

# Chemistry

Structure and Properties

Nivaldo J.Tro



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roups			6A 16	70	8	0	16.00	16	S	32.06	34	Se	78.97	52	Te	127.60	84	Po	[208.98]	116	Lv	[292]
Main groups			5A 15	CT	7	Z	14.01	15	Ь	30.97	33	As	74.92	51	Sb	121.76	83	Bi	208.98	115		
			4A -	14	9	ပ	12.01	14	Si	28.09	32	Ge	72.63	50	Sn	118.71	82	Pb	207.2	114	H	[589]
			3A 13	7.	5	В	10.81	13	ΑI	26.98	31	Ga	69.72	49	In	114.82	81	I	204.38	113		
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			tals						11B	11	29	Cu	63.55	47	Ag	107.87	62	Αu	196.97	1111	Rg	[272]
			Nonmetals	1					Γ	10	28	ž	58.69	46	Pd	106.42	78	Pt	195.08	110	Ds	[271]
									— 8B —	6	27	Co	58.93	45	Rh	102.91	77	Ir	192.22	109	Mt	[268.14]
			Metalloids				n metals		L	8	26	Fe	55.85	44	Ru	101.07	92	Os	190.23	108	Hs	[269.13]
			Met	]			Transition metals		7B	7	25	Mn	54.94	43	Tc	[86]	75	Re	186.21	107	Bh	[264.12]
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			Metals	1					5B	2	23	>	50.94	41	NP	92.91	73	Ta	180.95	105	Dp	[262.11]
									4B	4	22	Ti	47.87	40	Zr	91.22	72	Hf	178.49	104	Rf	[261.11]
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roups			2A 2	1	4	Be	9.012	12	Mg	24.31	20	Ca	40.08	38	Sr	87.62	26	Ba	137.33	88	Ra	[226.03]
Main groups	$1 A^a$ $1$	- 5	1.008	2001	3	Li	6.94	11	Na	22.99	19	X	39.10	37	Rb	85.47	55	CS	132.91	87	Fr	[223.02]
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	58	59	09	61	62	63	64	65	99	29	89	69	70	71
Lanthanide series	Ce	Pr	PΝ	Pm	Sm	Eu	РS	$^{\mathrm{T}}$	Dy	Но	Er	Пm	Yb	Lu
	140.12	140.91	144.24	[145]	150.36	151.96	157.25	158.93	162.50	164.93	167.26	168.93	173.05	174.97
	06	91	92	93	94	95	96	26	86	66	100	101	102	103
Actinide series	П	Pa	n	Np	Ьп	Am	Cm	Bk	Cf	Es	Fm	рW	No	Lr
	232.04	231.04	238.03	[237.05]	[244.06]	[243.06]	[247.07]	[247.07]	[251.08]	[252.08]	[257.10]	[258.10]	[259.10]	[262.11]

<sup>a</sup> The labels on top (1A, 2A, etc.) are common American usage. The labels below these (1, 2, etc.) are those recommended by the International Union of Pure and Applied Chemistry.

Atomic masses in brackets are the masses of the longest-lived or most important isotope of radioactive elements.

\*Element 117 is currently under review by IUPAC.

## **Chemistry: Structure and Properties, Global Edition**

## **Table of Contents**

Cover

Title

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Contents

**Preface** 

1 Atoms

1.1 A Particulate View of the World: Structure Determines Properties

1.2 Classifying Matter: A Particulate View

The States of Matter: Solid, Liquid, and Gas

Elements, Compounds, and Mixtures

1.3 The Scientific Approach to Knowledge

The Importance of Measurement in Science

Creativity and Subjectivity in Science

- 1.4 Early Ideas about the Building Blocks of Matter
- 1.5 Modern Atomic Theory and the Laws That Led to It

The Law of Conservation of Mass

The Law of Definite Proportions

The Law of Multiple Proportions

John Dalton and the Atomic Theory

1.6 The Discovery of the Electron

Cathode Rays

Millikans Oil Drop Experiment: The Charge of the Electron

- 1.7 The Structure of the Atom
- 1.8 Subatomic Particles: Protons, Neutrons, and Electrons

