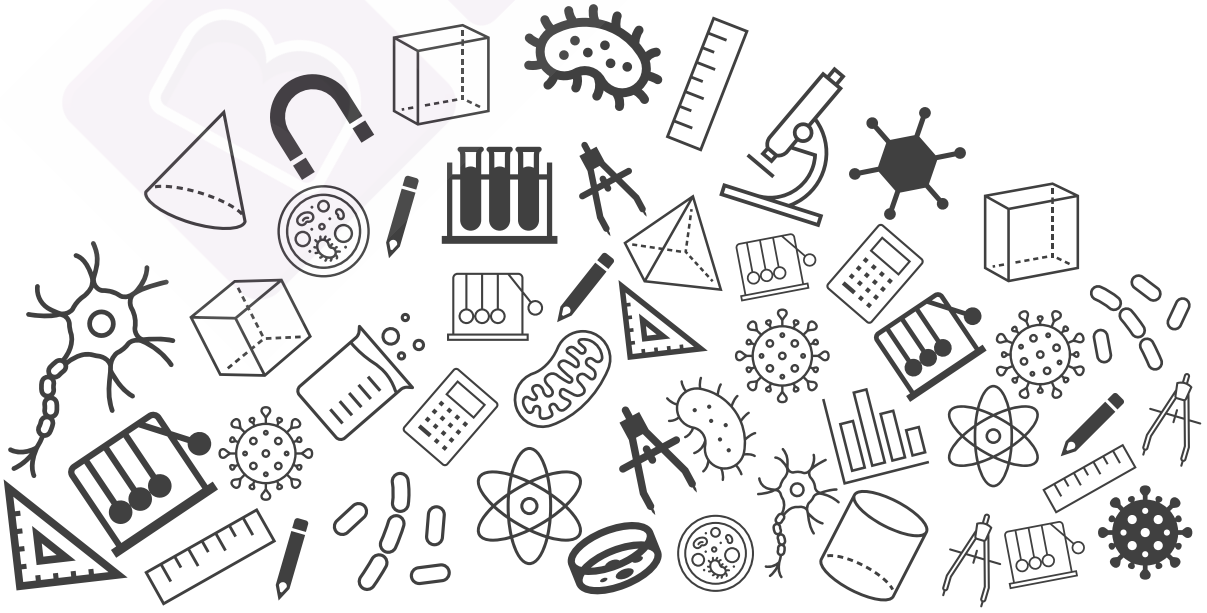
Grade 07
Chapter Notes



BYJU'S Classes

Class Notes

Reproduction in Plants

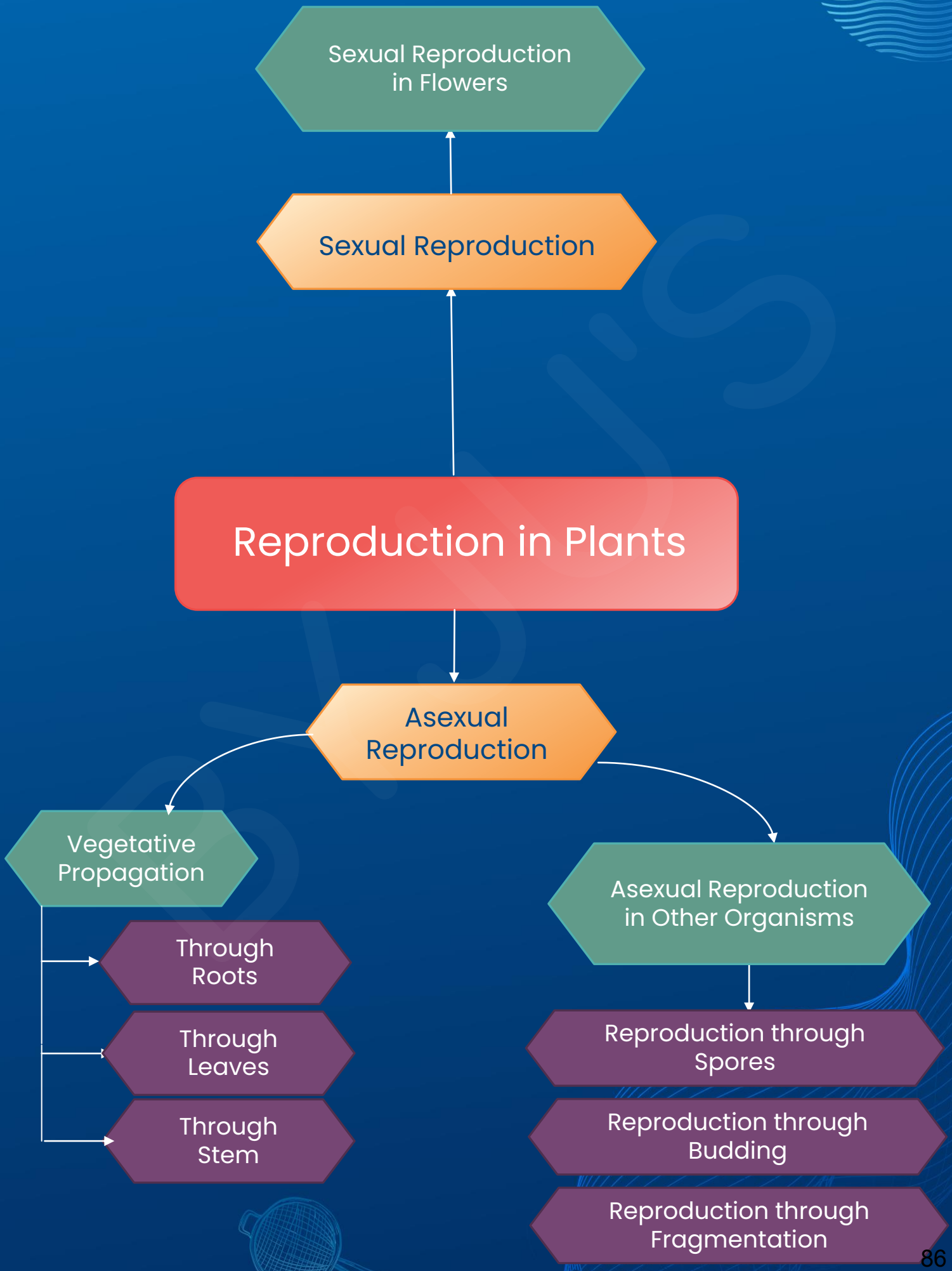
Grade 7

Topics to be Covered

1. Reproduction
   - 1.1 Sexual reproduction
   - 1.2 Asexual reproduction
2. Parts of Plant
   - 2.1 Function of Different Parts of Plant
3. Flower
   - 3.1 Reproductive Whorls of a Flower
   - 3.2 Types of Flower
4. Sexual Reproduction in Flowers
   - 4.1 Pollination
   - 4.2 Fertilisation
   - 4.3 Fruit Formation
   - 4.4 Seed Dispersal
     - 4.4.1 Agents of Seed Dispersal
