AQA GCSE Combined Science - Trilogy | 8464

SPECIFICATION POINT 4.1.3.3

Active transport

Past-paper questions

Tier	**Foundation**
Question groups	**1**
Available paper years	**2021–2021**

Using this booklet

1. Answer the questions in order and show your working.
2. Original question numbers and marks are retained.
3. Print at actual size (100%) for measuring questions.
4. Use the companion answer booklet to check your work.

Name: _____ **Date:** _____

Whole questions are retained for context, so some parts assess other specification points. Current and legacy sources are labelled. Continue on extra paper if needed.

4.1.3.3 Active transport

Question 01

November 2021 | 8464/B/1F | Original Q4

0 4 This question is about plant transport systems.

0 4 . 1 Which **organ** in a plant absorbs water from the soil?

[1 mark]

_____

0 4 . 2 The concentration of nitrate ions in the soil is lower than the concentration of nitrate ions inside a plant.

How would the nitrate ions move from the soil into the cells of this plant?

[1 mark]

Tick (✓) **one** box.

By active transport ☐

By diffusion ☐

By osmosis ☐

4.1.3.3 Active transport

Question 01 · continued

Dissolved sugars are transported in the phloem.

0 4 . 3 What is the name of the process that moves dissolved sugars through the phloem?

[1 mark]

Tick (✓) **one** box.

- Evaporation ☐
- Osmosis ☐
- Translocation ☐

0 4 . 4 Give **one** use of sugars in a plant.

[1 mark]

_____

_____

Question 4 continues on the next page

4.1.3.3 Active transport

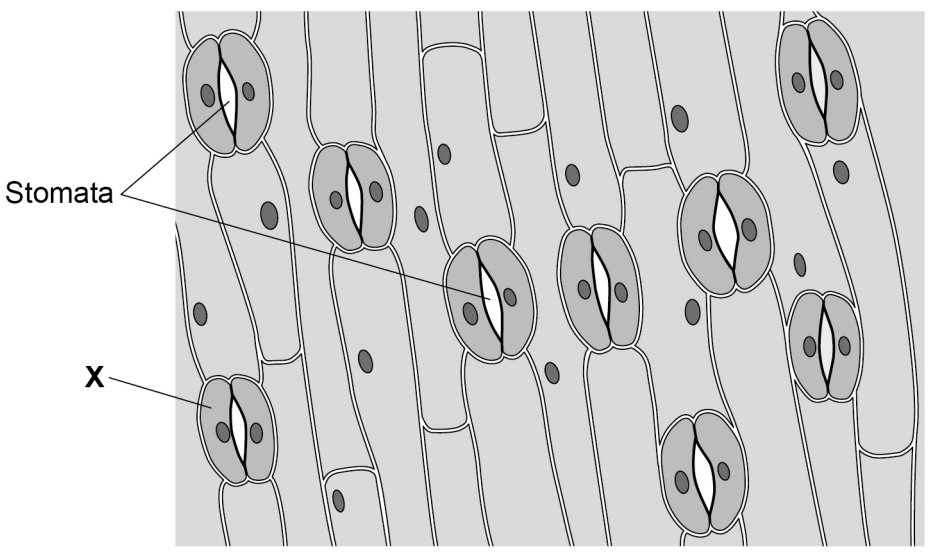
Question 01 · continued

Stomata are openings on the surface of a leaf.

Stomata allow gases to move into and out of a leaf.

Figure 5 shows the surface of a leaf.

Figure 5



0 4 . 5 What is cell **X**?

[1 mark]

Tick (✓) **one** box.

Guard cell ☐

Meristem cell ☐

Palisade cell ☐

4.1.3.3 Active transport

Question 01 · continued

0 4 . 6 Why do the stomata open during the day?

[1 mark]

Tick (✓) **one** box.

To allow carbon dioxide in ☐

To allow nitrogen in ☐

To allow oxygen in ☐

0 4 . 7 The area of the leaf shown in **Figure 5** is 0.25 mm^2.

Calculate the number of stomata per mm^2 for the leaf in **Figure 5**.

Use the equation:

$$\text{number of stomata per mm}^2 = \frac{\text{number of stomata}}{\text{area in mm}^2}$$

[2 marks]

Number of stomata per mm^2 = _____

Question 4 continues on the next page

4.1.3.3 Active transport

Question 01 · continued

A student investigated the number of stomata per mm^2 on the upper and lower surfaces of leaves.

The leaves were taken from the same plant.

Table 1 shows the results.

Table 1

Leaf	Number of stomata per mm^2	
	Upper surface	Lower surface
1	0	37
2	1	36
3	2	30
4	1	32
5	1	35
Mean	1	**X**

0 4 . 8 Calculate mean value **X** in **Table 1**.

[2 marks]

X = _____

4.1.3.3 Active transport

Question 01 · continued

0 4 . 9 Water vapour is lost through stomata.

Explain the difference in the number of stomata on the upper and lower surfaces of the leaves.

Use **Table 1**.

[3 marks]

13

Turn over for the next question