

# TABLE OF CONTENTS

<b>HOW THIS MANUAL CAN BE USED</b> .....	1
<b>HOW TO PRESENT ELEMENTARY NOMENCLATURE MATERIAL</b> .....	3
Activity 1: Matching Picture and Label Cards .....	4
Activity 2: Matching Picture, Label and Definition Cards .....	5
<b>INTRODUCTION</b> .....	7
<b>MATTER</b> .....	10
<b>Introduction</b> .....	10
<b>Atoms</b> .....	11
Background Information .....	11
Activity 1: Learning About the Parts of the Atom .....	17
Activity 2: Investigating the Size of Atoms .....	20
Activity 3: Exploring the Structure of the Ato .....	22
<b>Molecules</b> .....	25
Background Information .....	25
Activity 1: Learning About Molecules .....	29
Activity 2: Making Models of Water Molecules .....	32
Experiment 1: Investigating the Attraction of Water Molecules .....	35
<b>Chemical Elements</b> .....	39
Background Information .....	39
Activity 1: Learning About the Periodic Table of the Elements: Part 1 .....	46
Activity 2: Learning About the Periodic Table of the Elements: Part 2 .....	49
Activity 3: Learning About the Elements in Common Materials .....	51
<b>The States of Matter</b> .....	53
Background Information .....	53
Experiment 1: Changing a Solid to a Liquid to a Gas .....	58
Activity 1: Demonstrating Changes in States of Matter .....	60
Activity 2: Demonstrating How Solids, Liquids and Gases	
Exert Pressure .....	63
Experiment 2: Investigating the Expansion of a Gas	
Through Change in Temperature .....	65

<b>Changes in Matter</b> .....	67
Background Information .....	67
Experiment 1: Investigating Physical Changes in Matter .....	70
Activity 1: Demonstrating Chemical Changes in Matter .....	73
Experiment 2: Investigating Chemical Changes in Reactions .....	75
Experiment 3: Investigating a Reaction With a Compound .....	77
<b>Combinations of Matter</b> .....	80
Background Information .....	80
Activity 1: Demonstrating Elements, Compounds, and Mixtures .....	83
Experiment 1: Investigating the Nature of a Mixture .....	85
 <b>ASTRONOMY</b> .....	 88
<b>Introduction</b> .....	88
<b>Explanations for Creation</b> .....	89
Background Information .....	89
Activity 1: Exploring Creation Myths .....	96
Activity 2: Demonstrating How Creation Myths Develop .....	98
Activity 3: Discovering the Shape of the Earth .....	100
Activity 4: Understanding the Modern Scientific Theory of Creation .....	102
<b>The Life Cycle of Stars</b> .....	104
Background Information .....	104
Activity 1: Making a Model Showing the Formation of a Protostar .....	111
Activity 2: Exploring How a Protostar Becomes a Star .....	113
Activity 3: Exploring the Life Cycle of an Average Star .....	115
Activity 4: Exploring the Brightness of Stars .....	118
Activity 5: Exploring the Life Cycle of a Giant Star .....	120
<b>The Solar System</b> .....	122
Background Information .....	122
Activity 1: Exploring the Sizes of the Sun and the Planets .....	130
Activity 2: Exploring the Orbits of the Planets .....	132
Activity 3: Exploring the Planets .....	134
Activity 4: Exploring the Planetary Day of Each Planet .....	136
Activity 5: Exploring the Planetary Year of Each Planet .....	138
<b>Earth and the Sun</b> .....	140
Background Information .....	140
Activity 1: Demonstrating the Cycle of Day and Night .....	146
Activity 2: Examining the Tilt and Orbit of the Earth .....	148
Activity 3: Showing How the Seasons Arise .....	150
Activity 4: Investigating a Second Cause of the Seasons .....	152
Activity 5: Investigating the Causes of Solar and Lunar Eclipses .....	155

<b>RESOURCES FOR TEACHERS AND STUDENTS</b> .....	157
<b>Print</b> .....	157
<b>Web</b> .....	168
<b>Audio/Video</b> .....	176
<b>TEMPLATES FOR TEACHERS</b> .....	180
<b>GLOSSARY</b> .....	183