

Title:

Your title describes the main idea of the experiment in as few words as possible. Includes the two main variables - Independent (the one that you change) and dependent (the one that you observe/measure). *Ex: Thermal Energy and Mixing Colors*

Hint: Writing a title is much easier to do AFTER you figure out your purpose question (next one).

Purpose:

The main question of the experiment is trying to answer. Write what you will change, then what you will observe or measure. The word "affect" is useful for in this sentence. *Ex: How does adding thermal energy to water affect its ability to mix colors added to the water?*

Hypothesis:

Clearly explains the variable you are changing and the variable you are observing. A good hypothesis also explains why you expect to see the change using what you know. *Ex: IF I add more thermal energy to one beaker THEN I observe the colors mixing faster in the beaker with more thermal energy BECAUSE the molecules in the warmer water are moving faster and causing the colors to mix faster.*

Materials:

All materials are clearly listed with amounts and units when possible. (50 ml water, 10 cm of tape, 30 g salt)

Procedure:

- 1.
- 2.
- 3.

Simple steps explained so that another scientist should be able to do the lab. Use a numbered list.

Data/Observations:

Includes the **data collected** and **observed** in the experiment. Data tables, graphs, pictures, diagrams are clearly labeled and titled.

Conclusion:

A summary of the results of the experiment in paragraph form. Include three main parts in your paragraph:

1. RESTATE - *Ex: At the beginning of the experiment I said if I add more energy to water then it will mix colors faster.*
2. CONCLUDE - *Ex: The data I collected supports my hypothesis. You can see in the picture I included that the warm water mixes the colors but in the same amount of time the cold water colors stayed at the top of the beaker.*
3. EXPLAIN DATA - *Ex: Since the colors mixed faster in the warm water it can be understood that the water molecules are moving faster in the warm water. In the cold water the molecules are moving slower.*

Experiment Design Reflection:

Explain errors and improvements in materials used, procedure, and/or data collection. You can also include variables that you would recommend others control in the future. *Ex: If I did this experiment again I would make sure that the ice fully melted in the cold water beaker. This would allow me to accurately show that it was not the piece of ice stopping the color but the movement of the cold water molecules.*

Reflection of Learning Habits:

Responsibility:

Perseverance:

Collaboration:

Creativity:

Reflect on each of the following using at least one sentence for each. Make sure each one includes an example from your project.

Title:

Feedback Rubric Directions: Use this rubric to get feedback while you are writing your report. When instructed by your teacher use the comment feature to mark each area that represents your work.

	Not Meeting	Approaching	Meeting	Excelling
Experiment Purpose	Does not state a purpose	Attempts to state a purpose	States a reasonable purpose in the form of a question that is scientifically testable	States a reasonable purpose in the form of a question that is scientifically testable and explains a clear cause and effect
Hypothesis & Variables	Does not state a hypothesis with variables	Attempts with independent and dependent vts to state a hypothesis variables	States a reasonable hypothesis with independent and dependent variables	Connects independent and dependent variable scientific reason (for example the "because" part is clear and shows evidence of research)
Procedure & Materials	Does not design a safe/appropriate experiment	Designs a safe procedure with most of the appropriate materials that attempts to answer purpose question.	Designs a complete and safe method with appropriate materials and clear steps that answers purpose question.	Designs a complete and safe method with appropriate materials and clear steps that answers purpose question. Lists plans for controlled variables.
Data Presentation	Does not collect data	Data is collected attempted to be discussed. Tables and presentations aides (charts/ graphs/ photos/ videos) are attempted to be presented.	Data is collected and discussed. Uses tables presentation aides (charts/ graphs/ photos/ videos) to effectively display and discuss data.	Data thoughtfully collected and discussed. Uses tables and presentation aides (charts/ graphs/ photos/ videos) to clearly, neatly display data.
Conclusion Statement	Does not answer purpose question	Makes a statement that accepts and/or rejects hypothesis	Makes a statement that accepts and/or rejects hypothesis with explanations directly relates it to data	Answers purpose question and/or makes a statement that accepts or rejects hypothesis with explanations directly related to data and science knowledge
Experiment Design Reflection	Does not explain errors	Simple statement of errors materials used, procedure, and/or data collection.	Explanation of errors in materials used, procedure, and/or data collection.	Explanation of multiple examples of errors materials used, procedure, and/or data collection. Suggests improvements for each example.
Learning Habits:	Does not share learning habits	Shows some evidence of: • Collaboration • Creativity • Perverserence • Responsibility	Shows evidence of: • Collaboration • Creativity • Perverserence • Responsibility	Shows clear evidence of: • Collaboration • Creativity • Perverserence • Responsibility