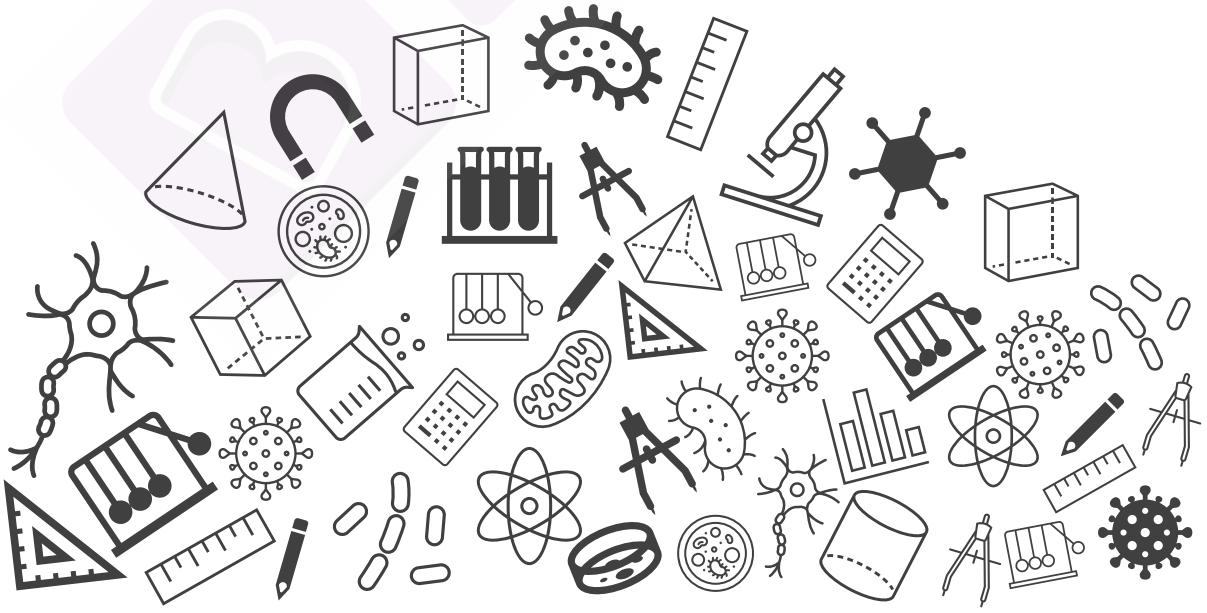
Grade 06
Chapter Notes



BIOLOGY

BYJU'S

CHAPTER NOTES

The Living Organisms and Their Surroundings

Topics

1. Biotic and Abiotic Components

Natural environment is composed of two components: Biotic and Abiotic.

1.1 Biotic

The living components of an environment.

1. Animals
2. Humans
3. Plants
4. Microorganisms

1.2 Abiotic

The non-living components of an environment.

1. Air
2. Sunlight
3. Water
4. Rock and soil

Abiotic factors like air, water, light and heat are very important for the growth and development of living beings.

