Study

Studies are probably the least common type of project. They involve the collection or use of data for personal analysis, in order to reveal patterns, relationships or discoveries. The information (data) may be collected by the student themselves or from outside sources, other than the students. The analysis of the data should lead students to make claims that are supported by the data.

Research Process

1-Identify an Area of Study.

The first and most important step is to select a topic of interest. Choosing a topic is difficult because the possibilities are endless. The topic you choose should represent something *related to science* that you are <u>really</u> interested in. Typically, it could be a subject that affects/concerns you, your family or your community.

2- Literature Review.

An in-depth research in the library or on the internet should provide you with the background information you need to formulate a research question.

3- Research Question.

After reflecting on your new background information, you need to formulate an open-ended question that will be answered at the end of your study. Good questions are specific and simple. By keeping it that way, you are preventing your study from taking too long or from being too complicated.

4- Determine how the Study will be Conducted.

What kind of data (information) are you looking for? *Primary data* is information you collect yourself. Methods for collecting primary include: questionnaires, surveys, interviews and observation. *Secondary data* is information that someone else has collected. Sources for collecting secondary data may include: books, magazines, journals, newspapers, internet, etc… You need to decide which way is the best to collect the data to answer your question and make a plan of action

5- Gather Relevant Data.

Having now determined the type of data you need (primary or secondary) and the plan for collecting it, you need to implement your plan to collect all your data.

6- Data Analysis.

At this stage, you have gathered a lot of information and need to simplify it into general categories. Initially, you may have 10-20 different categories. Keep in mind that you are trying to answer your initial question. Look at all the data several times and try to see if there are any relationships between the categories. Eventually, you may end up with 5-6 distinct categories of information.

7- Search for New Understanding.
   After spending a lot of time looking at the data and the different categories, you will be able to detect some patterns, relationships and discoveries. You need to write down what you see. These are the claims you are making as a result of your study.

8- Write the Report.
   Writing a report about all that was done, how it was done, and what was discovered is an important aspect of a Science Fair Project. You need to communicate clearly about everything you did to investigate your question or problem. It provides a summary about the extent of the project as well as what you learned through it. The maximum number of pages is 5 plus the bibliography. The contents of the report should include:

Title page: Include first and last name, date, division, category and registration number.

 Introduction: This should state your topic of interest, the reason why you selected it and the question you want to answer.

Review of the literature: This section should include what you have learned from your preliminary research about what already exists concerning your topic.

Research Method: You need to explain the kind of data you collected and how you collected it.

Data Analysis and Results: Elaborate on how you analyzed your data and what results you found. What claims can be made from the analysis?

Conclusion (Discussion): Summarize the findings of your study. Are you able to answer your initial question? This is also a good place to write about possible implications from those findings.

Reference: Include all the sources where you took your data. You should follow this format:
Hodson, D. (2006). Why we should prioritize learning about science. *Canadian Journal of Science, Mathematics & Technology Education*, 6:3 July, 2006, 293-311.

Acknowledgments: This is where students acknowledge those persons who assisted them in research etc. Remember the importance of not plagiarizing someone else's work.

9. Make a Display.
   The display is an important part of attracting people to the student's project. The display must reflect the topic accurately. For your study, you are encouraged to show (graphs, tables…) any evidence supporting your claims. This will aid in attracting people, as well generate interest and questions.

The display needs to be neat and organized onto a self-standing background that can be put on a table (see the guide rules and security). It should be self-explanatory and take no more than 5 minutes for an audience to understand from beginning to end.

c) Tips for an effective display that will attract people:
- Have a title that grabs people's attention, use imagination!
- Using bright colors makes the project stand out from others.
- Use a large font, bold writing and limit text.
- Using more pictures, graphs, and diagrams makes the project more interesting and easier to understand. These also can help guide the presentation and emphasize important results and conclusions.

10. Prepare a Presentation.
Prepare a 5 minute oral presentation describing the project. The purpose of the presentation is to share the information and findings with the judges as well as the general audience. Be sure to use language which can be understood by all on- lookers. Ensure that students understand all information being presented, as a question may be asked relating to any aspect of the project. The main goal is to present all information in a clear and understandable way. DO NOT memorize a script. Instead of notes, consider using the display as a guide for the presentation. If notes must be used, use point form notes for important points to discuss. Relax and have fun!