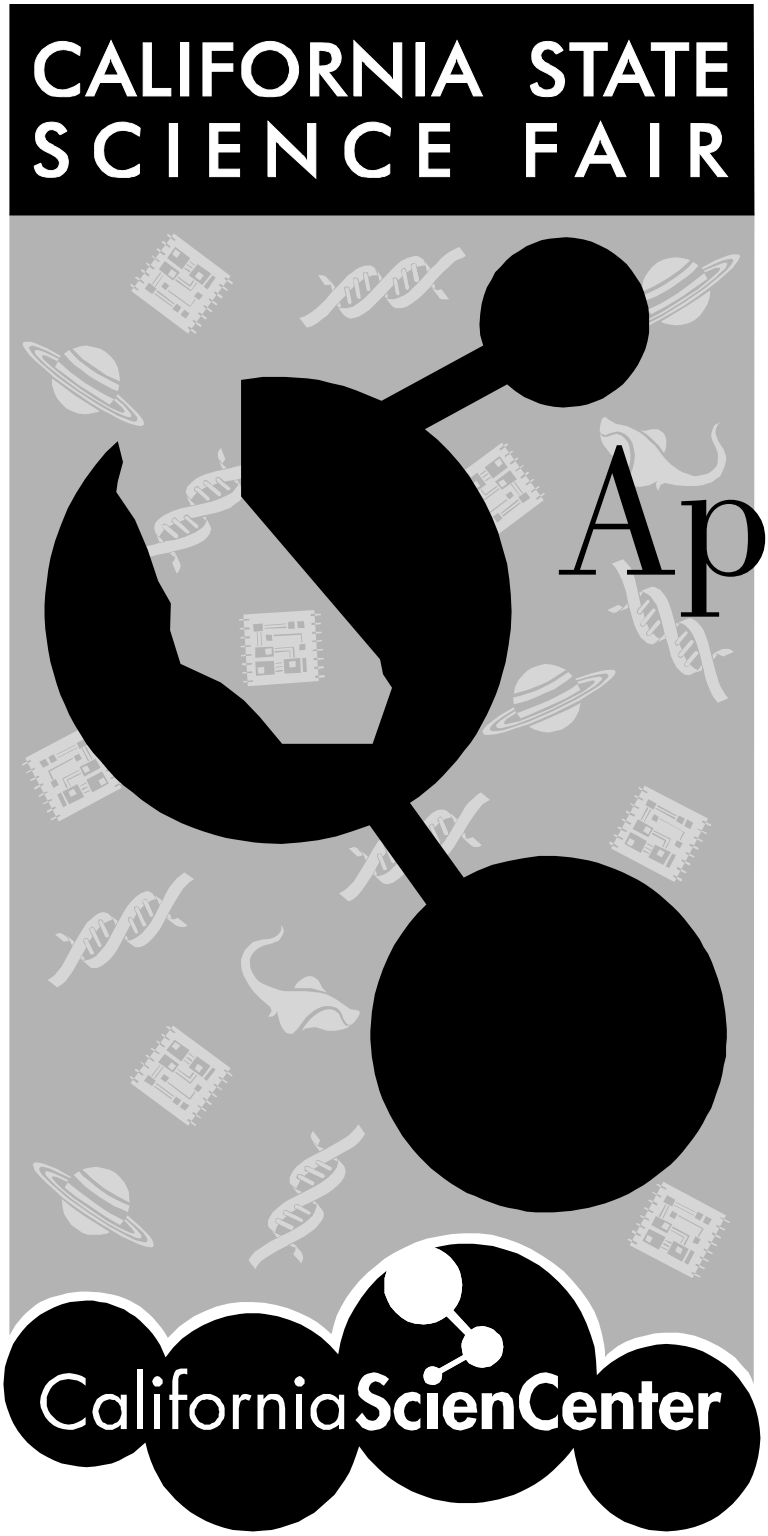


Student Application Packet

2014

Thursday, March 13, 2014, 10:52:52

March 1, 2014

Dear Science Fair Student,

You are cordially invited to attend the 63rd Annual California State Science Fair presented by the California Science Center. The fair will be held on Monday and Tuesday, April 28-29, 2014. All project displays and ceremonies will be at the California Science Center located in Exposition Park, just south of downtown Los Angeles.

Each year the top projects from students in grades 6-12 throughout the state are presented at the State of California's official science fair. More than 500 volunteer judges and staff will be working to ensure this event will rank as one of the exceptional experiences in your life. Over $50,000 in prizes and scholarships will be presented. The California State Science Fair is affiliated with the Broadcom MASTERS national STEM competition for middle school students.

Please review the enclosed Application Packet completely. You will find detailed information about the fair along with an application checklist. You must complete the electronic application by your deadline date (see page 10). The application must be completed on-line from the California State Science Fair website (www.usc.edu/CSSF).

We are very proud of you and join your family, teachers, mentors and friends in celebrating your accomplishments.

Sincerely,

Hal Snyder
Co-Chair
2014 California State Science Fair

Liz Snyder
Co-Chair
2014 California State Science Fair

700 Exposition Park Drive
Los Angeles, California
90037

www.californiasciencecenter.org
/CSSF

2014 DATES AND DEADLINES

Depends upon your Fair	**Your Application Deadline** See page 10. California State Science Fair Application Necessary certifications must be mailed along with Application Fee.
April 10 Thursday	Deadline for Teacher of the Year Nominations This is a **receipt** deadline, not a postmark deadline.
April 17 Thursday	Deadline for Student of the Year Applications This is a **receipt** deadline, not a postmark deadline.
April 22 Tuesday	Last day to request change of category assignment.

April 28 Monday	Registration and Project Setup	10:00 a.m. - 3:30 p.m.
	Public Viewing All students are requested to be present at displays	3:00 p.m.- 4:30 p.m.
	Opening Ceremony and Keynote Address	5:00 pm - 6:00 p.m.
April 29 Tuesday	Student Orientation	8:00 am
	California State Science Fair Judging	8:30 a.m. - 12:30 p.m.
	Removal of Projects	1:30 p.m. - 3:30 p.m.
	Awards Ceremonies	4:00 p.m. - 6:30 p.m.

Project Set Up and Removal

Set Up: All projects must be delivered and set up between 10:00 a.m. and 4:00 p.m. on Monday, April 28. **Early arrivals will not be accepted.** Projects must arrive at Registration by 3:30 p.m., although the display area will remain open to complete project set-up following registration until 4:00 p.m. Science Center staff and security will not admit projects outside of this scheduled set up time. Projects may be delivered and set up by a parent, teacher, or other designated person if the entrant is unable to do so personally.

Removal: Projects must be removed on Tuesday, April 29, between 1:30 and 3:30 pm. No projects may be removed before this time. If you are traveling by air, please make your reservations accordingly. If you must leave before the project may be removed, arrange for others in your group to collect your project. The Science Center will not store projects. Projects remaining on the display floor after the removal period will be discarded.

TABLE OF CONTENTS

Communicating with the Fair

World Wide Web Home Page **www.californiasciencecenter.org/CSSF/**

The California State Science Fair maintains the oldest and most complete science fair site on the World Wide Web including your on-line application, current information on the status of your application to the Fair, and the complete project summaries of all projects in the Fair. Reference information here includes rules and regulations, applications, and results from previous State Science Fairs. There are also resources here to assist you in preparing your science fair project.

Electronic Mail to the Fair **e-mail: CalifSF@usc.edu**

Questions from students on all aspects of the Fair may be sent to this address 24 hours a day. Please first check the Web site above because most questions will already be answered there authoritatively. A response will be sent via e-mail, usually within one business day.

Some Frequently Asked Questions and Where to Find Answers:

What category should I choose?	Page 4 and e-mail contact
When do I have to send the Application?	Page 10
How close is my fair to filling its allocation?	Web site
Do I need to include the certification form?	E-Mail contact
Do I have to do the Monday set-up myself?	Page ii
What should I wear?	Page 29
What will happen during the judging?	Page 26
Can my advisor be a judge?	E-Mail Contact
Has my application been received? Has my application been accepted?	Web site

CALIFORNIA STATE SCIENCE FAIR
2014 ELIGIBILITY RULES

1. Affiliated Fair. Qualification to the California State Science Fair is through an affiliated county or regional science fair, and is by being specifically identified as a qualified (or an alternate) project from the affiliated fair. (See *Affiliated Fairs Note* below.) Each student must qualify through the affiliated fair responsible for the geographical domain including the student's school. Exception requests, including students whose schools are not accepted by any current affiliate, must be emailed to `CalifSF@usc.edu`. Projects by California students which have placed in the top forty in the Intel Science Talent Search also qualify for entry; such projects are not counted against the allocation of any affiliate.

2. California Student. Each applicant must be a student in an educational institution recognized by the State of California and enrolled in grades 6-12 at the time of qualification. Students in grades 6-8 participate in the Junior Division, while students in grades 9-12 participate in the Senior Division.

3. Single Entry. Each student may enter only one project in the Fair. Each project may have one to three authors. Team projects will be placed in competition with individual projects in the same categories, though judging panels will have a higher level of expectation for team projects commensurate with the number of students on the team. All work must be done by the student(s) named as author(s). Projects entered into the Fair under an individual's name but discovered by the judging panel to have been prepared by a team of more than one student will be disqualified.

4. Category Assignment. The Directors of Judging will determine, upon review of submitted Project Summaries, the correct category for each project. The California State Science Fair reserves the right to disqualify any project due to poor quality, incompleteness, or inappropriateness of project content.

5. New Research. Any project reentered from a past State Science Fair must show *substantial* new research and development to be eligible for an award. Final determination will be made by the category judges.

