



THE LIVING ORGANISMS — CHARACTERISTICS AND HABITATS

INTRODUCTION TO ORGANISMS

- Different types of living creatures that live in different regions of the world are called **Organisms**.
- Everything around us whether living or non-living is called **Environment**.
- Different organisms live in different locations.

Example – Camels live in the desert while goats and yaks are found in mountains.

HABITAT AND ADAPTATION

➤ Habitat:

The place where a plant or an animal lives is called its habitat. Habitat means a dwelling place (a home). A habitat provides air, water, food, shelter and other needs to organisms. Different types of plants and animals live in different habitats.

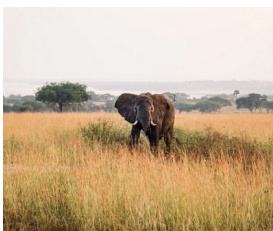
Example – Mountain, grassland, desert, pond, lake, river, ocean, sea etc.

The entire habitat can be divided into two main groups:

A) Terrestrial habitat:

The plant and animals which live on land are said to live in a terrestrial habitat.

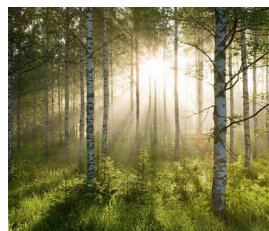
Example -



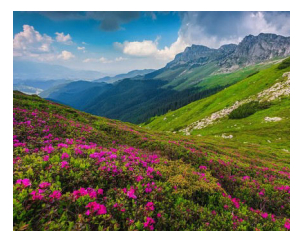
Grasslands



Deserts



Forests



Mountains

B) Aquatic habitat:

The plants and animals which live in water are said to live in an aquatic habitat.
Example- Ponds, rivers, lakes and oceans.



Ponds



Rivers



Lake

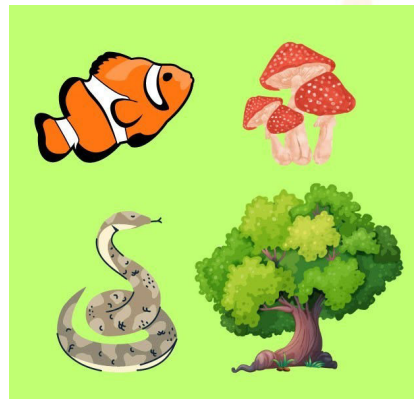


Oceans

Different types of plants and animals live in a habitat. The habitat includes both biotic and abiotic components of environment.

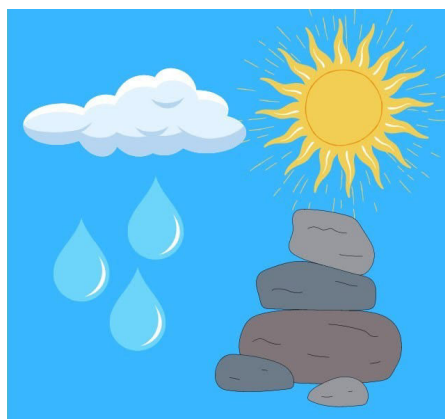
a) Biotic components:

The living things in a habitat like plants and animals are its biotic (living) components.



b) Abiotic components:

The non-living things like rocks, soil, air, water, sunlight etc. are its abiotic (non-living) components.



ADAPTATION

- Plants and animals develop special characteristics or features in their body in order to survive in their habitat. The presence of special feature which enable a plant or animal to live in a particular habitat is called ***adaptation***.
- Adaptation of organism differs depending on their habitat.

A JOURNEY THROUGH DIFFERENT HABITATS

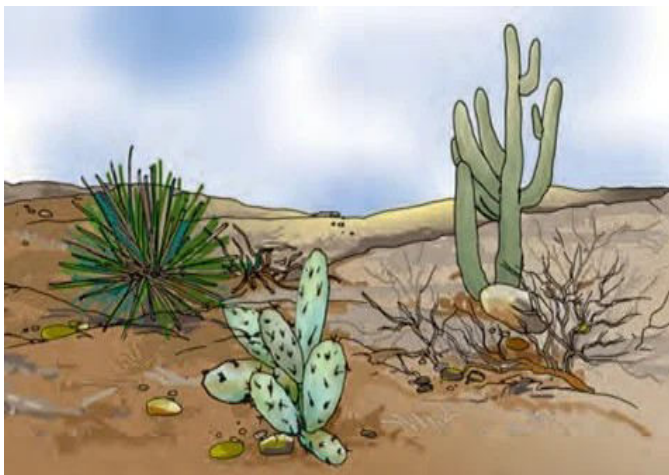
Adaptation of Plants and Animals in DESERT

