

GCSE Biology A (Gateway)

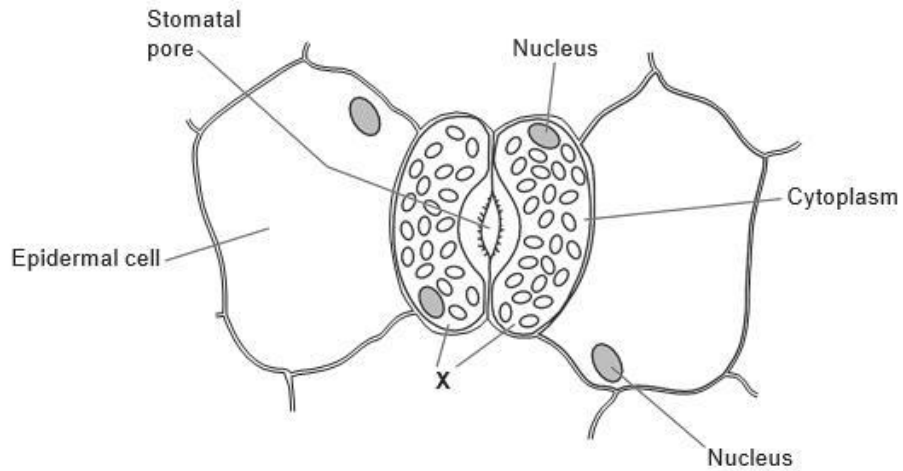
J247/01 B1-B3 and B7 Foundation (Foundation Tier)

Question Set 12

1

Stomata are found on the surface of leaves.

The diagram shows some of the surface cells of a leaf.



- (a) (i) Write down the name of the cell labelled X.

[1]

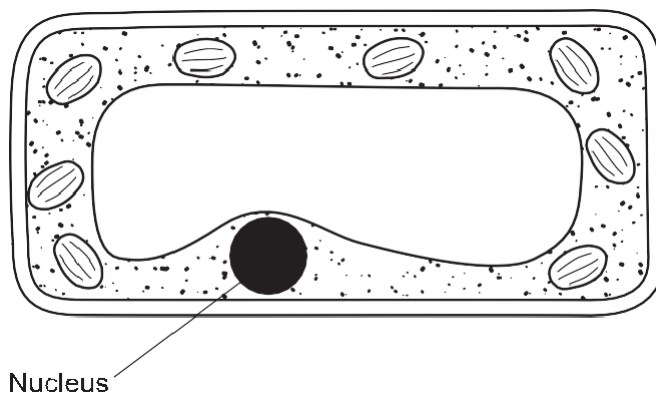
Guard cell

[2]

- (ii) Describe **two** functions of stomata.

They allow gaseous exchange of CO_2 and O_2 and allow water evaporation to help transpiration.

- (b) Look at the diagram showing a plant cell.



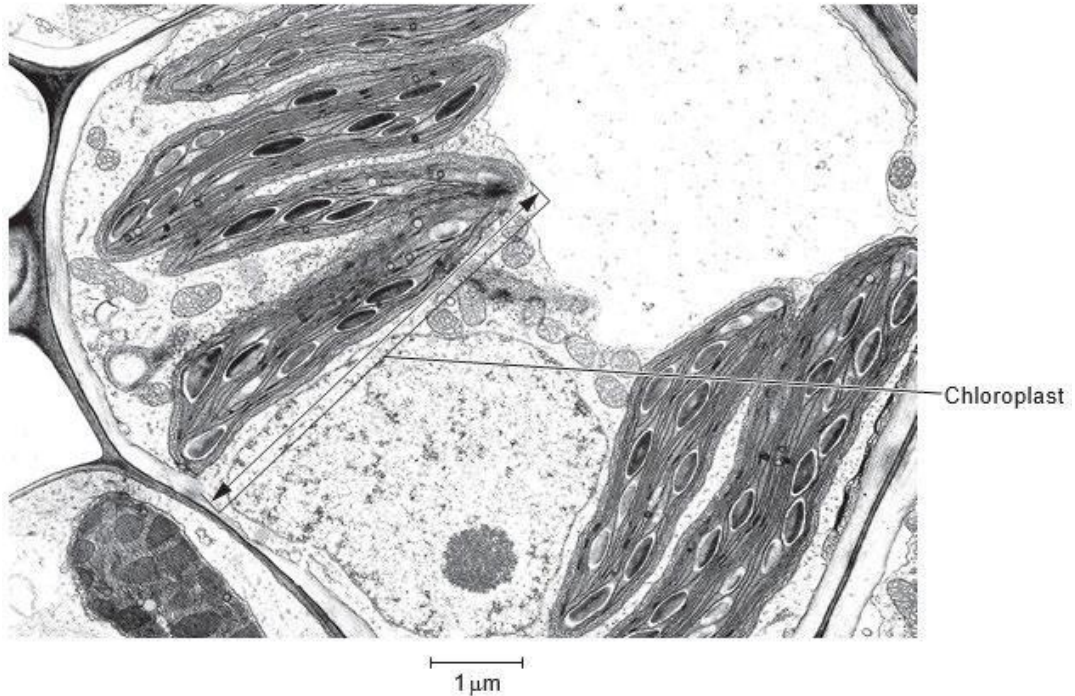
- (i) The diameter of the nucleus in the diagram is 10 millimetres. The actual size of the nucleus is 10 **micrometres**.

