

Photosynthesis and Respiration

9th Grade

Two equations that are almost exact mirrors of each other.



Photosynthesis stores energy from sunlight in glucose. Respiration releases that energy again. The equations run in opposite directions.

- Photosynthesis: $6\text{CO}_2 + 6\text{H}_2\text{O} + \text{light} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$.
- Respiration: $\text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2 \rightarrow 6\text{CO}_2 + 6\text{H}_2\text{O} + \text{energy}$.
- Photosynthesis happens in chloroplasts; respiration in mitochondria.
- Plants do both; animals only respire.
- Anaerobic respiration releases far less energy and produces lactic acid or alcohol.

LOOK FOR IT

A plant in the dark still respire — it just cannot photosynthesise.

The products of one are the reactants of the other. That is the carbon cycle in miniature.