

# **CENTRAL CALIFORNIA**

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## **REGIONAL**

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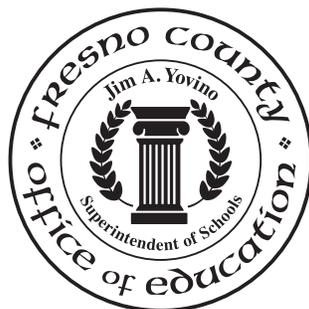
### **SCIENCE, MATHEMATICS AND ENGINEERING FAIR**

March 14 - 17, 2016

**JUNIOR DIVISION**  
**6-8 GRADE**

**[WWW.SMEFAIR.ORG](http://WWW.SMEFAIR.ORG)**

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## TABLE OF CONTENTS

I

General Rules and Guidelines.....	2 & 3
California State Science Fair .....	3
Category Descriptions .....	4
Restricted Projects .....	5
Judging Procedures.....	6
Scoring Sheet.....	7
Regional Fair Exhibit .....	8
Coaches Certification Statement.....	9
Important Dates and Deadlines.....	Back Page

The Science Fair will be held at  
**Fresno Fairgrounds - Commerce Building**

### **Contacting the Science Fair Director**

Jennifer Weibert

Fresno County Office of Education, 1111 Van Ness, Fresno, CA 93721

(559) 265-3057 • FAX (559) 265-3007 • [jweibert@fcoe.org](mailto:jweibert@fcoe.org)

### **Payment made with School Checks is to be sent to:**

**Regional Science Fair, Fresno County Office of Education, 1111 Van Ness, Fresno, CA 93721**

Certification Forms can be faxed to: (559) 265-3007 or emailed to Phouvanh Chaimontree: [pchaimontree@fcoe.org](mailto:pchaimontree@fcoe.org)

Entry forms may be submitted online at any time on or before the deadline.

**Late, incomplete or illegible forms or entries will be rejected and returned with no refund of the entry fee.**

### Ethics Statement

Scientific fraud and misconduct are not condoned at any level of research or competition. Such practices include plagiarism, forgery, use or presentation of other researcher's work as one's own and fabrication of data. Fraudulent projects will fail to qualify for competition.

### Eligibility

- Each student may enter only one project which covers research done over a maximum of 12 continuous months between May 2015 and May 2016.
- Projects that are demonstrations, 'library' research or informational projects, 'explanation' models or kit building are not appropriate.
- Projects that are top winners from local school fair.
- All students must be in good standing at their school and have permission from their coach to participate.

### General Requirements

1. Projects must adhere to the Ethics Statement above.
2. Projects must adhere to local, state, country and U.S. Federal laws, regulations and permitting conditions.
3. The use of non-animal research methods and the use of alternatives to animal research are strongly encouraged and must be explored before conducting a vertebrate animal project.
4. Introduction or disposal of non-native species, pathogens, toxic chemicals or foreign substances into the environment is prohibited.
5. Projects must adhere to the display and safety requirements found on page 7.
6. It is the responsibility of the student and coach to check with the fair director for any additional restrictions or requirements.
7. **All restricted projects must have proper documentation before experimentation.**

### Approval and Documentation

1. **BEFORE EXPERIMENTATION BEGINS**, an Institutional Review Board (IRB) or Scientific Review Committee (SRC) must review and approve projects involving human subjects, vertebrate animals, and potentially hazardous biological agents. These type of projects are "**restricted**" and must be turned in on or before the given deadline of November 6, 2015.
2. All non-restricted projects are due on or before December 11, 2015.
3. A project data book will be judged.

### Team Projects

#### Please note the following for Team Projects:

- Team projects may have a maximum of three members. Teams may not have more than three members at a local fair and then eliminate members at regional, state or international competition.
- Team Projects involve two or three students and are judged in the category entered in.
- **Each team member must pay a \$25.00 entry fee.**
- Team projects will submit one registration per project online. Each student will be listed under the project.

### Registration Requirements

#### All Junior Division students need to complete the following:

1. Register online at [www.smefair.org](http://www.smefair.org).
2. Fill in all required fields.
3. Forms (for Restricted Projects only) must be uploaded online.
4. Pay the \$15 fee to the Fresno County Office of Education with school checks by February 3, 2016.
5. Registration due dates: Restricted - November 6, 2015, Non-Restricted - December 11, 2015

### Coaching During the Week of The Science Fair:

- Bring projects for set-up on Monday (projects are judged on Monday night).
- Receive an email by 2 p.m. on Tuesday to notify students if an interview is requested on Wednesday between 6-8pm.
- Inform students of interview times and proper dress or explain the removal of non-award winning projects.
- All students who interview on Wednesday are invited to the Awards Ceremony.
- Attend Awards Ceremony on Thursday with students.
- Register students for the California State Science Fair if needed.

### The Following Awards are Handed Out for The Junior Division:

Each of the 13 categories may receive a 1st - 4th place medal. There is not a guarantee of having a 1st place in every category due to the quantity and quality of the projects.

