

Learning Objectives

After completing this lesson, students will be able to

- relate different aspects of environmental science.
- describe biogeochemical cycles.
- analyse the impacts of human activities on water cycle, nitrogen cycle and carbon cycle.
- correlate the adaptations of plants with the habitat.
- explain the adaptations of bat and earthworm.
- explain recycling of water its methods and importance .
- discuss the importance of water conservation and water recycling methods.



Introduction

“Nature has the power to refresh and renew”
- Helen Keller

Elements of nature continuously undergo changes and transformations. Environmental protection provides holistic knowledge about natural processes, effects of human intervention and solutions to overcome environmental problems. Environmental issues such as pollution, global warming, ozone layer depletion, acid rain, deforestation, landslide, drought and desertification have gained major focus across the world. Natural resources are recycled over and over again on earth for continued availability. At the same time, it also reminds us of our responsibility to reduce and restrain our activities that will affect the natural processes.

Living organisms adjust themselves according to their habitat and changes in the ecosystem. All living organisms develop certain morphological, anatomical, physiological and reproductive adaptations which help them to survive better and to withstand environmental conditions.

This lesson deals with bio-geo-chemical cycles, adaptations by the plants and animals, water conservation and recycling of water.

24.1 Biogeochemical Cycles (bio – life; geo – earth)

Biosphere is the part of the earth where life exists. All resources of biosphere can be grouped into two major categories namely:

- (i) Biotic or living factors which include plants, animals and all other living organisms.
- (ii) Abiotic or non-living factors which include all factors like temperature, pressure, water, soil, air and sunlight which affect the ability of organisms to survive and reproduce.

There is a constant interaction between biotic and abiotic components in the biosphere and that makes the biosphere a dynamic and stable system. Cyclic flow of nutrients between non-living and living factors of the environment are termed as bio-geo-chemical cycles. Some of the important biogeochemical cycles are:

1. Water cycle 2. Nitrogen cycle 3. Carbon cycle