Friday 18th February 2022

Photosynthesis

The Process of Photosynthesis

The cells in the green parts of plants (leaves, stem, ect) contain small sub-cellular structures called chloroplasts. These contain a green substance called chlorophyll, which is responsible for photosynthesis, and gives the plant it’s green colour.

During photosynthesis, energy is transferred to the plant from the environment through light. This means that photosynthesis is an endothermic reaction – it takes energy from the environment. The energy transferred is used to convert carbon dioxide (CO2) from the air and water (H2O) from the soil into sugar called glucose (C6H12O6). The reaction also produces oxygen (O2) as a by-product, which the plant releases into the air.

The word and chemical symbol equation for photosynthesis. 
Carbon Dioxide + Water + Light = Glucose + Oxygen


Leaf adaptations

For photosynthesis to be successful, a plant needs plenty of the reactants – Carbon Dioxide, Light, and Water. The leaves of plants are perfectly adapted as organs of photosynthesis because:

* Most leaves are broad, giving more surface area.
* Most leaves are thin, so the diffusion distance for gases is short.
* They contain chlorophyll in chloroplasts to absorb light.
* The leaves have veins, which bring water to the cells, and remove the resulting products from photosynthesis.
* There are air gaps in the leaves, which allows carbon dioxide to enter the cells, and oxygen to leave.
* They have guard cells which open and close the stomata (air gaps) in the leaves to regulate the gas exchange.