CHAPTER 1: INTRODUCTION TO BIOLOGY

Report of an Experiment

1. **Question 2** of the SPM Biology **Paper 3** usually requires you to plan an experiment based on a given situation or a problem.
2. A plan is a step-by-step description of what you will do to carry out an investigation.
3. You are usually asked to plan an experiment which includes the following aspects (printed in bold):
   (a) **Problem statement –** *refer to Figure 1.7, page 7 of Nexus SPM Biology*
   (b) **Aim of the investigation** (or Objective of study)
      i. An aim is what a scientist wants to find out.
      ii. From the aim, it should be possible to define the manipulated and responding variables.
      iii. A good aim of an investigation states clearly…
         - that only one factor will be changed in the investigation
         - the quantity that will be measured in order to find the answer to the problem statement
      iv. The aim of an investigation usually starts with these words:
         - To investigate the effect of …….
         - To find the effect of ……..…on …….
         - To find out what happens if ……
   (c) **Hypothesis** – *refer to Figure 1.7, page 7 of Nexus SPM Biology*
   (d) **Variables** – write down the manipulated, responding and controlled variables
   (e) **List of apparatus and materials** – write down **all** the pieces of apparatus and materials used.
   (f) **Technique used** – give the name of the technique or method used in the experiment (if you know and remember it); otherwise give a summary of what needs to be done to gather the experimental data.
   (g) **Experimental procedure or method** – write down each step which is to be carried out in the experiment to gather data (making measurements and observations), and to record the data.
   (h) **Presentation of data –** design an appropriate table, chart or graph that helps to show the patterns and trends in the data (you do not need to include any data).
   (i) **Conclusion** – a conclusion is reached either…
      i. to **accept** the hypothesis if the experimental evidence (result) **supports** it, or
      ii. to **reject** the hypothesis if the experimental evidence (result) **does not support** it.