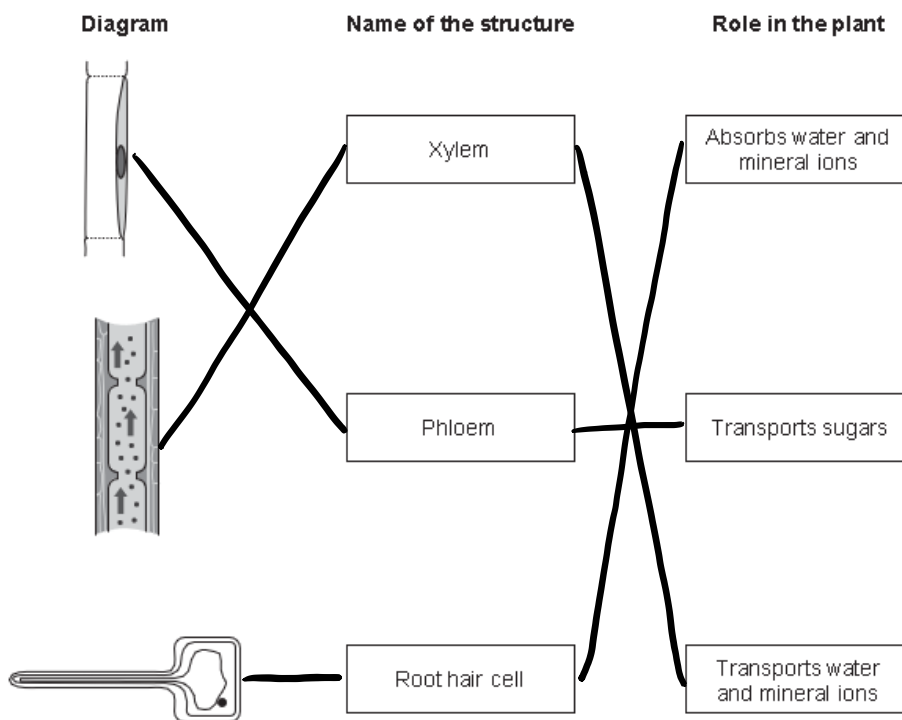


GCSE Biology B (Twenty First Century Science)
J257/01 Breadth in Biology (Foundation)

Question Set 29

1. (a) Sarah is learning about plants.

Draw a line to connect each **diagram** to the **name of the structure** and its **role in the plant**.



[5]

(b) Sarah's teacher tells her she can observe these structures using a light microscope.

Complete the sentences to describe how to use a light microscope.

Use words from the list.

You can use each word once, more than once, or not at all.

coverslip **eyepiece lens** **focusing knob**

light **objective lens** **stage** **table**

Place the slide with the specimen to be observed on the **stage**

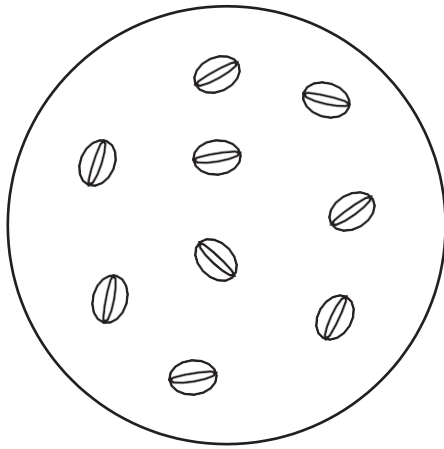
Select the **objective lens** to be used.

As you look down the microscope column, turn the **focusing knob**

to bring the specimen into focus.

[3]

- (c) Sarah wants to estimate how many stomata there are on the underside of a leaf.
 Sarah uses a light microscope to do this.
 The diagram shows the field of view from her microscope.



- (i) Count how many stomata can be seen in the field of view.

Number of stomata = **9** [1]

- (ii) The area covered by the field of view is approximately 1 mm^2 .

The total area of the underside of the leaf is 60 mm^2 .

Estimate how many stomata there will be on the underside of this leaf.

Use your answer to part (c)(i).

$$9 \times 60$$

Estimated number of stomata = **540** [1]

- (iii) Sarah does not think that her sample was representative of the whole leaf.

Suggest how Sarah could improve her method.

- repeat experiment on various parts of same leaf surface
- calculate average & reduce effect of anomalies

- (iv) If the sample taken was not representative of the leaf, what impact would this have on Sarah's estimate? [2]

either would be an under or over estimate

[1]

Total Marks for Question Set 29: 13

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