

# 2010 SONOMA COUNTY SCIENCE FAIR STUDENT'S HANDBOOK

**Wednesday, February 24, 2010**

*A guide to the Sonoma County Science Fair for STUDENTS*

Important Dates and Deadlines		
Informational meeting for NEW schools (C&I conference room at SCOE)	Wednesday, 10/21/09	4:00 – 5:00 p.m
Informational meeting for ALL schools (C&I conference room at SCOE)	Monday, 10/26/09	4:00 - 5:00 p.m
School Registration Due go to <a href="http://www.scoe.org/pub/htdocs/science-fair.html">http://www.scoe.org/pub/htdocs/science-fair.html</a> to begin the registration process	Friday, 12/04/09	4:00 p.m
Students to submit project summary to <b>teacher</b>	Monday, 01/15/10 (or whenever your teacher requests them)	3:00 p.m.
Teacher to forward summaries to Jill McIntyre: <a href="mailto:jmcintyre@scoe.org">jmcintyre@scoe.org</a>		3:00 p.m.
Project Summary/application (online) and photo release (mail or fax) due	Friday, 01/22/10	4:00 p.m.
(optional) T-shirt order and check for \$7 per shirt due (payable to SCOE)		4:00 p.m.
Set up display at Sonoma County Office of Education		2:30 p.m. – 5:00 p.m.
Parent/public viewing of projects	Tuesday, 02/23/10	4:00 p.m. – 6:00 p.m.
Science Fair: judging		8:00 a.m. – 2:00 p.m.
Students arrive at SCOE for orientation, workshops, interviews, awards		10:30 a.m.
Awards Ceremony	Wednesday, 02/24/10	3:00 (approx)
Projects to be taken home (Blue Ribbon winners should save their projects in case they are recommended for the California State Science Fair or the San Francisco Bay Area Science Fair)		By 5:00 p.m.
Sonoma County Spring Science Showcase	Thursday, 05/20/10	To be determined
San Francisco Bay Area Science Fair	March 22-25, 2010	San Francisco
Intel International Science and Engineering Fair	May 9-14	San Jose
California State Science Fair	May 17-18, 2010	Los Angeles

Mike Roa  
Science Curriculum Specialist  
[mroa@scoe.org](mailto:mroa@scoe.org)

Jill McIntyre  
[jmcintyre@scoe.org](mailto:jmcintyre@scoe.org)

## Table of Contents

Introduction.....	3
What is the Science Fair? .....	3
What are the Benefits of Participating in the Science Fair? .....	4
Is the Science Fair a Competition? .....	4
How to Participate in the Sonoma County Science Fair .....	5
How to Register .....	5
School/district Science Fairs.....	5
Eligibility Rules .....	6
How to do a GREAT Science Fair Project! .....	7
Science Fair Project Category Descriptions .....	8
Science Fair Judging Criteria Check List.....	10
Science Fair Project Display Regulations .....	12
What Happens at the Sonoma County Science Fair? .....	14
Forms.....	15
Project Application/Summary (submit via email)	
Photo Release Form (submit signed form via FAX or U.S. Mail)	

### What's new for 2010?

1. One **new category** has been added: Health & Human Biology
2. Project set-up will be from 2:30-5:00 on Tuesday, February 23.
3. Parents and others are invited to **view the projects** on February 23 between 4:00 and 6:00 p.m.
4. In addition to the *Science Fair TEACHER'S Handbook*, there is now a *Science Fair STUDENT'S Handbook*. Both are available online. Students should use the *STUDENT'S Handbook* as a guide when preparing their projects for display.
5. Many college research projects are now reported out in a "Poster Presentation" format. These are similar to Science Fair displays. Students who do "posters" can simply affix their posters to appropriately sized cardboard or foam board panels to enter them in the Science Fair.
6. We intend to have a "Spring Science Showcase" on May 20, 2010. The purpose of this event is to recognize projects done by students at schools that hold their school science fairs after the SCOE Science Fair by providing them with an opportunity to take their project "to another level." We hope that students with excellent projects at the SCOE Science Fair will save their projects to show at the Spring Science Showcase.
7. We hope to find sponsors to help pay for top projects to go to the California State Science Fair in Los Angeles, but we can not promise that we will be able to do so.

## Introduction

Welcome to the Sonoma County Office of Education's Science Fair! I commend you for your interest in science and your willingness to put in the extra effort to complete a Science Fair project.

I'm glad that you are considering participating in the Science Fair. This *Handbook* should answer most of your questions. If you have further questions, please contact me as soon as possible. I am a part-time employee at the Sonoma County Office of Education (SCOE), so it may take me a few days to get back to you. Because my work at SCOE is part-time, the best way to reach me is by email: [mroa@scoe.org](mailto:mroa@scoe.org).

If you need immediate help, please contact Jill McIntyre at 707.524.2816 or [jmcintyre@scoe.org](mailto:jmcintyre@scoe.org)

I hope that you and your students join us at the Sonoma County Science Fair.

*Mike Roa*

Science Curriculum Specialist  
Sonoma County Office of Education

## What is the Science Fair?

The Sonoma County Science Fair gives students in grades 6-12 the opportunity to learn about a topic of their own choice. Students can complete individual projects, or they can work in teams of two or three students. The idea is to design, complete, and report on a scientific research project. Topic areas (categories) are listed below.

Categories identified as "Junior Division" are open only to students in grades 6-8. Students in grades 6-8 may enter in any category.

Students in grades 9-12 may enter in a category other than the Junior Division categories. If a high school student wants to do a project in a Junior Division area, they should select the most appropriate other category. For example, a high school environmental science project might fit into the Biology or Chemistry category.

