

GCSE Biology A (Gateway)

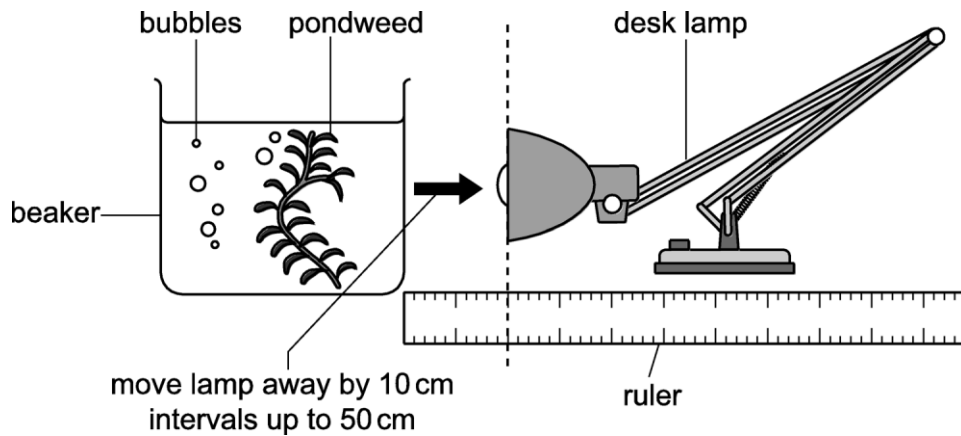
J247/01 B1-B3 and B7 Foundation (Foundation Tier)

Question Set 8

1

A student investigates how light intensity affects the rate of photosynthesis in pondweed.

The diagram shows how he sets up his investigation.



He plans to place the lamp at distances of 10 cm, 15 cm and 20 cm from the beaker. He plans to measure how much gas is given off from the pondweed in 10 seconds.

- (a) His teacher says he could improve his plan.

Write down **two** improvements he could make to his plan.

Do more repeats and use longer distances [2]
Also measure for longer than 10 seconds.

- (b) The student counts the number of bubbles to get a measure of the amount of gas given off in photosynthesis.

Give **two** reasons why counting bubbles is **not** an accurate way of measuring the amount of gas given off.

Bubbles can be different sizes and difficult to count. [2]

- (c) What is the gas given off in photosynthesis?

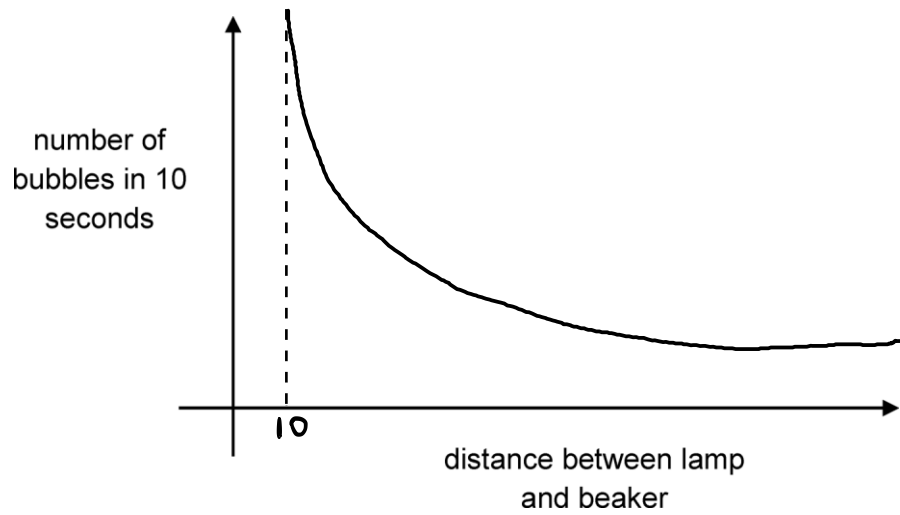
Oxygen [1]

- (d) Explain why the amount of this gas given off is **not** a true measure of the rate of photosynthesis.

Respiration is also occurring so some oxygen is used

[2]

- (e) (i) Sketch a line on the axes below to show the results you would expect.



[2]

- (e) (ii) Explain the shape of the graph. **Two** explanations are required.

[2]

As the light intensity decreases there are fewer bubbles in 10 seconds.
Inversely proportional relationship

Total Marks for Question Set 8: 11

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