   - 4.5 Germination

Topics to be Covered

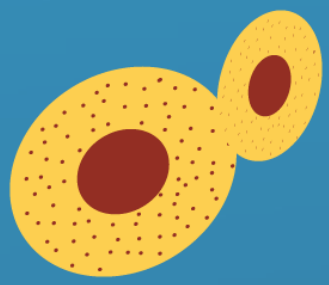
Mind Map


Sexual Reproduction in Flowers
Sexual Reproduction
Reproduction in Plants
Asexual Reproduction
Vegetative Propagation
Through Roots
Through Leaves
Through Stem
Asexual Reproduction in Other Organisms
Reproduction through Spores
Reproduction through Budding
Reproduction through Fragmentation

1. Reproduction

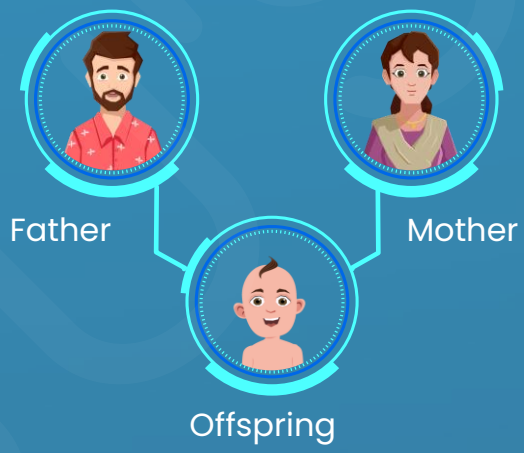
- The process in which organisms produce young ones of their own kind is known as reproduction.
- Reproduction ensures continuation of species.