2.Characteristics of Living Organisms

1. Growth

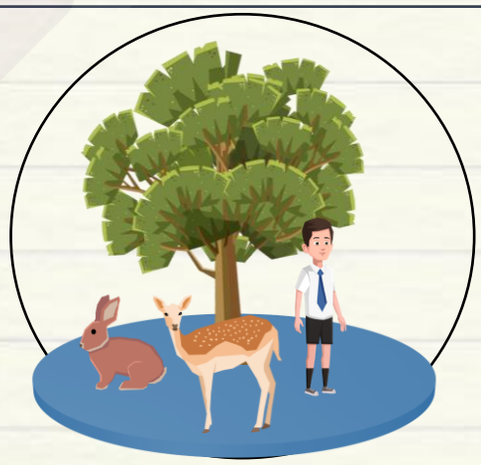
Increase in height and weight

2. Movement

Change in position and internal transport of materials

3. Nutrition

Obtaining food for growth and development



4. Respiration

Obtaining energy from food using oxygen and releasing carbon dioxide

5. Excretion

Removal of waste materials

6. Reproduction

Giving rise to young ones of own kind

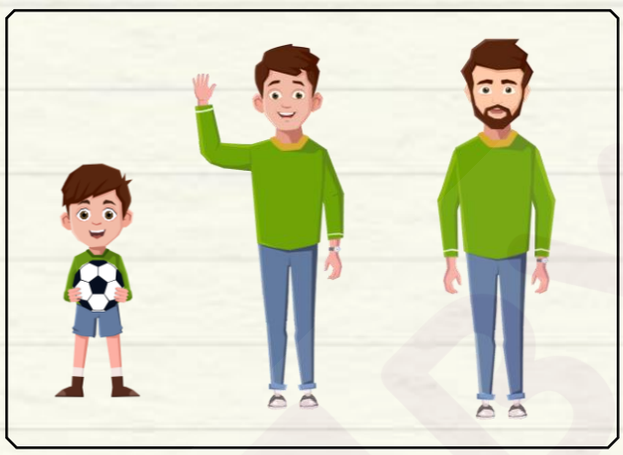
7. Response to Stimuli

Ability to respond to certain external factors

2. Characteristics of Living Organisms

2.1 Growth

- Increase in height or weight of the organism is called growth.
- Living organisms exhibit growth.
- Different organisms show different types of growth.
- Examples of growth:
    1. Human baby grows into an adult.
    2. Seeds germinate to saplings and saplings grow into plants.
    3. 3. A bird develops from an egg.



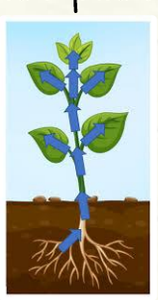
Growth in Humans

Growth in Plants

2.2 Movement

Change in position

Internal transportation of materials within animals and plants

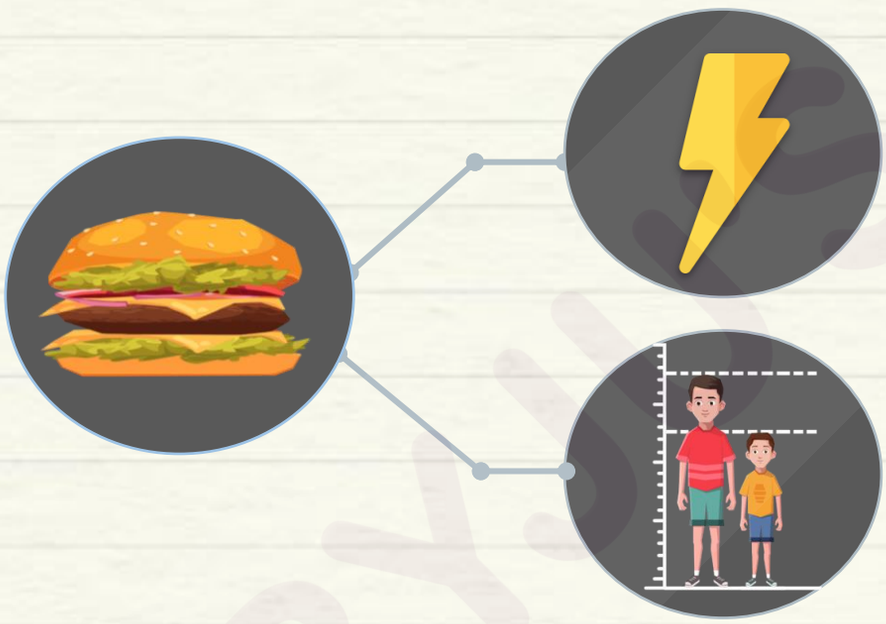


- Movement is the body"s change of place or position from one position to another.
- It can also be in the form of transportation of materials within the organism.

