ASEXUAL REPRODUCTION IN PLANTS

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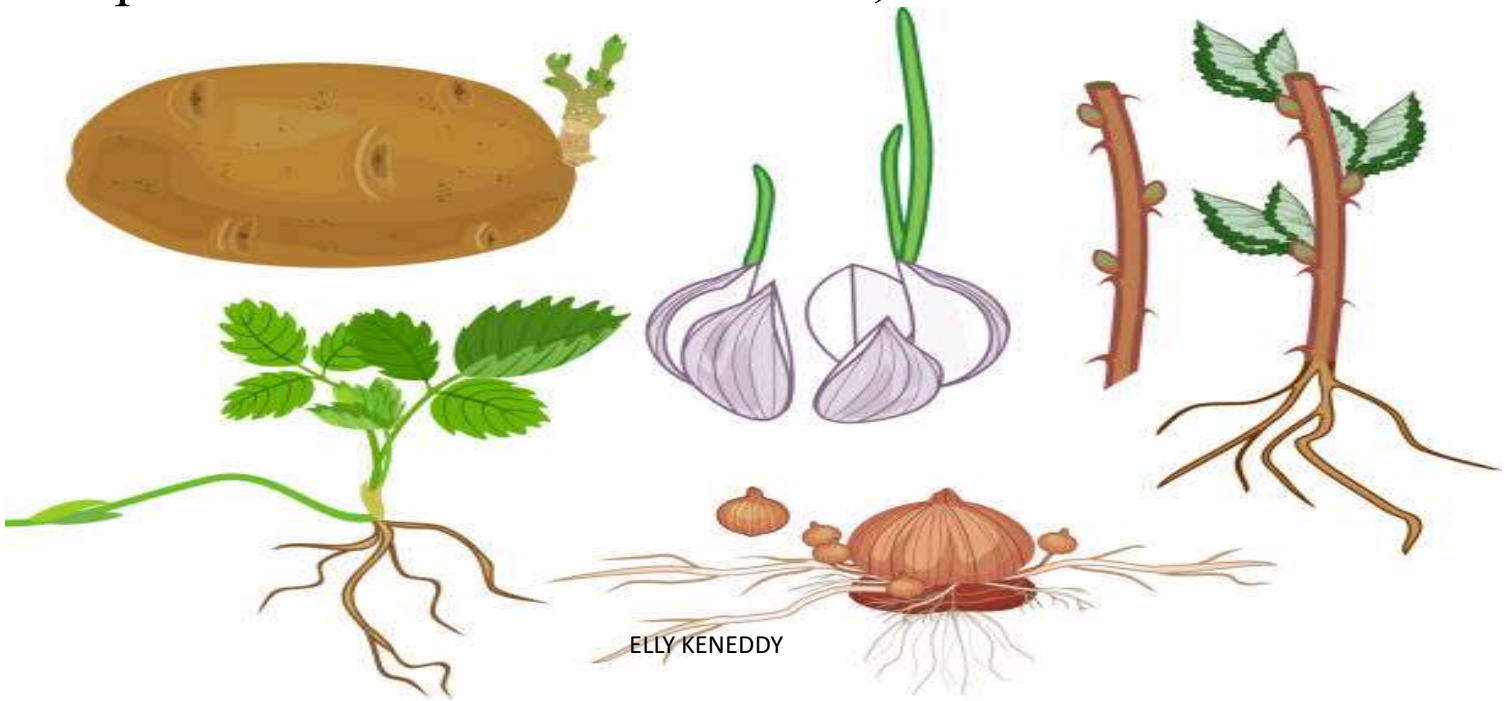
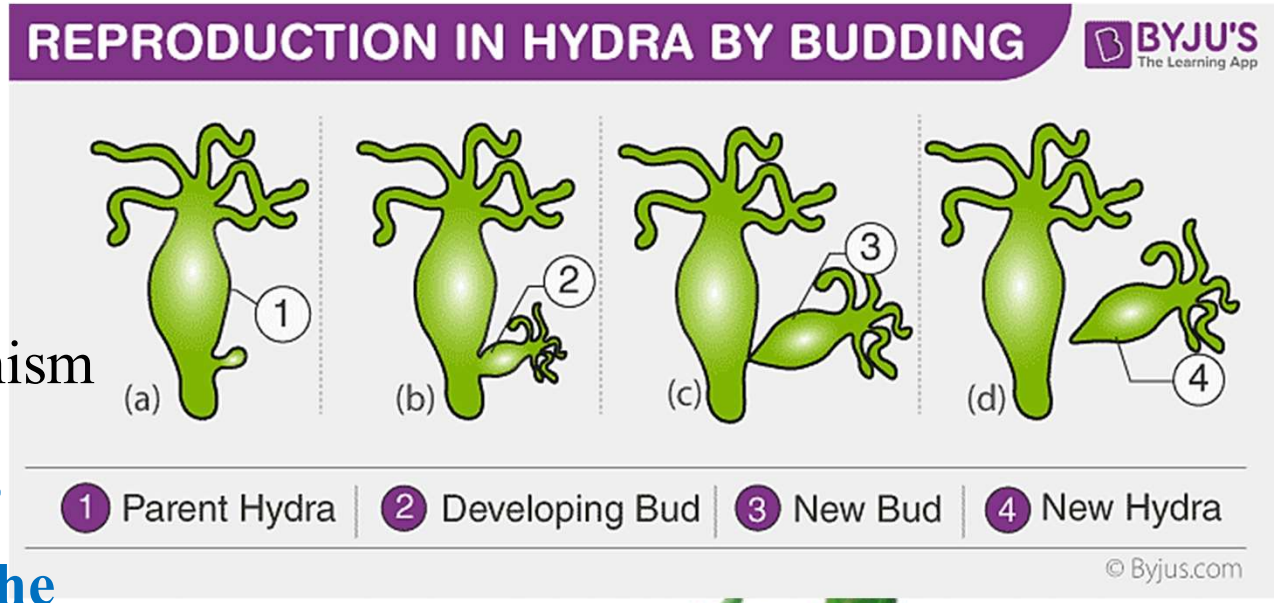
INTRODUCTION