- CACTUS:

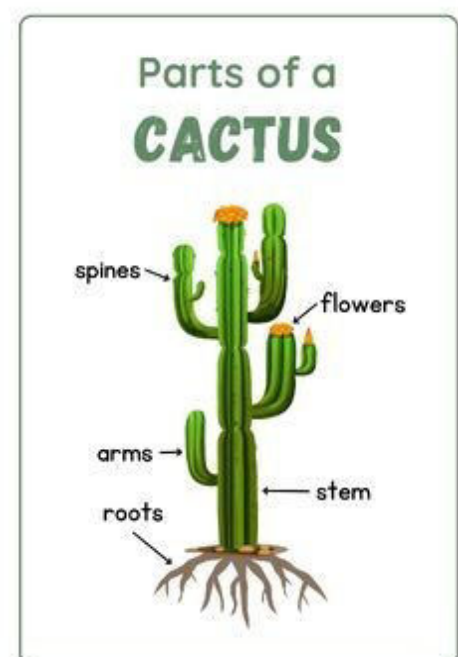
It is most common plant found in desert. A cactus has the following adaptation to survive in the hot and dry environment of a desert:

- ✕ The cactus plant has long roots to absorb water from a large area.
- ✕ The leaves of the cactus plant are modified in the form of spines to prevent water loss through transpiration.
- ✕ Stem of a cactus plant is modified to perform photosynthesis and store water.
- ✕ The stem of cactus plant is covered with a thick waxy layer which prevents the loss of water from it through evaporation.

Same adaptations were done by all plants present in desert to survive in hot and dry environment of desert.

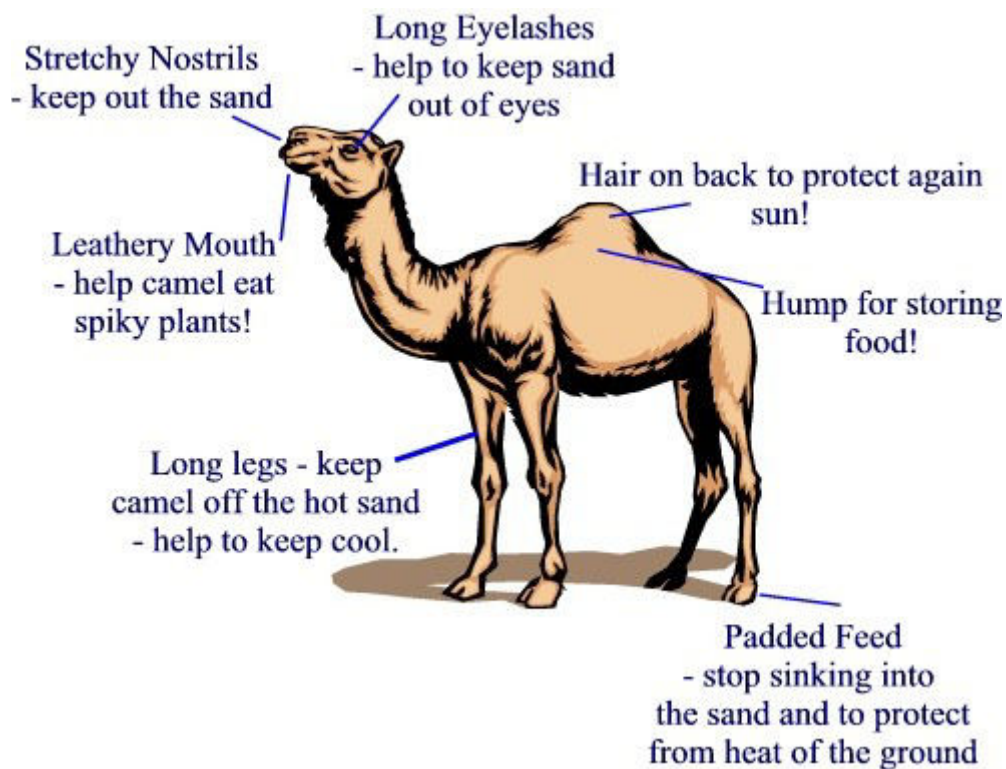


Some typical plants that grow in desert



- CAMELS:

- x Camels have long legs which help them to keep their body away from the heat of sand.
- x They can live without water for many days.
- x The hump of camel stores fat so that they can live without food for many days.
- x Camel can close its nostrils during a dust storm.
- x Camel have leathery mouth that helps them to eat spiky plants.
- x Camels have padded feeds which stop them from sinking in the sand.
- x They have long thick eyelashes which protect them from sand.



