

Natural Resources

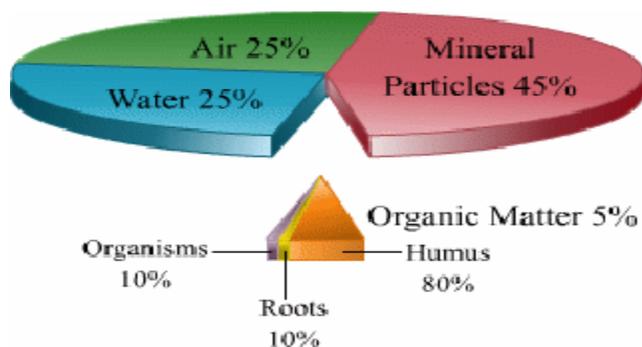
- **Atmosphere** : It is the multi-layered gaseous envelope surrounding the earth.
- **Layers of atmosphere** : Troposphere, stratosphere, mesosphere, thermosphere (or ionosphere) and exosphere
- **Role of the atmosphere**
 - It acts like a blanket, thus covering the earth.
 - It absorbs heat from sunlight, thus keeping the average temperature of the earth steady.
- **Wind** – It is caused by the uneven distribution of heat over the Earth’s surface.
- **Formation of Wind**
 - Wind is formed as a result of the differential heating of the atmosphere.
 - During the day, wind blows from sea to land. This is known as **sea breeze**.
 - During the night, wind blows from land to sea. This is known as **land breeze**.
- **Factors governing movement of air**
 - Wind is formed as a result of the differential heating of the atmosphere.
 - Rotation of the Earth
 - Relief features of the Earth
 - Vapourisation and condensation
 - Uneven heating of land in different regions of the Earth
- **Sources of water:** The common sources of water are ponds, lakes, rivers, wells, and reservoirs.
- **Water cycle:** Water undergoes different processes in the environment and is found in different states during these processes. This cyclic process through which water circulates in the environment is called the **water cycle**.
- **Importance of water**
 - Water is necessary for germination of seeds, transportation of nutrients from soil and food from the leaves to different parts of the plant, in preparation of food through photosynthesis.
 - Aquatic animals and plants get their nutrients as well as oxygen supply from the water. These substances are present in water in dissolved form.

- Water is used for many other purposes such as in cooking, cleaning, industrial work, running hydroelectric and thermal electric power plants. Sea water is also used as a medium of transportation.
- A solution has two components, namely the solvent and the solute.
- **Solvent** is that part of the solution in which the other component is dissolved. In other words, solvent is that component of a mixture that is present in large amounts.
- **Solute** is that part of the solution that is dissolved in the solution. This is present in a lesser quantity as compared to the solvent. Also, more than one solute can be present in a solution.
- **Properties of a solution**
 - It is a homogeneous mixture of solutes and solvents
 - The solute particles in a solution are extremely small in size. They are less than 1 nm (10^{-9} m) in diameter.
 - Solute particles are not visible to the naked eye.
 - As a result of the small size of the solute particles, a solution does not scatter light.
 - Solute particles being small in size get dissolved in the solvent. Hence, the solute cannot be separated from the solution by filtration.
 - Solute particles do not settle down when left undisturbed.
 - The addition of harmful substances to water which causes its physical, chemical and biological properties to change is called **water pollution**.