- Asexual reproduction is a type of reproduction, which does not involve fusion of gametes.
- Therefore, only one individual is involved.
- This type of reproduction takes several forms, which include the following.



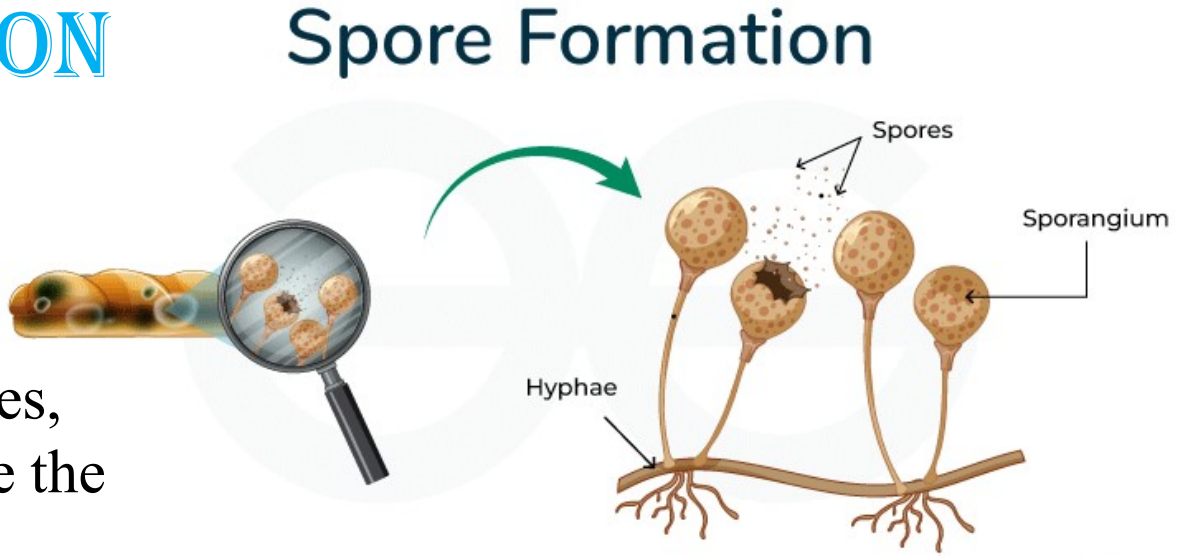
BUDDING.