Elements: Defined by Their Numbers of Protons

Isotopes: When the Number of Neutrons Varies

Ions: Losing and Gaining Electrons

1.9 Atomic Mass: The Average Mass of an Elements Atoms Mass Spectrometry: Measuring the Mass of Atoms and Molecules

1.10 The Origins of Atoms and Elements



#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 2 Measurement, Problem Solving, and the Mole Concept

- 2.1 The Metric Mix-up: A \$125 Million Unit Error
- 2.2 The Reliability of a Measurement

Reporting Measurements to Reflect Certainty

Precision and Accuracy

- 2.3 Density
- 2.4 Energy and Its Units

The Nature of Energy

**Energy Units** 

Quantifying Changes in Energy

- 2.5 Converting between Units
- 2.6 Problem-Solving Strategies

Units Raised to a Power

Order-of-Magnitude Estimations

- 2.7 Solving Problems Involving Equations
- 2.8 Atoms and the Mole: How Many Particles?

The Mole: A Chemists Dozen

Converting between Number of Moles and Number of Atoms

Converting between Mass and Amount (Number of Moles)

#### **REVIEW**

Self-Assessment Quiz

Key Learning Outcomes

**Key Terms** 



**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 3 The Quantum-Mechanical Model of the Atom

#### 3.1 Schrödingers Cat

#### 3.2 The Nature of Light

The Wave Nature of Light

The Electromagnetic Spectrum

Interference and Diffraction

The Particle Nature of Light

#### 3.3 Atomic Spectroscopy and the Bohr Model

Atomic Spectra

The Bohr Model

Atomic Spectroscopy and the Identification of Elements

## 3.4 The Wave Nature of Matter: The de Broglie Wavelength, the Uncertainty Principle, and Indeterminacy

The de Broglie Wavelength

The Uncertainty Principle

Indeterminacy and Probability Distribution Maps

#### 3.5 Quantum Mechanics and the Atom

Solutions to the Schrödinger Equation for the Hydrogen Atom

Atomic Spectroscopy Explained

#### 3.6 The Shapes of Atomic Orbitals

s Orbitals (I = 0)

p Orbitals (I = 1)

d Orbitals (I = 2)

f Orbitals (I = 3)

The Phase of Orbitals

The Shape of Atoms

**REVIEW** 



Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 4 Periodic Properties of the Elements

- 4.1 Aluminum: Low-Density Atoms Result in Low-Density Metal
- 4.2 Finding Patterns: The Periodic Law and the Periodic Table
- 4.3 Electron Configurations: How Electrons Occupy Orbitals

Electron Spin and the Pauli Exclusion Principle

Sublevel Energy Splitting in Multi-electron Atoms

Electron Configurations for Multi-electron Atoms

4.4 Electron Configurations, Valence Electrons, and the Periodic Table

Orbital Blocks in the Periodic Table

Writing an Electron Configuration for an Element from Its Position in the Periodic Table

The Transition and Inner Transition Elements

4.5 How the Electron Configuration of an Element Relates to Its Properties

Metals and Nonmetals

Families of Elements

The Formation of lons

4.6 Periodic Trends in the Size of Atoms and Effective Nuclear Charge

Effective Nuclear Charge

Atomic Radii and the Transition Elements

4.7 Ions: Electron Configurations, Magnetic Properties, Ionic Radii, and Ionization Energy

Electron Configurations and Magnetic Properties of Ions

Ionic Radii

**Ionization Energy** 

Trends in First Ionization Energy

Exceptions to Trends in First Ionization Energy



Trends in Second and Successive Ionization Energies

#### 4.8 Electron Affinities and Metallic Character

**Electron Affinity** 

Metallic Character

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 5 Molecules and Compounds

- 5.1 Hydrogen, Oxygen, and Water
- 5.2 Types of Chemical Bonds
- 5.3 Representing Compounds: Chemical Formulas and Molecular Models

Types of Chemical Formulas

Molecular Models

- 5.4 The Lewis Model: Representing Valence Electrons with Dots
- 5.5 Ionic Bonding: The Lewis Model and Lattice Energies

