Photosynthesis Investigation

AIM: As part of my coursework my aim is to produce a detailed investigation showing you what affects photosynthesis and how fast a plant can photosynthesise. To do this I will place pondweed in a bottle and by using a lamp, I will move the light closer to the plant, and count how many bubbles the weed release after a certain amount of time.

INVESTIGATION: Photosynthesis is a method in which plants use to produce food. Plants do this by converting light energy to make food from carbon dioxide and water. Inside the leaf is a green substance called Chlorophyll. This Chlorophyll helps to trap the energy from the sunlight, where as the carbon dioxide is trapped through tiny hole in the leaf. The water is absorbed through the roots and up through the stem.
The trapped sunlight helps the carbon dioxide and water react. This makes a sugar called glucose. It also makes a waste product called oxygen, which humans use to breathe.
The factors that will affect photosynthesis are darkness and this is why they don't photosynthesis at night. At night thought the plants take in oxygen and then give at their carbon dioxide as a waste product.

FAIR TESTING: The variables in which I believe will affect my investigation are the following:

- Light Shining through from other experiments.

This will affect my experiment because the extra light will cause the plant to photosynthesise a bit more.
Improvements for this could be things such as doing the experiment when others in the class are not there, or I could also use a book or something else to block the light coming through.

- Light Shining through the windows.

This will also affect my experiment because of the extra light that is shining through.
Improvements for this could be things such as pulling the blinds down or also using a book to block out the extra light.

- There may be a blockage in the stem.

This will affect my experiment, as the bubbles will not be able to escape from the stem. I intend to improve this by finding out were the blockage is and chopping the stem down a bit.

- Some of the leaves may be dead.

This will affect the investigation because the light will not be able to get to the dead leaves, as they cannot photosynthesise. I can help this problem by ripping off the dead leaves or by repl acing the plant.

METHOD: I intent to do my experiment by firstly setting up where all the equipment goes. The equipment that I will be using is the following:

- 1 Metre Ruler.
- Lamp.
- Pondweed.
- Bottle filled with water.
- Stopwatch

The Pondweed will be placed in side the bottle, which will be filled up with water, then I will place the bottle at one end of the ruler, and finish by putting the lamp at the other end of the ruler.
Each time I will move the lamp back a further 10cm after I have timed 2mins off the stopwatch. During the 2mins I will count the amount of bubbles and record them in a table.

Diagram 1:

PREDICTION: In this section of work I will say my predictions and why I think it will happen. My first prediction is that the further back the lamp goes the less bubbles that will occur. I think this is because the light has to travel a longer distance before being able to be photosynthesised. My Second prediction is that my experiment will not be a fair one. This is because the light shining thought other places such as the window would help the plant photosynthesise more.

RESULTS: The table below is a table of the results in which I have recorded whilst doing my experiment:

Distance from lamp in CM	Results 1	Results 2	Results 3	Average
40cm	15	16	18	16
30cm	23	21	24	23
20cm	28	26	27	26
10cm	35	37	36	36
0cm	49	48	48	48

CONCLUSION: From this experiment I have found out how a plant can photosynthesise and how it manages to it. Also I have found out that the further away a light is to a plant the less bubble it will produce. This is because the plant has not got much light to be able to photosynthesise as the light has a further distance to travel. This can be seen from the results in the table above. As you can see that the nearer the lamp is to the plant the higher the amount of bubbles which occur.