### 2010 Sonoma County Office of Education Science Fair Categories:

Agricultural Sciences	Behavioral and Social Sciences
Biology	Chemistry
Cognitive Science (Junior Division)	Environmental Science (Junior Division)
General Sciences	Earth and Planetary Sciences
Electronics and Electromagnetism	Health and Human Biology
Mathematics and Software	Physics and Astronomy
Product Science (Junior Division)	

See pages 8-9 for descriptions of the categories.

The project should involve you in doing actual research into a question to which you do not know the answer. Investigations that involve observations and data gathering but not experiments are also appropriate. While collections, demonstrations of known information, models, etc. are good things to do, they are not appropriate for our Science Fair. The old baking soda and vinegar volcano or an insect collection would, therefore, not be appropriate.

As you ask your questions and develop your hypothesis, design your experiments, gather your data, and complete your research projects (usually with supervision by a teacher) you should **keep a notebook**.

A display showing the process and results will enable the judges to see and evaluate your work. The display may be a "poster," but it should be affixed to a cardboard or form board for support. On the day of the Fair, you will give a brief explanation of your project to the judges.

## What are the Benefits of Participating in the Science Fair?

*Students* who complete Science Fair projects learn much more than science facts. You will develop skills needed for scientific research; planning and organization skills; written, oral, and visual presentation skills; creativity, persistence, problem solving, and cooperation. Most importantly, we hope that you have fun while learning and developing your skills.

*Schools* who have students complete Science Fair projects often find that the projects lead to increased interest in, and enthusiasm for, science among students, staff, and parents alike.

## Is the Science Fair a Competition?

### **School or District Science Fairs:**

Some schools and school districts hold their own science fairs. These are often used to select projects to go on to the County Science Fair. Each school or district runs its fair in its own way. Some may be highly competitive, while others are less so.

### **The Sonoma County Science Fair:**

The purpose of the Sonoma County Science Fair is to encourage students' interest in science. All participants are given a certificate of participation and a participation ribbon.

Teams of judges from local colleges, science-related businesses, schools, and agencies evaluate each project based on how well it satisfies the criteria listed elsewhere in this *Handbook*. (See pages 10-12.)

Based on the judges' evaluation, a project may be awarded a blue, red, or white ribbon, but the ribbons do not represent first, second, and third places. Blue ribbons are awarded to projects that receive 90%, red ribbons are given for 80%, and white ribbons are given for 70%. Thus, it is conceivable that all projects might earn blue ribbons, or that no projects might earn blue ribbons. It is more like the grading of a test or other assignment than like a contest or sporting event in which there is a first, second, and third place.

Businesses, agencies, and individuals **may** provide special recognition for exceptional projects.

### **The California State Science Fair:**

The Sonoma County Office of Education is allocated a small number of entries in the California State Science Fair. Based on the judges' recommendations, exceptional projects may be invited to participate in the State Science Fair, which is held in southern California.

The 2010 State Science Fair will be held May 17-18.

We are seeking sponsors for our State Science Fair students, but at this time students entering the State Science Fair will be responsible for their own expenses.

### **San Francisco Bay Area and Intel International Science Fairs:**

We can also recommend several projects for participation in the San Francisco Bay Area Science Fair. Exceptional projects from the Bay Area Science Fair may be recommended for participation in the Intel International Science and Engineering Fair.

The 2010 San Francisco Bay Area Science Fair will be held in San Francisco on March 22-25.

The Intel International Science and Engineering Fair will be held in San Jose on May 9-14 in San Jose.

## How to Participate in the Sonoma County Science Fair

While most Science Fair participants come to the Sonoma County Science Fair after participating in their school's science fair, students from schools that do not have science fairs or whose school science fairs are held after the Sonoma County Science Fair can still participate. Such students should have their teacher register their school as described below.

**Register your school: Ask a teacher to do this for you.**

School registrations are due by 4:00 p.m., Friday, December 4, 2009

<http://www.scoe.org/pub/htdocs/science-fair.html>

### Project Registration:

In addition to the school's registration, the teacher needs to submit a project application/summary for each project. Please note that the application form asks for (optional) T-shirt size and a (required) project summary.

Project Application/Summary forms and (optional) T-shirt sizes are submitted online and are due Friday, January 22, 2010 by 4:00 p.m.

**Go to: [www.scoe.org/science](http://www.scoe.org/science) then click on 2010 Science Fair**

So that we can take student photos for promotional and news release purposes, we would like to have a photo release for each student. If you are not to have your photo taken, please check the box on the project application form.

The Photo Release forms are found on page 18 and 19 (Spanish version). Photo Releases are also due Friday, January 22, 2010, and should be:

Faxed to us at: 707.524.2734

or

Sent via U.S. Mail to:

Sonoma County Office of Education  
5340 Skylane Blvd., Santa Rosa, CA 95403  
Attention: Jill McIntyre

### School/District Science Fairs:

Many schools and school districts in Sonoma County hold their own local science fairs. These are sometimes used to select projects to enter in the Sonoma County Science Fair.

The registration process for those local science fairs varies according to the school or district.

### Spring Science Showcase:

We recognize that some schools and districts hold science fairs after the Sonoma County Science Fair. So that students in those schools and districts can take their projects another step... "to another level"... SCOE will offer a Spring Science Showcase on Thursday, May 20, 2010.

The Showcase will not be a full-blown Science Fair with judges, interviews, and place ribbons. It will, however, give students a chance for recognition. We will provide ribbons and/or certificates. More importantly, students will have the opportunity to see other well-done projects. We hope that some top Sonoma Science Fair projects will be on display. **In addition, students will be encouraged to save, revise, and redo their projects for possible participation in the 2011 Sonoma County Science Fair even if their school still has its Science Fair after the SCOE Science Fair. At this time, the details of the Spring Science Showcase have not yet been worked out.**

## Eligibility Rules

### 1. Recommendation

Projects entered in the Sonoma County Science Fair must be recommended by a sponsoring teacher. The Sonoma County Science Fair coordinator reserves the right to disqualify any project due to poor quality, incompleteness, or inappropriateness of project content.