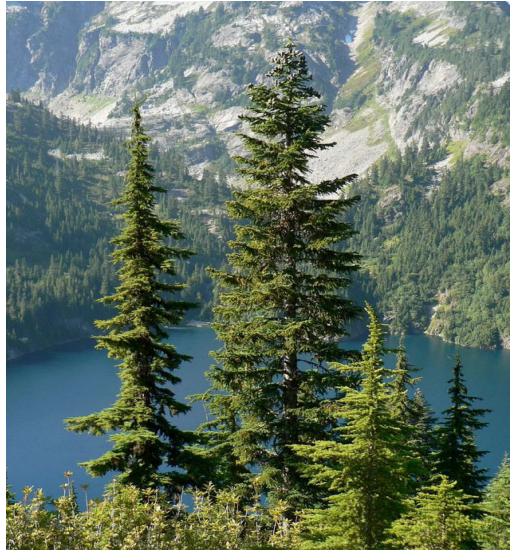
Some other desert animals like rats and snakes does not have long legs like camels, So they live deep burrows during that hot day time. They came out of the burrows during the cool night in search of food.



Adaptation of Plants and Animals in MOUNTAIN REGION

• ADAPTATION IN PLANTS:

- x 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.
- x The leaves of the trees are needle-like, so that the snow and rainwater slide off easily.



• ADAPTATION IN ANIMALS:

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

As we go up in the mountainous regions, the surroundings change and we see different kinds of adaptations at different heights.

A) Adaptation in mountain goat:

- x They have long hair to protect them from cold and keep them warm.
- x They have strong hooves (hard and rough feet of an animal) for running up the rocky slopes of mountains for grazing.



B) 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.



Adaptation of Plants and Animals in GRASSLAND

A) Adaptation in Lion:

- ✕ They have long, strong and sharp claws in the front legs to catch their prey. The lion withdraws the claws inside their toes during walking.
- ✕ The light brown colour of lion helps them to hide in dry grasslands when they hunt for prey.
- ✕ The lions have eyes in the front of the head which allows them to have a correct idea of the location of the prey.



B) 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.

- x Deer has a brown colour which helps them to hide in the grassland.

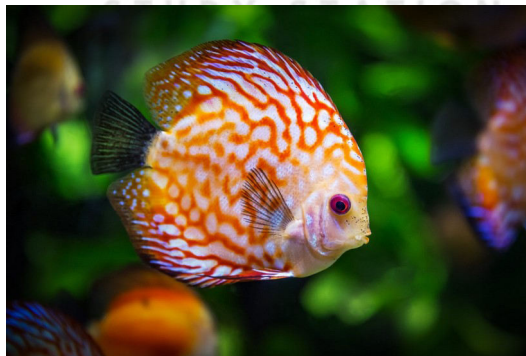


Adaptation of Plants and Animals in AQUATIC HABITATS

ADAPTATION IN AQUATIC ANIMALS:

A) Adaptation in Fish:

- x They have a streamlined body which helps them to move easily in water.
- x They have special organs called gills to breathe in water.
- x They have slippery scales on their bodies which protect their body and help in easy movement through the water.
- x They have flat fins which help them to keep a balance of their body.
- x Tail helps in changing the direction.



B) Adaptation in Dolphins and Whales:

- x Dolphins and whales breathe in air through nostrils (blowholes) which are located on the upper parts of their heads. This allow them to breathe in the air when this swim near the surface to the water.
- x They can stay inside the water for a long time without breathing.
- x The come out to the surface from time to time, to breathe in air.



C) Adaptation in Frogs:

- ✕ Frogs are adapted to live in water 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 water to lay their eggs.
- ✕ Frogs have webbed feet which helps them to swim in the water.

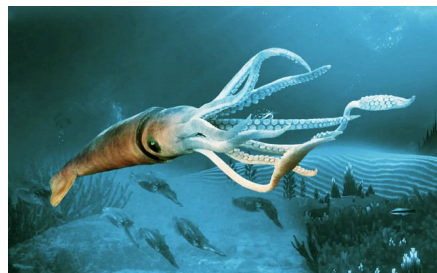


D) Adaptation in Squids and Octopus:

- ✕ Squids and octopus do not have streamlined bodies.
- ✕ They stay deeper in the ocean, near the seabed, and catch any prey that moves toward them.
- ✕ They make their body shape streamlined when they move in water.



Octopus



Squids

- **ADAPTATION IN AQUATIC PLANTS:**

- x Short and small roots are the adaptation of aquatic habitat. The main function of root is to hold the plant in place
- x Stems are long, hollow and light.
- x Leaves of the submerged plants are narrow and thin which allows water to pass through them.
- x Some aquatic plants floats on water.