6. Supervision Students not accompanied by their own parent(s) *must* be under authorized supervision by an adult escort, teacher, or administrator. Each student must have appropriate signed permission form(s) as required by his/her own school district. The California State Science Fair is not responsible for the supervision of any participant.

All Eligible Projects Will Not Necessarily Be Accepted
Each affiliated fair has been allocated a maximum number of projects which it may qualify to CSSF. Affiliates may also identify a small number of alternates for consideration if students of some of its qualified projects elect not to complete an application. Every project should be informed by the affiliate whether they are qualified or an alternate. **IMPORTANT:** Qualified projects are guaranteed priority over alternates *only* if completed by the relevant deadlines (see pg. 10). Any application completed later will not be considered if projects completed earlier (qualified or alternate) have filled the affiliate's allocation. All projects are also subject to the quality review described on pg. 2.

Affiliated Fairs Note:
Affiliated fairs will normally *not* be able to designate all First, Second, and Third place award winners as eligible for the California State Science Fair owing to the allocation limit described in the previous paragraph. Each affiliated fair must provide to CSSF the list of students and projects from their fair which have been selected as eligible for the California State Science Fair. At the affiliate's discretion, a prioritized list of approved alternates may also be provided.

CALIFORNIA STATE SCIENCE FAIR
2014 APPLICATION ACCEPTANCE CRITERIA

Submission of an Application to the California State Science Fair does not guarantee acceptance to the Fair. The Fair has always rejected applications on the basis of inappropriate content and for violations of Fair regulations. Projects which are substandard (poor quality) or incomplete will also be rejected. The basis for this judgement of quality is exclusively the information provided within the project's on-line application. The California State Science Fair does not consider other submitted materials or awards won at affiliated fairs.

The following is the official list of acceptance criteria:

1. Acceptance to present a project at the California State Science Fair requires the approval of an Application submitted by the student(s).
2. Applications without a Project Abstract will be rejected without recourse to appeal. Each student on a team project must complete his/her own personal Application, but the Project Abstract must be supplied by the first member of the team to submit his/her application.
3. Abstracts must demonstrate a level of knowledge and investigation that is appropriate for the grade of the student and discipline and which is beyond what is considered common knowledge. In other words, the investigations must demonstrate knowledge that is not found in middle or high school textbooks.
4. Abstracts must communicate ideas effectively and use standard English.
5. The methodology and experimental design should be appropriate for the student's grade and discipline, and should include the following where appropriate:
   - experiments are appropriate to achieve the stated objective;
   - the sample size and/or number of trials is sufficient for projects where replication is necessary to establish validity;
   - the statistical analysis is appropriate for the students' grade and discipline; the conclusion is relevant to the stated hypothesis.
6. Projects which are merely demonstrations, display collections, and literature searches are generally not acceptable. In order to be acceptable, the student must use the demonstration, collection, or search results, to extract new information not previously known to the student.
7. Applications may be rejected for failing to satisfy the rules of the Fair.
8. Application Fees are not refundable. The only exception is for multiple payments for the same application, as described on page 10.
9. All rejected Applications will be reviewed by the Directors of Judging and are subject to appeal (with the exception of those applications which do not contain an Abstract).

Students, parents, and advisors should be aware that these acceptance criteria are not intended to limit the number of participants but rather, by requiring higher standards for project abstracts, the criteria are intended to improve the quality of the Fair and to ensure that all participants are able to effectively communicate their projects to the judges. Only a small percentage of Applications have ever been identified as likely to be rejected. Every Application so identified this year will be contacted in a timely manner as described in the Calendar on pg. 11, where the process of appeal is also described.

CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT DISPLAY REGULATIONS

1. Display size limitations:

Maximum width	4 feet (122 cm)	
Maximum depth	2½ feet (76 cm)	
Maximum height	6½ feet (198 cm) 9 feet (274 cm)	table floor

- Projects displayed on tables are the preferred standard. Projects which require floor access may utilize Fair tables for a portion of their display, but the entire display must still fit within the width and depth limitations specified above. Projects with floor displays may be placed out of numerical sequence and possibly away from other projects in the same subject category.
- All projects must fit within these prescribed space limitations. This includes elements of the project that may extend or protrude. Displays which are admitted, but are later augmented to exceed the space limitations will be disqualified until brought into conformance. Using the aisle between projects as additional display space, even temporarily during interviews, is cause for disqualification.

2. Students must be present at their display during the judging period or the project will not be judged. For team projects, a minimum of one-half of the authors must be present before judging will be allowed.

3. The student's *original* laboratory notebook must be present for inspection during judging. However, it is advised that this notebook be on display *only* during the actual judging period.

4. Display Safety Concerns:
- All project displays must adhere to all Los Angeles, State, and federal laws for public safety. Lasers must be appropriately shielded. Projects must sustain their own weight.
- **No hazardous materials may be exhibited at the project display.** This includes, but is not limited to, acids, unsecured glassware, mercury (including glass thermometers), hazardous microbes, carcinogenic and radioactive materials, open flames, and unsealed foodstuffs which may attract pests. For these items, the substitution of illustrations or photographs is encouraged. A more complete list of disallowed display materials will be included in your confirmation letter. Materials in violation of this rule will be marked and must be removed by the participant before judging will be allowed. The judgment of the Directors of Judging is the final authority on permissible materials.
- The California State Science Fair will disqualify any project deemed unsafe.

5. Displays may not contain any living organism. This prohibition includes all animals, plants, and studied collections of microscopic life forms such as bacteria, fungi, and molds. The display of preserved animals is not permitted. Projects may not display photographs of procedures detrimental to the health and well being of vertebrate animals. Photographs of surgical procedures may not be exhibited.

6. Projects requesting electrical power will be provided with one 110 volt outlet. **You must bring your own UL approved three prong grounded extension cord. The Science Fair does not provide extension cords.** No gas or water outlets are provided.

7. A project display at the State Science Fair need not be identical to the display at the County or Regional Fair. The display may be altered to improve the presentation or to incorporate the

(continued on next page)

results of research subsequent to the County or Regional Fair.

8. All projects must clearly distinguish between the work of the student participant and the work of others. Students participating in a research opportunity in industry, a university, hospital, or institution other than their school, must display only *their* research. Students must clearly specify the assistance received and the role and contributions of others in the project. **It is required that such projects be accompanied by a letter from the principal research director indicating the level of his/her involvement in the student project.** This letter should be included in the project notebook. ISEF form 1C is an acceptable alternative.

9. Awards won in previous competitions may not be displayed or announced.

10. Participants are not permitted to distribute any items to the judges.

11. Parents and advisors are not permitted in the display areas during judging. Violations may result in disqualification of student participants.

IMPORTANT: LOSS OR DAMAGE Valuable equipment, such as computers, may be part of the display only if the *student participant* accepts full responsibility. It is advised that valuable materials (*e.g.* computers, research notebook) be on display *only* during the actual judging period. Although precautionary security service will be provided, the California State Science Fair assumes no responsibility for loss or damage to any project or project part. Exhibitors must exercise care in protecting equipment. It is advisable to have an extra copy of notebooks and all printed materials.

CHOOSING YOUR CATEGORY

Please read the category definitions on the following pages carefully. These definitions may be different from those used in your county or regional fair. Examples of titles of past projects appropriate to each category have been included to help you decide where your project belongs.

Read your project description. *What your project is about, what you actually studied, defines the category in which your project belongs, not the methods that were used.* For example, if you compared the effectiveness of different antibiotic products using bacteria as a tool, the subject was the commercial products, so the project belongs in Product Science (Biological). However, if the specific effects of an antibiotic on the bacteria were studied, the project belongs in Pharmacology. Similarly, comparing forest fires to computer models of forest fires belongs in Earth Sciences, but if the focal accomplishment was writing the computer program, the project belongs in the Mathematics/Software category. Read the instructions on writing the Project Summary on page 15 carefully.

The Project Abstract Review Committee (composed of scientists and engineers from universities and industry who are also experienced CSSF judges) reads each Project Summary in order to assign each project to a category. Your project may be placed into a category which is different from the one to which it was assigned at your county or regional Fair. This is not unusual and is done to ensure that similar projects are placed together with each other in the same category. Proper category selection increases your project's likelihood of recognition through Fair awards.

Your assigned category will be determined by the specific focus of your study, not the general subject area.

