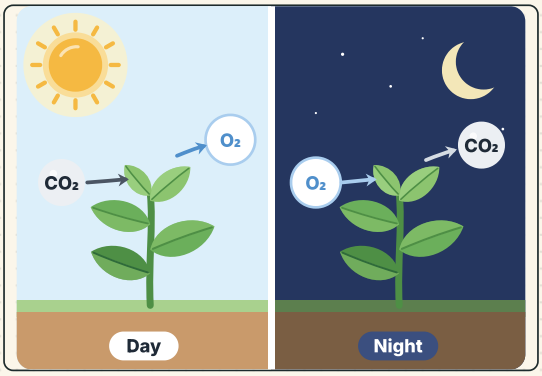
PHOTOSYNTHESIS · PART 4 OF 9 · AGES 11–16

Photosynthesis vs Respiration

One stores energy in sugar, the other releases it. Plants do both, and the products of one are the ingredients of the other.



Photosynthesis		Respiration
WHERE		
In chloroplasts, so only in green cells of plants and algae		Mainly in mitochondria, in every living cell of plants and animals
WHEN		
Only when there is light		All the time, day and night
TAKES IN		
Carbon dioxide and water, plus light energy		Glucose and oxygen
GIVES OUT		
Glucose and oxygen		Carbon dioxide and water, plus energy for the cell
ENERGY		
Endothermic: stores light energy as chemical energy in glucose		Exothermic: releases the energy stored in glucose
EQUATION		
$6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$		$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

The compensation point

In dim light, a plant photosynthesises exactly as fast as it respires, so there is no overall exchange of carbon dioxide or oxygen.

NEXT IN THE SERIES
5. Photosynthesis Key Terms and Equations

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