Asexual Reproduction



Yeast

Sexual Reproduction



1.1 Asexual Reproduction

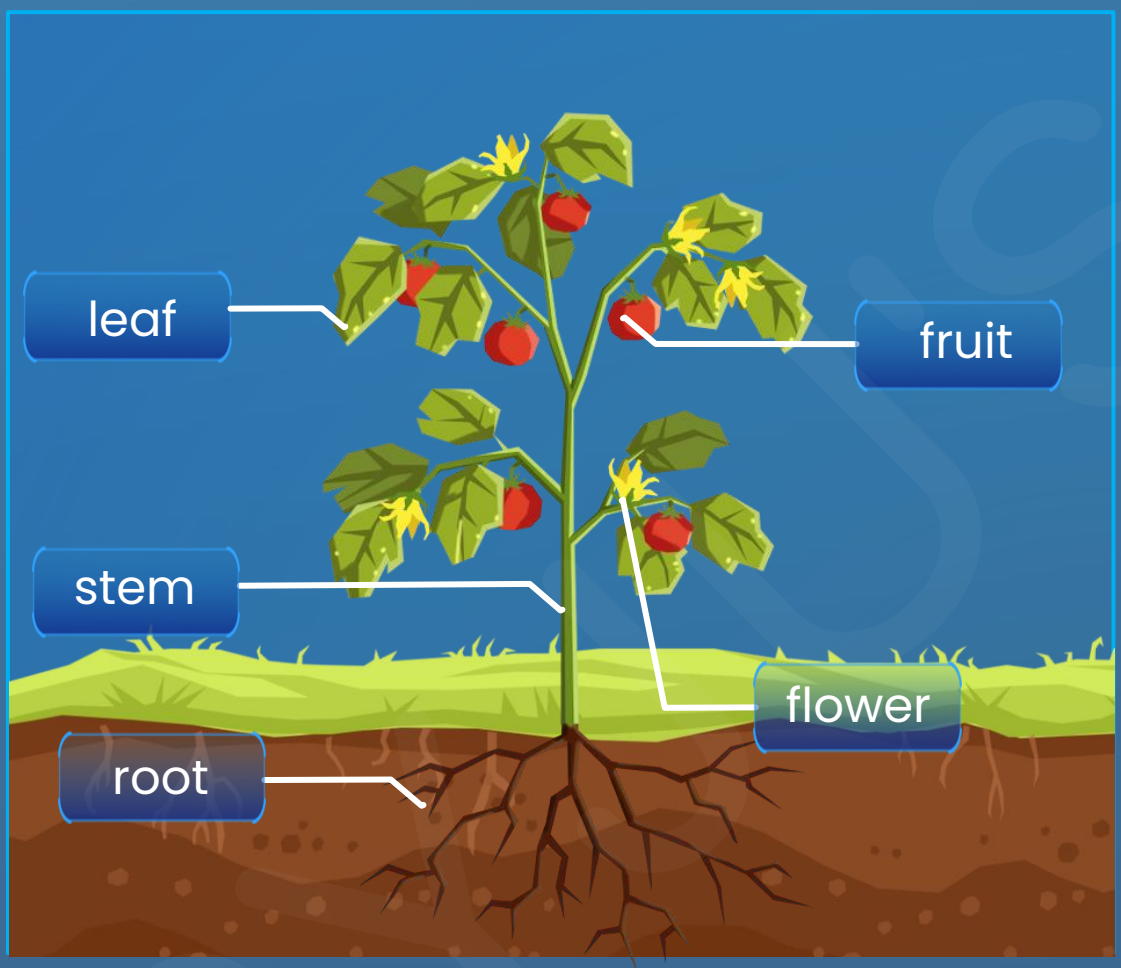
- Involves only one parent.
- Gametes are not formed.
- Fertilisation doesn't occur.

1.2 Sexual Reproduction

- Involves both the parents.
- Gametes are formed.
- Fertilisation occurs.

2. Parts of Plant

A typical plant consists of roots, stem, leaves, flowers and fruits.



2.1. Functions of Different Parts of Plant

Root: Absorbs water and minerals from the soil.

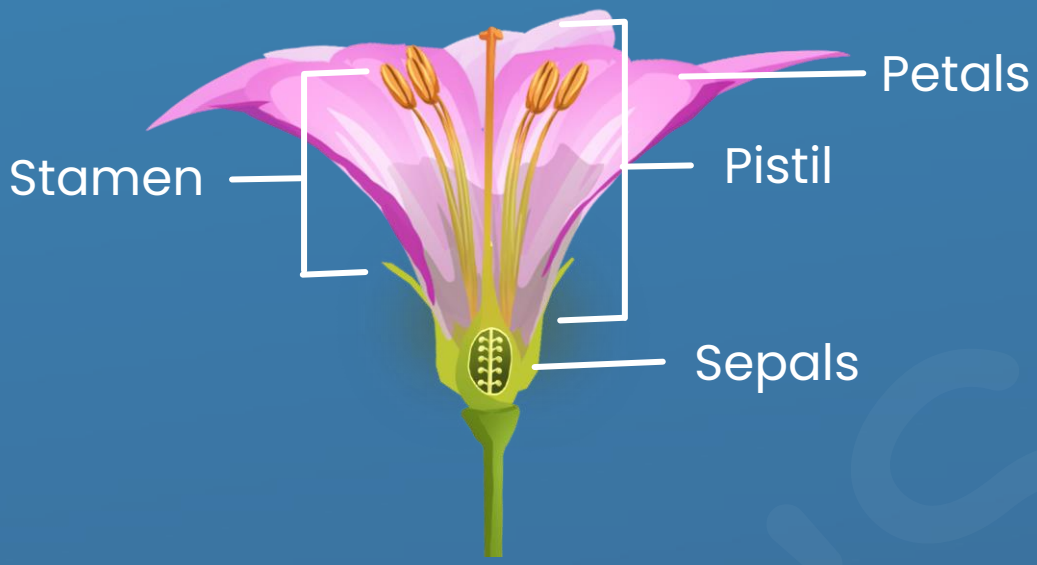
Stem: Transports water and nutrients.

