**Mr. Tsigaridis Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**SCH3U/SCH4U**

**Lab Report Rubric**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Categories** | **Level 4** | **Level 3** | **Level 2** | **Level 1** |
| **Knowledge and Understanding**  -understands concepts, principles, laws and theories | Shows thorough understanding of relevant concepts, principles, laws or theories | Shows considerable understanding of relevant concepts, principles, laws or theories | Shows some understanding of relevant concepts, principles, laws or theories | Shows limited understanding of relevant concepts, principles, laws or theories |
| **Thinking and Inquiry**  -identifies question | Identifies the question clearly and precisely | Identifies the question competently | Identifies part of the question | Identifies limited aspects of the question |
| -records and organizes required observations and data | All observations and data are recorded, manipulated, and presented effectively | Most observations and data are recorded, manipulated, and presented appropriately | Some observations and data are recorded, manipulated, and presented adequately | Few observations and data are recorded, manipulated, and presented adequately |
| -analyzes data | Identifies both obvious and subtle patterns and trends | Identifies most obvious patterns and trends | Identifies some obvious patterns and trends | Identifies few patterns or trends |
| -evaluates procedures | Evaluates thoroughly all sources of error and limitations | Evaluates most sources of error and limitations | Evaluates some sources of error or limitations | Evaluates few sources of error or limitations |
| -draws logical conclusions | All or almost all inferences and conclusions are supported by observations | Most inferences and conclusions are supported by observations | Some inferences and conclusions are supported by observations | Few inferences and conclusions are supported by observations |
| **Communication**  -follows standard format for lab report | Satisfies all requirements for format, style and mechanics | Satisfies most requirements for format, style and mechanics | Satisfies some requirements for format, style and mechanics | Satisfies few requirements for format, style and mechanics |
| -uses scientific terminology and units | Uses terminology and units with precision | Uses correct terminology and units | Uses some accurate terminology and units | Uses few accurate terms and units |
| **Application**  -uses the results of scientific inquiry in problem solving | Applies findings to solve problems efficiently | Applies findings to solve problems competently | Applies findings to solve basic problems, but may have some inaccuracies or omissions | Has limited success in applying findings to solve problems |

**Lab Report Format for SCH3U/SCH4U**

1. **Title** – Put your name, date and the course code on the upper right hand corner of your lab report. Centre the title of the lab below this. ***Please do not include a separate title page.***

*Each of the following sections should fall under a bolded or underlined title in your report to make everything look organized and easy to follow.*

1. **Introduction** – Provide background information about the subject of the lab. Explain the concepts underlying the lab as if you were explaining them to someone who had never taken a chemistry class before. Use pictures or diagrams to demonstrate your points and label them as Figures with titles. If you do use Figures, refer to them in your introduction (i.e. as can be seen below in Figure 1). End your introduction with a final sentence that leads the reader into the rest of the report, ex. “This lab will examine the properties of four substances…”
2. **Question** – Create a question about what you are trying to find out in the experiment. Often re-stating the Purpose in the form of a question will lead you to a strong, testable, experimental question.
3. **Hypothesis** – State a hypothesis – what you think will be the result of the experiment as well as what you are basing your prediction on. If there is more than one part to the lab, you should have a hypothesis for each part of the experiment.
4. **Materials** **and Procedure** – list materials in two lists – ensure the procedure is written in paragraph form that is third person, past tense, impersonal”.
5. **Observations** – Data collected during the experiment. This should be shown in table form, or in numerous tables if necessary. Tables should be NUMBERED and TITLED (ex. “Table 1: Duration of Reaction) at the TOP of the table. Note that “Observations” is NOT a title. Your title should clearly explain what information is being presented. Similarly, if any graphs, pictures or diagrams appear in this section, they are called Figures. Figures are also NUMBERED and TITLED (ex. Figure 1: Colours observed for acidic and basic pHs) at the BOTTOM of the figure.
6. **Analysis and Discussion** – If any calculations need to be completed for the experiment, they should be done here. Discuss your results and **how they pertain to the hypothesis**. Even if it is not explicitly stated to refer to your hypothesis, it is extremely important to mention how your results compared to what you thought would occur. Explain your findings in terms of the science behind them, and provide reasons why any data collected was not as you expected/what should have occurred. This is the largest and most important part of your lab, and research may need to be completed to explain all your observations and findings. When discussing your observations, make sure you reference your tables or figures (ex. As can be seen in Table 1). **Note: questions placed in the Analysis or Discussion section of your lab handout are to be answered here, but they are to lead you in the general direction of what needs to be discussed. Expand and explain your findings fully. This whole section should be in paragraph form and should not simply be numbered answers to the questions.**
7. **Conclusion** – Summarize your findings in a few sentences by answering the question at the beginning of the report. Describe how your results compared to your hypothesis.
8. **Extension Questions** – Often the lab experiment will require you to apply your newly found knowledge to additional questions. Answer any “Extension Questions” in this section of your report.

**FINAL NOTE ABOUT FORMAT:** Your report should fall under the headings above. It should be typed in 12 pt font and double spaced and in an easy-to-read, professional looking font. Lab reports are ***never*** written in first person (I, me, etc.) and should also not include any second person (you). Always used third person throughout the entire report. It should also be written in ***past tense***.