**Descriptive Title That Includes Both Variables**

Your Name, Your Name, and Your Name

*2701 W. 136th Avenue Broomfield CO. 80020*

**Abstract**

*The abstract needs to include a short statement about what was done and what the major result was. Be specific. A numerical result is better than a general statement. The abstract should be one paragraph and generally less than 200 words.*

**Introduction**

This section is where you state the goals of the project. You also need to give context to your project. Has an experiment been done like this one before? Describe the scientific principles that apply to your project. Explain the science behind any lab equipment that you are using. This section will need to be more than one paragraph since you will be describing more than one idea. Consider what the main concept is in each paragraph.

You will probably need to include graphics either in this section or in other sections. Here are some tips: If it is a biology project you may need diagrams. To get the text to wrap around the object, click on the object, then click on “picture tools” at the top. Click on “properties and you will see the choice that works best for you. You can still move the object around to get it in the best location. Be sure to write a one sentence description of the graphic and label it “Figure 1”.

 If it is a chemistry project you will need a chemical structure or reaction. If you can’t find an image of the structure or reaction, see me and I will help you find software. You don’t necessarily have to have the text wrap around the graphic, you could include it like **Figure 2** below. Notice that you can, and should, refer to your figures in your paragraph. Also, if you plan to include a formula in your writing, you need to know how to make subscript and superscripts. For example, you should not write H2O. To make the appropriate subscript, Microsoft Word has a short cut button on the bar that looks like “X2”. Highlight the 2 and then press the button to make a subscript (H2O). If you write an ion like Ca+2, then use the superscript button.

**Figure 1.** The major organelles of an animal cell.1



**Figure 2.** The chemical structure of aspartame.2

If it is a math or physics project, you may need to include formulas using the formula editor in Microsoft Word. To find it, click “Insert”. On the far right side, you will see the “Equation” button. If you experiment, you will be able to make fairly complex formulas in a very neat way. For example, **Figure 3** shows the relationship between centripetal force and linear velocity for an object undergoing circular motion.

$$F= \frac{mv^{2}}{r}$$

**Figure 3.** An equation showing the relationship between centripetal force and the velocity of the object.

**Materials and Methods**

This section should describe what was done. Notice that I did not say that it should describe what you did. This section needs to be in past tense, passive voice, third person. We want the focus on the experiment so you should not mention members of the group in any way. Do not say: we used a graduated cylinder to measure out 25 ml, and then we poured it into a large beaker. Instead say: 25 ml of water was poured into a 150 mL beaker. Notice, the second way is faster and keeps the focus on what was actually done. Avoid pronouns at all cost.

This section also needs a complete materials list. Be specific about what type of equipment was used. If a chemical or biological sample was used, state which company made it. You need to have enough detail here that someone that you have never met could repeat what you have done without your assistance.

**Results**

The results are very often a short section because you are going to save the discussion of the results until the next section. You will need tables and graphs and remember to calculate a standard deviation. Discuss how any calculations were done and point out any unusual data patterns. Center the table and condense and organize the information. Do not make a reader wade through 100 data points. The table should be simple and most certainly need to fit on one page. Use a table label like **Table 1** below. Notice that this is not Table 4. Tables get their own numbering system.

|  |  |
| --- | --- |
| Student’s Height While Standing (cm) | Students Height While Laying Down (cm) |
| 175.2 | 176 |
| 175.4 | 176 |
| 175.1 | 176 |
| 173.4 | 175 |
| 173.6 | 175 |
| 173.2 | 175 |
| Average (cm) | Average (cm) |
| 174.3 + 1.1 | 175 + 1 |

**Table 1.** Data showing the affect of standing on a person’s height compared to their height while laying down.

Finally, pay attention to significant figures. Notice that in the first column of the table, all of the data are to the tenths place, and so is the standard deviation (1.1). You need to be consistent.

**Discussion**

Start the discussion by restating what your hypothesis was and immediately give the main piece of data that supports your hypothesis or disproves it. You need to actually give a number here. Do not restate your whole results section. What was the key piece of data?

Discuss the challenges of the project. This does not include personal challenges and any narrative discussion that might be construed as a personal diary. Errors that you should discuss should be errors introduced by the limitations of your equipment, flaws in your original hypothesis, or variables that were not controlled properly. Suggest what changes in equipment, experiment design, or hypothesis that may help you improve the results.

**References**

Be sure to include references in a citation sequence format.