

## Investigation of the factors affecting photosynthesis

### Introduction

Light is one of the factors which affects the rate of photosynthesis.

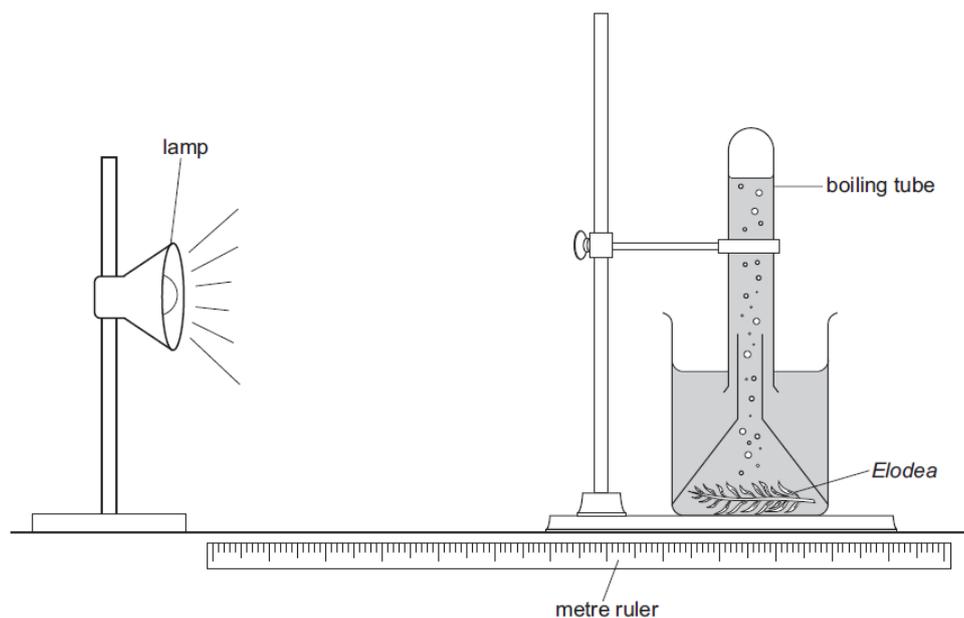
In this investigation a green plant named Canadian pondweed (*Elodea*) will produce bubbles of oxygen as a result of photosynthesis.

The number of bubbles of oxygen produced is affected by light intensity.

### Apparatus

250 cm<sup>3</sup> beaker  
 lamp  
 glass funnel  
 plasticine  
 test tube  
 8 cm length of pondweed (*Elodea*)  
 metre ruler  $\pm 1$  mm  
 sodium hydrogen carbonate powder  
 clamp stand, clamp and boss  
 spatula

### Diagram of Apparatus



## Method

1. Place the *Elodea* in a beaker containing 200 cm<sup>3</sup> of water.
2. Add one spatula of sodium hydrogen carbonate to the water.
3. Stick 3 small pieces of plasticine to the rim of the funnel and place it upside down over the plant.
4. Completely fill a test tube with water and carefully place over the end of the funnel with the end under the water, clamp into place.
5. Place the lamp 5 cm away from the apparatus.
6. Start the stopwatch and record the number of bubbles of oxygen produced in one minute.
7. Repeat the experiment with the lamp 10 cm, 15 cm, 20 cm, 25 cm and 30 cm from the apparatus.

## Analysis

1. Plot a graph of the distance against number of bubbles produced in 1 minute.
2. What conclusions can be reached from your results?
3. Evaluate your method and state how it could be improved.