

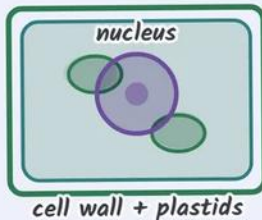
Photosynthesis in Higher Plants

light energy trapped, then spent building sugar out of carbon dioxide



Photosynthesis, the overall picture

- the physico-chemical process by which green plants use light energy to build carbohydrate from carbon dioxide and water, releasing oxygen as a byproduct
- happens inside the **chloroplast**, mostly in the mesophyll cells of a leaf, and runs in two linked stages: a light reaction and a carbon-fixation (Calvin cycle) reaction
- the oxygen released comes from the splitting of water, not from carbon dioxide: this was shown using isotope-labelled water

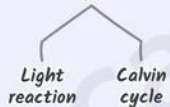


a plant cell's squared-off wall with plastids inside: the chloroplasts, where the whole process happens

Two linked stages *

Light reaction

Photosynthesis



one process, two stages, the second entirely dependent on the products of the first

traps light energy, splits water, produces ATP, NADPH and oxygen

Calvin cycle

uses that ATP and NADPH to fix carbon dioxide into carbohydrate; needs no light directly

