



AQA B3.2 Transport systems in plants and animals LEVEL 1

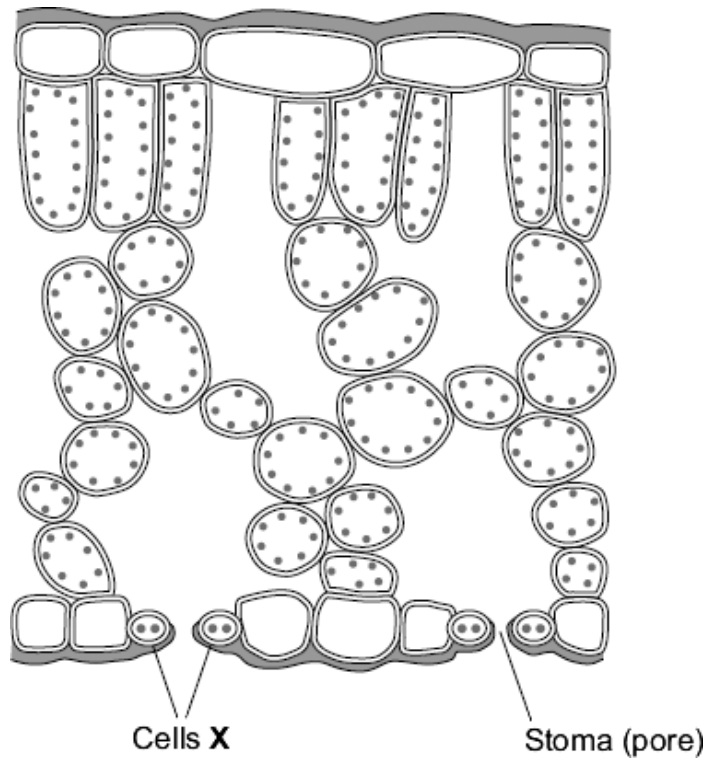


26 minutes



26 marks

Q1. The diagram shows a section through a plant leaf.



(a) The cells labelled **X** surround a stoma (pore).

Draw a ring around the correct answer to complete the sentence.

