

Central California Regional Science Fair 2018-2019
Junior Division Important Information

- Science Fair Advisor
 - o Reyburn: Miss Little – room 136 – shelbylittle@cusd.com
- The Regional Science Fair takes place March 11-14 , 2019 at the Fresno Fairgrounds
- Approx. 10 top Reyburn projects move on to compete at the Central California Regional Science, Mathematics and Engineering Fair
 - o Winning Projects: ALL Science Fair participants MUST be available to attend student interviews on Wednesday, March 13th from 6:00 p.m. – 8:00 p.m.
 - o Non-Winning Projects: Boards MUST be removed by participant Thursday, March 14th 10:00 a.m. – 1:00 p.m. All non-winning boards not removed will be disposed of by the Science Fair Thursday evening.
- Projects may have a MAXIMUM of 3 members
- ALL Reyburn students are encouraged to participate (not limited to 8th graders or honors students)
- ALL projects must be approved by September 17th
- Getting an approved topic is HANDS DOWN the most difficult part of the project. The topic must be at a junior high level and have a real-world application. It must be a completely unique project. If the answer can be Googled or found anywhere online (such as sciencefair.com, sciencebuddies.com, etc.), it is not an appropriate topic and will NOT be approved
- **DON'T WAIT UNTIL THE LAST MINUTE TO GET AN APPROVED TOPIC!**
- Good resources to help you decide on a project are to look at winning projects from previous state science fair years. You may NOT copy someone else's project; however you can use their topics to help you come up with an idea. Here is the web site: <http://www.usc.edu/CSSF/History/>
- All projects using humans must have a, "Human Informed Consent Form," completed PRIOR to beginning experimentation.
- ALL restricted projects may not begin experimentation until it has been approved by the Science Review Committee. This occurs after your topic has been approved by Miss Little/Miss Mushegan. The teacher must submit an application for you to do your experiment and then they receive a notice from the Science Review Committee stating whether or not your experiment has been approved.
 - o If any of the following are used in your project it is considered, "restricted" and must have approval before you can begin:
 - Humans
 - Non-Human Vertebrate Animal
 - Mold
 - Fungus
 - Bacteria
 - Virus
 - Drugs, alcohol, tobacco, gun powder (or anything else that may not be legally purchased)
 - rDNA
 - Human or Animal Tissue (cells, teeth, bones, fluids: blood, urine, saliva)
 - Chemicals
 - Hazardous Equipment (model rockets, lasers, UV light, radiation, guns or anything else that could be dangerous).
- State Science Fair
 - o California State Science fair will take place April 22nd and 23rd, 2019 in Los Angeles, CA. The awarding of prizes at the regional level is not affected by the projects chosen to continue on to the state science fair. Meaning... if a project receives 1st place in their category at the regional level they are not necessarily automatically qualified to participate in the state competition.

Animal Sciences Study of animals - animal genetics, ornithology, ichthyology, herpetology, entomology, animal ecology, paleontology, cellular physiology, circadian rhythms, animal husbandry, cytology, histology, animal physiology, invertebrate neurophysiology, studies of invertebrates, etc.

Behavioral and Social Sciences Human and animal behavior, social and community relationships - psychology, sociology, anthropology, archaeology, ethnology, linguistics, learning, perception, urban problems, reading problems, public opinion surveys, educational testing, etc.

Biochemistry Chemistry of life processes - molecular biology, molecular genetics, enzymes, photosynthesis, blood chemistry, protein chemistry, food chemistry, hormones, etc.

Chemistry Study of nature and composition of matter and laws governing it - physical chemistry, organic chemistry (other than biochemistry), inorganic chemistry, materials, plastics, fuels, pesticides, metallurgy, soil chemistry, etc.

Computer Science/Mathematics Study and development of computer hardware, software engineering, Internet networking and communications, graphics (including human interface), simulations/virtual reality or computational science (including data structures, encryption, coding and information theory.) Development of formal logical systems or various numerical and algebraic computations, and the application of these principles - calculus, geometry, abstract algebra, number theory, statistics, complex analysis, probability.

Earth and Space Sciences Geology, mineralogy, physiography, oceanography, meteorology, climatology, astronomy, speleology, seismology, geography, etc.