CHARACTERISTICS OF ORGANISMS

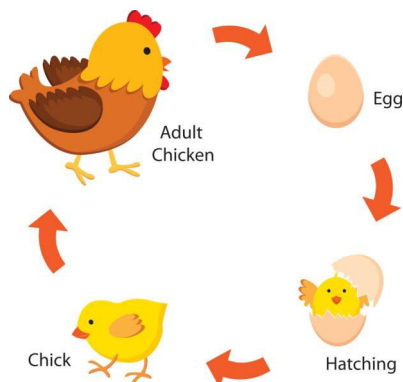
The characteristics of living things are:

- x **Living things need food, air and water.**

Plants make their food by the process of photosynthesis and animal depends on plants and other animals for their food.

- x **Living things can move.**
- x **Living things can grow.**

A chick hatched from an egg, grows into a hen or a cock and Plants also grow.

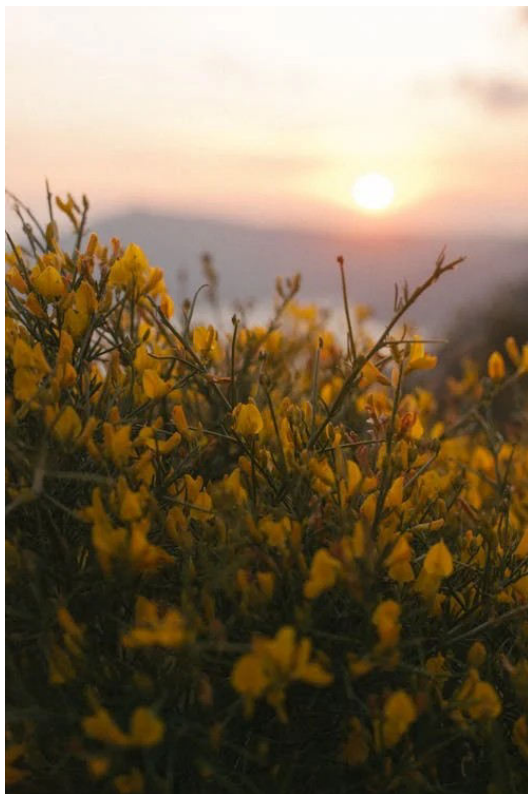


x **Living things can Respire.**

- Breathing is a part of the process called respiration (In respiration, some of the oxygen in the air we breathe in, is used by the body and we breathe out carbon dioxide in this process)
- It is through respiration that the body finally obtain energy from the food it takes.
- Different animals have different body parts or respiration.
Example – Earthworm breathe through their skin and fish breathe through their gills.
- Respiration in plants mainly take place through leaves.

x **Living things respond to stimuli.**

- Changes in our surroundings that makes us respond to them, are called stimuli.
- In some plants flowers closes after sunset.
- In some plants like Mimosa (commonly known as touch-me-not), leaves closes or fold when some one touches them.
- In some plants like sunflower, flower moves in the direction of sun light (In the morning all the sunflowers will face east).



x Living things can excrete.

- The process of getting rid of waste by organism is known as Excretion.
- Some plants find it possible to store the waste products within their parts in a way that they do not harm the plant as a whole.
- Some plants remove waste products as secretion.

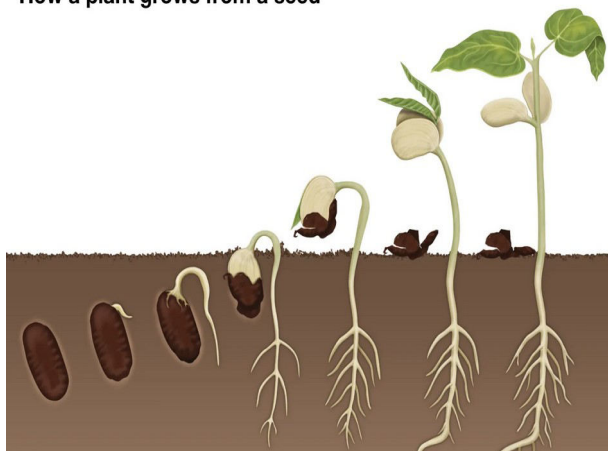
x Living things can reproduce (give birth to their young ones).

- Animals reproduce their own kind, the mode of reproduction may be different, in different animals. Some animals produce their young ones through eggs while some animals give birth to their young ones.



- Plants also reproduce, many plants reproduce through seeds which can germinate and grow into new plants, while some plants reproduce through parts other than seeds.

How a plant grows from a seed



x Living things have a definite life-span.