



CHECKLIST FOR THE PHYSICAL ARRANGEMENT OF THE STEM RESEARCH PAPER

(Abstract, Safety Sheet, Endorsements, & Research Summary)

ALL ITEMS MUST BE TYPED

ABSTRACT

- Included in paper and a copy must be displayed on front of display board
- Three (3) paragraphs with headings: Purpose, Procedure, and Conclusion
- Typed single-spaced, 200 words or less
- Check appropriate box - either Experimental or Design Investigation
- Exhibit number in the upper right corner if going to the STEM exhibition

SAFETY SHEET

- Included in paper and a copy must be displayed on front of display board
- Lists possible hazards, precautions described
- If no hazards were possible a statement indicating this is included
- Signed by student and sponsor
- Exhibit number in the upper right corner if going to the STEM exhibition

APPROPRIATE ENDORSEMENTS AND ATTACHMENTS (If applicable)

- Included in paper and a copy must be displayed on front of display board
- Endorsement signed and stamped by the Scientific Review committee member
- Signed by student and sponsor
- All pages of completed endorsement and proper documentation is attached, if necessary
- ISEF approval forms - if applicable
- Exhibit number in the upper right corner if going to the city STEM exhibition

TITLE PAGE OF RESEARCH SUMMARY

- Formatted as on page 56 and indicate type of investigation either Experimental or Design
- Approval signed by both the sponsor and school coordinator
- Exhibit number in the upper right corner if going to the city STEM exhibition

TABLE OF CONTENTS

- All subsections are listed with page numbers
- Pagination is accurate

ACKNOWLEDGMENTS

- Credit is given to those who have helped with the research

PURPOSE AND HYPOTHESIS

- States precisely what the investigation was attempting to discover
- Hypothesis and prediction is present

BACKGROUND RESEARCH

- Provides information that supports the hypothesis and if necessary, the procedure
- Provides adequate background information about the topic
- Use of third person is evident
- Logical and/or related grouping of information
- Accurate spelling, grammar, quotations and citations and page set-up
- Parenthetically cited.



MATERIALS AND METHODS OF PROCEDURE

- All equipment and materials are listed
- Drawings and photographs are present if they enhance and clarify the project
- Step-by-step, chronological procedures are present and replicable
- A control or comparison group is present and appropriate
- Number of trials within each test group is adequate
- Control of variables is evident

RESULTS

- All data is presented, including results inconsistent with the hypothesis, if applicable
- Data and calculations are clear and accurate
- Data is quantitative and correct units of measurement (metric) are used
- Data is organized into clear & informative tables or charts with accompanying graphs
- Effect of experimental error was estimated and considered

CONCLUSIONS

- Evaluation and interpretation of data is present
- Refers back to purpose and hypothesis
- Answers the original question
- Is valid and limited to the results of the experiment

REFERENCE LIST

- References in this list are actually cited in the paper
- References from a variety of at least 12 sources and are current (copyright within the last seven years)
- Reference list is alphabetical
- Proper APA format is used for all references
- Titled "Reference List" or "References Cited" not "Bibliography"

NUMBER OF PAPERS REQUIRED

- Nine (9) copies of the STEM Research Summary are needed to register for the City STEM Exhibition

OTHER REQUIREMENTS

- STEM Project Paper clearly and concisely explains the project in short, simple sentences
- Exhibitor's last name & project title typed at top **right** corner of all pages after Table of Contents
- Typed double-spaced, one inch margins on all sides, single-sided
- All pages are numbered and referenced in the Table of Contents
- Standard type font and size (ex. Times New Roman 10 - 12 point font)
- STEM Research Summary (Abstract, Safety Sheet, and Research Summary) is no more than 30 pages (33 if an endorsement is included)
- Paper is well typed, with correct spelling, grammar, punctuation and consistent point of view
- Indicate Experimental or Design Investigation on all forms and pages were required