**Title** /1 **Name, Partners, Block, Date**

**Question:** /1

* 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:** /1

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

**Variables:** /4

* **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). *Minimum of 2*.

**Materials:** /1

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

**Procedures:** /1

* *Numbered,* step by step instructions on how to conduct the experiment. Include measuring and recording data.

**Observations:** /3-5

* Sometimes *Qualitative* observations are required (2pt):
* *Ex. Plant A was more yellow in colour, had less leaves and started dropping leaves.*
* Quantitative data (measurements, times, temperatures, etc.) should be ina *data table* (1pt)**.**
* If multiple trials or objects involved, you must show an *average*  (1pt)
* Must show *units* (1pt)

 Plant Height Increase over 1 week period:

|  |  |
| --- | --- |
|  Green light |  Red Light |
| Plant A | 4 cm | Plant C | 5 cm |
| Plant B | 3 cm | Plant D | 6 cm |
| Average | 3.5 cm | Average | 5.5 cm |

**Conclusion:** (7pt)

* In paragraph form and in COMPLETE SENTENCES (1pt) address the following:
1. Did you prove or disprove your hypothesis?
2. Give a reasonable explanation of why you got the results you did.

 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? *How* did they impact your results?

 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?

 Ex “*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?
2. 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)

1 point: Neat, organized, Heading underlined, in correct order