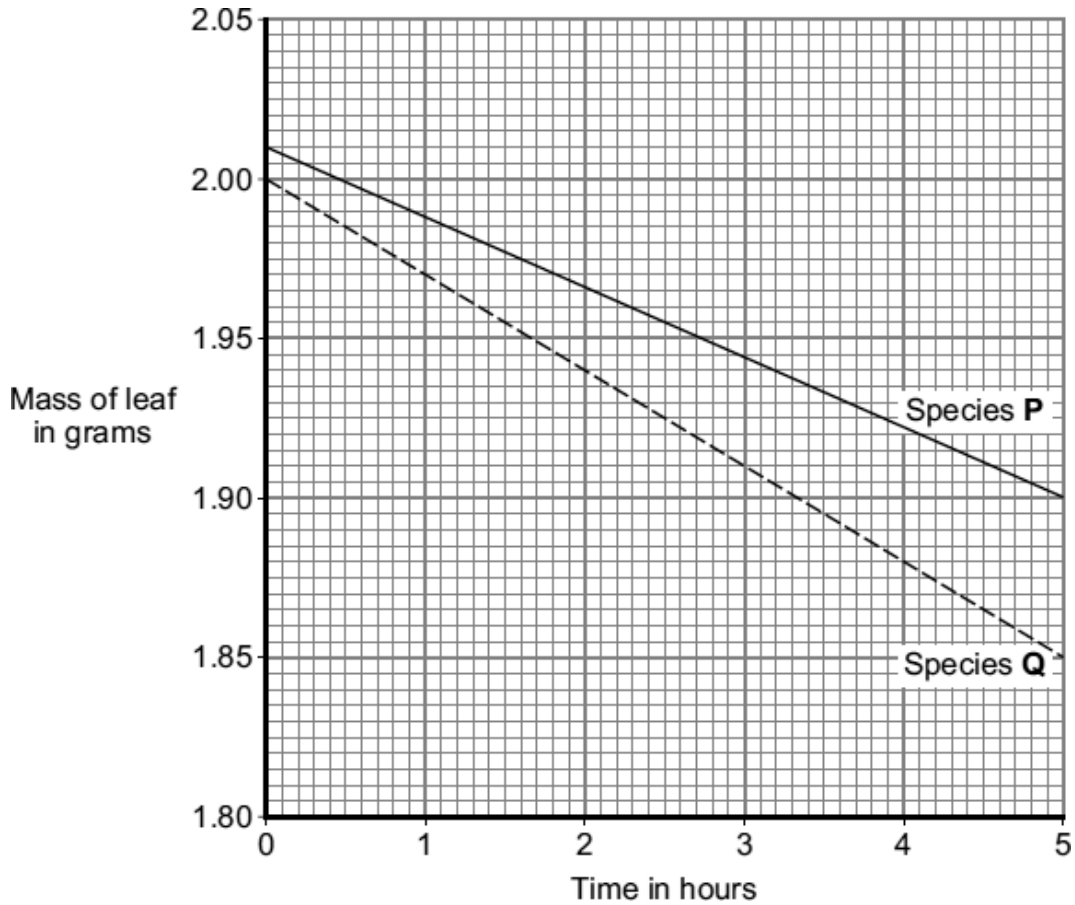
Cells **X** are called

- | |
|--------------|
| alveoli. |
| guard cells. |
| villi. |

(1)

(b) Water vapour is lost from leaves. Water loss causes a leaf to lose mass.

The graph shows how the masses of leaves from two plant species, **P** and **Q**, changed over several hours. Both leaves were kept in the same conditions.



(i) What was the mass of the leaf of species **Q** at 0 hours?
..... grams

(1)

(ii) What was the difference between the mass of the leaf of species **P** and the mass of the leaf of species **Q** after 5 hours?

..... grams

(1)

(iii) The leaf of species **Q** lost water at a faster rate than the leaf of species **P**.

Suggest **one** reason why.

.....
.....

(1)

- (iv) Which weather conditions would cause the greatest rate of loss of mass for both species **P** and species **Q**?

Tick (✓) **one** box in the table.

Weather conditions		Tick (✓)
Still air or wind	Temperature in °C	
Wind	30	
Still air	30	
Wind	20	

(1)

- (c) Draw a ring around the correct answer to complete the sentence.

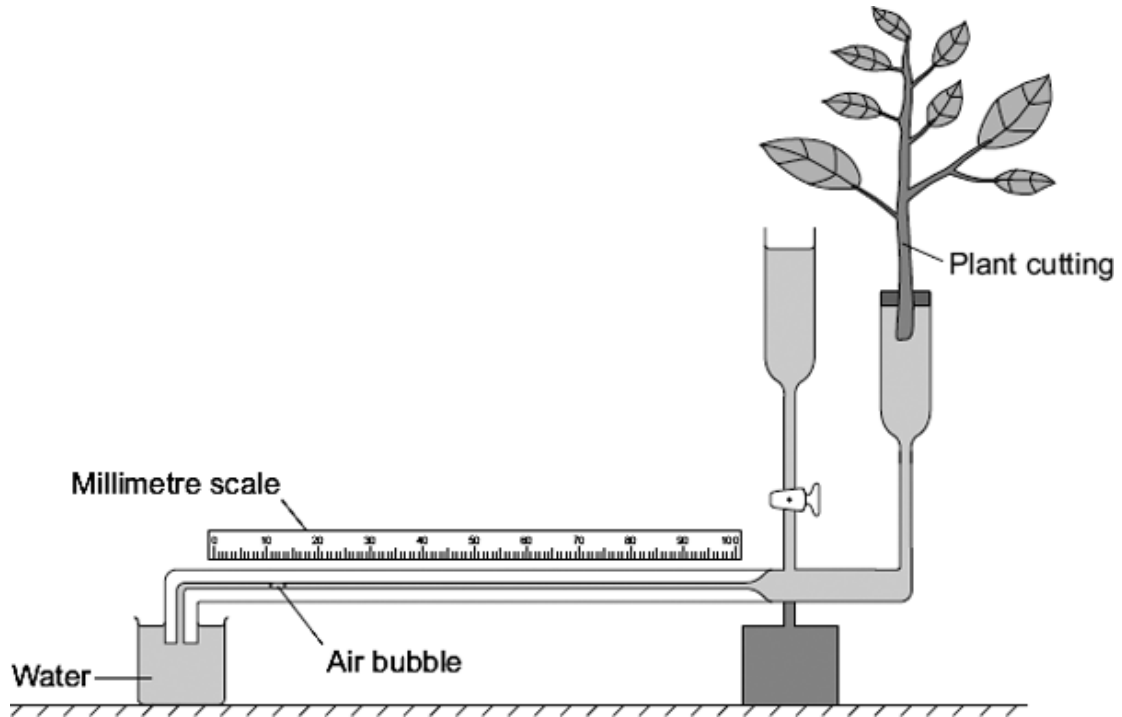
In very hot, dry conditions, the stomata close.

This is to prevent

anaerobic respiration. breathing. wilting.
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(1)
(Total 6 marks)

Q2. Some students used the apparatus shown in the diagram to measure the rate of water uptake by a plant cutting.