Calculate the magnification of the diagram.

$$\begin{aligned} 10 \text{ micrometres} &= 0.01 \text{ mm} \\ \text{magnification} &= \frac{\text{image}}{\text{actual}} \\ &= \frac{10}{0.01} = \underline{\underline{1000}} \end{aligned}$$

Answer =1000.....x [2]

- (ii) Look at the picture of part of a plant cell.

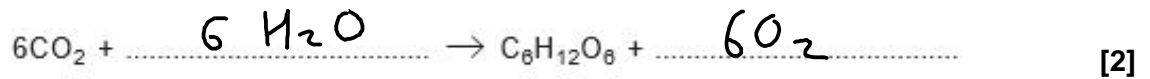


Use the arrow on the picture and the scale to estimate the length of the chloroplast.

Answer = ... 5 ... μm [1]

- (c) Photosynthesis takes place inside chloroplasts.

- (i) Complete the chemical equation for photosynthesis.



- (ii) Energy is taken in from the surroundings for photosynthesis to take place.

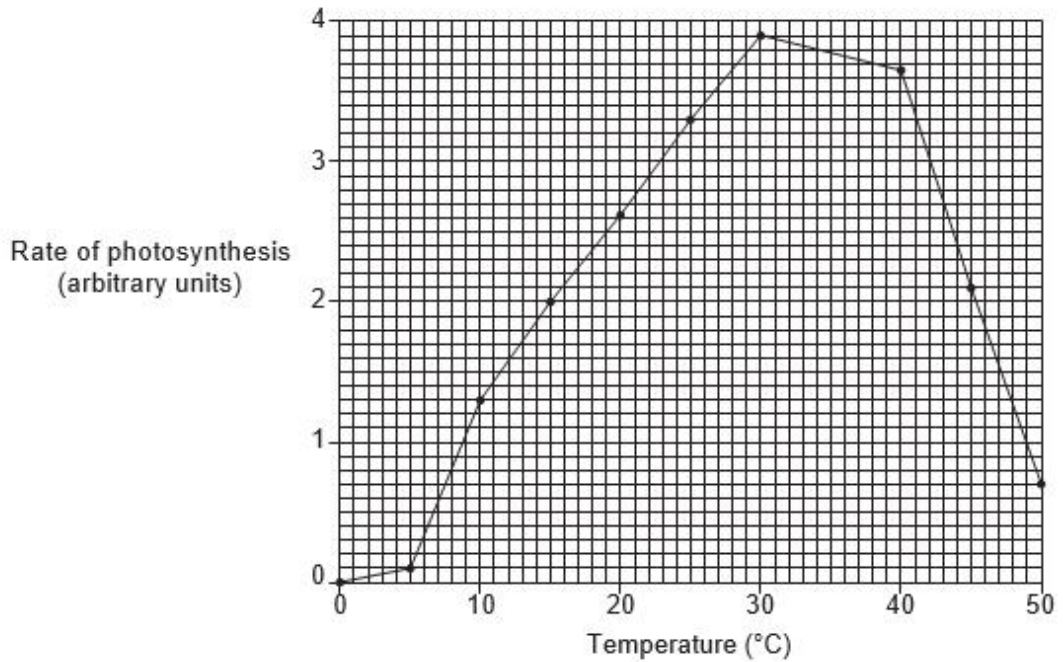
What name is used to describe reactions that take in energy?

[1]

Endothermic.

(d)

The graph is from an experiment to show the effect of temperature on the rate of photosynthesis.



- (i) What is the optimum temperature for photosynthesis in this experiment? [1]

30°C.

- (ii) The rate of photosynthesis was recorded in 5 °C intervals.

The experiment could be improved to get a more **precise** value for the optimum temperature.

Explain how.

[2]

Record at narrower time intervals especially closer to the optimum use intervals of about 2°C. ^{use} temperature (30°C)

Total Marks for Question Set 12: 12

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