What follows here is a brief description of how to write a scientific report. Realize that there are many different kinds of scientific articles with different objectives and audiences. The one we provide you here is very good for the general case. You should use this structure and logic for your final individual report whether it is bench, field or literature based.

Abstract:
Write the abstract last. The first sentence is essentially your hypothesis rewritten as a statement of what was done, followed in sequence by the final sentences of each paragraph of the results section, and the final sentence of the paper. Copy and paste each of these sentences to the abstract and then edit them as necessary so they form a cohesive paragraph.

Introduction
The introduction to your report should only consist of three paragraphs. The first paragraph defines the broad context of the problem to be studied and begins with a very broad statement like: “Fishes are known to swim sometimes but drown occasionally”. Subsequent sentences set the stage and inform the reader about where, when and why, and what form of science this problem effects. It ends with a statement of the general problem as you understand it and intend to study.

In the second paragraph the writer takes the general problem stated above and through logical arguments focuses on the question that seems most central to its solution. The usual method develops the question either as a paradox or lacuna: Problems stated as a paradox (two mutually exclusive truths) have very much greater power than those stated as a lacuna (region where knowledge is lacking). Bring in any citations that are germane to your arguments here, but do not attempt to provide a “literature review”. Subsequent sentences narrow down, define and rule out the possible solutions to this problem until you have only one. Develop an argument that ultimately specifies a particular question central to the solution of your problem and which can be answered by scientific research. This paragraph ends with a concise statement of this question you have developed from the research problem.

The third paragraph organizes the research based on the question. The first sentence is a concise statement of the hypothesis(ses) to be tested, which derives from the last sentence of the second paragraph. In fact, it can be that sentence but inverted and stated as a hypothesis: “It may be that………….” is one way of beginning a hypothesis. The second sentence begins a series of sentences or numbered clauses that state in sequence exactly what you must do to test your hypothesis: “Accordingly we did (1)……,(2)……, and etc”. These objectives or experiments must be logically arrayed so that the first provides a foundation for the second which builds on the first and so on. The final sentence of the third paragraph defines the one piece of critical information
that would falsify your hypothesis: “In particular, we sought to determine if……. (what ever it is)”.

**Materials and Methods**

The “M&Ms” are written last, usually by copying and pasting all but the first and final sentences of the third paragraph of the introduction to an empty page. These are the “Accordingly we did” sentences or clauses. Each becomes a topic sentence for a short telegraphically written paragraph about the techniques you used. They begin something like: “In order to determine such and such, we did such and such”. Be certain you include how you collected your data and how they were analyzed. Thus, the third paragraph of the introduction and the M&Ms are written in parallel.

**Results**

This is the first section to write, in part because once you have written it, you know exactly what you have (or do not have)! Focus particularly on generating the graphs, charts and tables you must show your readers. This section and the introduction should be written as the work progresses, in part to keep the research on track.

Simply copy and paste all but the first and final sentences of the third paragraph of the introduction to an empty page as you did for the M&Ms. Each of these becomes a topic sentence for a paragraph about the results you achieved. They begin something like: “We first determined……..”, or ”We compared such and such and discovered……...”. Again these are arrayed in parallel with the sequence in the third paragraph of the introduction. Each ends with an explicit statement of the particular result obtained.

**Discussion**

The first sentence of the discussion states the most important fact you have discovered with your research which, hopefully, indicates your original hypothesis is correct. The rest of the paragraph discusses its impact on our understanding of the research problem as a whole.

Subsequent discussion paragraphs may address a variety of lateral issues impacted by your results, or provide you the opportunity to further discuss why you did things the way you did, or to make further predictions along this line of research, or improve your arguments, and the like. Describe briefly where you think the research should go from here. Be sure to discuss and hopefully dismiss with evidence from the results section or argument any alternate explanations that compete with your findings. Include where necessary, what might be wrong and how could future workers deal with the problem. You might speculate what the next experiment should be and why. End the paper with an explicit statement of final result of your hypothesis test.