Ionic Bonding and Electron Transfer

Lattice Energy: The Rest of the Story

Ionic Bonding: Models and Reality

5.6 Ionic Compounds: Formulas and Names

Writing Formulas for Ionic Compounds

Naming Ionic Compounds

Naming Binary Ionic Compounds Containing a Metal That Forms Only One Type of Cation

Naming Binary Ionic Compounds Containing a Metal That Forms More than One Kind of Cation

Naming Ionic Compounds Containing Polyatomic Ions

Hydrated Ionic Compounds

5.7 Covalent Bonding: Simple Lewis Structures



Single Covalent Bonds

Double and Triple Covalent Bonds

Covalent Bonding: Models and Reality

#### 5.8 Molecular Compounds: Formulas and Names

#### 5.9 Formula Mass and the Mole Concept for Compounds

Molar Mass of a Compound

Using Molar Mass to Count Molecules by Weighing

#### 5.10 Composition of Compounds

Mass Percent Composition as a Conversion Factor

Conversion Factors from Chemical Formulas

#### 5.11 Determining a Chemical Formula from Experimental Data

Calculating Molecular Formulas for Compounds

Combustion Analysis

#### 5.12 Organic Compounds

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 6 Chemical Bonding I: Drawing Lewis Structures and Determining Molecular Shapes

- 6.1 Morphine: A Molecular Imposter
- 6.2 Electronegativity and Bond Polarity

Electronegativity

Bond Polarity, Dipole Moment, and Percent Ionic Character

6.3 Writing Lewis Structures for Molecular Compounds and Polyatomic Ions

Writing Lewis Structures for Molecular Compounds

Writing Lewis Structures for Polyatomic Ions



#### 6.4 Resonance and Formal Charge

Resonance

Formal Charge

## 6.5 Exceptions to the Octet Rule: Odd-Electron Species, Incomplete Octets, and Expanded Octets

**Odd-Electron Species** 

Incomplete Octets

**Expanded Octets** 

#### 6.6 Bond Energies and Bond Lengths

**Bond Energy** 

**Bond Length** 

#### 6.7 VSEPR Theory: The Five Basic Shapes

Two Electron Groups: Linear Geometry

Three Electron Groups: Trigonal Planar Geometry

Four Electron Groups: Tetrahedral Geometry

Five Electron Groups: Trigonal Bipyramidal Geometry

Six Electron Groups: Octahedral Geometry

#### 6.8 VSEPR Theory: The Effect of Lone Pairs

Four Electron Groups with Lone Pairs

Five Electron Groups with Lone Pairs

Six Electron Groups with Lone Pairs

#### 6.9 VSEPR Theory: Predicting Molecular Geometries

Representing Molecular Geometries on Paper

Predicting the Shapes of Larger Molecules

#### 6.10 Molecular Shape and Polarity

Vector Addition

#### **REVIEW**

Self-Assessment Quiz

Key Learning Outcomes

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 



Challenge Problems

Conceptual Problems

Answers to Conceptual Connections

## 7 Chemical Bonding II: Valence Bond Theory and Molecular Orbital Theory

7.1 Oxygen: A Magnetic Liquid

7.2 Valence Bond Theory: Orbital Overlap as a Chemical Bond

7.3 Valence Bond Theory: Hybridization of Atomic Orbitals

sp3 Hybridization

sp2 Hybridization and Double Bonds

sp Hybridization and Triple Bonds

sp3d and sp3d2 Hybridization

Writing Hybridization and Bonding Schemes

#### 7.4 Molecular Orbital Theory: Electron Delocalization

Linear Combination of Atomic Orbitals (LCAO)

Second-Period Homonuclear Diatomic Molecules

Second-Period Heteronuclear Diatomic Molecules

#### 7.5 Molecular Orbital Theory: Polyatomic Molecules

#### 7.6 Bonding in Metals and Semiconductors

Bonding in Metals: The Electron Sea Model

Semiconductors and Band Theory

Doping: Controlling the Conductivity of Semiconductors

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 8 Chemical Reactions and Chemical Quantities



- 8.1 Climate Change and the Combustion of Fossil Fuels
- 8.2 Chemical Change
- 8.3 Writing and Balancing Chemical Equations
- 8.4 Reaction Stoichiometry: How Much Carbon Dioxide?