Leaf: Prepares food for the plant.

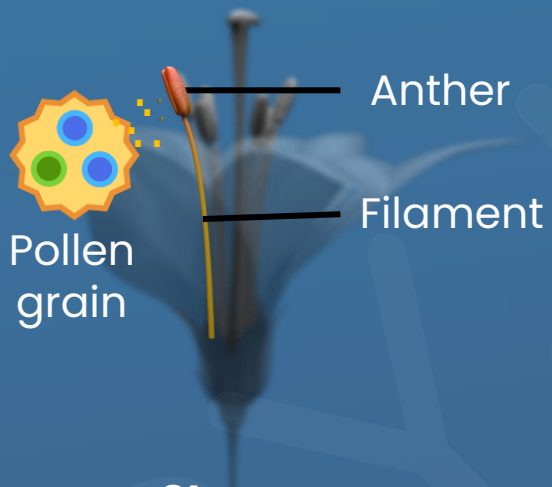
Fruits: Protects the seed and helps in seed dispersal.

Flowers: Reproductive part of the plant.

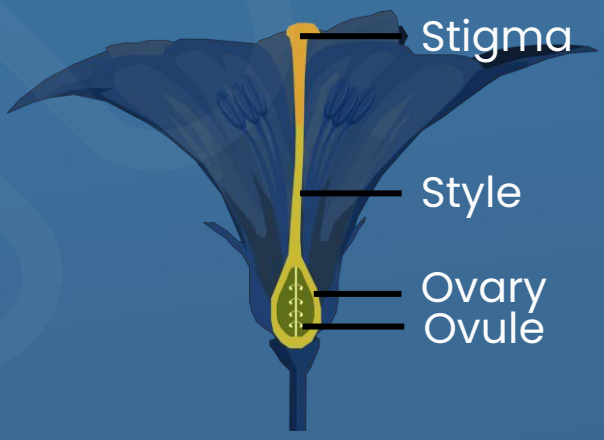
3. Flower



3.1 Reproductive Whorls of a Flower



Stamen



Pistil

Stamen

- A stamen consists of two parts: the anther and the filament.
- Anther consists of pollen sacs that contain pollen grains.

Pistil

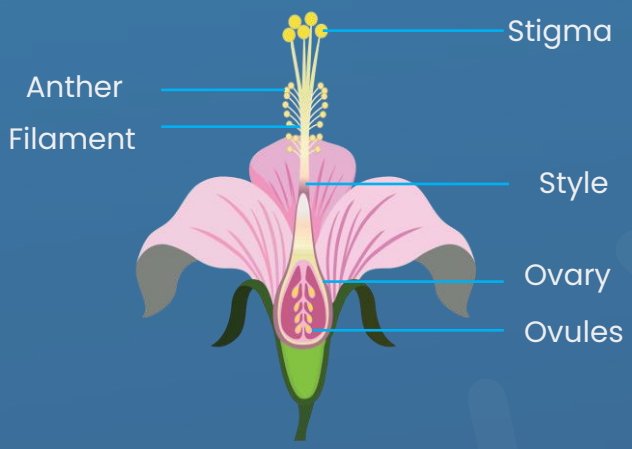
- A pistil consists of three basic parts: a stigma, a cylindrical stalk known as the style, and a swollen ovary.
- Ovary contains ovule and the female gamete is formed inside the ovule.

