

Advanced Placement* Chemistry
Lab Correlations to Accompany
General Chemistry, 9th Edition by Raymond Chang

Chapter One-The Study of Change

- Paradis, Jeffrey A. “4.1 – 4.10 Classification of Matter: Basic Separation Techniques,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Two-Atoms, Molecules, and Ions

- Paradis, Jeffrey A. “Chemical Nomenclature, Part 1: Naming Ionic Compounds 6.1 - 6.18,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Three-Mass Relationships in Chemical Reactions

- Cooper, Melanie M. “Project 11: Identification, Properties and Synthesis of an Unknown Ionic Compound,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Limiting Reactants: How much BaSO₄ Can We Make?” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Understanding the Basics: The Mole and Counting Atoms,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Four-Reactions in Aqueous Solutions

- Cooper, Melanie M. “Project 5: Designing a Calcium Supplement,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Electrolytes in Solution: Completing the Circuit,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Five-Gases

- Cooper, Melanie M. “Project 4: Finding the Relationship Between the Volume of a Gas and the Temperature,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Discovering the Gas Laws,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Gas Stoichiometry: The Automobile Airbag,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Six-Thermochemistry

- Cooper, Melanie M. “Project 12: Hot and Cold,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Introduction to Thermochemistry: Using a Calorimeter,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

- Paradis, Jeffrey A. “Calorimetry: Nutrition in a Nutshell,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Hess’s law: A Study of the Combustion of Magnesium,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Seven-Quantum Theory and the Electronic Structure of Atoms

- Cooper, Melanie M. “Project 13: Analysis of Colas,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).

Chapter Eight-Periodic Relationships Among the Elements

Chapter Nine-Chemical Bonding I: Basic Concepts

- Wet Chemistry: None. Use modeling programs and Chang online to observe and build different models.

Chapter Ten-Chemical Bonding II: Molecular Geometry and Hybridization of Atomic Orbitals

- Wet chemistry: None. Use the Chang Online Learning Center and model programs to observe and make different models.

Chapter Eleven-Intermolecular Forces and Liquids and Solids

- Cooper, Melanie M. “Project 6: Properties of Matter and Separations,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).

[Note: This lab uses knowledge from several chapters and reviews techniques.]

Chapter Twelve-Physical Properties of Solutions

- Paradis, Jeffrey A. “Colligative Properties: Analysis of Freezing Point Depression,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Thirteen-Chemical Kinetics

- Cooper, Melanie M. “Project 15: What affects the rate of a reaction?” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Determining the Rate Law: A Kinetics Study of the Iodination of Acetone,” *Hands on Chemistry Laboratory Manual* (McGraw-Hill, 2006).

Chapter Fourteen-Chemical Equilibrium

- Paradis, Jeffrey A. “Le Châtelier’s Principle: Stress Management,” *Hands On Chemistry* (McGraw – Hill, 2006).
- Paradis, Jeffrey A. “Determining the Equilibrium Constant of a Complex,” *Hands On Chemistry* (McGraw – Hill, 2006).

Chapter Fifteen-Acids and Bases

- Cooper, Melanie M. “Project 7: Acids and Bases,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).

- Paradis, Jeffrey A. “Chemistry of the Kitchen: Acids and Bases,” *Hands On Chemistry* (McGraw – Hill, 2006).

Chapter Sixteen-Acid-Base Equilibria and Solubility Equilibria

- Cooper, Melanie M. “Project 8: Buffers,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “The Properties of Buffers: Resisting Change in a Turbulent World,” *Hands On Chemistry* (McGraw-Hill, 2006).

Chapter Seventeen-Chemistry in the Atmosphere

- None, limited coverage in an AP Chemistry course

Chapter Eighteen-Entropy, Free Energy, and Equilibrium

- None

Chapter Nineteen-Electrochemistry

- Cooper, Melanie M. “Project 10: Electrochemistry,” *Cooperative Chemistry Lab Manual* (McGraw-Hill, 2006).
- Paradis, Jeffrey A. “Electrochemistry: An Introduction to Voltaic Cells,” *Hands On Chemistry* (McGraw-Hill, 2006).

Chapter Twenty-Metallurgy and the Chemistry of Metals

- None

Chapter Twenty-One-Nonmetallic Elements and Their Compounds

- None

Chapter Twenty-Two-Transition Metal Chemistry and Coordination Compounds

- None

Chapter Twenty-Three-Nuclear Chemistry

- None

Chapter Twenty-Four-Organic Chemistry

- Paradis, Jeffrey A. “Chemical Nomenclature, Part II: Naming Organic Compounds,” *Hands On Chemistry* (McGraw-Hill, 2006).

Chapter Twenty-Five-Synthetic and Natural Organic Polymer

- None