

INTEGRATED ENVIRONMENTAL SCIENCE
GRADES 11-12

(1 Semester - Lab Course; Social Studies or Science Credit;
Successful completion of Biology and Chemistry, at the
freshmen and sophomore levels, is highly suggested.)

COURSE OVERVIEW

This class is specifically designed for the student interested in an environmental science related career, i.e. forestry, waste management, energy development, wildlife management, medicine, marine biology, etc. or for the student genuinely interested in the Earth's environment and the health of Homo sapiens.

This is an environmental science course with interjections of environmental history, philosophy and field studies (on-site investigation/experimentation). Ecological systems and one's responsibility to those systems will be a central focus. Areas of study will include acid rain, wetlands, energy sources, deforestation, landfills, air pollution, endangered species, global warming, world population growth, toxins, and ozone depletion, just to mention a few. Field trips are planned, as well as a number of "get dirty" activities (planting trees, testing water quality, etc.).

UNITS OF INSTRUCTION:

- Unit I - Introduction
 - A. The environment and its issues
 - B. Scientific v. psychological (emotional) impact
 - C. Ethics, economics & political
 - D. Development of a personal environmental philosophy
- Unit II - Ecological Niches (lab work): World regions, Bio-region, Macro & Micro
- Unit III - Water (lab work): Water Cycle, Pollution, Flood Control, Treatment Plants
- Unit IV - Energy (lab work): Traditional Sources, Conservation, Alternatives
- Unit V - Land Usage/Natural Habitat (lab work): Deforestation, Landfills, Habitat and the food chain, Soil Analysis, Farm Land, "Public Domain"
- Unit VI - Air (lab work): Smog, Transportation, Ozone, Air Analysis and Quality
- Unit VII - Biological (lab work): Population Growth, Endangered Species, Declining Numbers, Environmental Conditions
- Unit VIII - Course Summary
 - A. Development of a personal environmental philosophy
 - B. Development of an "environmentally friendly" house

STUDENT OUTCOMES:

1.	To address the issues involved with environmental concerns by integrating science, social studies, and communication techniques. (11A)
2.	To develop a personal environmental philosophy based on a solid intellectual foundation. (11A)
3.	To understand the complexities and interdependencies of ecological systems ranging from microscopic to macroscopic. (12B)
4.	To practice research methods, scientific reporting, and persuasive argumentation as they apply to real, practical, and personal environmental issues. (13B)
5.	To promote the ideas of environmental and civic responsibility through reaching an understanding of ecology and the workings of the political/economic system. (14D, 15C, 16B, 16C, 16E)
6.	To become aware of the responsibility "mankind" has as a planetary caretaker and the impact that individual lifestyles have upon the earth and its resources. (12B, 15E)
7.	To develop an understanding of how to approach solutions to various environmental problems should one choose to become personally involved. (11A, 11B)
8.	To develop an "environmentally friendly" house by researching available green products as well as planning an energy efficient dwelling. (11B)

? MAJOR LEARNING EXPERIENCES TO ACHIEVE OUTCOMES:

1.	Attend numerous field trips to ecological sites and research areas. Some of these field trips will mean "student participation," i.e. stream monitoring, tree planting, soil testing, etc. Other field trips may deal with nuclear power/research, wildlife habitat restoration, endangered species, water treatment, recycling, etc.
2.	Development of a personal environmental philosophy.
3.	With a group of students, create an "environmentally friendly" house.
4.	Numerous guest speakers will also be sharing their knowledge with the class: representatives from the United States E.P.A., Waste Management, and Itasca Nature Sanctuary, just to mention a few.

TEXT OR PRINCIPLE MATERIALS USED:

No specific text will be used. Readings from primary and secondary sources will be reproduced for individual students.
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(07/06/99)
(03/23/95)