

HINTS FOR SUCCESSFUL SCIENCE FAIR PROJECTS

1. Help students through every phase of their research paper. Make research style an integral part of the science class. Don't assign the paper and then expect the student to complete it without the teacher's assistance.
2. Set up a time line so steps of the research paper and project are due at intervals throughout the first 16 weeks of school.

Sample Science Fair Project Schedule

<u>WEEK #</u>	<u>WEEKLY OBJECTIVES</u>
2	Proposal (problem and way student might go about researching and solving it).
3	2 source cards, Plans for developing evidence for display
4	3 source cards
5	3 source cards
6	2 source cards

⇒ Rough draft of: Procedures, Materials and Data table design

⇒ **Submission of Intel ISEF Certification Forms. Approval is for actually experimentation or data collection.**

9-11	Rough draft of: Data collection, Data analysis, Conclusion, Abstract
12	Final copy (includes all parts of a formal science research paper)
13-14	Display design and construction
15	School Science Fair
16	Critique of Fair and projects (What did we learn and how could it have been better), Preparation for Broward County Science Fair

3. The hardest part of the research paper is establishing an original problem. Below is a list of ways to help students to do this and to allow for the generation of new ideas.

- a) Show slides/video of past projects (school, county, state and international entries). Contact Director through Curriculum Office.
- b) Have students who won past fairs talk to your class about how they came up with their idea.
- c) Have students read article(s) about current events in Science. Students may then:
 - Write bibliography of article (gives practice).
 - Summarize article (gives practice in getting main idea of what they read).
 - State 5 questions the article raises in their minds but aren't answered in the article (develops curiosity).

4. Get students involved in helping with your school fair: setting up, making signs, advertising or activities during morning announcements, etc.

5. Have students who win the school fair act as proctors during school visitations by science classes. Also utilize these students to promote the fair the following year.

6. Use the scientific process in every lab you do in class; problem, background information, hypothesis, experimentation, and conclusion. Have students suggest different manipulated (independent) variable, different responding (dependent) variables, or different tested items (sample) for each lab done in class.

7. Involve parents in:

- Conducting a spaghetti dinner at school.
- Designing an awards program at school.
- Writing newspaper coverage.
- Organizing field trips.
- Typing programs or rules on computer.

CHECK LIST AND EVALUATION FORM FOR SCIENCE RESEARCH PAPERS

Part of Paper	Description	Located	Not Located
Title	Shortened form of Problem		
Abstract	Purpose		
	Hypothesis		
	Brief Procedural Plan		
	Results		
	Conclusions		
	Application		
Table of Contents	(listed with page numbers)		
Purpose of Statement	Explicated Test Item		
	Independent Variable		
	Dependent Variable		
	Gave reason for design or invention		
Research and Bibliography	Intel ISEF Rules book sources have been used when certain topics are researched. Used five sources minimum: Junior Academy of Science requires 15 sources minimum		
	Sources where appropriate – science magazines, journals, procedural handbooks, texts/books, internet searches, and updated within the last five years		
	Sources used are cited		
	Sources cited appropriately		
	Sources were listed alphabetically		
	Literary research was as complete as possible, topics / concepts related to the experimental part of the paper		
	Bibliographic style was correct (Most used writing style is APA)		
Hypothesis	Used linking works (if, then)		
	Showed cause and effect		
	The cause part of the statement was supported by literary research		
Hypothesis (Continued)	The effect part of the hypothesis was the prediction tested		
	Is related to the purpose of the investigation		
Materials	Gave quantity of material needed		
	A reader would be able to get the materials given and conduct the experiment without difficulty		

Part of Paper	Description	Located	Not Located
Procedures	Used sourcebooks or manuals stated in Intel ISEF rules for special topics to state appropriate methodology		
	Showed the use of measurement		
	Directions were clear and concise		
	A reader could conduct the experiment using the procedures given		
	Controls were evident		
	Variables were evident		
	Sufficient trials were used		
Observation and Data Collection	Data tables were used		
	All data collected were given		
	Metric system of measurement was used		
	Tables were clear and properly labeled		
	Observations of conditions which may have influenced results were given		
	Data collection clearly tested the hypothesis		
Data Analysis and Discussion	Summarized Data		
	Summary tables were clear and labeled		
	Experimental errors were analyzed and presented		
	If possible, the data was statistically analyzed Junior Academy of Science requires statistics		
	Discussion of the significance of the results was given		
Conclusion	Was supported by use of data		
	Accepted Hypothesis		
	If hypothesis was not accepted, a new hypothesis was stated		
Application	Showed ways knowledge gained could be used		
Recommendation	Suggested ways experimental idea could be expanded or improved		
Acknowledgements	Recognized individuals that assisted researcher in the processes of this paper. Do not recognize family members or teachers.		
General Comments	Was written in third person		
	Was creative		
	Was thorough		
	Grammar and spelling were correct		
	Was organized appropriately		