**Activity 6.8 - Investigating the effect of light intensity on photosynthesis**

**A03.1 Using techniques, apparatus and materials A03.2 Planning, A03.3 Observing, measuring and recording, A03.4 Interpreting and evaluating observations and data, A03.5 Evaluating methods**

If you use an electric lamp, keep water well away from it.

If you did Activity 6.6, you may have noticed that the plant seemed to produce more bubbles in bright sunlight than when it was in the shade. This could mean that the rate of photosynthesis is affected by light intensity.

1. Write down a hypothesis that you will investigate. The hypothesis should be one sentence, and it should describe the relationship that you think exists between light intensity and the rate of photosynthesis. You can vary light intensity by moving a light source closer to the plant. The shorter the distance between the light and the plant, the greater the light intensity.  
   You can use a water plant in your investigation.
2. Once you have an idea about how you will do your experiment, write it down as a list of points. Then think through it again, and make improvements to your plan. Once you are fairly happy with it, show your teacher. You must not try to do your experiment until your teacher says that you may begin.

* What apparatus and other materials will you need for your experiment?
* What will you vary in your experiment? How will you vary it?
* What will you keep the same in all the tubes or beakers in your experiment? How will you do this?
* What will you measure in your experiment? How will you measure it? When will you measure it? Will you do repeat measurements and calculate a mean?
* How will you record your results? (You can sketch out a results chart, ready to fill in.)
* How will you display your results? (You can sketch the axes of the graph you plan to draw.)
* What will your results be if your hypothesis is correct? (You can sketch the shape of the graph you think you will get.)

1. Once you have approval from your teacher, you should do your experiment. Most scientific researchers find that they want to make changes to their experiment once they actually begin doing it.  
   This is a good thing to do. Make careful notes about all the changes that you make.
2. Finally, write up your experiment in the usual way, including:

* a heading, and the hypothesis that you tested
* a diagram of the apparatus that you used, and a full description of your method
* a neat and carefully headed table of results, including means if you decided to do repeats
* a neat and carefully headed line graph of your results
* a conclusion, in which you say whether or not your results support your hypothesis
* a discussion, in which you use what you know about photosynthesis to try to explain the pattern in your results
* an evaluation of the reliability of your data
* an evaluation of your method.