**Title – descriptive, not catchy, with some mention of purpose and method (include IV and DV if hypothesis-driven lab)**

**Purpose:**

The purpose of this lab was to *(insert the key objective of the title)* by (*insert the general procedure.) If this is a hypothesis-based lab, the statement would be* The purpose of this lab is to test the effects of IV on DV using \*method\*  *Note – this will basically be your title in a complete sentence. Include a second sentence or two if you need to clarify for your audience. You will ONLY use this section if you are NOT writing an abstract*

**Abstract**

The purpose of this lab was to *(insert the key objective of the title)* by (*insert the general procedure.)* Give one-two sentences about the general procedure including how data was processesd/manipulated to obtain results. Write one sentence that tells the numerical results of the lab (if comparing to known or predicted results, then include % error) If hypothesis-driven lab, state if these results support or do not support the hypothesis WITH JUSTIFICATION (because \_\_\_\_\_\_\_\_\_\_)

**Background Information (or Introduction)**

*Note – this section serves to show your reader that you understand the scientific concepts behind the lab, what the GENERAL procedure is for the lab, and how the data you collect will allow you to achieve the purpose. If you are making a hypothesis, state it. Tell WHY you think this relationship will occur and how your method will allow you to collect data to support your hypothesis (in other words, what do you expect your data to “look like” if your hypothesis is supported, Find at least one outside source that supports or extends your reasoning (or gives more details about the concept, if no hypothesis is used). After reading this section, your reader should have a good understanding of WHAT concept you were investigating, the specific data you are collecting and HOW you will collect it, and WHY this method will allow you to achieve the overall objective in the lab. This MUST be at least 2-3 paragraphs, and needs to have at least one internal citation from an external source. If there are mathematical formulas involved, then be sure to include the equation as well as an explanation of the variables involved, as well as how they are used in data analysis. (More complex labs will have 1-2 pages here.)*

**Materials**

Give a **LIST** of ALL materials needed including size (400-mL beaker or 100-mL graduated cylinder) or quantity (3-5 g sample of X), if measured. Read over your procedure in order to ensure you have not omitted anything. If you are given a procedure, then only list the materials YOUR lab group actually used. Add in any materials not listed, You do NOT need to include pencil and paper for record keeping.

**Procedure**

Give a numbered list of the lab procedure, **including the steps you will take to process your results**. If you have been given directions, use these as a starting point. Be sure to include any modifications you made. Include enough detail so that any one could replicate your process. A well-labeled photo or sketch of the apparatus is helpful, and often necessary, to receive full marks.

**Results:**

The investigation produced the following data:

INSERT DATA TABLE – use the table function in your word-processing program to create. Include ALL data that was collected, including UNITS (ask your teacher if you need to include uncertainties or precision). Be sure you include ONE ESTIMATED DIGIT in ALL measurements.

You should add additional data table (or section in previous one) for any processed data (such as mean, adjusted mass, results of calculations, etc), if appropriate. Don’t forget rules for determining significant digits.

In many labs, you will include qualitative data as well as quantitative. Here you will list non-numerical observations that may be helpful in interpreting your data.

If your data can be graphed, do so. As a general rule, we graph PROCESSED, not RAW, data. Be sure you use the appropriate type of graph and label your axes (don’t forget units). Graphs should ALWAYS be drawn on graph paper or produced electronically.

NO EXPLANATIONS OF DATA HERE – JUST THE FINDINGS. EVERY DATA TABLE OR GRAPH MUST HAVE A SENTENCE PRECEDING IDENTIFYING WHAT IS INCLUDED IN VISUAL. GRAPHS must have a statement following them stating the relationship between the variables (e.g., “As seen in the graph, the relationship between mass and volume in glass was a direct relationship. The best fit-line for this relationship is defined by the equation M = 2.6\*V” OR “The slope of the mass vs. volume graph is 2.6 g/mL” This relationship is consistent for all data points except \_\_\_\_, which may be outliers.

**Data Analysis/Discussion**

This section will explain your thought-process as you tell your audience WHY you completed the data analysis. In simple labs, this could be something like

“The mass of the sugar (msugar in the bubble gum was determined by subtracting the mass of the chewed, dried, gum (mf) from the original mass of the gum (mi).”

msugar = mi - mf

msugar = 25.45 g – 15.35 g = 10.10g

*Note – the information is in sentence form and left justified. Insert the formula with WORK below this statement CENTERED below this statement. Don’t forget to include proper number of sig figs AND UNITS. You need to include one example of each type of calculation. Ask your teacher if you have any questions as to whether a sample calculation is needed.*

In a hypothesis-based lab, be sure to explain relationships between variables as well as WHY you think such a relationship occurred. Refer back to your background information and make connections here. In more complex labs, this will likely be lengthy.

Don’t forget to include the % error or other statistical analysis of your data. (Show calculations.) Discuss any outliers as well as any sources of error. This should be an analysis of the process NOT your lack of focus, failure to follow directions, or your lack of understanding of the procedure.

**Conclusion**

This investigation found \_\_\_\_\_\_\_. (list numerical results with units – e.g., “The percentage of sucrose in Bazooka bubble gum was found to be 39.69%) Either state how this compares to the accepted value OR whether it supports, does not support, or partially supports your hypothesis. Write 1-2 sentences of explanation. If no hypothesis, be sure to relate back to purpose of lab here. Explain major sources of error (at least 2-3) and how their effect on the results of the lab. In many cases, you will be asked to give suggested improvements to the lab or possible extensions to make the procedure more informative with less error.

**Works Cited**

Label the page **Works Cited** (do not italicize the words **Works Cited** or put them in quotation marks) and center the words **Works Cited** at the top of the page. Double space all citations, but do not skip spaces between entries. Indent the second and subsequent lines of citations by 0.5 inches to create a hanging indent.

You can use <http://www.easybib.com/> or <http://www.citationmachine.net/> to facilitate this process.