



# 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, 250 words or less
  - Check appropriate box - either Experimental or Design Investigation
  - Exhibit number in the upper left 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 left 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 left 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 left 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