**INSTRUCTIONAL SCAFFOLD FOR EXPERIMENTATION**

**PART 1: DESIGNING THE EXPERIMENT**

**PRE-DESIGN CONSIDERATIONS**

What I am wondering about (my beginning question):

**BRAINSTORMING IDEAS RELATED TO MY BEGINNING QUESTION**

Part A: Things I could change or vary:

(*Place sticky notes of the same color in the squares below*)

Part B: Things I could measure or observe: (*Place sticky notes of a new color in the squares below*)

**IDENTIFYING VARIABLES**

I will change: I will measure or observe:

*Place sticky note from*

*Part A here*

*Place sticky note from Part B here*

I will not change (I will keep these the same so my test is fair): (*Place remaining sticky notes from Part A here).*

I will not measure or observe: (*Place remaining sticky notes from Part B here.)*

**ASKING A TESTABLE QUESTION** *(Refining my beginning question***)**

When I change\_\_\_: What happens to\_\_\_?

*What I will measure or observe*

*What I will change*

Write the question that will guide your experiment:

What do you already know about this (*based on prior knowledge or experience*)?

**PREDICTION OR HYPOTHESIS** (*Note: This can be stated as a hypothesis instead of a prediction if you have a tentative explanation based on prior knowledge or observations.)*

Based upon my question, I predict (or hypothesize):

**THE PROCEDURE** *(Note: Others should be able to follow the way you set up your experiment.*)

Materials I will need:

What I will change or vary (*also called the independent or manipulated variable*)

*What I will change*

What I will do to carry out the change:

Number of trials I will conduct or amount of sample to include: \_\_\_\_\_

The data I will collect by measuring or observing (*also called the dependent or responding variable)*:

*What I will measure or observe*

How I will collect the data:

How I will record the data (*for example- table, chart, picture)*:

**PART 2- CARRYING OUT THE EXPERIMENT**

**DATA COLLECTION**

When I changed \_\_\_\_\_\_\_\_ I measured \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*What I changed*

*(independent or manipulated variable)*

*What I measured or observed*

*(dependent or responding variable)*

**RECORD YOUR DATA:** (*Note: This is intended simply as an example to help get you started. You may design your own chart or modify this one to fit your design.)*

|  |  |
| --- | --- |
| Label: Insert the variable here: | Label: Insert what was measured here, including units |
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**GRAPHING RESULTS**

Which type of graph is best- line graph or bar graph? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Dependent or Responding Variable

*What I measured or observed*

*(Specify units where appropriate)*

Independent or Manipulated Variable

*What I changed*

*(Specify units where appropriate)*

**Y**

**axis**

**X axis***(Note: Both axes will need to be labeled and the appropriate scale marked)*

Title of Graph: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**ANALYZING DATA: FINDING PATTERNS AND RELATIONSHIPS IN RESULTS**

When I changed \_\_\_\_\_\_\_\_\_\_\_\_\_ What happened to\_\_\_?

*What I measured or observed*

*What I changed*

**CONCLUSION- WHAT DO YOU WANT OTHERS TO KNOW ABOUT YOUR INVESTIGATION?**

What interesting patterns or relationships are shown by your data?How do your data support or not support your prediction or hypothesis?

Write a scientific explanation based on your results:

Claim:

Evidence:

Reasoning (the explanation that links the evidence to the claim):

**NEW QUESTIONS?**

Do you have new questions for further investigation- what else do you wonder about?