

0 3

This question is about leaves.

0 3 . 1

Complete the sentences.

Choose answers from the box.

**[3 marks]**

<b>epidermis</b>	<b>phloem</b>	<b>palisade mesophyll</b>
<b>waxy cuticle</b>	<b>xylem</b>	

The layer of cells lining the upper surface and lower surface of a leaf is the \_\_\_\_\_.

The part of the leaf where most photosynthesis occurs is the \_\_\_\_\_.

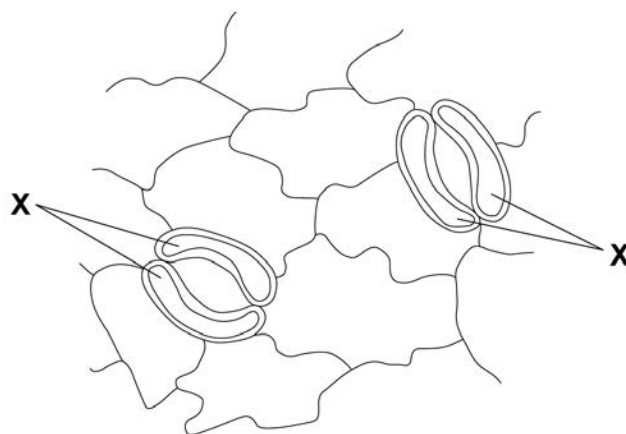
Water is transported to the leaf in the \_\_\_\_\_.

Water is lost through small openings on the lower surface of plant leaves.

These small openings are called stomata.

**Figure 5** shows two stomata on the lower surface of a leaf.

**Figure 5**



**0 3 . 2** The cells labelled **X** control the width of the stomata.

What are the cells labelled **X**?

[1 mark]

Tick (✓) **one** box.

Guard cells

Mesophyll cells

Root hair cells

Stem cells

**0 3 . 3** What is the function of the stomata?

[1 mark]

Tick (✓) **one** box.

To allow light into the leaf

To let carbon dioxide into the leaf

To let sugars out of the leaf

To protect the leaf from pathogens

**0 3 . 4** How is water lost from a leaf?

[1 mark]

Tick (✓) **one** box.