CALIFORNIA STATE SCIENCE FAIR
2014 PROJECT CATEGORIES

Category	Examples	Related Categories
1. Aerodynamics/ Hydrodynamics (Junior Division Only): Studies of aerodynamics and propulsion of air, land, water, and space vehicles; aero/ hydrodynamics of structures and natural objects. Studies of the basic physics of fluid flow.	*Effect of Dimples on Golf Ball Flight; Airfoil Stall Characteristics; Effect of Fins on Water Rocket Stability; Low Drag Launch Lug for Model Rockets.*	Ballistics studies comparing other than different shapes or surface textures belong in Materials Science or Applied Mechanics. Senior Division projects otherwise appropriate for this category belong in Applied Mechanics.
2. Alternative Energy (Junior Division Only): Studies of power generation using alternative energy technologies such as solar cells.	*Analysis of Nanocrystal Dye-sensitized Solar Cells; Maximizing the Power Output of a Crystalline Silicon Photovoltaic Module through the Use of Solar Concentrators.*	Aerodynamic studies on turbines belong in Aerodynamics/ Hydrodynamics. Hydroelectric projects generally belong in Electronics & Electromagnetics. Senior Division projects otherwise appropriate for this category belong in the relevant basic science (*e.g.*, Physics & Astronomy, Electronics & Electromagnetics, Chemistry).
3. Applied Mechanics & Structures: Studies concerning the design, manufacture, and operation of mechanisms, including characteristics of materials, dynamic response, and active/ passive control. Testing for strength and stiffness of materials used to provide structural capability; studies and testing of structural configurations designed to provide improved weight and force loading or stiffness capabilities. *Senior Division only*: includes aerodynamics, hydrodynamics, and fluids projects.	*An Underwater Glider for Marine Exploration; Measurement of CD Variations; Tensile Strength of Composite Materials; Bridge Design; Can Foam Make Steel Stronger?; How Does Arch Curvature Affect Strength? How Do Different Foundations Stand Up to Earthquakes? Sr. Div: "Arrow" Dynamics; Measuring the Effect of Aerodynamic Design on Vehicular Drag.*	Junior Division aerodynamics/ hydrodynamics projects belong in Aerodynamics/ Hydrodynamics. Engineering studies of soil stability during earthquakes belong in Earth & Planetary Sciences.
4. Behavioral & Social Sciences: Studies of human psychology, behavior, development, linguistics, and the effects of chemical or physical stress on these processes. Experimental or observational studies of attitudes, behaviors, or values of a society or groups within a society, and of the influences of society on group behavior. Includes gender and diversity studies, anthropology, archaeology, and sociology. Studies may focus on either normal or abnormal behavior. *Senior Division only*: includes studies of cognition.	*A Study of the Senses in Stress Management; Racial Awareness in Infants; AIDS Awareness in Teens; The Effect of Authority Figures on Group Decision Making.*	Animal behavior projects belong in Zoology or Mammalian Biology. Junior Division projects studying memory, learning, and sensory perception belong in Cognitive Science.

Category	Examples	Related Categories
5. Biochemistry/ Molecular Biology: Studies at the molecular, biochemical, or enzymatic levels in animals (including humans), plants, and microorganisms, including yeast. Studies of biological molecules, *e.g.*, DNA, RNA, proteins, fats, vitamins, nutrients.	*Lipooxygenase Influence on Lipofuscin Granule Formation in Bananas; Effects of P1 Precursors on Virus Growth; Isolation of Pre-mRNA Mutants in Saccharomyces cerevisiae; Determination of Ascorbic Acid Concentration in Orange Juice Using a Redox Reaction; Effects of Food Preparation on Vitamins.*	Studies of the physical properties of biochemicals such as oxidation-reduction reactions belong in Chemistry. Functions of major organ systems belong in Mammalian Biology or Zoology.
6. Chemistry: Studies in which chemical properties of nonbiological organic and inorganic materials (excluding biochemistry) are observed. Some studies involving physical properties are appropriate, including phase changes, crystal structures and formation, intermolecular and intramolecular forces.	*Isolation, Purification, and Specific Rotation Determination of Ricinoleic Acid; Conductivity of Electrolytes; Does Water Purity Affect Surface Tension?*	Chemical studies of metabolic processes (*e.g.* fermentation and/or yeast), processes mediated by biochemical intermediates (*e.g.* enzymes), or biological organic molecules belong in Biochemistry. In the Junior Division, projects that deal with the characterization of chemical products in everyday life belong in Materials Science or Product Science (Physical).
7. Cognitive Science (Junior Division Only): Studies of learning, memory, and cognition in humans, using human or animal models for human processes. Studies of the effects of chemical or physical stress on cognition. Includes projects on subliminal perception, optical illusions, recall and observations (*e.g.* reliability of eyewitnesses), and the interaction of different senses.	*Does Age Affect Implicit Learning?; The Effectiveness of Flash Cards vs. Computer Scripts; Optical Illusions; Subliminal Persuasion by Television; Eyewitness Identifications; Effect of Curcumin on Memory.*	Studies examining basic human senses and physiological, rather than psychological, reactions belong in Mammalian Biology. Senior Division projects otherwise appropriate for this category belong in Behavioral and Social Sciences.
8. Earth & Planetary Sciences: Studies in geology, seismology, engineering geology, atmospheric physics, weather, physical oceanography, marine geology, and coastal processes.	*Gravity Current Velocities; Beach Sand Fluctuations and Cliff Erosion; Dependence of Liquefaction upon Soil Composition; Influence of Site Effects on Peak Ground Acceleration in the Northridge and Whittier Narrows Earthquakes; Solar Activity and Refraction Properties of the Ionosphere.*	Studies concerning pollution caused by human activity belong in Environmental Science. Earthquake engineering projects (other than soil stability) belong in Applied Mechanics & Structures.
9. Electronics & Electromagnetics: Experimental or theoretical studies with electrical circuits, computer design, electro-optics, electromagnetic applications, and antennas.	*Satellite Reception Without a Dish; The Gauss Rifle; Transmission of Information by Laser; Are Maglev Trains Practical?*	Projects that merely use electronics to study something else (*e.g.*, hearing in birds) belong in another category (Zoology in this example).

Category	Examples	Related Categories
10. Environmental Engineering (Junior Division Only): Projects which apply technologies such as recycling, reclamation, restoration, composting, and bioremediation which could benefit the environment and/or the effects of pollution on the environment.	*Newspapers as Mulch; Oil Control; Water Hyacinth: Primary Water Treatment?; What Soil Conditions Best Control Soil Erosion While Assisting Growth?; Designing a New Home Sewer System.*	Senior Division projects otherwise appropriate for this category belong in Environmental Science.
11. Environmental Science: Projects surveying, measuring, or studying the impact of natural and man-made changes on the environment. Examples include: floods, fires, biohazardous spills, acid rain, earthquakes, air pollution, and water pollution.	*The Effects of Fires on Flora and Fauna; How Does Water Quality Affect the Abundance and Diversity of Micro-invertebrates; Bacteria Pollution in Our Beaches; An Analysis of Dissolved Oxygen and Density in Ballona Creek.*	Studies performed under unrealistic or simulated conditions to examine the effect of substances or conditions on living things belong Pharmacology/Toxicology or the relevant basic science category (*e.g.*, Plant Biology, Mammalian Biology, Zoology, etc.).
12. Mammalian Biology: Studies of growth and developmental biology, anatomy, and physiology in all mammals, including humans. Studies of the behavior of all mammals in their natural habitats (or reproductions of them).	*Effect of Age on Aerobic Abilities; Peripheral Vision; Correlation of Strength with Gender; Effect of Vaccination on Antibody Development in Neonatal Bovines; Lung Capacity, Age, and Exercise; Crossed Hand-Eye Dominance*	Projects studying physiology of birds, insects, etc. belong in Zoology. Studies of the effect of chemicals on a physiological function may belong in Pharmacology/ Toxicology. Studies in which animals serve as a model for human learning or behavior belong in Cognitive Science (Jr) or Behavioral & Social Sciences (Sr).
13. Materials Science (Junior Division Only): Studies of materials characteristics and their static (not in motion) physical properties. Includes measurements and comparisons of materials durability, flammability, and insulation properties (thermal, electrical, acoustic, optical, electromagnetic, etc.).	*Which Metal Conducts the Most Heat? What Is the Effect of Duct Tape as an Insulation Material? Sun Protection on the Courts: A Test of Colors and Materials in Tennis Clothing; Which Building Material Disrupts a Wireless Connection the Least?*	Studies of fundamental properties of matter (*e.g.*, specific heat) belong in Physics & Astronomy. Studies comparing and testing natural and manmade products for effectiveness in intended use in real-world, consumer-oriented applications belong in Product Science (Physical).
14. Mathematics & Software: Studies in geometry, topology, real and complex analysis, number theory, algorithm analysis and optimization, artificial intelligence, computability, computer graphics, modeling and simulation, programming environments and languages.	*Maximally Dispersed Points on a Sphere; Computer Modeled Evolution; Knot Mathematics; Coupled Chaotic Systems and Stability; Mathematical Optimization of Multiple Precision Multiplication; Partitions of Positive Numbers; Neural Network Model of Vision.*	Projects using mathematics or computers as a tool in the study of a different subject belong in that category. Studies that merely model or simulate biological or physical systems usually belong in this category. Computer hardware projects (*e.g.*, comparing algorithm speed on different hardware platforms) belong in Electronics & Electromagnetics.

