

A close-up photograph of a cluster of bright pink bougainvillea flowers. The flowers have large, papery bracts and small, white, star-shaped true flowers in the center. The background is filled with lush green leaves.

CLASS 7
CHAPTER 12

REPRODUCTION IN PLANTS

WHAT IS REPRODUCTION?

REPRODUCTION CAN BE DEFINED AS A BIOLOGICAL PROCESS BY WHICH AN ORGANISM GIVE RISE TO OFFSPRINGS SIMILAR TO THAT OF PARENTS.

HOW DO PLANT REPRODUCE?

FLOWERS PERFORM THE FUNCTION OF REPRODUCTION IN PLANTS. FLOWERS ARE THE REPRODUCTIVE PARTS. THERE ARE ALSO OTHER WAYS BY WHICH A PLANT CAN REPRODUCE. THOSE ARE SEXUAL AND ASEXUAL MODES OF REPRODUCTION.

MODES OF REPRODUCTION

- ASEXUAL REPRODUCTION
 - VEGETATIVE PROPAGATION
 - BUDDING
 - FRAGMENTATION
 - SPORE FORMATION
- SEXUAL REPRODUCTION

1) ASEXUAL REPRODUCTION: WHEN OFFSPRING IS PRODUCED BY A SINGLE PARENT WITHOUT PRODUCTION OF SEED.

(A) VEGETATIVE PROPAGATION: THE REPRODUCTION TAKES PLACE WITH THE HELP OF THE VEGETATIVE PARTS OF PLANT LIKE ROOTS, STEMS, LEAVES AND BUDS.

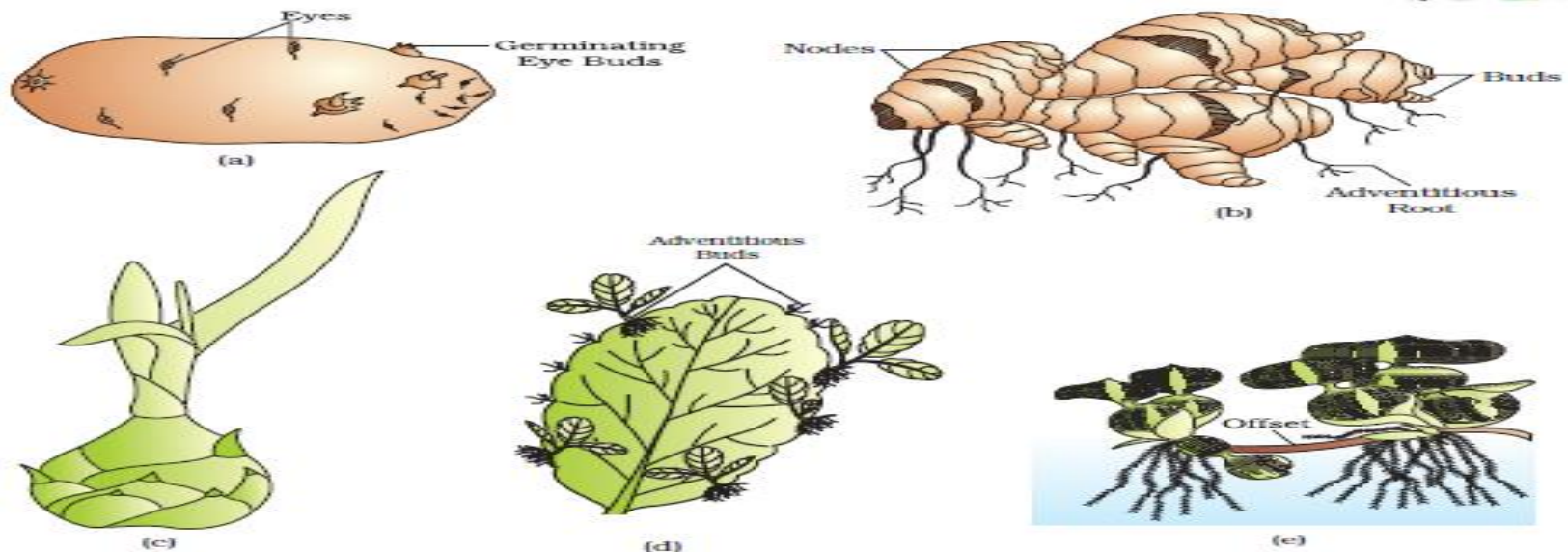
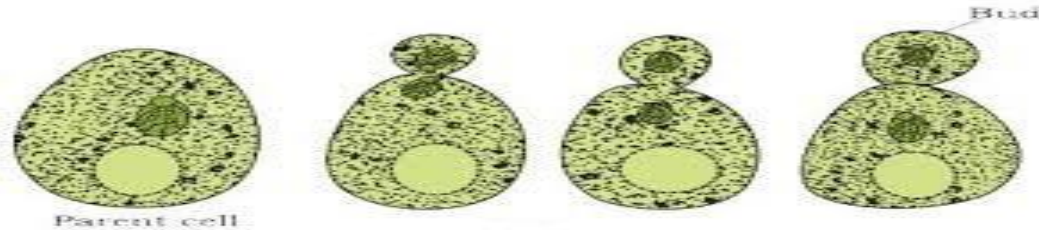
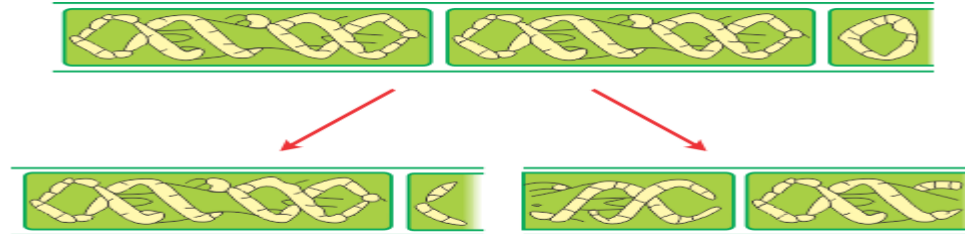


