

# Table of Contents

## Front Matter

---

Acknowledgments	iii
To Instructors	iii
To Students	iv

---

Activity Name	Page
---------------	------

---

### **The Biosphere**

---

Sustainability and Ecological Footprint	1
Introduction to Ecosystems	11
Energy in Ecosystems	21
Biodiversity	33

---

### **The Hydrosphere**

---

The Water Cycle	43
Water Resources	53
Basics of Water Pollution	61
Natural Remediation of Water Pollution	73
Wastewater Treatment	83
Groundwater	93
Groundwater Depletion	105
Watersheds	115

---

### **The Atmosphere**

---

Gases and the Atmosphere	123
Air Pollution from Combustion	137
Photochemical Smog	147
Greenhouse Effect	155

---

**The Geosphere**

---

Plate Tectonics: Landforms, Volcanoes, and Earthquakes	163
Nitrogen Cycle	175
Carbon Cycle: Preindustrialization	181
Carbon Cycle: Human Impact	189

---

**The Anthroposphere**

---

Renewable Energy: Wind, Water, and Solar	199
Renewable Energy: Biomass	207