

How Photosynthesis Works

Plants turn light, water and carbon dioxide into sugar and release the oxygen we breathe.

1

Light is captured

Chlorophyll in the chloroplasts absorbs mostly red and blue light and reflects green, which is why most leaves look green.

2

Water arrives from the roots

Roots absorb water from the soil. It travels up through the xylem to the cells of the leaf.

3

Carbon dioxide enters

CO₂ from the air diffuses into the leaf through tiny pores called stomata, found mostly on the underside of leaves.

4

Water is split

In the thylakoid membranes, light energy splits water. Oxygen is released and the energy is stored in ATP and NADPH.

5

Sugar is built

In the stroma, the Calvin cycle uses ATP and NADPH to fix CO₂ into sugar. The enzyme RuBisCO does the fixing.

6

Energy is used or stored

Glucose powers growth and respiration, or is stored as starch. Oxygen leaves the leaf through the stomata.



The overall equation

