

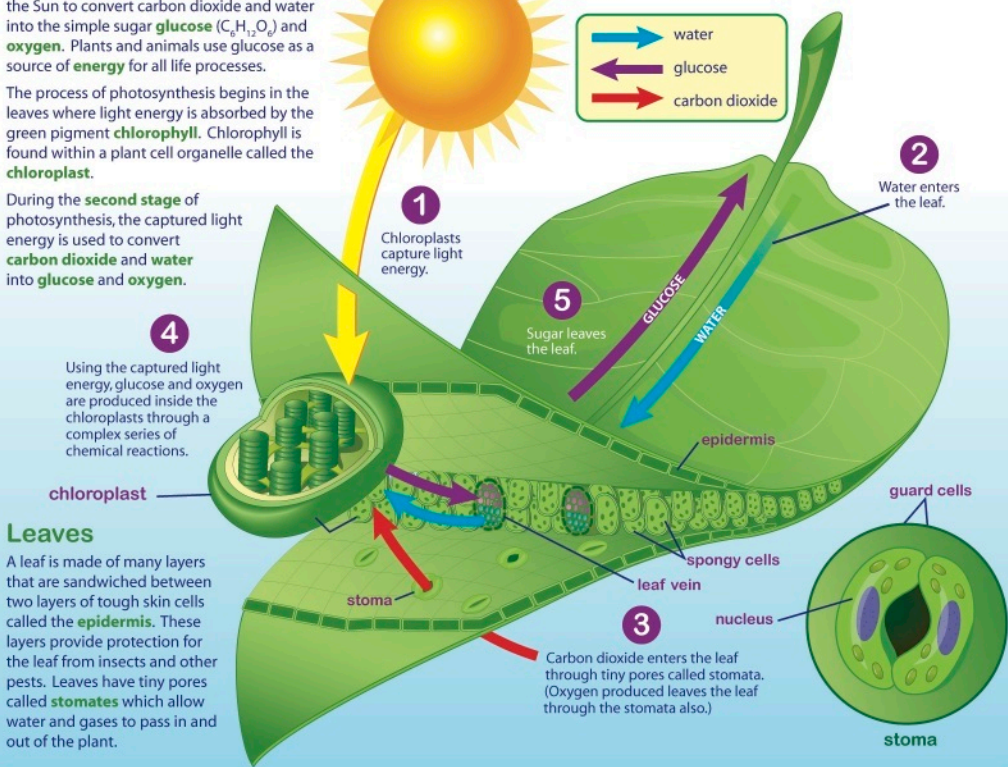
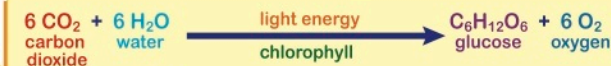
Photosynthesis & Respiration

Photosynthesis

Photosynthesis is a process by which green plants and certain bacteria use the energy from the Sun to convert carbon dioxide and water into the simple sugar **glucose** ($C_6H_{12}O_6$) and **oxygen**. Plants and animals use glucose as a source of **energy** for all life processes.

The process of photosynthesis begins in the leaves where light energy is absorbed by the green pigment **chlorophyll**. Chlorophyll is found within a plant cell organelle called the **chloroplast**.

During the **second stage** of photosynthesis, the captured light energy is used to convert **carbon dioxide** and **water** into **glucose** and **oxygen**.



Leaves

A leaf is made of many layers that are sandwiched between two layers of tough skin cells called the **epidermis**. These layers provide protection for the leaf from insects and other pests. Leaves have tiny pores called **stomates** which allow water and gases to pass in and out of the plant.

Cellular Respiration

Cellular Respiration is a process by which cells break down glucose to release stored energy.

Stage 1 of respiration begins in the cell's cytoplasm by the break-down of glucose into smaller molecules releasing a small amount of energy.



During **Stage 2**, the smaller molecules combine with oxygen in the mitochondria to produce a large amount of energy along with carbon dioxide and water.

