**TERRA Environmental Research Institute**
**Environmental Science and Field Studies**
**Environmental Research for Agriscience Foundations I**
**Scope and Sequence 2009-2010**

| Week | Topic | Holt Environmental Science | Laboratory Activities |
|---|---|---|---|
| 1 | Introduction to Resource management and Environmental Science<br>~ Understanding our Environment | Chapter 1, Science and the Environment | ~ Germinating Corn, pg. 10 |
| 2 | ~ The Environment and Society | | ~ Classifying Resources, Pg. 14<br>~ Critical Thinking and the News, Pg 20<br>~ Field Activity, What is an Ecosystem Pg. 28 |
| | ~ Scientific Methods<br>~ Statistics and Models | Chapter 2, Tools of Environmental Science | ~ Hyothesizing and Predicting, Pg. 34<br>~ Conceptual Model, Pg. 45 |
| 3 | ~ Making Informed Decisions | | ~ Scientific Investigations, Pg. 58 |
| 4 | ~ The Geosphere<br>~ The Atmosphere<br>~ The Hydrosphere and Biosphere | Chapter 3, The Dynamic Earth | ~ The Heat Is On! Pg. 74<br>~ Exploring the Greenhouse Effect, Pg. 76<br>~Make a Hydrothermal Vent, Pg. 82<br>~ Amazing Waves Activity |
| 5 | Ecology I<br>~ Ecosystems: Everything is Connected | Chapter 4, The Organization of Life | ~ Artificial Selection, Pg. 107 |
| 6 | ~ Evolution<br>~ The Diversity of Living Things | | ~ Pollen and Flower Diversity, Pg. 111<br>~ Habit Selection- SOD Analysis, Field Activity |
| 7 | ~ Energy Flow in Ecosystems | Chapter 5, How Ecosystems | ~ Make Everry Breath Count, Pg. 133 |
| 8 | ~ The Cycling of Materials<br>~ How Ecosystems Change | | ~ Investigation Succession, Pg. 140<br>~ Dissecting Owl Pellets, Pg. 148<br>~ Introduction to Producers in the Food Chain- Light as the beginning |
| 9 | ~ What is a Biome?<br>~ Forest Biomes<br>~ Grasslands, Desert and Tundra Biomes | Chapter 6, Biomes | ~ Biomes and Ecosystems Bingo<br>~ Identify your Local Biome, Pg. 180<br>~ Identify Biomes in Florida |
| 10 | Ecology II<br>~ Freshwater Ecosystems<br>~ Marine Ecosystems | Chapter 7, Types of Ecosystems/Aquatic Ecosystems | ~ Exploring Pond Water<br>~ Mangrove Project<br>~ Eutriphication, Pg. 204 |
| | ~ How Populations Change in Size | Chapter 8, Understanding Populations | ~ Population Growth, Pg. 212 |
| 12 | ~ How Species Interact with Each Other | | ~ Population Growth in Lemna Minor<br>~ Observing Competition, Pg. 218, Field Day<br>~ Studying Population Growth, Pg. 230 |
| 13 | ~ Studying Human Populations<br>~ Changing Population Trends | Chapter 9, The Human Population | ~ Does your local area has population pressures? Pg. 243<br>~ Estimating fertility rates, Pg. 247<br>~ How will our population grow? Pg. 254 |
| 14 | Ecology III/Abiotic Resources<br>~ What is Biodiversity? | Chapter 10, Biodiversity | ~ How 'Eco' is Ecotourism?, Field Day |
| 15 | ~ Biodiversity at Risk<br>~ The Future of Biodiversity | | ~ Exploring major extinctions<br>~ Design a Wildlife Preserve, Pg. 272<br>~ Simple Biodiversity Assessment, Pg. 275<br>~ Differences in Biodiversity, Pg. 283 |
| 16 | ~ Water Resources<br>~ Water Use and Management<br>~ Water Pollution | Chapter 11, Water | ~ Exploring local water resources<br>~ Testing Water Purification Techniques<br>~ Identifying Sources of Pollution, Pg. 305<br>~ Measuring Dissolved Oxygen, Pg. 308<br>~ Ground Water Filters, Pg. 320 |
