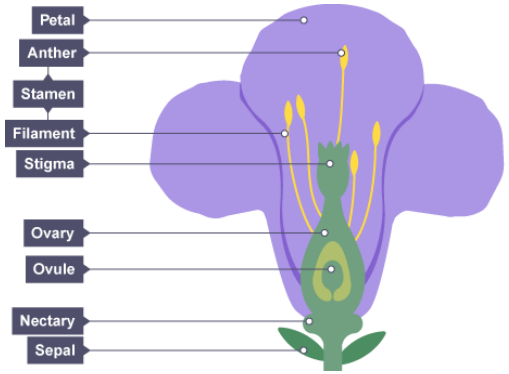
Knowledge Organiser – Year 8 Plants

Key words

Term	Definition
Phloem	Tissue that transports products of photosynthesis, including sugars
Xylem	Tubes responsible for the transport of water and minerals
Pollen grain	Structure produced by anthers of a flower, the male gamete
Ovule	Structure produce in the ovary of a flower that contains female gamete
Gamete	Sex cell – a cell that has half the DNA.
Pollination	Fertilisation of flowers by passing on their pollen.
Photosynthesis	Chemical process used by plants to make glucose and oxygen from carbon dioxide and water, using light energy.
Root hair cell	A specialised cell that increases the surface area of the root to improve the uptake of water and minerals
Stomata	Tiny holes in the skin of a leaf; they control gas exchange.
Translocation	Transport of dissolved substances within a plant
Transpiration	Loss of water from leaves by evaporation through the stomata
Fertilisers	A nutrient added to the soil to help plant growth

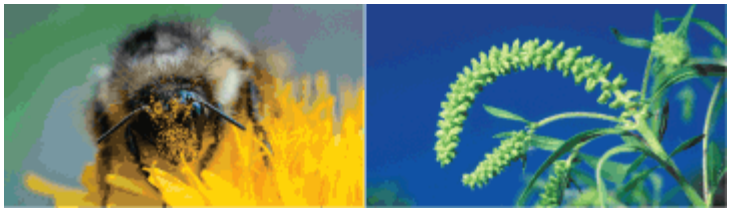


Flower structure

Structure	Function
Sepal	Protects unopened flower
Petals	May be bright to attract insects
Stamen	Male part of flower (anther held on filament)
Anthers	Produce pollen
Stigma	Top part female part that collects pollen
Ovary	Produces egg cells
Nectary	Produces nectar to attract insects

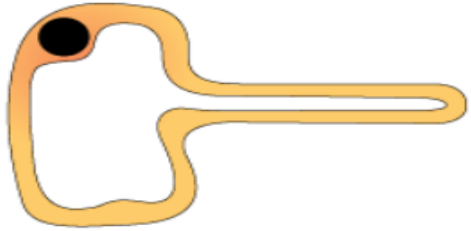
Pollination

During plant reproduction, pollen grains need to move from the anther of one flower to the stigma of another. This is pollination and may be achieved by the wind or with the help of insects. Insect pollinated plants tend to be bright and scented to attract insects, whereas wind pollinated plants are usually small, light and with no distinctive colouring or scent.



Roots

Roots are needed to obtain water and minerals from the soil. To do this they have specialised cells called root hair cells. The large surface area allows them to absorb these useful substance.



Xylem and phloem

Plants have tissues to transport water, nutrients and minerals.

The xylem transports water and mineral salts from the roots up to other parts of the plant. Meanwhile the phloem transports sugars between the leaves and the other parts of the plant. This is known as translocation.

Photosynthesis

Photosynthesis is a process used by plants to make glucose and oxygen from carbon dioxide and water, using light energy.

Carbon dioxide + water $\rightarrow$ glucose + oxygen

Photosynthesis occurs in the leaf which is well adapted for this because it has a stomata – a small pore that lets carbon dioxide out of the leaf. Leaves also contain many chloroplasts which is the area of the cell where photosynthesis happens.

Fertilisers

Fertilisers provide useful substances to plants to help them grow. Some examples include nitrogen and magnesium. By providing these elements, plants are able to grow larger. Without these elements they may have a deficiency. For example as nitrogen helps with growth, a plant with a nitrogen deficiency may be smaller.