### 2. Sonoma County Students

The Sonoma County Science Fair is open to students in grades 6-12 from any educational institution in Sonoma County.

### 3. Single Entry

Each student may enter only one project. Each project may have one, two, or three students. All work must be done by the student(s). If it is discovered by the judges that the project was prepared by other than the student(s) the project will be disqualified.

### 4. Categories

When registering the project, the author is asked to indicate a category. The Science Fair Coordinator may reassign a project to a more appropriate category at his/her discretion. Note that some categories are open only to students in grades 6-8 (Junior Division).

### 5. New Research

Scientists constantly build on their former work. Students are encouraged to continue their investigations after the Science Fair. However, if a project from last year's Science Fair is re-entered, substantial new research and development must be shown. The project display and notebook must clearly indicate "new" and "old" work. Final determination will be made by the category judges.

### 6. Previous work

Projects completed in the previous school year but not entered in the previous year's Sonoma County Science Fair may be entered in this year's Science Fair. The display and notebook must clearly indicate when the work was done. It is highly recommended that the work from the previous year be continued and further developed prior to this year's Science Fair. Students may revise, repeat, and improve upon projects done in previous years.

### 7. Supervision

On the day of the Science Fair, students not accompanied by their own parent(s) must be under supervision by a teacher or other authorized adult. Each student must have appropriate signed transportation/permission forms as required by his or her school district. The Sonoma County Office of Education is not responsible for supervision of any participant. Students who misbehave may be disqualified from the Science Fair at the discretion of the Coordinator.

### 8. Number of Entries

Due to space limitations, the number of entries from a school, may be limited by the Science Fair Coordinator.

## How to do a GREAT Science Fair Project!

1. The key to doing a great Science Fair project is **finding a topic of interest to you**. If you are truly interested in learning about your topic, it won't seem like work and you will enjoy your research. So...think about your topic before selecting it. Don't choose something just because it sounds easy, or because your friend or older brother or sister did something similar.
2. Once you have selected a topic, **discuss** it with your teacher and parent(s). They may have some suggestions as to how to approach it. It may be too simple for someone of your great scientific genius, or it may be too complicated for the time and resources available.
3. Keep in mind that a Sonoma County Science Fair project is supposed to be a **research project**. It is not supposed to be a demonstration of something already known to you.
4. Some Science Fair projects are based on experiments. Others are based on observations.
  - a. If your project is based on an experiment, **use the "scientific method."**
    - i. Ask a **question**...about something in which you are interested.
    - ii. Do some **background** research to learn a bit about the question or topic.
    - iii. Form a **hypothesis**. Try using an "if...then" statement such as  
If I do \_\_\_\_\_, then \_\_\_\_\_ will happen. Or "If the plant is \_\_\_\_\_, then \_\_\_\_\_.
    - iv. **Design** an experiment to test the hypothesis. Remember that the experiment should have a "control." Also remember that your objective is to test the hypothesis (to find out what is correct), NOT to prove your hypothesis correct. Finding out that it is wrong is just as good as finding out that it is right!
    - v. **Do** the experiment...accurately recording your observations and data in a notebook.
    - vi. **Examine** your data and draw whatever **conclusions** about the hypothesis the data indicates. Remember that your conclusions should be based on your data and should relate to your hypothesis. It is okay to conclude that the data don't provide for a clear conclusion, or that they show that your hypothesis was incorrect.
    - vii. **Repeat** your experiment...or have **multiple tests** at the same time.
    - viii. Consider possible **sources of error, other experiments** that might be suggested, more research?
  - b. If you are doing a research project that involves observations and collecting data but not an experiment:
    - i. Ask a question about something in which you are truly interested.
    - ii. Do some background research to learn a bit more about the topic.
    - iii. Plan your research and data collection. How will you collect the data? What tools do you need? How will you record your observations? How will you assure accuracy?
    - iv. Be sure to collect enough data or make enough observations so that you can feel confident about any conclusions that you draw.
    - v. Consider possible sources of error, other methods that might be used, further research, etc.
5. **Discuss** your project with your teacher and parent(s). They may have helpful suggestions.
6. **Plan** your Science Fair project display. Be sure to use the Judging Criteria (pages 10-12) and **keep a notebook!**
7. **Put your Science Fair project display together**. Again, be sure to use the Judging Criteria. Don't procrastinate...The sooner you start, the less stress you will have. The display may be a "poster," but it must be attached to a cardboard or foam board display board for support.
8. **Self-evaluate** your project and display. Don't procrastinate. You may want to make corrections.
9. **Revise** your display so that it the very best work that you can do.
10. Have your teacher, parent, or someone else use the Judging Criteria to evaluate your project. Revise it?

## Science Fair Category Descriptions

Notes regarding 2010 Sonoma County Science Fair categories:

The categories below align with categories used for the California State Science Fair. The Technology category is now called Electronics and Electromagnetics, and “Physics” is now Physics and Astronomy. Note that there is also an Earth & Planetary Sciences category. (These align with the California State Science Fair categories.)

For more information on California State Science Fair categories, go to:

[www.usc.edu/CSSF/Info\\_Genl/Categories.html](http://www.usc.edu/CSSF/Info_Genl/Categories.html)

A new category, Health and Human Biology, is open to all grade levels.

The California State Science Fair does not have an Agricultural Science category. If a project in this Sonoma County Science Fair category is selected to go on to the State Science Fair, it will then be entered in an appropriate category such as Chemistry, Plant Biology, Mammalian Biology, Chemistry, or Product Science.