Fig: (a) eyes of potato; (b) rhizome of ginger; (c) bulbil of Agave; (d) leaf buds of Bryophyllum; (e) offset of water hyacinth

(B) BUDDING: YEAST IN FAVOURABLE CONDITION PRODUCES A SMALL BUD LIKE PROJECTION WHICH FORMS NEW YEAST CELL. THE PROCESS IS CALLED BUDDING.



(C) FRAGMENTATION: LIKE IN ALGAE NEW ORGANISMS ARE FORMED FROM THE FRAGMENTS OF THE PARENT BODY.



(D) SPORE FORMATION: SOME PLANTS AND FUNGUS REPRODUCE ASEXUALLY BY SPORES, WHICH ARE LIGHT WEIGHT AND CAN FLOAT IN FOR LONG DISTANCE AND GERMINATE TO GIVE NEW INDIVIDUAL.



2) **SEXUAL REPRODUCTION:** In sexual reproduction, in male cell (gamete) produced by the male part of the flower fuses with female cell (gamete) produced by the female part of the flower. The fusion of the male and female gametes known as fertilization, leads to the formation of single cell called the zygote.

FLOWERS ARE OF TWO TYPES:

Unisexual flowers

- Flowers with only the male or the female reproductive part are called **unisexual flower**. They are also called incomplete flowers.
- For example: Watermelon, pumpkin, papaya



Bisexual flowers

- Flowers having both stamens and pistils are called bisexual flowers. They are also called **complete flowers**.
- For example: hibiscus, wild rose.

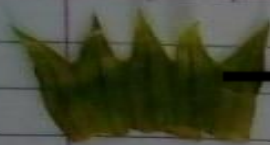


Flower is the reproductive part of flowering plant. A typical flower has four parts- sepals, petals, stamens and a carpel.



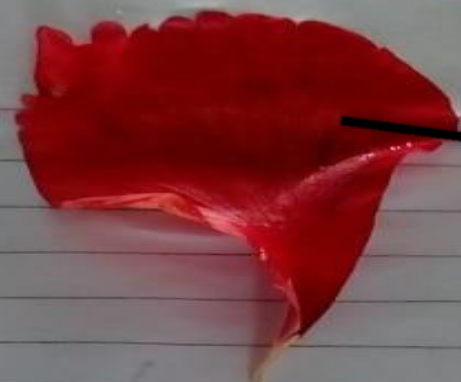
- Sepals*: Sepals are green and they protect the other part of a flower.
- Petals*: Petals are either coloured or white and are seen as the flower blooms. They usually attract insects.
- Stamen*: Stamen is the male part of the flower, that has a long filament with an elongated sac like structure at its tip called the anther. Anthers produce pollen grains.
- Carpel*: The pistil or carpel is the female reproductive organ of the flower. The carpel has a stalk-like style with a sticky tape called the stigma and a swollen base, called the ovary. Ovary contains one or more ovules. Ovules contain the egg cells.

