**Laboratory Reports**

In addition to learning new chemistry concepts, you will also be participating in laboratory investigations throughout the year. These laboratory investigations will be worth 150 points per investigation. Here is the breakdown of these points:

50 points- abiding by lab safety contract (automatic zero for breaking these rules), having notes and data for the lab (you will be taking notes during labs), participating in lab

100 points- formal lab write-up due one week from lab investigation either physically handed to me or e-mailed to me.

 Period 5-Wednesday’s labs due the following Wednesday

 Period 6-Monday’s labs due the following Monday

Period 8- Tuesday’s labs due the following Tuesday

In the event you are absent during the lab, you have a choice between making up the lab within the week given, or an alternative lab assignment. (Due same day as your class lab write-up)

**Alternative Assignment**

If you are absent the day of a lab, you have the option to write 5 one-page science current events. Select 5 science journal articles/current events to summarize. Must be a page long to include the following: name of article, source, what the article is about, key information pertaining to the article, and your reflection on it. Since you know this is an option to make up a lab, this article is due the day your class lab write up is due.

**How to write a formal lab write-up**

\*These lab write-ups must be typed, and in the following format. In the event you do not have a computer, it must be flawlessly handwritten. (No cross-outs, white-out marks, arrows, etc.) Or it will be sent back to you for a rewrite and point deduction.

\*\*If the format is out of order (example: data before procedures, or hypothesis after lab safety) automatic 15 points deduction.

\*\*\* Although you will have a lab partner or groups in the lab, each person will write their OWN lab write-up. (Example, if you are in a lab with two other people, I expect to see three different lab write-ups) Copying each other’s lab results in automatic zero for all parties, as well as a phone call to your parent/guardian.

 **Format**

Title page: Must include your name, your lab partner’s name, the date and name of laboratory investigation (separate from the lab) (5 points)

Title of lab: centered on top of next page with the rest of the lab following (2 points)

Purpose: One sentence of what the lab is about (3 points)

Research: What chemistry topic pertains to these laboratory investigations? Discuss these topics. (Example, if we are investigating solids, discuss what a solid is and certain properties). You must cite your sources, whether it is a website, or class notes. (15 points)

Hypothesis: “if …., then….” Statement of what you think might happen in the lab, based on the research given. (5 points, -3 if not in if, then statement))

Materials/Procedures: List the materials needed, and write the procedures in third person (do not use “I” in procedures) (5 points)

Lab Safety: What safety precautions do we need to follow during the lab? What chemicals are we using that is not pure water? What are the hazards of these chemicals? Why are we wearing goggles or gloves during this lab? These need to be clear, not in first person, so I know you are thinking safety during a laboratory setting. If a lab contains chemicals, SDS sheets needs to be discussed (15 points).

Data/Results: Using the notes you took during the lab, you need to make a chart of the results (if applicable), describe (in detail) your findings, keep it third person. If you had to calculate anything to get to your results, show the work in a neat fashion. Do not interpret your results in this section of the lab. Just explicitly give me your findings: no errors, no reflection. (35 points)

Conclusion: This is where you summarize your data/results section. If there were noted errors, or your results do not match the chemistry concepts taught in class, discuss it. This is where I can check your understanding with the lab and class. If there were errors in the lab, what would you do differently in ensure the results from the class lectures? (although this should be in third person, points won’t be deducted for third person conclusions) (15 points)

\*\*The following is sample lab if what a 100/100 lab write-up looks like. Nothing goes here in a real lab write-up, start where “your name” is\*\* When you write your lab, refrain from adding my notes into the lab. It looks sloppy and I take off 20 for it. Just do the lab as is, ignoring the \*\*… those are references

Jane Doe

Lab partner: John Smith

Volcano Lab

September 9th, 2016

**Volcano Lab**

**Purpose:** To determine the ratio of baking soda and vinegar for the best volcano eruption reaction.

**Research:** Baking soda and vinegar is a classic example of an acid/base reaction, which baking soda (NaHCO3 bicarbonate) is a base and vinegar (HCH3OO acetic acid) is an acid. When the two compounds react, one of their products is carbon dioxide gas. (<http://scienceline.ucsb.edu/getkey.php?key=4147>)

Below is the chemical reaction for baking soda with vinegar:

NaHCO3 + HC2H3O2 → NaC2H3O2 + H2O + CO2

(<http://chemistry.about.com/od/chemicalreactions/f/What-Is-The-Equation-For-The-Reaction-Between-Baking-Soda-And-Vinegar.htm> )

\*\* if you don’t site your sources, you lose 5 points. Moreover, it needs to be relevant to the lab in a chemistry standpoint.\*\*

**Hypothesis:** If I mix two parts baking soda with one part vinegar, then the reaction will make the best volcanic eruption. \*\*notice it is in an “if, then” statement and not an “I think”?

**Materials:**

- plastic cups

- spoons

- triple beam balance

- graduated cylinder

- food coloring

- vinegar

- baking soda

- liquid dish soap

**Procedures:**

1. Gather your materials.
2. Using the triple beam balance, measure out 5 gram cups of baking soda.
3. Repeat step 2 with 10 and 15 grams of baking soda.
4. Using a graduated cylinder, measure out three 10mL of vinegar. Pour into separate cups from baking soda.
5. Add a squirt of dish detergent in each of the baking soda cups, followed by 3-6 drops of food coloring.
6. Before proceeding, be sure that the lab tables are clutter free.
7. Carefully pour one 10mL of vinegar into the 5grams of baking soda. Record the speed of the reaction, as well as the strength of the reaction.
8. Repeat step 7 for 10grams and 15 grams of baking soda.

\*\* For the most part, materials, procedures and purpose of the labs will be provided in the lab sheet. Everything else, should be in your own words with sources\*\*\*

**Lab Safety:** Goggles should be worn for the reaction may splash into your eyes.

Acetic acid (vinegar): irritant when in contact with eyes, skin and respiratory tract if ingested. Flush your eyes out with the eye wash if it gets in your eyes, wash your hands thoroughly if it touches your skin. (<http://www.sciencelab.com/msds.php?msdsId=9922769> )

Sodium bicarbonate (baking soda): Possible eye and skin irritant (<http://www.sciencelab.com/msds.php?msdsId=9927258> )

\*\*\*you need to not only give me the website of the MSDS sheet, but you need to also summarize the sheet as well. Just the hazard and first aid section of the MSDS sheet. No lab with an MSDS sheet and I ask for one is an automatic -15.

**Data:**

|  |  |  |
| --- | --- | --- |
| **Size** | **Strength of Reaction** | **Rate of Reaction** |
| **1** | Vigorous bubble bursting, completely reacted | Lasted 10 seconds |
| **2** | Vigorous bubble bursting, not as extreme as trial one | Lasted 10 seconds |
| **3** | More fizzing than bubble bursting | Lasted 5 seconds |

\*\*\* See how I only gave you what I saw and not what I conclude? -20 for meshing data and conclusion.

**Conclusion:** My hypothesis was incorrect. It turns out that trial one with a 1:1 ratio of baking soda and vinegar made the best volcanic eruption. Although my hypothesis gave great results, it was not the best choice. According to my research, the chemical reaction between baking soda and vinegar is 1:1; meaning, no matter how much baking soda I add to the vinegar, the reaction will always be 1:1.

\*\* bring the research to the conclusion to reflect on the data. -5 for not bringing it back to the research and -10 for giving me a one sentence conclusion.