Three categories are open only to students in grades 6-8 (the “Junior Division”). They are Cognitive Science, Environmental Science, and Product Science. High school students wishing to do projects in these areas would enter their project in one of the other categories.

Science Fair Project Categories	Examples
<b><u>Agricultural Sciences:</u></b> Studies related to growing plants and animals for human use.	Comparisons of different agricultural practices, such as fertilizers, watering practices, pest management, feeding, breeding, or other variables. Analysis of characteristics of agricultural products.
<b><u>Behavioral and Social Sciences:</u></b> 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, values, gender, diversity, anthropology, archaeology, sociology.	A study of senses in stress management; racial awareness in infants; AIDS awareness in teens; peer pressure; effect of authority figures on group decision making.
<b><u>Biology:</u></b> Biology is the study of living things, including plants, animals, protists, fungi, monerans, algae, etc. May be biochemistry, microbiology, molecular biology, studies of individual types of organisms, physiology, animal behavior, zoology.	Which sugars do yeasts use? Acid concentrations in various fruits; peripheral vision; the effects of organic and inorganic fertilizers; bird responses to predator calls; studies of how light affects bacteria.
<b><u>Chemistry:</u></b> Studies in which chemical and physico-chemical properties of nonbiological organic and inorganic materials are observed. (Biochemistry would be in the Biology category.)	Conductivity of electrolytes; Does water purity affect surface tension?; Isolation, purification, and specific rotation determination of ricinoleic acid.
<b><u>Cognitive Science:</u></b> ( <u>Junior Division only</u> (grades 6-8). Studies of learning, memory, and perception in humans, using human or animal models for human processes, subliminal perception, optical illusions, recall and observations, interaction of different senses. ( <i>Senior Division projects would belong in Behavioral and Social Sciences.</i> )	Does age affect learning? Flash cards vs. computer scripts for learning, optical illusions, the effect of noise on learning.

Science Fair Project Categories	Examples
<p><b>Environmental Science:</b> (Junior Division only (grades 6-8)...Senior Division projects would belong in other areas such as Environmental Engineering, Biology, Earth Science, etc.): projects studying the impact of natural and man-made changes in the environment such as floods, fires, acid rain, air pollution, earthquakes, etc.</p>	<p>The effects of fires on flora and fauna; how does water quality affect types and abundance of macro-invertebrates; bacterial pollution at the beach.</p>
<p><b>Earth &amp; Planetary Sciences:</b> Studies in geology, seismology, engineering geology, atmospheric physics, weather, physical oceanography, marine geology, coastal processes, and comparative planetology.</p>	<p>Gravity current velocities; beach sand fluctuations and cliff erosion, solar activity and refraction properties of the ionosphere; resistance to erosion in different soil types.</p>
<p><b>Electronics &amp; Electromagnetics (replaces Technology):</b> Experimental or theoretical studies with electrical circuits, computer design, electro-optics, electromagnetic applications, antennas and propagation, and power production.</p>	<p>Satellite reception without a dish; transmission of information by laser; effect of solar power.</p>
<p><b>General Sciences:</b> This category is for projects that don't fit into the other categories. Other California State Science Fair categories include Applied Mechanics and Structures, Environmental Engineering, and Pharmacology/Toxicology.</p> <p>Categories available for the California State Junior Division (grades 6-8) also include Aerodynamics/ Hydrodynamics, Materials Science.</p>	
<p><b>Health and Human Biology:</b> Research involving human health and the human body, how it works, and how things affect it. Some projects might more appropriately be entered in other categories such as Behavioral Sciences, Cognitive Science, or Environmental Science.</p>	<p>Surveys of teens' health habits; threshold levels for sensing odors, touch, or sounds; reaction times; measuring CO<sub>2</sub> production levels, pulse, or breathing rate in different circumstances.</p>
<p><b>Mathematics &amp; Software:</b> Studies in geometry, topology, real and complex analysis, number theory, algorithm analysis, artificial intelligence, computer graphics, modeling and simulation, programming environments, languages.</p>	<p>Maximally dispersed points on a sphere; computer-modeled evolution; partitions of positive numbers; neural network model of vision.</p>
<p><b>Physics &amp; Astronomy:</b> Studies of the physical properties of matter, light, acoustics, orbital mechanics, astrophysics, observational astronomy, astronomical surveys, computer simulations of physical systems (see also Earth Sciences).</p>	<p>Emissivity as a function of geometry; Solar activity and geosynchronous satellites, superconductors, radiation phenomena, reducing noise with sound barriers.</p>
<p><b>Product Science:</b> Biological and Physical (Junior Division only (grades 6-8). Comparison and testing of natural and man-made products for quality and/or effectiveness for intended use in real-world consumer-oriented applications. (<i>Senior Division projects would belong in Chemistry, Physics, Biology, or some other category.</i>)</p>	<p>Water absorption in woods with and without sealants, which plywood is best for skateboards?; Which laundry detergent works best? Does garlic inhibit oral bacteria growth? Do cats really prefer Friskies food? Is anti-bacterial soap cause for concern? Can people tell the difference between colas?</p>
<p><b>Technology:</b> See Electronics &amp; Electromagnetics</p>	

## Science Fair Judging Criteria Check List

You are **STRONGLY** encouraged to use the judging criteria below to **plan** and carry out the best Science Fair project possible. Note that different criteria are weighted differently.

You should use the check list below to **self-evaluate your project** so that you can make it as good as possible.

