

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

Q1. Explain how cells become specialised. Give ONE example.

[3 marks]

Q2. Describe the adaptations of EACH of the following cells: (a) sperm cell, (b) root hair cell.

[4 marks]

Total: 7 marks

Q1 (3 marks)

Explain how cells become specialised. Give ONE example.

- Differentiation: genes switched on or off during development [1]
- Cell develops specific structural features suited to its function [1]
- Example: red blood cell — no nucleus, biconcave, haemoglobin → carries O₂ [1]

Q2 (4 marks)

Describe the adaptations of EACH of the following cells: (a) sperm cell, (b) root hair cel...

- (a) Sperm: flagellum → swimming to egg [1]; many mitochondria → energy for movement [1]
- (b) Root hair: long extension → large SA for absorption of water and minerals [1]; no chloroplasts (underground) [1]