An Investigation to find out to find how the light intensity effects the rate of O2 produced by pondweed

In this experiment we are trying to find out if light intensity effects the rate of O2 produced by pondweed.

In this experiment the control variables are temperature, NaHCO3, size of pondweed and there are the control variables which h we will not change so we can make it a fair test. It will be a fair test for we will not change more than one variable, because if you change more than one variable it won't know what effects it. I am going to keep the temperature the same by keeping the experiment set up in the same area. But alas it might change because we have to do it different days but the change in the results will not be noticeable. I will use a 10cm piece of pondweed in every experiment I do, for 10cm should produce a lot of O2. The only thing I will be changing is the light intensity which we call this the independent variable. I will accomplish this by moving the lamp closer to the beaker containing the pondweed. Sunlight plays a much larger role in our sustenance than we may expect: all the food we eat and all the fossil fuel we use is a product of photosynthesis, which is the process that converts energy in sunlight to chemical forms of energy that can be used by biological systems. Photosynthesis is carried out by many different organisms, ranging from plants to bacteria . The best known form of photosynthesis is the one carried out by higher plants and algae, as well as by cyanobacteria and their relatives, which are responsible for a major part of photosynthesis in oceans. All these organisms convert CO2 (carbon dioxide) to organic material by reducing this gas to carbohydrates in a rather complex set of reactions. Electrons for this reduction reaction ultimately come from water, which is then converted to oxygen and protons. Energy for this process is provided by light, which is absorbed by pigments (primarily chlorophylls and carotenoids). Chlorophylls absorb blue and red light and carotenoids absorb blue-green light , but green and yellow light are not effectively absorbed by

photosynthetic pigments in plants; therefore, light of these colors is either reflected by leaves or passes through the leaves. This is why plants are green.

My prediction is when you move the lamp closer to the beaker it will produce more O2. I think this for all plants need sunlight and without they would die and by increasing it you will increase the rate of photosynthesis.

In this experiment I'm going to use a bowl, syringe, beaker, lamp, ruler, thermometer, clamp and stop watch.

Method

- Get apparatus
- Fill bowl with warm water
- Clamp syringe into place
- Fill beaker
- Cut pondweed
- Stick the cut end into the tube
- Test temperature
- Add 3 spatula fulls off sodium hydrogen in
- Put ruler in place
- Place 5cm away
- Time for 10mins
- Then see how much Co2 was produced in the syringe
- Record result
- Then keep moving the lamp 5cm away each time

Diagram