3.2 Types of Flowers

Flowers can be classified into two types:

- Bisexual flowers
- Unisexual flowers

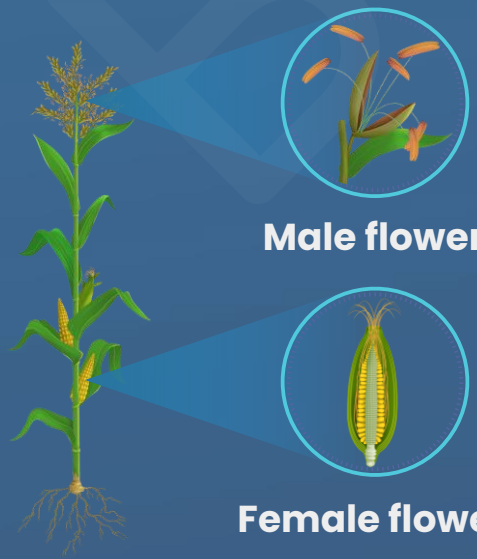
Bisexual Flower



China Rose

Flowers that consists of both stamen and pistil are known as bisexual flowers.

Unisexual Flower



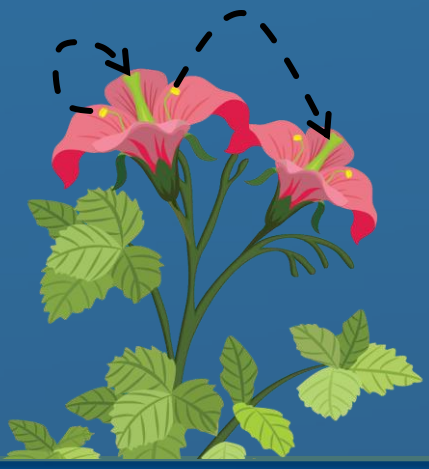
Maize Plant

Flowers that consists of either stamen or pistil are known as unisexual flowers.

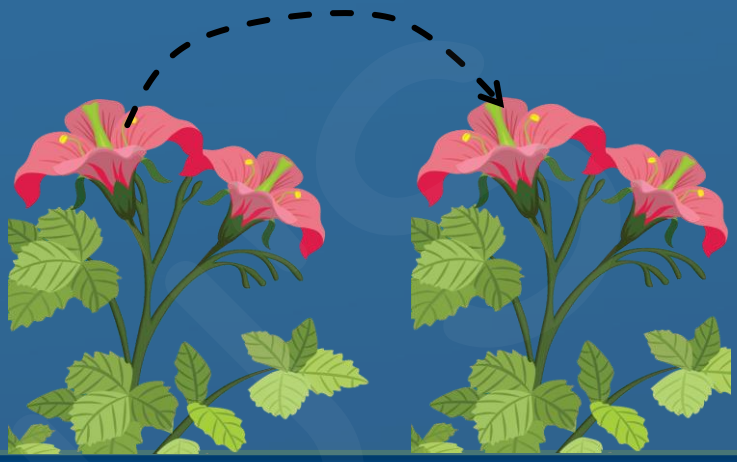
4. Sexual Reproduction in Flowers

4.1. Pollination

Self Pollination



Cross Pollination

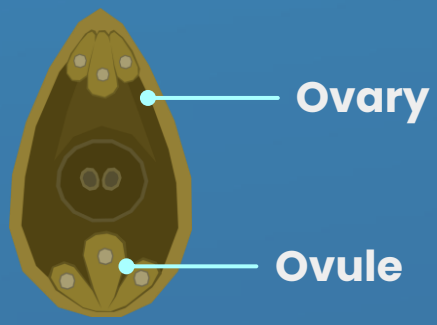


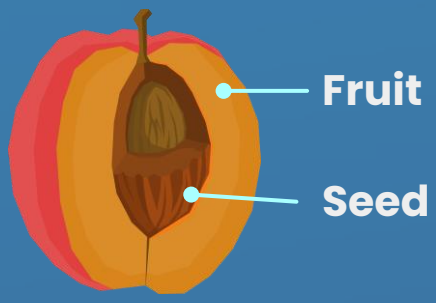
4.2. Fertilisation

The process of fusion of male and female gamete is known as fertilisation.

The pollen lands on the stigma and it starts to form a pollen tube. This tube goes down the style and reaches the ovary. Once the tip of the pollen tube ruptures in the ovule, two male gametes are discharged. The male gamete fuses with the egg to form a zygote. Another male gamete fuses with the polar nuclei and forms endosperm.

4.3. Fruit Formation





After fertilisation, the ovule is converted into seed and ovary into fruit.

Based on the fruit wall fruits can be fleshy or hard fruit.

