

Plant Tissues Organs

GCSE Biology · Written to the shared content for AQA, Edexcel and OCR

Name _____ Class _____ Date _____

1. Worked example

Explain how the palisade mesophyll is adapted for photosynthesis. (2 marks)

Step 1 · Chloroplasts

Cells contain many chloroplasts to absorb light.

Step 2 · Position

They are near the upper surface where light intensity is greatest, and tightly packed so lots of cells receive light.

Answer: Many chloroplasts; near the top surface; tightly packed

Check: Link each feature to absorbing light.

2. Now try one with the steps

Explain why most stomata are on the lower surface of a leaf. (2 marks)

Step 1 · Conditions

Step 2 · Effect

Answer:

3. Practice

Show your working. The marks tell you how much is expected.

1. Name the plant tissue that transports water. [1]

2. Name the plant tissue that transports dissolved sugars. [1]

3. State the function of the waxy cuticle. [1]

4. Name the cells that control the opening and closing of stomata. [1]

5. Explain why the upper epidermis is transparent. [1]
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6. Explain how the spongy mesophyll is adapted for gas exchange. [2]
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7. Explain why a leaf is described organ. [2]
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8. Name the tissue where new cells are made at the tips of roots and shoots. [1]
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9. A field of view of 0.2 mm^2 contains 36 stomata. Calculate the stomatal density per mm^2 . [2]
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10. Counts from five fields of view were 32, 28, 30, 35 and 25 stomata. Calculate the mean. [1]
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11. Explain how xylem cells are adapted for their function. [3]
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12. Explain why phloem sieve tubes need companion cells. [2]
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13. Suggest why plants in hot, dry places have fewer stomata per mm^2 than plants in shady, damp places. [2]
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14. Explain why stomata close at night. [2]
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4. Before you hand it in

"Phloem carries water and xylem carries food."

Xylem: water and minerals, up from the roots. Phloem: dissolved sugars, in both directions.

"Stomata are cells."

A stoma is the pore BETWEEN two guard cells.

"Gases diffuse through the waxy cuticle."

Gases move in and out through the stomata.