

National 5 Biology

Transport In Plants

1. The diagram below shows part of a cross section through a leaf.

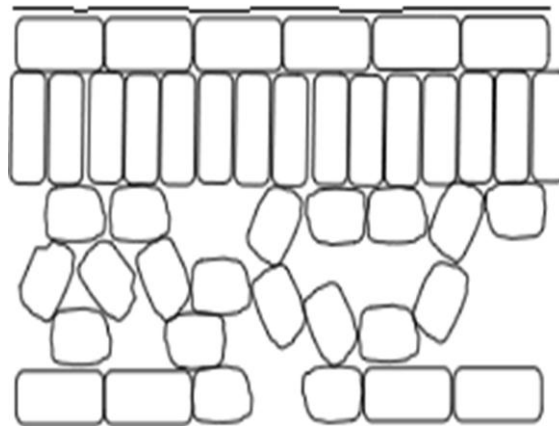
(a) From the scale given calculate the thickness of the leaf. (2)

(b) Redraw the diagram and then:

(i) Colour in green all the cells that contain chloroplasts. (2)

(ii) Use the letter P to indicate a palisade mesophyll cell. (1)

(iii) Draw an arrow to show where carbon dioxide enters the leaf. (1)



x 50

2. Why does a plant need 2 different transport systems?

(2)

3. Put each of the following words into a column in a table and put a column next to it with the meaning of each word.

- a) Xylem
- b) Phloem
- c) Palisade mesophyll
- d) Stoma
- e) Guard cell
- f) Upper epidermis
- g) Transpiration
- h) Lignin

(8)

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4. The following table shows the results of an experiment set up to investigate temperature and how it affects the rate of transpiration.

| Temperature (°C) | Rate of Transpiration (ml/hour) |
|------------------|---------------------------------|
| 10 | 0.8 |
| 15 | 1.3 |
| 20 | 2.1 |
| 25 | 4.7 |
| 30 | 5.3 |
| 35 | 5.1 |
| 40 | 4.2 |
| 45 | 3.0 |
| 50 | 0.4 |

Show these results in a line graph.

(4)

5. Copy and complete the following table which shows surface areas, volumes and S.A.:V ratios.

| Length of Side (cm) | Surface Area (cm ²) | Volume (cm ³) | S.A. : V ratio |
|---------------------|---------------------------------|---------------------------|----------------|
| 2 | 24 | 8 | 3:1 |
| 4 | | | |
| 6 | | | |
| 8 | | | |
| 10 | | | |
| 12 | | | |

(5)

Total - 25