| 17 | ~ What Causes Air Pollution?<br>~ Air, Noise, and Light Pollution<br>~ Acid Precipitation | Chapter 12, Air | ~ Air Pollution Kit Activity<br>~ Light Pollution Activity, Pg. 335<br>~ Neutralizing Acid Precipitation, Pg. 338<br>~ The Acid Test, Pg. 346 |
| 18 | | | ~ Lamotte Acid Rain Study Outfit |

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| 19 | **Abiotic Resources**<br>~ Climate and Climate Change<br>~ The Ozone Shield<br>~ Global Warming | Chapter 13, Atmosphere and Climate Change | ~ Investigating Prevailing Winds, Pg. 354<br>~ Effects of UV light on Algea<br>~ Carbon Dioxide, Pg. 364<br>~ Build a Global Model of Air Movement, Pg. 376 |
| 20 | ~ How We Use Land | Chapter 14, Land | ~ Field Day- Composting/Soil comparisson |
| 21 | ~ Urban Land Use<br>~ Land Management and Conservation | | ~ Vermiculture Lab.<br>~ Local Urban Sprawl, Pg. 385<br>~ Measuring Soil Depth and Compaction, Pg.391<br>~ Creating a Land Use Model, Pg. 403 |
| 22 | ~ Feeding the World<br>~ Crops and Soil<br>~ Animals and Agriculture | Chapter 15, Food and Agriculture | ~ Research Green Revolution<br>~ Preventing Soil Erosion, Pg. 414<br>~ Pest Search, Pg. 419<br>~ Field Day-Visit Fish Farm<br>~ Managing the Moisture in Garden Soil, Pg. 434 |
| 23 | **Energy and Environmental Resources**<br>~ MineraLs and Mineral Resources | Chapter 16, Mining and | ~ Identifying Objects Made of Minerals, Pg. 441 |
| 24 | ~ Mineral Exploration and Mining<br>~ Mining Regulations and Mine Reclamation | Mineral Resources | ~ Observe Mineral Samples-Uses/Mining<br>~ Extraction of Copper from its Ore, Pg. 462 |
| 25 | ~ Energy Resources and Fossil Fuels<br>~ Nuclear Energy | Chapter 17, Non-Renewable Sources | ~ Generating Electricity, Pg. 469<br>~ Measuring Energy Efficiency |
| 26 | ~ Renewable Energy Today | Chapter 18, Renewable | ~ Building a model of Energy Efficient home |
| 27 | ~ Alternative Energy and Conservation | Sources | ~ Biomass Survey, Pg. 496<br>~ Hydrolysis, Pg. 502<br>~ Alternative Energies Video Lab |
| 28 | **Our Health and Our Future**<br>~ Solid Waste<br>~ Reducing Solid Waste | Chapter 19, Waste | ~ Biodegradable Lab.<br>~ Is it really Recylable? Pg. 524 |
| 29 | ~ Hazardous Waste | | ~ Reusing products contest<br>~ Neutralizing Hazardous Waste, Pg. 531<br>~ Solid Waste in Your Lunch, Pg. 543 |
| | ~ Pollution and Human Health<br>~ Biological Hazards | Chapter 20, The Environment and Human Health | ~ Sources of Pollution, Pg.553<br>~ Simulating an Epidemic, Pg. 558 |
| 30 | | | |
| 31 | ~ Economics and International Cooperation<br>~ Environmental Policies in the United States<br>~ The Importance of the Individual | Chapter 21, Economic Policy and the Future | ~ Local Policies, Pg. 583<br>~ Petition to polititian/firm/etc<br>~ Making a Decision, Pg. 585<br>~ Be an Enviromentalist Scientist, Pg. 594 |
| 32 | **Case Studies**<br>~ History | Everglades National Park, Web resources | ~ Field Day/Report |
| 33 | ~ Ecosystems<br>~ Wildlife/Flora | | |
| 34 | ~ Human Impact | | |
| | ~ Endangered Species Act | Endangered Species, Web resources | ~ Field Day/Report |
| 35 | ~ CITES<br>~ Recovery Plans | | |
| 36 | ~ Marine Mammal Protection Act | | |