Making Pizza: The Relationships among Ingredients

Making Molecules: Mole-to-Mole Conversions
Making Molecules: Mass-to-Mass Conversions

- 8.5 Limiting Reactant, Theoretical Yield, and Percent Yield
- 8.6 Three Examples of Chemical Reactions: Combustion, Alkali Metals, and Halogens

**Combustion Reactions** 

Alkali Metal Reactions

Halogen Reactions

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

Answers to Conceptual Connections

## 9 Introduction to Solutions and Aqueous Reactions

- 9.1 Molecular Gastronomy
- 9.2 Solution Concentration

**Quantifying Solution Concentration** 

Using Molarity in Calculations

Solution Dilution

- 9.3 Solution Stoichiometry
- 9.4 Types of Aqueous Solutions and Solubility

Electrolyte and Nonelectrolyte Solutions

The Solubility of Ionic Compounds

9.5 Precipitation Reactions



9.6 Representing Aqueous Reactions: Molecular, Ionic, and Complete Ionic Equations

#### 9.7 AcidBase Reactions

Properties of Acids and Bases

Naming Oxyacids

AcidBase Reactions

AcidBase Titrations

#### 9.8 Gas-Evolution Reactions

#### 9.9 OxidationReduction Reactions

Oxidation States

Identifying Redox Reactions

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 10 Thermochemistry

- 10.1 On Fire, But Not Consumed
- 10.2 The Nature of Energy: Key Definitions
- 10.3 The First Law of Thermodynamics: There Is No Free Lunch
- 10.4 Quantifying Heat and Work

Heat

Work: PressureVolume Work

- 10.5 Measuring E for Chemical Reactions: Constant-Volume Calorimetry
- 10.6 Enthalpy: The Heat Evolved in a Chemical Reaction at Constant Pressure

Exothermic and Endothermic Processes: A Particulate View

Stoichiometry Involving H: Thermochemical Equations

10.7 Measuring H for Chemical Reactions: Constant-Pressure Calorimetry



#### 10.8 Relationships Involving Hrxn

#### 10.9 Determining Enthalpies of Reaction from Bond Energies

#### 10.10 Determining Enthalpies of Reaction from Standard Enthalpies of Formation

Standard States and Standard Enthalpy Changes

Calculating the Standard Enthalpy Change for a Reaction

#### 10.11 Lattice Energies for Ionic Compounds

Calculating Lattice Energy: The BornHaber Cycle

Trends in Lattice Energies: Ion Size
Trends in Lattice Energies: Ion Charge

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 11 Gases

11.1 Supersonic Skydiving and the Risk of Decompression

11.2 Pressure: The Result of Particle Collisions

**Pressure Units** 

The Manometer: A Way to Measure Pressure in the Laboratory

11.3 The Simple Gas Laws: Boyles Law, Charless Law, and Avogadros Law

Boyles Law: Volume and Pressure

Charless Law: Volume and Temperature

Avogadros Law: Volume and Amount (in Moles)

#### 11.4 The Ideal Gas Law

11.5 Applications of the Ideal Gas Law: Molar Volume, Density, and Molar Mass of a Gas

Molar Volume at Standard Temperature and Pressure

Density of a Gas

Molar Mass of a Gas



#### 11.6 Mixtures of Gases and Partial Pressures

Deep-Sea Diving and Partial Pressures

Collecting Gases over Water

#### 11.7 A Particulate Model for Gases: Kinetic Molecular Theory

Kinetic Molecular Theory, Pressure, and the Simple Gas Laws

Kinetic Molecular Theory and the Ideal Gas Law

#### 11.8 Temperature and Molecular Velocities

#### 11.9 Mean Free Path, Diffusion, and Effusion of Gases

#### 11.10 Gases in Chemical Reactions: Stoichiometry Revisited

Molar Volume and Stoichiometry

#### 11.11 Real Gases: The Effects of Size and Intermolecular Forces

The Effect of the Finite Volume of Gas Particles

The Effect of Intermolecular Forces

Van der Waals Equation

Real Gases

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 12 Liquids, Solids, and Intermolecular Forces

