

Full Higher Separate content. ★ = Higher Tier. ◆ = Separate Science only.

Q1. Write the word equation for photosynthesis and state where it occurs.

[2 marks]

Q2. Describe how light intensity, CO₂ concentration and temperature each affect the rate of photosynthesis.

[4 marks]

Total: 6 marks

Q1 (2 marks)

Write the word equation for photosynthesis and state where it occurs.

- $\text{CO}_2 + \text{water} \rightarrow \text{glucose} + \text{oxygen}$ (light energy required) [1]
- Chloroplasts [1]

Q2 (4 marks)

Describe how light intensity, CO_2 concentration and temperature each affect the rate of ph...

- Light intensity: increases rate until another factor is limiting [1]
- CO_2 concentration: increases rate until another factor is limiting [1]
- Temperature: increases rate to optimum then decreases sharply (enzyme denaturation above optimum) [1]
- At any point: one factor is limiting — controls the rate [1]