**SCH4C-U2W6D1 Date:**

**How to write a lab report (p460-463)**

Keeping records of what has been completed in a laboratory is an essential skill that every scientist must have. Many scientists publish their work and in order for other scientists to replicate their work they must take very precise notes on what they did and what their results were. Scientists usually follow a general layout that follows the scientific method.

**Parts of a lab report**

**Pre-lab**

* A pre-lab consists of information and research that you gather before a lab in order to complete the lab. In some cases calculations will have to be made or charts constructed. In some cases the student will need additional background information or additional knowledge on how the lab is going to take place.
* If there is a pre-lab component to a lab. It must be completed before the lab is started.
* The pre lab is usually handed in for approval and then handed in with the lab.

**Title**

* All lab reports must have a title. The title and investigation number will usually be provided in the book.
* Below the title, the date on which the lab took place is recorded.
* Below the date, the names of the people who conducted the lab are included. Your name will always come first and your partners name second.

**Purpose**

* sometimes found in the text
  + It can be copied from the text
* If there is no purpose is given, read the introduction and make one up.

**Question**

* This is the question that the lab is trying to answer.
* If there is no question given make one up.
  + Try to base the question on independent and dependent variables.

**Hypothesis / prediction**

* State what you think will happen in the laboratory in reference to the question.
* Back up your statement with a solid explanation based on scientific principles.
* DO NOT USE PRONOUNS like “I” or “we”

**Experimental design**

* DO NOT DO what the book says.
* Do this instead

1. A brief statement about the experiment
2. A sentence about what observations will be looked for
   1. If there are independent and dependent variables, state what they are.
3. A sentence about what those observations will be used to determine

**Materials** – list them

* List the materials used in the lab.
* Your textbook will normally give you this list

**Procedure**

* If the textbook provides the procedure you can put “ Reference: see page \_\_”
  + If you made any changes to the procedure explain what was changed
* If there is no procedure given, be sure to have numbered steps how you completed the lab.
* Do not use personal pronouns.

**Observation**

* Always describe starting chemicals and changes that occur, even if you’re not asked to (qualitative observations)
* If you are to record data, make a table, even if you are not asked to. (this is part of your pre-lab)

**Analysis**

* Questions from the textbook will be answered here
* This is an area where you will interoperate your results and present evidence in the form of graphs and charts. Calculations will also be shown and any observations that you have about trends.

**Evaluation**

* Questions from the textbook will be answered here
* Evidence will be evaluated
* The question and they hypothesis will be answered

**Additional Information about Lab Reports**

* They will be due one week after the lab has been completed.
* If additional time is needed, make arrangements to get extra time. Do not just assume you can hand it in whenever.
* DO NOT use words like “I” or “We” anywhere in the report.
* Try to use scientific language and terminology.
* There is a good example on pages 462-463
* Format
  + Size 12 Times New Roman Font
  + 1 inch margins
  + Do not underline or place a colon: after headings. **Bold** them.

**SCH4C-U2W6D1 Date:**

**Investigation2.4 Lab Report**

**Pre lab**

The percent composition of magnesium can be found by using its molecular formula.

This works as your theoretical prediction, by mass

There is a possibility that magnesium nitride may be formed. This will throw off your results if it is not removed. Water will be added to help remove any magnesium nitride that may be produced. This may result in a slight smell of ammonia during the experiment.

3Mg + N2 + heat 🡪 Mg3N2

Mg3N2 + 3 H2O 🡪 2NH3 + 3 MgO

In this investigation, you are required to use proper lab techniques, organize your data, make calculations, and evaluate your data.

This lab should be handed in next week

Lab Rubric

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Criteria** | **Level 4** | **Level 3** | **Level 2** | **Level 1** |
| **Thinking**  Analyzing and interpreting  ( / 5) | Draws insightful conclusions based on the data | Draws valid conclusions based on the data | Demonstrates some ability to draw conclusions based on the data | Demonstrates limited ability to draw conclusions based on the data |
| **Application**  Understanding (making) connections with unfamiliar context and lab safety.  ( / 5) | Makes connections among concepts in familiar and unfamiliar contexts  Demonstrates exemplary lab skills and safety | Makes concepts among concepts in familiar and some unfamiliar contexts  Demonstrates sufficient lab skills and safety | Makes some connections among concepts in familiar contexts  Demonstrates moderate lab skills and safety | Makes few connections among concepts.  Demonstrates limited lab skills and safety |
| **Communication**  Communication of information and ideas  ( / 5) | Communicates information and ideas clearly and precisely | Communicates information and ideas with considerable clarity and precision | Communicates information and ideas with some clarity and precision | Communicates information and ideas with limited clarity and precision |
| **Knowledge**  Knowledge of percent composition and chemical changes.  ( / 5) | Student has superior knowledge of percent composition and chemical changes | Student has sufficient knowledge of percent composition and chemical changes | Student unable to complete some calculations or questions due to limited knowledge of percent composition and chemical changes | Student unable to complete most calculations or questions due to limited knowledge of percent composition and chemical changes |