#### 12.1 Structure Determines Properties

12.2 Solids, Liquids, and Gases: A Molecular Comparison

Changes between States

12.3 Intermolecular Forces: The Forces That Hold Condensed States Together

Dispersion Force

Dipole Dipole Force



Hydrogen Bonding

IonDipole Force

12.4 Intermolecular Forces in Action: Surface Tension, Viscosity, and Capillary Action

Surface Tension

Viscosity

Capillary Action

#### 12.5 Vaporization and Vapor Pressure

The Process of Vaporization

The Energetics of Vaporization

Vapor Pressure and Dynamic Equilibrium

Temperature Dependence of Vapor Pressure and Boiling Point

The Critical Point: The Transition to an Unusual State of Matter

#### 12.6 Sublimation and Fusion

Sublimation

Fusion

**Energetics of Melting and Freezing** 

#### 12.7 Heating Curve for Water

## 12.8 Water: An Extraordinary Substance

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 13 Phase Diagrams and Crystalline Solids

#### 13.1 Sliding Glaciers

#### 13.2 Phase Diagrams

The Major Features of a Phase Diagram

Navigation within a Phase Diagram



The Phase Diagrams of Other Substances

13.3 Crystalline Solids: Determining Their Structure by X-Ray Crystallography

13.4 Crystalline Solids: Unit Cells and Basic Structures

The Unit Cell

Closest-Packed Structures

13.5 Crystalline Solids: The Fundamental Types

Molecular Solids

Ionic Solids

Atomic Solids

13.6 The Structures of Ionic Solids

13.7 Network Covalent Atomic Solids: Carbon and Silicates

Carbon

Silicates

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 14 Solutions

14.1 Antifreeze in Frogs

14.2 Types of Solutions and Solubility

Natures Tendency toward Mixing: Entropy

The Effect of Intermolecular Forces

14.3 Energetics of Solution Formation

**Energy Changes during Solution Formation** 

Aqueous Solutions and Heats of Hydration

14.4 Solution Equilibrium and Factors Affecting Solubility



The Effect of Temperature on the Solubility of Solids

Factors Affecting the Solubility of Gases in Water

#### 14.5 Expressing Solution Concentration

Molarity

Molality

Parts by Mass and Parts by Volume

Mole Fraction and Mole Percent

## 14.6 Colligative Properties: Vapor Pressure Lowering, Freezing Point Depression, Boiling Point Elevation, and Osmotic Pressure

Vapor Pressure Lowering

Vapor Pressures of Solutions Containing a Volatile (Nonelectrolyte) Solute

Freezing Point Depression and Boiling Point Elevation

Osmotic Pressure

#### 14.7 Colligative Properties of Strong Electrolyte Solutions

Strong Electrolytes and Vapor Pressure

Colligative Properties and Medical Solutions

#### **REVIEW**

Self-Assessment Quiz

Key Learning Outcomes

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

Answers to Conceptual Connections

#### 15 Chemical Kinetics

#### 15.1 Catching Lizards

#### 15.2 Rates of Reaction and the Particulate Nature of Matter

The Concentration of the Reactant Particles

The Temperature of the Reactant Mixture

The Structure and Orientation of the Colliding Particles

15.3 Defining and Measuring the Rate of a Chemical Reaction



**Defining Reaction Rate** 

Measuring Reaction Rates

#### 15.4 The Rate Law: The Effect of Concentration on Reaction Rate

Determining the Order of a Reaction

Reaction Order for Multiple Reactants

#### 15.5 The Integrated Rate Law: The Dependence of Concentration on Time

Integrated Rate Laws

The Half-Life of a Reaction

#### 15.6 The Effect of Temperature on Reaction Rate

The Arrhenius Equation

Arrhenius Plots: Experimental Measurements of the Frequency Factor and the Activation Energy