Engineering Judging for Engineering projects is slightly different from other Categories. Technology; projects that directly apply scientific principles to manufacturing and practical uses - civil, mechanical, aeronautical, chemical, electrical, photographic, sound, automotive, marine, heating/refrigerating, transportation, environmental engineering, etc.

Environmental Science Study of pollution (air, water and land) sources and their control; ecology.

Medicine and Health Study of diseases and health of humans and animals - dentistry, pharmacology, pathology, ophthalmology, nutrition, sanitation, pediatrics, dermatology, allergies, speech and hearing, etc.

Microbiology Biology of microorganisms - bacteriology, virology, protozoology, fungi, bacterial genetics, yeast, etc.

Physics Theories, principles, and laws governing energy and the effect of energy on matter - solid state, optics, acoustics, particle, nuclear, atomic, plasma, superconductivity, fluid/gas dynamics, thermodynamics, semiconductors, magnetism, quantum mechanics, biophysics, etc.

Plant Sciences Study of plant life - agriculture, agronomy, horticulture, forestry, plant taxonomy, plant physiology, plant pathology, plant genetics, hydroponics, algae, etc.

Product Science (Junior Division Only): Comparison and testing of commercial off-the-shelf products for quality and/or effectiveness for intended use in real-world consumer-oriented applications.

A restricted project requires a Scientific Review Committee's approval before experimentation can begin. A restricted project needs to be approved to make sure no harm will be done to humans or animals. If you have a restricted project you need to visit the science fair website and download the proper forms to fill out and submit. The SRC Committee is made up of scientists and psychologists from Fresno State and Fresno County Schools.

Your project is restricted if you can answer yes to any of the following:

Human Participants (Form 4)

- Are you asking people questions?
- Are you doing experiments on yourself?
- Are you using people in any way?

Non-Human Vertebrate Animals (Form 5A)

- Are you using your pet?
- Are you using any animal that has bones?

Pathogenic Agents (Form 6A)

- Are you experimenting with mold, fungus, bacteria or viruses?
- Are you experimenting with anything that can make you sick?
- Are you experimenting with cultured samples?

Controlled Substances (Form 3)

- Are you using prescription drugs, alcohol, wine or beer?
- Are you using cigarettes, tobacco or gun powder?
- Are you using any other substance that may not be legally purchased?

RDNA (Form 6A & 6B)

- Are you taking DNA from one organism and inserting it into the DNA of another organism?

Human or Animal Tissue (Form 6A & 6B)

- Are you experimenting with anything coming from a human or animal body such as cells, teeth, bones, fluids, blood, urine or saliva?

Chemicals (Form 3)

- Are you using any industrial or household chemicals or cleaners?

Hazardous Equipment (Form 3)

- Are you experimenting with model rockets, lasers, UV light, radiation, guns, or anything else that could be dangerous?

The deadline for restricted projects is November 4, 2011.
If you are uncertain if your project is restricted please contact the science fair director for further clarification.

Journal:

- You will need a journal to record information about your project. You will need to keep records of your project from the time you begin working on the project. The journal will include any information you find.
- I recommend you to use a spiral notebook (70-page minimum). Spiral notebooks are more durable and easier to manage (trust me on this). You can add a 3 ring binder to hold more information if needed.
- You should divide your journal into the following sections:
- Table of contents, log entries, general notes, research notes, letters and correspondence.
- Any information you find on the internet should be recorded with the address in the notes section and an entry made in your log section that indicates why that reference is important.
- The journal is a hard copy record of your entire project that includes your thoughts about the project as well as ideas, plans and notes/research. For competition at the highest levels of the county and state science fairs your Journal is viewed as your project and the display just a way to communicate your journal. Make the journal the focal point of your project.

Procedure:

- Start by drawing what you plan on doing in your experiment. (this should be included in your journal)
- Look over your drawing and write a recipe to follow.
- Your recipe needs to be as detailed as possible. List the exact tool that you will use in the step.
- Procedure should only cover the experiment, not the analysis
- List how you will keep everything as CONSTANT as possible.
- List your variables.

