

Introduction to Environmental Science

- I. Environmental Science - the study of the interactions between human beings and the earth's living and nonliving components.

A. Major Environmental Problems

1. Human population growth
2. Excessive and wasteful resource use

- Resource = anything we get from the environment to meet our needs and wants

- Perpetual or Renewable = can be replenished, like solar energy, wind energy, forests, wildlife, soil, water

- Nonrenewable = metals, minerals, fossil fuels. Some can be recycled.

- Four different approaches to resource management:

- a. Exploitation - intensive use for most profit
- b. Preservation - preserve land, do not use at all
- c. Utilitarian - sustained yield to meet human needs

- d. Ecological - maintain or return to the natural relationships that exist
3. Wildlife extinction
4. Habitat destruction
5. Pollution - global climate change

B. Root Causes of our Environmental Problems

1. Emergence of Homo Sapiens

- Hunter Gatherer Societies - 90,000 years of low populations, more in tune with the Earth. Some evidence of extinction.

- The Agricultural Revolution - began ~ 10,000 years ago, large food production, birth of civilization. Increasing population. Guns, germs, and steel.

- Industrial Revolution - 1850's, wood resources greatly depleted, begin use of fossil fuels. densely populated. New technologies lead to widespread environmental degradation.

- The Environmental Revolution - early roots began with conservationists like Emerson, Muir, Thoreau, Leopold. 1960's Rachael Carson's "Silent Spring", 1970's first environmental legislation.

- Easter Island Analogy

C. Solution to our Environmental Crisis = Sustainability and Stewardship

II. Science and Technology

A. Science - the search for knowledge about how the natural world operates. Involves observation, investigation, description, and explanation.

B. The Scientific Method - The formal method of inquiry used to unlock the secrets of nature. Includes observation, data gathering, formulation of theories, experimentation.

C. Technology - the creation of new products and processes to improve the quality of life.

- has created many of our environmental problems, and can help solve them.