By evaporation

By respiration

By translocation

Turn over ►

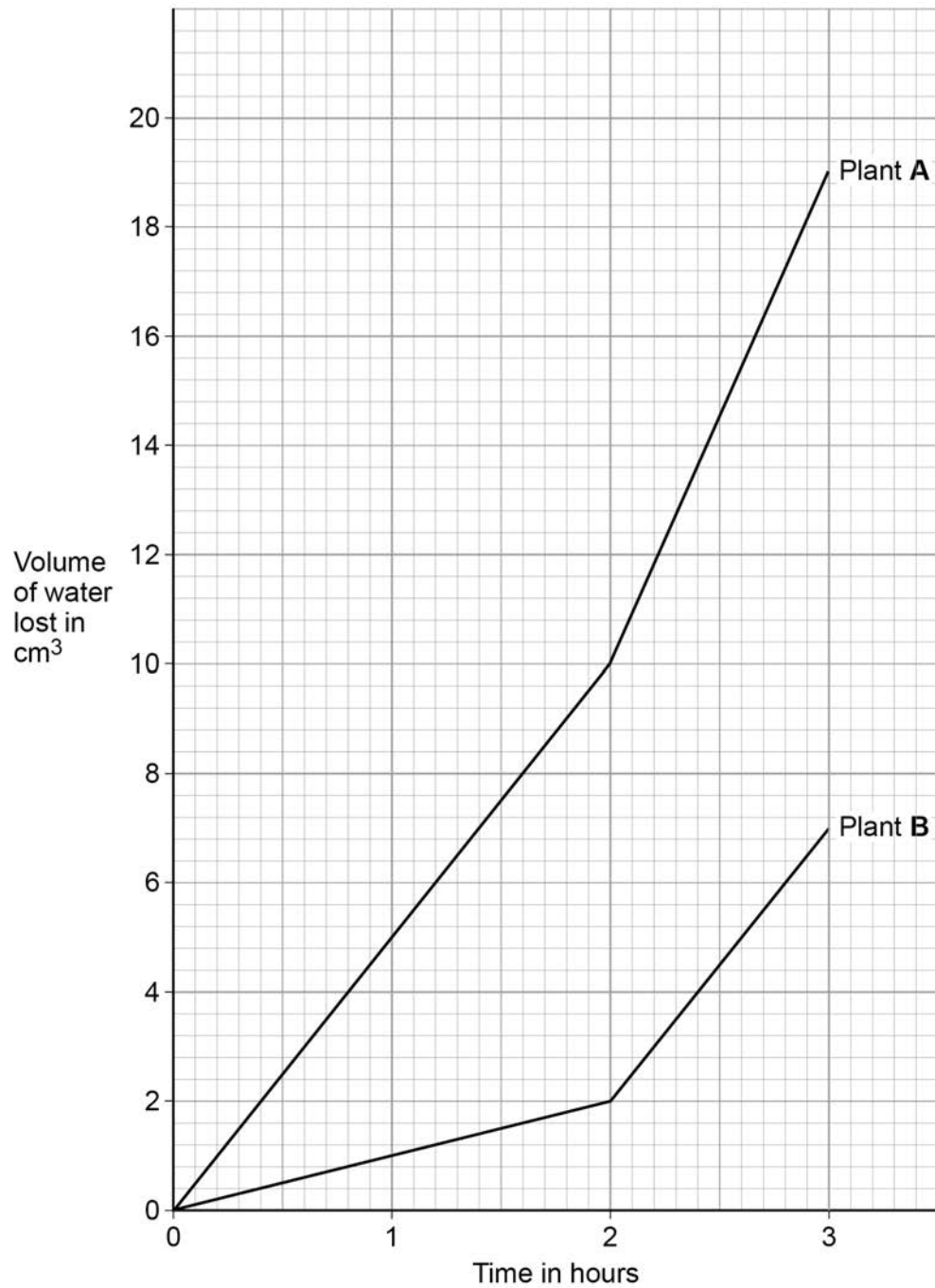


A student investigated the volume of water lost from two plants.

The plants were different species.

**Figure 6** shows the student's results.

**Figure 6**



0 3 . 5

Calculate the difference in the volume of water lost by plant **A** compared to plant **B** in the first hour.

[2 marks]

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Difference in volume = \_\_\_\_\_ cm<sup>3</sup>

0 3 . 6

What could cause plant **A** to lose water at a faster rate than plant **B**?

[1 mark]

Tick (✓) **one** box.

Plant **A** has fewer stomata per leaf.

Plant **A** is smaller.

Plant **A** has more leaves.

Plant **A** has smaller leaves.

0 3 . 7

After the first 2 hours, both plants were moved to a new room.

Suggest **one** reason why both plants lost water at a faster rate in the new room.

[1 mark]

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**Question 3 continues on the next page**

**Turn over ►**



0 3 . 8 Some plants have adaptations to stop them from being eaten by animals.

**Figure 7** shows part of a holly plant.

**Figure 7**



Describe **one** way the holly plant is adapted to stop it being eaten by animals.

**[1 mark]**

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11



Question	Answers	Extra information	Mark	AO / Spec. Ref.
03.1	epidermis palisade mesophyll xylem	allow palisade / mesophyll	3	4.2.3.2 4.2.3.1 AO1
03.2	guard cells		1	4.2.3.2 4.2.3.1 AO1
03.3	to let carbon dioxide into the leaf		1	4.2.3.2 AO1
03.4	by evaporation		1	4.2.3.2 AO1
03.5	evidence of correct graph readings (5 and 1) 4 (cm <sup>3</sup> )	an answer of 4 (cm <sup>3</sup> ) scores 2 marks allow in range 4.8 to 5.2 and 0.8 to 1.2 allow correct subtraction from their graph readings allow their calculated value from readings in the range 4.6 to 5.4 and 0.6 to 1.4	1  1	4.2.3.2 AO2
03.6	plant <b>A</b> has more leaves		1	4.2.3.2 AO3
03.7	any <b>one</b> from: (the new room was) <ul style="list-style-type: none"> <li>• windier</li> <li>• warmer</li> <li>• drier / less humid</li> <li>• brighter</li> </ul>	answers must be comparative  allow sunnier ignore more sun	1	4.2.3.2 AO2

Question	Answers	Extra information	Mark	AO / Spec. Ref.
<b>03.8</b>	any <b>one</b> from: <ul style="list-style-type: none"><li>• spikes / points / thorns / sharp</li><li>• poisonous / toxic</li><li>• brightly coloured berries</li><li>• leaves are tough / leathery</li></ul> <b>or</b> leaves are hard to chew	ignore reference to predators eating holly  allow unpleasant taste	1	AO2 4.3.3.2
<b>Total</b>			<b>11</b>	