

Asexual Reproduction

World of Plants

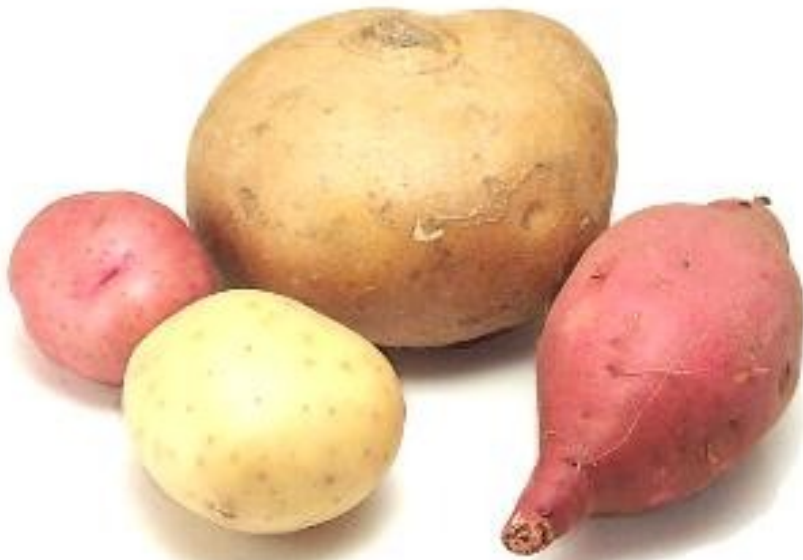
Standard Grade Biology

	Sexual Reproduction	Asexual Reproduction
Definition	• Involves sex cells and fertilisation	• Does not involve sex cells and fertilisation • Only one parent plant
Advantages/ Disadvantages	• Offspring are not genetically identical to one another • There is variation in the offspring	• Offspring have no variation • Offspring are genetically identical to one another

Asexual reproduction

- Also known as **vegetative propagation**
- 3 methods of vegetative propagation
 - tubers
 - bulbs
 - runners

Tubers



Tubers are underground food stores which store food over the winter and provide a new plant with food until it can make its own.