Data:

- Start by looking through your journal at the data you have collected
- Put all of the data into data tables ... like the ones we have done in class
- To make life easier, put all data into EXCEL ... so graphing is simple
- Do not include units in your data table but have it above in the headings or titles
- Using your data, make graphs showing a visual of your data table
- Data includes BOTH tables and graphs

Results:

- Here is where you look over your graphs and data table to describe them
- List the high point (maximums), low points (minimums) and trends you see in your graphs and data
- Think of the results as two paragraphs explaining your data

Conclusion:

- Start by reminding the reader what your hypothesis was in a sentence or two
- Follow the reminder with some exact values from your results
- Explain how those values support or reject your hypothesis
- The conclusion is the heart of your knowledge ... what have you learned so you explain it
- Include reasons why you think the data came out the way it did - use your knowledge
- Include actual values from your results ... you gathered data USE THE DATA
- Stay away from statements that list generalities and use the actual numbers you collected
- 2 paragraphs with one paragraph tying together the hypothesis to the data with the second being the explanation as to why

Extension/Application/Further Research:

- Here is where you think towards the future, the next step
- When you LEARN, you create more questions then you answer ... so you should now have a few more ideas once you have "finished" your experiment
- Explain what you would like to answer/look at now ... knowing what you now know, what is that next step
- You can also explain what went right and where problems occurred in your project - a review of your experiment
- If money can be tied to your project ... here is where you include it - one item worked better but what is the difference in cost
- A great extension tries to connect the project to the world ... how can people, and what type of people, benefit from your newly gained knowledge - yes share with the world

** Be careful, you never sound NEGATIVE. List how to look at something new, not the experiment did not work. This is the last thing your judge will read so DO NOT make it negative - leave a good idea in their mind **

Science Fair Timeline

**** ALL assignments must be typed on a Google doc and posted in Google classroom to receive credit ****

August 29	<p>Science Fair Meeting: You MUST attend this informational Science Fair meeting.</p> <p>Exceptions: Lunch PE/jazz band students – you are responsible for getting the information from another student or Miss Little</p>
September 17	<p>Topic Approval – your topic must be APPROVED by Miss Kruser/Little. <u>Topic is not officially approved until you receive a signature on your project contract.</u></p> <p>** Journal: A <u>handwritten</u> record of all your work must be kept (neatly in an organized binder). This will have your notes from meetings, research, data tables, rough drafts, graphs, notes, bibliographical information and more. <u>Every time you work on your project, you will write a journal entry.</u> This will be displayed with your project board. This MUST be handwritten, not typed.</p>
October 5	<p>Introduction: Introduction should give a brief explanation of what your experiment is and how you chose it.</p> <p>Research: A review and a description of the current studies of your subject, at least 4 pages in length.</p> <p>Bibliography: You must have at least ten sources including on-line sources and a <u>professional contact</u>. The professional contact may be via e-mail. You must keep a list of the sources used for your research report. It includes the title, author and pages used, typed in standard MLA bibliographical format. All sources must be RELIABLE. (No google.com, about.com, yahoo.com, Wikipedia, etc.).</p>
October 19	<p>Materials: A list of all the materials or items you will use in the experiment. You do not need to include a pencil and paper but all of the equipment you use should be listed in this section of your journal.</p> <p>Experimental Procedure: A step-by-step explanation and description of how you will test your hypothesis. This is what you plan on following. Every detail needs to be listed with quantities (meaning how much of each material you are using). This should also be included in your journal. Do not worry if it changes after you start your experiment. Just make sure the procedure you post on your board is the final procedure you used. This should NOT be written in paragraph form, it should be listed.</p>
December 14	<p>Initial Data: Observations or measurements from the experiment (words, temperature, weight, time, etc.) will be shown by making 3 or more of the following: Table, Chart, Graph, and/or Diagrams.</p>
January 18	<p>Results Look over your data and graphs. Write a description of the data. In one or more paragraphs explain the data and what you discovered. Do not explain why any of the data happened or whether your conclusion was supported or refuted. Include AT LEAST 5 graphs and/or tables.</p> <p>Conclusion: Explain if your hypothesis was correct or incorrect. In your explanation, include what data supported or unsupported your data.</p>
February 1	<p>Application: What applications (how can people use this) does this project have in the world?</p> <p>- and/or -</p> <p>Extension: A review of your experiment. Describe what went wrong and what went right with the project. What could be done to improve the experiment? What would be the next step to continue the study?</p>
February 12	<p>Project Display Board with at least 10 Pictures: The display board shows all components of your project. Your board needs to be VERY neat and clean. Faces cannot be shown in pictures.</p>