Category	Examples	Related Categories
15. Microbiology (General): Studies of genetics, growth, and physiology of bacteria, fungi, protists, algae, or viruses. Includes surveys of bacterial contamination. *Senior Division Only:* includes projects described within the category Microbiology (Medical).	*Studies of Light Producing Bacteria; Enhancement of Algae Lipid Composition through the Manipulation of Temperature, Light, and Nutrient Levels; The Utilization of a Photobioreactor to Optimize the Growth Rate of Lipids in Microalga.*	Projects studying photosynthesis or fermentation belong in Biochemistry. Projects using bacteria as a tool to study another subject belong in that subject.
16. Microbiology (Medical): (Junior Division Only) Studies of prevention, diagnosis, and treatment of infectious diseases caused by pathogenic bacteria, fungi, or viruses. Includes all antimicrobial studies except testing of commercial antimicrobials.	*Effects of Spices on Escherichia coli growth on food; Antibiotic Resistance in Bacteria; Effects of Hand Washing on Absenteeism in Schools*	Projects using bacteria as a tool to study another subject belong in that subject. Testing of commercial antimicrobial products belongs in Product Science (Biological). Senior Division projects otherwise appropriate for this category belong in Microbiology (General).
17. Pharmacology/ Toxicology: Studies of the effects of chemicals, toxins, medicinal and nutritional factors (such as vitamins), prescription drugs, natural remedies, food components (caffeine), and potentially harmful factors (such as temperature, carbon dioxide, radiation) at the cellular or higher levels on plants and animals.	*Vitamin Deficiencies; Effect of Caffeine on Daphnia. Effects of a Pyruvate Glucose Cocktail; Copper Toxicity of Marine Embryos; The Effects of Intermittent and Constant EMFs on Drosophila; The Effects of Petroleum Contaminated Water on Aquatic Plants.*	Projects which study the effect of fertilizers on plant growth belong in Plant Biology. In the Junior Division, studies of the toxic effects of actual environmental changes on ecosystems belong in Environmental Science.
18. Physics & Astronomy: Studies of the physical properties of matter, light, acoustics, thermal properties, solar physics, astrophysics, orbital mechanics, observational astronomy, and astronomical surveys. Computer simulations of physical systems are appropriate in this category.	*Emissivity as a Function of Geometry; Do High Temperature Superconductors have a First Order Phase Transition?; Chaotic Pendulum; Photometric Detection of an Extrasolar Planetary Transit; Jupiter's Decametric Emission; Solar Activity and Geosynchronous Satellites.*	Electromagnetic propagation studies (*e.g.*, antennas) belong in Electronics & Electromagnetics. Junior Division projects studying the characteristics of materials such as insulation properties belong in Materials Science. Projects concerning the study of soils/rocks from planetary objects belong in Earth & Planetary Sciences.
19. Plant Biology: Studies of the genetics, growth, morphology, or physiology of plants. Studies on the effects of fertilizers on plants.	*The Effects of Organic and Inorganic Fertilizers on Plant Growth; Effect of Rhizobium on Legume Plants (Pisum); Transpiration of Plants Under Different Light Sources.*	Studies using plants for indication or remediation of environmental pollution belong in the appropriate environmental category. Studies of the negative effects of chemicals on plants belong in Pharmacology/ Toxicology.

Category	Examples	Related Categories
20. Product Science (Biological) (Junior Division Only): Comparison and testing of commercial off–the-shelf products (except antimicrobials) for quality and/or effectiveness for intended use in real-world consumer-oriented applications. This category is reserved for experimental methods involving biological sciences and processes.	*Preventing Pumpkin Decomposition; Antibacterial Soap vs. Antibacterial Gel: Cause for Concern? Tylenol Brand vs. Store Brand Acetominophen; Does Orange Oil Really Work?*	Biological studies that do not include a commercial off-the-shelf product but are only testing potentially new consumer applications belong in their respective Life Science Category. Junior Division projects studying antimicrobial effectiveness belong in Microbiology (Medical). Senior Division projects otherwise appropriate for this category belong in the relevant basic science.
21. Product Science (Physical) (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. This category is reserved for experimental methods involving non-biological, physical sciences and processes.	*Water Absorption in Eight Selected Hardwoods With and Without Sealants; Best Plywood for Homemade Skateboards; Cotton, Linen, Wool: Which One Lasts Longer?; Fire Resistance of Roofing Materials; Which Laundry Detergent Works the Best? Shock Attenuation in Baseball Helmets.*	Non-biological studies that do not include a commercial off-the-shelf product but are only testing potentially new consumer applications belong in their respective Physical Science category. Senior Division projects otherwise appropriate for this category belong in the relevant basic science.
22. Zoology: Studies of growth and developmental biology, anatomy, and physiology in animals other than mammals. Studies of the behavior of all animals (excluding mammals) in their natural habitats (or reproductions of them).	*Hot Fish, Cold Fish: Respiration in Goldfish; Hearing and the Dominance Hierarchy of Crickets; Effect of Gravity on Living Organisms; Invertebrates in Kelp Holdfasts; Auditory Stimuli in Interganglial Neurons of Acheta domesticus; Bird Responses to Boar Rootings.*	Studies of mammals belong in Mammalian Biology. Studies in which animals serve as a model for human behavior belong in Behavioral & Social Sciences.

2014 APPLICATION DEADLINES

County/ Regional Fair	Submission Deadline	App Fee Deadline
Alameda	Mar 28	Mar 31
Butte	Apr 1	Apr 3
Calaveras	Mar 24	Mar 26
Contra Costa	Mar 28	Mar 31
Fresno (Central Calif.)	Mar 26	Mar 28
Glenn	Apr 7	Apr 9
Humboldt	Mar 27	Mar 31
Kern	Mar 25	Mar 27
Lassen	Apr 8	Apr 10
Los Angeles	Apr 2	Apr 4
Mendocino	Apr 2	Apr 4
Monterey	Mar 24	Mar 26
Nevada	TBD	TBD
Orange	Apr 9	Apr 11
Placer	Mar 18	Mar 20
RIMS	Apr 7	Apr 9
Sacramento	Mar 28	Mar 31
San Benito	Mar 25	Mar 27
San Diego (GSDSEF)	Apr 1	Apr 3
San Francisco (SFBASF)	Mar 31	Apr 2
San Joaquin	Mar 19	Mar 21
San Mateo	Mar 17	Mar 19
Santa Barbara	Mar 21	Mar 24
Santa Clara	Apr 8	Apr 10
Santa Cruz	Mar 25	Mar 27
Solano	Mar 21	Mar 24
Sonoma	Mar 18	Mar 20
Tulare	Mar 31	Apr 2
Tuolumne	NA	NA
Ventura	Mar 26	Mar 28

Note: "**" means this date was not set by the time this document was printed. See the CSSF Web site for the correct dates.

DEADLINES

The procedures for qualified projects and for alternates are different. Qualified projects must meet two distinct deadlines. The **Submission Deadline** is the date by which you must have submitted the application located on the Fair's Web site. The **Application Fee Deadline** is the date by which your payment of the Application Fee must be postmarked to the Fair. Failure to meet either deadline may result in qualified applicants being rejected in favor of alternates from the same affiliate. Alternates are required only to meet the Submission Deadline. See below.

Submission Deadline

Your Submission Deadline is the date on or before which your Application must be submitted. Your application will be considered submitted when you have completed the final page of the application and pressed its "Submit" button. You will receive confirmation of receipt of your application via e-mail immediately following its submission. Within one working day submitted applications will be acknowledged on the Fair's Web site. Please note that although your Application must be submitted through the Fair's Web site, all other forms found in this Application Packet (where required) must be mailed.

Application Fee Deadline

Immediately after completing your on-line application, students with qualified projects (*N.B.*, qualified projects only, *not alternates*) should mail the Signature Card (inside back cover) and Application Fee to the Fair. It must be postmarked on or before the date shown in the final column of the table on this page in order for your application to be considered complete. Incomplete applications will not be considered for acceptance to the Fair. Fees paid by school districts must be postmarked by the same Fee Deadline. If your school district is paying your Application Fee, but is unlikely to send it before your deadline, you should submit the Application Fee immediately in order to meet the deadline. After we receive the school district's payment, we will refund the duplicate Fee back to you.

Qualified Projects vs. Alternates

It is likely that many, if not most, alternates will not be accepted. Therefore, even though alternates must meet the same Submission Deadline as qualified projects *alternates should not pay the Application Fee* at the time of application. If accepted, then alternates will at that point be instructed to pay the Application Fee and submit a Signature Card, both of which are required in order to participate in the Fair.

Following acceptance of on-time applications from qualified projects, on-time applications from alternates, and then applications from any projects missing either deadline in that order will be accepted to the extent that their affiliate's allocation to CSSF allows.

2014 APPLICATION CHECKLIST AND CALENDAR

To complete your Application to the 2014 Fair:

- ☐ First, complete the Application form found on the Fair's Web site. The information requested there is identical to that requested in the sample of the Application found on page 13.
- ☐ Second, qualified projects must send, usually via US Mail, the following two items:
  - The Signature Card found on the back cover, and
  - The Application Fee of $30. This must be in the form of a check or money order made payable to "California Science Center Foundation." Major credit cards are also accepted.
- ☐ If your project used human subjects/vertebrate animals, etc. you must include the Human Subjects/ Tissue Samples/ Humane Treatment Certification found on page 18.
- ☐ If you used professional assistance, send the letter described in Display Regulation #8 (pg. 4).

You may also include (but may send separately, if you choose):

- ☐ CSSF Student of the Year Application (for seniors only, pg. 19).
- ☐ CSSF Teacher of the Year Nomination (if desired, pg. 21).

Team Projects Note: Every member of a team project must complete his or her own application and (for qualified projects only) include a separate signature card and application fee payment. However, only the first member of the team is required to submit the Project Summary and Certification form (if applicable), as these concern the common work of the team.

Receipt Confirmation **As Received**

When you complete the Application on the Fair's Web site, you will receive an e-mail confirming its receipt within a few minutes. This email will include your confirmation code and instructions to complete the application process. Confirmation of receipt of all Applications will appear on the Fair's Web site within one working day.

PARC Review / Category Assignment **Saturday, April 12**

Every Application is reviewed for acceptability according to the rules on pg. 2 by the Project Abstract Review Committee (PARC), an experienced group of judges at the California State Science Fair. During March this committee will read every project's abstract in order to determine the correct subject category to which it should be assigned. Final decisions will be made on this date.

Notice of Acceptance or Rejection **Sunday, April 13**

All applicants identified through the PARC review as candidates for rejection will be contacted by phone by the Directors of Judging no later than this date, to provide an opportunity for appeal. For all other rejections (alternates, late applications, etc.) notice will be made *only* through e-mail. If a functional e-mail address has not been provided to CSSF, no direct notice will be given. The official notice of acceptance will be the listing of names on the Fair's Web site no later than this date. Notices of acceptance will be e-mailed shortly thereafter, and sent via US Mail within a week.

Confirmation of Category Assignment **Thursday, April 17**

All category assignments will be posted to the Fair's Web site (pg. iv) as soon as they are available, and no later than the above date. You will receive written confirmation of your project's category assignment. You may request a different assignment, but only until Tuesday, April 22. The Directors of Judging are the final authority as to project acceptance and category assignments. Details will be included in your confirmation letter.

