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Keyword	Definition
Photosynthesis	Process carried out where plants make their own food.
Chlorophyll	Green pigment in chloroplasts of plant cells. It enables photosynthesis to take place.
Chloroplasts	Contain the green pigment chlorophyll; the site photosynthesis
Waxy Cuticle	Waxy layer, prevents water loss.
Upper Epidermis	Thin and transparent allowing lift to pass through.
Palisade Mesophyll	Main region for photosynthesis. Lots of palisade cells contain lots of chloroplasts.
Spongy Mesophyll	Cells are more loosely packed. Contains air spaces between cells allowing gas exchange.
Lower Epidermis	Contains stomata to regulate the loss of water vapour (transpiration)
Stomata	Each stomata surrounded by a pair of guard cells. Guard cells control whether they're open or closed.
Petals	Brightly coloured to attract insects.
Stamen	The male part of the flower (each consist of an another held up on a filament)
Stigma	The top of the female part of the flower which attracts pollen.
Anthers	Produce male sex cell (pollen grains)
Ovary	Produces the female sex cells (contained in the ovules)
Nectary	Produce a sugary solution called nectar, which attracts insects.

Green plants and algae do not eat food to get their energy, instead they make their own food by a process called **photosynthesis**. Photosynthesis takes place inside plant cells with the chloroplasts

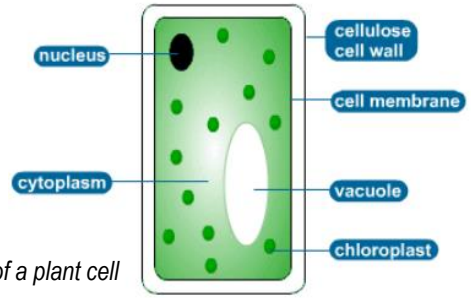
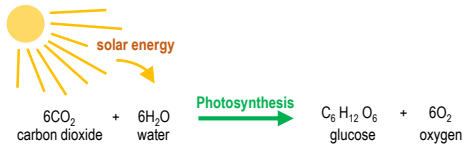


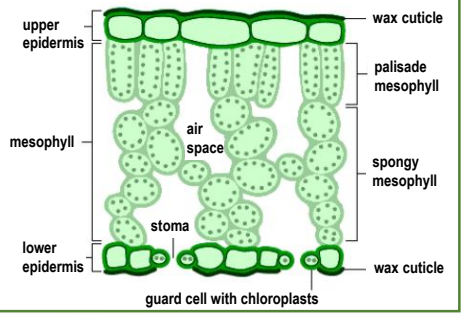
Diagram of a plant cell

Chloroplasts contain a green pigment called **chlorophyll**. This absorbs light energy needed for photosynthesis to occur.

Plants use the raw materials; Carbon Dioxide and Water. With the presence of light energy from the sun, the raw materials are converted into Glucose and Oxygen



The Leaf Structure

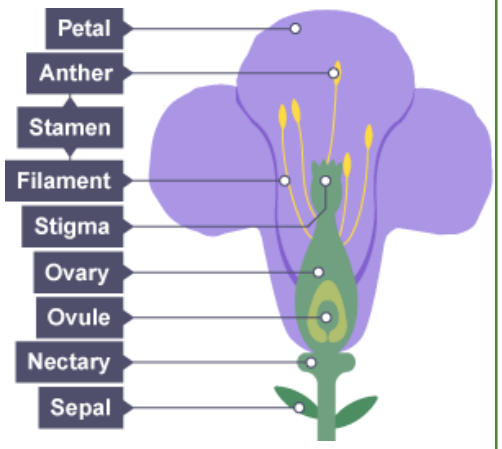


This plant is **deficient in nitrate** ions. Shows poor growth and yellow leaves. Nitrate ions are needed to build proteins and to help the plant grow.

The plant is **deficient in phosphate** ions. Phosphate ion are needed to ensure good root growth. The leaves are starting to turn purple.

The plant is **deficient in magnesium** ions. Yellow leaves start to form, so rate of photosynthesis is reduced. Magnesium ions are needed for photosynthesis.

The plant is **deficient in potassium** ions. Potassium ions are needed for making flowers and fruit. The leaves are turning yellow, with dead spots.



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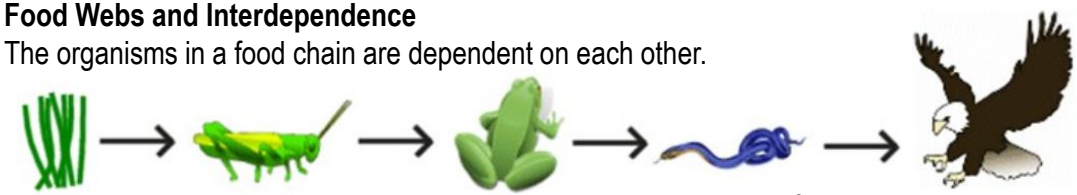
Pollination
During plant reproduction, pollen grains need to move from the anther of one flower to the stigma of another flower. This is called pollination. Pollination can occur either by insects or by the wind

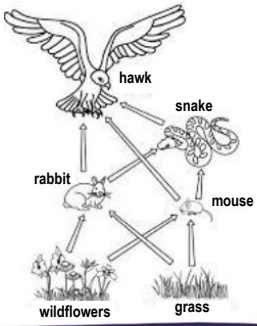
Feature	Insect-pollinated	Wind-pollinated
Petals	Large and brightly coloured - to attract insects	Small, often dull green or brown – no need to attract insects
Scent & Nectar	Usually scented and with nectar – to attract insects	Non scent or nectar – no need to attract insects
Number of pollen grains	Moderate – insects transfer pollen grains efficiently	Large amounts – most pollen grains are not transferred to another flower
Pollen Grains	Sticky or spiky – sticks to insects well	Smooth and light – easily carried by the wind without clumping together
Anthers	Inside flower, stiff and firmly attached – to brush against insects	Outside flower, loose on long filaments – release pollen grains easily
Stigma	Inside flower, sticky – pollen grains stick to it when an insect brushes past	Outside flower, feathery – form a network to catch drifting pollen grains

Food Webs and Interdependence
The organisms in a food chain are dependent on each other.



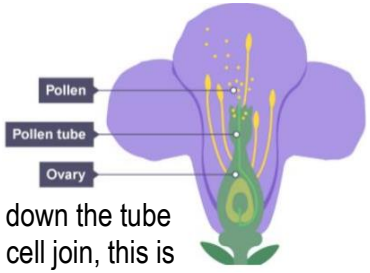
For example, grass is eaten by the caterpillar, which is eaten by the frog, which is eaten by the snake, which in turn is hunted by the bird.
The grass is the producer in this food chain, and producers are at the start of all food chains. The grass captures the energy from the sunlight to photosynthesise and make glucose. The glucose provides energy for the grass to grow. When the caterpillar eats the grass, some of the energy left in the grass is transferred to the caterpillar. This energy is passed down the food chain.

Changes in he number of one organism in an area - its population can affect other organisms in the same food chain. The number of plants in an area can be affected by the amount of rain, sunlight, minerals and space available to grow. The number of animals can be affected by the availability of food habitats, mates, water and disease.



If the population of mice caught a disease, then there would be more competition between the hawk and the snake to catch the rabbit. This could then cause the number of rabbits to decrease.

Fertilisation
After pollination the pollen makes a pollen tube down the style to the ovary. The nucleus of the pollen cell travels down the tube to the ovum – when the cell join, this is fertilisation. The cell made when the pollen and ovum fuse will become the seed, which can become the new plant. Plants then form fruits, often from the ovary walls.



Further Reading

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