

TABLE OF CONTENTS

CHEMICAL ELEMENTS	4
Periodic Law and Table	4
ATOMS AND ATOMIC STRUCTURE	5
LEARNING OUTCOMES Review Questions	8
Practice Test 1 - Chemical Elements and Atomic Structure	9
Practice Test 2 - Terminology Review - Elements and Atomic Structure	9
ENERGY AND MATTER	10
Chemical energy	10
Electrical energy	10
Mechanical energy	11
Radiant energy	11
Learning Outcomes Review Questions	12
Practice Test 3 - Energy and Matter	12
Practice Test 4 - Terminology Review - Energy and Matter	12
CHEMICAL REACTIONS	13
Role of Electrons	13
Energy Level Configurations	14
Learning Outcomes Review Questions	18
Practice Test 5 - Chemical Reactions - Role of electrons	18
COMBINING MATTER - CHEMICAL BONDS	19
Learning Outcomes Review Questions	21
Practice Test 6 - Combining MATTER - Chemical Bonds	21
CHEMICAL EQUATIONS	22
Learning Outcomes Review Questions	22
METABOLISM AND CHEMICAL REACTIONS	23
Learning Outcomes Review Questions	26
Practice Test 7 - Metabolism - Chemical Equations and Reactions	27
Practice Test 8 - Terminology Review - Combining Matter	27
ENERGY OF CHEMICAL REACTIONS	28
Exergonic Reactions	28
Endergonic Reactions	29
ENZYMES	30
Learning Outcomes Review Questions	31
Practice Test 9 - Energy of Chemical Reactions	32
Practice Test 10 - Terminology - Energy of Chemical Reactions	32
CHEMICAL BONDS	33
Ions and Ionic Bonds	33
Learning Outcomes Review Questions	36
Practice Test 11 - Crystallization of Salt (NaCl) Movie	36
Practice Test 12 - Ionic Bonds	36
Covalent Bonds	37
Lab Activity 2 - Molecular Model Kit and Covalent Bonds	39
Learning Outcomes Review Questions	39
Practice Test 13 - Covalent Bonds	39
CARBON AS THE CENTRAL ATOM OF ORGANIC MOLECULES	40
Lab Activity 3 - Molecular Model Kit - Carbon Bonding	41
Learning Outcomes Review Questions	42
POLAR AND NON-POLAR MOLECULES	43
Lab Activity 4 - Molecular Model Kit - Non-polar and Polar	45
Polar Characteristics of Water	45
Polar Demonstration	45
Learning Outcomes Review Questions	46
Practice Test 14 - Water Polarity Video	46
Practice Test 15 - Covalent Bonds	46

HYDROGEN BONDS	47
Water Surface Tension Demonstrations	49
Water Surface Tension and Sulfur	50
Learning Outcomes Review Questions	51
Practice Test 16 - Hydrogen Bonds	53
Practice Test 17 - Water Surface Tension Videos and Interactive Exam	53
Practice Test 18 - Terminology Review - Chemical Bonds	53
AMPHIPHILIC MOLECULES	54
Learning Outcomes Review Questions	58
Practice Test 19 - Amphiphilic Molecules	59
Practice Test 20 - Terminology Review - Amphiphilic Molecules	59
COMBINING MATTER - MIXTURES	60
Solution	60
Colloid	61
Suspension	61
Learning Outcomes Review Questions	62
Practice Test 21 - Mixtures	63
Practice Test 22 - Terminology Review - Mixtures	63
Learning Outcomes Review Questions	64
WATER	64
Learning Outcomes Review Questions	68
Practice Test 23 - Biochemistry and Water	69
ACIDS, BASES, AND BUFFERS	70
Learning Outcomes Review Questions	73
Practice Test 24 - Acids and Bases	74
pH OF A SOLUTION	75
BUFFERS	77
Learning Outcomes Review Questions	78
SALTS	79
Learning Outcomes Review Questions	80
Practice Test 25 - pH, Buffers, and Salts	80
ORGANIC CHEMISTRY	81
Biological reactions of organic chemistry	81
Learning Outcomes Review Questions	83
Practice test 26 - Organic Chemistry - Introduction	83
Practice test 27 - Terminology Review - Organic Chemistry	83
COPYRIGHT AND PRODUCT DETAILS	84