

Foundation Combined — only core Foundation content included.

**Q1. Explain how the structure of a leaf is adapted for efficient photosynthesis.**

[4 marks]

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**Q2. State the three limiting factors of photosynthesis. Explain what happens when a plateau is reached on a graph of rate vs light intensity.**

[3 marks]

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**Q3. Describe how a student could set up a fair test to investigate the effect of light intensity on photosynthesis using pondweed.**

[3 marks]

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Total: 10 marks

**Q1 (4 marks)**

*Explain how the structure of a leaf is adapted for efficient photosynthesis.*

- Palisade cells: near top, many chloroplasts, close to light [1]
- Transparent epidermis — lets light through to palisade cells [1]
- Spongy mesophyll: air spaces for CO<sub>2</sub> diffusion [1]
- Stomata: allow gas exchange; xylem supplies water; phloem removes sugars [1]

**Q2 (3 marks)**

*State the three limiting factors of photosynthesis. Explain what happens when a plateau is...*

- Limiting factors: light intensity, CO<sub>2</sub> concentration, temperature [1]
- Plateau: increasing light has no further effect [1]
- Because another factor is now limiting — CO<sub>2</sub> or temperature [1]

**Q3 (3 marks)**

*Describe how a student could set up a fair test to investigate the effect of light intensi...*

- Use pondweed; count O<sub>2</sub> bubbles at different distances from lamp [1]
- Control: temperature (water bath), CO<sub>2</sub> (add NaHCO<sub>3</sub>) [1]
- Three repeats at each distance; calculate mean [1]