Projects Step-by-Step

STEP 8

Writing Your Project Abstract/Report

As of the 2023 Lakota fair, we are no longer requiring a written project report for students to enter our event, and students who do not complete a report will not be penalized. However, a report is still required for students who move on to represent Lakota at the district fair at UC and State Science Day. We are now requiring a project abstract instead (also required for UC and State in addition to the report).

ABSTRACTS - Every LSEF project needs an abstract. An abstract is intended to provide a brief summary of all the information that would be in a full written report, but in no more than 250 words. It should include the most important points, so that someone reading it can understand the project quickly. An abstract should include elements like these:

- Statement of Purpose (Science) or Statement of Problem (Engineering)
- Hypothesis (Science) or Proposed Solution (Engineering)
- Procedure
- Results
- Conclusion

You should write the abstract after you finish your project. It should be a paragraph of complete sentences in prose, not bullet points. Write it as if you were telling a friend about your project from start to finish. You can write it without worrying about word count, then go back and refine it to get it into one concise paragraph of 100-250 words.

REPORTS - For the Lakota fair, a typed report is now optional, but it is required for higher-level events. This is not the same as your project notebook, which contains your raw data and may be hand-written. The raw data in your project notebook needs to be summarized and organized neatly into a report. The report can be printed for display at the LESF and is required to be uploaded when registering for the UC and State events.

- Reports should be typewritten and organized in a notebook or folder for physical displays.
- Recommended format is typed, doubled spaced, one-inch margins, and 12 pt. Times New Roman Font (required for projects that will move on to the next level District Science & Engineering Expo at UC).
- Put headings/titles on all graphs/charts/tables.
- Insert clear pictures. These need to be included electronically for the district and state events, so that you can upload the full report as one document.
- Before you finalize your report, make sure to reread, revise, and rewrite.
- Recheck your calculations, spelling, and grammar.
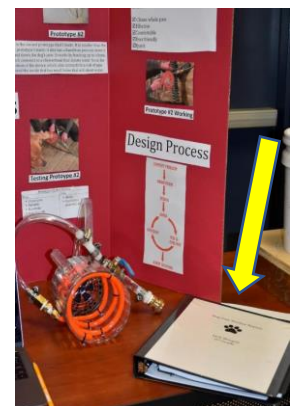
SCORING – We have removed the requirement of a report from our judging rubrics, but they will be judged for quality at the district and state events. This includes making sure all elements are well documented and clearly stated as well as correct grammar and spelling.

Engineering Project Report Format:

Title: The first page in the report should include the title of the project as well as the name and grade of the student.

Acknowledgment: Here is where you thank everyone who helped to make your project successful (including parent, neighbor, coach, teacher etc.) Everyone that you interviewed, including teachers and other experts in the field should be mentioned here.

Statement of Problem: Discuss the problem that motivated the need for your engineering design. Outline the design constraints and cost implications.

Research/Background of the Problem: This is the part of the report that contains all the background information that you collected about your topic. Any books or articles read from the internet/journal, authorities on the topic that you talked to, or outside materials collected should be summarized in this section. **This section should be written in your own words and NOT copied from your resources.**

Proposed Solution: This is the section where you present all possible solutions you came up with and explain how you made the decision about the final design. Make sure to explain how you considered needs and constraints to make this decision.

Procedure: You will list and describe the steps you took to complete the project. Usually this is listed in a numbered sequence. Below are the suggested sub-titles for this section:

- **Building a Prototype:** Provide a visual image (e.g., pictures or drawings) of your prototype. You may consider including visual image from different perspectives.
- **Materials:** This is a list of all the materials and supplies used in the project. Quantities and amounts of each should also be indicated.
- **Cost Effectiveness:** Explain how much the design cost and whether it is a reasonable expense for a design to address the problem.
- **Testing and Evaluating the Prototype:** In this section, you will explain how you tested and evaluated the effectiveness of your prototype. It is also IMPORTANT to include your evaluation criteria as well as all graphs, charts, or other visual data (pictures) that helps to show your results.

Conclusion: This is where you explain why your project turned out the way it did. You can start with the reasons why you chose to address this particular problem. Next, you must discuss how effective or successful your design was in addressing the problem you had identified. Then, you should discuss what you would do to improve your design in detail and reason for these revisions. Since engineers work to improve quality of life by addressing the problems identified in communities, it is important that you discuss how your project improves your target population's lives. In other words, explain the implications of your design.

Reference Page: The bibliography should list all the printed materials the student used to carry out the project. Items should be listed in alphabetical order in a standard format. These websites are a great place to go to find the proper way of writing a bibliography. http://www.bibme.org/, http://www.easybib.com or http://www.knightcite.com. Also http://www.Icyte.com lets you "tag" information from Internet sources as you research.

Science Project Report Format:

Title: The first page in the report should include the title of the project as well as the name and grade of the student.

Acknowledgment: Here is where you thank everyone who helped to make your project successful (including parent, neighbor, coach, teacher etc.) Everyone that you interviewed, including teachers and other experts in the field should be mentioned here.

Statement of Purpose: State the purpose of the project **in the form of a question.**

Hypothesis: You must have a hypothesis before you complete the project. A hypothesis is a proposed explanation for the scientific phenomenon that you can test. While stating your hypothesis you focus on what you "predict" will occur as a result from completing your experiment.

Research: This is the part of the report that contains all the background information that you collected about your topic. Any books or articles read from the internet/journal, authorities on the topic that you talked to, or outside materials collected should be summarized in this section. **This section should be written in your own words and NOT copied from your resources.**

Materials: This is a list of all the materials and supplies used in the project. Quantities and amounts of each should also be indicated.

Procedure: You will list and describe the steps you took to complete the project. Usually this is listed in a numbered sequence. This part shows the stages of the project so that another person can carry out the experiment.

Observations and Results: In this section, you will tell what you learned from the project. It is also IMPORTANT to include all graphs, charts, or other visual data (pictures) that helps to show your results.

Conclusion: This is a brief statement explaining why your project turned out the way it did. You should explain why the events you observed occurred. Using the word "because" is a good way to turn an observation into a conclusion. The conclusion should tell whether the hypothesis was proven or not proven. Also give the reason(s) why you chose to learn more about the subject. You could also add what you know now that you didn't know before you completed your project.

Reference Page: The bibliography should list all the printed materials the student used to carry out the project. Items should be listed in alphabetical order in a standard format. These websites are a great place to go to find the proper way of writing a bibliography. http://www.bibme.org/, http://www.easybib.com or http://www.knightcite.com. Also http://www.Icyte.com lets you "tag" information from Internet sources as you research.

E-mail us your question at LakotaScienceFair@gmail.com!

NEXT STEP: 9 - Giving a Project Presentation