Chapter 17

Forests: Our Lifeline

Importance of Forest

• Forests serve as green lungs and water purifying systems in nature. Trees in the forests are the source of oxygen in the atmosphere.

• The forests act as a purifier of air by absorbing CO_2 and releasing O_2 and also maintain the balance between O_2 and CO_2 in the atmosphere.

• It also acts as a purifier of water because tress in the forest absorb water from the soil (impure) through their roots and release it into the air by the process of transpiration which increases the amount of water vapour in the air, helps in cloud formation and rainfall (pure water).

• Forests play an important role in water cycle operation on the Earth.

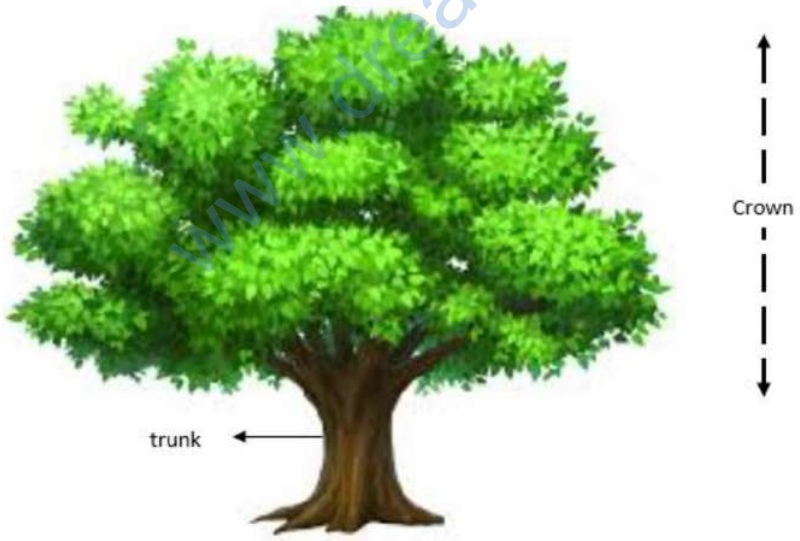
Importance of Forest

- Forests provide food and shelter to wild animals and birds
- Forests provide us many useful products such as: wood, honey, wax, fruits, spices, natural rubber, medicinal plants.
- Forests maintain the balance between carbon dioxide and oxygen in the atmosphere.
- Forests help in maintaining water cycle in nature.
- Forests keep the climate cool.
- It prevents occurrence of flood.

Layers of Vegetation in a Forest

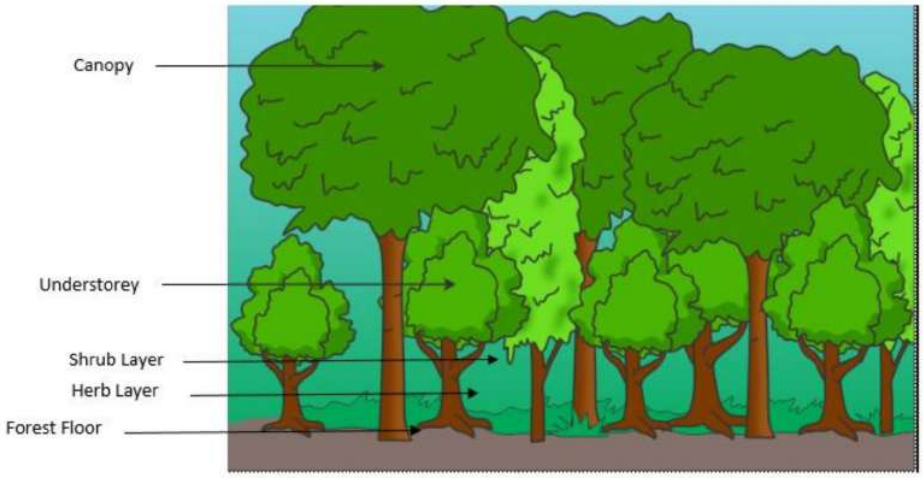
♦ Crown of the tree:

The branchy part of the tree above the stem is known as the crown of the tree. The crown includes the top part of a tree which has all the branches and leaves of the tree.



Crown

♦ Layers of Vegetation in a forest:



Various layers of vegetation in forest

A forest consists of different horizontal layers of vegetation (trees and plants). It is divided into five layers of vegetation based on the living environment.

(a) Canopy:

The topmost branches and leaves of the tall tree which look like a roof over the forest ground are called the canopy.

(b) Understorey:

The layer of vegetation just below the canopy is called understorey. This layer consists of smaller trees and tree saplings. The layer of forest receives less sunlight.

(c) Shrub layer:

This layer is just below the understorey. It consists of mature shrubs and bushes.

(d) Herb layer:

This layer is just below the shrub layer and it consists of herbs, ferns, and grasses.

(e) Forest floor:

The ground surface of the forest is called the forest floor. It consists of small leafless plants such as mosses, liverworts, lichens, insects, and worms. Animals like tigers, lions, elephants, bears, dear. etc. along with decomposers (bacteria and fungi) live on the forest floor.

Recycling of nutrients in the forest

• Whatever is produced in the forest is utilized by different components of the forest and is naturally recycled.

• Herbivores eat plants. Carnivores eat herbivores. Omnivores eat both plants and animals.

• When plants and animals die, their dead remains are decomposed by microorganisms (bacteria and fungi) into nutrients, which are released back into the soil.

• These nutrients are absorbed by the roots of living plants. This is called as recycling of nutrients due to which nothing goes to waste in a forest.

♦ Humus:

• The dark coloured substance formed by the action of micro-organisms on dead plants and animal tissues is called humus.

• Humus is rich in nutrients.

• Humus mix with the soil in the forest and the nutrients present in it is used for the growth of plants.

♦ Decomposers:

• The micro-organisms which convert the dead plants and animals to humus are known as decomposers.

• Decomposers are bacteria and fungi.

• The decomposers break down dead leaves, branches, dead animals and animal waste to form humus which contains the nutrients.

• This humus is used by the plants for their growth. In this way, decomposers help in maintaining the supply of nutrients to the trees and other plants in the forest.

Deforestation

• The destruction of forests on large scale is called deforestation.

• The consequences of deforestation are:

1. The amount of carbon dioxide in the air will increase.

2. Animals will not get food and shelter.

3. Water holding capacity of soil will decrease which will result in floods.

4. There will be less rainfall.