

Name _____ Period # _____

HOW CAN I DO AN OUTSTANDING PROJECT FOR THE SCIENCE & ENGINEERING FAIR THIS YEAR?



Mr. Dev
Sierra Madre Middle School
8th Grade, Physical Science
October 8, 2015

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Format for the Science Fair Research Paper

This is a report in which you summarize everything you have read about the topic for your science project. Choose any topic from the LA County Science Fair Junior category listing.

<http://www.lascifair.org/students/eligibility-categories>. Avoid choosing experiments on tissues, Human subjects, vertebrate animals or hazardous chemicals.

Rough draft needs to be typed and turned in by the deadline. Please do not email it to the teacher. Please make sure that you save your file in few different places. You need to refine it several times before the final due date. The size of the font should be no larger than **12** in **Times New Roman** or **Arial**. The entire research paper should contain about **10 pages** when you include the title page, table of contents, abstract, body of the paper, picture page and bibliography. To receive full credit for the body of the paper you must submit 5 pages of quality work. Present the report stapled and not in plastic sheet covers or any type of folder. Please check the LA county website to follow the County guidelines as well. <http://www.lascifair.org>

The Order of the Required Sections of your Research Paper

1. **Title Page:** Type the title of your report in the center of the page, 4-6 inches from the top of the page. Include relevant pictures to interest the reader. Type your full name, date, school, teacher and period in the lower right-hand corner of this page.
2. **Table of Contents:** Write "Table of Contents" in the center at the top of this page. Below list reading materials that appear on each page. This should be the last part to be completed. Eventually, you will organize each page of the report and put the page number to the far right.
3. **Abstract:** This is a shortened version of the main ideas of your research paper. See page 4 for detailed instructions.
4. **Body of the Paper:** Ideally the body of your report should be 5 pages with double-spaced typed lines. In this section of the report, you should:
 - a) Describe some important past research conducted by other people;
 - b) State general information you gathered from periodicals, i.e. magazines, newspapers, interviews, information from the Internet, or any other appropriate source;
 - c) Include any other interesting, updated information. All information should be in your own words. Copies of information or print outs are not acceptable.
 - d) Include in detail how you are planning to do your experiment. This should be 2 pages.

5. **Picture Page:** Include an illustration, diagram, or science drawing with labels and descriptive captions.
6. **Bibliography:** This is a list of books, articles, pamphlets, internet, interviews and any other resources that you used for your research paper. You will need to have at least 5 sources, not exclusively internet, listed in your bibliography. The Science text book cannot be one of the 5 sources. The bibliographical entry should follow the APA Bibliography format below. You may find help from www-secure.easybib.com

Single Author Book

Alvarez, A. (1970). *The savage god: A study of suicide*. New York: Random House.
Garner, B. A. (2003). *Garner's Modern American Usage*. New York: Oxford University Press.

Book with Two or more Authors

Natarajan, R., & Chaturvedi, R. (2003). *Geology of the Indian Ocean Floor*. Hartford, CT: Merganser University Press.

Magazine Article

Kandel, E.R., & Squire, L.R. (2004), November 10). Neuroscience: Breaking down scientific barriers to the study of brain and mind. *Science*, 290, 110-1120.

Newspaper Article

Ibrahim, Y.M. (1976, September 18). Genetic soybeans alarm Europeans. *The New York Times*, p. D1.

Internet Article

R. A. Mewaldt. (1996) Cosmic Rays, California Institute of Technology.
Retrieved from http://www.srl.caltech.edu/personnel/dick/cos_encyc.html

* Please note that most of this packet is written in the same font size of your research paper requirement. Your final research paper should look something very similar to this packet except double-spaced and single sided.

Writing an Abstract

What is an abstract?

An abstract is a shortened version of the main ideas of your research paper.

Write a **one-page abstract after** you have completed your research paper, since it should highlight the main ideas. It should be easy to read, saving time from reading the entire research paper, and is used by the judges to check your research and reasoning. It must provide the necessary information to understanding what the research paper and project is about. Follow these instructions when writing an abstract:

1. **Who are you?** In the first paragraph of your abstract please include information about yourself.
 - Your name
 - School you attend
 - Grade in School
 - Category of your project such as: Physics, Chemistry, etc.
2. **Purpose and Type of Project:** State the purpose of the report and write the summary of your background reading about your research topic in three to four paragraphs. Be sure to define any vocabulary that is important to the understanding of your research. Start your purpose with the word "To".

