**Title Name, Partners, Block, Date**

**Question:**

* Testable and SPECIFIC. Gives reader clear idea what you want to test.
* *Incorrect Example: Which light is the best?*
* *Correct Example: Under which color light; red, green or blue, will plants grow taller?*

**Hypothesis:**

* Your prediction written in form of: " If...(IV).....Then..(DV)....because" statement.
* Must relate to question.
* I*ncorrect example: “I think green light is better for plants because it is green like the plants.”*
* *example: If plants are grown under red, green and blue lights (IV), then the plants under the green light will grow taller (DV).*

**Variables:**

* **Independent Variable -** something you change on purpose (*example: color of light*)
* **Dependent Variable** - something that depends on or is affected by the independent variable (*plant growth is dependent variable because it depends on light*)
* **Control Variable** – What stays the same (*type of plant, length of time in light)*

**Materials:**

* In *point form,* list all materials and *amounts (50ml water)* needed to conduct experiment (tape, scissors, string, 250ml beaker, 50ml water, etc. (not necessary to list pencil and notebook).

**Procedures:**

* *Numbered,* step by step instructions on how to conduct the experiment. Include quantities and where and when to record data.

**Observations:**

* A detailed written account of what you observed during the experiment.
* use both *Qualitative* and *Quantitative* observations
* *Raw data* (measurements, times, temperatures, etc.)  *should be in a* ***data* table**

|  |  |  |
| --- | --- | --- |
|  | Green light | Red Light |
| Average Plant Height Increase | 4 cm | 5 cm |

**Conclusion:**

* In paragraph form and in COMPLETE SENTENCES, address the following:
1. Did you prove or disprove your hypothesis? Why or why not?

 Ex. “*The hypothesis that plants under green light will grow better than red light was proven incorrect. This may be because green light does not have enough of the light spectrum necessary for plant growth....*”

1. What factors or difficulties occurred that may have impacted your findings?

 *Ex. “One of the challenges we encountered was that one of the plants became infested with mites which probably hampered growth as the plants put more energy to fighting off the bugs instead of growing taller. Another problem was that one of the plants was dropped during the set up. The top part of the plant broke off as a result and may have disrupted the roots and which may have also slowed growth. “*

1. What specifically would you change to improve your experiment? Why?

 Example “*Improvements to this experiment would be having more than two plants per group (perhaps 3-5) so if one is damaged, there would still be enough plants remaining to get a reliable average. We would try start with the same size plants. One of our plants was 10 cm taller to begin with and was possibly a stronger plant to begin with. We would also let this experiment run longer than one week to get a more significant difference in height. We would also set up some control plants to grow under normal conditions (white light) to compare if the other lights really make any difference.* ”

1. What did you learn from this experiment? Can you apply your learnings to real life?

 Ex. *“We learned that plants can still grow under different lighting but need a fuller spectrum in order to grow healthy and strong.”*

**Self Assessment:**

Give yourself a mark out of 4 (1 being poor, 4 being great) on how well you:

1. Communicated with your partners (gave and received feedback on planning)
2. Participated in the experiment (planning, set up, clean up)

Give each partner a mark out from 1-4 on how well they:

1. Communicated with you and the remaining partners
2. Participated in the experiment (planning, set up, clean up)

**Marks Breakdown /10**

1 Question – stand alone statement that makes sense to anyone who reads it.

1 Hypothesis – “if …(IV)… then…(DV)....because......”

1 method/ materials – volumes, length of time, in point form.

1 Variables – IV, DV, Controls correctly identified

1 Results – raw data (results) in a table, plus other observations

3 Conclusion – thoughtful discussion, all four points addressed, in complete sentences.

1 Self and Peer Assessment

1 Organization (titles)