- This is a mode of asexual reproduction in which an organism **develops an outgrowth (bud), which detaches its self from the parent organism** and starts to grow as a self-reliant organism.
- It is common in **yeast** and **hydra**.



SPORE FORMATION

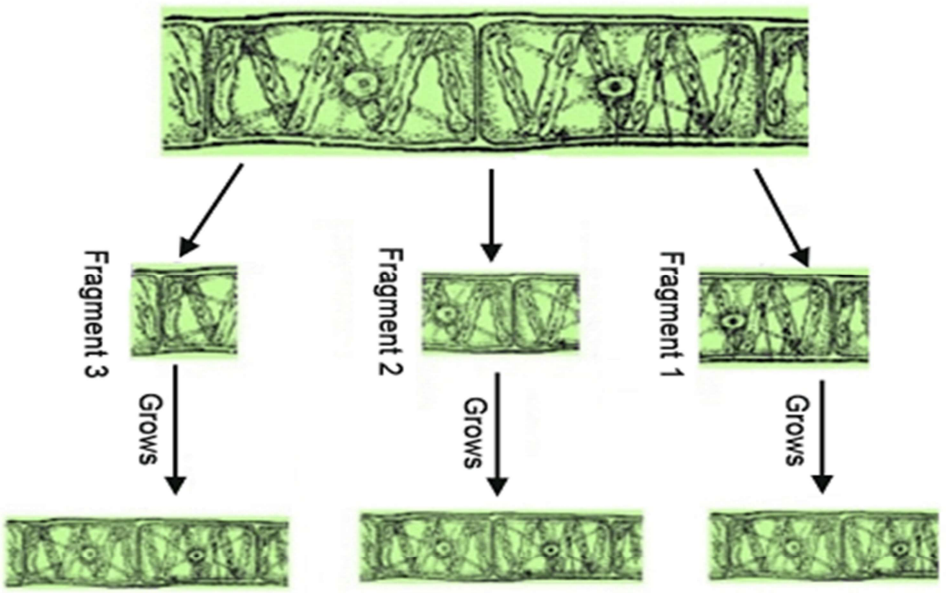
- This is a mode of asexual reproduction, which involves production of spores.
- Spores are microscopic structures, which can be dispersed and have the ability to germinate into a new organism under favorable conditions.
- This mode of reproduction is also common in fungi and some bacteria.



