



**Contra Costa County  
Science & Engineering Fair**  
March 8, 2024

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## **SPECIAL AWARDS JUDGES | MARCH 8, 2024**

### **Information Packet**

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#### ***Suggested Agenda for Special Awards Judges***

Los Medanos College | 2700 East Leland Road | Pittsburg – Science Building & Gymnasium

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9 a.m. – Noon	Review of Selected Project Boards
12:00 – 12:30 p.m.	Lunch
12:30 – 2:30 p.m.	Student Interviews
2:30 – 4:00 p.m.	Complete Special Awards Designation Forms
4:00 p.m.	Submit Special Awards to April Treece, <a href="mailto:apriltreece@ba-leeds.org">apriltreece@ba-leeds.org</a>

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#### **Special Awards Judge Packet Contents**

- **Judge Day Agenda—Regular Judges**
- **Special Awards Packet--Business**
- **Special Award Designation Form**
- **Judging Rubric—Project/Interview—Regular Judges**



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## **Judge Schedule | March 8, 2024**

7:00-8:30 a.m.	Judge Training
8:30-11:30 a.m.	Project Board Judging
11:30 a.m.-Noon	Lunch   Judge Team review of category project scores and discussion
Noon – 2:30 p.m.	Student Interviews
2:30-4:00 p.m.	Concluding   Judge Team review of category scores and discussion



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## Special Awards

The Contra Costa County Science & Engineering Fair (CCCSEF) is designed to support the use of hands-on science & engineering projects in middle and high school classrooms throughout the county. CCCSEF honors outstanding student projects both in junior division (grades 7 & 8) and senior division (grades 9, 10, 11 & 12).

Students are judged in both junior and senior division in each of six categories including 1) math & computer sciences, 2) biological—includes biochemistry, microbiology, zoology, medicine & health, 3) physical—includes chemistry, earth & space, physics, astronomy, 4) behavioral/social sciences—includes gerontology, 5) environmental sciences, and 6) engineering.

Student participants are seventh through twelfth graders who earn the right to compete in the CCCSEF by submitting a formal application and having it reviewed and approved by the Scientific Review Committee/Institutional Review Board of the Contra Costa County Science & Engineering Fair. More than 120 volunteers from Contra Costa industry will judge the projects using pre-selected criteria which includes creative ability, science thought & engineering goals, thoroughness, skill, clarity and demonstration of knowledge.

Students compete in either junior or senior division by category for the following CCCSEF-conferred awards:

First Place	Blue Ribbon (no more than one given in each of six categories)
Second Place	Red Ribbon (unlimited number given)
Third Place	Green Ribbon (unlimited number given)
Fourth Place	Yellow Ribbon (unlimited number given)

Special awards may also be presented by a business, professional and/or educational organization. Special awards may include but are not limited to monetary grants, scholarships, subscriptions, summer internships, books, tours of facilities, equipment grants and scientific field trips, etc.

There are two ways in which an individual organization can confer a Special Award at the Contra Costa County Science & Engineering Fair for student science fair projects:

1. Identify an award in your organization's name to be added to the CCCSEF-conferred award winners based upon the formal CCCSEF judging process. This would mean that, in addition to CCCSEF announcing the student winner by division/by category/by place, the CCCSEF would also announce your organizational award for "best in category." This means that you agree to rely on the CCCSEF judging process to determine the recipient of the Special Award in your name.
2. Identify an award in your organization's name and provide your own criteria and judges to determine the award recipient from your organization.

The CCCSEF judging process will be held on Friday, March 8 from 7:00 a.m. through 3:30 p.m. Students will be available for interviews from noon to 2:30 p.m. You may make arrangements with CCCSEF to have your judging team review all science fair projects of interest to you. Please complete the form which follows and submit it to CCCSEF at [apriltreece@ba-leeds.org](mailto:apriltreece@ba-leeds.org) or by contacting April Treece, 925-672-3759.

## Examples of Special Awards

ADA Foundation For the best exhibit with application to dental research. Award of \$1,000.

Agilent Technologies Paid summer internship at an Agilent Technologies site. Each internship not to exceed eight weeks.

Albany College of Pharmacy of Union University The Albany College of Pharmacy-Biomedical Sciences Excellence Award is presented to selected individual(s) demonstrating outstanding achievement in the area of biomedical sciences. Scholarship Award of \$5,000 per year for four years.