Research Paper Grading Rubric

CRITERIA FOR EVALUATION	4 POINTS	3 POINTS	2 POINTS	1 POINT
Title Page	Title of the report is in the center of the page as a Question. Relevant picture was included to interest the reader. Full name, date, school, teacher and period is in the lower right-hand corner of this page.	Title of the report is in the center of the page as a Question. Picture was included but not quite relevant to interest the reader. Full name, date, school, teacher and period is in the lower right-hand corner of this page.	Title of the report is in the center of the page as a Question. Picture was not included or not quite relevant to interest the reader and/or full name, date, school, teacher and period is not in the lower right-hand corner of this page.	Missing more than 3 required aspects of the title page and/or did not place the title appropriately according to instructions.
Table of contents identifies the subtopics and main key concepts, and uses the correct format.	Table of contents identifies the subtopics and main key concepts, and uses the correct format.	Table of contents identifies most of the subtopics and main key concepts, and uses the correct format.	Table of contents identifies some of the subtopics and main key concepts, and uses the correct format.	The incorrect format used for the table of contents.
Abstract provides a complete summary of the research paper.	Abstract provides a complete summary of the important details included in the paper.	Abstract provides a somewhat complete summary of most of the important details included in the paper.	Abstract provides a partial summary that includes some of details included in the paper.	Abstract provides a summary that includes a few of details included in the paper.
Background research	All key elements of background research are completely evident.	1 or 2 key elements of background research are missing.	3 or 4 key elements of background research are missing.	Background research is attempted.
Science Content & Experimental process (How are you planning on doing your experiment? The final data is due with your 3 panel board)	Scientific facts were accurate. The Scientific investigation is appropriate for the chosen topic. Materials and procedure of the experiment is listed in paragraphs.	There are some questionable Scientific information. Investigation was accurate. Materials and procedure is in a paragraph form.	Information is not backed up by the sources. Poorly designed experimental procedure.	Lacking information and a proper Scientific Investigation
Science drawing of the experiment includes appropriate labels and captions, and is relevant to topic.	Science drawing includes the appropriate labels, a descriptive caption, and is relevant to the topic.	Science drawing includes the most of the appropriate labels, an almost descriptive caption, or is for the most part relevant to the topic.	Science drawing includes the some of the appropriate labels, a somewhat descriptive caption, or is somewhat relevant to the topic.	Science drawing includes the few or none of the appropriate labels, non-descriptive or no caption, or is not relevant to the topic.
Bibliography includes all of the sources cited in the correct format.	Bibliography includes at least 5 sources, not exclusively internet, cited in the correct APA format.	Bibliography includes at least 3-4 sources, not exclusively internet, cited in the correct APA format.	Bibliography includes at least 1-2 sources, not exclusively internet, cited in the correct APA format.	Bibliography does not include any sources cited in the correct APA format.
Standard English capitalization punctuation and spelling are used appropriately for this grade level.	Standard English capitalization, punctuation, and spelling are used appropriately for this grade level throughout this research paper.	Standard English capitalization, punctuation, and spelling are used appropriately for this grade level with a few errors throughout this research paper.	Inconsistent use of standard English capitalization, punctuation, and spelling are used appropriately for this grade level throughout this research paper.	Minimal use of standard English capitalization, punctuation, and spelling are used appropriately for this grade level throughout this research paper.
Standard English grammar and sentence structure (with an emphasis on wordiness) are used appropriately for the grade level.	Standard English grammar and sentence structure appropriate for the grade level through the research paper.	Standard English grammar and sentence structure appropriate for the grade level with only a few errors.	Inconsistent use of standard English grammar and sentence structure appropriate for the grade level.	Use of standard English grammar and sentence structure appropriate for the grade level is minimal and confusing.

THREE-PANEL DISPLAY

Based upon the information obtained from your research paper, conduct an experiment that is tested over a period of time to determine the accuracy of a proposed hypothesis.

