

TABLE OF CONTENTS

A Note from the Author xxi

How to Use This Book xxv

Unit One

Getting Started 1

Vocabulary 2

Materials Needed 2

Creation Coloring Page 3

Lesson 1: Earth's Creation 5

Teaching Time: In the Beginning 5

Hands-On Time: Map It! 7

For Younger Students: Globe Exploration 8

Lesson 2: Facts About Earth and Its Structure 11

Teaching Time: Just the Facts, Ma'am 11

The Revolving Earth 11

Earth's Rotation 12

The Rising and Setting Sun 12

Measuring Earth 12

Earth Facts Summary 13

What's Inside Earth? 13

Hands-On Time: Make a Model of Earth's Structure	14
For Advanced Students: Make a 3-D Model of Earth	15
Unit One Wrap-Up	19
Make a Folderbook	19
Unit Composition	19
Show What You Know!	20
Unit Two:	
The Lithosphere	23
Vocabulary	24
Materials Needed	25
Lithosphere Coloring Page	27
Lesson 3: Plate Tectonics	29
Teaching Time: The Shifting Earth	30
The Plate Tectonics and Pangea Theories	30
What Does the Bible Say?	30
Review It!	33
Hands-On Time: Tectonics Demonstration	34
Lesson 4: Caves	37
Teaching Time: Spelunking We Will Go!	37
Cave Formation	37
Caverns	38
Speleothems	39
Review It!	41
Hands-On Time: Make a Speleothem	42
For Younger Students: Make a Speleothem With Sand	45
Lesson 5: Volcanoes	47
Teaching Time: Hot, Hot, Hot!	47
The Structure of a Volcano	47
Types of Volcanoes	48
Hands-On Time: Simulate a Volcanic Eruption	52

Lesson 6: Earthquakes	57
Teaching Time: Shake, Rattle, and Roll	57
What Is an Earthquake?	57
Seismology	58
Faults	58
Explaining Earthquakes	59
Hands-On Time: Map It!	60
For Younger Students: Shake a City!	61
Lesson 7: Rock Types On Earth	65
Teaching Time: Rocky Ground	65
Introduction to Rocks	66
Main Types of Rocks	66
Review It!	69
Hands-On Time: Make an Edible Sedimentary Rock	70
Unit Two Wrap-Up	73
Make a Folderbook	73
Unit Composition	73
Show What You Know!	74
Unit Three	
The Hydrosphere	77
Vocabulary	78
Materials Needed	79
Hydrosphere Coloring Page	81
Lesson 8: Introduction	83
Teaching Time: Water, Water Everywhere	83
Water Sources on Earth	84
The Hydrologic Cycle	84
Hands-On Time: The Hydrologic Cycle	86
For Younger Students: Act Out “Evaporation”	87

Lesson 9: Oceans	89
Teaching Time: Pass the Salt, Please	89
Saltwater	89
Ocean Depth	90
Topography of the Ocean Floor	90
Ocean Temperatures	91
Hands-On Time: Halve the World and Make a Chalk Clock	92
Lesson 10: Groundwater	97
Teaching Time: Let's Go Underground	97
The Source of Groundwater	98
The Water Table	98
Points to Remember	100
Review It!	101
Hands-On Time: Make "Groundwater"	102
Lesson 11: Glaciers and Icebergs	105
Teaching Time: Iced Down	105
Glaciers	106
Types of Glaciers	106
Antarctica	107
Icebergs	107
One Step Further	108
Hands-On Time: Make a Glacier	108
Unit Three Wrap-Up	111
Make a Folderbook	111
Unit Composition	111
Show What You Know!	112
Unit Four	
The Atmosphere	115
Vocabulary	116
Materials Needed	117
Atmosphere Coloring Page	119