** Approximately 10 projects will be selected to attend the Central California Regional Science Fair

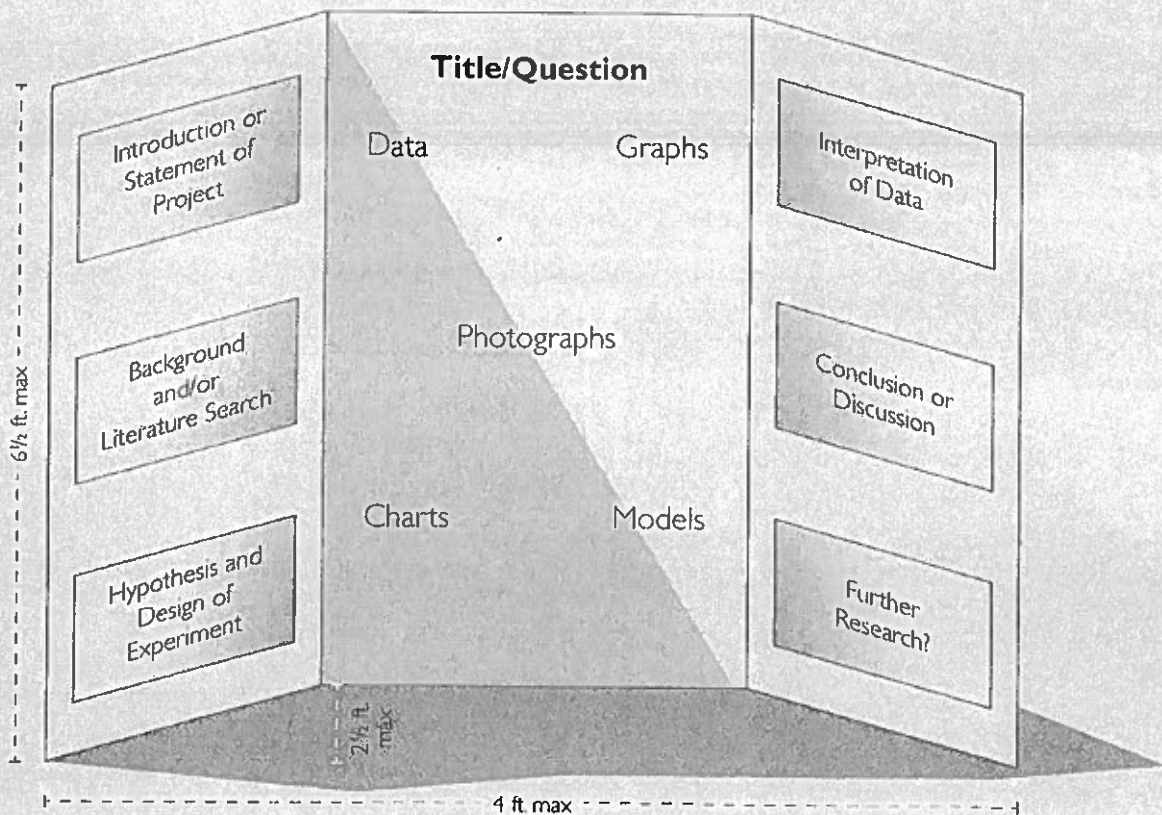
** This event takes place March 11th – 14th – all students should plan on attending the evening interview on March 13th and the evening awards ceremony March 14th – both take place at the Fresno Fairgrounds.

Size: Exhibit size cannot exceed 2 1/2 feet front to back, 4 feet side to side, or 9 feet floor to top. Tables are 2 1/2 feet high so table displays must be no more than 6 1/2 feet tall. Most students choose to display their projects on a table, but floor exhibits are allowed. Nothing may extend outside the rectangular box defined by these dimensions or entry may be disqualified.

Objectivity: The judges should not be able to identify you or your school. If your photograph, name or school are visible on your display or Project Notebook, they will have to be covered.

