

The Experimental Paper for FJAS

The research paper should include what the student expects to present at the annual meeting within the time limits. Students in grades 9-12 have 12 minutes while those in grades 6-8 have 10 minutes. Other requirements of the paper include:

- maximum length of 20 pages
- the title page includes ONLY the title and the 100 word abstract in lay language
- the name of the student, school, or sponsor should not appear anywhere on the paper
- double spaced on one side of the paper

The paper should be written in the manner of scientific communication. This is usually written in passive voice and past tense. "The bugs were kept in a jar" is better than "I kept the bugs". This is not true for the methods or procedure that accompany the ISEF forms - these should be written in future or present tense.

Components of the Experimental Paper

Title - a clear, concise, appropriate description of the research. Avoid titles that don't describe the work, or that are too wordy or complex. If the title is not in lay-language, include one as shown here: "Effects of *Arachis hypogaea* Oil on *Diplydium canium*" (Effects of Palm Oil on Dog Tape Worm) - Please note: The title should not exceed 75 characters.

Abstract - a concise lay-language summary of your study in 100 words or less.

Introduction - describe in 1 to 2 pages the specific problem, background information pertinent to the research, purpose and hypothesis for the experiment. The hypothesis should be stated in a way that it can be tested. Hypotheses are often written in an "If...then..." format. All references used in the text of the paper should be cited properly and listed in the References section of the paper.

Method - should identify the materials used and the procedures followed during the experiment. These should be written so anyone reading them could repeat the experiment.

Results - includes observations and statistical analysis of the data. A statement of the number of replicates used and number of organisms employed when conducting the experiments should be included. Tables are usually placed in this section while Figures, including graphs, are often placed as appendices. Descriptive and inferential statistics should be presented.

Discussion - includes the evaluation of the results and the interpretation of the implications. Begin the Discussion with a statement of the support or non-support of the original hypothesis. Also, remark on the shortcomings of the research but do not dwell on these. Focus on how the results furthered understanding in the area.

References - List all references used including the International Rules for Precollege Science Research.

Do **NOT** include any **Acknowledgments**, these must be removed to maintain anonymity.

Preliminary Judging Criteria for experimental papers

Part of Paper	points	Criteria
Title Page	10	appropriate length and lay language
Introduction	15	statement of problem, testable hypothesis, and reasonable background information with proper citations
Method	15	clear and concise procedure, shows originality in design and/or apparatus, replicates and controlled variables identified
Results	30	thorough data collection with statistical analysis appropriate for the age
Discussion	10	appropriate conclusion based on data and analysis - includes analysis of errors and suggestions for future improvements
References	10	proper format and number appropriate for age and area
Follow rules	10	following the rules for paper submission
Total	100	

The Literary Paper for FJAS

The paper should include what the student expects to present at the annual meeting within the time limits. Students in grades 9-12 have 12 minutes while those in grades 6-8 have 10 minutes. Other requirements of the paper include:

- maximum length of 20 pages
- the title page includes ONLY the title and the 100 word abstract
- the name of the student, school, or sponsor should not appear anywhere on the page
- double spaced on one side of the paper

This paper is based on the analysis or summary of investigations of others. The author generally finds material for the paper through recent, pertinent periodicals, texts, and/or correspondence. **No experimental work** by the student may be mentioned in this type of paper.

Students in grades 6 through 8 may select any area that interests them. Students in grades 9 through 12 are urged to select areas where “hands-on” research is not possible. Some examples are:

- Can life as we know exist on moons or planets other than the earth?
- Should humans be cloned? Who should make the decision?
- Are transgenic crops safe?

Components of the Literary Paper

Title - a clear, concise, appropriate description of the research. Avoid titles that don't describe the work, or that are too wordy or complex. If the title is not in lay-language, include one as shown here: “Effect of Transgenic Zea mays on Homo sapiens development” (Effect of bioengineered corn on human development) - The title should not exceed 75 characters.

Abstract - a concise summary of your study in 100 words or less and in lay-language.

Introduction - describe the specific problem being researched. General information of the research topics should be discussed. This may also include the objectives for this research.

Body - summarizes previous investigations. Be certain to display all sides of an issue. This should be very well organized with the logical and sequential thoughts developed. All references used in this text of the paper should be cited properly and listed in the References section of the paper.

Discussion - includes the evaluation of the previous research and the interpretation of the implications. Include contradictions, gaps, relationships, and inconsistencies. Come to some logical conclusion about the problem based on current research and suggest what could be done in this area.

References - Include all references used in preparing the research using an appropriate format.

Do **NOT** include any **Acknowledgments**, these must be removed to maintain anonymity

Preliminary Judging Criteria for literary papers

Part of Paper	points	Criteria
Title Page	10	appropriate length and lay language
Introduction	10	statement of problem, general information and objectives of the research
Body	40	reasonable information with proper citations showing all sides of the issues
Discussion	20	appropriate conclusion, discussion of suggestions and ramifications of each
References	10	proper format and number appropriate for age and area
Follow rules	10	following the rules for paper submission
Total	100	