GCSE Biology required practical activity: Food tests

Investigating the effect of light intensity on photosynthesis in pondweed

Risk assessment:

Care should be taken:

- when handling glassware
- with the use of lamps that may get hot
- with the presence of water and the electrical power supply for the lamp.

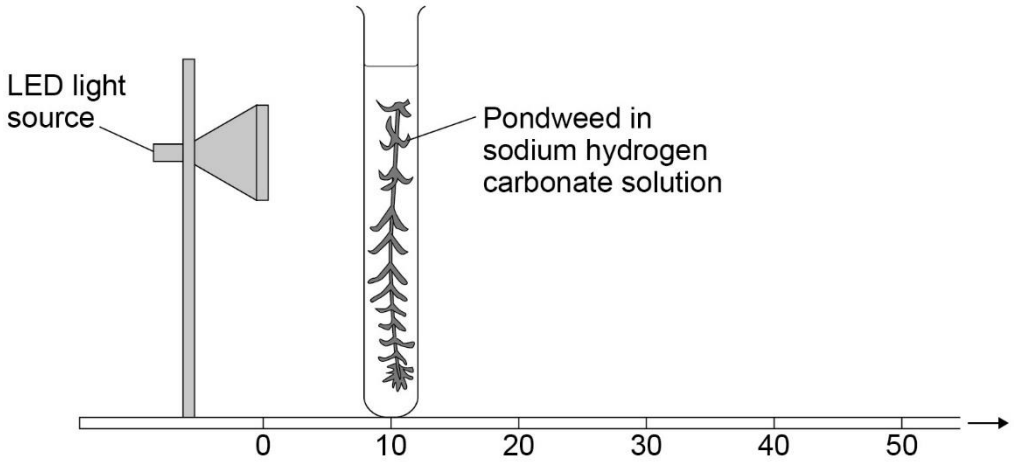
Method

You are provided with the following:

- a boiling tube
- freshly cut 10 cm piece of pondweed
- a light source
- a ruler
- a test tube rack
- a stop watch
- 0.2% solution of sodium hydrogen carbonate
- a glass rod.

Read these instructions carefully before you start work.

1. Set up a test tube rack containing a boiling tube at a distance of 10 cm away from the light source.
2. Fill the boiling tube with the sodium hydrogen carbonate solution.
3. Put the piece of pondweed into the boiling tube with the cut end at the top. Gently push the pondweed down with the glass rod.
4. Leave the boiling tube for 5 minutes.
5. Start the stop watch and count the number of bubbles produced in one minute.



6. Record the results in a table such as the one here.

Distance between pondweed and light source in cm	Number of bubbles per minute			
	1	2	3	Mean
10				
20				
30				
40				

7. Repeat the count twice more. Then use the data to calculate the mean number of bubbles per minute.

8. Repeat steps **1–7** with the test tube rack and boiling tube at distances of 20 cm, 30 cm and 40 cm from the light source.