INSTRUCTIONS FOR APPLICATION

The form on the next two pages, 13 and 14, is only a sample which is provided so that you will be able to prepare all of the information required by the Official Application found on the Fair's Web site. Please gather all of the information requested on this form before you begin the Official Application. *Prepare your Project Summary in advance so that it will fit into the space provided on the sample form. Don't wait until you're online to begin composing it.* All applications become the property of the California State Science Fair.

Team Projects Note: Every member of a team project must complete his or her own application and include a separate signature card and (for qualified projects only) application fee payment. However, only the first member of the team is required to submit the Project Summary and Certification form (if applicable), as these concern the common work of the team.

Some Key Points:

Name — Your name as you wish it to be listed in the printed California State Science Fair Program. If you prefer to use your middle name, list your first initial and middle name in the "first name" box.

Social Security Number — No cash prizes will be awarded without this information.

Address — Your mailing address, including post office box if appropriate.

Home Phone — Essential if your application is incomplete or would otherwise be rejected.

Phonetic Spelling of Name — If your name can possibly be mispronounced by the Awards Ceremony MC, please enter a phonetic spelling. Use only English characters (*e.g.* a, b, c, *not* æ, ē, ô, ü, etc.).

School Information — Give the complete name of your school. List your school principal's title, first name, and last name. Similarly, list title, first name, and last name of your project advisor.

Display Requirements — Indicate whether you have a floor display or a table top project. If you do not indicate a choice, you will be assigned a table top space. You must mark electrical needs if your display requires it, otherwise none will be provided. You must bring your own extension cord. Owing to a shortage of outlets in the Fair venue, 25 foot extension cords (or longer) are recommended. **CSSF has no extension cords available for project use!**

Signatures — Both you and a parent or guardian must sign and date the form where indicated. Include the Confirmation Code you receive when you complete the on-line Application. This code begins with the letter "E" and is followed by 5 digits.

IMPORTANT:
Your Application May Be Rejected If:

- The project violates any rule of the Fair, or
- Your Project Summary reflects an inadequate science fair project.

If your Application is rejected, the Directors of Judging will phone you in order to discuss your possible appeal.

CSSF 2014 Application

This form is provided as a sample only. Your official Application Form must be completed on the Fair's Web site.

DEADLINE: See page 10.

You may use this form to serve as the Signature Card if you desire, but this form cannot be used to correct information supplied on the Official Application. Mail to: California State Science Fair, California Science Center, 700 Exposition Park Drive, Los Angeles, CA 90037.

Attach $30 Application Fee Type or print clearly in ink. Complete each section.

YOUR SELF

HAVE YOU PREVIOUSLY ENTERED THE CALIFORNIA STATE SCIENCE FAIR? YES ☐ ☐ NO

LAST NAME	FIRST NAME	M.I.	SUFFIX (*e.g.* Jr.)	PLEASE CHECK MALE ☐ ☐ FEMALE

ADDRESS (NUMBER AND STREET)	HOME PHONE ( ) —

CITY	STATE	ZIP	ZIP+4	PHONETIC SPELLING (FOR AWARDS CEREMONY)
	CA	—		

BIRTH DATE (MONTH-DAY-YEAR)	GRADE	SSN	COMPLETE ELECTRONIC MAIL ADDRESS (*e.g.* user@aol.com)
		— —	

NAME OF CHAPERON DURING FAIR	RELATIONSHIP OF CHAPERON TO YOU

LOCAL NEWSPAPER TO RECEIVE PUBLICITY	

YOUR SCHOOL

FULL NAME OF SCHOOL	PHONE ( ) —

MAILING ADDRESS (NUMBER AND STREET)

CITY	STATE	ZIP	ZIP+4	COUNTY
	CA	—		

NAME OF PRINCIPAL	TITLE (Mr., Ms.,Dr.)	FIRST NAME	LAST NAME

PROJECT ADVISOR	TITLE (Mr., Ms.,Dr.)	FIRST NAME	LAST NAME	EMAIL

YOUR PROJECT

PLACE TITLE, AUTHORS, AND PROJECT SUMMARY ON THE OTHER SIDE

IS THIS A TEAM PROJECT?	YES ☐ ☐ NO	IF YES, LIST ALL MEMBERS ON OTHER SIDE. EACH MEMBER MUST FILE AN APPLICATION.
DOES YOUR PROJECT REQUIRE A SAFETY OR HUMANE TREATMENT CERTIFICATION?	YES ☐ ☐ NO	IF YES, INCLUDE THE CERTIFICATION (pg. 18)
DOES YOUR DISPLAY REQUIRE ELECTRICITY?	YES ☐ ☐ NO	IF YES, BRING YOUR OWN 25 FT. EXTENSION CORD. THE FAIR DOES NOT PROVIDE THESE CORDS!
DOES YOUR DISPLAY REQUIRE MORE HEIGHT THAN THE STANDARD TABLE? (See rule 1, page 3)	YES ☐ ☐ NO	IF YES, A SUITABLE FLOOR AREA WILL BE PROVIDED, BUT OUT OF NUMERIC SEQUENCE.

In consideration of your permitting the undersigned student to take part in the California State Science Fair, we waive all claims against CSSF and all sponsors for injury to or death of persons or loss or damage of property in any way occurring in connection with CSSF, and we agree to indemnify and hold them harmless against all such liability. By the undersigned applicant's participation in the California State Science Fair, we agree that the applicant and applicant's project may be photographed, filmed, or taped, and that the California Science Center Foundation may use such photographs, film, or tape, and applicant's name and project description in connection with the California State Science Fair and the promotion of CSCF, and that we will not make any claim for invasion of privacy or any other legal right in connection with such uses by CSCF. We acknowledge and agree that CSCF may identify applicant's grade level and school. We have read and understood the regulations governing the California State Science Fair and agree to abide by them.

SIGNATURE OF APPLICANT	PARENT'S DAY PHONE (in case of emergency)	APP CONFIRMATION CODE
		E

SIGNATURE(S) OF PARENT(S)/ GUARDIAN(S)	PRINTED NAME OF PARENT(S) / GUARDIAN(S)	DATE SIGNED

CSSF USE ONLY	PM	C/M	AM	AP	PI	CR	CI	DB	**CSSF ONLY** Ap1/14

2014 PROJECT SUMMARY

Your Name (List all student names if multiple authors.)

Science Fair Use Only

Project Title (Limit: 120 characters. Those beyond 120 will be ignored. See pg. 15)

Division (Grades)
_ Junior (6-8) _ Senior (9-12)

Preferred Category (See page 5 for descriptions.)

Abstract (See samples on page 16.)

Objectives/Goal:

Methods/Materials:

Results:

Conclusions/Discussion:

Summary Statement (In one sentence, state what your project is about.)

Help Received in Doing Project (e.g. Mother helped type report; Neighbor helped wire board; Used lab equipment at university X under the supervision of Dr. Y; Participant in NSF Young Scholars Program) See Display Regulation #8 on page 4.

WRITING YOUR ABSTRACT

Examples of abstracts are provided on page 16. While most abstracts should include all of the elements listed here, all elements may not be appropriate for all categories.

Objective or Goal: State the objective, goal, or hypothesis upon which the project is based. Example: My objective was to learn if the feeding habits of hummingbirds are affected by color.

Materials and Methods: Indicate the materials, methods, and experimental design used in your project. Briefly describe your experiment or engineering methods.

Results: Summarize the results of your experiment and indicate how they pertain to your objective.

Conclusion/Discussion: Indicate if your results supported your hypothesis or enabled you to attain your objective. Discuss briefly how information from this project expands our knowledge about the category subject.

INSTRUCTIONS FOR PROJECT SUMMARY

This page is a sample giving you a model for the official application on the web site. If you use a type size no smaller than 12 point and do not exceed the space allotted on the page, your Project Summary should fit within the confines of the on-line application. When you complete the web application, you will see a preview of the page which will be generated for your judges.

Name — Your name (and those of your co-authors if yours is a team project) only. Do not include your school, county, or teacher's name.

Project Title — This is the title as it will appear on your actual display. It should clearly indicate the subject as explained in the Summary Statement. Additionally, Special and Recognition Award judges use project titles to determine eligibility for their awards. A title unclear as to subject matter may result in your project being overlooked. This title need not be identical to the one used for presentation at the county or regional fair from which you qualified, but must be the same as will appear on your display at the State Science Fair. **Important:** *The maximum number of characters (including spaces) allowed for the title is 120.* Do not abbreviate unless necessary to meet this character count limit. Longer titles will be unceremoniously truncated.

Division — Check your grade level (6-8 = Junior; 9-12 = Senior).

Preferred Category — Indicate your preferred category. Refer to page 4 and read the instructions about choosing your category. If you are undecided, indicate your possible choices in order of preference. Your preference will be respected if possible, but the Directors of Judging have final authority in assigning your project to the appropriate subject category.

Summary Statement — In one sentence, state what your project is about.

Help Received — Give the names of mentors, institutions, and people who helped with the project. Indicate if you are a participant in the NSF Young Scholars Program. If you had assistance from a research opportunity outside of your school, see regulation #8 on page 4.

PROJECT SUMMARY ABSTRACT EXAMPLES

Your abstract is important. Your judges will receive this abstract in advance of the Fair so that they can preview your work. Your judges will be able to better understand your work and prepare for your interview if you follow these samples or use similar formats.

The Frequency of Antibiotic Resistant *E. coli* in Alimentary Tracts

Objective: The objective is to determine if the average American has ampicillin- and tetracycline-resistant strains of *E. coli* in their alimentary tract.

