

Science Fair Research Summary

The following lists the sequence and describes the required components for your written science fair research summary. Be sure that you have completed each section thoroughly and in the order listed. Each page should be numbered, starting with the table of contents.

The CPS Science Fair Handbook can be found online at
www.chicagostudentsciencefair.org

A. Title Page

- Uses the format found in the CPS Science Fair Handbook
- Is signed by the sponsoring teacher and school coordinator
- Contains no more than 45 characters and spaces in the title
- Relates the manipulated variable (independent) to the responding variable (dependent) in the title (e.g. Effect of Coffee on the Growth of Bean Plants)

B. Table of Contents

- Lists components contained in the paper in order
- Includes exhibitor's last name and project title at the top left on this page and all succeeding pages
- Ensures that page numbers correspond to the correct page numbers of each component

C. Abstract

- Uses the format found in the CPS Handbook (can be downloaded, completed, and printed)
- Provides a concise summary of the project
- Consists of three paragraphs that include Purpose, Procedure, and Conclusion
- Is written in narrative form and in the third person (e.g. the experimenter...not I)
- Is typed single-spaced on the front side of the paper only
- Does not exceed 200 words in length

D. Safety Sheet

- Uses the format found in the CPS Handbook
- Includes all possible hazards that were involved and explains measures taken to ensure that all safety concerns were addressed
- States that no hazards are associated with this experiment if there were no safety concerns
- Is signed by the student and sponsoring teacher

E. Endorsements (if needed)

- Applies for appropriated endorsement(s) using endorsement request forms included in the CPS Handbook
- Completes all parts of endorsement request before submitting to Scientific Review Committee for approval
- Is signed by student, sponsor, and scientist/consultant where applicable
- Complies with deadline dates

F. Acknowledgments

- Includes statement(s) of credit given to those individuals such as mentors, parents, teachers, scientists, organizations who assisted with the project

G. Purpose and Hypothesis

- Includes explanation of what the investigation was attempting to accomplish...what were you trying to find out
- Formulates a hypothesis (expected result) based on prior knowledge, and how you arrived at your hypothesis. (can be written as an *if.....then.....*statement)
- Includes a description of that expected outcome (such as the effect of the manipulated variable on the responding variable)
- Should total a few paragraphs

H. Review of Literature

- Consists of three major components: (1) general background information to help describe characteristics of the manipulated and responding variables (2) similar research that helps establish the hypothesis or procedure (3) other background information about the topic that may help the reader understand the project
- Is written in third person (e.g. The scientist...the experimenter...not I or you)
- Follows all guidelines listed at the end of this handout
- Consists of 3-5 pages

I. Materials and Methods of Procedure

- Includes a list of materials *and* how they were used in the experiment
- Is specific when listing materials (e.g. two-liter plastic bottle with cap)
- Presents steps of procedure in a logical sequence so that an independent researcher can repeat they study

- Includes detailed drawings and/or photographs of the procedure if they help enhance the explanation

J. Results

- Includes the data organized into tables or charts with appropriate graphs
- Includes ALL data, even data inconsistent with the hypothesis
- Titles all graphs and labels the axes appropriately with correct units of measure
- Uses the appropriate graph types (e.g. bar graphs to show unrelated data; line graphs to show continuous related data that include measurement over time; pie charts to show the results of a survey)
- Includes in data tables appropriate column headings with units of measure, number of trials (at least 3), and averages
- Graphs and tables need to be made using a computer program, no hand drawn graphs will be accepted

K. Conclusions

- Provides a concise evaluation and interpretation of the data and results
- Includes a comparison of the results with the stated hypothesis (the results support the hypothesis, do not support the hypothesis, or are inconclusive)
- Includes a statement of personal opinion of the results
- Includes a critique of the project design, techniques, and procedures
- Includes suggestions for possible improvements
- Is written in the first person

L. Reference List

- Includes all sources (published articles, books, web sites, electronic sources) used to complete the experiment and write the review of literature
- Includes a variety of sources
- Includes current sources with a current copyright of 2001 or later
- Uses APA format to cite resources (examples can be found in the CPS Science Fair Handbook online)
- Alphabetizes all sources
- Includes 3-5 cited references

Important Information for Preparing the Research Summary

1. The research summary should be written by the student and be an accurate summary of the research they conducted
2. The entire paper (besides the conclusion) should be written in the third person
3. The paper should be proofread by someone else for errors in spelling, grammar, sentence structure, and punctuation
4. All pages must be numbered and referenced in the Table of Contents
5. The research summary should be ordered according to the components listed above in A-L
6. All measurements for the experiment should be taken using the SI units of measurement (metric system)
7. All references must be cited using APA format. A great website to help is www.knightcite.com
8. All written work must be in the student's own words, do not plagiarize someone else's words or ideas. Paraphrase or use direct quotes when citing references, follow APA format
9. Students should use our school library to access databases and books
10. Students should use the school computer lab to create graphs and tables, and to type their paper
11. All final work must be typed and all graphs, tables, etc must be computer generated
12. Paper must be typed in Times New Roman or Arial, using 12 point font and double-spaced