**Scientific Method**

Investigating Scientist:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

General Topic: Exercise and the body

**Definitions:**

* Variable to Change (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable)
* Variable to Measure (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable
* Variables keep the same (\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ variable)

Step 1: Problem

What is the question the experiment is trying to answer? Include the independent and dependent variables in the question. For example: What fertilizer (independent variable) will grow a bean plant to the tallest height (dependent variable)?

How does \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (independent variable)

Affect the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (dependent variable)

Step 2: Information

What **background** information will be helpful to know?

Step 3: Hypothesis

If the **independent** variable changes … … then this is what will happen to the **dependent** variable.

Write your **hypothesis** below.

If the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(independent variable) (describe how you will change it)

then the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ will \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

(dependent variable) (describe the effect of the change)

Step 4: Experiment

Write out your **experimental plan**.

Materials List: Safety Precautions: Preparation:

Step by step instructions (like a recipe)

Step 5: Results – Data Table

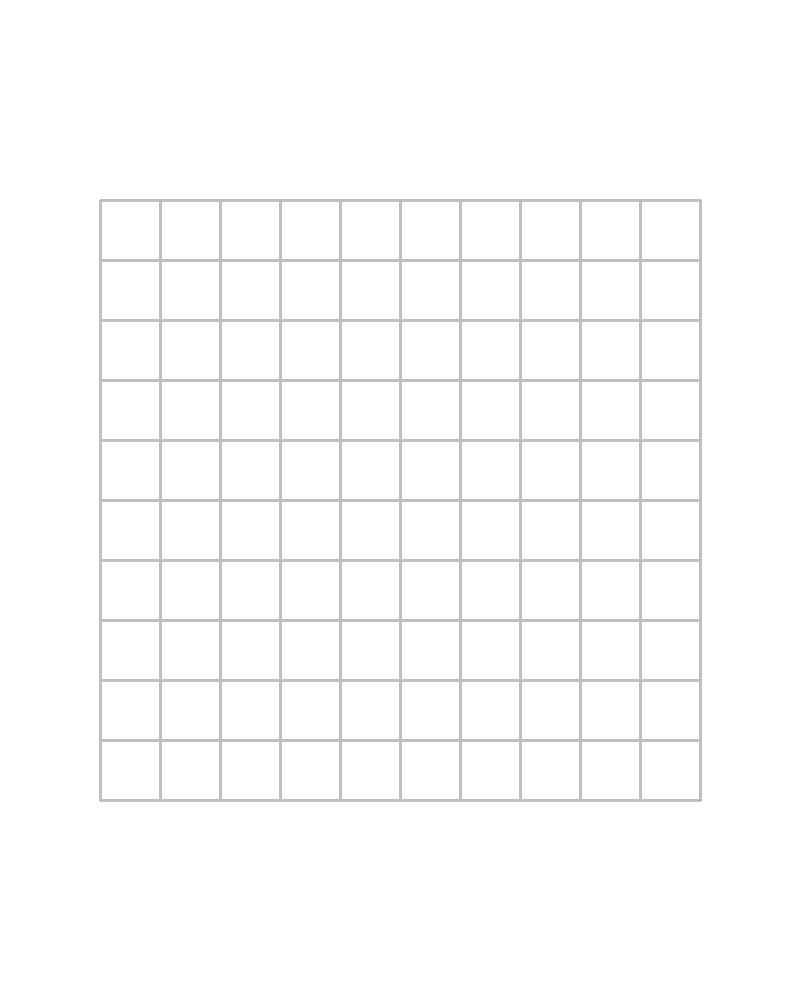
Record your data in the data table below:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| When the independent variable changed: | This was the result (dependent variable): | | | | | | |
|  |  | | | | | | |
|  | Trial | | | |  | |  |
|  | 1 | 2 | 3 | 4 | | Total | Average |
|  |  |  |  |  | |  |  |
|  |  |  |  |  | |  |  |
|  |  |  |  |  | |  |  |
|  |  |  |  |  | |  |  |

Step 5: Results – Graphing

Title: The effect of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(independent variable) (dependent variable)



Step 6: Conclusion – Finding Patterns

Write out your conclusion, answering these questions:

1. What was the purpose of this experiment?
2. What were the major findings? Include data examples.
3. Was the hypothesis supported by the data?
4. How did the findings compare with other research, other scientific facts you knows, or other experimentation (classmates)?
5. What possible sources of error may have occurred?
6. How could the experiment be improved or changed for further study?