Exhibit Elements:

This is a suggested exhibit format only.



Store Recommendations:

- Large Black Display Boards: Allard's Art Supply.
- Printed on Titles: Fast Signs, or any printing store that has vinyl letters.
- Speciality Designs of Boards: FedEx Office Print and Ship, Office Max, Office Depot.
- Boards printed on vinyl: Fast Signs.

Students need to bring the best possible board to the County Fair.

For complete list of safety and display regulations, visit the FCOE Science Fair web site at:

www.sciencefair.fcoe.org

Science Fair Board Grading Rubric

Name:
Name:

Name:

- 1. Topic: _____/5
- 2. Title: _____/5
- 3. Hypothesis: _____/10
- 4. Research: _____/25
- 5. Bibliography: _____/10
- 6. Procedure: _____/25
- 7. Data/Graphs: _____/25
- 8. Photos/Diagrams: _____/20
- 9. Results: _____/20
- 10. Conclusion: _____/10
- 11. Extension/Application
/Discussion: _____/25

- 12. Creativity/Innovation of Topic: _____/25
- 13. Presentation of Board: _____/45

Overall Grade: _____/250

Comments:

Science Fair Board Grading Rubric

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- 2. Title: _____/5
- 3. Hypothesis: _____/10
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- 6. Procedure: _____/25
- 7. Data/Graphs: _____/25
- 8. Photos/Diagrams: _____/20
- 9. Results: _____/20
- 10. Conclusion: _____/10
- 11. Extension/Application
/Discussion: _____/25

- 12. Creativity/Innovation of Topic: _____/25
- 13. Presentation of Board: _____/45

Overall Grade: _____/250

Comments:

HOW TO WRITE A RESEARCH REPORT

The report of information provides background for your independent experiment or science fair project. The report **DOES NOT** answer your experimental question. For example, if your experimental question is “Does the color of light affect plant growth?” you are not writing to prove that colored light will affect plant growth. Instead you are explaining and describing plants and plant growth, then light, and finally color. You need to show the reader that you know something about your topic. Every sentence should be a fact therefore there should be NO personal pronouns (I, we, you, your, etc.).

*The information for the report must include facts from a minimum of at least three sources. Suggested sources: encyclopedia, reference books, non-fiction books, magazine articles, textbooks, CD-ROMs, and Websites.

Part I INTRODUCTION (Separate Page)

The goal of part one is to introduce the topic in a way that your readers will be interested and want to read more. Use an opening general statement to start the introduction. State your question/problem. Explain what the report is going to be about by explaining the questions you are going to answer. *There should be nothing telling me what you’re about to tell me about. It shouldn’t sound like a conversation, it should be professional and every sentence should be a factual statement.

THIS SHOULD BE 1 PARAGRAPH

Part II BODY

The body of the report is made up of facts about various aspects of the subject. The body contains the details about the topic. Going question by question, tell your readers the answers you discovered. Support your answers with facts, examples, statistics, and explanations. Summarize and paraphrase information. Do not copy from sources.

THIS SHOULD BE 5 OR MORE PARAGRAPHS and MINIMUM 4

Pages of Length, Double Spaced

Part III CONCLUSION (Separate Page)

Bring your report to a definite close. Restate your main point or topic. Add a summary or reflection about your topic.

How do you expect (A) to affect (B)?

THIS SHOULD BE 1 PARAGRAPH

CHOOSE 5 OR MORE QUESTIONS THAT YOU ARE GOING TO ANSWER IN YOUR REPORT

1. What is it?
2. What is it used for?
3. Where is it found?
4. When was it discovered?
5. What is its history or background?
6. What is interesting about it?
7. Who uses it?
8. How is it used?
9. Why is it important?
10. What are its parts or systems?
11. What type of things affect it?
12. How does it interact with other organisms or things?
13. How does it work?

FRAMEWORK FOR A REPORT OF INFORMATION

INTRODUCTION: 1 PARAGRAPH

Introduce topic in interesting way.

BODY: 5 OR MORE PARAGRAPHS

Questions answered in an order that makes sense. The answers are supported by facts, examples, statistics, and explanations.