2. Characteristics of Living Organisms

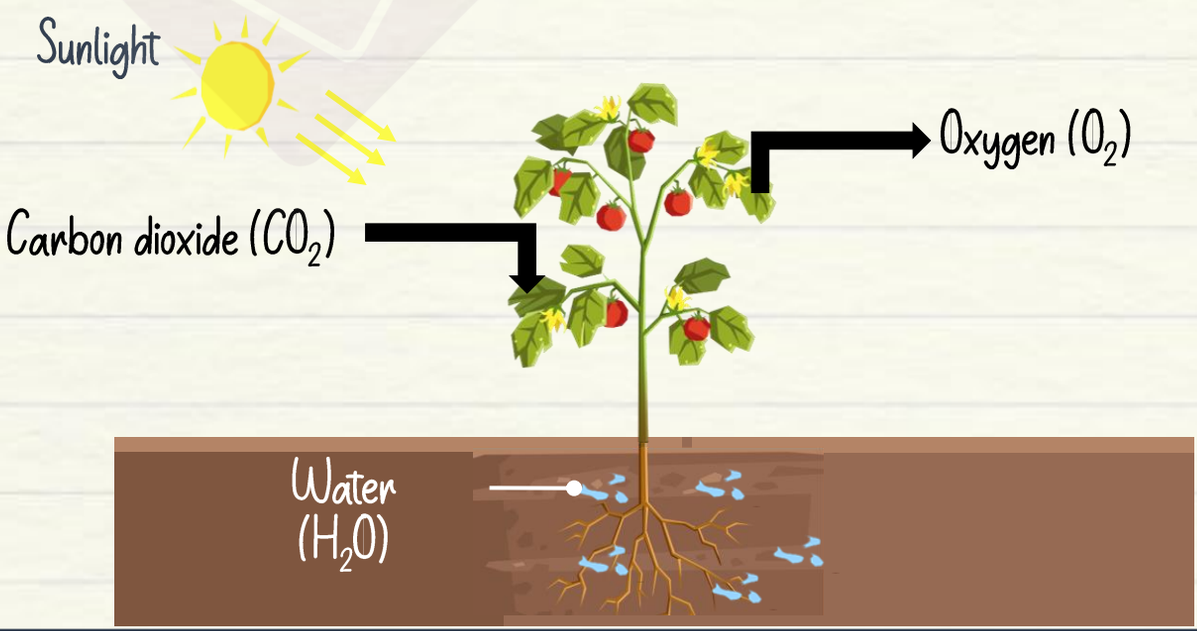
2.3 Nutrition

- It is the process of consuming food and utilising it to obtain energy for growth, development and repair of our body.



Photosynthesis

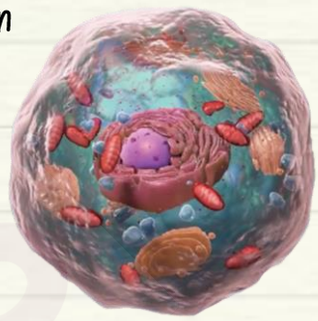
- It is the process by which plants prepare their own food in the presence of sunlight, water, and carbon dioxide releasing oxygen.



2. Characteristics of Living Organisms

2.4 Respiration

- The process in which the glucose present in digested food is broken down in presence of oxygen to obtain energy.
- We obtain oxygen by breathing.
- Breathing is a part of respiration.
- During respiration, we take in oxygen and release carbon dioxide.