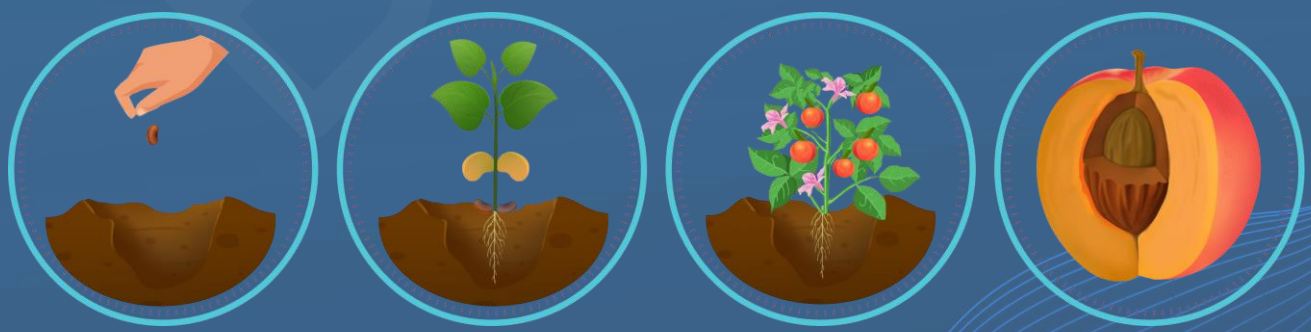
4.4. Seed Dispersal

Water

Wind

Animals

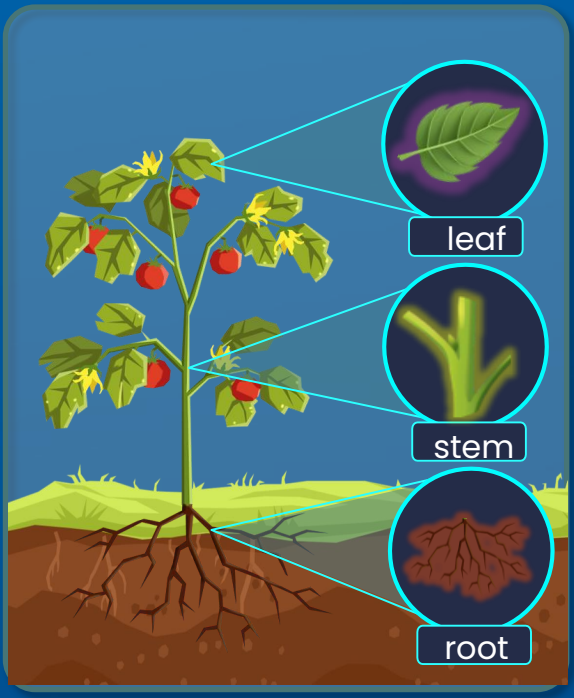
4.5. Germination



Seed germination is the process of growth and development of the seed that is planted in the soil.

5. Asexual Reproduction

5.1. Vegetative Propagation



Vegetative propagation is the mode of asexual reproduction in which new plants grow from the vegetative parts of the plant.

5.2. Types of Vegetative Propagation

Vegetative propagation occurs through leaves, stem and roots of the plant.

Through Roots & Leaves

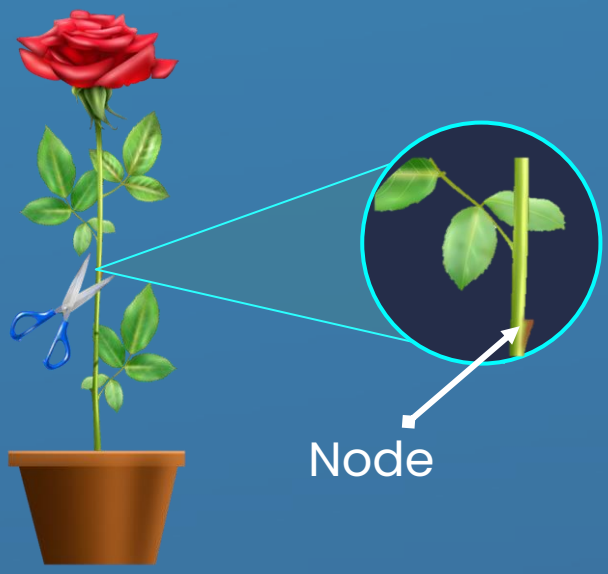
Through Root

Sweet potato

Through Leaves

Bryophyllum

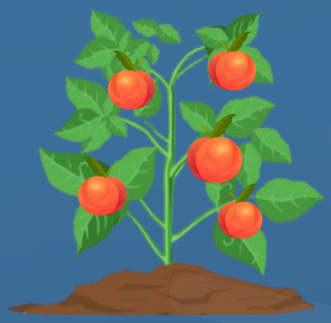
Through Stem



Rose plant

- Place a portion of stem with nodes in moist soil.
- Stem eventually grows into a new plant.
- New plant is identical to the parent plant.

5.3. Advantages of Vegetative Propagation



Flowers faster than normal plants.

Plants with identical qualities.