- 1 Questions:
- Answer/details:
- 2 Question#2:
- Answer/details:
- 3 Question#3:
- Answer/details:
- 4 Question#4:
- Answer/details:
- 5 Question#5:
- Answer/details:

CONCLUSION: 1 PARAGRAPH

Restate the topic and main points. How do you expect (A) to affect (B)

MLA Works Cited Handout Reyburn Intermediate

A "Works Cited" or bibliography is the list of works (resources) that you used to research your paper or project. A Works Cited page is created for 2 reasons: 1) to give proper credit to your sources and 2) to allow your reader to locate your sources. Your major objectives when creating a citation are to be accurate and complete.

The sources on your "Works Cited" page must be listed alphabetically by the last name or first word of the entry. It is VERY IMPORTANT that you pay attention to the formatting and punctuation of each entry. Also, notice that **the second line (and each subsequent line) is indented five spaces.**

Common Print Resources

Book by One Author

Last Name, First Name. *Title*. Place of publication: Publisher, Copyright Date. Print.

Example:

Jameson, George P. *Ellis Island*. New York: Icon Press, 2006. Print.

Book by Two Authors

Last Name, First Name and First Name Last Name. *Title*. Place of publication: Publisher, Copyright Date. Print.

Example:

Smith, Henry G. and Betty Harmon. *Freedom Rides*. Chicago: Broad
Shoulder Press, 2006. Print.

Encyclopedia (NOTE: The author is usually listed at the end of the article. If an author is not listed, begin the entry with the title of the article.)

Last Name, First Name. "Title of Article." *Name of Encyclopedia*. Edition Year. Print.

Example:

Franz, Charlene. "Goat." *World Book*. 2006 ed. Print.

Newspaper Article

Last Name, First Name. "Title of Article." *Newspaper Name* Date: page(s). Print.

Example:

Blake, Terry. "Attack in Bagdad: Two Marines Dead." *The Plain Dealer* 20 July 2006:
A1. Print.

Magazine Article

Last Name, First Name. "Title of Article." *Title of Magazine* Date: page numbers. Print.

Example:

Thomasson, Ronald. "Salt Mines of Lake Erie." *Cleveland Magazine* 15 May
2004: 23-25. Print.

Common Non-Print Resources (Electronic/Computer)

Online Database

Author. "Title of Article." Title of Periodical Date: Page(s). Name of Database. Web.
Date of Access

Example:

Farley, Christopher John, and James Willwerth. "Happy Teen Walking." *Time* 19 Jan. 1998: 50.
Gale Group Databases. Web. 8 May 2012.

Online Encyclopedia

"Title of Article." *Name of Encyclopedia*. Year. Name of online source. Web. Date of Access.

Example:

"Whale Oil." *Encyclopedia Britannica*. 2006. *Encyclopedia Britannica Online*. Web.
23 August 2012.

* If you use *Encyclopedia Britannica*, the entry for each article can be found at the bottom of the webpage. If you don't see it, ask for help locating it.

Internet Website

(Note: it is sometimes very difficult to find all of the information you need to make a proper citation for a website. Try to find as much information as possible.)

Author (if given). "Title of Web Page." *Title of Website*. Date last updated. Name of
Organization that sponsors the site. Web. Date accessed.

Example:

Walker, Gary. "The Effects of Radiation." *Hiroshima Atom Bomb*. 15 Mar. 2000.
Los Alamos Research Facility. Web. 14 Oct. 2012.

Video

Director's Last Name, First Name. *Title of Film*. Production Company Name.
Copyright Year. DVD. (or Film, Television, VHS, Web)

Example:

Kent, Williams. *Finding Harmony*. 2003. Environmental Lecture Productions. 2003. DVD.

Image

Creators Last Name, First Name. "Title of Image." Type of image (photo, graphic, etc.).
Website Title. Web. Access Date.

Example:

Brown, Liz. "Galaxies." Photograph. *Amazing Space*. Web. 13 May 2011.

Many websites will build a Work Cited page for you, create your entries, or show you many examples of different kinds of entries. You can also use the following resources to help you:

EasyBib Free Bibliography Maker (www.easybib.com)

Son of Citation Machine (www.citationmachine.net)

Purdue Online Writing Lab (owl.english.purdue.edu/owl)