Glucose + Oxygen ⟶ Energy + Carbon dioxide + Water

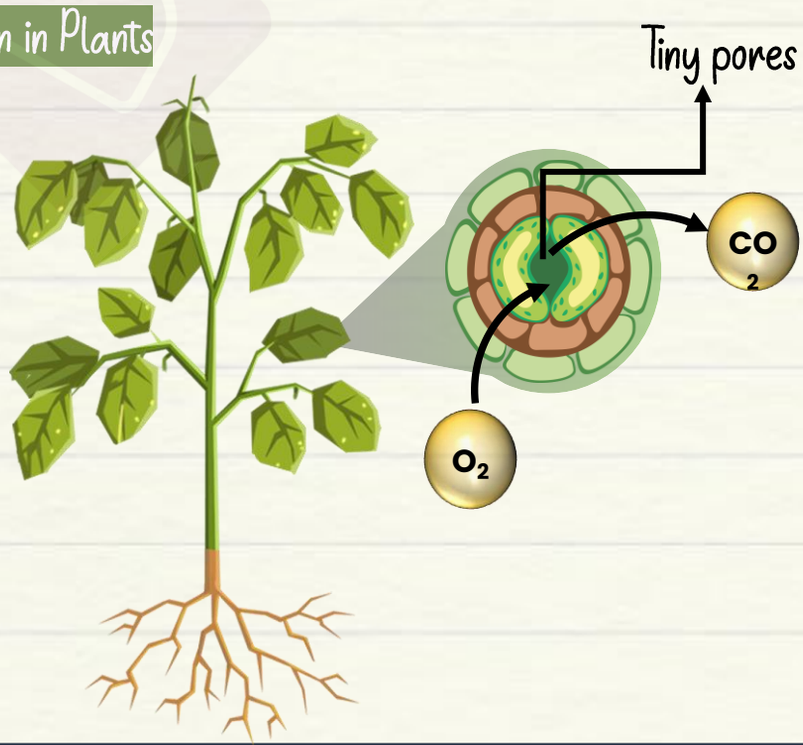
Respiratory Organs in Animals

Humans: Lungs

Fish: Gills

Snake: Skin

Respiration in Plants



2. Characteristics of Living Organisms

2.5 Excretion

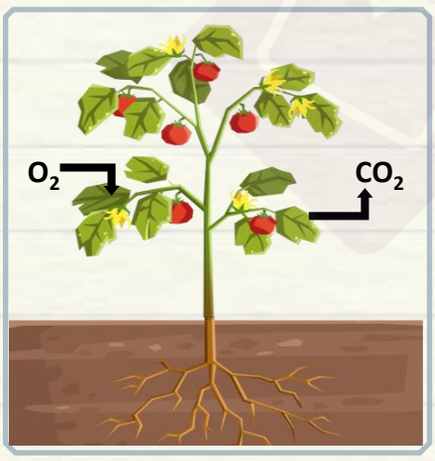
- It is the process of removal of waste materials from the body.

Excretion in Animals

- Human beings excrete solid waste in the form of faeces as well as liquid wastes in the form of urine and sweat.

Excretion in Plants

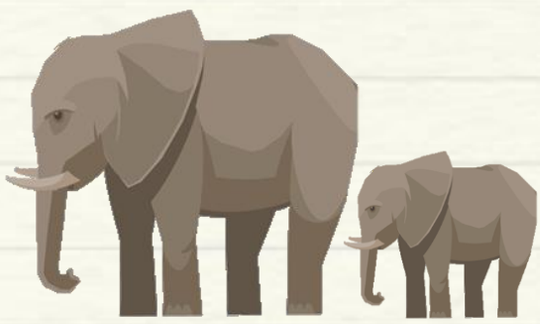
- In plants, expelling carbon dioxide is the main form of excretion.
- Gum and latex are stored in the tree's bark and are excreted through the bark's surface.



2. Characteristics of Living Organisms

2.6 Reproduction

- It is the process of producing young ones of their own kind.
- Humans give birth to their own babies.
- Most of the birds lay eggs and produce their younger ones.
- Seeds germinate into plants.

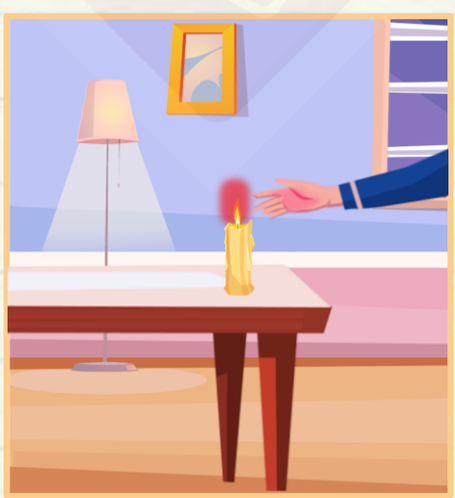


Reproduction in Animals

Reproduction in Plants

2.7 Response to Stimuli

- Living organisms respond to certain external factors called stimuli.



Withdrawal of hands on touching fire

Mimosa plants closing their leaves when touched

Habitat

Habitat

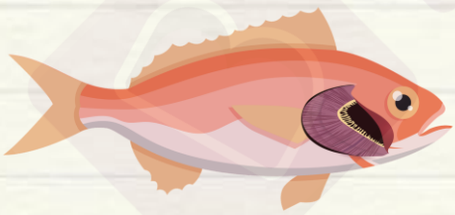
- Habitat is a natural place or environment where an organism lives.
- It provides food, water, shelter, and space to survive .
- It consists of both biotic and abiotic factors.
- Habitat can be classified mainly into two types: Terrestrial and Aquatic