19



Calyx

Sepals



Corolla

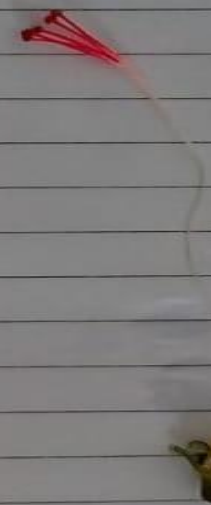
Petals



→ Anther

→ Filament

Stamens
Androecium
Monodelphous stamen



→ Stigma

→ Style

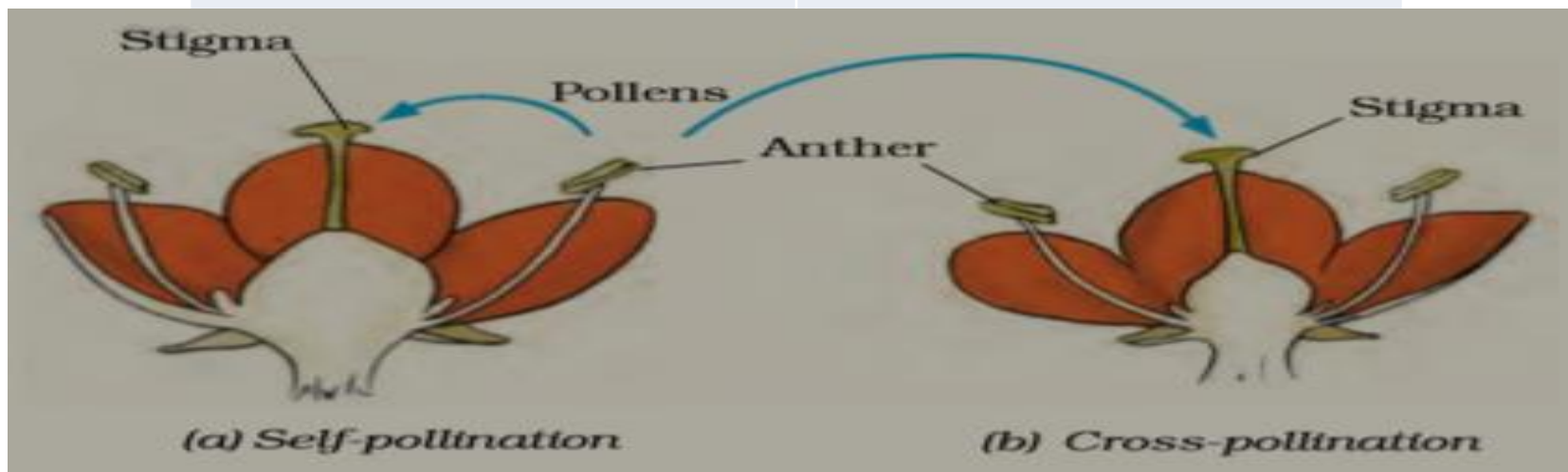
→ Ovary

Carpels
Gynoecium

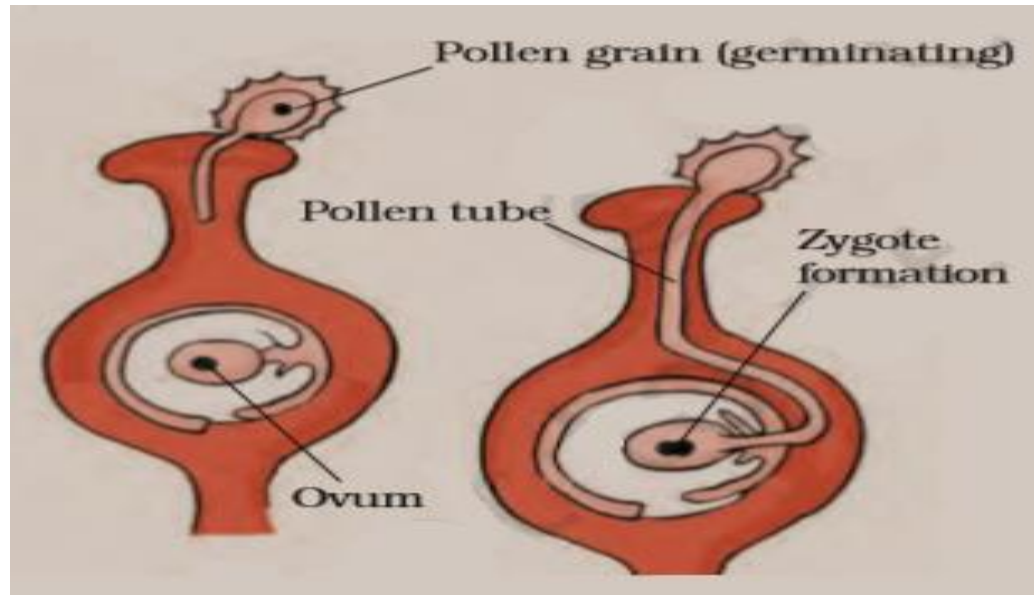
Dissection of China rose.