Examples: potato, artichoke, yam, cassava, water chestnut, arrowroot

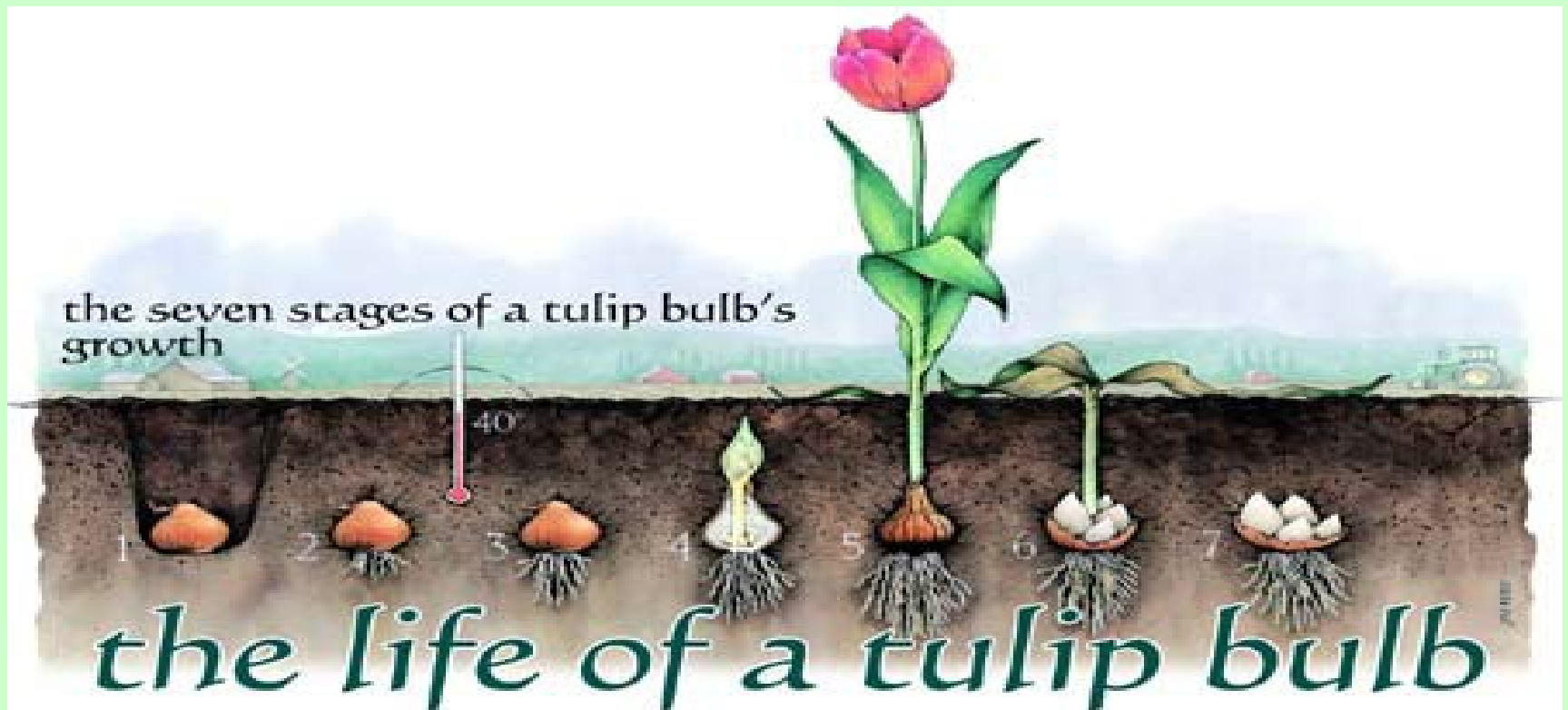


Taro-
Japanese
potato

Food made by the new plant is sent to make new tubers. Thereby reproducing itself

Bulbs

- E.g. daffodils, lilies





Runners



Runners are side shoots which grow out from the parent plant.

Buds form at points along the runner and eventually these buds form roots and grow into new plants.



Examples: spider plant (*Anthericum*), strawberry (*Fragaria x ananassa*)



Artificial Propagation

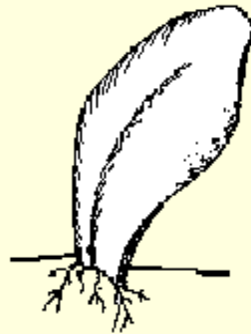
- 2 methods used to cultivate plants asexually
 - taking cuttings
 - grafting

Cutting

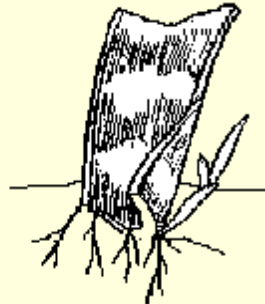
Cuttings are small pieces of stem with some leaves attached, the new plant grows from this.



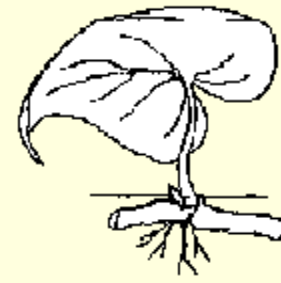
Stem Cutting
Geranium



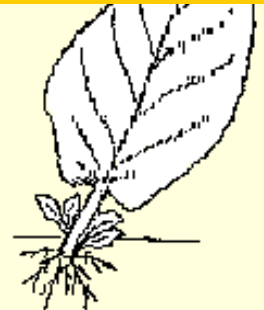
Entire Leaf Cutting
Echeveria



Leaf Cutting
Sansevieria



Leaf Bud Cutting
Philodendron



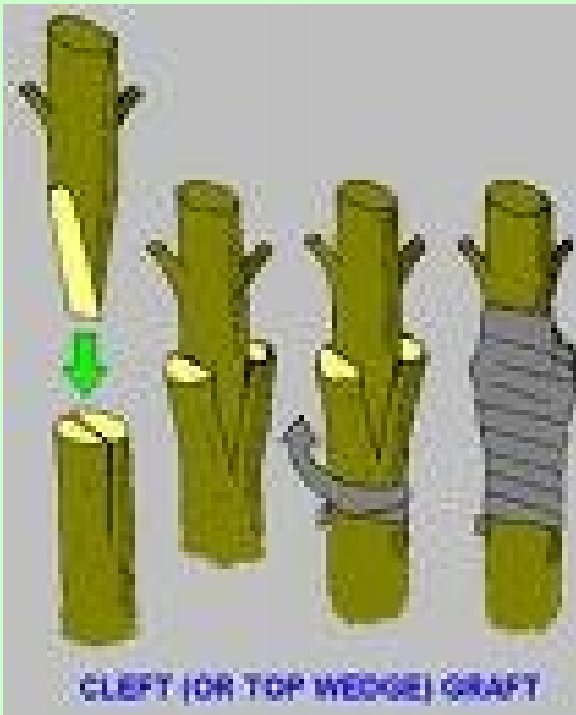
Leaf petiole
African Violet



They can be placed in
moist
soil or water (and
sometimes
dipped in rooting



Grafting



A cut stem of one plant (with good flower or fruit growth) **(the graft)** is taken and firmly attached to the rootstock of another plant (which has a strong, established root system) **(the stock)**.

Examples- roses, fruit trees

Commercial aspects

Artificial propagation has allowed us to **adapt and improve** plants for our own use.

Some of the benefits include:

- **Quick** production of **large numbers** of genetically identical plants.
- **Specific** varieties, desired features or consistent quality can be produced especially in fruit, flowers.

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