

Introduction to Environmental Studies

Introduction:

Environment is a French word meaning surrounding.

All biological and non biological things surrounding an organism is called an environment.

Environment:

It is also defined as the sum of total of water, air and land, interrelationship among themselves and also with the human beings, other living organisms and property.

Environmental Science:

It is the study of environment, it's biotic and abiotic and their inter relationship.

Environmental Engineering:

It is the application of engineering principles to the protection and enhancement of the quality of the environment and to the enhancement and protection of public health and welfare.

Environmental education:

It is the process of educating the people for preserving quality environment.

Types of environment:

1. Natural environment
2. Man made environment

Natural environment:

All natural things, biotic and abiotic are collectively called natural environment.

(e.g) soil, water, tree and air.

Manmade environment:

- Created by man
- Powerful engineering agent
- Man modifies the environment using modern technologies according to his necessity.

Component of environment:

Consist of 3 components

1. Abiotic (or) non living
2. Biotic (or) living
3. Energy component

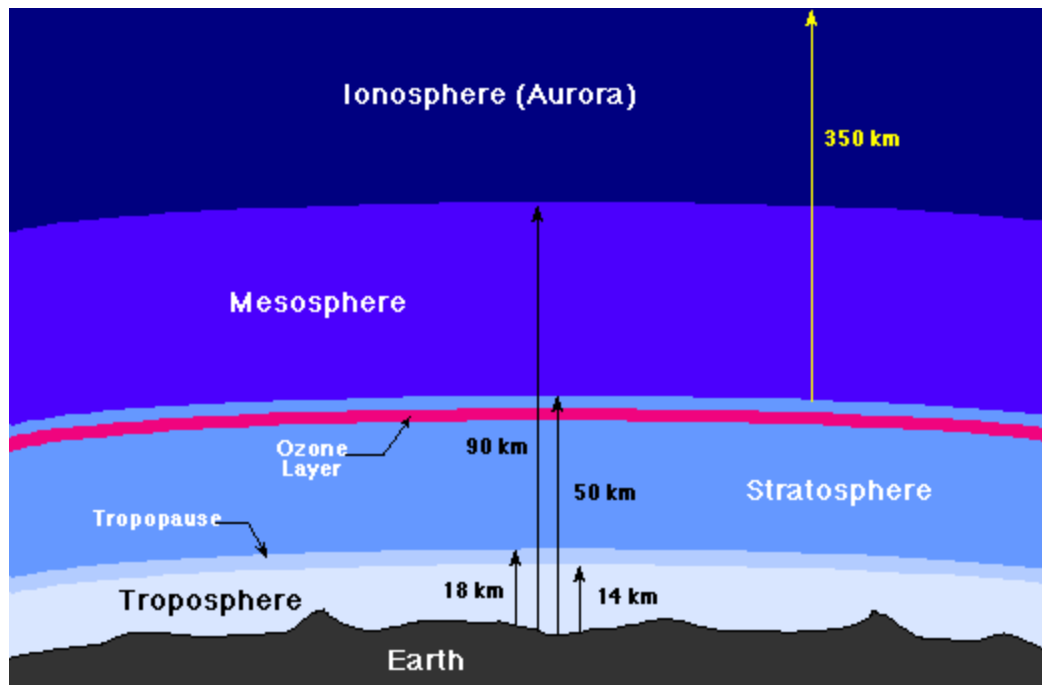
Abiotic component:

3 categories atmosphere, lithosphere, hydrosphere.

Atmosphere:

The air that covers the earth is known as atmosphere. It is 500 km from earth. It is essential for all living organisms. 78% N₂, 21% O₂ and 1% other gases.

Structure of atmosphere:



Region	Altitude in Km	Temperature in °C	Chemical species
Troposphere	0 - 15	15 to -56	N ₂ , H ₂ O, CO ₂ , O ₂
Stratosphere	18 - 50	-56 to -2	Ozone
Mesosphere	50 - 85	-2 to -92	NO ⁺ , O ₂ ⁺
Thermosphere	85 - 500	-92 to 1200	NO ⁺ , O ⁺ , O ₂ ⁺

Troposphere (1 to 15 km)

- 75% atmospheric air
- contain moisture

Stratosphere (18 to 50 km)

- consists of large amount of O₃
- free from moisture and clouds
- prevents UV radiation from sun

Mesosphere (50 to 85 km)

- less ozone
- more nitrogen oxide

Function of atmosphere:

1. It maintains heat balance on the earth by absorbing the IR radiations.
2. Gases present in atmosphere are essential for sustaining life.

Oxygen – supports life

Carbon dioxide – essential for photosynthesis of plants

Nitrogen – essential nutrient for plant growth.

Lithosphere:

It consists of soil and rock components of earth.

Function:

- Home for human beings and wild life.
- Store house of minerals and organic matter.

Hydrosphere:

The aquatic envelope of the earth. It includes oceans, lakes, streams, river and water vapour. In the hydrosphere 97% of water is not suitable for drinking and only 3% is fresh water.

Functions of hydrosphere:

- Drinking purpose
- Irrigation
- Power production
- Industries and transport

Biotic or living component:

(e.g) Animals, plants and micro organisms.

Biosphere:

Interaction of biological environment with physical environment is called biosphere.

Energy component:

Flow energy across biotic and abiotic components. It plays an important role in living organisms. (e.g) solar energy, nuclear energy, geo thermal energy etc.