

Reproduction in Plants

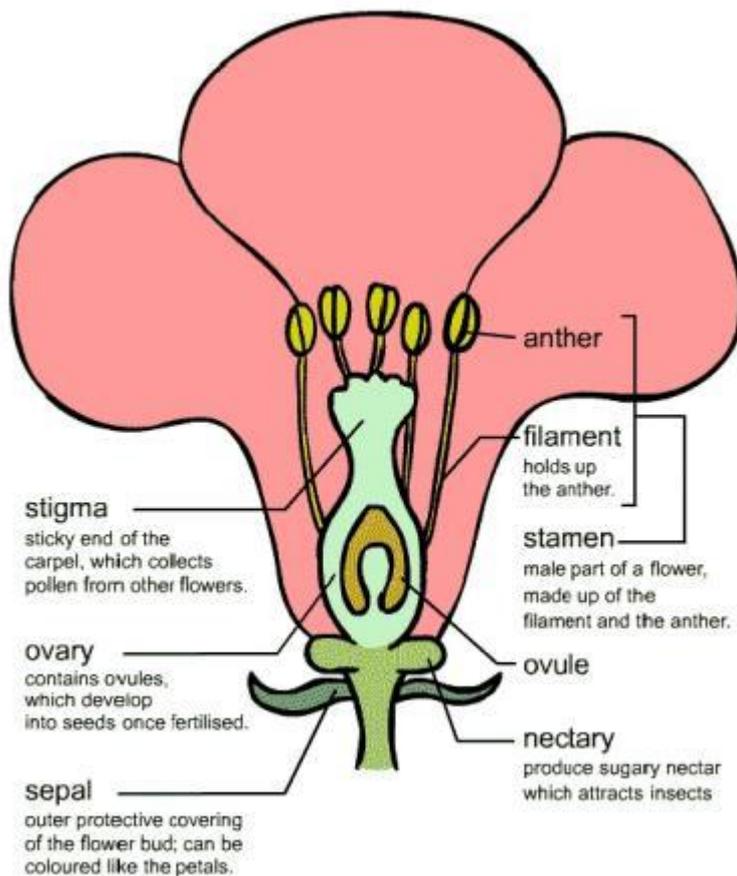
Introduction:



Sexual Reproduction: two or more organisms preferably male and female are needed to produce an offspring. Both plants and animals reproduce sexually.

PLANTS

Diagram of a flower:



SEED TO FRUIT

Fruit is the means by which flowering plants disseminate seeds. Firstly pollination must occur. Pollination is the transfer of pollen grains from anther to the stigma, whether by self or cross pollination. The pollen grains grow on the stigma which provides a sugar solution to feed the pollen cells. A pollen tube contains a tube nucleus and two male nuclei which grow out from the pollen grain. The micropyle provides an opening into the embryo sac so that the pollen tube can enter.

Fertilization must occur. The male sex cell nucleus fuses with the female sex cell nucleus. The pollen grains contain the male sex gamete and the ovules contain the female sex cells.

Double Fertilization

This takes place in the embryo sac. The first male cell nucleus fuses with the female cell nucleus to form an embryo zygote. The embryo zygote will develop into the embryo. It contains a radicle and a plumule. The testa (seed coat) will surround them and this develops from the outer wall of the ovule as it thickens and hardens. The result is a seed. The rest of the ovary thickens and forms the fruit wall or pericarp.

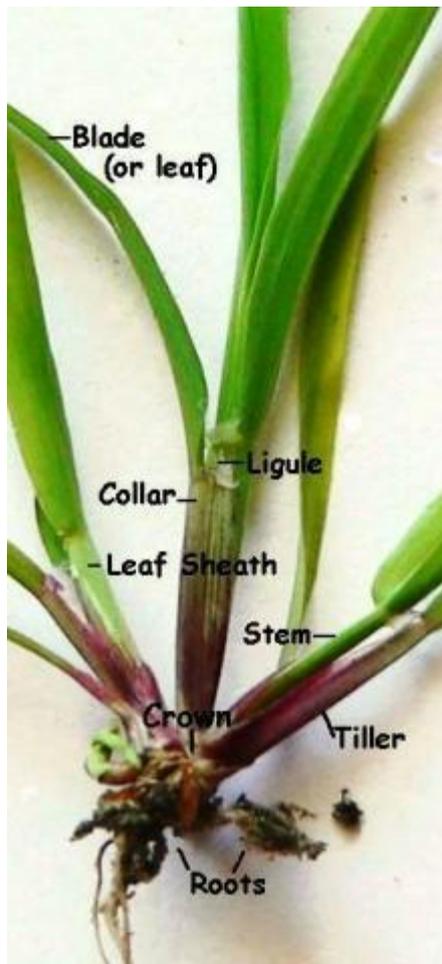
TYPES OF FERTILIZATION

SELF-POLLINATED: when a pollen grain falls on the stigma of the same flower, example garden pea.

CROSS-POLLINATION: when pollen grains fall on the stigma of another plant of the same species.

