# Habitat and Adaptation

The surrounding where living organisms survive is known as habitat.

The organisms depend on their habitat for their food, water, air, shelter and other needs.
Habitat means a dwelling place (a home).

Several kinds of plants and animals may share the same habitat.

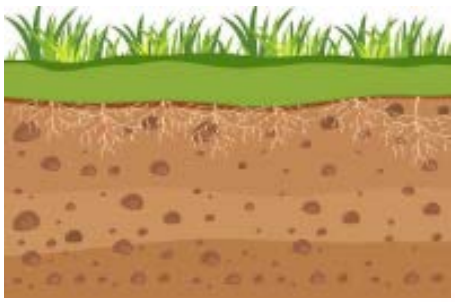
## Biotic components

The living components of a habitat are called biotic components.
Eg: plants, animals

## Abiotic Components

The non-living components of a habitat are called as abiotic components.

E.g.: rocks, soil, air, water etc.



# Habitat and Adaptation

## ☞ Terrestrial Habitats

The plants and animals that live on land are said to live in terrestrial habitats.

E.g.: forests, grasslands, deserts, coastal and mountain regions.

## ☞ Aquatic Habitats

The habitats of plants and animals that live in water are called aquatic habitats.

E.g.: ponds, swamps, lakes, rivers and oceans.

Aquatic habitats could be fresh water (river, pond) or marine (sea) or even estuarine (delta of river meeting with the sea)

# Habitat and Adaptation

The presence of specific features or certain habits, which enable a plant or an animal to live in its surroundings, is called adaptation.

Adaptation is defined as the process where a species or an organism gradually becomes better acclimated to its environment."

Different animals are adapted to their surroundings in different ways.

Eg: Fish have slippery scales on their bodies.

These scales protect the fish and also help in easy movement through water.

Surroundings

The different surroundings or areas have different organisms that live in.

E.g.: The deserts have camels, the mountains have goats and yak.

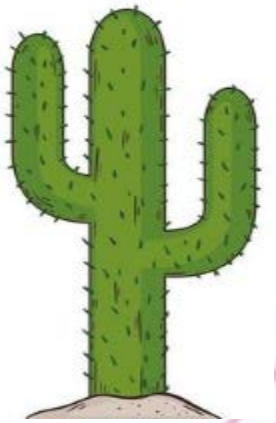
## Adaptation in Desert Plants and Animals

### Cactus

It is the most common plant found in the desert. A cactus has the following adaptations to survive in the hot and dry environment of a desert:

• The cactus plant has long roots to absorb water from a larger area.

The leaves of the cactus plant are modified in the form of spines to prevent water loss through transpiration.



Stem of the cactus plant is modified to perform photosynthesis and store water.

The stem of the cactus plant is covered with a thick waxy layer which prevents the loss of water from it through evaporation.

# Habitat and Adaptation

## Camels

Camels have long legs which help to keep their bodies away from the heat of the sand.

They can live without water for many days.

• The hump of camel stores fat so that they can live without food for many days.

Camel can close its nostrils during a dust storm.

They have long thick eyelashes which protect them from the sand.

Some other desert animals like rats and snakes does not have long legs like camels. So they live in deep burrows during the hot daytime. They come out of the burrows during cool night in search of food.

## Adaptation in Plants and Animals of Mountain Region

### Adaptation in Plants

Trees in mountain habitats are cone-shaped and have sloping branches. This shape of the trees makes the rainwater and snow slide off easily without damaging the branches and leaves. The leaves of the trees are needle-like, so that the snow and rainwater slide off easily.

# Habitat and Adaptation

## Adaptation in Animals

The animals in the mountain habitat are adapted to survive in extremely cold environments. The most common adaptations found in all animals living in mountains are they have thick skin or fur on their body to protect them from a cold environment by keeping them warm.

### 1. Adaptation in Mountain Goat

They have long hair to protect them from cold and keep them warm.

They have strong hooves (hard and rough feet of an animal) for running up the rocky slopes of mountains for grazing.

They have long hair to protect them from cold and keep them warm.

### 2. Adaptation in Snow Leopard

They have thick skin and fur on their body, feet, and toes. It protects them from cold and keeps their body warm.

They have a thick layer of fat under their skin which acts as an insulator.

# Habitat and Adaptation

## Adaptation in Plants and Animals of Grassland

### 1. Adaptation in Lion

They have long, strong and sharp claws in the front legs to catch their prey. The lion withdraws the claws inside the toes during walking.

The light brown colour of the lion helps them to hide in dry grasslands when they hunt for prey.

The lions have eyes in front of its head which allows them to have a correct idea of the location of their prey.

### 2. Adaptation in Deer

Deer has strong teeth for chewing hard stems of plants in the forest.

Deer has long ears for good hearing.

Deer has eyes on the side of its head which allows them to look in all directions for danger.

Deer has long legs which help them to run very fast to escape from their predators.

Deer has a brown color which helps them to hide in dry grassland.

# Habitat and Adaptation

## ☞ Adaptation in Plants and Animals of Aquatic Habitat

## Adaptation in Aquatic Animals:

### 1. Adaptation in Fish

They have a streamlined body which helps them to move easily in water.

• They have special organs called gills to breathe in water.

They have slippery scales on their bodies which protect their body and help in easy movement through the water.

They have flat fins which help them to keep a balance of their body.

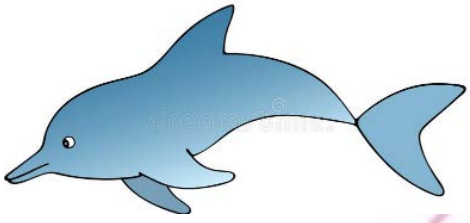
Tail helps in changing the direction.

### 2. Adaptation in Dolphins and Whales

Dolphins and whales breathe in air through nostrils (blowholes) which are located on the upper part of their heads. This allows them to breathe in the air when they swim near the surface of the water.

They can stay inside the water for a long time without breathing.

They come out to the surface from time to time, to breathe in air.



# Habitat and Adaptation

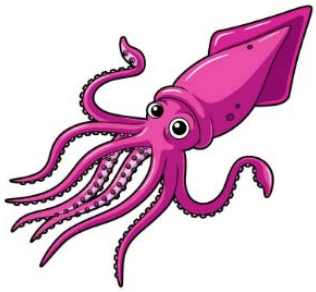
## 3. Adaptation in Frogs

Frogs are adapted to live in water and as well as on land because they have gills to breathe in water and lungs to breathe on land.

Frog spends most of their time on land but come back to the water to lay their eggs.
Frogs have webbed feet which help them to swim in the water.

## 4. Adaptation in Squids and Octopus

Squids and Octopus do not have streamlined bodies.



They stay deeper in the ocean, near the seabed, and catch any prey that moves towards them.

## Adaptation in Aquatic Plants

Short and small roots are the adaptation of aquatic habitat. The main function of the root is to hold the plant in place.

Stems are long, hollow, and light.

Leaves of submerged plants are narrow and thin which allows water to pass through them easily.