Materials and Methods: Informed consent was obtained from 100 randomly selected people, 50 men and 50 women ranging in age from 10 to 92 years. An isolate of *E. coli* was obtained from the stool of each subject and grown in the presence of tetracycline and ampicillin. The area of inhibition was measured and compared to that of a non-resistant strain of *E. coli*. The percentage of sensitive and resistant organisms was determined by age and sex.

Results: Thirty percent of the men and 24% of the women were found to have ampicillin-resistant *E. coli*. The majority of the sample population was found to be under the age of 50. Slightly more people age 50 and over were found to be resistant than those under 50. Only 12% of both men and women were found to have tetracycline-resistant *E. coli*, with the older population again having a somewhat higher incidence of resistance.

Discussion: Penicillin and its derivatives such as ampicillin, were the first commercially available antibiotics. Tetracycline was introduced later. The length of exposure to the antibiotics is reflected in the greater percentage of subjects with ampicillin-resistant *E. coli* (24% to 30%), compared to those with tetracycline-resistant organisms (12%). In addition, subjects age 50 and over who would have a longer life-time exposure to both antibiotics were more likely to harbor antibiotic resistant *E. coli*. These data suggest that antibiotics should be carefully dispensed and monitored by health care professionals.

The Effect of Surface Finish on Rocket Drag

Objective: My project was to determine if surface finish has an effect on the drag of a model rocket. I believe that a model with a smooth surface will have lower drag and will reach higher altitudes.

Materials and Methods: Five model rockets with identical size and shape, but different surface preparations, were constructed. One rocket was left with an unfinished surface, three had surfaces finished to various degrees of smoothness, and the fifth rocket had its surface sealed, primed, sanded to 600 grit, painted, and covered with clear gloss. The rockets were ballasted to weigh the same and flown 10 times each with B5-4 motors.

Results: The rocket with the clear gloss finish consistently reached the highest altitudes of all 5 rockets, while the unfinished rocket consistently reached the lowest altitude.

Conclusions: My conclusion is that surface finish has an important role in model rocket drag and rockets with carefully prepared surfaces will reach higher altitudes.

CALIFORNIA STATE SCIENCE FAIR

2014 REGULATIONS FOR RESEARCH INVOLVING HUMAN SUBJECTS, TISSUE SAMPLE SOURCES (INCLUDING DNA SOURCE MATERIALS), AND HUMANE TREATMENT OF LIVE VERTEBRATE ANIMALS

The following codes apply to all student research projects. Project advisors must acknowledge on the certification forms that the student has complied with all research regulations.

FOR ALL PROJECTS INVOLVING HUMANS AS THE SUBJECT OF RESEARCH:

The Code of Federal Regulations 45 CFR 46 §46.102 defines

*"**Human Subject**" means a living individual about whom an investigator (whether professional or student) conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information. In order for the obtaining of private information to constitute research involving human subjects, the identity of the subject must be readily associated with the information.*

*"**Minimal Risk**" means that the risks of harm anticipated in the research are not greater, considering probability and magnitude, than those ordinarily encountered in daily life or during the performance of routine physical or psychological examinations or tests.*

Examples of unacceptable risk include: (1) ingestion or physical contact with any potentially hazardous materials including toxic chemicals, known or suspected pathogens or carcinogens, or exposure to ionizing radiation; (2) intentionally inducing emotional stress through questioning or invasion of privacy; (3) physical stress to pregnant women or anyone suffering debilitating physical illness; and (4) psychological stress to the mentally handicapped or those suffering psychiatric disorders. This list is intended to be illustrative, not exhaustive.

The regulations of the Fair are intended to protect human subjects, both physically and psychologically. The regulations supplement, and do not supplant, relevant State and Federal regulations dealing with such protection.

FOR ALL PROJECTS INVOLVING TISSUE SAMPLES:

Live tissue samples must be taken either from a continuously maintained tissue culture line already available to institutional researchers, or from animals already being used in an on-going institutional research project.

Students may not be involved in the direct acquisition of these samples from living human or vertebrate animals.

FOR ALL PROJECTS USING ANY LIVE VERTEBRATE ANIMAL, EXCLUDING HUMANS:

The State of California Education Code §51540:
In the public elementary and high schools or in public elementary and high school school-sponsored activities and classes held elsewhere than on school premises, live vertebrate animals shall not, as part of a scientific experiment or any purpose whatever:

(a) Be experimentally medicated or drugged in a manner to cause painful reactions or induce painful or lethal pathological conditions.

(b) Be injured through any other treatments, including, but not limited to, anesthetization or electric shock.

Live animals on the premises of a public elementary or high school shall be housed and cared for in a humane and safe manner. The provisions of this section are not intended to prohibit or constrain vocational instruction in the normal practices of animal husbandry.

CALIFORNIA STATE SCIENCE FAIR

2014 CERTIFICATION OF COMPLIANCE FOR RESEARCH INVOLVING HUMAN SUBJECTS, TISSUE SAMPLE SOURCES, AND HUMANE TREATMENT OF LIVE VERTEBRATE ANIMALS

NAME OF APPLICANT (LAST NAME, FIRST NAME)	NAME OF SCHOOL
PROJECT TITLE	

This form is for:

Compliance for Research Involving Human Subjects _____

Tissue Sample Source Verification _____

Humane Treatment of Animals _____

We certify that the experimental procedure used in this science fair project complies with State and Federal regulations including but not limited to 45 CFR 46 §46.102 and California Education Code §51540:

SIGNATURE OF STUDENT	DATE SIGNED

PROJECT ADVISOR

PRINT NAME	TITLE
NAME OF INSTITUTION	TELEPHONE NUMBER
ADDRESS OF INSTITUTION	
SIGNATURE OF PROJECT ADVISOR	DATE SIGNED

Ap3/14

CALIFORNIA STATE SCIENCE FAIR

SCIENCE FAIR STUDENT OF THE YEAR
2014 APPLICATION

APPLICATION DEADLINE: Received by Thursday, April 17

NAME OF APPLICANT (LAST NAME, FIRST NAME)	SCHOOL PHONE NUMBER
NAME OF SCHOOL	

Description: The California State Science Fair Student of the Year is selected from 12th grade students who are entrants in the State Science Fair and who submit this completed application and an essay. Applicants will be judged on their science project, academic excellence, ability to communicate, community service, and breadth of activities and interests.

Directions: The complete application consists of

- this completed form, including names and phone numbers of three references, and
- a separate essay, *no longer than 600 words*, which explains your Science Fair Project. Since the judging panel will consist of people who may not be experts in your topic area, make sure that your essay is written for a general audience.

There is no separate fee associated with this application.
The application and essay should be typed. Use a type size no smaller than 10 point. (This is 10 point type.) Any other additional materials submitted with this application will **not** be given to the judges.

Procedure: Based upon this application form and essay, semi-finalists will be selected by the judges on the morning of the Fair. Semi-finalists will be interviewed about their project on the floor of the Science Fair during the regular category judging period. Three to five finalists will then be selected and announced at the end of the category judging period. During the afternoon, in-depth interviews will deal with issues set out in this application, and may include, but will not be limited to, the scope of your specific project.

DEADLINE: MUST BE RECEIVED BY THURSDAY, APRIL 17. This form may be sent by fax, email, or US Mail:

California State Science Fair Science Fair Student of the Year Award Nor Oropez 213-744-2052 (fax) noropez@cscmail.org	California State Science Fair Science Fair Student of the Year Award California Science Center 700 Exposition Park Drive Los Angeles, CA 90037

1. Describe your high school scholastic achievements.

2. Describe your involvement in extracurricular activities.

3. Describe your involvement in community service work.

4. Describe your other interests and hobbies and why these are important to you.

REFERENCES

List the names and daytime phone numbers of three personal references who can evaluate your activities listed in this application. Family members are not permitted as references.

NAME OF REFERENCE	AREA CODE	DAYTIME PHONE NUMBER

CALIFORNIA STATE SCIENCE FAIR

SCIENCE FAIR TEACHER OF THE YEAR
2014 NOMINATION FORM

NOMINATION DEADLINE: Received by Thursday, April 10

Description: The California State Science Fair Teacher of the Year is the science teacher who has been most inspirational to 6th - 12th grade students participating in the California State Science Fair by encouraging students to develop a science fair project and to pursue their interest in science as a career. One award will be presented in each division (Junior and Senior).

Eligibility:

- The nominee must have been a teacher during the current academic year at the 6th - 12th grade level at a public or private school in California.
- The teacher must have counseled a student at his/her school and provided resource support on a science project that is entered in the current California State Science Fair. This teacher should be named as the nominating student's advisor on his/her application to the State Science Fair.

Directions: A completed nomination for this Award consists of:

- The nomination form on the reverse side of this page (pg. 22), filled out by a student who is an accepted participant in the California State Science Fair; and
- A separate letter of recommendation written by the school principal or department chair. This statement must be no longer than one page and should focus on the teacher's commitment to science education, ability to motivate students, and special efforts demonstrated to advance excellence in science education. The letter should also address the nominee's specific contribution to promoting positive science fair participation. The nomination form and recommendation may be submitted either together or separately.

Incomplete nominations (*e.g.* missing letter of recommendation) will not be considered. Both the nomination form and the letter of recommendation must be received by the Nomination Deadline given above. Regional or county fair coordinators may also encourage the nomination of teachers but must have the nomination form filled out by a student entered in the California State Science Fair. The nomination form and the recommendation may be sent by fax, email, or US Mail:

California State Science Fair Science Fair Teacher of the Year Award Kristen Edwards 213-744-2052 (fax) kedwards@cscmail.org	California State Science Fair Science Fair Teacher of the Year Award California Science Center 700 Exposition Park Drive Los Angeles, CA 90037

Procedure: Based upon the nominations and recommendations, a maximum of three finalists from each division will be chosen. The selection committee will notify all finalists by phone in advance of the Fair. Nominees who are not selected as finalists will not be notified of the status of their nomination.