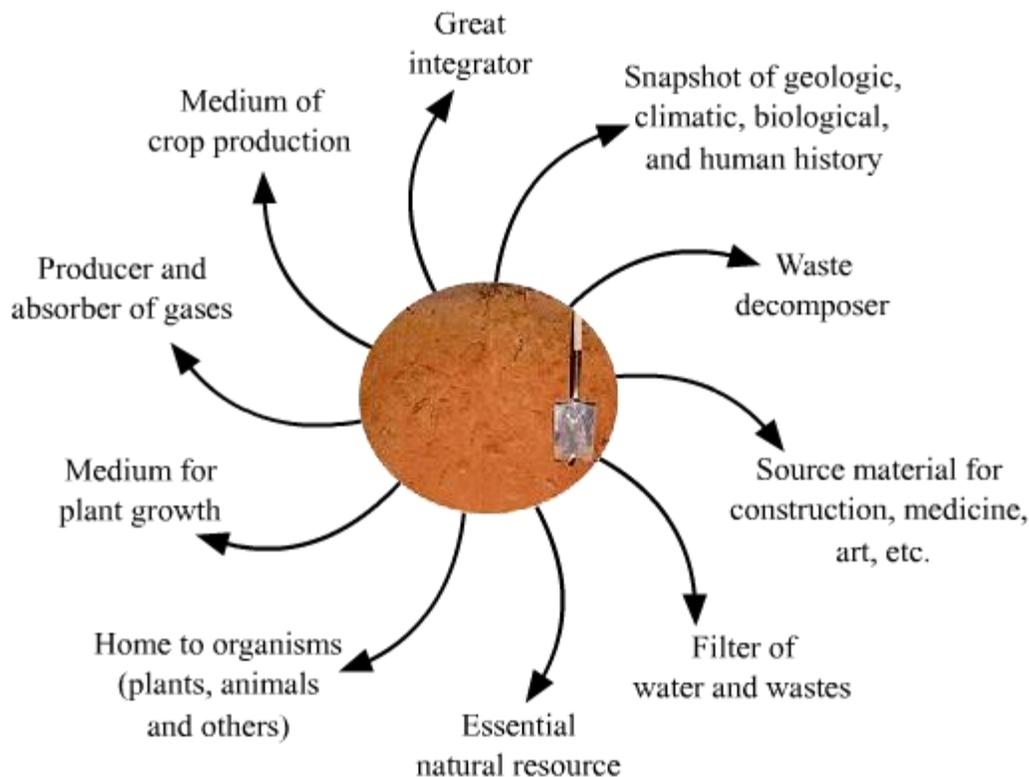
- **Uses of Water**

Water is used for many purposes like drinking, washing clothes and utensils, generating electricity, bathing, irrigation etc.

- Soil is the layer of earth that results from the degradation of the basement rock— also known as bedrock—due to certain physical, chemical and biological processes. The quality of a soil is influenced by the microscopic organisms found in it.



- **Components of soil:**
 - Small particles of rock
 - Humus
 - Microscopic life
 - Nutrients
- **Factors influencing formation of soil:**
- **Importance of soil:**



- **Soil Erosion** - The removal of the top layer of soil
- **Soil Pollution** - The introduction of the substances like toxic compounds, chemicals, salts, radioactive materials in the soil
- **Prevention of soil erosion:**
 - Parent material
 - Climate
 - Topography
 - Organisms
 - Time
 - Afforestation

- Terrace farming
- Proper irrigation techniques
- Construction of proper embankments

- **Air pollution**

- A change in the quality of air brought about by the addition of harmful substances, either by humans or by environmental processes, is termed as air pollution.
- The important sources of air pollution are burning of fossil fuels, burning of wood; automobile exhaust, combustion, refrigerants such as Freon, aerosol sprays etc.

- **Water Pollution**

- A change in the quality of water brought about by the addition of harmful substances by humans is termed as water pollution.
- Important factors that pollute water are fertilisers and insecticides, sewage from towns and cities, waste from factories/industries.
- A change in the temperature of water is also a form of pollution.

- **Greenhouse effect**

- Trapping of heat by gases (CO_2) in the atmosphere.
- Gases that cause the greenhouse effect are responsible for increasing the temperature of the Earth and thus contributing to the phenomenon called **global warming**.

- **Causes of Green house effect**

- A part of solar radiations cause warming of the earth's surface.
- A part of solar radiation is reflected back, which is trapped by the earth's atmosphere. This phenomenon is called green house effect.

- **Green house gases**

- These are the gases, which trap the solar radiations, and in this way, are responsible for the increase in the temperature of Earth.
- The examples include carbon dioxide, methane, nitrous oxide, and water vapours.

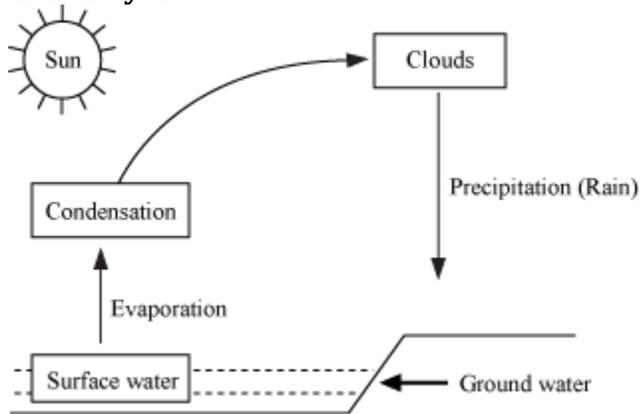
- **Global warming**

- The CO_2 level in atmosphere is increasing due to various human activities such as deforestation and burning of fossil fuels.
- Build up of CO_2 in the atmosphere will result in a rise in the average temperature of earth's atmosphere, leading to global warming.
- Global warming will lead to melting of glaciers and increase in the sea level.