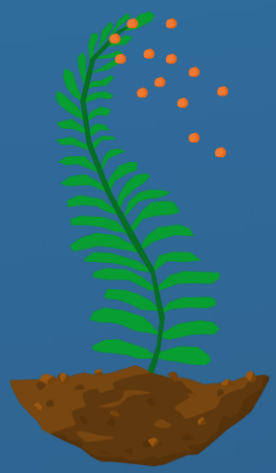
Disease resistant plants.

Production of seedless fruits.

6. Asexual Reproduction in other Organisms

6.1. Reproduction through Spores

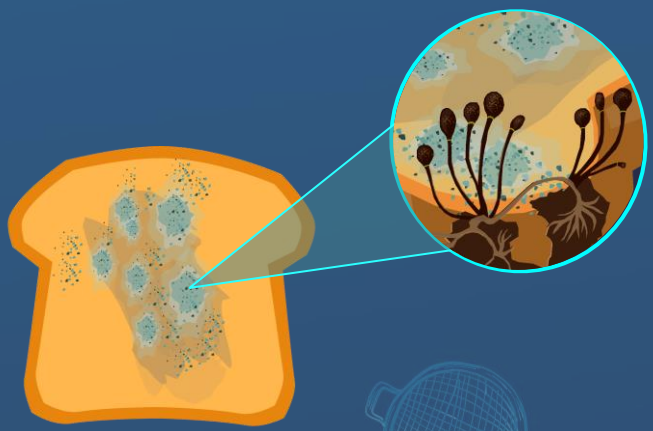
Spore formation in fern



Spore formation in moss

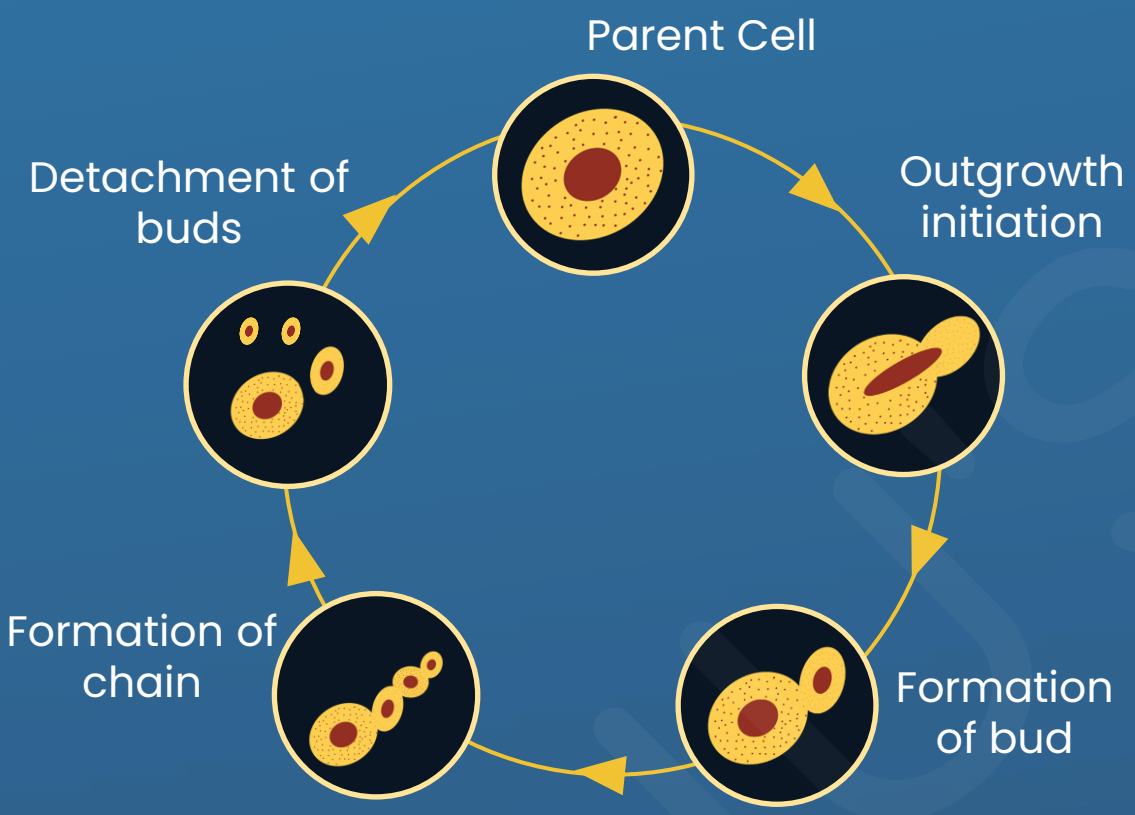
- Spores are asexual reproductive bodies that can withstand unfavourable conditions such as high temperature and low humidity.
- Under favourable conditions, a spore germinates and develops into a new individual.