The Collision Model: A Closer Look at the Frequency Factor

#### 15.7 Reaction Mechanisms

Rate Laws for Elementary Steps

Rate-Determining Steps and Overall Reaction Rate Laws

Mechanisms with a Fast Initial Step

#### 15.8 Catalysis

Homogeneous and Heterogeneous Catalysis

**Enzymes: Biological Catalysts** 

#### **REVIEW**

Self-Assessment Quiz

Key Learning Outcomes

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

## 16 Chemical Equilibrium

- 16.1 Fetal Hemoglobin and Equilibrium
- 16.2 The Concept of Dynamic Equilibrium
- 16.3 The Equilibrium Constant (K)



Expressing Equilibrium Constants for Chemical Reactions

The Significance of the Equilibrium Constant

Relationships between the Equilibrium Constant and the Chemical Equation

16.4 Expressing the Equilibrium Constant in Terms of Pressure

Units of K

- 16.5 Heterogeneous Equilibria: Reactions Involving Solids and Liquids
- 16.6 Calculating the Equilibrium Constant from Measured Equilibrium Concentrations
- 16.7 The Reaction Quotient: Predicting the Direction of Change
- 16.8 Finding Equilibrium Concentrations

Finding Equilibrium Concentrations from the Equilibrium Constant and All but One of the Equilibrium Concentrations of the Reactants and Products

Finding Equilibrium Concentrations from the Equilibrium Constant and Initial Concentrations or Pressures Simplifying Approximations in Working Equilibrium Problems

16.9 Le Châteliers Principle: How a System at Equilibrium Responds to Disturbances

The Effect of a Concentration Change on Equilibrium

The Effect of a Volume (or Pressure) Change on Equilibrium

The Effect of a Temperature Change on Equilibrium

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 17 Acids and Bases

- 17.1 Batmans Basic Blunder
- 17.2 The Nature of Acids and Bases
- 17.3 Definitions of Acids and Bases

The Arrhenius Definition

The BrønstedLowry Definition



#### 17.4 Acid Strength and Molecular Structure

**Binary Acids** 

Oxyacids

#### 17.5 Acid Strength and the Acid Ionization Constant (Ka)

Strong Acids

Weak Acids

The Acid Ionization Constant (Ka)

