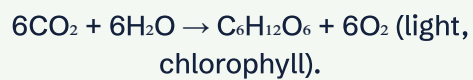


Nutrition in flowering plants What is photosynthesis?	Nutrition in flowering plants What energy conversion happens in photosynthesis?
Nutrition in flowering plants Word equation for photosynthesis?	Nutrition in flowering plants Balanced symbol equation for photosynthesis?
Nutrition in flowering plants What is a limiting factor?	Nutrition in flowering plants Which three factors affect the rate of photosynthesis?
Nutrition in flowering plants Why does the rate fall at high temperature?	Nutrition in flowering plants Which leaf cells do most photosynthesis, and why?

Light energy is converted to chemical energy, stored in glucose.

The process by which plants make glucose from carbon dioxide and water, using light energy absorbed by chlorophyll.



Carbon dioxide + water → glucose + oxygen (in the presence of light and chlorophyll).

Carbon dioxide concentration, light intensity and temperature.

A factor in short supply that stops the rate of a process from increasing.

Palisade mesophyll cells: packed with chloroplasts and close to the light at the top of the leaf.

The enzymes controlling photosynthesis are denatured above their optimum temperature.

Nutrition in flowering plants

Why does the spongy mesophyll have air spaces?

Nutrition in flowering plants

How is the upper epidermis adapted for photosynthesis?

Nutrition in flowering plants **Biology only**

How is a leaf adapted for gas exchange?

Nutrition in flowering plants **Biology only**

Why are moist cell surfaces important for gas exchange in a leaf?

Nutrition in flowering plants

Why do plants need magnesium ions?

Nutrition in flowering plants

Why do plants need nitrate ions?

Nutrition in flowering plants

How can you measure the rate of photosynthesis in pondweed?

Nutrition in flowering plants

How is light intensity changed in the pondweed practical?

It is thin and transparent, so light passes through to the palisade cells.

So carbon dioxide can diffuse through the leaf to the cells and oxygen can diffuse out.

Gases dissolve in the film of water on the mesophyll cells, then diffuse into or out of the cells.

Broad and flat (large surface area), thin (short diffusion distance), many stomata, air spaces in the spongy mesophyll, moist cell surfaces.

To make amino acids for proteins. A shortage causes stunted growth.

To make chlorophyll. A shortage makes the leaves yellow.

By changing the distance between the lamp and the plant.

Count the oxygen bubbles released per minute, or measure the volume of gas collected.

Nutrition in flowering plants

Why is a plant destarched before a starch test?

Nutrition in flowering plants

Why is a leaf boiled in ethanol before the iodine test?

Nutrition in flowering plants

What does a variegated leaf show in the starch test?

Nutrition in flowering plants

How do you show that carbon dioxide is needed for photosynthesis?

Ethanol removes chlorophyll so the colour change can be seen. Turn off the Bunsen burner first.

So any starch found was made during the investigation. It is kept in the dark for 24 to 48 hours.

Compare a leaf in a flask with soda lime, which absorbs carbon dioxide, with a control leaf. Test both for starch.

Only the green areas turn blue-black, so chlorophyll is needed for photosynthesis.