

Presenting Your Project

Written Report

Three copies of your written report must be turned in or mailed to the GPHSF Director one week prior to the fair, *if your project is to be judged*. Because these reports will be mailed to each judge ahead of time, please keep the following in mind:

- **Please try to be on time.** The judges will not have time to read papers on Saturday morning. Call or email if you will be late.
- **Please do not use an unnecessarily large font size.** This makes your report longer than it need be, which translates into higher postage.
- **Please do not use heavy binders or loose-leaf notebooks.**
- **Please number your pages!**

There are different formats for the written report depending on grade level:

Grades 6-12

This report is what the judges will read about your project. It can be as long as you like (three to four pages is fine). You may include pictures, drawings, photos, etc. A table of contents may also be included after the title page.

Your report should include the following sections:

1. **Title Page:** The title of your project should appear in the center of the paper. Your name and grade should be placed below the title.
2. **Abstract:** This brief (250-word maximum) summary should include the (a) purpose of the experiment, (b) procedures used, (c) data, and (d) conclusions. A sample abstract is on the back.
3. **Introduction and Purpose:** The introduction sets the scene for your report. It includes an explanation of what prompted your experiment and a summary of your preliminary research. The purpose includes your hypothesis and what you hoped to achieve.
4. **Materials:** List the materials you used to do the project.
5. **Procedure:** Describe in great detail the methodology used to collect your data or make your observations. This should be detailed enough so that someone would be able to repeat the experiment from the information in your paper. You may include drawings or photos.
6. **Results and Discussion:** Present your raw data thoroughly using tables or a daily log, then show these results in graphs or charts to help the reader understand what you discovered. Include statistical analyses if appropriate. The discussion, or interpretation of results, is the essence of your paper. What could have caused these results? Compare your results with theoretical values, published data, commonly held beliefs, and/or expected results. Include a discussion of possible errors. Other questions you may want to consider: How did the data vary between repeated observations of similar events? How were your results affected by uncontrollable events? What would you do differently if you repeated this project? What other experiments should be conducted?
7. **Conclusions:** Briefly summarize your results and restate your hypothesis. What is the answer to your question? Does it agree with your hypothesis? What practical applications does this project have? Be specific; don't generalize. ("In *this* particular experiment...") Never introduce anything in the conclusion that has not already been discussed.

8. **Acknowledgments:** Often scientists thank others who have helped them with their research project. This is the place to do so. You should always credit those who assisted you, including individuals, businesses, and educational or research institutions.
9. **Bibliography:** List any books, articles, pamphlets, or other sources of information you used. Different disciplines may follow different referencing formats; check an article from a scientific journal in your field for a sample bibliography. Most importantly, be consistent! A book reference might look like this:

Smith, J. D. (1989). *A Study of Plant Life*. New York: Johnson Printing Co.

A scientific journal article reference might look like this:

Foley, J. D. (1987). "Interfaces for Advanced Computing." *Scientific American*, 257:127-135.

If you can compose your report on a computer, please do so; it will look neater. (Also, as different science fairs may have different requirements for the format of your project report, it will make it easier to change and reprint your report, if necessary.) Before you submit it, ask someone else to proofread your paper and to suggest changes that will make your paper clearer.

These are things that should not be included with your report:

- Your log book or photocopies of your log book. Judges do not need to see all of your raw data. A good research paper summarizes findings rather than just regurgitating data.
- Items that are not made of paper. No CDs, DVDs, flash drives, etc.

Sample Abstract:

The purpose of this experiment is to determine whether smoking affects night vision in adults. It is known that rods, the part of the retina responsible for night vision, don't function as well when nicotine and carbon monoxide are present in the body. The test performed is designed to measure the night vision of each subject.

The night vision of thirty-nine smokers and non-smokers was tested. Each subject was asked to put his or her head in a large light-proof box. Three different screens with a number of small holes punched in them were placed over a hole in the front of the box. Each subject was timed in counting the number of holes they saw on each screen using two intensities of light. Averages were calculated and compared for the amount of time taken on each screen and how many dots were seen. The researcher hypothesized that the non-smokers would take less time to see more dots.

In gathering results, it was determined that the non-smokers took much less time on each screen than the smokers. The difference in how many dots were seen was statistically insignificant. For five out of six tests the non-smokers had fewer people whose times exceeded the average for all subjects. These data lead the researcher to believe that there is a definite correlation between smoking and loss of night vision.

(excerpted from the GPHSF Student Handbook and the GPHSF web site)