



Environmental Education

Everywhere for Everyone

ENVIRONMENTAL EDUCATION

- **ENVIRONMENT** :- Environment is defined as the combination of air, water and land the inter-relationship that exists among themselves and with the human beings, other living organisms and materials.
- **ENVIRONMENTAL SCIENCE** :- It is the branch of science which deals with the study of our environment and its interaction with us.
- **ENVIRONMENTAL EDUCATION** :- It is the process of recognizing values and clarifying concepts in order to develop skills and attitudes necessary to understand and appreciate to inter relatedness among man, his culture and his biophysical surroundings.

- **SCOPE OF ENVIRONMENTAL EDUCATION :-** As the life of all organisms is linked directly or indirectly to the environment, the environmental education becomes important to be utilized in solving the problems faced today by man and other organisms on this planet.

Scope of environmental education can be summarized as follows :-

- i. Environmental pollution and its control;
- ii. Conservation of natural resources;
- iii. Green technologies;
- iv. Ecological study;
- v. Research & development (R & D) in environment;
- vi. Population explosion and its control.

• **IMPORTANCE OF ENVIRONMENTAL EDUCATION :-**

The main importance of environmental education is as follows:

- i. Environmental education is important for the betterment of economy and welfare of human society.
- ii. It helps us in careful handling the issues like pollution menace, over exploitation of natural resources, food security and sustainable development.
- iii. It creates an increased civil sense and an awareness of the economic, political and ecological inter-dependence of the modern world.
- iv. It helps to understand different food chains and the ecological balance in nature.
- v. Environment has been a source of happiness for man and time has come to preserve this happiness for man imparting environment education.

BASICS OF ECOLOGY

- **ECOLOGY** :- Ecology deals with the study of interaction of living organisms with their surroundings.
- **ECOSYSTEM** :- An ecosystem is defined as a natural ecological unit comprising of living organisms and non living environment that interact to form a stable self supporting system.
- **TYPES OF ECOSYSTEM :**
 - (a) Natural Ecosystem
 - i. Terrestrial e.g. desert, forest, grassland etc.
 - ii. Aquatic e.g. river, lake, ocean etc.
 - (b) Artificial Ecosystem
 - i. Terrestrial e.g. crop field, garden etc.
 - ii. Aquatic e.g. aquarium, manmade pond, dam etc.

- **COMPONENTS OF AN ECOSYSTEM :-**

1. Biotic components

- (a) Producers (Autotrophs)

- (b) Consumers (Heterotrophs)

- i. Herbivores (Primary consumers)

- ii. Carnivores (Secondary consumers)

- iii. Omnivores

- (c) Decomposers

2. Abiotic components

- (a) Physical components

- (b) Chemical components

- **FOOD CHAIN :-**The sequence of eating and being eaten in an ecosystem is known as food chain.

- **TYPES OF FOOD CHAIN :-**

1. Grazing food chain

2. Detritus food chain

- **FOOD WEBS** :- Food web is a network of food chains where different types of organisms are connected at different trophic levels, so that there are a number of options of eating and being eaten at each trophic level.
- **BIODIVERSITY** :- Biodiversity can be defined as the variety and variability among living organisms and the ecological complexes in which they occur.
- **LEVELS OF BIODIVERSITY** :-
 1. **Genetic diversity** :- When the genes of a same species show different properties due to new combinations, it is called genetic diversity.
 2. **Species diversity** :- The number of different kinds of organisms found at a particular place.
 3. **Ecosystem diversity** :- The distinctive groups of species that live together in the same geographical area and interact with their physical environment in unique ways.

- **VALUES/BENEFITS/USES OF BIODIVERSITY** :- The main uses of biodiversity are followings:
 1. Consumptive use value
 - i. Food
 - ii. Drugs & medicines
 - iii. Fuel
 2. Productive use values
 3. Social values
 4. Ethical values
 5. Aesthetic values
 6. Option values
- **SUSTAINABLE DEVELOPMENT** :- It may be defined as “meeting the needs of the present without compromising the ability of future generations to meet their own needs.

SOURCES OF POLLUTION

- **ENVIRONMENTAL POLLUTION** :-It can be defined as any undesirable change in the physical, chemical, or biological characteristics of any component of the environment which can cause harmful effects on various forms of life or property.
- **SOURCES/CAUSES OF ENVIRONMENTAL POLLUTION** :-
 1. Natural pollution
 - i. Volcanic eruptions, Sandstorms, Natural forest fire etc.
 - ii. Bacteria, Spores, Cysts, pollens etc.
 2. Man-made or Anthropogenic pollution
 - i. Nuclear explosions, Over-exploitation of natural resources
 - ii. Deforestation, Industrialization & Mining
 - iii. Use of fertilizers and pesticides, Over population etc.

- **POLLUTANTS** :- Pollutants are the materials or factors, which causes adverse effect on the natural quality of any component of the environment.
- **TYPES OF POLLUTION** :- Pollution may be classified under the following heads :
 1. **Air pollution** :- Air pollution may be defined as an atmospheric condition in which certain substances are present in such concentrations which can cause undesirable effects on man and his environment. **E.g.-** Gases, Particulate matter, Radioactive substances etc.
 2. **Water pollution** :- Water pollution may be defined as the addition of some undesirable substances which degrades the physical, chemical or biological quality of water so that it either becomes a health hazard or unfit for use. **E.g.-** Thermal pollution, Industrial effluents, Agrochemical pollutants etc.

- 3. Soil pollution :-** Soil pollution may be defined as the addition of considerable quantities of undesirable substances to the soil, which adversely affect physical, chemical and biological properties of soil and reduces its fertility or productivity.
E.g.- Industrial wastes, Pesticides, Fertilizers and Manures etc.
- 4. Noise pollution :-** Noise pollution may be defined as the undesirable or unpleasant sound that interferes significantly with the comfort, health or welfare of human beings. **E.g.-** Domestic gadgets, Industries, Automobiles, Public address system etc.
- 5. Radioactive pollution :-** Radioactive (nuclear) pollution is a special type of physical pollution of air, soil or water with radioactive materials. **E.g.-** Cosmic rays from outer space , Emissions from radioactive materials from the Earth's crust, nuclear power plants, explosions of nuclear weapons , Mining and refining of plutonium and thorium etc.