FRAGMENTATION

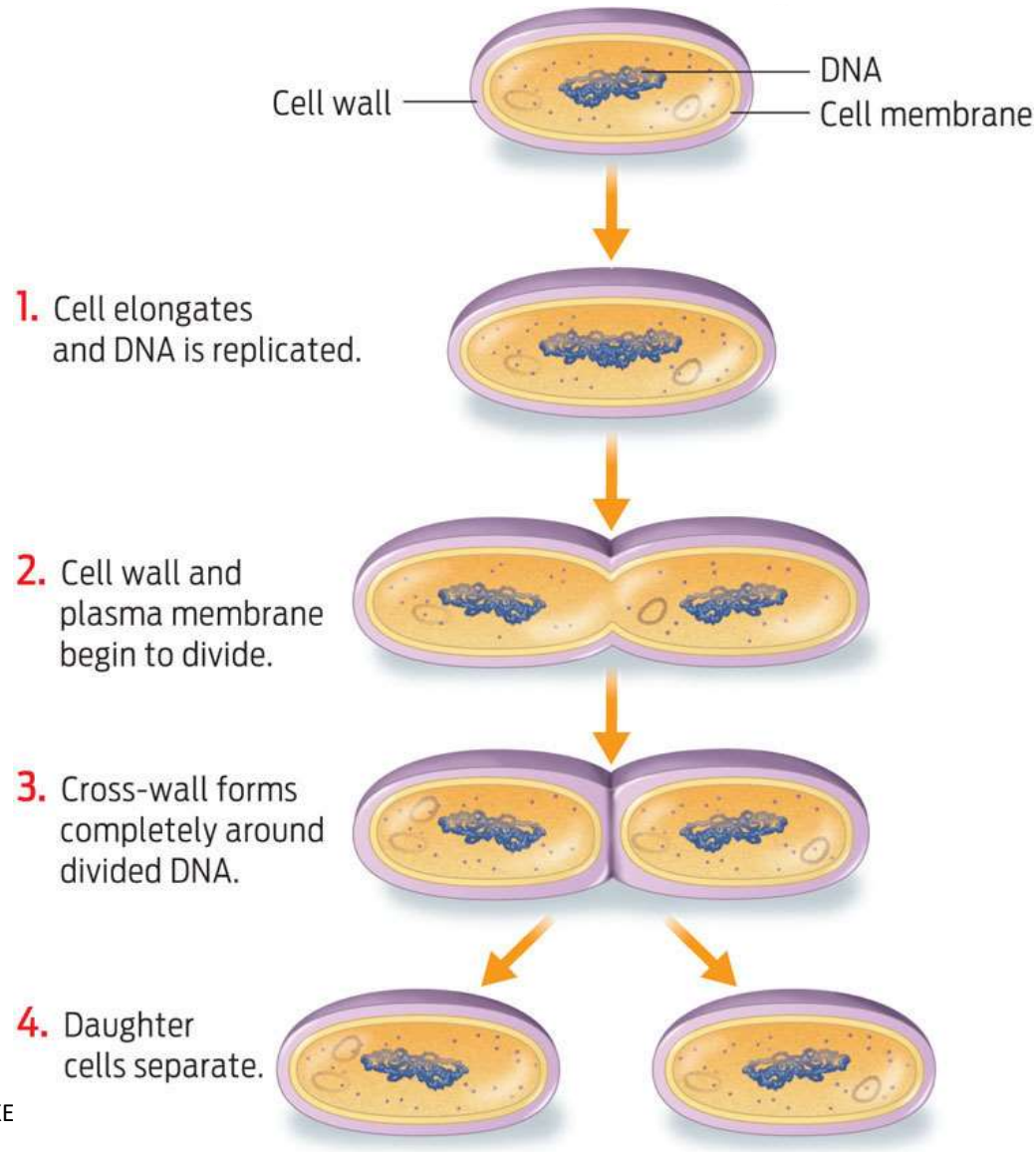
❖This is a mode of asexual reproduction where an **organism breaks into many small parts** (fragments) and **each is able to grow into a new individual**.

❖ It is common in **tapeworms** and **spirogyra**.



BINARY FISSION

- A single celled **organism divides up into two parts**, which start to grow as separate individuals.
- It is common in amoeba and other protozoans.