American Geological Institute AGI is pleased to recognize three projects that best reflect the study of Earth and the mission of AGI. Founded in 1948, AGI strives to increase public awareness of the vital role of the geosciences to mankind and society.

American Meteorological Society For the best exhibits in the area of Atmospheric, Oceanic and Hydrologic Sciences.  
First Award of \$1,000 | Second Award of \$500 | Third Award of \$250 | Honorable Mention Award

American Physiological Society For the best projects in the physiological sciences, which include cellular physiology, animal physiology and neurophysiology.

American Society for Microbiology For the most outstanding project in the Microbiological Sciences, a \$1,000 scholarship award; a one year student membership in the Society (including monthly membership magazine "ASM News" and access to Members-Only web resources); and the book "Intimate Strangers" inscribed personally from the President of ASM.

Bureau of Reclamation/U.S. Department of the Interior For exhibits related to water resources development and management, including hydroelectric and electric power generation, engineering design, construction materials, irrigation, water management and conservation, water quality, fisheries and aquatic ecology and wetlands.  
First Award of \$500 and a matching \$500 award to the winner's school. Second Award of \$300 and a matching \$300 award to the winner's school. Third Award of \$200 and a matching \$200 award to the winner's school. Honorable Mention Award

Coalition for Plasma Science (CPS) These awards will be given to the two best projects in the broad area of plasmas. Topics include (but are not limited to) plasma-related topics in lighting, display, materials processing, space physics, terrestrial phenomena (lighting, aurora, etc.), fusion, and basic plasma science. Criteria include overall scientific merit, understanding of problem, and approach to the topic.

Geological Society of America The Society will award prizes for science and engineering projects investigating the earth and related sciences. The winners and their schools will receive a free subscription to "GSA Today", the GSA monthly newsletter. Projects will be judged on their demonstration of a high level of understanding of earth science concept(s), how the earth is a system, and use the innovative methods to explain concepts.

Ricoh The Sustainable Development Award will go to the entries, selected from among all award categories, whose principles and technical innovations offer the greatest potential for increasing our ability to grow environmentally-friendly and socially responsible businesses. The award combines a hosted trip to the 2005 World Exposition in Aichi, Japan and \$50,000 in scholarship awards to be shared by two finalists or a team. Honorable Mention Award of \$5,000.

Showboard, Inc. For the best use of scientific method on a project display board taking into account structure, scientific method, titles and overall appearance of project display First Award of \$1,000 | Second Award of \$100 | Third Award of \$50.



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## Special Award Designation

Your Name AND Title:

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Your Affiliation:

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Title(s) of Award(s):

Amount of Award: \$ \_\_\_\_\_

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Project Number: \_\_\_\_\_

Title of Recipient's Project: *(do not complete until March 8 at the end of the day)*

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Name of Award Recipient(s): *(do not complete until March 8 at the end of the day)*

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Criteria for Award:

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Will **YOU** be presenting your award at the Saturday Awards Ceremony on March 9 at Los Medanos College?

Yes     No

If you answered "YES" above, list the name and title of the person who will present your award:

Name: \_\_\_\_\_ Title: \_\_\_\_\_

If you would like a representative from CCCSEF to present your award, check here:

**Please give this form to April Treece no later than 5:00 on March 8<sup>th</sup>.**

**Please speak to April Treece before your Special Awards leader leaves the Science Fair to be sure all information on your special awards can be incorporated into the evening's culminating judging process. Awards will be conferred at in-person ceremonies on Saturday, March 9, 9:00 – 10:30 a.m. We will also be posting all awards on the Science Fair website and will indicate "special awards recipient" on all projects that receive this special designation.**

For more information, contact April Treece at [apriltreece@ba-leeds.org](mailto:apriltreece@ba-leeds.org) or by phone: (925) 672-3759.

## Grading Rubric 1-10 Point

These standards are meant to guide you in providing a 1-10 score in ALL criteria.

