Portable Assisted Study Sequence

Environmental Science A

SCOPE

This course is divided into two semesters of study (A & B) comprised of five units each. The first half of the course (A) provides a comprehensive exploration of ecosystem structures and functions, studies the various global biomes, and the relationships between natural and human populations. Laboratory activities embedded within each unit allow for hands-on, practical applications of various concepts and the interrelationships that exist at different levels within the living world.

SEQUENCE

UNIT 1 – Ecosystem Structure

1. Introduction to Ecosystems: Structure of the Biosphere
2. What is an Ecosystem?
3. A Detailed Look at Ecosystem Structure
4. Investigate Your Ecosystem
5. Making an Ecosystem: Part One – Modeling Land Ecosystems
6. Making an Ecosystem: Part Two – Modeling Aquatic Ecosystems
7. Who's Eating Whom?
8. Identifying Ecosystem Roles
9. The Web of Life
10. Energy – Where Does It Go? Energy Pyramids and Trophic Levels
11. The Importance of Biodiversity
12. The Exxon Valdez Oil Spill
13. Exxon Valdez Ecosystem Impact

UNIT 2 – Ecosystem Function

1. Sunlight and Photosynthesis
2. Ecosystem Vocabulary
3. Energy Flow
4. Energy Pyramids
5. Symbiosis
6. Renewable Versus Non-Renewable Resources
7. Natural Cycles
8. Carbon and Oxygen Cycles
9. Water and Nitrogen Cycles
10. Competition and Succession
11. Succession Exploration (Field Experiment)
12. "Vivo"
13. Career Connection: Exploring Resources

UNIT 3 – Natural Populations

1. Review Nutritional Relationships
2. Exploration of Local Ecosystem Populations
3. Ecosystem Impact from Food Web Changes
4. Estimating Population Size
5. Carrying Capacity
6. Interpreting Population Data
7. Kaibab Deer Graphing Activity
8. Natural Selection Activity
9. Introduced Species: Issues and Challenges
10. Invasive Species Project
11. Reintroduction Programs: Pros and Cons
12. Career Connection: Population Analyst
13. Natural Controls for Pest Species

SEQUENCE

UNIT 4 – Biome

1. Definition and Description of Classification of Biomes
2. Rainforests
3. Temperate Deciduous Forest
4. Taiga/Coniferous Forest
5. Desert
6. Tundra
7. Grasslands
8. Freshwater
9. Wetlands
10. Marine
11. Biome Adaptations
12. Biome Project
13. Career Connection: Conservation Law Enforcement

UNIT 5 – Human Populations

1. World Populations: Numbers, Trends, and Reasons for Growth
2. Predictions on Consequences of Continued Growth
3. Population Comparisons: Developed Versus Developing Nations
4. Feeding More People
5. Space Concerns and Energy Use of Growing Populations
6. Graphing Population Growth
7. Shared Global Resources
8. Feeding A Growing Global Population
9. Sustaining Limited Resources
10. Factors Influencing Population Growth
11. Career Connection- Demographer
12. Individual Responsibility
13. Population Policy Project