Use your creative skills to design a display that will catch the eye of judges and other observers. Your three-panel display poster must stand alone, and display the required components of your project. They consist of the following:

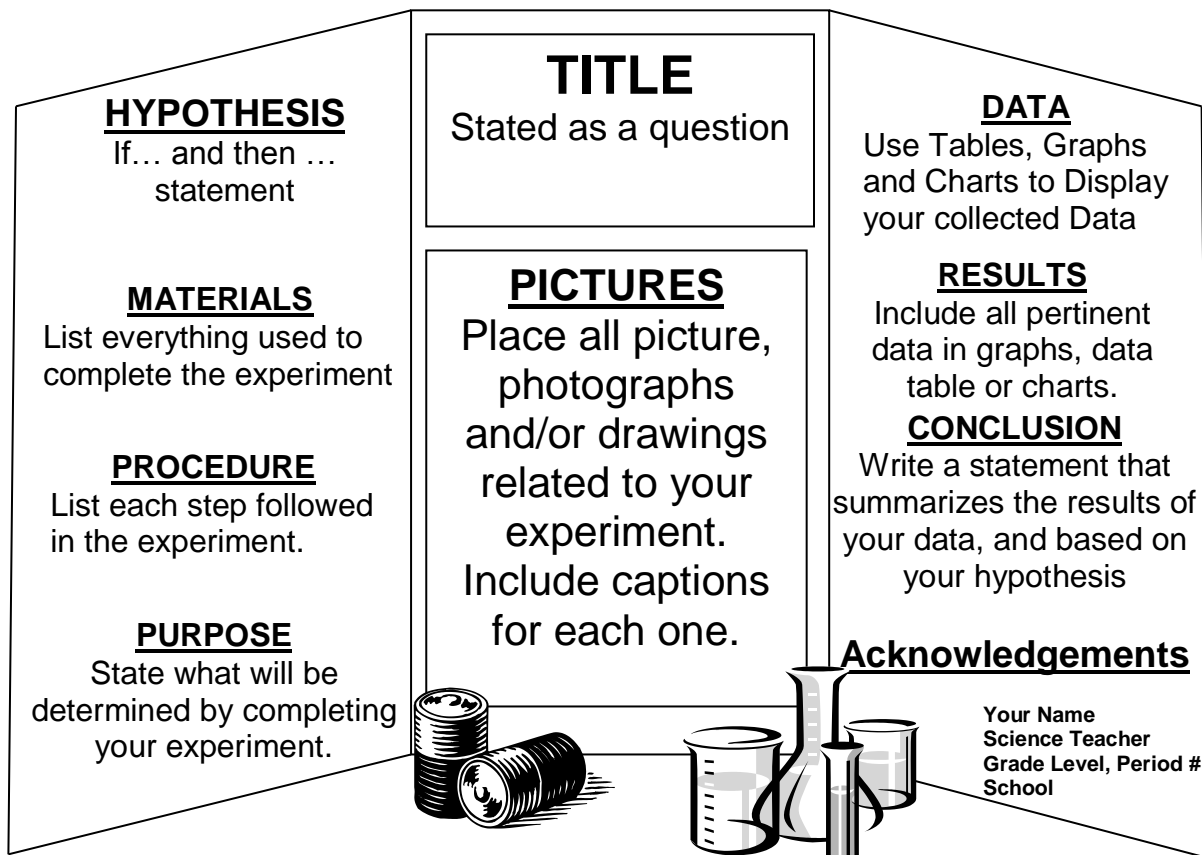
- Title (stated as a question)
- Labeled Pictures, drawings and/or photographs
- Hypothesis
- Materials
- Procedure
- Purpose (To show...)
- Data
- Results
- Conclusion & Acknowledgement
- Display

Use stencil, stick-on letters or computer printed letters to display experimental data, information and pictures. Written information should be written in your neatest handwriting, and should not be written in **PENCIL**. Information must be complete, clear and logical. Color and contrast will add to the overall creativity of your display.

