

## [10 Free Project Outline Templates with Step by Step Guide and Examples](#)

### **Science Projects**

During semester one, each student will be required to complete an extensive science project as a part of their science grade. This project will be one of each individual student's own design and execution. Students will carefully plan, research, test their hypotheses, analyze experimental data, and draw conclusions from their results. For most students, this process will lead them to new discoveries and fascinating results. During this project, many will make the transformation from student to scientist!

Provided is a *preliminary* outline/timeline for you to follow. Updates, reminders, etc., will be given during class as due dates approach. At any time along the way, please feel free to ask any questions that you may have concerning the project.

### **Project Outline/Timeline**

#### **Project Components** -

- ✓ Problem Statement
- ✓ Hypothesis
- ✓ Procedures and Materials Lists
- ✓ Data Collection and Documentation
- ✓ Conclusion
- ✓ Project Display and Abstract
- ✓ Presentation

#### **Due Dates** -

|          |                  |                                    |
|----------|------------------|------------------------------------|
| October  | 1st              | - Project idea (Problem Statement) |
| October  | 12th             | - Topic Research                   |
| October  | 15th             | - Hypothesis                       |
| October  | 22nd             | - Procedures and Materials Lists   |
| November | 1st              | - Abstract Due                     |
| November | 19 <sup>th</sup> | - Project Display Due Date         |

### **The Scientific Method**

The following is a review of the Scientific Method with some key questions and directions on how to design and conduct an experiment.

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### **Problem/Purpose**

- What is your goal?
- What idea are you trying to test?
- What is the scientific question you are trying to answer?

### **Hypothesis**

- Explain how you think your project can demonstrate your purpose.
- Make a prediction regarding the outcome of your experiment.
- State the results you are predicting in measurable terms.

### **Procedure**

- Give a detailed explanation of how you will conduct the experiment to test your hypothesis.
- Be clear about the variables (elements of the experiment that change to test your hypothesis) versus your controls (elements of the experiment that do not change).
- Be very specific about how you will measure results to prove or disprove your hypothesis. You should include a regular timetable for measuring results or observing the projects (for example, every hour, every day, every week).
- Your procedure should be like a recipe - Another person should be able to perform your experiment following your procedure. Test this with a friend or parent to be sure you have not forgotten anything.

### **Materials**

- List all materials and equipment that were used.
- Your list of materials should include all of the ingredients of the procedure recipe.

### **Observations/Data/Results**

- Keep a detailed journal of observations, data, and results. Your journal should contain data measurements and written notes about what you are sensing (hearing, seeing, or touching) about your experiment.
- If appropriate, photograph your project results or phases of the project to help your analysis and possibly to demonstrate your experiment on your exhibit board.

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### **Analysis**

- Explain your observations, data, and results. This is a summary of what your data has shown you.
- List the main points that you have learned.
- Why did the results occur? What did your experiment prove?
- Was your hypothesis correct? Did your experiment prove or disprove your hypothesis? This should be explained thoroughly.

### **Conclusion**

- Answer your problem/purpose statement.
- What does it all add up to? What is the value of your project?
- What further study do you recommend given the results of your experiment? What would be the next question to ask?
- If you repeated this project, what would you change?

|                                                                                                                                                                                                                                                                                               |                                                                                                                                                                                                                                                                                                                                                                                                               |                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| <div data-bbox="280 1220 472 1281"><b><u>Purpose</u></b></div> <div data-bbox="256 1339 500 1495">✓ Problem Statement<br/>✓ IV,DV,Control Group</div> <div data-bbox="256 1543 500 1606"><b><u>Hypothesis</u></b></div> <div data-bbox="256 1665 500 1740"><b><u>Topic Research</u></b></div> | <div data-bbox="633 1134 992 1211"><b><u>Project Title</u></b></div> <div data-bbox="584 1251 789 1337"><b><u>Materials List</u></b></div> <div data-bbox="818 1251 1037 1337"><b><u>Procedure</u></b></div> <div data-bbox="584 1365 1037 1463"><b><u>Observations, Data, Results</u></b></div> <div data-bbox="719 1522 902 1709">Data Tables,<br/>Photos,<br/>Diagrams,<br/>Graphs,<br/>Charts, etc.</div> | <div data-bbox="1127 1220 1365 1281"><b><u>Analysis</u></b></div> <div data-bbox="1127 1543 1365 1606"><b><u>Conclusions</u></b></div> |
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### **What is an Abstract?**

Each student who completes a science fair project must write an abstract, in addition to the display board.

An abstract is a one-page, four-paragraph summary that gives the essence of the project in a brief but complete form — it should not exceed 250 words. Anyone who reads it should have a fairly accurate idea of the project after reading the abstract.

### **Writing an Abstract**

#### **Paragraph #1 - Purpose of the Experiment**

- An introductory statement of the reason for investigating the topic of the project.
- A statement of the problem and hypothesis being studied.

#### **Paragraph #2 - Procedures Used**

- A summarization of the key points and an overview of how the investigation was conducted.
- An abstract does not give details about the materials used unless it greatly influenced the procedure or had to be developed to do the investigation.
- An abstract should only include procedures done by the student. Work done by a mentor or work done prior to student involvement must not be included.

#### **Paragraph #3 - Observation/Data/Results**

- This section should provide key results that lead directly to the conclusions you have drawn.
- It should not give too many details about the results nor include tables or graphs.

#### **Paragraph #4 - Conclusions**

- Conclusions from the investigation should be described briefly.
- The summary paragraph should reflect on the process and possibly state some applications and extensions of the investigation.