**Keep in mind that this is not a contest. Several projects can be awarded the top honor, a blue ribbon.**

A. Project Display check list		Points
<input type="checkbox"/>	Project display is self-standing and size limitations are met. (47" wide, 36" tall. Some parts may be placed on the floor if necessary. The display may be a "poster" affixed to a cardboard or foam board display board. <i>(Refer to Project Regulations on page 13.)</i> )	3
<input type="checkbox"/>	Display is self-explanatory, easy to understand. Doesn't require the student to explain what was done.	7
<input type="checkbox"/>	Components neatly and clearly labeled. (question, hypothesis, data, conclusions, etc.)	2
<input type="checkbox"/>	Writing is neat and legible; spelling and grammar are correct.	4
<input type="checkbox"/>	Notebook and summary present. Summary is clear, well written.	6
<input type="checkbox"/>	Overall appearance and quality of display.	4

B. Research Question/Creative Ability/Originality check list		Points
<input type="checkbox"/>	An original research question was asked. The question could be answered by performing an investigation. (The problem was clearly stated or question clearly asked. The originality may be in the concept, approach to the problem, or a new interpretation of data.)	6
<input type="checkbox"/>	Well-defined goals were clearly developed and show a clear understanding of the scientific basis of the study.	3
<input type="checkbox"/>	The approach to answering the question was scientifically accurate. The student(s) used logical, organized steps in investigation, rather than only descriptions and observations. Scientific thinking processes were in evidence.	8
<input type="checkbox"/>	The creativity was reasonable for a student of this age.	3

C. Scientific Thought/Organization check list		Points
<input type="checkbox"/>	The scope of the study was within the student's ability.	3
<input type="checkbox"/>	The study was well thought out and showed initiative in thought and design. It was based on a well-defined goal or question and the design was appropriate for answering the question or meeting the goal	10
<input type="checkbox"/>	A logical hypothesis was developed and clearly stated, or the question to be investigated was clearly stated.	3
<input type="checkbox"/>	Data collected relates to the hypothesis or investigation question.	5
<input type="checkbox"/>	Data/results were displayed in a clear manner, preferably using a data table, graphs, etc.	5
<input type="checkbox"/>	Summary, conclusion, and explanation were clearly stated and based on the experimental data.	5
<input type="checkbox"/>	A well-organized, clear, neat notebook was used.	3

<b>D. Thoroughness check list</b>		<b>Points</b>
<input type="checkbox"/>	The student(s) collected all available data. If an experiment, the experiment was repeated. If not an experiment, data collected was sufficient to meet the project goal or support conclusions drawn.	6
<input type="checkbox"/>	If an experiment, controls were clearly identified. If not an experiment, observations and data were clearly recorded.	3
<input type="checkbox"/>	The student(s) selected and used appropriate tools and technology to collect data, analyze relationships (if applicable) and display data.	3
<input type="checkbox"/>	The student(s) <b>clearly</b> communicated the logical connection among tests conducted, data collected, and conclusions drawn from the scientific evidence. <b>Conclusions were based on the data collected.</b>	7
<input type="checkbox"/>	The accuracy and reproducibility of the data were evaluated. Possible sources of error or uncontrolled conditions were considered..	7
<input type="checkbox"/>	The study was completed or brought to a logical stopping place.	3
<input type="checkbox"/>	The data were thoroughly analyzed and clearly communicated.	3
<input type="checkbox"/>	Effort and motivation: The student apparently spent enough time on the project, including background research/reading and preparation of the presentation, to show his/her interest.	7

<b>E. Skill check list</b>		<b>Points</b>
<input type="checkbox"/>	The study was carefully designed and appropriate for the student's skill level and resources. The investigation's protocols were handled with skill.	10
<input type="checkbox"/>	Technical problems were overcome and not merely avoided.	5
<input type="checkbox"/>	The data collection was carefully done or measurements carefully taken and recorded neatly and accurately in a notebook.	5
<input type="checkbox"/>	The study was the student's alone and excessive help was not used.	5

<b>F. Interview check list</b>		<b>Points</b>
<input type="checkbox"/>	The student's answers to interview questions showed understanding of the project topic and the experimental work.	5
<input type="checkbox"/>	The student's answers indicate comprehension of scientific principles and practices. He/she can extrapolate from the project to the subject in general. Understanding of the science behind the project is shown.	7
<input type="checkbox"/>	The student was able to explain the purpose, procedure and conclusions in a clear and concise manner.	5
<input type="checkbox"/>	If a group project: Each member was able to show understanding of the work. (If it is not a group project, give 5 points.)	5

<b>Judges' Discretion</b>		<b>Points</b>
The judge may award up to 10 additional points for exceptional work not covered by the criteria above.		10