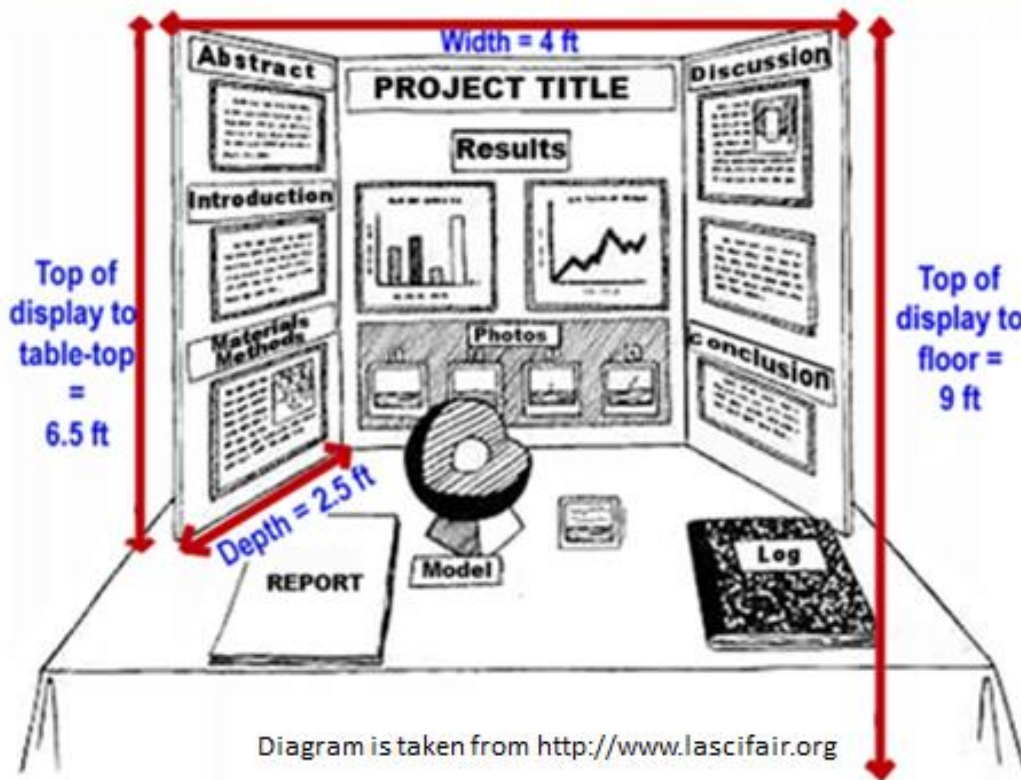
Each three-panel display must include an accurate experimental journal that shows all of the data observed during the experiment. Data entries should include:

1. Date of observation
2. Time of the observation
3. Accurate description of observation
4. Note other observations like weather conditions, mistakes, expectations, etc.
5. Name(s), Teacher, Grade, Period & School clearly typed at the bottom right corner & back.

Acknowledge any person(s) or organization(s) that helped in the research of this project. This should include facilities such as a laboratory workshop, office, garage, nursery, computer, and other facilities, and people who had given you suggestions or proof-read your paper, etc.



