**Name(s) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Planning an Investigation**

|  |
| --- |
| **Investigative Question** |
|  |
|  |
|  |
| **Research**  |
|  |
|  |
|  |
|  |
|  |
|  |
|  |
| **Hypothesis** |  |
|  |
|  |
|  |
|  |
|  |  |  |
|  |  |  |  |

|  |
| --- |
| **Materials** |
| Materials needed to measure: |
| Materials that will stay the same: |
| Materials that will change: |
| **Labelled Diagram** |
|  |
|  |
| **Procedure** |  |
| **1. 2.** |
| **3. 4.** |
| **5. 6.** |
| **7. 8.**  |
|  **9.** |  **10.** |  |
|  |  |  |  |

|  |
| --- |
| **Data Table** |
|  |
|  |
| **Conclusion** |
|  |
|  |
|  |  |
|  |
|  |
|  |
|  |
|  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |
|  |  |  |  |

**Planning Your Investigation checklist**

Investigative Question: Example: What is the effect of \_\_\_\_\_\_\_\_\_\_(manipulated variable) on the \_\_\_\_\_\_\_\_\_\_\_ (responding variable)? Underline your manipulated variable. Circle your responding variable.

* Correct wording as shown above
* Includes manipulated variable (what you are changing) Must be underlined.
* Includes responding variable (what you are measuring) Must be circled.

Research:

* includes enough information to help you answer your question
* key words are listed
* key words are defined

Hypothesis: If (include your manipulated variable), then (include your prediction about what will happen to your responding variable), because (include your reason or explanation).

* Includes condition (begins with “if”)
* Includes prediction (begins with “then”)
* Includes explanation (begins with “because”)

Materials:

* Includes materials used to measure
* Includes materials that will stay the same
* Includes materials that will change

Labelled diagram

* labelled
* diagram
* includes the manipulated variable
* includes controlled variables

Procedure

* Uses logical steps (anyone can repeat the investigation by following the numbered procedure)
* Includes what you will change (the manipulated variable)
* Includes what you will measure (the responding variable)
* Includes controlled variables (kept the same)
* Includes a statement to measure and record data
* Includes a statement that indicates the number of trials and the steps to be repeated.

Data Table

* Table drawn properly
* Manipulated variable labelled correctly
* Responding variable labelled correctly
* Units included
* Title (manipulated vs. responding variable)

Graph

* X axis labelled with manipulated variable
* X axis includes units
* Y axis labelled with responding variable
* Y axis includes units
* Includes lines or bars depending on the graph
* Title (manipulated vs. responding variable)

Conclusion

Example:

Based on the data I have collected my hypothesis is not supported. The radish plants grew an average of 15 cm when exposed to light as compared to an average of 10 cm when not exposed to light. This means that the radish seeds grew an average of 5 cm more when exposed to light.

Light makes plants grow because plants make food using photosynthesis. If there is no light, plants cannot make food and so don’t grow very tall.

There were several sources of error in my investigation. Sometimes we did not measure accurately, the plants were bent over, and we forgot to water them on two occasions. If I could do another experiment like this one I would use sunflower seeds instead of radish seeds.

* *Conclusive statement: Data supports or does not support my hypothesis*
* *Explain and compare, include high and low data points.*
* *Include units when referring to your data*
* *Possible explanation*
* *Include possible sources of error*
* *Question for further study*