Teachers selected as finalists must be available for a personal interview in Los Angeles on the day of the California State Science Fair. These interviews will be conducted by a panel representing the California Science Teachers Association, the California Science Center, The MUSES, and educators.

Winners will be announced at the California State Science Fair Awards Ceremony.

CALIFORNIA STATE SCIENCE FAIR
SCIENCE FAIR TEACHER OF THE YEAR
2014 NOMINATION FORM

NAME OF TEACHER BEING NOMINATED	NAME OF STUDENT MAKING THIS NOMINATION	GRADE

NAME OF SCHOOL

SCHOOL ADDRESS

CITY	ZIP	COUNTY

NAME OF PRINCIPAL	SCHOOL PHONE NUMBER

SUBJECT(S) NOW TEACHING	TEACHER'S HOME PHONE (for late contacts)

How has this teacher helped prepare you for the State Science Fair?

What other activities is your teacher involved in outside of normal teaching duties?

What impact has this teacher had in encouraging you and fellow students to pursue your interests in science beyond the classroom?

Ap5/14

LOCAL HOUSING ARRANGEMENTS

Major hotel chains within Los Angeles are listed below. **Listing here does not constitute an endorsement.** Since rooms are limited, you should make reservations as early as possible. Other hotels in the area will be identified on the Fair's Web site.

Hotel	Notes	Telephone
Best Western		800-452-4888
Hampton Inn & Suites		800-426-7866
Holiday Inn Express		800-821-8277
Radisson		800-333-3333
Ramada Inn		800-228-3344
Travelodge		800-644-0807

FOOD SERVICE

On Tuesday, immediately following the judging, a sack lunch will be provided to registered participants. A ticket for this lunch will be provided in the Registration Packet of those students requesting a lunch on their application. No other meals are provided. There are commercial food vendors located within the California Science Center. Additionally, a map and list of eating establishments in the immediate vicinity will be included in your Registration Packet.

LOCAL TRANSPORTATION

The California State Science Fair does not provide transportation within the greater Los Angeles area for participants. However, there are a number of van services you may contact for transportation from the local airports to the Fair. (Alternatively, all major car rental agencies have offices at LAX and Burbank.) Mention of these services is not an endorsement.

Service	phone
Super Shuttle	(800)554-3146 (818)558-3177
Prime Time Shuttle	(800)RED-VANS
Express Shuttle	(800)606-RIDE (800)427-7483

CALIFORNIA STATE SCIENCE FAIR
2014 AWARDS PROGRAM

Awards at the California State Science Fair are distinguished as either Fair Awards, which are determined by judges working for the Fair itself, or Special & Recognition Awards, which are presented by organizations external to the Fair in additional recognition of student achievements.

Fair Awards

Category Awards

The California State Science Fair awards the top four projects within each subject category and each age division as First Place, Second Place, Third Place, and Fourth Place. One project, and only one project, receives each award — there are no ties. In the case of awards given to a team project with two or more students named as co-authors, the cash award is divided equally among each co-author. All category award winners receive a medallion in recognition of their achievements. Category Award winning projects receive the following cash awards:

Category Awards	Junior Division	Senior Division
First Place	$250	$500
Second Place	$125	$250
Third Place	$75	$125
Fourth Place	$50	$75

In addition, the judges may elect to name a small number of projects of outstanding quality as Honorable Mentions. These projects will be recognized at the Awards Ceremony and on the Fair's web site.

Project of the Year

Following the selection of Category Awards, two special committees of category judges (one for each age division) review every first place winning project in each subject category in order to select the best project in each division. These awards are $5,000 in the Senior Division, and $2,500 in the Junior Division.

Broadcom MASTERS

In the Junior Division, every first and second place category award winner will be qualified to the Broadcom MASTERS, a national competition for students in grades 6-8, with a top prize of $25,000. The deadline for applying to this competition is June 18, 2014. For further information visit the CSSF web site.

California State Science Fair Student of the Year **See page 19**

This $1,000 award is given to a senior in high school on the basis of his/her project and other activities.

California State Science Fair Teachers of the Year **See page 21**

In each age division one teacher will be awarded $2,000. Be sure to nominate your teacher.

CALIFORNIA STATE SCIENCE FAIR
2014 AWARDS PROGRAM

Special and Recognition Awards

Special and Recognition Awards are presented by various professional scientific and engineering associations, businesses, volunteer groups, and private individuals in recognition of outstanding achievement through science fair projects. Judging for the awards is done by the presenting organizations themselves, and is entirely separate from the judging for category awards and all other awards presented by the Fair which are listed on the previous page.

Special Awards

Special Awards are single awards valued at $500 or more and will be presented at the Awards Ceremony along with all of the Fair Awards.

In recent Fairs Special Awards have also been presented by the American Chemical Society; the American Heart Association; Dr. Arnold O. and Mabel Beckman; California 4-H; the California Energy Commission; California Fuel Cell Partnership; California Sea Grant; California Shore and Beach Preservation Association; the Cardinal and Gold Award of Excellence; Chemical Waste Management; Institute for the Advancement of Engineering; Edwards Lifesciences; Five Star Legal and Wells Fargo; Hefni Technical Training Foundation; Sheila Kar Health Foundation; Lucky Stores; Los Angeles Biomedical Research Institute; Los Angeles County Department of Public Works, California Disposal Association, and Walmart; MLIM; MUSES of the California Science Center; the Neurology Award; Center for Plant Cell Biology at the University of California, Riverside; Rotary Club of Los Angeles; the Silicon Boule Award; SPIE – The International Society for Optical Engineering; Tau Beta Pi Engineering Association; UCLA Brain Research Institute; the University of California, Riverside; the University of Southern California; and ZACA, Inc.

Recognition Awards

Recognition Awards are single awards valued under $500. Recognition Awards are presented to winners at their projects during the second session of category judging from 11:00 am - 12:30 pm, **not** at the Awards ceremony.

Recognition Awards at recent Fairs have been presented by the American Chemical Society; American Heart Association; American Institute of Aeronautics and Astronautics (Orange County and Los Angeles County sections); American Vacuum Society; Association for Women Geoscientists; Biophysical Society; Bone Clones, Inc.; California Association of Professional Scientists; California Council of Geoscience Organizations; California Energy Commission; California Energy & Environmental Education Forum; California Environmental Health Association; California Native Plant Society; California Shore and Beach Preservation Association; California Science Center Volunteer Groups: Docents, MOSAIC, and MUSES; Center for Scalable and Integrated Manufacturing (SINAM); Hauta Wissmann Foundation; Health Physics Society; Institute for the Advancement of Engineering; NASA/JPL; Los Angeles Council for Scientists and Engineers; Santa Monica College; Science Buddies; Sierra Club; Society of Petroleum Engineers; Southern California Chapter of the Health Physics Society; SPIE, the International Society for Optical Engineering; Stockholm Junior Water Prize, Tau Beta Pi Engineering Association; the Tom Reside Memorial Award; TRW; University of California, Irvine, Dept. of Earth System Science; UCLA Earth & Space Sciences Faculty; University of Southern California.; and US Fish & Wildlife Service.

WHAT TO EXPECT DURING THE JUDGING

What Should You Do?

1. You should prepare an oral summary of the important points in the project which you can present in no more than 60 seconds. Your judges will already have read your abstract, so if you've done a good job there (see pg. 15) your summary will remind them of questions that occurred to them earlier.

2. Following your summary, you may find it useful to prepare several short capsule descriptions of important aspects of your project. You know your project better than anyone, so you should have the best ideas of what is important, but you could prepare answers for such questions as "Where did you get the idea for this project?" "What is special or distinctive about your project?" "What is the next thing you would do with your results?" "What questions has your project now generated?" You might also explicitly prepare for the question you hope the judges will ask.

3. If yours is a team project, one person should act as the team spokesman at the beginning and present the oral summary. This summary should include the rationale for the project being a group, rather than an individual, enterprise, and how each member contributed. Each member of the group should be fully knowledgeable about the project and be prepared to then discuss his/her part.

4. You will be provided with a list of judges for your category and their qualifications. Special and Recognition Awards judges will not be included. Know who your judges are for two reasons:

- Be sure to have each judge initial the front of your project placard in the space provided at the conclusion of each interview. This is your record of your project's judges.
- Each project will be provided a form for you to evaluate your judges. Turn it in at the conclusion of all judging at the south (main) entrance to the Science Center.

What Should You Expect The Judges To Do?

1. At the beginning of the judging period the chair of your category's panel may assemble and speak to the entire group of students. Watch for this.

2. You should be interviewed by at least five different judges for your category who will spend about 8 minutes discussing your project with you. It is difficult to space these interviews equally, so don't get discouraged if there is a long wait between judges. Don't worry about comparing the number of your judges with your neighbors. You, or they, may be getting Special and Recognition Awards interviews.

3. Many judges prefer to learn about your project by asking questions. Be prepared for them to interrupt your presentation.

What Other Things May Happen During The Judging?

The California State Science Fair is a major event. You may find that your interviews with the judges will be competing with newspaper reporters (some with photographers), radio reporters, TV cameras (with their bright lights) and other video recorders for possible promotions of future Fairs.

This is a major event for the California Science Center, and they are proud to give publicity to you as a promising scientist or engineer. Although it may interrupt a judging interview as officials and VIPs come through the exhibits, please recognize it also as an honor for you and your fellow participants.