Display your Experiment



Science Fair Experiment : Three Panel Display Board

Student Name: _____

Period # _____

POINTS & CATEGORY	4 Exceeds Standard	3 Meets Standard	2 Approaches Standard	1 Below Standard
Idea	Independently identified a question which was interesting to the student and which could be investigated.	Identified, with adult help, a question which was interesting to the student and which could be investigated.	Identified, with adult help, a question which could be investigated.	Identified a question that could not be tested/investigated or one that did not merit investigation.
Hypothesis Development	Independently developed hypothesis well-substantiated by a literature review and observation of similar phenomena.	Independently developed hypothesis somewhat substantiated by a literature review and observation of similar phenomena.	Independently developed hypothesis somewhat substantiated by a literature review or observation of similar phenomena.	Needed adult assistance to develop hypothesis or to do a basic literature review.
Description of Procedure	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. No adult help was needed to accomplish this.	Procedures were outlined in a step-by-step fashion that could be followed by anyone without additional explanations. Some adult help was needed to accomplish this.	Procedures were outlined in a step-by-step fashion, but had 1 or 2 gaps that require explanation even after adult feedback had been given.	Procedures that were outlined were seriously incomplete or not sequential, even after adult feedback had been given.
Data Collection	Data was collected several times. It was summarized, independently, in a way that clearly describes what was discovered.	Data was collected more than one time. It was summarized, independently, in a way that clearly describes what was discovered.	Data was collected more than one time. Adult assistance was needed to clearly summarize what was discovered.	Data was collected only once and adult assistance was needed to clearly summarize what was discovered.
Variables	Independently identified and clearly defined which variables were going to be changed (independent variables) and which were going to be measured (dependent variables).	Independently identified which variables were going to be changed (independent variables) and which were going to be measured (dependent variables). Some feedback was needed to clearly define the variables.	With adult help, identified and clearly defined which variables were going to be changed (independent variables) and which were going to be measured (dependent variables).	Adult help needed to identify and define almost all the variables.
Visual Representation	Provided an accurate, easy-to-follow visual representation with labels to illustrate the procedure or the process being studied.	Provided an accurate visual representation with labels to illustrate the procedure or the process being studied.	Provided an easy-to-follow visual representation with labels to illustrate the procedure or process, but a key step was left out.	Did not provide a visual representation or it was quite incomplete.
Conclusion/ Summary	Student provided a detailed conclusion clearly based on the data and related to previous research findings and the hypothesis statement(s).	Student provided a somewhat detailed conclusion clearly based on the data and related to the hypothesis statement(s).	Student provided a conclusion with some reference to the data and the hypothesis statement(s).	No conclusion was apparent OR important details were overlooked.
Display	Each element in the display had a function and clearly served to illustrate some aspect of the experiment. All items, 6, graphs etc. were neatly and correctly labeled.	Each element had a function and clearly served to illustrate some aspect of the experiment. Most items, 6, graphs etc. were neatly and correctly labeled.	Each element had a function and clearly served to illustrate some aspect of the experiment. Most items, 6, graphs etc. were correctly labeled.	The display seemed incomplete or chaotic with no clear plan. Many labels were missing or incorrect.

Oral Presentation Rubric : Science Fair

Student Name: _____ Period # _____

A PowerPoint presentation along with your oral presentation is encouraged, but not mandatory. Limit to a maximum of ten slides. – Up to 10 Extra Credit Points.

CATEGORY	4	3	2	1
Preparedness	Student is completely prepared and has obviously rehearsed.	Student seems pretty prepared but might have needed a couple more rehearsals.	The student is somewhat prepared, but it is clear that rehearsal was lacking.	Student does not seem at all prepared to present.
Speaks Clearly	Speaks clearly and distinctly all (100-95%) the time, and mispronounces no words.	Speaks clearly and distinctly all (100-95%) the time, but mispronounces one word.	Speaks clearly and distinctly most (94-85%) of the time. Mispronounces no more than one word.	Often mumbles or can not be understood OR mispronounces more than one word.
Stays on Topic	Stays on topic all (100%) of the time.	Stays on topic most (99-90%) of the time.	Stays on topic some (89%-75%) of the time.	It was hard to tell what the topic was.
Posture and Eye Contact	Stands up straight, looks relaxed and confident. Establishes eye contact with everyone in the room during the presentation.	Stands up straight and establishes eye contact with everyone in the room during the presentation.	Sometimes stands up straight and establishes eye contact.	Slouches and/or does not look at people during the presentation.
Content	Shows a full understanding of the topic.	Shows a good understanding of the topic.	Shows a good understanding of parts of the topic.	Does not seem to understand the topic very well.
Volume	Volume is loud enough to be heard by all audience members throughout the presentation.	Volume is loud enough to be heard by all audience members at least 90% of the time.	Volume is loud enough to be heard by all audience members at least 80% of the time.	Volume often too soft to be heard by all audience members.
Enthusiasm	Facial expressions and body language generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language sometimes generate a strong interest and enthusiasm about the topic in others.	Facial expressions and body language are used to try to generate enthusiasm, but seem somewhat faked.	Very little use of facial expressions or body language. Did not generate much interest in topic being presented.
Listens to Other Presentations	Listens intently. Does not make distracting noises or movements.	Listens intently but has one distracting noise or movement.	Sometimes does not appear to be listening but is not distracting.	Sometimes does not appear to be listening and has distracting noises or movements.

Comments: _____

Important Due Dates and Timeline for the Science Project

**AVOID EXPERIMENTS ON TISSUES, HUMAN SUBJECTS, VERTIBRATE ANIMALS,
OR HAZARDOUS CHEMICALS!**

Please read the county guidelines for all additional forbidden use of materials.