#### 17.6 Autoionization of Water and pH

Specifying the Acidity or Basicity of a Solution: The pH Scale

pOH and Other p Scales

#### 17.7 Finding the [H3O+] and pH of Strong and Weak Acid Solutions

Strong Acids

Weak Acids

Percent Ionization of a Weak Acid

Mixtures of Acids

#### 17.8 Finding the [OH-] and pH of Strong and Weak Base Solutions

Strong Bases

Weak Bases

Finding the [OH-] and pH of Basic Solutions

#### 17.9 The AcidBase Properties of Ions and Salts

Anions as Weak Bases

Cations as Weak Acids

Classifying Salt Solutions as Acidic, Basic, or Neutral

#### 17.10 Polyprotic Acids

Finding the pH of Polyprotic Acid Solutions

Finding the Concentration of the Anions for a Weak Diprotic Acid Solution

#### 17.11 Lewis Acids and Bases

Molecules That Act as Lewis Acids

Cations That Act as Lewis Acids

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

**EXERCISES** 



**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Connections** 

#### 18 Aqueous Ionic Equilibrium

#### 18.1 The Danger of Antifreeze

#### 18.2 Buffers: Solutions That Resist pH Change

Calculating the pH of a Buffer Solution

The HendersonHasselbalch Equation

Calculating pH Changes in a Buffer Solution

Buffers Containing a Base and Its Conjugate Acid

#### 18.3 Buffer Effectiveness: Buffer Range and Buffer Capacity

#### 18.3 Buffer Effectiveness: Buffer Range and Buffer Capacity

Relative Amounts of Acid and Base

Absolute Concentrations of the Acid and Conjugate Base

**Buffer Range** 

**Buffer Capacity** 

#### 18.4 Titrations and pH Curves

The Titration of a Strong Acid with a Strong Base

The Titration of a Weak Acid with a Strong Base

The Titration of a Weak Base with a Strong Acid

The Titration of a Polyprotic Acid

Indicators: pH-Dependent Colors

#### 18.5 Solubility Equilibria and the Solubility-Product Constant

Ksp and Molar Solubility

Ksp and Relative Solubility

The Effect of a Common Ion on Solubility

The Effect of pH on Solubility

#### 18.6 Precipitation

Selective Precipitation

#### 18.7 Complex Ion Equilibria

The Effect of Complex Ion Equilibria on Solubility

The Solubility of Amphoteric Metal Hydroxides

**REVIEW** 



Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Chalenge Problems

Conceptual Problems

**Answers to Conceptual Conections** 

### 19 Free Energy and Thermodynamics

- 19.1 Energy Spreads Out
- 19.2 Spontaneous and Nonspontaneous Processes
- 19.3 Entropy and the Second Law of Thermodynamics

Entropy

The Second Law of Thermodynamics

Macrostates and Microstates

The Units of Entropy

#### 19.4 Predicting Entropy and Entropy Changes for Chemical Reactions

The Entropy Change Associated with a Change in State

The Entropy Change Associated with a Chemical Reaction (S°rxn)

Standard Molar Entropies (S°) and the Third Law of Thermodynamics

Calculating the Standard Entropy Change (S°rxn) for a Reaction

#### 19.5 Heat Transfer and Entropy Changes of the Surroundings

The Temperature Dependence of Ssurr

Quantifying Entropy Changes in the Surroundings

#### 19.6 Gibbs Free Energy

The Effect of H, S, and T on Spontaneity

#### 19.7 Free Energy Changes in Chemical Reactions: Calculating G°rxn

Calculating Standard Free Energy Changes with G°rxn = H°rxn - T S°rxn

Calculating G°rxn with Tabulated Values of Free Energies of Formation

Calculating G°rxn for a Stepwise Reaction from the Changes in Free Energy for Each of the Steps

Making a Nonspontaneous Process Spontaneous

Why Free Energy Is Free



19.8 Free Energy Changes for Nonstandard States: The Relationship between G°rxn and Grxn

19.9 Free Energy and Equilibrium: Relating G°rxn to the Equilibrium Constant (K)

The Temperature Dependence of the Equilibrium Constant

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Conections** 

#### 20 Electrochemistry

- 20.1 Lightning and Batteries
- 20.2 Balancing OxidationReduction Equations
- 20.3 Voltaic (or Galvanic) Cells: Generating Electricity from Spontaneous Chemical Reactions Electrochemical Cell Notation

#### 20.4 Standard Electrode Potentials

Predicting the Spontaneous Direction of an OxidationReduction Reaction

Predicting Whether a Metal Will Dissolve in Acid

#### 20.5 Cell Potential, Free Energy, and the Equilibrium Constant

The Relationship between G° and E°cell

The Relationship between E°cell and K

#### 20.6 Cell Potential and Concentration

Concentration Cells

#### 20.7 Batteries: Using Chemistry to Generate Electricity

**Dry-Cell Batteries** 

LeadAcid Storage Batteries

Other Rechargeable Batteries

**Fuel Cells** 



#### 20.8 Electrolysis: Driving Nonspontaneous Chemical Reactions with Electricity

Predicting the Products of Electrolysis

Stoichiometry of Electrolysis

#### 20.9 Corrosion: Undesirable Redox Reactions

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 

**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

Answers to Conceptual Conections

#### 21 Radioactivity and Nuclear Chemistry

#### 21.1 Diagnosing Appendicitis

#### 21.2 The Discovery of Radioactivity

#### 21.3 Types of Radioactivity

Alpha () Decay

Beta () Decay

Gamma () Ray Emission

Positron Emission

**Electron Capture** 

#### 21.4 The Valley of Stability: Predicting the Type of Radioactivity

Magic Numbers

Radioactive Decay Series

#### 21.5 Detecting Radioactivity

#### 21.6 The Kinetics of Radioactive Decay and Radiometric Dating

The Integrated Rate Law

Radiocarbon Dating: Using Radioactivity to Measure the Age of Fossils and Artifacts