Lesson 12: Introduction	121
Teaching Time: Layer by Layer	121
Where Does the Atmosphere Come From?	122
Atmosphere Defined	122
Understanding the Atmosphere	122
The Troposphere	123
The Stratosphere	123
The Mesosphere	123
The Thermosphere	123
Atmosphere Discoveries	124
Hands-On Time: Make an Atmosphere Wall Chart	125
Lesson 13: Atmospheric Pressure	129
Teaching Time: Feel the Pressure	129
What's a Barometer Like?	130
The Invention of the Barometer	130
Hands-On Time: Make a Barometer	131
Lesson 14: Humidity	135
Teaching Time: Moisture in the Air	135
Relative Humidity	136
A Water Warning	136
Air Composition	137
Hands-On Time: Build a Psychrometer	138
Lesson 15: Air Composition	143
Teaching Time: The Air We Breathe	143
Understanding Composition	143
The Heterosphere	144
The Homosphere	144
A Little Recipe	145
Review It!	146
Hands-On Time: Make a Homosphere Pie Chart	147
Another Option	148
For Advanced Students: Discover More!	148

Unit Four Wrap-Up	151
Make a Folderbook	151
Unit Composition	151
Show What You Know!	152

Unit Five

Earth's Weather

Vocabulary	156
Materials Needed	157
Weather Coloring Page	159

Lesson 16: Introduction to Weather and Seasons

Teaching Time: Be Weather-wise	161
Weather All Around Us	161
Seasons	162
What About the Tropics?	163
The Rest of the World	163
Hands-On Time: Make a Season Memory	164
For Younger Students: Talk About It!	165

Lesson 17: Cloud Formation

Teaching Time: All About Clouds	167
Clouds Defined	168
Cloud Classification	169
Cloud Facts	171
Review It!	172
Hands-On Time: Weather in a Jar	173

Lesson 18: Precipitation

Teaching Time: Rain, Snow, Sleet, and Hail	177
Types of Precipitation	177
A Look at Rain	178
Let It Snow	179
Freezing Rain	179
Sleet	180

Hail	180
Hands-On Time: Make a Rain Gauge	181
For Advanced Students: More Measurements	183
Lesson 19: Thunderstorms and Tornadoes	185
Teaching Time: When Weather Turns Violent	185
The Origin of Thunderstorms	186
More on Cumulonimbus Clouds	186
Tornadoes	187
Hands-On Time: Make a Tornado in a Bottle	189
For Advanced Students:	
Write and Deliver a Weather Bulletin/Damage Report	191
Lesson 20: Hurricanes	193
Teaching Time: In the Eye of the Storm	193
Weather Patterns	193
What Is a Hurricane?	194
How Hurricanes Form	194
Rating a Hurricane	195
How Hurricanes Weaken	196
Hands-On Time: Map It!	196
Unit Five Wrap-Up	201
Make a Folderbook	201
Unit Composition	201
Show What You Know!	202
Unit Six	
Beyond Earth	205
Vocabulary	206
Materials Needed	207
Space Coloring Page	209
Lesson 21: Makeup of the Universe	211
Teaching Time: What's in Space?	211

Lights in the Sky	212
Other Heavenly Bodies	213
Hands-On Time: Lunar Observation	215
One Step Further	216
Lesson 22: The Sun	219
Teaching Time: Solar Studies	219
The Sun's Composition	220
How Big Is the Sun?	220
The Structure of the Sun	220
The Sun's Purpose	221
Hands-On Time: Make Sun Prints	222
For Advanced Students: Research Solar Flares	224
Lesson 23: Earth's Moon	227
Teaching Time: In Orbit	227
How Near Is the Moon to Earth?	228
The Light of the Moon	228
The Moon Is a Satellite	228
The Waxing and Waning Moon	229
Review It!	231
Hands-On Time: Make a Lunar Wall Chart	232
Lesson 24: The Eight Other Planets	235
Teaching Time: Out in Space	235
Eight More Planets by Name	235
Rocky Or Gaseous	236
Planet Facts and Figures	237
Hands-On Time: Make Memory Cards	239
Unit Six Wrap-Up	243
Make a Folderbook	243
Unit Composition	243
Show What You Know!	244

Glossary 247

Appendices

Appendix A: Reproducible Maps, Forms, and Illustrations 261

Appendix B: Memorization Lists 293

Appendix C: Scripture Memory 299

Appendix D: Coloring Pages 307

Appendix E: Recipes and Supplemental Activities 315

Appendix F: How to Make a Folderbook 327

Appendix G: Book and Resource List 331

Appendix H: Answer Key 349

Index 353