The students set up the apparatus in three different conditions:

- no wind at 15 °C
- no wind at 25 °C
- wind at 25 °C

For each experiment, the students recorded the movement of the air bubble along the scale.

(a) (i) Name the **two** variables that the students chose to change in these experiments.

1

2

(2)

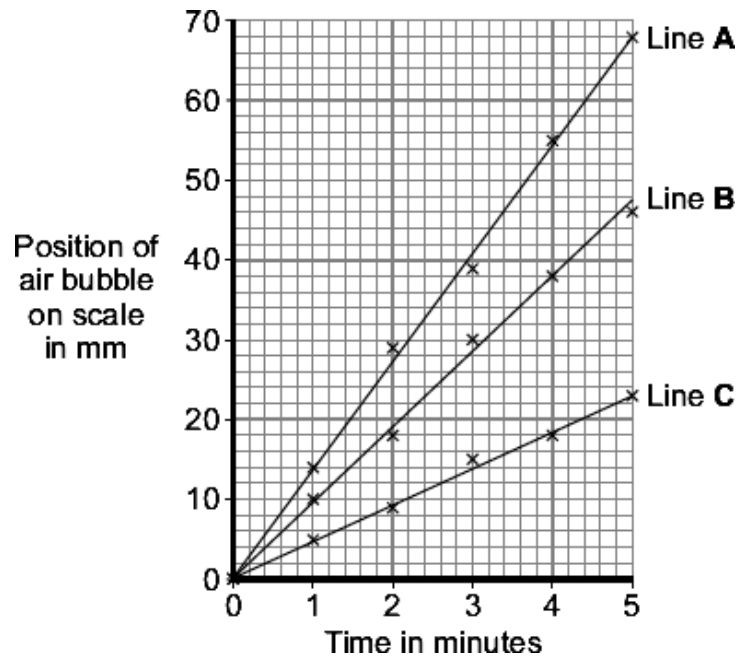
(ii) It was important to use the same plant cutting each time to make these experiments fair.

Explain why.

.....

(1)

(b) The graph shows the students' results.



Which line on the graph, **A**, **B** or **C**, shows the results for each of the three different experiments?

Write each of the letters **A**, **B** or **C** in the correct boxes in the table.

Condition	Letter
No wind at 15 °C	
No wind at 25 °C	
Wind at 25 °C	

(2)

(c) Water is lost from the leaves of the plant cutting.

Name this process.

Draw a ring around **one** answer.

distillation

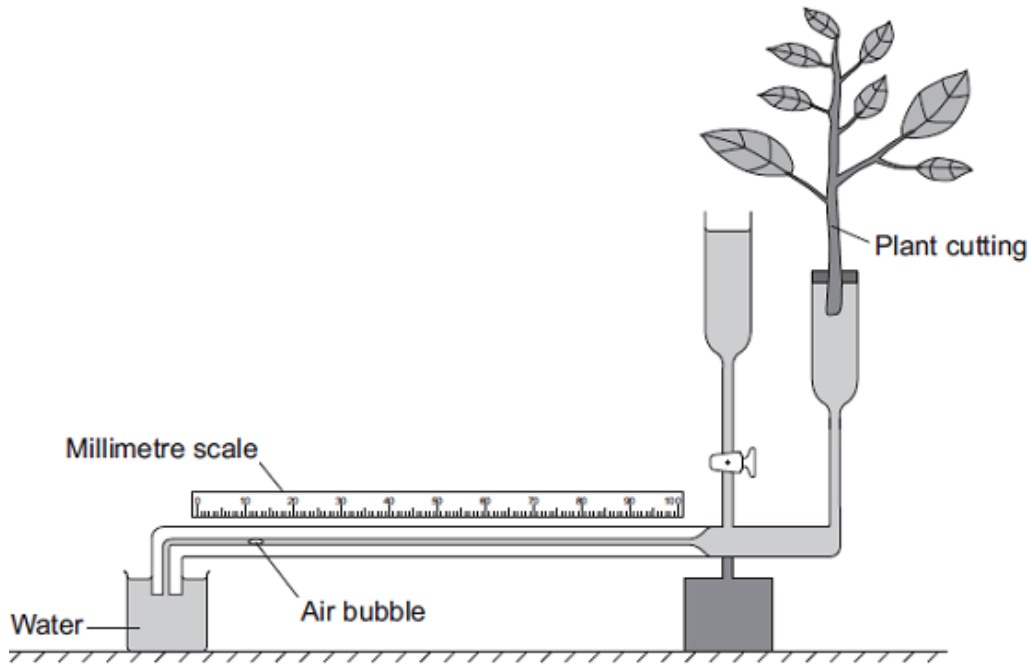
respiration

transpiration

(1)

(Total 6 marks)

Q3. Some students used the apparatus shown in the diagram to measure the rate of water uptake by a plant cutting.



