

Environmental Science B

SCOPE OF COURSE

This course is divided into two semesters of study (A & B) comprised of five units each. The second half of the course (B) provides a comprehensive exploration of various sources of energy, the structure and function of the atmosphere, the water cycle and factors impacting this valuable resource, the land and its responsible management, and the environmental movement over the years. 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 OF SKILLS

UNIT 1 – Energy

- Fossil Fuel – Oil
- Fossil Fuels – Coal and Natural Gas
- To drill or not to drill?
- Solar Energy
- Solar Energy Storage
- Wind Power
- Hydroelectric Power
- Nuclear Power
- Chain Reaction Demonstration
- Geothermal and Tidal Power
- Biomass
- Energy Use at Home
- Hydrogen

UNIT 2 – Atmosphere

- The Atmosphere
- Air Pressure
- What Is Air Pollution?
- Global Warming
- Greenhouse Effect Demonstration
- Acid Rain
- Effects of Acid Rain
- Ground Level Ozone
- The Ozone Layer – Stratospheric Ozone
- Environmental Issues – Global or Local?
- How Clean Is the Air Around You?
- Noise Pollution
- Air Pollution Control

UNIT 3 – Water

- Water Pollution
- Plant Nutrients
- Sediment Pollution
- Groundwater Pollution
- Groundwater Pollution Activity
- Aquifer in a Cup
- Toxic Waste
- Municipal Solid Waste (MSW)
- Thermal Pollution
- Water Treatment Filtration Activity
- Water Treatment Facilities
- Sewage Treatment
- Water Conservation Activity

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SEQUENCE OF SKILLS

UNIT 4 – Land

- Overview of Environmental Hazards / Focus on Land
- Municipal Solid Waste
- Reducing Solid Waste / Municipal Solid Waste Activity
- Hazardous Chemicals – Focus on Pesticides
- Activity – How do Pesticides Affect an Ecosystem?
- Biomagnification and the Pesticide Treadmill
- Alternate Pest Control – Natural Methods
- Love Canal History
- Love Canal Testimony
- Dioxin – Food and Drug Administration / Interagency Report
- Public Awareness and Superfund
- EPA and National Priority Listings
- Environmental Responsibility in Your Area / NPL

UNIT 5 – Past, Present, and Future

- History of the Environmental Movement
- The Value of Biodiversity
- Diversity in Your Own Backyard
- Urban Sprawl
- Invasive Non-Native Species
- Habitat Restoration – You and Your Community
- Rachel Carson – Someone Who Made a Difference
- Costs and Benefits of Environmental Protection
- Major Federal Environmental Laws
- A Scientific Debate
- Environmental Careers
- Job Shadowing
- Ask the Question