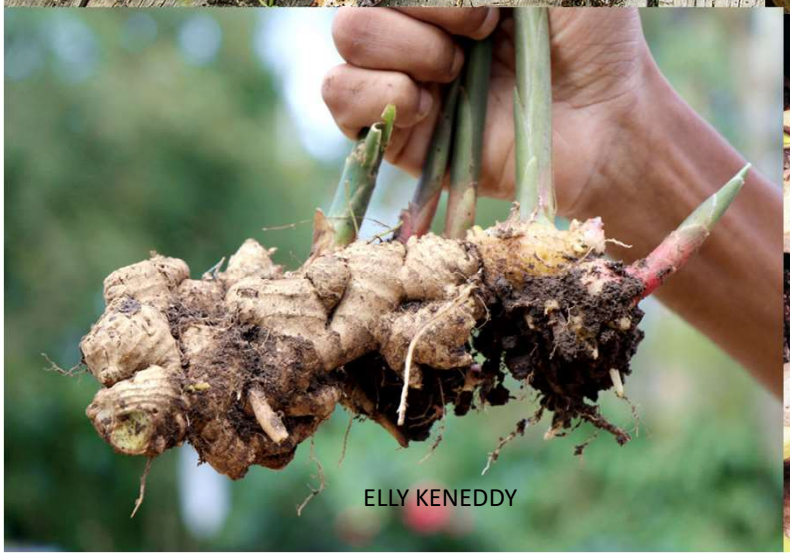


VEGETATIVE REPRODUCTION

This is a mode of reproduction in plants where part **of the plant other** than the seeds develops into a new individual.

This normally takes place in:

- ❑Rhizomes
- ❑Bulbs
- ❑Corm
- ❑Suckers
- ❑Stolons
- ❑Runners



Name	Characteristics	Examples
Rhizome	Underground stem, swollen with food, has lateral buds, has scale leaves, has nodes and internodes.	***Ginger, cana lily***
Stolon	Underground stem, not swollen with food, has lateral buds, has scale leaves.	***Couch grass, spear grass***
Runners	Grows on the surface, has fibrous roots, has lateral buds, has scale leaves, has nodes and internodes.	***Star grass***
Bulbs	Leaves swollen with food, has a short stem, has adventitious roots, has scale leaves, has thick foliage leaves, has lateral buds.	***Onions, garlic***
Corms	Vertical stem swollen with food, has adventitious roots, has lateral buds, has scale leaves.	***Yams***
