Adaptation In Plants

Plant Adaptations for Class 4 Science

From this concept, the students will get an idea about plant adaptations in different habitats.

After reading the concept, students will be able to:

- Explain the difference between desert plant adaptations and adaptation in aquatic plants.
- Explain prairie grassland and its features.
- Understand what is prop root and why they are present in some plants.
- Know that pneumatophores occur in mangrove plants.
- Explain what are epiphytes.
- Explain the adaptive features of tundra plants.

Each concept is explained to class 4 students using descriptions, illustrations, and concept maps. After you go through a concept, assess your learning by solving the two printable worksheets given at the end of the page.

Download the worksheets and check your answers with the worksheet solutions for the concept of the Plant Adaptations provided in PDF format.

What is Adaptation?

It is the physical or behavioural feature of a plant that enables it to survive better in its habitat.

Why Is Adaptation Needed in Plants?

All plants require adaptation as they live and grow in different habitats. Some plants grow in water, some on the land, some in saline soil, some in sandy soil and many more. Adaptation makes their survival easier in their surroundings.

In different habitats, plants show specialized adaptive features that help them survive in that particular surrounding.

Adaptation of Plants in Different Habitats:

1. Desert :

- Some plants have no leaves or small seasonal leaves that grow only after it rains.

- The lack of leaves helps to reduce water loss from the leaf blades.
- Since these plants have fewer leaves, photosynthesis happens in their green stems.
- These plants have long roots that spread over a vast region and grow deeper in the soil to absorb groundwater.
- Spines prevent animals from eating the plant and also reduce water loss.
- The waxy coating on the outer layer of the plant help reduces water loss through the small pores that are present on the leaf blades.

Example: Cactus

2. Grassland/Prairie Grassland:

- Roots of prairie grasses extend deep into the ground to absorb as much moisture as possible and support the plant body.
- Extensive root systems prevent grazing animals from pulling the roots out of the ground.
- Prairie grasses have narrow leaves, and it allows less water loss than broader leaves.

- Grasses grow from the basal parts of the stems, not from their tip.
- Soft stems enable prairie grasses to bend when the wind blows.

Example: Switchgrass.

3. Rainforest :

- Leaves have drip tips and waxy surfaces that allow water to slide down, thereby discouraging the growth of bacteria, fungi and algae.
- The leaves of the trees remain at an angle to receive sunlight for photosynthesis.
- Prop and stilt roots give extra support to the plant body in the shallow soil.
- Some plants climb or grow on other plants, such as mosses and ferns to get the sunlight to perform photosynthesis. These types of plants are called epiphytes.

Example: Rubber Tree.

4. Taiga :

- Plants that grow in taiga habitats have to survive harsh and cold winters; in such regions, most plants have needle-like leaves that help reduce water loss and allow the snow to slide off.
- Mostly coniferous plants grow in this habitat.
- Coniferous trees are conical in shape that helps shed heavy snow and saves branches from breaking.

Example: Juniper.

5. Tundra :

- These plants are low-lying.
- They have a short lifespan.
- The leaves are narrow to prevent water loss.
- The darker leaves assist in the process of photosynthesis by absorbing more sunlight.
- The flowerheads remain clumped together to reduce heat loss.

Example: Bearberry.

6. Water/Aquatic :

- Plants living in water are usually floating plants.
- They mostly remain submerged underwater.
- Some plants bear leaves that float on the water's surface, exposing themselves to the sunlight.
- Underwater leaves and stems are flexible to move along with the water currents.

Example: Water lily.

7. Coastal Regions:

- Coastal regions are always flooded with tidal water, and saline soil is seen in such areas.
- Mangrove vegetation grows in coastal regions, and they have special features to survive in the wet saline soil.
- These plants are salt-tolerant.
- They have a tangled network of stilt roots that support the plants and absorb nutrients from the upper layers of soil.

Example: Hetal Tree.

New Words :

Habitat : The natural home of a plant or an animal.

Prairie : A plain land covered with grasses without many trees.

Rainforest : A dense forest in an area receiving a high amount of rainfall.

Prop and stilt roots : Prop roots are those that spread from branches of trees and come downwards. Stilt roots are those that develop from the base of stems.

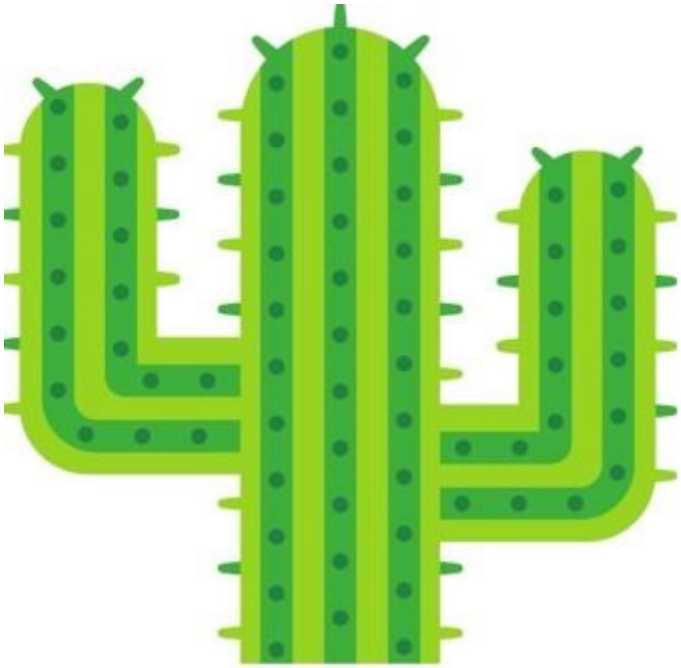
Epiphytes : Plants that grow on other plants, like orchids.

Taiga : A type of forest in the northern regions of the Earth.

Tundra : A very cold and frozen region in the Arctic where there is a short period of the growing season.

Did You Know?

In mangrove plants, we can see a unique root system called the pneumatophores. These types of roots grow above the soil and help in gaseous exchange.



The spines of the cactus plants protect them from herbivorous desert animals.

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