

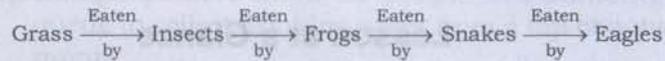
Lesson at a Glance

- **Forest:** A biotic community spread over a large area chiefly dominated by trees, woody shrubs and herbs that provide shelter, breeding place and food to a large number of animals is known as *forest*. The quality and quantity of plants in a forest varies significantly due to various climatic conditions.

Forests also provide space to various types of micro-organisms. A forest is a self sustaining biotic community showing interdependence of plants, animals and physical factors.

- A forest is a renewable natural resource, if not disturbed by human activities such as deforestation or killing of wildlife.
- **Crown:** The branchy part of a tree above the stem is known as the crown of the tree.
- **Canopy:** The branches of the tall trees of the forest form overhanging covering like a roof over the other plants in the forest. This is called a *canopy*.
- The trees of a forest have crowns of different types and sizes. They cause different horizontal layers in the forest. These are called understoreys:
 - (i) The tall and giant tall trees form the top layer.
 - (ii) The shrubs and tall grasses form the second understorey.
 - (iii) Various types of herbs form the lowest layer.
 - (iv) The forest floor remains covered with a layer of dead and decaying leaves, fruits, twigs, seeds and small herbs. This decaying matter is moist and warm.
- The green plants (autotrophs) produce food and release oxygen during photosynthesis. All other organisms whether herbivores or carnivores depend ultimately on plants for food.

- **Food chain:** Organisms which feed on plants (herbivores) often get eaten by other organisms and so on. Thus, a chain is formed in which a series of organisms each dependent on the next as a source of food, is called a *food chain*. For example,



Each food chain begins with green plants (producers).

- **Food Web:** No food chain exists in isolation. Several food chains get interconnected and form a web called *food web*.
- **Humus:** Micro-organisms feed upon the dead plants and animal tissues and convert them into a dark coloured substance called *humus*.
- **Decomposers:** The micro-organisms which convert the dead plant parts and animal tissues to humus are called *decomposers*. Decomposers release simple and usable nutrients by decomposing complex dead plants and animals. From humus the nutrients enter into the soil, from the soil these are absorbed by the roots of plants.
- **Forests are called green lungs** because plants release oxygen during photosynthesis. The plants keep balance of carbon dioxide (CO_2) and oxygen (O_2) in the atmosphere.
- The forest is a '**dynamic living entity**', full of life and vitality. That is because the forest harbours variety of plants, thus providing greater opportunities for food and habitat for the herbivores. Larger number of herbivores means increased availability of food for a variety of carnivorous animals.

Decomposers help in maintaining the supply of nutrients to the growing plants in the forest.

Greater biodiversity of organisms helps the forest to regenerate and grow.

- The forest keeps on growing, changing and regenerating. There is interaction between soil, water, air and living organisms.
- Soil helps the forest to grow and regenerate. Forests protect the soil and avoid soil erosion.

- **Soil erosion:** Washing away of the top fertile layer of soil by water or wind is called *soil erosion*.
- **Regeneration:** Replacement of old and dead organisms by new ones is called regeneration.
- Many people and different tribal communities live in the forests.
- Forests influence climate, water cycle, and air quality.
- Forests provide timber, bamboo, medicines, fruits, gum and many other useful things.
- **Deforestation:** Destruction of the forests by cutting down the forest trees is called *deforestation*. Deforestation may lead to floods, global warming, danger to environment and our life.

TEXTBOOK QUESTIONS SOLVED

- Q.1.** Explain how animals dwelling in the forest help it grow and regenerate.
- Ans.** Animals help in growing and regenerating forests in many ways. Animals work as the cleaning agents in the forest. Microorganisms work on dead bodies of plants and animals and degenerate them. Animals also help in pollination which helps in growing a number of plants. Herbivores helps the carnivores to grow as they serve as food for them. Thus flora and fauna mutually grow in the forest.
- Q.2.** Explain how forests prevent floods.
- Ans.** Forests can absorb a lot of water. The roots of the trees absorb the water and prevent it from flowing away. Roots of trees also help in percolation of water into the soil. This helps in preventing floods.
- Q.3.** What are decomposers? Name any two of them. What do they do in the forest?
- Ans.** Decomposers are the organisms which feed on the dead bodies of plants and animals. They clean the forests decaying dead bodies and replenishing the nutrients back to the forest soil, e.g., beetles and grubs.
- Q.4.** Explain the role of forest in maintaining the balance between oxygen and carbon dioxide in the atmosphere.

Ans. Plants release oxygen in the atmosphere during the process of photosynthesis. This oxygen is inhaled by the animals for respiration. During respiration, they release carbon-dioxide which is absorbed by plants. In this way the oxygen and carbon dioxide cycle goes on. Since forests contain a large number of plants, they help much in this cycle and maintain balance in nature.

Q.5. Explain why there is no waste in a forest.

Ans. There is no waste in the forest because decomposers convert all the dead bodies of the plants and animals into the humus which gets added to the soil. Thus, no waste remains.

Q.6. List five products we get from forests.

- Ans.**
- We get medicines from forests.
 - We get gum from forests.
 - We get wood which is used for many purposes like making furniture, paper etc.
 - We get food for animals from forests.
 - We get sealing wax from forests.