Suckers	New individual plant produced alongside the parent plant	***Pineapple, banana***

ADVANTAGES OF VEGETATIVE REPRODUCTION

- ✓New plants resemble the parent plant and any good quality in the parent is retained.
- ✓The growth of the new plant is rapid.
- ✓The reproductive organ stores plenty of food which the new plant uses.
- ✓It does not involve processes like pollination, fertilization and dispersal agents are not required.
- ✓Large areas can be covered in relatively little time.
- ✓It involved only one individual.

DISADVANTAGES OF VEGETATIVE REPRODUCTION

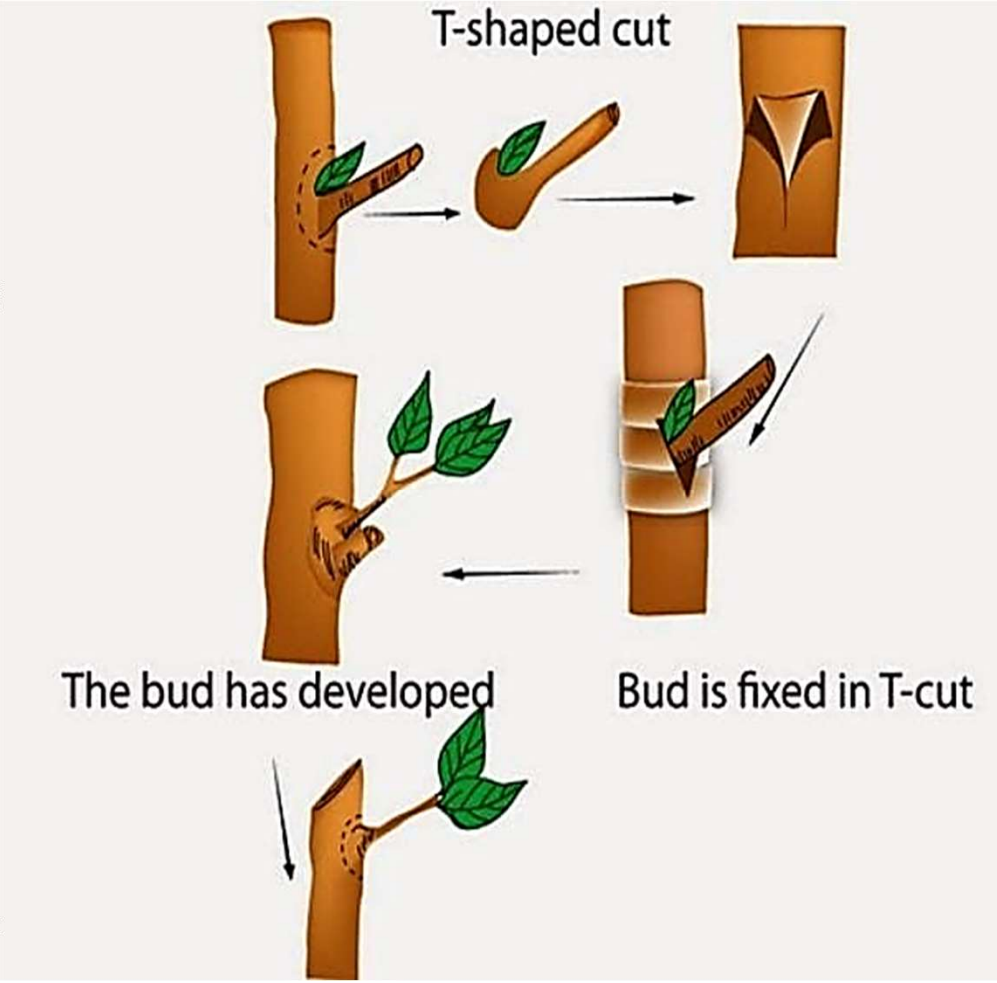
- Since new plant grows on its parent, it can lead to crowding.
- Shortage of water and mineral salts is likely to occur due to competition.
- Diseases of the parent plant can be transmitted to the young ones.
- If the parent plant has poor characters, they can be maintained by the young ones.

