

Lab Report Guidelines



Pre-lab Section

Title:

Variables:

- **IV-Independent variable** The “I” variable. The variable “I” change.
- **DV-Dependent variable(s)** The variable that responds when you change the IV. What the experiment is designed to measure or test.

Purpose:

- Your purpose should be a complete sentence that includes the IV and DV.

Prediction / Hypothesis (Two sentences)

- **Predict what you think will happen to the dependent variable** when you change the independent variable.
- **Hypothesis:** Explain the reason behind your prediction.

Pre-Lab Procedure

- **Picture procedure:** Notes surrounding pictures that summarize what needs to be done in lab. **(Not included in the final typed lab.)**

During and After Lab: Data collection and write-up

Evidence: Data, Observations, Calculation

- Observations and/or data collected during the lab. Data tables should be completely labeled. **All numbers should include units!** Calculations must show work.

Graph (When appropriate)

- Graphs must be done on **graph paper or on a computer**. Each graph must include a “story” that describes what you can learn from the graph. If a slope is calculated, the story should be in the form of “For every....”.

Lab Questions

- Answers must be written in complete sentences that begin by restating the question. Be specific and don't use “it, them, they” if possible.

Conclusion: One paragraph

1. Retype the lab purpose in the past tense.
2. Describe what you learned in the lab. Write by making **specific claims** followed by specific **evidence** from the lab (data and numbers).
3. Discuss if your prediction right or wrong? Provide specific **evidence** (data and numbers).

Lab Hints

Pre-lab Section

Variables

Strong Example: IV: In this lab I will change the temperature of the water

DV: The amount of oxygen dissolved in the water will be measured

Purpose

Your purpose should be a complete sentence that includes the IV and DV and CANNOT be answered with a yes or no.

Starters...

- *The purpose of this lab is to try to find out....*
- *In this lab we are trying to determine the relationship between....*
- *What we are trying to find out in this lab is....*

Strong Example: The purpose of this lab is to determine how making the temperature of water colder will change how much oxygen can dissolve in the water.

Weak Example: Does temperature change the amount of oxygen in water?

Prediction / Hypothesis (Two sentences)

- * **Prediction: Predict how you think the **dependent** variable will respond**
- * **Hypothesis: Explain the reasoning behind your prediction**

Strong example: I predict that when the water gets warmer, the amount of oxygen dissolved in the water will increase. I think that this will happen because when I dissolve sugar, it dissolves more in hot water.

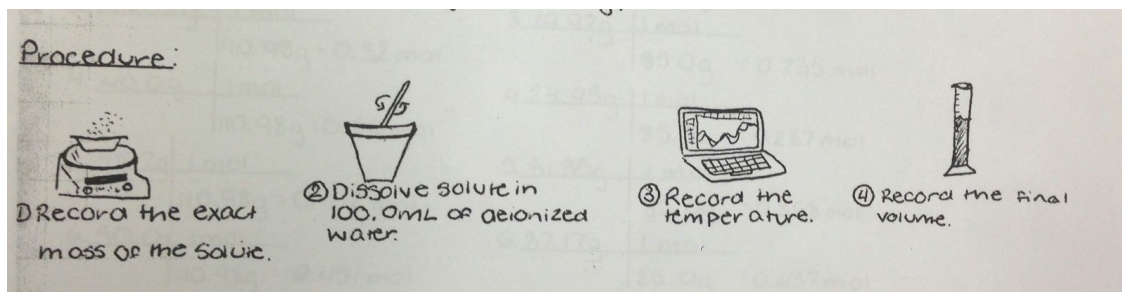
Weak example: More oxygen will dissolve because the temperature will change.

Pre-Lab Procedure

Picture procedure: Notes surrounding pictures that summarize what needs to be done in lab. (**Procedure does not need to be included in the final typed lab.**)

(Begin each lab by underlining verbs and circling nouns in the procedure. Include a picture and notes for each circle.)

Strong example:



Lab Hints cont...

Graph (When appropriate):

Each graph must include a “story” that describes what you can learn from the graph. If a slope is calculated, the story should be in the form of “For every....”.

Strong example:

*The slope of the graph was 0.5 ppm/deg C. This means that **for every** one degree the temperature dropped, the amount of oxygen dissolved increased by 0.5 ppm.*

Weak example:

The amount of dissolved oxygen changed when the temperature changed.

Lab Questions

Answers must be written in complete sentences that begin by restating the question. Be specific and don't use “it, them, they” if possible.

Strong example:

As the temperature of the water increased, the amount of oxygen dissolved in the water decreased. When the water was 0 degrees, there was 8 ppm of oxygen and when the water was warmed to 20 degrees, the amount of oxygen dropped to 5 ppm.

Weak example:

It went down.

Conclusion: One paragraph.

1. Restate the lab question in past tense.
2. Describe what you learned in the lab. Write by making **specific claims** followed by specific **evidence** (numbers) from the lab. “I learned that... Evidence that supports this from the lab is...”
3. Discuss if your prediction right or wrong? Provide specific evidence

Strong Example

*he purpose of this lab was to determine how making the temperature of water colder would change how much oxygen dissolved in the water. I learned that when the water got colder, the amount of oxygen dissolved went up. For example when the water was 0 deg. C, there was 8 ppm of oxygen in the water. When the water was warmed to 20 deg C, the oxygen dropped to 6 ppm. The slope of the graph showed that **for every** one degree the temperature dropped, the amount of oxygen dissolved increased by 0.5 ppm. My prediction was wrong. I predicted the amount of oxygen dissolved would increase when the water got warmer. In the lab, the opposite happened. When the water got warmer, there was less oxygen dissolved in the water. When the water was the warmest at 20 deg, there was only 6 ppm of oxygen still dissolved.*

Weak Example

When the water changed temperature, the amount of oxygen that was dissolved changed too. My hypothesis was wrong. This lab was a lot of fun and I learned a lot.

Checklist/Rules for Graphing

- The title of my graph clearly identifies the data displayed on the graph.
- I labeled the independent variable on the x-axis and the dependent variable on the y-axis.
- I choose the appropriate intervals for the x and y-axes.
- I choose the appropriate line or curve to fit the data.
- I calculated and interpreted the slope if the graph produced a best-fit straight line. (When appropriate.)
- I wrote a sentence on the graph that explained the story of the graph. (If possible, use a “For every.... Statement.”)