Lab Report

Name _____ **Date** _____

PreLab: questions to answer before doing the lab

1. First, write down the question the lab is trying to answer.

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2. What scientific concept is the lab about?

Your science lab will help you learn about a **scientific concept**. A **scientific concept** is a scientific theory, rule or law that explains why or how something occurs. Examples are the *principle of conservation of mass* and the *law of gravity*.

What scientific concept will you be investigating in this lab? What will you be learning about?

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3. Brainstorm what you know about the topic you're studying. Write as much as you can - everything you already know about the scientific concept. It is important to see what you already know.

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4. What is your hypothesis for the lab experiment?

Your hypothesis is a prediction of the outcome of the lab. Your prediction is based on your understanding of the scientific concept. What is your prediction based on the scientific concept and the variables you are testing?

Before you can make your prediction you must first find out what are you measuring or manipulating. The term **variable** describes what you are measuring. There are usually two variables.
An independent variable is the variable you are controlling or manipulating.

A dependent variable is what you measure in the experiment. The dependent variable changes because of the independent variable. It 'depends' on the independent variable.

Example: You are interested in how sprinting 100 meters affects heart rate in humans. Your **independent variable** would be sprinting 100 meters. The **dependent variable** would be heart rate. You can manipulate the independent variable by having people run 100 meters. You can measure the dependent variable by measuring heart rate.

Write down the independent and dependent variables. You may need to read the lab again to find them.
Independent Variable:

_____

_____

Dependent Variable:

_____

_____

Write your hypothesis:

_____

_____

In Lab: the lab experiment

Setting up the lab

5. Write down all the materials you will use in the lab (toothpicks, agar, a bookshelf, etc.) Listing them is fine.

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6. Make a diagram below of an instrument or apparatus you will be using. Make sure you label your diagram.

7. Describe all the steps in your experiment, one by one, being as detailed as possible, so that a complete stranger could read this and perform the exact same experiment that you did.

Getting ready to collect data

8. **Create a table below to collect your data:**

Conducting the experiment

9. Carefully follow the procedure as you wrote it.

10. As you conduct your experiment and record your data, take notes on what you are doing. These notes will help you recall the experiment later when you are writing your lab report.

11. Write any problems with the procedure or differences from the directions.

12. Describe in words or sketch your observations as you collect your data. You may write out your observations or sketch them or both.

(more space for sketches from your experiment)

13. Fill out your data table

14. WRITE ONE SENTENCE summarizing the overall findings of your experiment. This will help you to understand the findings and will be helpful when you write the results section of your lab report.

15. If your teacher says it is okay ask other students in the lab about their findings. Write down any differences. What are possible reasons for the differences?

Discussion: Interpreting the results of the lab

16. State in one sentence or two whether the results from the lab procedure support your hypothesis

17. Identify data from your lab that led you to either support or reject your hypothesis. Refer to the visual representations of your data as evidence to back up your judgment about the hypothesis.

18. Additional discussion – answer one or all of the following: (1) problems or errors in lab procedure; (2) how your findings compare to other students'; (3) suggestions for improving the lab; (4) other questions that come up now that you have learned something from this lab.