TOPIC

1. The Atom .................................................................................................................. 1
   Early Studies of Matter
   Subatomic Particles
   Electron Arrangement
   Types of Matter

2. Formulas and Equations ............................................................................................... 25
   Chemical Symbols and Formulas
   Atoms, Compounds, and Ions
   Writing Formulas and Naming Compounds
   Chemical Reactions and Equations

3. The Mathematics of Formulas and Equations ............................................................ 45
   The Mathematics of Formulas
   The Mole
   Mole Relations in Balanced Equations

4. Physical Behavior of Matter ......................................................................................... 57
   Phases of Matter
   Temperature Scales
   Measurement of Heat Energy
   Behavior of Gases
   Separation of Mixtures

5. The Periodic Table ....................................................................................................... 77
   Classifying Elements
   Table Information About the Elements
   Arrangement of the Periodic Table
   Types of Elements
   Properties of Elements
   Properties of Groups
6 Bonding
Energy and Chemical Bonds
Lewis Electron Dot Structures
Metallic Bonds
The Octet Rule
Covalent Bonds
Molecular Substances
Ionic Bonding
Distinguishing Bond Types
Intermolecular Forces

7 Properties of Solutions
Solutions
Concentration of Solutions
Colligative Properties

8 Kinetics and Equilibrium
Kinetics
Potential Energy Diagram
Equilibrium
Entropy and Enthalpy
The Equilibrium Expression

9 Oxidation-Reduction
Oxidation and Reduction
Examining Redox Reactions
Half-Reactions
Electrochemical Cells

10 Acids, Bases, and Salts
Properties of Acids and Bases
Arrhenius Theory
Reactions Involving Acids and Bases
Acid–Base Titration
Acidity and Alkalinity of Solutions
Acid–Base Indicators
Brønsted-Lowry Acids and Bases
Organic Chemistry

Bonding of Carbon Atoms
Hydrocarbons
Naming Organic Compounds
Functional Groups
Organic Reactions

New York Standards

11

215

Appendix 1:
Reference Tables for Physical Setting/Chemistry ......... A-1

Appendix 2:
Graphing and Math Skills ........................................ A-15

Appendix 3:
Using the Reference Tables ..................................... A-23

Appendix 4:
Topical Summary of Regents Chemistry ..................... A-33

Glossary........................................................................... G-1

Index .................................................................................. I-1

Acknowledgments .................................................................. I-7

Regents Examinations
January 2015
June 2014
January 2014
June 2013
January 2013
June 2012

Separate Answer Key Contents:

Answers for Review and Practice Questions
Answers for Regents Examinations
Diagnostic Tests and Answers