**EXPERIMENTAL DESIGN TEMPLATE**

**QUESTIONS TO GUIDE YOUR EXPERIMENTAL DESIGN**

As you think about the parts of a scientific investigation that you are going to do, answer the following questions. These questions will help you design your experiment.

**PART 1: To be completed and approved prior to beginning the experiment/investigation**

1. What question will be explored?

2. What will be the independent variable?

3. What will be the dependent variable?

4. What will be the control group(s)?

5. What variables will need to be controlled or held constant?

6. Based on your experience in previous labs, background knowledge, and research, what hypothesis will be tested?

7. What equipment and materials will be needed to carry out your investigation? (List items and quantities)

8. What procedure (step-by-step) will be followed? (This should be written so that someone else can do the same procedure by using the steps you write.)

9. What safety equipment or precautions will be needed to carry out your investigation?

10. How will data be collected?

11. How will data be presented?

12. How will data be analyzed?

**Teacher approval to begin your experiment/investigation**

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**PART 2: To be completed during or after your experiment/investigation**

1. What changes or modifications to the procedure and/or data collection have been during the course of the investigation?

2. What were the results of your experiment/investigation?

3. Do your data support your hypothesis? Provide an explanation of your answer.

4. Based on your results, was the hypothesis accepted or rejected?

5. What conclusions can be drawn based on the data analysis?

6. What sources of error may have existed in your experiment/investigation?

7. What are some limitations of the experiment/investigation that you performed?

8. What additional questions arose from the experiment/investigation?

9. As a result of this experiment/investigation, what modifications or changes could be made to improve the procedure?