Gas Stoichiometry

ACTIVITIES
- Quick Demo (p. 440)

ASSESSMENT
- Practice Problems (p. 441 #56-59, p.443 #60-64)
- Supplemental Problems
- Section Assessment Questions (p.443 #65-69)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test
Learner Objective #14  Students will describe and categorize, analyze the colligative properties, and calculate the concentrations of solutions.

Section 15.1 What are solutions?

ACTIVITIES
- Discovery Lab: Solution Formation (p.453)
- Quick Demo (p.454)
- CD Animation: Dissolving Table Salt
  - Video: The Unique Properties of Water
  - Video: Spectrochemical Series
- Demo: Temperature and Solubility (p.458)
- Quick Demo (p.459)
- Quick Demo (p.460)
- Lab: Making A Solubility Curve
- Small Scale Lab: Effect of Temperature on Solubility

ASSESSMENT
- Practice Problems (p.461 #1-2)
- Supplemental Problems
- Section Assessment Questions (p.461 #3-7)
- Study Guide

Section 15.2 Solution Concentration

ACTIVITIES
- Quick Demo (p.464)
- Chemlab: Beer’s Law (p.480)
- Quick Demo (p.466)
- Performance Assessment (p.467)
ASSESSMENT
- Practice Problems (p.463 #8-10, p.464 #11-13, p.465 #14-16, p.466 #17-20, p.468 #21-23, p.469 #24-25, p. 470 #26-27)
- Supplemental Problems
- Performance Assessment (p.467)
- Section Assessment Questions (p.470 #28-32)
- Study Guide

Section 15.3 Colligative Properties of Solutions

ACTIVITIES
- Minilab: Freezing Point Depression (p.473)
- Quick Demo (p.474) – Make ice cream in coffee cans instead.

ASSESSMENT
- Practice Problems (p.475 #33-36)
- Supplemental Problems
- Section Assessment Questions (p.475 #37-41)
- Study Guide

Section 15.4 Heterogeneous Mixtures

ACTIVITIES
- Quick Demo (p.477)
- Problem Solving Lab: How Can You Measure the Turbidity of a Colloid? (p.478) – Perform the lab also.

ASSESSMENT
- Section Assessment Questions (p.479 #42-46)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test
Learner Objective #15  Students will explain energy, the difference between potential and kinetic energy, and calculate the specific heat capacity of substances.

Section 16.1 Energy

ACTIVITIES
- Discovery Lab: Temperature of a Reaction (p.489)
- Quick Demo (p.490)
- CD Demo: A Thermite Reaction
  Exploration: Burning Calories
- Energy Content of Foods (CBL)

ASSESSMENT
- Practice Problems (p.492 #1-3, p.495 #4-6)
- Supplemental Problems
- Section Assessment Questions (p.495 #7-11)
- Study Guide

Evaluation
- Section Quiz
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Learner Objective #16
Students will relate the collisions between reacting particles to reaction rates, calculate the rates of chemical reactions, and identify the factors that affect the rate of reactions.

Section 17.1 A Model for Reaction Rates

ACTIVITIES
- Discovery Lab: Speeding Reactions (p.529)
- Quick Demo (p.530)
- Chemistry Journal: Miles/Gallon and Miles/Dollar (p.531) – Assign.
- CD Experiment: Chemical Kinetics
  Animation: Exothermic and Endothermic Reactions
- Problem-Solving Lab: Speed and Energy of Collision (p.533)

ASSESSMENT
- Practice Problems (p.531 #1-3)
- Supplemental Problems
- Section Assessment Questions (p.535 #4-10)
- Study Guide

Section 17.2 Factors Affecting Reaction Rates

ACTIVITIES
- Demo: Surface Area and Reaction Rate (p.536)
- Quick Demo (p.537)
- Chemlab: Concentration and Reaction Rate (p.550)
- Lab 17.1 The Rate of a Reaction
- Minilab: Examining Reaction Rate and Temperature (p.539)
- CD Demo: Surface Area Affects Reactions

ASSESSMENT
- Section Assessment Questions (p.541 #11-15)
- Study Guide

Evaluation
- Chapter Review/Videoquiz
- Chapter Test
Course Title: Chemistry  
Grade: 11-12  
Learner Objective #17: Students will apply Le Chatelier’s Principle to recognize the characteristics of chemical equilibrium, write expressions for systems at equilibrium, and describe how factors affect equilibrium.