Q.7. Fill in the blank:

- The insects, butterflies, honeybees and birds help flowering plants in _____.
- A forest is a purifier of _____ and _____.
- Herbs form the _____ layer in the forest.
- The decaying leaves and animal droppings in a forest enrich the _____.

Ans. (a) pollination (b) water, air (c) lowest (d) soil as humus.

Q.8. Why should we worry about the conditions and issues related to forests far from us?

Ans. We should be worried about deforestation as it would lead to floods, increase in earth's temperature, decreasing animals habitats and soil erosion. Damage to forests directly or indirectly affects human habitat and environment so it must be a matter of concern among us.

Q.9. Explain why there is a need of variety of animals and plants in a forest.

Ans. All plants and animals sustain the forest life and also $\text{CO}_2 - \text{O}_2$ cycle goes on due to animals and plants. Animals convert the dead and decaying matters into

humus and increase the fertility of soil, thus enhancing plant growth. All food chains and food webs need variety of plants and animals.

Q.10. In fig. 17.15 the artist has forgotten to put the labels and directions on the arrows. Mark the directions on the arrows and label the diagram using the following labels: clouds, rain, atmosphere, carbon dioxide, oxygen, plants, animals, soil, roots, water table.

- There are three types of arrow. White carbon dioxide, black of rain and reddish of oxygen.

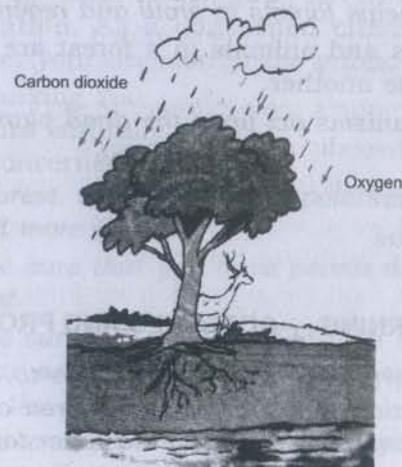


Fig. 17.1

Ans.

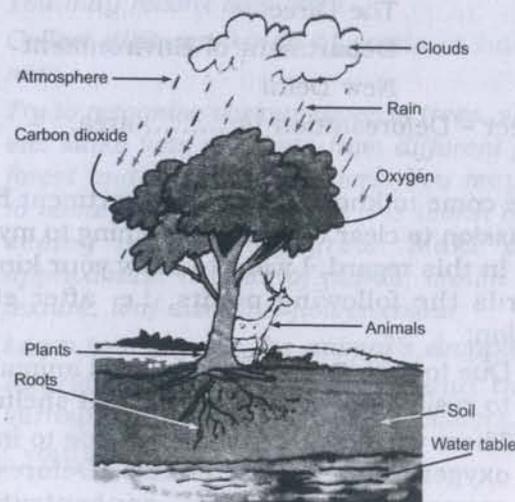


Fig. 17.2

Q.11. Which of the following is not a forest product?

- (i) Gum (ii) Plywood
(iii) Sealing wax (iv) Kerosene

Ans. (iv) Kerosene

Q.12. Which of the following statements is not correct?

- (i) Forests protect the soil from erosion.
(ii) Plants and animals in a forest are not dependent on one another.
(iii) Forests influence the climate and water cycle.
(iv) Soil helps forests to grow and regenerate.

Ans. (ii) Plants and animals in a forest are not dependent on one another.

Q.13. Micro-organisms act upon the dead plants to produce

- (i) sand (ii) mushrooms
(iii) humus (iv) wood

Ans. (iii) Humus

EXTENDED LEARNING — ACTIVITIES AND PROJECTS

Q.1. The Department of Environment is to decide whether some portion of a forest in your area could be cleared for a housing complex. Write a letter to the department explaining your point of view as a concerned citizen.

Ans. To,

The Director
Department of Environment
New Delhi

Subject - Deforestation in area.

Sir,

I have come to know that your department has granted permission to clear the forest adjoining to my residential area. In this regard, I want to draw your kind attention towards the following points, i.e. after effects your decision:

- (i) Due to destruction of forest, wild animals will move to residential areas for food and shelter.
(ii) There will be climatic change due to imbalance in oxygen and carbon dioxide. Deforestation will cause increase in CO₂ concentration in the

atmosphere resulting in green house effect and increase in temperature.

- (iii) People living in neighbourhood who live on forest products will suffer.
(iv) Loss of trees and other vegetation may cause soil erosion.
(v) In absence of trees the soil will not hold water which will cause flood.

Aforesaid are some of the points which may cause danger to our lives and environment due to deforestation. As a concerned citizen, I request to reconsider your decision in the public interest.

Thanking You
Yours faithfully
A concerned citizen

Q.2. Visit a forest. Here is a list of points that would make your visit more fruitful.

- (a) Make sure that you have permission to go into the forest.
(b) Make sure that you can find your way around. Get a map and go along with some one who is familiar with the area.
(c) Keep a record of the things you see and do. Observations make the visit interesting. Sketches and photographs are useful.
(d) You may record bird calls.
(e) Collect different kinds of seeds or hard fruits like nuts.
(f) Try to recognise various types of trees, shrubs, herbs, etc. Make lists of plants from different places in the forest and of different layers. You may not be able to name all the plants, but it is worth recording and seeing where they grow. Make a record of approximate heights of plants, crown shape, bark texture, leaf size and flower colour.
(g) Learn to recognise the animal's droppings.
(h) Interview the forest officials and the people of surrounding villages and other visitors.

Ans. Do it yourself.