Each grade has a sweepstakes winner and a runner-up winner that receive a trophy.

Over \$10,000 in special awards is given out by sponsors.

## Advancing to the State Science Fair Grades 6-8

The California State Science Fair (CSSF) will be held in the California Science Center, Los Angeles, CA and is scheduled for May 2016. It is operated under the auspices of the California Science Center and is organized by the Advisory Board of the California Museum Foundation. It is not affiliated with the International Science and Engineering Fair. More information on CSSF is available on the Internet at <http://www.usc.edu/CSSF/> or by searching on "California State Science Fair."

All students in a CSSF Division compete without regard to grade level: grades 6-8 compete in the Junior Division. CSSF assigns a quota of projects to each Regional Fair based on the current population of the area served and a five year average of the number of projects entered and the percentage of projects receiving awards. After interviewing the Junior Division students Wednesday evening the judges at the County Fair will select the projects to advance to CSSF. The CSSF selection process does not affect the awarding of prizes for the County Fair. Entrants are responsible for their own transportation, accommodations and meals. The Central California Regional Science, Mathematics & Engineering Fair accepts no responsibility for those who advance to the California State Science Fair.

**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 6, 2015.  
If you are uncertain if your project is restricted please email  
the science fair director for further clarification.**

## MONDAY NIGHT: SCORING NIGHT

Judges work in groups of 2 or more in an assigned category to judge 8 or more projects. Judges fill out a scoring sheet that was developed and approved by the advisory committee and is reviewed each year. No score is given on the sheet-constructive comments are written and the group of judges decide which projects will be coming back for an interview on Wednesday night. There is no limit on the number of projects that can be called back for an interview. All projects called back for an interview will be awarded a place 1-4th.

## WEDNESDAY NIGHT: INTERVIEW NIGHT

Judges return to interview the selected projects. Additional notes are made on the scoring sheet to help the students learn from the experience. As a group the judges decide which project will take 1st, 2nd and so on. More than one project can place 1st, 2nd, etc. All first place projects receive a bid for state. Judges decide if other projects placing below 1st are rigorous enough to receive a bid for state. All first place projects get reviewed by the fair director and a small group of judges to determine which projects will be sweepstakes and runner up for each of the 3 grade levels.

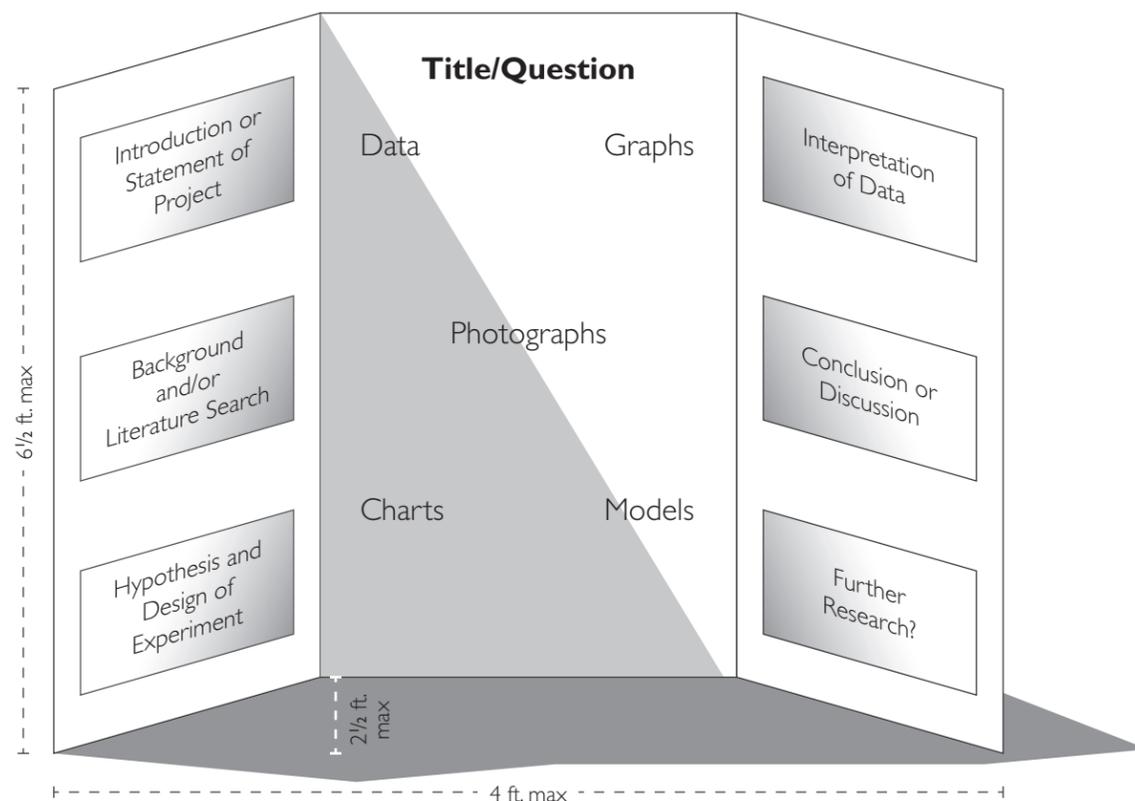
 <b>Central California Regional Science, Mathematics &amp; Engineering Fair</b> <b>Junior Division-Scoring Sheet 2015-2016</b>	
Category: _____ Exhibit # _____ Interview Requested _____	
Project Elements	Description of Criteria
<b>Scientific Process</b>	
<b>Title</b>	Title or Question of project scientifically written.
<b>Question &amp; Hypothesis</b>	Question: Asks a specific, measurable cause and effect question or clear purpose of project. Hypothesis: Expresses a reasonable prediction about how specific changes affect the expected outcome.
<b>Background Research</b>	Explains the history and significance of the project. Tells how this topic has been studied before. Bibliography: includes a minimum of 3 sources.
<b>Procedure</b>	Describes step-by-step process of experiment. Independent/dependent/control variables are discussed. Variables are clearly defined. Includes the when, where and how of the experiment. Experiment should be able to be repeated.
<b>Data</b>	-Graphs/photos/illustrations are used to show experiment. -All data is clearly labeled. -Graphs contain a title, x and y axis labeled and intervals are equal.
<b>Conclusion/ Reflection</b>	Reflects what the student has learned. Explains what would be done differently. Includes a statement answering problem and hypothesis. Includes data to support the conclusion.
<b>Comments:</b>	
<b>Logbook</b>	
<b>Dated Entries</b>	Clearly written dates over a long period of time.
<b>Observations</b>	Contains detailed thoughts, observations, revisions, and actions made during the entire process of project completion, handwritten is preferred.
<b>Comments:</b>	
<b>Overall Creativity/Innovation</b>	
<b>Creativity/ Innovation</b>	Demonstrates a clear understanding of the subject matter. Innovative/creative way of approaching the project.
<b>Comments:</b>	
<b>Interview</b>	
Clearly understands the project.	
Working background knowledge of the science behind the project.	
Professionally dressed.	
Capable of communicating the project.	