## Science Fair Project Display Regulations

1. Display size limitations:
  - a. Project display boards are not to exceed 36" tall x 47" wide (standard size)
  - b. Each project will have an allotted table space of 14" deep (front-back) by 47" sideways.
  - c. Projects displayed on tables (the preferred standard) may extend no more than 3 feet above the table.
    - a. If necessary, parts of a project may be placed on the floor.
  - d. All projects must fit within these size limitations. This includes elements of the project that may extend or protrude. Requests for extra space for displays that necessitate additional space must be submitted in writing or via email and approved one week prior to Sonoma County Science Fair. Floor space is very limited, so try to design a display that fits on the table in the 14" x 47" space. If you need to use the floor, you must notify us, in writing, at least a week ahead of time and must be submitted by the due date. (Summaries and notebooks may NOT be added on the day of the Science Fair.)
  - e. The display may consist of a "poster" affixed to a cardboard or foam board display board.
2. Students must be available for an interview with the judges or they will not be eligible for a ribbon.
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 judging period. The **summary** (formerly called an abstract) must be displayed with the project. Neither the summary nor the abstract may be added or changed on the day of the Fair.
4. Student name(s) should be on the back of the display and inside cover of the notebook.
5. Display safety concerns:
  - a. All projects must adhere to all Sonoma County laws for public safety. Lasers must be appropriately shielded. Projects must sustain their own weight.
  - b. 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. Materials in violation of this rule will be marked and will be removed by the Science Fair Coordinator.
  - c. The Sonoma County Science Fair will disqualify any project deemed unsafe.
6. Displays may not contain any living organism except plants. The display of preserved animals is not permitted. Projects may not display photographs or procedures detrimental to the health and well being of vertebrate animals. Photographs of surgical procedures may not be exhibited.
7. Projects involving animals must be in compliance with the rules of the California State Science Fair. See their Web site for Display Regulations and Research under "Information for Students" at [www.usc.edu/CSSF](http://www.usc.edu/CSSF)
8. A limited number of projects requesting electrical power will be provided with one 110-volt outlet. You must bring your own UL approved three prong extension cords. The Science Fair does not provide extension cords. No gas or water outlets are provided.
9. SCOE will NOT provide computers. If a computer is required for a project display, it is entirely the student's responsibility. Be sure that your battery is charged, or use an AC adapter. If you need an electrical connection, be sure to notify us, in writing, at least one week prior to the Science Fair. (See #1 above.) **WE CANNOT BE RESPONSIBLE FOR LOSS OR DAMAGES.**

10. 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 own research. All students must clearly specify the assistance received and the role and contributions of others in the project. All such projects must 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.
11. Awards won in previous competitions may not be displayed or announced.
12. Participants are not permitted to distribute any items to judges.
13. The project should “stand alone,” *i.e.*, it should not require the student to explain or demonstrate for judging. Students will have a brief opportunity to discuss their projects with the judges, but the judges should be able to judge the project based on the display, summary, and notebook.

### IMPORTANT: LOSS OR DAMAGE

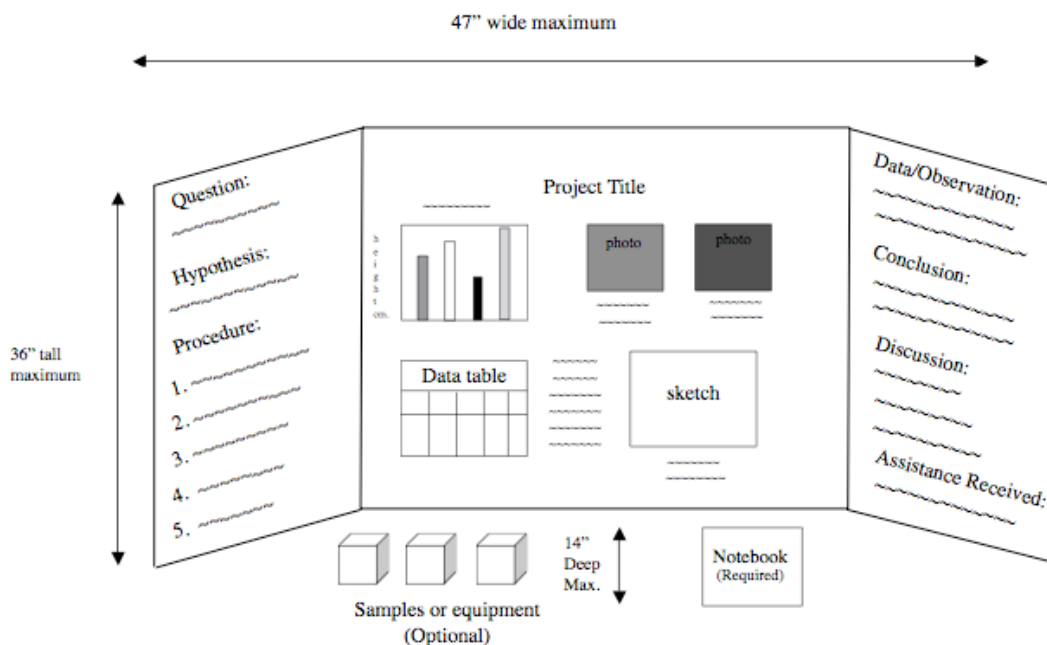
Valuable equipment, such as computers, may be part of the display only if the student participant accepts full responsibility. It is advised that valuable materials (*i.e.*, computers, research notebooks) can be on display only during the actual judging period. Although we will usually have adult supervisors in the project display room, the Sonoma County Office of Education and Science Fair assume no responsibility for loss or damage to any project or project part. Exhibitors must exercise care in protecting equipment. It is advisable to have any extra copy of notebooks and all printed materials.

### THE DISPLAY

The diagram below is just one example of how a Science Fair display might look. **The main point is that it should be clear and neat and must make it easy for the judges to understand your project.** If you did a “poster,” it might simply be attached to a cardboard or foam board display board.

Even though the diagram shows samples and equipment, you are not required to include them.

**A notebook is required.**



## What Happens at the Sonoma County Science Fair?

**Tuesday, February 23, 2010**

### **Set-Up**

Project displays are to be brought to the Sonoma County Office of Education (SCOE) office between 2:30-5:00 p.m.

**SCOE: 5340 Skylane Blvd., Santa Rosa (Take Airport Boulevard from Highway 101.)**

Please note the rules regarding space limitations and also notifying SCOE AHEAD OF TIME if electricity is needed.

### **Viewing**

The projects will be available for viewing by the public between 4:00-6:00 p.m. on Tuesday, February 23, 2010. Students are strongly encouraged to be present during the viewing. We will have a couple of people in the room for general supervision, but if the student can stand by his or her project he or she will be able to supervise the display. Also, answering questions that may be asked during the viewing can be helpful in preparing for the interviews with the judges on Wednesday.

**Wednesday, February 24, 2010**

### **Judging\***

Each project will be evaluated by a team of at least two judges. The judges will use the criteria that are listed on page 10-11 of this *Handbook*.