Finally, during the second session of judging, Recognition Awards will be presented to students at their project displays. (Special Awards are presented at the Awards Ceremony later in the day.) These Award presentations will often be modest and quiet, but some will involve a sizeable number of presenters who may be accompanied by the media.

CALIFORNIA STATE SCIENCE FAIR
2014 SCHEDULE OF ACTIVITIES

All activities and events will take place within the California Science Center.

Monday, April 28, 2014

10:00 a.m.		Registration Opens
1:00 - 3:00 p.m.		Affiliated Fairs Conference Location: California Science Center, Conf Rm 3, 4th floor
3:00 - 4:30 p.m.		Public Viewing of Fair Projects Students are requested to be present in front of their projects
3:30 p.m.		Registration Closes All projects must be registered by this time, though a short additional time is allowed to complete the Display Approval process.
5:00 - 6:00 p.m.	*	Opening Ceremony and Keynote Address Keynote Speaker: Blake Bullock, Northrop Grumman Location: Big Lab, Wallis Annenberg Building

Tuesday, April 29, 2014

7:00 a.m.		Science Center opens for judges and participants only.
8:00 a.m.	*	**Student Orientation** Location: Big Lab, Wallis Annenberg Building
8:00 a.m.		Judges examine project displays before the first Judging Session. No interviews will be conducted because students should not be present at this time.

Tuesday, April 29, 2014

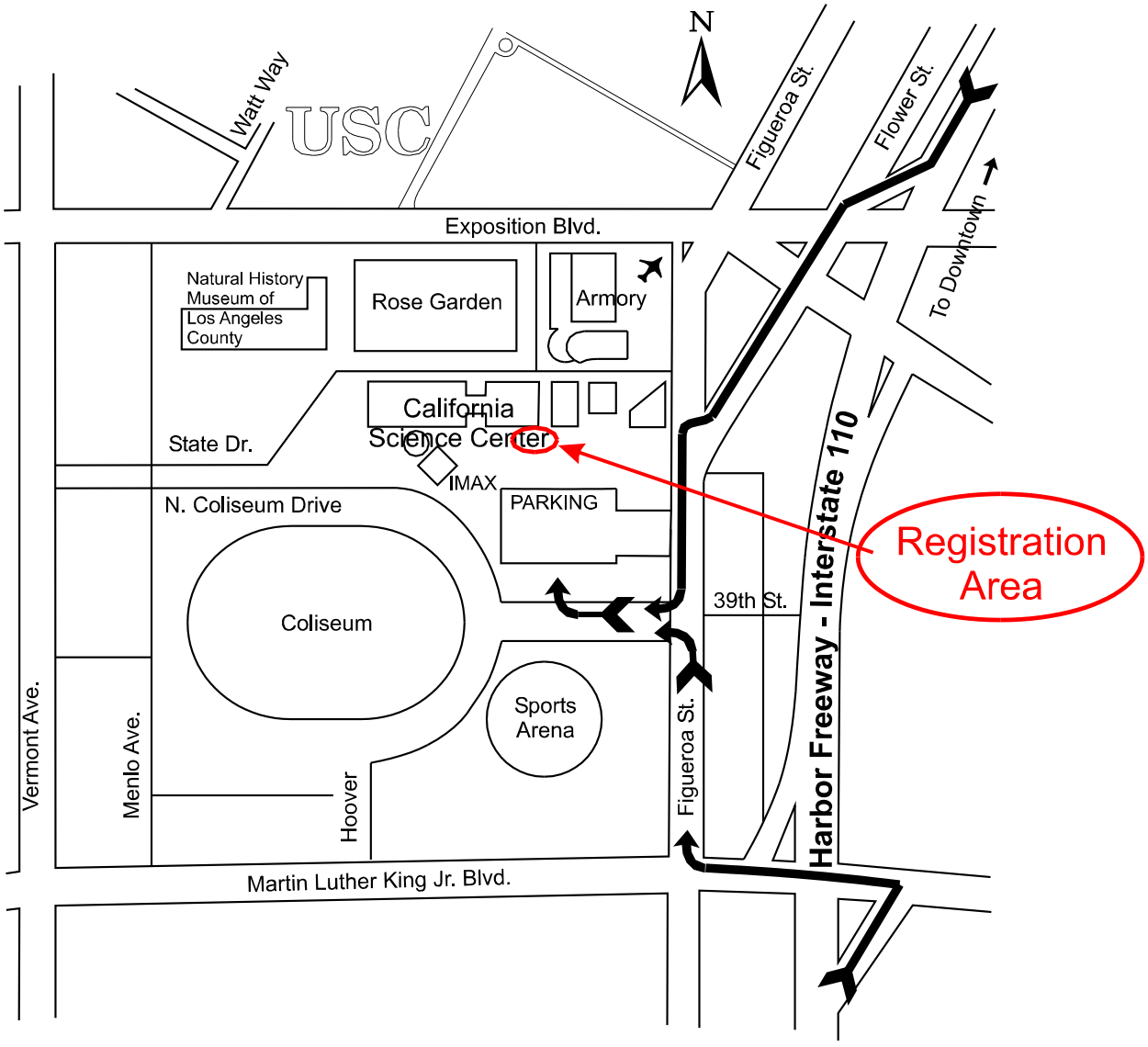
8:30 - 10:30 a.m.	*	**First Session of Judging** for all awards, in parallel. Includes: All Category Awards All Special Awards All Recognition Awards Science Fair Student of the Year project reviews
9:00 a.m. - 12:00 p.m.		California State Science Fair Teacher of the Year Interviews Location: California Science Center, Conf Rm 3, 3rd floor
10:30 - 11:00 a.m.		**Scheduled Break in Judging**. Some non-category judges may still be in attendance to review project displays, but students are *not* required to be at their projects now, and no interviews will be conducted during this time.
11:00 a.m. - 12:30 p.m.	*	**Final Session of Judging** for Category and Special Awards. Recognition Awards presented to winners at their projects.
12:30 p.m.		**Judging Ends**. All participants must exit the Science Center. All displays must remain in place until Removal Time (below).
12:30 p.m.		California State Science Fair Student of the Year Finalists Announced Location: Under the Rotunda, Outside South Doors, CSC
12:30 p.m.		Lunch provided for all students. Location: Under the Rotunda, Outside South Doors, CSC
12:30 p.m.		Students are now free. Local opportunities begin with the Science Fair Seminar at 2:00 pm, and include sites such as the IMAX Theater, California Science Center, Natural History Museum of Los Angeles County, California African American Museum, and the USC Campus.

Tuesday, April 29, 2014

1:00 p.m. - 3:00 p.m.		California State Science Fair Student of the Year Interviews Location: California Science Center, Conf Rm 3, 3rd floor
1:30 - 3:30 p.m.		**Project Removal** All projects must be removed now. The display tables on which the projects are set up will be broken down beginning at 3:30 pm. Projects not removed during this Project Removal period will be discarded.
2:00 - 3:30 p.m.		Science Fair Seminar for Everyone *How to Do a Better Science Fair Project* *Telling a Scientific Story: Presenting Data* Location: MUSES Room, Wallis Annenberg Building
4:00 - 5:00 p.m.	*	**Junior Division Awards Ceremony** Location: Big Lab, Wallis Annenberg Building *Closed to the Public* Only Junior Division participants and persons with a valid Admissions Ticket will be admitted to this ceremony.
5:30 - 6:30 p.m.	*	**Senior Division Awards Ceremony** Location: Big Lab, Wallis Annenberg Building *Open to the Public*

* Photographs will be taken, and press interviews (newspaper, radio, and TV) may be held at these times. Fair photographs will be posted to the World Wide Web. Please dress appropriately.

Map of Exposition Park and Vicinity



This Signature Card must be postmarked by your Application Fee Deadline
Mail this Signature Card, complete with both signatures, to:

California State Science Fair
California Science Center
700 Exposition Park Drive
Los Angeles, CA 90037

The Application Confirmation Code in the upper right corner was given to you after submitting the application. The Code was also included in the confirming email immediately afterwards.

NAME OF APPLICANT (printed)	APP CONFIRMATION CODE **E**
BRIEF TITLE OF PROJECT (for confirmation of identification)	

In consideration of your permitting the undersigned student to take part in the California State Science Fair, we waive all claims against CSSF and all sponsors for injury to or death of persons or loss or damage of property in any way occurring in connection with CSSF, and we agree to indemnify and hold them harmless against all such liability. By the undersigned applicant's participation in the California State Science Fair, we agree that the applicant and applicant's project may be photographed, filmed, or taped, and that the California Science Center Foundation may use such photographs, film, or tape, and applicant's name and project description in connection with the California State Science Fair and the promotion of CSCF, and that we will not make any claim for invasion of privacy or any other legal right in connection with such uses by CSCF. We acknowledge and agree that CSCF may identify applicant's grade level and school. We have read and understood the regulations governing the California State Science Fair and agree to abide by them.

SIGNATURE OF APPLICANT	DATE SIGNED
SIGNATURE(S) OF PARENT(S)/ GUARDIAN(S)	DATE SIGNED

Please include Application Fee payable to "California Science Center Foundation."
For credit card payments only:

Please charge my ❑ Visa / ❑ MasterCard / ❑ American Express :

Card Number _____ Expiration Date: _____
Name as it reads on card: _____ Signature _____

Ap8/14

SIGNATURE CARD

Be sure to include:

- This signature card
- Your $30 application fee (team projects note: this fee is per person, not per team)
- If you were instructed on the last page of the application, submit the Safety/ Certification form as well.
- If you worked in a professional research environment, include a copy of the letter from the research director as described in Display Regulation #8.

You may also choose to include in the same envelope:

- CSSF Teacher of the Year nomination
- CSSF Student of the Year application if you are a senior