POLLINATION: THE TRANSFER OF POLLEN GRAINS FROM THE ANTHER TO THE STIGMA OF THE SAME KIND OF FLOWER IS CALLED POLLINATION.

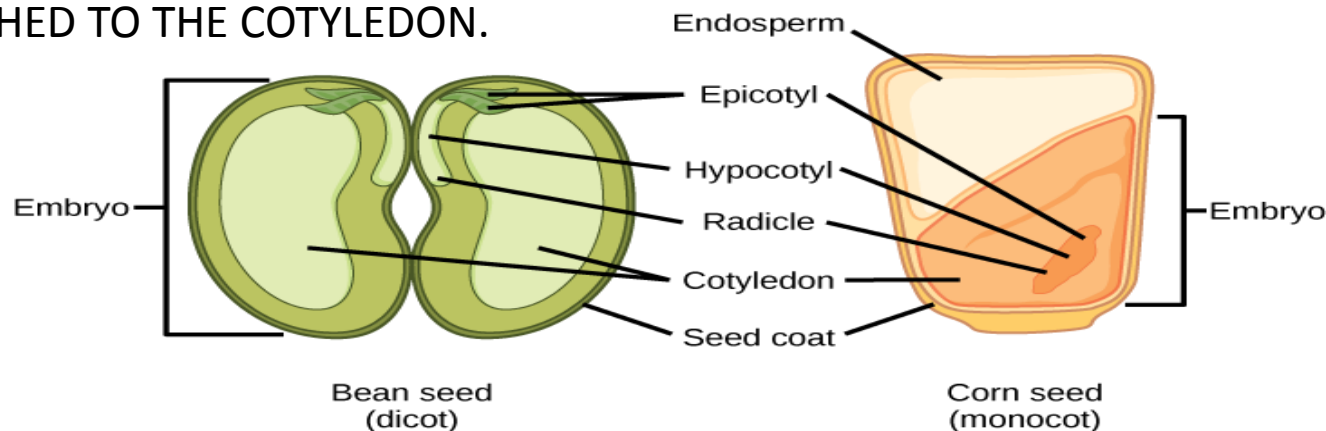
(a) SELF POLLINATION	(b) CROSS POLLINATION
IF POLLEN GRAINS FROM A FLOWER REACH THE STIGMA OF THE SAME FLOWER OR ANOTHER FLOWER OF SAME PLANT.	IF POLLEN GRAINS FROM A FLOWER REACH THE STIGMA OF A FLOWER OF ANOTHER PLANT OF SAME KIND.
OCCURS ONLY IN BISEXUAL FLOWERS.	OCCURS BOTH IN UNISEXUAL AND BISEXUAL FLOWERS.



FERTILIZATION: THE PROCESS OF FUSION OF MALE AND FEMALE GAMETES TO FORM A ZYGOTE IS CALLED FERTILIZATION. THE ZYGOTE DEVELOPS INTO AN EMBRYO.



FRUITS AND SEED FORMATION: AFTER FERTILIZATION THE OVARY GROWS INTO A FRUIT, OVULE DEVELOPS INTO A SEED. THE EMBRYO HAS A RADICAL AND PLUMULE ATTACHED TO THE COTYLEDON.



SEED DISPERSAL:

ONCE THE SEED MATURES THE GET DISPERSED BY VARIOUS MEANS LIKE WIND, WATER, ANIMAL AND EXPLOSION OF FRUITS. THIS HAPPENS BECAUSE SEEDS ARE DISPERSED TO DIFFERENT PLACES.



Seed of drumstick



Seed of maple



Seed of cotton



Seed of madar



Seed of sunflower



Seed of tiger claw



Seed of *Xanthium*



Thank you