Section 18.1 Equilibrium: A State of Dynamic Balance

**ACTIVITIES**
- Discovery Lab: What’s Equal about Equilibrium? (p.559)
- CD Animation: Equilibrium Video: Chemical Equilibrium
- Observing Equilibrium Lab (Small Scale)
- Quick Demo (p.566) – Two Demos

**ASSESSMENT**
- Practice Problems (p. 565 #1, p.567 #2)
- Supplemental Problems
- Section Assessment Questions (p.568 #5-8)
- Study Guide

Section 18.2 Factors Affecting Chemical Equilibrium

**ACTIVITIES**
- Quick Demo (p.570)
- Demo: Hydrogen Bonding (p.570)
- CD Demo: Hydrogen Bonding
- Lab 18.1 Reversible Reactions
- Exploring Chemical Equilibrium Lab (Small Scale)
- Minilab: Shifts in Equilibrium (p.573)

**ASSESSMENT**
- Section Assessment Questions (p.574 #10-15)
- Study Guide

**Evaluation**
- Chapter Review/Videoquiz
- Chapter Test
Learner Objective #18

Students will identify the physical and chemical properties, classify, and compare different models of acids and bases.

Section 19.1 Acids and Bases: An Introduction

ACTIVITIES
- Discovery Lab: Investigating What’s in Your Cupboards (p.595)
- Quick Demo (2 on page 596, 597)
- CD Video: Chemical Properties; The Actions of Acids and Bases Video: Acids and Bases
- Demonstration: Forming a Basic Anhydride

ASSESSMENT
- Practice Problems (p.596 #1, p.599 #2, p.601 #3)
- Supplemental Problems
- Section Assessment Questions (p.601 #4-9)
- Study Guide

Evaluation
- Chapter Quiz
Learner Objective #19

Students will name the different types of hydrocarbons, identify their isomers, and describe the uses of hydrocarbons.

Section 22.1 Alkanes

ACTIVITIES
- Discovery Lab: Viscosity of Motor Oil (p.697)
- Quick Demo (p.699)
- CD Demo: Modeling Hydrocarbons
- Chemlab: Analyzing Hydrocarbon Burner Gases (p.728)
- CD Demo: Combustion of Methane
- Demo: Combustion of Methane (p.702)

ASSESSMENT
- Practice Problems (p.705 #1-2)
- Supplemental Problems
- Section Assessment Questions (p.705 #3-9)
- Study Guide

Section 22.2 Cyclic Alkanes and Alkane Properties

ACTIVITIES

ASSESSMENT
- Practice Problems (p.708 #10-11)
- Supplemental Problems
- Section Assessment Questions (p. 710 #12-17)
- Study Guide

Section 22.3 Alkenes and Alkynes

ACTIVITIES
- Quick Demo (p.712)
- CD Demo: Properties of Ethyne
- Minilab: Synthesis and Reactivity of Ethyne (p.715)
- Performance Assessment (p.716)
Lab: The Ripening of Fruit with Ethene

ASSESSMENT
- Practice Problems (p.714 #18-19)
- Supplemental Problems
- Section Assessment Questions (p.716 #20-23)
- Study Guide

Section 22.4 Isomers

ACTIVITIES
- Lab: Isomerism
- CD Animation: Isomers
  Experiment: Polarimetry
- Quick Demo (p.719)
- Problem Solving Lab: Identifying Structural, Geometric, and Optical Isomers (p.720)

ASSESSMENT
- Section Assessment Questions (p.721 #24-29)
- Study Guide

Section 22.5 Aromatic Hydrocarbons and Petroleum

ACTIVITIES
- Quick Demo (p.723)
- CD Video: Petroleum Refinery

ASSESSMENT
- Section Assessment Questions (p.727 #30-35)
- Study Guide

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- Videoquiz
- Chapter Test
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Grade: 11-12

Learner Objective #20  
Students will recognize the names and structures of organic functional groups, alcohols, ethers, amines, carbonyl groups and polymers.

Section 23.1 Functional Groups

**ACTIVITIES**
- Discovery Lab: Making Slime (p.737)
- Quick Demo (p.738)
- CD Experiment: Functional Groups

**ASSESSMENT**
- Practice Problems (p.740 #1-2)
- Supplemental Problems
- Section Assessment Questions (p.742 #4-8)
- Study Guide

Section 23.2 Alcohols, Ethers, and Amines

**ACTIVITIES**
- Quick Demo (p.743)
- Chemlab: Properties of Alcohols (p. 766)
- Performance Assessment (p.746)

**ASSESSMENT**
- Performance Assessment (p.746)
- Section Assessment Questions (p.746 #9-13)
- Study Guide

Section 23.3 Carbonyl Compounds

**ACTIVITIES**
- Quick Demo (p.750)
- Minilab: Making an Ester (p.751)
- Performance Assessment (p.753)
ASSESSMENT
- Performance Assessment (p.753)
- Section Assessment Questions (p.753 #14-19)
- Study Guide

Section 23.5 Polymers

ACTIVITIES
- Quick Demo (p.761)
- Demo: Polymers and Monomers (p.762)
- CD Video: Natural and Synthetic Polymers
- Making Silly Putty and Latex Ball Labs

ASSESSMENT
- Section Assessment Questions (p.765 #25-29)
- Study Guide

Evaluation
- Chapter Review
- Videoquiz
- Chapter Test