Terrestrial habitat

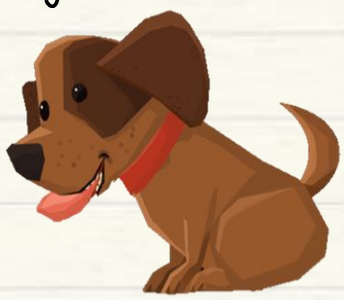
Aquatic habitat

Adaptation

- Development of specific features or habits enabling an organism to live in its habitat



Fish: Gills



Dogs: Nose

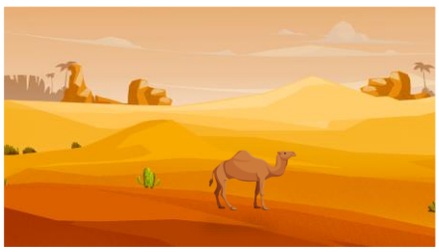
Acclimatization

- Changes in the body for a short period of time
- To overcome sudden changes in the surroundings
- No special features are developed.

3. Terrestrial Habitat Adaptations

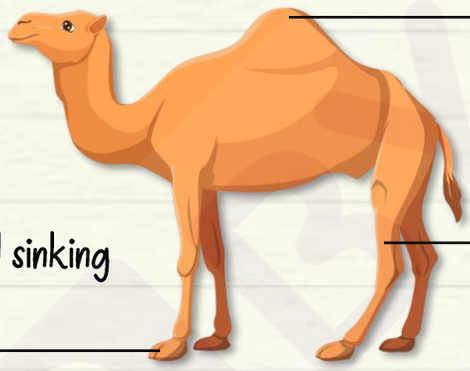
3.1 Deserts

Deserts are very dry places that receive scarce rainfall.



- Availability of water is scarce
- Commonly found animals: Snakes, rats, meerkats, camels
- Commonly found plants: Cactus, agave

Adaptation in Camel



Hump: To store fat

Long legs: To stay away from the heat of the sand

Flat feet: To avoid sinking in the sand while walking

- Excrete small amount of urine
- Dung is dry

Adaptations in Other Desert Animals

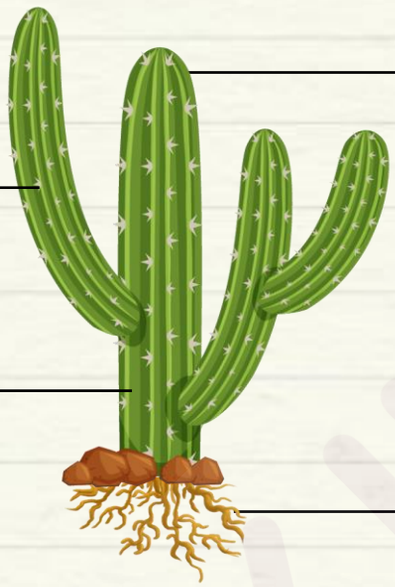
Rat

Snake

- Hide in deep burrows in the sand during the day
- Come out only during the night when it is cooler

3. Terrestrial Habitat Adaptations

Adaptations in Cactus



Thick stem with a waxy layer:
To reduce transpiration and store water

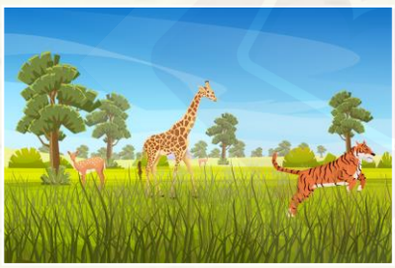
Leaves modified to spines:
To reduce transpiration

Green stem:
Carry out photosynthesis

Deep roots:
To absorb water from deep into the soil

3.2 Grasslands

Vast open areas covered with tall grasses and trees



- Commonly found animals: Giraffe, cheetah, deer, and elephant
- Prey: Animals that are hunted by other animals (Deer, goat)
- Predator: Animals that hunt and feed on the prey (Lion, tiger)

