

Table of Contents

Development Team	ii
License Agreement	iii
Installing and Running The Layered Earth	v
Section 1: Welcome	1
Teacher Binder at a Glance	3
The Lesson Plans	4
Unit Overview	6
Lesson Overview	8
Lesson Plan Structure	9
The Student Lessons in EarthGuide	10
Welcome Screen	10
Student Lessons Screen	11
At the Unit Level	12
At the Lesson Level	13
At the Lesson Screen Level	14
Section 2: Lesson Plans	15
Unit A: Mapping the Earth	
A1 The Geographic Grid	17
A2 Map Projections	23
A3 Elevation and Contour Lines	29
A4 Remote Sensing	35
A5 Earth as a System	41
Unit B: The Atmosphere and Circulatory Systems	
B1 Atmospheric Composition	47
B2 Layers of the Atmosphere	53
B3 The Ozone Layer	59
B4 Methods of Heat Transfer	65
B5 The Green House Effect	71
B6 The Earth's Energy Balance	77
B7 Atmospheric Pressure	83
B8 Global Wind Patterns	89
B9 The Jet Stream	95
B10 Global Winds and Ocean Currents	99
Unit C: Weather	
C1 The Water Cycle	103
C2 Weather Patterns – Pressure Systems	109
C3 Forecasting the Weather	115
C4 Extreme Weather: Hurricanes and Tornadoes	119

Unit D: Climate	
D1 Climate vs. Weather	125
D2 Factors Affecting Climate	129
D3 World Climate Zones	135
D4 Paleoclimates: Climates of the Past	141
D5 El Niño / La Niña	147
D6 Humans and the Greenhouse Effect	151
Unit E: Structure of the Earth	
E1 Earth's Layered Structure	157
E2 Minerals: Building Blocks of Rocks	163
E3 The Rock Cycle	171
E4 Igneous, Sedimentary and Metamorphic Rocks	177
E5 Oceans and Continents	185
E6 Geologic Time Scale	191
Unit F: The Restless Earth: Internal Processes	
FF1 Continental Drift	199
F2 Sea Floor Spreading and Paleomagnetism	205
F3 The Theory of Plate Tectonics	211
F4 Formation of Volcanoes	217
F5 Types of Volcanoes	223
F6 Living With Volcanoes	233
F7 Earthquakes and Faults	239
F8 Earthquake Waves	245
F9 The Strength of Earthquakes	251
F10 Living With Earthquakes	259
Unit G: Landforms and Landscapes	
G1 Shaping Earth's Surface	267
G2 Mass Movement	273
G3 Water and Ice Landforms	279
G4 Wind Landforms	287
G5 Drainage	293
G6 Coasts and Coastal Landforms	299
Unit H: The Biosphere	
H1 Formation of Soil	305
H2 Soils of the World	311
H3 Biomes	317
H4 Biomes and Climate Zones	323
Section 3: Assessment Tools	327
Section 4: Glossary of Terms	355