### **Interviews\***

Part of the project evaluation will be an interview by the judging team. The purpose of the interview is to give the student an opportunity to answer judges' questions. Students should be able to explain their project in a way that shows their understanding of the science involved. See the judging criteria on pages 10-12.

### **Activities**

While the judges are evaluating the projects, a variety of science-related activities will be provided for the students.

### **Lunch**

Pizza and bottled water will be provided for student lunches.

### **Awards\***

After the judging and lunch are completed, an awards ceremony will be held.

### **Student Choice Award**

Students will be given the opportunity to select the project that they think deserves a special Student Choice Award.

**Other Awards:** There is a possibility that awards for exceptional projects may be given by various companies, agencies, or individuals.

### **Take-down**

All projects must be removed from the rooms by 5:00 p.m. **Students who earn blue ribbons should take care of their project displays in case they are invited to participate in the Bay Area Science Fair or the California State Science Fair.**

\* See the Judging Criteria on page 10-12.

## **e-PROJECT Application and e-Summary**

### **Teacher Instructions:**

After the students have completed the *e-Project Application* and *e-Project Application/Summary* forms, the students should email them to their, the teacher, so that he or she can review/check and then email them to: [jmcintyre@scoe.org](mailto:jmcintyre@scoe.org)

**NOTE: WE WILL NOT EDIT OR REVISE THE SUMMARIES...PLEASE** proof-read them before sending them!

### **Project Application:**

The student should fill out the form on the following page for each project. **DO NOT to press the return or enter key...Just TAB and TYPE.**

We suggest that you email the *e-Project Application/Summary* to your teacher by **Friday, January 15, 2010** so that he or she can check them over, make or suggest revisions, and then **forward them to us via email by Friday, January 22, 2010.**

Note that there is a line at the bottom where your teacher should tell us if there are any special needs such as an electrical outlet or any concerns of which we should be aware. Also note that we ask your teacher to e-sign to indicate that the project is safe and that it complies with the rules.

### **Project Summary:**

We that the you type your Summary (formerly called an Abstract) in Microsoft Word so that you can do a spell check. Note that the responses must fit in the space provided so that the Summary is a one-page document. (Should your project go on to the State Science Fair, you have word/space limits on their Summary forms too.)

After typing in Word, you should copy and paste into the summary form online (*e-Project Application/Summary*). Be sure to check to see that everything was successfully inserted and that it fits in the allocated space.

**You should know that we will not edit or revise your summaries.** You should submit summaries of which you are proud. You may NOT bring summaries on the day of the set-up or on the day of the Science Fair. Learning to do quality work and to meet deadlines are important lessons.

### **Photo Releases:**

(This is a problem every year. Please get these in on time.)

We would like to take photographs of all student(s) at the Science Fair. In order to do so, we need to have a signed Photo Release form. We need to have all Photo Release forms by Friday, January 22, 2010 so that we can prepare name tags. (Name tags will indicate whether photographs are permissible.) You can imagine how impossible it is for us to remember which students not to photograph because we don't have their forms, so we hope to have releases for all students. So...please get the Photo Release form from your teacher and return it to him or her with three days of receiving it. Note that a Spanish version is provided.

**Please email the Project Application/Summary to [jmcintyre@scoe.org](mailto:jmcintyre@scoe.org) by Friday, January 22, 2010.**

**Please also fax (707.524.2734), or mail the Photo Release(s) by Friday, January 22, 2010 (refer to page 18-19) to:**

Sonoma County Office of Education  
5340 Skyline Boulevard  
Santa Rosa, CA 95403  
Attention: Jill McIntyre

## e-Student Project Application Instructions

To complete this section, just TAB and TYPE. Do not press the return or enter key. Use proper capitalization (do not type in all caps). Do not change font style or size. Designate one team member to **email both pages of this e-Project Application to your teacher by Monday, January 15, 2010.** so that he or she can review it and email to [jmcintyre@scoe.org](mailto:jmcintyre@scoe.org) by **Friday, January 22, 2010.**

School: <input type="button" value="Click here"/>	Teacher: <input type="button" value="Click here"/>
---	--

<b>Type</b>	Select one: <input type="checkbox"/> Individual <input type="checkbox"/> Group (3 maximum)
<b>Division</b>	Select one: <input type="checkbox"/> Junior (grades 6-8) <input type="checkbox"/> Open (Grades 6-12)
<b>Category</b>	<input type="checkbox"/> Agricultural Sci. <input type="checkbox"/> Behavioral Sciences <input type="checkbox"/> Biology <input type="checkbox"/> Chemistry <input type="checkbox"/> Cognitive Sci. (Jr. Div.) <input type="checkbox"/> Environ. Sci. (Jr. Div.) <input type="checkbox"/> Earth/Planetary Sci. <input type="checkbox"/> Electron/Electromag. <input type="checkbox"/> General Sciences <input type="checkbox"/> Health & Human Biology <input type="checkbox"/> Math & Software <input type="checkbox"/> Physics & Astronomy <input type="checkbox"/> Product Sci. (Jr. Div.)
<b>Grade Level</b>	(if more than one, mark the <u>highest</u> grade) <input type="checkbox"/> 6 <input type="checkbox"/> 7 <input type="checkbox"/> 8 <input type="checkbox"/> 9 <input type="checkbox"/> 10 <input type="checkbox"/> 11 <input type="checkbox"/> 12

### PROJECT CONTENT

(Confirm that your project will include each of these required items.)

- Display that can stand by itself       Summary (see next page)  
 Notebook of daily work and data       Optional: equipment, specimens, samples, etc.  
 I have notified my/our teacher of any special needs such as electrical outlet or extra floor space.

