

This is the **Higher Separate** version — includes all Higher Tier content (marked ★) and all Separate Science content.

Photosynthesis converts light energy into chemical energy stored in glucose.

Required Practical: Investigating effect of light intensity on photosynthesis rate using pondweed.

- Equation: $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ (light energy required)
- Occurs in chloroplasts containing chlorophyll
- Limiting factors: light intensity, CO_2 concentration, temperature
- Glucose used for: respiration, starch, cellulose, proteins (with nitrates), sucrose, lipids
- Rate measured by O_2 produced or CO_2 consumed

Key Terms

Limiting factor	Factor in shortest supply controlling rate of photosynthesis
Chlorophyll	Green pigment absorbing light energy for photosynthesis

■ **Exam Tip:** Limiting factors: increasing ANY other factor when one is limiting has NO effect. Only increasing the limiting factor will increase rate.