

Name - _____

Lab Guide with Sentence Starters (Change to your own title)

1. Background – (minimum 3 sentences)

I already know that _____ relates to this topic because _____

In my research I found out that...

2. Research Question –

In this lab we are going to test...

3. Hypothesis – answer to your research question

I think that...because _____ -or- _____ If I change _____, then _____ will _____...because

4. Materials – list ALL items being used

5. Variables

I am changing _____ (one thing) - Independent - Input

I am measuring _____ (one thing) - Dependent - Outcome

I am keeping these the same for each trial. Constants – what is the same for every trial

-
-
-

6. Procedure – a detailed list of numbered steps to **make the experiment repeatable**.

- 1.
- 2.

7. Data Collection and Processing

Table 1: - Add a data table that shows all results (click “Table” and “Insert”)

- Be sure to include all labels and units

Graph 1: - Add a graph if necessary (Use Google Sheets to create a graph and paste it here)

- Create a graph with: a title, labels, units, scales, and data plotted.

8. Conclusion and Evaluation –

In this lab I learned that...

My graph or data table shows...

The independent variable of _____ (is positively/is negatively/is not) related to the dependent variable of _____ because...

The scientific explanation for this is...

My hypothesis was (supported or not supported) which shows...

Some of the things I could do to improve my procedure are...

The parts of the lab where I might have made mistakes that lead to data errors were...

9. Bibliography - (only when research was involved)

Book/Magazine

Author(s) Last name, first name. "Title of Article." *Title of Periodical* Day Month Year: pages. Medium of publication.

Example

Gleick, James. *Chaos: Making a New Science*. New York: Penguin, 1987. Print.

Internet Source

Editor, author, or compiler name (if available). *Name of Site*. Version number. Name of institution/organization affiliated with the site (sponsor or publisher), date of resource creation (if available). Medium of publication. Date of access.

Example

Felluga, Dino. *Guide to Literary and Critical Theory*. Purdue U, 28 Nov. 2003. Web. 10 May 2006.

Lab Grading Rubric

Criterion B: Inquiring and Designing

Advanced 100%	Advanced 90%	Understands 80%	Got the basics – Working on it 70%-60%		Skill
I can explain a scientific problem or research question:	I can describe a scientific problem or research question.	I can outline a scientific problem or research question.	I can state a scientific problem or research question.		2. Research Question. 1
I can formulate and explain a testable hypothesis using correct scientific reasoning.	I can formulate and explain a testable hypothesis using scientific reasoning.	I can formulate a testable hypothesis using scientific reasoning.	I can outline a testable hypothesis.		3. Write a testable hypothesis and explain it using scientific reasoning 2

I can explain how to change the variables and explain how sufficient, relevant data will be collected.	I can describe how to change the variables and describe how sufficient, relevant data will be collected.	I can outline how to change variables and outline how data will be collected.	I can outline the variables.		5. Explain variables 6. Procedure - explain how data will be collected 3
I can design a logical, complete and safe procedure including the selection of appropriate materials and equipment .	I can design a complete, safe procedure including the selection of appropriate materials and equipment .	I can design a safe procedure including the selection of materials and equipment .	I can design a procedure with limited success.		6. Procedure - Design scientific investigations 4

Science -- Criterion C: Data Analysis and Conclusion

Advanced 100%	Advanced 90%	Understands 80%	Got the basics – Working on it 70%-60%		<i>Skill</i>
I can correctly collect, organize, <u>transform</u> and present data in a data table and graph.	I can correctly collect, organize and present data in a data table and/or graph.	I can correctly collect and present data in a data table and/or graph.	I attempted to collect and present data.		7. Present data 1
I can accurately explain results using <u>correct</u> scientific reasoning .	I can accurately explain results using <u>scientific reasoning</u> .	I can accurately explain results .	I can interpret data.		8. Conclusion - Explain results using scientific reasoning 2
I can evaluate (compare) the hypothesis based on the outcome of an experiment.	I can discuss the hypothesis based on the outcome of an experiment.	I can outline the hypothesis based on the outcome of an experiment.	I can restate the hypothesis based on the outcome of an experiment.		8. Conclusion - Evaluate the hypothesis based on the outcome 3
I can explain how to improve the experiment.	I can describe how to improve the experiment.	I can outline how to improve the experiment.	I can state how to improve the experiment.		8. Conclusion - Explain improvements to the procedure 5
I can evaluate the procedure for errors based on the outcome.	I can discuss the procedure for errors based on the outcome.	I can outline the procedure for errors based on the outcome.	I can state if there are errors based on the outcome.		8. Conclusion - Evaluate the procedure for mistakes 4