### PROJECT MEMBER/S (maximum of three students for a group project):

To avoid our mispronouncing of names during the award ceremony, include a phonetic pronunciation for each team member. T-shirts are optional and cost \$7.00 each. Checks should be made out to SCOE and mailed to Jill McIntyre at SCOE by **January 22, 2010.**

1.	<b>F &amp; L Name</b>	<b>Pronunciation:</b>				
	<b>Email</b>					
	<b>T-shirt size (optional: \$7 ea.)</b>	<input type="checkbox"/> none	<input type="checkbox"/> XL (46-48)	<input type="checkbox"/> L (42-44)	<input type="checkbox"/> M (38-40)	<input type="checkbox"/> S (34-36)
	<b>Photo Release</b>	<input type="checkbox"/> Signed & given to teacher.		<input type="checkbox"/> Student may not be photographed.		
2.	<b>F &amp; L Name</b>	<b>Pronunciation:</b>				
	<b>Email</b>					
	<b>T-shirt size (optional: \$7 ea.)</b>	<input type="checkbox"/> none	<input type="checkbox"/> XL (46-48)	<input type="checkbox"/> L (42-44)	<input type="checkbox"/> M (38-40)	<input type="checkbox"/> S (34-36)
	<b>Photo Release</b>	<input type="checkbox"/> Signed & given to teacher.		<input type="checkbox"/> Student may not be photographed.		
3.	<b>F &amp; L Name</b>	<b>Pronunciation:</b>				
	<b>Email</b>					
	<b>T-shirt size (optional: \$7 ea.)</b>	<input type="checkbox"/> none	<input type="checkbox"/> XL (46-48)	<input type="checkbox"/> L (42-44)	<input type="checkbox"/> M (38-40)	<input type="checkbox"/> S (34-36)
	<b>Photo Release</b>	<input type="checkbox"/> Signed & given to teacher.		<input type="checkbox"/> Student may not be photographed.		

Teacher, please complete the section below:

Note here any special needs (such as an electrical outlet) or other concerns:

Please enter your name here to indicate that this project complies with the Science Fair rules and poses no safety issues. Teacher name (e-signature):

## **e-Science Fair Project Summary (one page only)**

Your summary must fit in the space provided below. You want to make a good impression on the judges, so have your summary proof-read for accuracy, clarity, spelling, and grammar. **We will not edit or revise your summary for you!** We suggest that you type it in a program such as Word that allows you to spell-check, then copy and paste into this document. Use Times font, 12 point. See examples at the California State Science Fair website:

[www.usc.edu/CSSF/info\\_Gnl/Writing\\_Absract.html](http://www.usc.edu/CSSF/info_Gnl/Writing_Absract.html)

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

**Project Title** (Limit 120 characters.)

**Summary/Abstract:**

**Objectives/Goal:** What were you trying to determine? (1 or 2 sentences.)

**Question or Hypothesis:** (preferably an “If \_\_\_\_\_, then \_\_\_\_\_.” statement) (1 or 2 sentences)

**Methods/Materials:** Briefly describe the methods and materials that you used.

**Results:** Summarize your results, clearly indicating how they relate to your objectives.

**Conclusions/Discussion:** Did your results enable you to meet your objective? Was your hypothesis supported? Sources of error?

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

**Help you received in doing the project:** (e.g. Mother helped type report; neighbor helped wire board; used lab equipment at Sonoma State University under supervision of Dr. Smith; Mr. Jones proof-read my summary.)

Teacher, fax this form to: 707.524.2734

Sonoma County Office of Education  
5340 Skylane Boulevard  
Santa Rosa, CA 95403  
Jill McIntyre

September 28, 2009

page 17

**2010 Sonoma County Science Fair  
Wednesday, February 24, 2010**

**Parent Consent for Publication of Photographs**

**Note: Please return this form to your child's teacher within 5 days so that it can be forwarded to the Sonoma County Office of Education.**

Student's name \_\_\_\_\_  
(please print first and last name)

As the parent or guardian of the above-named student, I hereby give permission for the publication of photographs taken of my daughter/son in any newsletter, brochure, newspaper, electronic publication or other document that is published, distributed or issued by the Sonoma County Office of Education.

I further agree to release the Sonoma County Office of Education, its officers, agents and employees from any and all claims, demands and actions of any kind which I may have against the Sonoma County Office of Education in regard to the publication of the photographs.

Parent/Guardian signature \_\_\_\_\_

Date \_\_\_\_\_

Teacher, fax to: 707.524.2734

Sonoma County Office of Education  
5340 Skylane Boulevard  
Santa Rosa, CA 95403  
Jill McIntyre

**2010 Sonoma County Science Fair  
Miércoles, 24 de febrero, 2010**

**Permiso para La Publicación de Fotografías**

**Firme el PERMISO PARA TOMAR LA IMAGEN de su hijo y regreselo con su hijo a no mas tardar de cinco días.**

Nombre del estudiante: \_\_\_\_\_  
( favor de escribir en letra de molde, el primer nombre y apellido )

Siendo el padre o el Guardian del estudiante nombrado arriba, Yo por la presente doy mí permiso para la publicación de fotografías tomado de mi hija/hijo en cualquier noticiero, prospecto, periódico, publicación electronica u otro documento publicado, distribuido o emitido por la Oficina de Educación del Condado de Sonoma.

Además, acuerdo liberar la Oficina de Educación del Condado de Sonoma, sus funcionarios, agentes y empleados desde cualquier y todo reclamo, demanda y las acciones de cualquier tipo que Yo pueda tener contra la Oficina de Educación del Condado de Sonoma, con respecto a la publicación de las fotografías.

Firma del Padre/Guardian \_\_\_\_\_

Fecha: \_\_\_\_\_