AP Biology

**AP Biology Formal Lab Report Guidelines**

Prepare a written report of your experiment which includes the section titles listed below.

These section titles should be used to label each section of your report.

1. *Title*
2. *Purpose*
3. *Introduction*
4. *Hypothesis*
5. *Materials and Procedures (can be 2 separate sections)*
6. *Results/Data Collection*
7. *Discussion//Analysis*
8. *Conclusion*
9. *Literature Citation/References/Bibliography*
10. *Questions*

The following information should be included in each section of the lab report.

1. **Title** - Be as specific as possible and briefly denote primary topic dealt with during the experimentation. The title should be written in the appropriate box provided on the lab book formatted page
2. **Purpose/Objective-**Include variables (independent and dependent); state specifically what you will be measuring.
   1. Examples:
      1. Good: “To measure the effect environmental variables such as light intensity, humidity, and wind on the rate of transpiration in plants”.
      2. Not so good “To look at the effect various conditions on water loss in plants.”
3. **Introduction** - In this section of the report you should include the following pieces of information:
   1. Background information that will help them understand the experiment that you have conducted. Important terms should be defined in the section.
   2. Purpose of the lab and should be clearly stated in the introduction.
4. **Hypothesis** – a testable hypothesis should be included, written in an if-then format or full statement format. Students may need to complete multiple hypothesis for multistep experiments.
5. **Materials & Procedures** - A complete listing of the materials and supplies that were used to conduct the experiment should be included in this portion of the report. In this section of the report you should present the exact steps that were followed in your experiment. Clearly identify the control, variables and the measurement techniques used.
6. **Results/Data Collection -**All of the data that was collected during the experiment should be presented in a data table or tables. Additionally, a graph of the data should be included in this section. Make sure that the graph is appropriately titled and axes labeled. Include a legend if necessary.
7. **Discussion//Analysis** *–*Include your interpretations of the data and relate them to the questions you posed in the introduction. Be careful to avoid making this section just a repetition of the introduction. If you have any data to explain, do it here or make a new hypothesis as to why the results came out in a way you did not expect. Did the results answer your question or purpose statement? Did they support or disprove your hypothesis? Draw some conclusions, supporting them with your data. What is the significance of your results in the general area you studied? What are the main principles demonstrated by your results? What further experiments should be performed to clear up discrepancies or ambiguities in your results? How might your work best be continued or extended.
8. **Conclusion-** This section includes only four or five sentences that summarize definitive conclusions from the results. Here is an example of a conclusion for the acetic acid experiment:
   1. From a comparison of the results of the experimental calculations with the normal value for percent acetic acid in vinegar, it can be concluded that the percentage of acetic acid in the sample used in this experiment was about 4.982%.

Notice how the conclusion relates directly to the main objective of finding the percentage of acetic acid in the given sample of vinegar. The conclusion also justifies itself based on the results; the actual results were comparable to the expected results. The degree of confidence the writer has in the conclusion is also shown; the percentage was an average rather than an exact amount, so the word ‘about’ was used.

1. **Literature Citation** – Given that some of the information included in your lab write up will have been taken from a published lab activity, you should include a citation of the source. The source(s) used should be cited within your lab write-up (especially in the introduction section) using scientific citation. (APA format throughout formal lab and in the reference section)
2. **Questions** – The discussion questions found throughout the laboratory should be *written and answered* in this section.