**Science Fair Lab Report Format**

**Physical Science, Discovery Science, Environmental Science, & Biology**

1. **Title:**

* Clearly states what is being done in the practical
* Includes the independent variable (IV) and dependent variable (DV)
* Example: The effect of IV on DV as measured by…
* The name of the group or individual should be written in the tope right hand corner along with the teachers name and class period

1. **Background / Introduction:**

* Describe your research and give a snapshot of your entire experiment.
* Explains observations, information given in class, and previous information that led you to your question.
* You may include reasons for raising the question or how you came to the decision to conduct this experiment.
* Uses MLA formatted citations for works referenced

1. **Research Question:**

* **Problem:** In the form of a question
* *Should be in the format “What is the effect of \_\_\_\_\_\_IV\_\_\_\_\_ on \_\_\_\_\_\_\_\_\_DV\_\_\_\_\_\_\_?*

**--OR—**

* **Purpose:** In the form of a statement
* States what the experiment is supposed to test.

1. **Hypothesis:**

* This is an answer to the research question. It must be clearly stated.
* If possible, it needs to be in the format *“If \_\_\_\_\_iv\_\_\_\_\_\_, then \_\_\_\_\_dv\_\_\_\_\_, because \_\_\_\_\_\_\_\_\_.*
* Describe the relationship between independent and dependent variable.

1. **Variables:**
2. **Independent Variable**

* States the IV
* Units of measurement

1. **Dependent Variable**

* States the DV
* Units of measurement

1. **Controlled Variables**

* Lists all of the controlled variables (3 to 5) and units of measurements.
* Briefly describes a method to effectively control *each* variable.
* Ensures that the DV and IV relationship is unaffected by outside factors.
* Describes how controlling variables are kept constant across all treatments

***This could be done in the form of a chart.***

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1. **Materials:**

* Clearly list and describes all equipment and materials.
* Include concentrations, volumes, model number, company, etc.
* List should be in bullet form.

1. **Procedures and Methods for Data Collection:**

* Steps of procedure should be numbered.
* Experiment can be successfully replicated from instructions alone
* Describes how both IV and DV are measured with units.
* Uses a 5 x 5 experimental design for adequate data collection( if applicable)
* Describes physical layout of treatments with photographs/sketches
* Includes annotated photographs showing how DV=*f*(IV) is measured
* Identify the control in the photographs
* Considers preliminary trials and equilibration periods

1. **Results:**
2. **Recording Raw Data: Table (at least one)**

* Table numbered with a title stating DV=*f*(IV)
* Columns and rows are titled correctly
* DV measured in S.I. units with appropriate significant figures
* Rows state the IV for which data is collected

1. **Process Data: Statistics**

* Applying any relevant data calculations:
* Properly determines totals, means, rates, and/or % as relevant

1. **Data Presentation: Graphs**

* Uses graphs/tables to represent DV = *f*(IV)
* Appropriate type of graph/table selected
* Axes, columns, rows properly labeled with units
* Scale properly quantified and data points properly located

1. **Conclusion:**

* States acceptance/rejection hypothesis based on stated results.
* Uses “supported/not supported”, not “proved/disproved” or “correct/incorrect”
* Results interpreted in context of hypothesis DV=*f*(IV)
* Reasonable explanation of observed relationship between IV and DV
* Cites specific, relevant data from tables and figures

1. **Evaluation:**

* Critically evaluates limitations of experimental design
* Identifies and describes aspects of the experimental design and or data collection process that led to weaknesses in the results
* Reflects on what would be done differently if the experiment was repeated
* State potential further research ideas.

1. **Bibliography:**

* Uses MLA formatted citations for works referenced