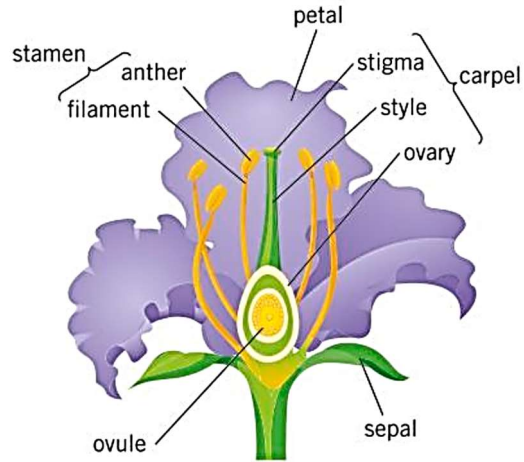


Knowledge organiser – 9.2 Plant reproduction

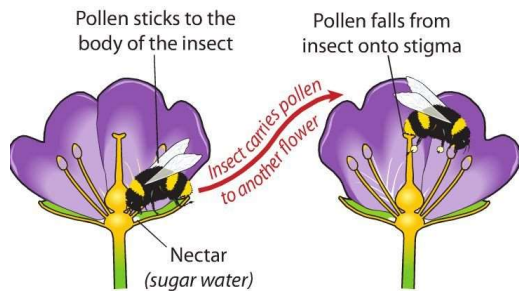
PARTS OF A FLOWER



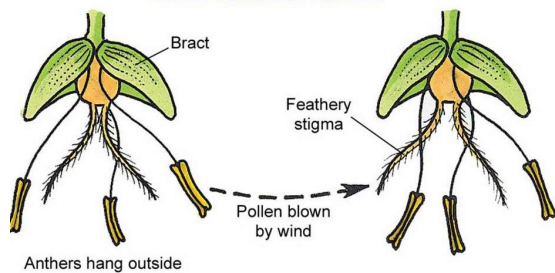
POLLINATION

- Can occur between two different plants (cross-pollination) or between male and female parts of the same plant (self-pollination).
- Pollen can be transferred by wind, insects, or other animals.

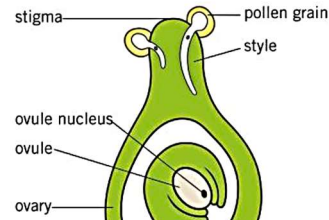
Insect pollination



WIND POLLINATED FLOWER



How are new plants made? Plants reproduce sexually to produce seeds. These seeds form after pollen grains and ovules join. After fertilisation, the fruit and seed are formed.



The tube grows out of the pollen grain and down through the style.



The pollen nucleus moves down the tube.



The pollen nucleus joins with the ovule nucleus. Fertilisation takes place and a seed will form.

	Insect pollinated	Wind pollinated
Petals	Large brightly coloured	Small dull in colour
Smell	Sweet	No scent
Nectar	Yes (attract insects)	No
Pollen quantity	Very little	Large quantity
Pollen type	Sticky or spiky	Light, dry, smooth (
Anther position	Firm and inside	Loose and outside
Stigma position	Inside flower	Outside flower
Stigma type	sticky	Sticky but also feathery

SEEDS have three important structures:

1. Seed coat → tough outer layer
2. Embryo → young root and shoot
3. Food store → store of food (starch) the young plant uses until it can photosynthesise.

To germinate a seeds needs:

1. Water → seed swells and embryo can grow.
2. Oxygen → respiration (energy)
3. Warmth → speeds up reactions

Method	Detail of seed dispersal	Examples
Wind	Seeds have lightweight parts, wings or parachutes.	Dandelion, sycamore
Animals (inside)	Brightly coloured and tasty fruits contain seeds with indigestible coats, so that the seeds pass through the animal's digestive system undamaged. They reach the ground in animal droppings and may be able to germinate.	Tomato, plum, raspberry, grape
Animals (outside)	Fruits have hooks that attach them to the fur of passing animals. The seeds drop and reach the ground where they may be able to germinate.	Goose grass, burdock
Water	Seeds with a small mass can float on water and may germinate if they reach land. Wood fruits are waterproof and are carried away by the sea.	Willow trees, coconut tree
Explosive	Have a pod that bursts open when ripe, throwing the seeds away from the plant in all directions.	Pea pod

KEYWORD	DEFINITION
Anther	The male part of the flower that produces pollen.
Carpel	The female part of the flower, made up on the stigma where the pollen lands, style and ovary.
Fertilisation	Joining of a nucleus from a male and female sex cell.
Filament	The part of a flower that holds up the anther.
Fruit	Structure that the ovary becomes after fertilisation, which contains seeds.
Germination	The period of time when a seed starts to grow.
Ovary	The part of a flower that contains ovules.
Ovules	Female sex cells in plants found in the ovary.
Petals	A brightly coloured part of a flower that attracts insects.
Pollen	Contains the plant male sex cells found on the stamens.
Pollination	Transfer of pollen from the male part of the flower to the female part of the flower on the same or another plant.
Seed	Structure that contains the embryo of a new plant.
Seed dispersal	The movement of seeds away from the parent plant.
Sepal	The special leaves found under the flower, which protect unopen buds.
Stamen	The male reproductive parts of the flower.
Stigma	The female part of a flower that is sticky to catch grains of pollen.
Style	The female part of a flower that holds up the stigma.