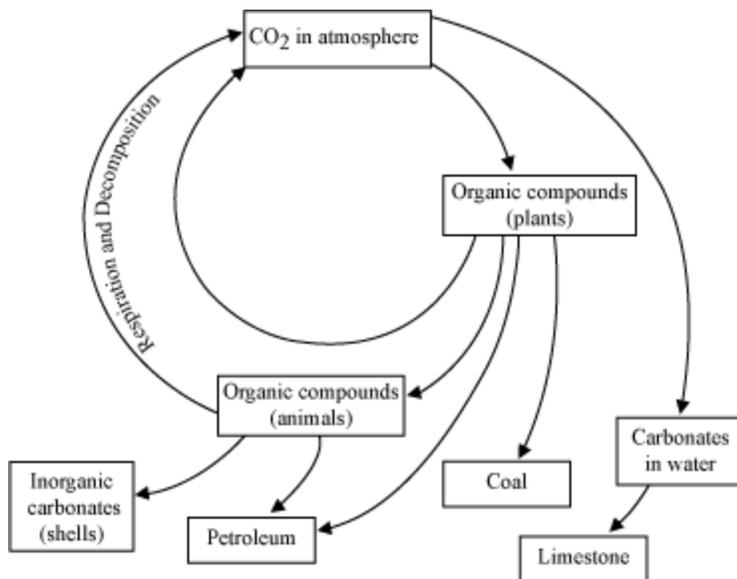
- **Ozone layer**

- Ozone (O_3) is a form of oxygen and is more stable than the two-atom oxygen (O_2).
- The ozone layer protects and prevents these ultraviolet radiations from reaching the Earth's surface.
- The pollutants that are responsible for depleting the ozone layer are gases such as chlorine and fluorine.
- As a result of ozone depletion, a hole has developed in the ozone layer over Antarctica and its size has been steadily increasing over the years.

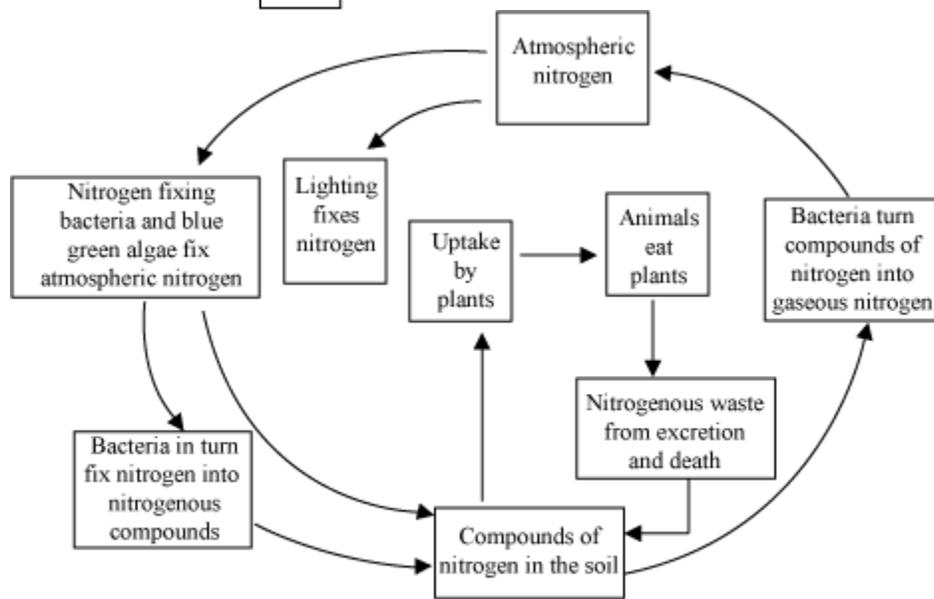
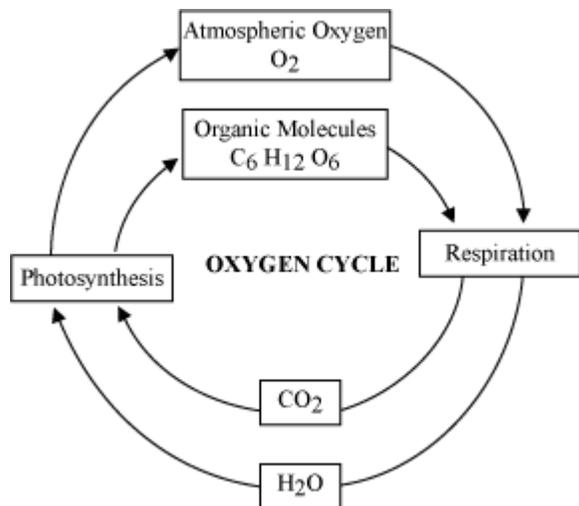
- **Water Cycle**



- **Carbon cycle**



- **Oxygen cycle**



Nitrogen cycle