

## Appendix A: Writing a Lab Report

Being able to write a coherent account of an event is important for people working in any field. Biology lab reports should be considered as much an exercise in this art as English or History term papers. While great eloquence in style is not crucial, clarity and conciseness are.

A lab report indicates three things: how well you carried out an experiment, how well you understand what you did, and how methodically and logically you can present your information. Bear this in mind as you organize your thoughts and use the following outline.

### FORMAT

**Title:** this should be brief, but informative. In most cases it will not be the same as the title of the whole lab exercise.

**Introduction:** This section should indicate clearly what ideas are being investigated and state specifically what the purpose of the study is. If you do more than one test in an experiment, the purpose of each should be given. Do not copy what is in the lab manual. Present this material in your own words and in complete sentences.

**Materials and Methods:** The procedure you followed should be written out clearly with enough detail that another student could perform the experiment based on what you have written. Do not simply list all the materials you used. Your description should incorporate the materials you used, the amount used, and what they were used for. NO results should be included here. If an experiment has several parts, be sure it is clear what procedures go with which parts of the experiment. Be sure to report what you actually did and not strictly what the protocol said. For example, if the lab manual said you should use 5 ml, but you really used 5.5 ml, you should report 5.5 ml in your lab report.

**Results:** Here you should include all charts of data, diagrams, tables, graphs, or other material that helps to illustrate what occurred during the experiment. **Make sure that diagrams have size scales and that the axes of all figures are labeled and the units of measurement (mm, ml, etc.) are provided.** In words, summarize the major patterns you see in the data. Descriptive observations should supplement these data but not restate them. All drawings should be carefully labeled and should accurately show what you saw. Do not copy from another source. Do not include procedures or interpretations of the results here.

**Discussion:** This section is an interpretation of your results and a discussion of what these results mean. You should include a summary of the work done or the question addressed, the concepts you learned, and possible sources of error (equipment error, human error, natural variability, etc.). If something did not turn out the way you would have expected, discuss that here and suggest possible reasons for the outcome. If you think the experiment could have been designed or carried out differently to obtain better results, explain how you would have improved it. You can discuss your conclusions in comparison to other lab groups who did the same experiment. If you have done any reading in the scientific literature that pertains to your results and conclusions, include it here. **Include answers to any questions in the lab manual** and any additional thoughts you may have on the topic.

**References:** All reference books (including your text book and your lab manual), articles, etc. should be acknowledged at the end of your lab report (not in footnotes), using the following form:

Book: Campbell, N. A., J. B. Reese, and L. G. Mitchell. 1999. *Biology*. 7<sup>th</sup> edition. Benjamin/Cummings. San Francisco, CA

Journal article: Jardine, T. D., M. A. Gray, S. M. McWilliam, and R.A. Cunjak. 2005. Stable isotope variability in tissues of stream fishes. *Transactions of the American Fisheries Society* 134: 1103-1110.

**Plagiarism:** Plagiarism refers to the copying of statements (whether exact or paraphrased words) or the ideas of others without acknowledging where you obtained them. It is a very serious offense. You must properly acknowledge all sources of information used in your work. Plagiarism also refers to the copying of papers or lab reports. Lab partners should never copy each other's lab reports. When you perform a lab together, each partner is individually responsible for all data. Although lab partners should discuss the results, the analysis and the conclusions of the lab; a lab report must be each individual's own work.