ARTIFICIAL VEGETATIVE PROPAGATION

- This is a mode of reproduction where man is involved in the propagation process.
- It is done in several ways, which include ***budding***, ***grafting***, ***layering***, ***cuttings***, etc.

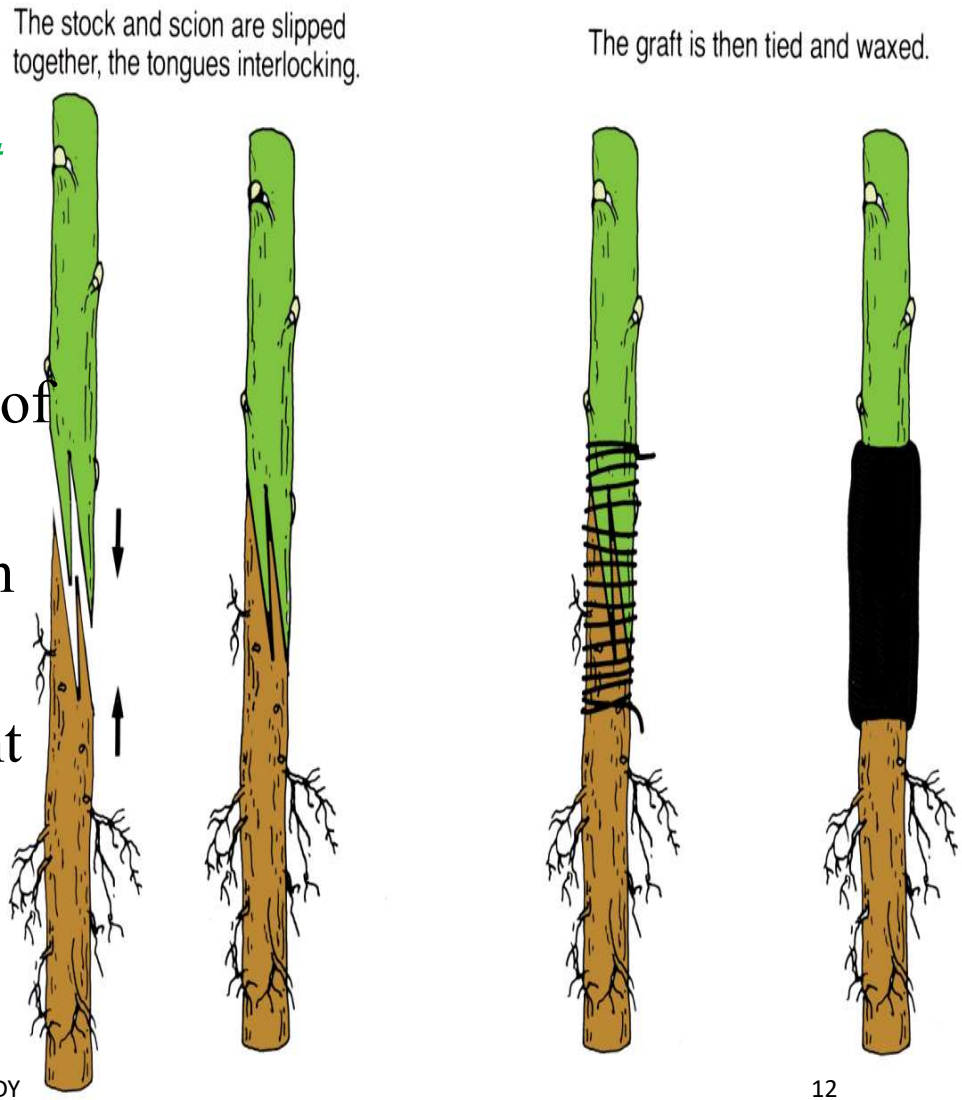
Budding

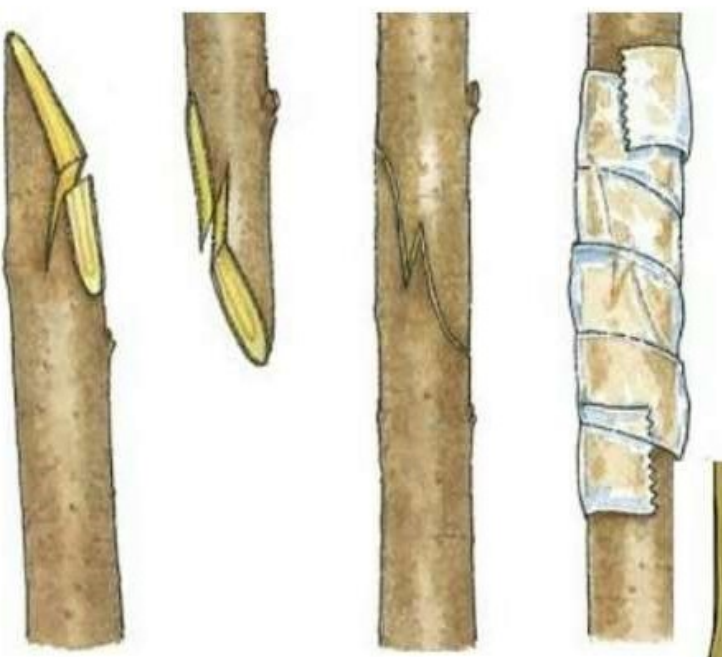
- This is the process where a bud is detached from a plant and grown in suitable conditions into a new plant.

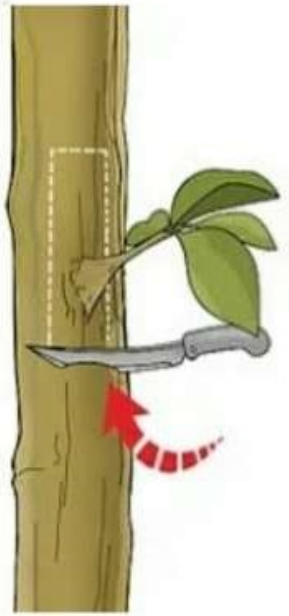


GRAFTING

- This is the ***insertion of part of one plant onto another plant so as to come into organic union and to grow as one plant***.
- The part inserted can be a bud or a shoot of a plant and it is called a **scion**.
- The part in the ground on which the scion is inserted is called a **stork**.
- The scion and stock should be of different varieties but same species.

