

# Edexcel Biology GCSE

## CP6 - Photosynthesis

### Flashcards

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# What is photosynthesis?



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The process by which plants synthesise glucose using light energy from the Sun



Describe how you would investigate the effect of light intensity on the rate of photosynthesis in an aquatic plant



## Describe how you would investigate the effect of light intensity on the rate of photosynthesis in an aquatic plant

- Place algal beads in a boiling tube at a fixed distance from a light source
- Fill the boiling tube with bicarbonate indicator and record the initial colour
- After 30 minutes, record the final colour and find the pH using a colour standard
- Repeat several times at different distances/light intensities, and calculate a mean for each distance
- Plot a graph of light intensity (x) against rate of photosynthesis (bubbles per minute, y)



Why is it best to use an LED light source rather than a lamp?



# Why is it best to use an LED light source rather than a lamp?

A lamp will emit more heat energy than an LED - therefore it may change the temperature of the experiment and affect the rate of photosynthesis



What is the relationship between the distance from a light source and light intensity?





What is the relationship between the distance from a light source and light intensity?

Inverse square law - light intensity  $\propto 1 /$   
distance<sup>2</sup>



How can the measurement of oxygen production be made more accurate?



# How can the measurement of oxygen production be made more accurate?

If the the pondweed is placed under a filter funnel with an inverted measuring cylinder over the spout, the volume of oxygen produced can be determined



Why is sodium hydrogen carbonate solution used during this experiment?



Why is sodium hydrogen carbonate solution used during this experiment?

It releases  $\text{CO}_2$ , which is used by the pondweed during photosynthesis



Why can pH be used as an indication of the rate of photosynthesis?



## Why can pH be used as an indication of the rate of photosynthesis?

Carbon dioxide, which is acidic, is consumed during photosynthesis. The higher the rate of photosynthesis, the higher the pH in the given time.



What is a source of error in this practical?





## What is a source of error in this practical?

The colour change may be subjective and determining the pH using a colour standard may be difficult.