**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.smefair.org](http://www.smefair.org)

## Certification Statement

### Central California Regional Science, Mathematics and Engineering Fair 2015-2016

I certify that

- All projects submitted under my username have followed the ethics statement listed on the Regional Science Fair Website.
- All projects submitted under my username have been performed under my supervision
- All projects submitted under my username have followed the safety guidelines listed on the Regional Science Fair Website.

I have obtained parent and student signatures for each project submitted under my username. I understand that all student registrations (\$25.00 per student) must be paid for by a school check by February 3, 2016.

Name of Science Fair Coach: \_\_\_\_\_

Name of School Site: \_\_\_\_\_

Coach's School Email: \_\_\_\_\_

Signature of Science Fair Coach: \_\_\_\_\_

Signature of School Principal: \_\_\_\_\_

Date: \_\_\_\_\_

The certification statement must be turned in by December 11, 2015.

## IMPORTANT 2014 & 2015 DATES & DEADLINES

<b>Before the Science Fair</b>	
<b>May 1 - November 6, 2015</b>	Register Restricted projects online at <a href="http://www.smefair.org">www.smefair.org</a>
<b>May 1 - December 11, 2015</b>	Register Non-Restricted projects online at <a href="http://www.smefair.org">www.smefair.org</a>
<b>November 6, 2015</b>	All Restricted projects due online
<b>December 11, 2015</b>	All Non Restricted Projects Due Online
<b>February 3, 2015</b>	Last day to turn in \$25 fee per student. Only school checks are permitted.
<b>During the Science Fair</b>	
<b>Monday - March 14, 2016</b>	<b>Project set-up 9am-3pm</b> Fresno Fairgrounds Commerce Building Projects may be delivered and set-up by a parent, teacher, or the entrant.
<b>Tuesday - March 15, 2016</b>	<b>Public Viewing of Projects 10am-7pm</b> <b>Schools Welcome for Fieldtrips.</b>
<b>Wednesday - March 16, 2016</b>	<b>Public Viewing of Projects 10am-3pm</b> <b>Student Interviews by Invitation 6pm-8pm</b> <b>Removal of Non Interviewed Projects 10am-6pm</b> Projects not receiving an interview must be removed by 1pm on Thursday
<b>Thursday - March 17, 2016</b>	<b>Removal of Non Interviewed Projects 10am-1pm</b> Projects not receiving an interview must be removed by 1pm on Thursday <b>Public Viewing of Award Winning Projects 6-7pm</b> <b>Awards Ceremony 7pm</b> Fresno Fairgrounds - Industry Commerce Building <b>Removal of Award Winning Projects</b> Immediately following the Awards Ceremony

Register Online at:

**[www.smefair.org](http://www.smefair.org)**