

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

Q1. Write the balanced symbol equation for photosynthesis.

[2 marks]

Q2. State where in the plant cell photosynthesis occurs, and name the pigment responsible for absorbing light energy.

[2 marks]

Q3. List FOUR ways in which plants use the glucose produced by photosynthesis.

[4 marks]

★ HIGHER TIER

Q4. ★ Explain why photosynthesis is described as an endothermic reaction.

[2 marks]

Total: 10 marks

Q1 (2 marks)

Write the balanced symbol equation for photosynthesis.

- $6\text{CO}_2 + 6\text{H}_2\text{O} \rightarrow \text{C}_6\text{H}_{12}\text{O}_6 + 6\text{O}_2$ [2] — 1 mark if correct but unbalanced

Q2 (2 marks)

State where in the plant cell photosynthesis occurs, and name the pigment responsible for ...

- Chloroplasts [1]
- Chlorophyll [1]

Q3 (4 marks)

List FOUR ways in which plants use the glucose produced by photosynthesis.

- Respiration — releases energy as ATP [1]
- Converted to starch — for storage [1]
- Converted to cellulose — for cell walls [1]
- Used to make amino acids (with nitrates) → proteins / converted to lipids for seeds / sucrose for transport [1]

Q4 (2 marks) [★ HT]

★ Explain why photosynthesis is described as an endothermic reaction.

- Photosynthesis absorbs energy (from light) [1]
- More energy is taken in than released — energy is stored in the chemical bonds of glucose [1]