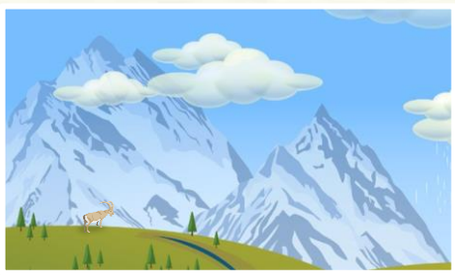
Adaptations in Prey and Predator

Prey	Predator
★ Long ears	★ Sharp claws and teeth to tear the flesh of the prey
★ Eyes on the side of the head	★ Ability to camouflage
★ Flat teeth and strong legs	

3. Terrestrial Habitat Adaptations

3.3 Mountains

Cold and windy places, experiencing snowfall in winters

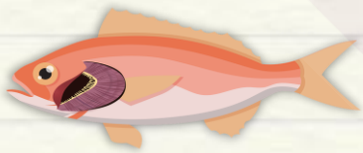


- Commonly found animals: Yak, snow leopard, and mountain goat
- Commonly found plants: Pine trees
- Adaptations in animals: Thick fur, split hooves, and large paws
- Adaptations in plants: Cone-shaped trees and needle-like leaves

4. Aquatic Habitat Adaptations

4.1 Adaptations in Fish

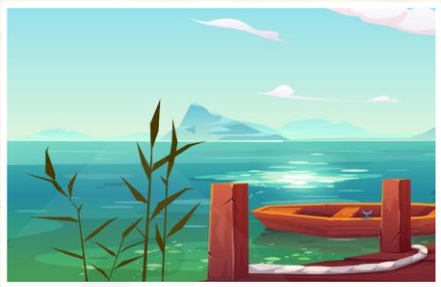
Fish can only live in water.



- Streamlined body: Help them to swim faster in water
- Slippery scales: Protection from rotting and injuries and helps in easy movement through water
- Flat fins and tails: Help them to change directions and keep their body balance in the water
- Gills: Help them to use oxygen dissolved in water

4. Aquatic Habitat Adaptations

4.2 Ponds and Lakes

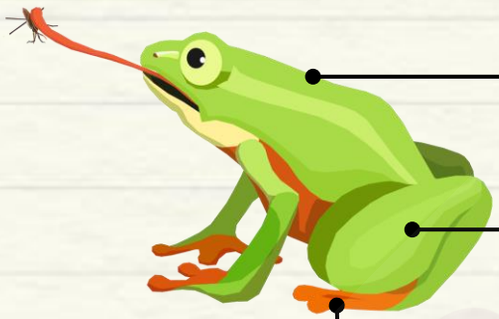


Inland bodies of still or slow-moving water

Commonly found animals: Frog, Duck

Commonly found plants: Water lily, Vallisneria

4.3 Adaptations in Frog



Thin skin: To breathe underwater

Strong back legs: To leap

Webbed feet: Help in swimming

4.4 Adaptations in Aquatic Plants

Vallisneria

Water lily

Submerged plants

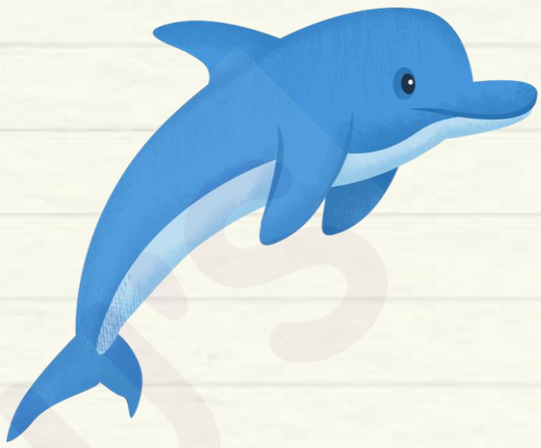
- Roots are small in size and are attached to the soil at the bottom of the water body.
- Stems are long, hollow, and light, and grow up to the water surface.

Fixed plants

- Roots are fixed to soil.
- Stems are small in size and submerged in water.
- Leaves have air spaces which help them float.
- Oily coat of leaves prevents decaying.

4. Aquatic Habitat Adaptations

4.5 Adaptations in Octopus and Dolphin



Octopus

- Stay in deep oceans near their prey
- Do not have a streamlined body
- Appear streamlined only when they move

Dolphin

- Gills are absent.
- Blowholes: To breathe near the surface of the water