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Theme: Growth and development in plants and animals

S4 New Curriculum Biology-Chapter 1– Asexual reproduction in plants



Asexual reproduction

This is a type of reproduction that does not involve fusion of gametes or combination of genetic materials from different individual. Or it is a type of reproduction which involves only one individual parent.

Vegetative reproduction

It is a form of **asexual reproduction** in plants where new individuals grow from specialized structures like stems, roots, or leaves—rather than from seeds. Since no gametes (sperm or egg cells) are involved, offspring are genetically identical to the parent plant.

1. Natural methods of vegetative propagation include use of:
 - (a) Modified leaves



Modified leaf for vegetative reproduction

(b) Modified stems



Stem tuber



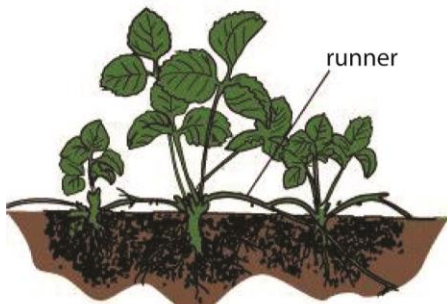
Bulb



Rhizome



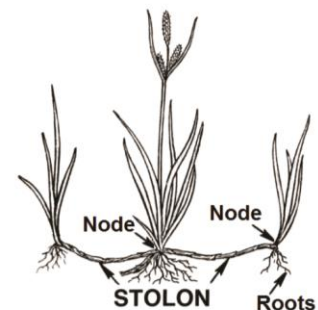
Corms



Runners



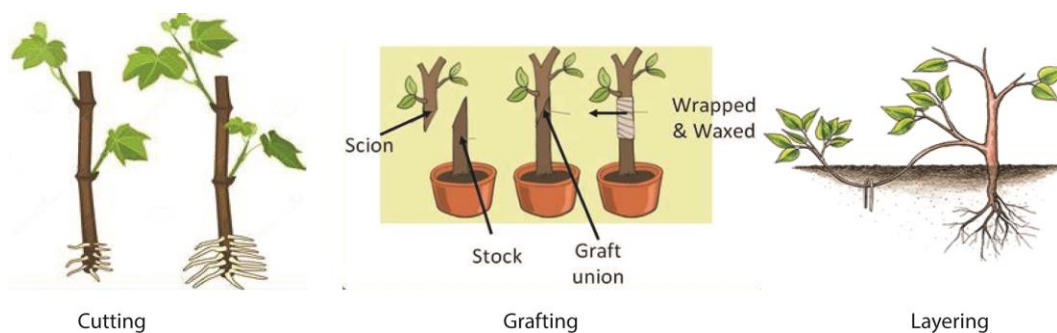
Suckers



Stolons

- **Stem tuber** – Swollen underground stems storing nutrients (e.g., potatoes).
- **Bulbs** – Short underground stems surrounded by fleshy leaves (e.g., onions, lilies).
- **Rhizomes** – Underground horizontal stems (e.g., ginger, bamboo).
- **Corm** – Thick vertical underground stems (e.g. yam)
- **Runners** – Horizontal stems above ground that grow new plants (e.g., strawberries).
- **Suckers** – Shoots emerging from roots (e.g., banana plants).
- **Stolons** – are long horizontal stems that grow along the surface of the soil and propagate by producing root at the node or tip.

2. Artificial Methods of propagation include :



- **Cuttings** – New plants grow from cut pieces of stems or leaves (e.g., roses, hibiscus, cassava).
- **Grafting** – Joining two plants to grow as one (e.g., apples, mangoes).
- **Layering** – Bending a stem to the ground and covering it with soil to produce roots (e.g., jasmine).
- **Tissue Culture** – Laboratory techniques growing plants from cells in nutrient solutions.

Advantages of vegetative propagation

- Good qualities in the parents are maintained since a new plant is similar to the parent.
- There is rapid growth of new plants resulting into early plant maturity.
- It does not depend on processes like pollination, fertilization and dispersal which may not occur as they require certain agents such as insects, wind and water.
- It suitable for plants that do not produce seeds such bananas.
- Offspring can easily dodge harsh environmental conditions.

Disadvantages of vegetative propagation

- Promotes overcrowding due to rapid reproduction
- Competition occurs very fast leading to reduction in yields
- Undesirable characteristics are retained in offspring
- Diseases are easily transmitted from parents to offspring
- There is lack of variation

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Thanks

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