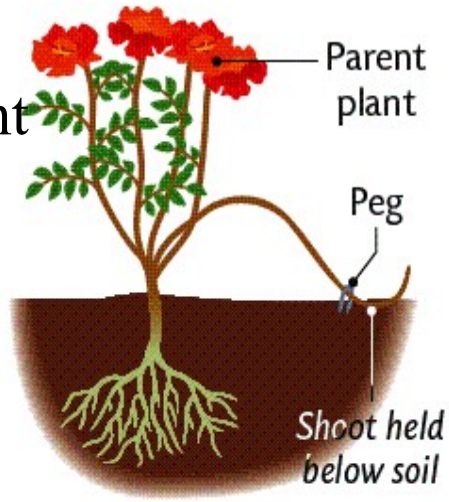


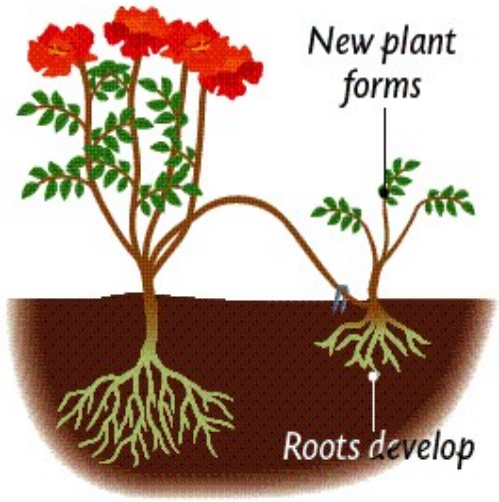


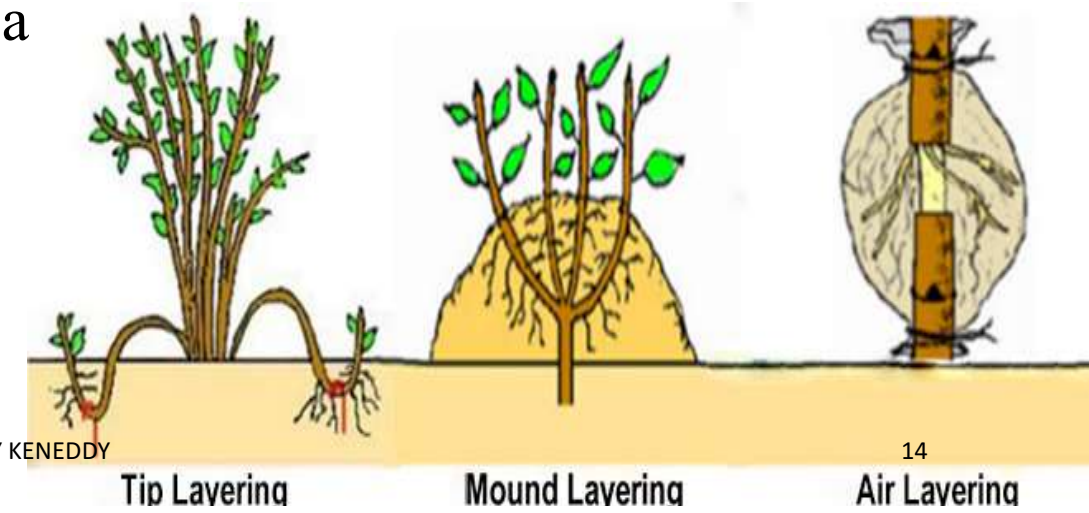


LAYERING

- This is where a branch of a plant is bent to touch the ground and allowed to develop roots.
- When the roots are developed, it is cut from the plant and it starts to grow as a separate self-supporting plant.







ADVANTAGES OF ASEXUAL REPRODUCTION

- It is reliable because it is less likely to be affected by adverse environmental factors like for the case of seeds.
- It leads to genetic consistence since there is no mixing of genes during reproduction.
- It results into early maturity because the organisms produced have enough food reserve from the parent.
- It is self-sufficient because it does not rely on external processes like pollination, fertilization and dispersal.
- It does not result in indiscriminate and wide spread distribution like in the case of seeds, which leads to wastage.
- It does not require formation of sex organs.
- It is the only means of reproduction in some organisms.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