Respiration & Photosynthesis

Biology

The two central pathways compared, and how they connect.

Photosynthesis

- $6CO_2 + 6H_2O \rightarrow C_6H_{12}O_6 + 6O_2$
- Chloroplast
- Anabolic — builds glucose
- Requires light
- Stores energy in bonds

Respiration

- $C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$
- Mitochondrion and cytoplasm
- Catabolic — breaks glucose down
- Continuous
- Releases energy as ATP

THE DIFFERENCE THAT MATTERS

They are not simple reverses: different enzymes, different locations, different intermediates and different electron carriers.

Plants respire continuously and photosynthesise only in light. The compensation point is where the two rates are equal.