Investigating the effect of light intensity on the rate of photosynthesis.

Aim:

We are going to investigate the effect of changing light intensity on the rate of photosynthesis on Eloden pondweed.

Factors affecting the rate of photosynthesis.

1. Heat-high temperatures can destroy enzymes.
Very low temperatures slow enzymes down.

2. Light intensity- high light intensity increases photosynthesis.

3. Carbon dioxide-high levels increase rate of photosynthesis.

Variables- things can change.
What will we measure?

- The number of oxygen bubbles produced in a given time.
- Variables- distance from the lamp, measure the temperature of the water, volume of water, length of the plant.

Range of five measurment, 5 repeats, average results.

Method.

The equipment I will need is: beaker, thermometer, glass rod cotton pondweed, boiling tube containing dilute hydrogen carbonate, lamp and a meter ruler. I will make it a fair test by having range of five measurements and 5 repeats. To make the experi ment safe I will where safety goggles.

Things I could change.	What I will keep the same.
• The amount of pondweed. • The amount of sodium hydrogen carbonate.	• I will not change the 5 measurements. • The amount of water.

I can make the results as reliable as possible by doing more than 3 repeats and a range of 5 measurements. To make sure I have enough results to make a graph, I will do 5 repeats.

Prediction.

I think that the pondweed will start to photosynthesise when the light is shining on it. I also think that the hydrogen carbonate solution will help release the CO_2. I predict that there will be 75-85 bubbles when the light is 10 cm away and 36-40 bubbles when the light is furthest away.

Conclusion.

The graph shows a pattern, the closer the light is to the plant the more bubbles produced. The further away the light the less bubbles produced. There will be less bubbles because there will be less light to start the photosynthesis. My prediction was almost correct, I predicted there would be 75-85 bubbles and 36-40 produced when the light was closest and when the light was furthest away.

Evaluation.

There are no results that do not fit in with the pattern of results. All the results seem to fit with each other properly. This tells me that the

experiment was a success and the results are reliable. To make my experiment more accurate, I could have put the light at more than 5 different lengths.

Results.

Distance	Time	Bubbles 1	Bubbles 2	Bubbles 3	**Bubbles 4**	**Bubbles 5**	**Temp.**
10	1 min.	79	77	81	85	78	21
20	1 min.	57	53	52	55	56	21
30	1 min.	47	46	48	47	48	21
40	1 min.	40	41	41	42	40	21
50	1 min.	38	39	39	39	37	21