Uranium/Lead Dating

21.7 The Discovery of Fission: The Atomic Bomb and Nuclear Power



The Atomic Bomb

Nuclear Power: Using Fission to Generate Electricity

21.8 Converting Mass to Energy: Mass Defect and Nuclear Binding Energy

The Conversion of Mass to Energy

Mass Defect and Nuclear Binding Energy

21.9 Nuclear Fusion: The Power of the Sun

21.10 Nuclear Transmutation and Transuranium Elements

21.11 The Effects of Radiation on Life

Acute Radiation Damage

Increased Cancer Risk

**Genetic Defects** 

Measuring Radiation Exposure

21.12 Radioactivity in Medicine and Other Applications

Diagnosis in Medicine

Radiotherapy in Medicine

Other Applications

**REVIEW** 

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms

**Key Concepts** 

Key Equations and Relationships

**EXERCISES** 

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

Answers to Conceptual Conections

22 Organic Chemistry

22.1 Fragrances and Odors

22.2 Carbon: Why It Is Unique

Carbons Tendency to Form Four Covalent Bonds

Carbons Ability to Form Double and Triple Bonds

Carbons Tendency to Catenate

22.3 Hydrocarbons: Compounds Containing Only Carbon and Hydrogen



Drawing Hydrocarbon Structures
Stereoisomerism and Optical Isomerism

#### 22.4 Alkanes: Saturated Hydrocarbons

Naming Alkanes

#### 22.5 Alkenes and Alkynes

Naming Alkenes and Alkynes

Geometric (CisTrans) Isomerism in Alkenes

#### 22.6 Hydrocarbon Reactions

Reactions of Alkanes

Reactions of Alkenes and Alkynes

#### 22.7 Aromatic Hydrocarbons

Naming Aromatic Hydrocarbons

Reactions of Aromatic Compounds

#### 22.8 Functional Groups

#### 22.9 Alcohols

Naming Alcohols

**About Alcohols** 

**Alcohol Reactions** 

#### 22.10 Aldehydes and Ketones

Naming Aldehydes and Ketones

About Aldehydes and Ketones

Aldehyde and Ketone Reactions

#### 22.11 Carboxylic Acids and Esters

Naming Carboxylic Acids and Esters

About Carboxylic Acids and Esters

Carboxylic Acid and Ester Reactions

#### 22.12 Ethers

Naming Ethers

**About Ethers** 

#### 22.13 Amines

**Amine Reactions** 

22.14 Polymers

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

**Key Terms** 



**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

Answers to Conceptual Conections

## 23 Transition Metals and Coordination Compounds

#### 23.1 The Colors of Rubies and Emeralds

#### 23.2 Properties of Transition Metals

**Electron Configurations** 

Atomic Size

Ionization Energy

Electronegativity

Oxidation States

#### 23.3 Coordination Compounds

Ligands

Coordination Numbers and Geometries

Naming Coordination Compounds

#### 23.4 Structure and Isomerization

Structural Isomerism

Stereoisomerism

#### 23.5 Bonding in Coordination Compounds

Valence Bond Theory

Crystal Field Theory

#### 23.6 Applications of Coordination Compounds

**Chelating Agents** 

Chemical Analysis

Coloring Agents

Biomolecules

#### **REVIEW**

Self-Assessment Quiz

**Key Learning Outcomes** 

Key Terms



**Key Concepts** 

Key Equations and Relationships

#### **EXERCISES**

**Review Questions** 

Problems by Topic

**Cumulative Problems** 

Challenge Problems

Conceptual Problems

**Answers to Conceptual Conections** 

## Appendix I The Units of Measurement

Appendix II Significant Figure Guidelines

Appendix III Common Mathematical Operations in Chemistry

A Scientific Notation

**B** Logarithms

C Quadratic Equations

D Graphs

### Appendix IV Useful Data

A Atomic Colors

B Standard Thermodynamic Quantities for Selected Substances at 25 °C

C Aqueous Equilibrium Constants

D Standard Electrode Potentials at 25 °C

E Vapor Pressure of Water at Various Temperatures

Appendix V Answers to Selected End-of-Chapter Problems

Appendix VIAnswers to In Chapter Practice Problems

Glossary

Credits

Index

