



General Certificate of Education  
Advanced Level Examination  
June 2010

**Biology**

**BIO6T/P10/TN**

Unit 6T A2 Investigative Skills Assignment

**Teachers' Notes**

**Confidential**

A copy should be given immediately to the teacher(s) responsible for  
GCE Biology

**Teachers' Notes****CONFIDENTIAL**

These notes must be read in conjunction with *Instructions for the Administration of the Investigative Skills Assignment: GCE Biology* published on the ISA disk and on the AQA Website.

**The effect of light intensity on the rate of photosynthesis**

Candidates are required to measure the effect of light intensity on the rate of photosynthesis of an aquatic plant.

**Materials**

In addition to access to general laboratory equipment, each candidate needs

- sprig of an aquatic plant at least 6 cm long (*Cabomba* is recommended)
- 20 cm<sup>3</sup> of 1 % sodium hydrogencarbonate solution (i.e. enough to fill the test tube)
- lamp of appropriate wattage to produce a reasonable rate of bubbling at 10 cm (e.g. 40W bench lamp). Alternatively, the starting distance of the plant from the lamp should be changed, so that a reasonable initial rate of bubbling is obtained. Low energy light bulbs should not be used.
- stopwatch or suitable alternative
- test tube
- test tube rack
- ruler to measure distances in mm
- scissors
- glass rod
- forceps
- AQA Students' Statistics Sheet (version 2) provided with the Task Sheet.

**Technical Information**

Either *Cabomba* or *Elodea* could be used as the aquatic plant in this investigation. It has been found that *Cabomba* is much more reliable and is therefore recommended. It can be obtained from tropical fish shops and some large garden centres. If *Elodea* is used, it is suggested that the plant is placed in a beaker of water in front of a lamp for 2–3 hours before starting the investigation.

*Cabomba* should be kept in a well aerated tank. In the laboratory its photosynthetic ability decreases with time, so fresh material should be used for the investigation.

This task must be trialled before use.

**One week before sitting Stage 1 of the ISA, teachers may give their candidates the following information.**

You will investigate the rate of photosynthesis of a plant.

**In this investigation, teachers must not give candidates the following information**

- the number of repeat measurements to take at each light intensity
- the number of different light intensities to use.