Thursday, October 22, 2015 **Project topic and Parent/Student signed Agreement** is due (last page bottom portion)

For your reference write down your teacher approved Project Question:

Monday, October 26, 2015

Bring at least three research material that are not exclusively internet. Bring them to class.

(i.e. Books besides the Science text book, Internet print-out, Magazine, etc.)

Monday, November 2, 2015

Research Notes - Handwritten or typed notes taken while researching. Bring it to class.

Monday, December 7, 2015

Typed Rough draft of Research Paper is due. Include all components of the final paper. This does not require your experimental data. However, two out of the 5 pages of the write-up should explain your proposed experimental process. Total 10 pages. Please do not email it to the teacher.

Monday, January 11, 2016

Typed Final draft of Research Paper is due. This will be the paper with corrections from the rough draft. No experimental data required for this paper. Do not email.

Timeline to stay on task

**By Tuesday, December 8, 2015*

Begin your proposed experiment if you have not started yet. Maintain a detailed data log during the experiment Analyze data and write your conclusion Complete your report for the board with experimental data. Repeat the experiment multiple times and collect data.

Monday, January 11, 2016
Week of January 11, 2016

**Three Panel Display & written report is due
Oral Presentations in class**

Between February 1 through 5, 2016

School Wide Science Fair
Judged by Scientist from the community.
(Top 4 projects will be selected from each grade level for the County Science Fair)

Wednesday, February 24, 2016

(winners – start the online registration at least a week early! Parents are responsible to take their students to the county fair. Parents are requested to sign-up to volunteer at the SciFair)

LA County Fair Registration Deadline

Thursday, March 17-19, 2016

LA County Science Fair (during Spring Break!)
Pasadena Convention Center <http://www.lascifair.org>

Parent and Student Agreement

On or before **Thursday, October 22, 2015** this signed agreement (**bottom portion only**) should be returned with your project title written below. You will receive 5 points for submitting this page on time. Avoid choosing experiments on tissues, Human subjects, vertebrate animals or hazardous chemicals. They will be disqualified. The information/content and research completeness of your research paper will be graded by your Science teacher and be reviewed by another qualified reader.

The research paper, the Science Fair 3 - Panel Display board and the Oral presentation will also be graded separately for a grade. **Only the best Experiments** will be chosen by the Science department and be allowed to participate in the school wide Science Fair. **Non-experimental projects will not be accepted. Top 4 projects from each grade level will be sent to the District Science Fair and the LA County Science Fair. If you are one of the first four students for the School Science Fair, you are expected to participate at the District AND County Science Fairs to represent Sierra Madre M.S.**

Please check out the sample judge's scoring sheet: <http://tinyurl.com/samplescoresheet>

A WORD OF CAUTION -- DO NOT WAIT UNTIL THE LAST MINUTE. A GOOD PROJECT TAKES SEVERAL WEEKS TO COMPLETE. YOU HAVE AMPLE TIME TO COME UP WITH SOMETHING BRILLIANT. ANY QUESTIONS REGARDING THIS PROJECT SHOULD BE ASKED BEFORE THE DUE DATES. EVERYTHING IS DUE AT THE BEGINNING OF YOUR SCIENCE CLASS PERIOD. PLEASE DO NOT ASK FOR EXTENSIONS AFTER ANY OF THE DUE DATES. MOST IMPORTANTLY, PLEASE UNDERSTAND THAT NOT SUBMITTING ANYTHING FOR THIS PROJECT OR NEGLECTING ALL OTHER WORK AND DOING ONLY THE SCIENCE FAIR PROJECT COULD POSSIBLY RESULT IN FAILING SCIENCE THIS YEAR!



I read the entire packet and I understand the importance of this project and meeting the deadlines. The following is the Science Fair topic title I have chosen for my Science Fair Project:



➤ Write the Project Title in the form of a Question <http://www.lascifair.org>

➤ What is your Project Category? Jr. Project Categories list: <http://www.lascifair.org/students/eligibility-categories>

Parent/Guardian's Signature

Period #

Student's Signature

Parent/Guardian's Name

Student's Name

Date