The students set up the apparatus in three different conditions:

- no wind at 15°C
- no wind at 25°C
- wind at 25°C

For each experiment, the students recorded the movement of the air bubble along the scale.

(a) (i) Name the **two** variables the students chose to change in these experiments.

- 1
- 2

(2)

(ii) It was important to use the same plant cutting each time to make these experiments fair.

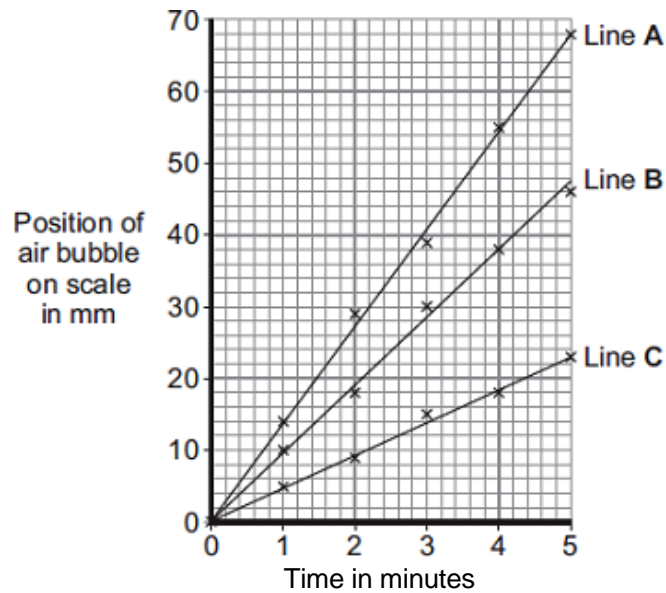
Explain why.

.....

.....

(1)

(b) The graph shows the students' results.



Which line on the graph, **A**, **B** or **C**, shows the results for each of the three different experiments?

Write each of the letters, **A**, **B** and **C**, in the correct boxes in the table.

Conditions	Letter
No wind at 15°C	
No wind at 25°C	
Wind at 25°C	

(2)

(c) Water is lost from the leaves of the plant cutting.

Name this process.

Draw a ring around **one** answer.

distillation

respiration

transpiration

(1)

(Total 6 marks)

Q4. Plants exchange substances with the environment.

(a) Use words from the box to complete each sentence.

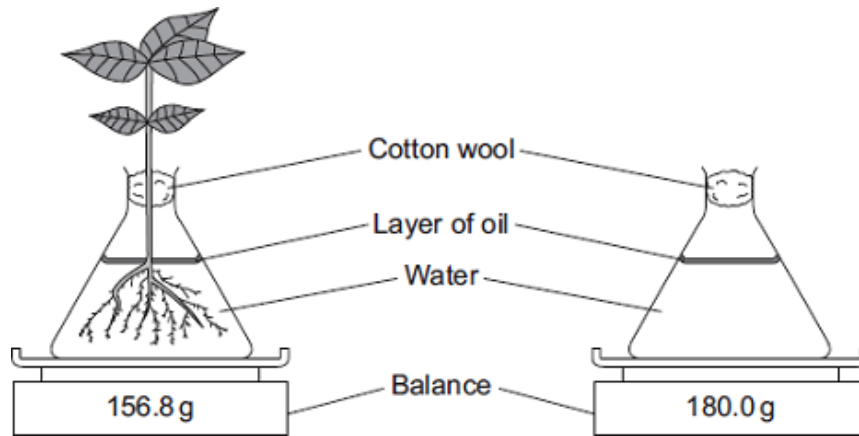
alveoli	phloem	root hairs	stomata
storage organs	villi	xylem	

(i) Most water enters a plant through

(1)

- (ii) The water is transported up the stem to the leaves in the (1)
- (iii) Carbon dioxide enters leaves through (1)
- (iv) A leaf uses the carbon dioxide to produce sugars.
Sugars are transported to through
the (2)

(b) A student set up the apparatus shown in the diagram.
At the start of the experiment both balances showed a mass of 180.0 g.



The diagram shows the reading on each balance 24 hours later.

- (i) Look at the mass shown on each balance.
Calculate the difference between the two masses.
.....
.....
Difference in mass = g (1)

- (ii) Suggest an explanation for the difference between the two masses.
.....
.....
.....
..... (2)
- (Total 8 marks)**

