

Name \_\_\_\_\_ Period \_\_\_\_\_ Date \_\_\_\_\_

## Lab 101: Candle Lab

*The purpose of this lab is to practice using the scientific method*

1. The first step of the scientific method is to make a \_\_\_\_\_ that leads to a \_\_\_\_\_

Look at the equipment you have been given and make observations. Label each of your observations as quantitative ( N ) or qualitative ( L )

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Write a question related to extinguishing the flame of the candle using the equipment provided

2. The second step of the scientific method is to form a \_\_\_\_\_ to answer your question

What are three things a good hypothesis must do?

- 1.
- 2.
- 3.

Write a hypothesis related to your question in step one

3. The third step of the scientific method is to \_\_\_\_\_ the hypothesis by \_\_\_\_\_

***Define Variable.***

Use ***controlled, manipulated*** and ***responding*** to fill in the blanks

The \_\_\_\_\_ variable is changed by the scientist

The \_\_\_\_\_ variable changes as a result of the experiment

Everything else must be a \_\_\_\_\_ variable

Design an experiment procedure to test your hypothesis. Identify the manipulated variable, the responding variable, and the controlled variables. Perform your experiment. Design a chart, graph, table, etc. to keep track of your data.

- Experimental Procedure:

1.

2.

3.

4.

5.

- Collected Data:

4. The final step in the scientific method is to make a \_\_\_\_\_ based on the results of the experiment.

**Use your notes and candle lab observations as you answer the following questions**

**Observations vs. Conclusions**

In most labs, you will make observations and conclusions. What is the difference?

For each of the following statements, write “ O “ if it is an observation and “ C “ if it is a conclusion.

- a. \_\_\_\_\_ The temperature outside is 95 °F
- b. \_\_\_\_\_ I see smoke coming from the engine so the car must be overheating
- c. \_\_\_\_\_ The eggs stink
- d. \_\_\_\_\_ The eggs are rotten
- e. \_\_\_\_\_ Vinegar tastes sour so it must be an acid
- f. \_\_\_\_\_ The coin is copper colored
- g. \_\_\_\_\_ Because it is copper-colored, the coin is a penny
- h. \_\_\_\_\_ It looks like it is going to rain

Now, write two observations and two conclusions of your own from your lab

- Observations:

1).

2).

- Conclusions:

1).

2).

Do you understand what happens when a candle burns? Answer the following questions as best you can, using your general knowledge.

1). What is produced when a candle burns?

2). What is necessary for a candle to burn?

3). What is the purpose of the candle wick?

4). As a candle burns, it becomes shorter, Where does the wax go?

For each of the following statements, write “ L “ for qualitative and “ N “ for quantitative

- a. \_\_\_\_\_ The box is brown
- b. \_\_\_\_\_ The box is 12 cm long
- c. \_\_\_\_\_ The box is empty
- d. \_\_\_\_\_ The box has red words written on the side
- e. \_\_\_\_\_ The box is 8 cm wide
- f. \_\_\_\_\_ The box has a bumpy interior
- g. \_\_\_\_\_ The box has a lid
- h. \_\_\_\_\_ The box is 4 cm tall

Now, write two qualitative observations and two quantitative observations of your own from your lab

- Qualitative:

1).

2).

- Quantitative:

1).

2).

Answer each of the following questions and explain based on what you observed in your lab

1). What is produced when a candle burns?

2). What is necessary for burning?

3). Where does the wax go as a candle burns?