Spore formation in bread

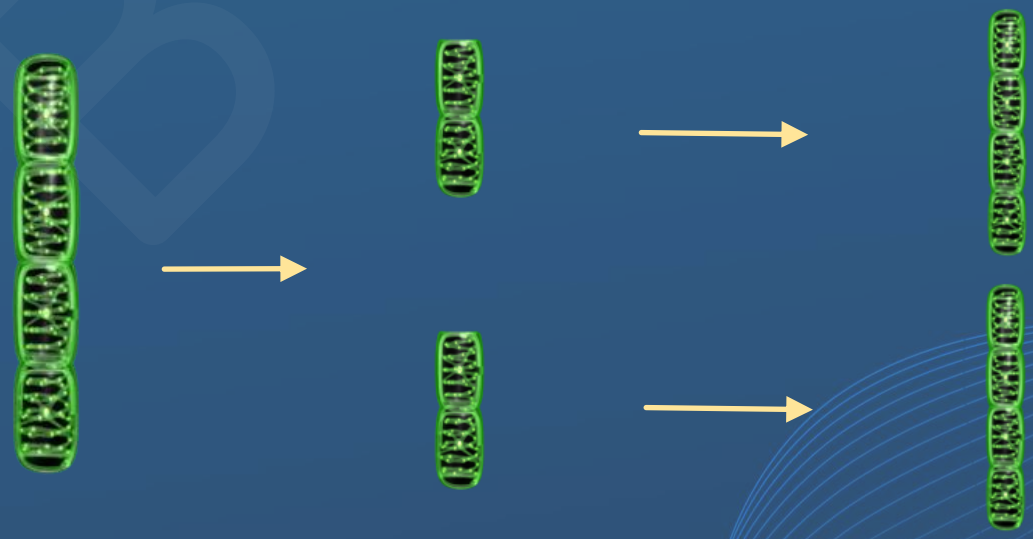


- Cottony structure called *Rhizopus* grows on bread when it is kept in moist conditions.
- It has a blob like structure called sporangia, which contains spores.

6.2. Reproduction through Budding



6.3. Reproduction through Fragmentation



Important Questions

Question 1:
State the main difference between asexual and sexual reproduction with one example each.

3 Marks

Solution:

Asexual Reproduction	Sexual Reproduction
Only one parent is involved.	Both the parents are involved. (1 mark)
Offspring is generally identical to the parent..	Offspring shows variation with respect to the parents. (1 mark)
Fertilisation does not take place. Example- Yeast	Fertilisation takes place. Example- Humans (1 mark)

Question 2:
Explain what do you understand by sexual reproduction.

3 Marks

Solution:

- When two parents are involved in reproduction, this method is referred to as sexual reproduction. (1 mark)
- It involves fertilisation during which the male and female gametes fuse to form a single-celled zygote. (1 mark)
- The zygote subsequently develops into a new individual and has characters resembling both the parents. (1 mark)

Question 3:
What is fertilisation?

1 Mark

- The process of fusion of male and female gamete is known as fertilisation. (1 mark)

Question 4:
What are bisexual flowers?

1 Mark

Solution:

- Flowers which contain both stamens and pistil are called bisexual flowers. Mustard, rose and petunia have bisexual flowers. (1 mark)

Question 5:
Briefly explain the process of budding in yeast.

3 Marks

Solution:

- Yeast is a unicellular organism which reproduces asexually by budding. (1 mark)
- The process starts with outgrowth initiation in the parent cell which further grows into a bulb-like structure called bud. From this bud, another bud arises and eventually forms a chain of buds. (1 mark)
- These buds then gradually grow and after they are completely mature, the buds get detached from the parent cell and form new yeast individuals. (1 mark)

Question 6:
Explain vegetative propagation with the help of an example.

2 Marks

Solution:

- Vegetative propagation is an asexual method of reproduction in plants where the vegetative parts like leaf, stem or root grows and develops into a new plant. (1 mark)
- E.g., Roots of sweet potato have buds. When a sweet potato is planted in the soil, the buds give rise to new roots which then leads to the formation of a new plant. (1 mark)

Question 7:

a) Explain pollination.

b) What are the two types of pollination?

3 Marks

Solution:

a) The transfer of the pollen grains from the anther to the stigma of a flower is called pollination. (1 mark)

b) The two types of pollination are:

- Self pollination- Pollination that occurs between the anther and stigma of the same flower or of different flowers present on the same plant. (1 mark)
- Cross pollination- Pollination that occurs between anther of one flower and stigma of another flower present on different plants of the same kind. (1 mark)