

The big picture

Photosynthesis lets plants turn light energy into chemical energy stored in sugars.

Inside the leaf

A leaf is a tiny solar-powered workshop. Its structure helps it capture light, exchange gases, and turn energy into something the plant can use.

Meet the chloroplast

DEFINITION

Chloroplasts are the organelles where photosynthesis takes place. They contain chlorophyll, the pigment that absorbs light.

Two stages, one process

Light-dependent reactions: Light energy is absorbed by chlorophyll, splitting water molecules and releasing oxygen, while converting light energy into chemical energy.

The Calvin cycle: Uses the chemical energy from the first stage to fix carbon dioxide into glucose, a sugar the plant can use for growth and energy.

KEY TAKEAWAY

Photosynthesis links light energy to life, through a remarkable series of steps inside the leaf.

Light to energy

The overall equation connects carbon dioxide, water, light, glucose, and oxygen.



EXAMPLE

Pondweed placed in bright light gives off small bubbles of oxygen.

A quick recap

Chlorophyll captures light. The light-dependent reactions release oxygen. The Calvin cycle helps build sugars.

COMMON MISTAKE

Plants respire day and night. Photosynthesis does not replace respiration.