10	Among the best you have seen; or, you cannot find any portion of this characteristic to improve.
9	While you may have suggestions for improvement it may be debatable as to whether they are necessary.
8	Basically correct in almost all respects, remaining errors or deficiencies can be corrected with a short, hand-written note.
7	Basically correct, although at least one component is limited in some respect that might change the results if corrected and redone.
6	Basically correct although some major component is partially missing or done incorrectly; could be fixed but would take time to explain.
5	The experiment or project could be said to have been completed but some significant component is weak and makes the results untrustworthy.
4	Some portion of the experiment is done correctly and completely, but the experiment or design simply does not work due to a fundamental flaw. Requires teaching a concept the student clearly does not understand.
3	At least one component of the experiment is done with minimal competence, but the experiment or design will not work without major revision. Requires teaching a concept the student clearly does not understand
2	An on-topic attempt is made, but no component is completely satisfied.
1	An attempt is made, but is missing major components, and those that are present are incomplete or off-topic; no significant portion of the project is completed satisfactorily.
0	Not present, does not address topic.

## Poster Board: 100 Possible Points

### Creative Ability: 10 Points

- Topic selection shows originality or seeks unique solution to a real world problem
- Procedure or experimental design or engineering goal seeks to answer original problem in a creative way

### Citations/Background Research: 10 points

- Student conducted background research which was used throughout project

### Experimental Design (NON-ENGINEERING PROJECTS): 30 Points

- Testable Hypothesis
- Experimental design is appropriate to address hypothesis
- Only independent variable changes
- Variables that can affect the outcome are controlled
- Dependent variable is measured
- Appropriate use of control (normal condition) for each trial
- Statistically significant sample size

### OR

### Engineering (STRUCTURES PROJECTS ONLY): 40 Points

- A need or purpose is clearly stated
- Goals are practical and able to be utilized
- Design criteria are set (materials and design)
- Preliminary drawings are developed based on background research
- Iteration – Prototype is redesigned and retested based on unexpected results

### Data Analysis: 20 Points

- Data is summarized and displayed in a manner appropriate with the data set
- Important trends are clearly represented with a graph
- There is an adequate amount of data to support conclusions
- Conclusion is reasonable and based on student data

### Skill: 20 Points

- Appropriate scientific tools used to measure and correctly used
- Attention was given to detail
- Math skills were appropriately and correctly applied throughout the project

### Clarity: 20 Points

- Exhibit is clearly understandable and attractive to the observer
- Labels and descriptions on poster are presented neatly, yet briefly
- Flow of information is logical (top to bottom, left panel to middle to right panel)
- Appropriate photographs, drawings and models are provided

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9	While you may have suggestions for improvement it may be debatable as to whether they are necessary.
8	Basically correct in almost all respects, remaining errors or deficiencies can be corrected with a short, hand-written note.
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2	An on-topic attempt is made, but no component is completely satisfied.
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## Interview: 150 Possible Points

### Creative Ability: 30 Points

- Why did you choose this topic?
- Where did you get the idea for your project?
- Who helped you the most?
- What did you enjoy most about your project?
- Of what value is your project to society?

### Citations/Background Research Understanding: 20 points

- How did your research influence the selection of your topic?
- How did you apply the research to your experiment?
- How did the research create changes as your experiment progressed (if at all)?
- What were you surprised to learn from your experiment?
- How does student understand background research/studies?

### Scientific Thought: 40 Points

Say to student, "Tell me about your experiment." Allow the student to do most of the talking but encourage them to cover the following:

- Purpose/objective/question
- Experimental design including sample selection and use of controls
- Method of measurement
- Results and conclusions

OR

### Engineering Goals: 40 Points

Say to student, "Tell me about your experiment." Allow the student to do most of the talking but encourage them to cover the following:

- Purpose/objective/question
- Relevance to user's needs
- Design criteria or equivalent
- Iteration

### Thoroughness: 30 Points

- What problems arose during your investigation? How did you overcome them?
- Did you have unexpected results while gathering your data?
- What do you think caused these abnormalities?
- Did you make changes to subsequent trials when unexpected results occurred?
- What were the sources of error in your experiment?
- Which were avoidable and which were unavoidable?
- Based on your results, what kind of follow-up experiments would you suggest?

### Effort and Clarity: 30 Points

- Student appears to have invested a significant amount of time and effort
- Student can clearly articulate all aspects of the project during the interview
- Student is enthusiastic about their project
- Student is appropriately challenged by their topic
- Student acknowledges any assistance received
- Student clearly owns all aspects of the project, even though help was received