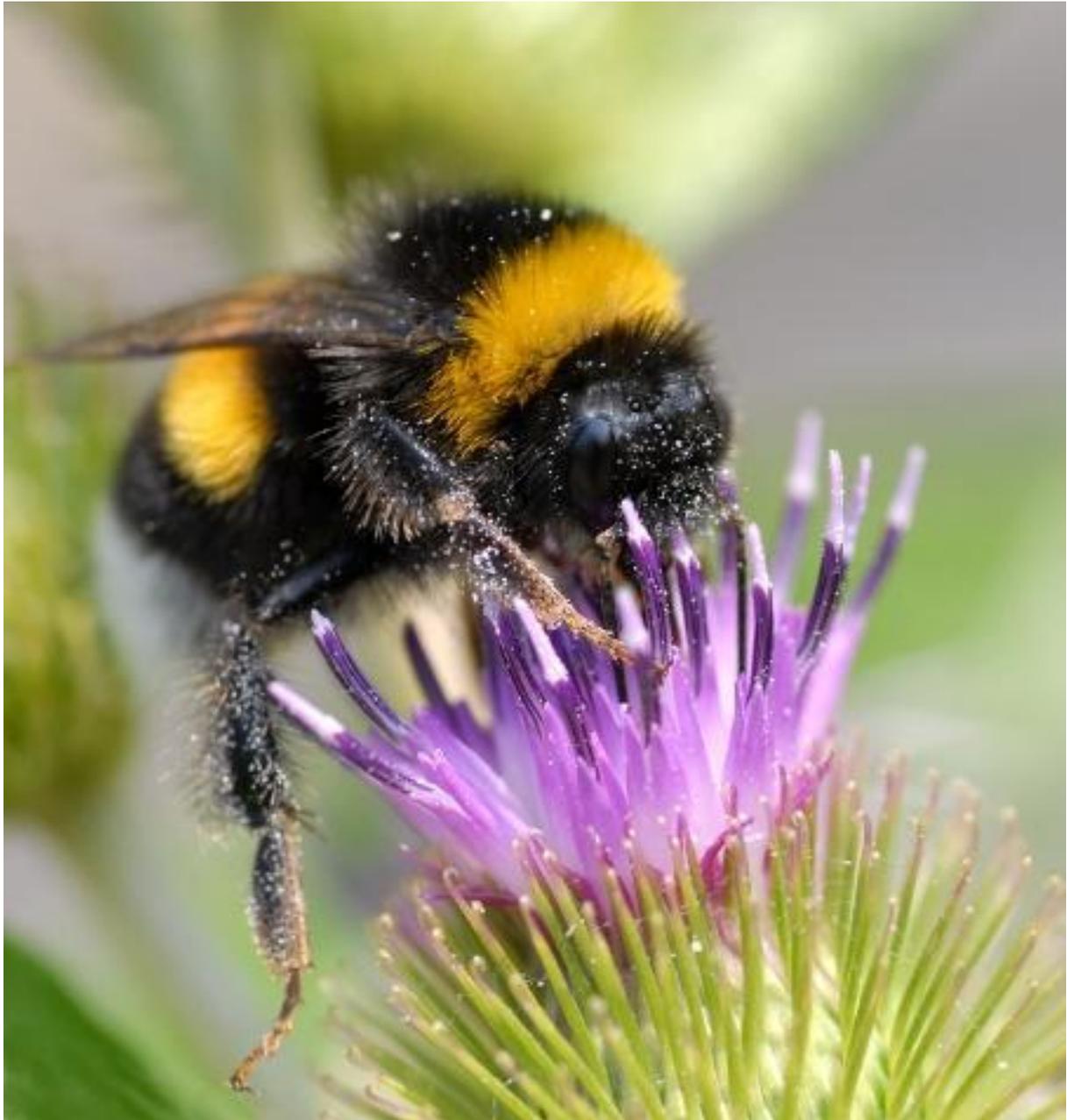
WIND-POLLINATION: these plants make a large amount of pollen which are dispersed by wind. This is possible because the anthers are long and hang out in the wind. They also have feathery styles to catch pollen grains. These plants are usually dull in colour and are often missed, example grass.

Wind pollinated grass plant



INSECT-POLLINATED: these pollen grains are dispersed by insects. These are colourful flowers that produce nectar to lure animals and insects. The pollen will stick to these creatures when they feed on the nectar of one plant that they can deliver to another plant and hence facilitate cross-pollination.

Insect pollinating a flower



DIFFERENCES BETWEEN WIND AND INSECT - POLLINATED FLOWERS

Table showing comparison of wind and insect-pollinated flowers:

Flower	Wind-Pollinated	Insect-Pollinated
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(part)

Petals	Small, often green- coloured, unattractive, without nectar, not scented.	Large, brightly coloured, attractive, often scented due to the presence of nectar.
Stamens	Anthers make large amounts of small, dry, smooth surfaced pollen grains which are easily wind borne. Filaments long and dangle the anthers loosely outside the flower.	Anthers make small amounts of large sticky, rough-surfaced pollen grains which cling well to insect body. Filaments are short, keeping anther within the flower.
Pistil	Stigma and style are large and feathery, hanging outside the flower.	Stigma is sticky and flat with flat short style inside the flower.
Examples	Grasses	Bean, guava, passion fruit, citrus