Mr. Bosworth

Periods 2 December 8, 2015

**Writing a Lab Report in**

**Physical Science**

**Format:**

1. Font size will be 12 pt. (This document is 12 pt.)
2. Do not use a font that is difficult to read. Like this(Times New Roman)
3. The document will be 1.5 spaced. This document is single spaced.
4. Margins will be one inch all around. This document is ½ inch all around.
5. Your Name(s) will be in the upper right corner with the date, period and version.
6. The **Title** will be centered at the top of the document and will introduce the reader to the content of the report.
7. All sections will be identified with **bold headings.**
8. All sections are written in complete sentences except the **Materials**.
9. All sections must be completed and ordered as follows.
10. **Only documents that are formatted properly will be accepted.**

***Note: I have included an example of a lab in this document. My lab appears in italics.***

**Introduction:** This is where you introduce your reader to the lab. Write about your initial observations that led you to doing this lab. Present the questions that you came up with and any knowledge you have that is pertinent. You are in effect identifying the independent and dependent variables. The question appears underlined at the end of the introduction.

***How to catch fish on the South Fork of the Snake River***

***Introduction:*** *This weekend while fishing I did not catch very many fish (dependent variable). I did see lots of fish though. They seemed to be in slow water where the water was not too deep. I tried those spots and only caught a few fish on nymphs. I wonder if it is the speed of the water or the depth or was I using the wrong fly. A friend suggested I should measure the temperature of the water. Another guy said to use really small flies. I don't have a stream thermometer but I can tie various sizes of flies. I think I will try again this weekend with different fly sizes (independent variable).Will the size of my nymph affect how many fish I catch?*

**Hypothesis:** A statement predicting the outcome of your experiment. You should use both the dependent and independent variables in the statement. The hypothesis will be in **bold.** Use the “If…, then…, because…” format.

“If…(describe a change in the manipulated variable), then…(tell how the responding variable will react to the change), because…(explain your reasoning or tell why something will happen)”

* *Manipulated variable*: This is the variable that you, the scientist, change or manipulate. This is the “cause” in the experiment and is the same as the independent variable in math class.
* *Responding variable*: This is the variable that “responds” to changes in the manipulated variable. This is the “effect” in an experiment and is the same as the dependent variable in math class.
* *Controlled variables*: These are variables that are kept the same in all experiments to minimize scientific error, and to isolate the manipulated variable.

***Hypothesis: I will catch more fish with size 20 midge patterns than with size 16 because…***

**Materials:** List all materials necessary to do the lab with descriptions as necessary including sizes, quantities etc. Multiple columns are acceptable.

f*ly rod, six weight Loomis river with fish*

*size 16 and 20 midge patterns(3 of each) watch*

*notebook and pen*

**Method: (or Procedure)** This section is like the instructions for baking a cake. They are written as commands without pronouns for the reader to repeat your experiment. Tell me exactly what to do. You are telling the reader what to keep constant and what to vary. If a control is used it will be identified here. This section should be a numbered list.

1. *Go fishing*
2. *Find a section of the river where you think there are fish.*
3. *Tie on a size 20 fly and fish the river for 20 minutes.*
4. *Record the number of fish caught.*
5. *Change to a size 16 fly and fish for 20 minutes.*
6. *Record the number of fish caught.*
7. *Find another stretch of river.*
8. *Fish the size 16 fly again for 20 minutes.*
9. *Record the number of fish caught.*
10. *Switch again and fish.*
11. *Remember to record your data.*
12. *Fish five different stretches of the river.*
13. *Be sure that you fish each stretch with both flies.*

Notice that I told the reader to fish both flies equally. I want to know if it is the fly **not** the type of water. Since I think the size 20 is going to be better the size 16 is my control. I am comparing two flies. I have tried to keep everything else constant. I fished both flies in each stretch of the river and alternated flies.

**Data:** We will present the data in at least two forms in the report. You will always present a data table. The table must have a title, units and all of the data collected in the experiment. The data will then be presented in some sort of graph or narrative. An example of each follows.

*Table 1. Success catching trout with different size dry fly patterns.*

|  |  |  |
| --- | --- | --- |
| **Stretch of water** | **Number of fish caught in 20 minutes** | |
| **Size 20 midge** | **Size 16 midge** |
| **Willow pool** | **2** | **5** |
| **Rocky run** | **1** | **1** |
| **The flats** | **2** | **8** |
| **Total for Day** | **5** | **14** |

Number of fish

**Data: Narrative:**

* *I caught three more fish in Willow pool on the larger midge (size 16) than on the smaller (size 20).*
* *I caught the same number of fish on each size in Rocky Run; the fishing was poor.*
* *I totally slammed the fish on The flats with the size 16 midge. I only caught 5 with the smaller size 20 but caught 14 with the bigger fly.*

**Results :** State the outcome of the experiment in a narrative using your data. I know this appears redundant but it is necessary.

***Results:*** *I caught more fish in total using the larger size 16 fly. I only caught five fish on the size twenty compared to fourteen on the bigger fly. The size of the fly did not matter in Rocky run; I only caught one with either fly. The biggest improvement occurred when fishing the Flats and Willow Pool. In Willow I caught three more and on the Flats five more.*

**Conclusion** Talk about your data and whether it supports or refutes your hypothesis. You need to use the data in the narrative. Compare your data to other scientists (experts). If your data is different speculate why your data does not agree.

***Conclusion***

*This data disagrees with my hypothesis. I thought I would do better with the smaller fly but I did not. Overall the larger fly caught 9 more fish than the smaller fly. My friend who told me to try smaller flies must be doing something different than me. His success does not match mine. Maybe he ties his flies differently. I will need to check. I think next weekend I will get a thermometer and check the temperature of the water to see if that makes a difference. I do know that I will probably fish the larger fly more since it works for me.*

Idaho Core

9-12 College and Career Readiness Anchor Standard- Writing

* 1. **Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.**
  2. **4. Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.**
  3. **5. Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.**
  4. **6. Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.**
  5. **10. Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of tasks, purposes, and audiences.**