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# Humboldt County Doris Niles Science Fair 2012

**Humboldt State University, East Gym, Arcata**

Monday, March 12 .....9:00 a.m. - 12:00 noon..... Project Set-up

Tuesday, March 13 .....8:30 a.m. - 8:00 p.m. .... 4-8 grades Display Judging

Wednesday, March 14.....9:00 a.m. - 12:00 noon..... Data Entry & Calls for Interviews

Thursday, March 15.....9:00 a.m. - 12:00 noon..... 6-8 grades Interviews  
4:00 p.m. - 7:00 p.m. .... Open for Public Viewing

Friday, March 16.....9:00 a.m. - 3:00 p.m..... Open for School Field Trips  
& Public Viewing  
3:00 p.m. - 8:30 p.m. .... Project Removal  
7:00 p.m. - 8:00 p.m. .... Awards Ceremony - New Gym

## Purposes of the Humboldt County Science Fair

- To support California State standards for science.
- To stimulate an active interest in science in young people by engaging them in original investigations and the development of new insights.
- To give public recognition to students for research and investigation in science.
- To foster school/community cooperation in developing the scientific potential of Humboldt County students.

## Humboldt County Science Fair Planning Committee

Lori Breyer - County Office of Education  
Lynne Bryan - Dow's Prairie School  
Heidi Conzelmann - Dow's Prairie School  
Loretta Eckenrode - Garfield School  
David Haller - Ferndale Elementary School  
Michele Kamprath - McKinleyville Middle School  
Kevin Lane - Pacific Union School  
Kit Mann - Kokatat  
Melody McGuire - McKinleyville Middle School  
Wendy Percy - McKinleyville Middle School

Ken Pinkerton - Washington Elementary School  
Carol Ralph - Volunteer  
Nancy Rickard - Volunteer  
Dan Scofield - St. Mary's School  
Jeff Self - County Office of Education  
Diana Skiles - Jacoby Creek Charter School  
Steven Smith - Humboldt State University  
Barbara Stafslie - Agnes Johnson School  
Forrest Stamper - Kneeland School  
Sheryl Steiner - Monument Middle School  
Heidi Walsh - Jacoby Creek Charter School



# Humboldt County Doris Niles Science Fair 2012

## Rules and Regulations



### I. Eligibility

- A. Students in grades 4 through 12 attending a public or private school in Humboldt County which has filed an "Intent to Participate" form are eligible to enter.
- B. All projects must be entered by a School Science Fair Coordinator. Students and parents cannot enter projects directly to the County Science Fair.
- C. The School Science Fair Coordinator will be responsible for reviewing all entries from his or her school to ensure compliance with County regulations.

D. Each project must be entered on a separate entry form. (See page 22 of this booklet.)

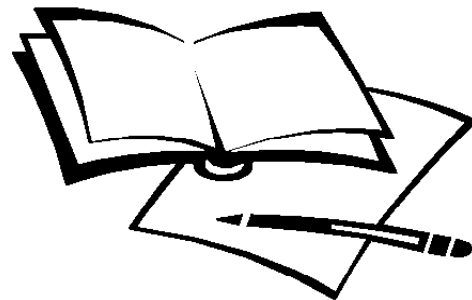
**1. ENTRY FORMS MUST INCLUDE A COPY OF ANY REQUIRED APPROVAL CERTIFICATES. PLACE ORIGINAL IN LOGBOOK.**

**2. 6th-12th GRADE ENTRY FORMS MUST INCLUDE A COPY OF THE ABSTRACT. PLACE ORIGINAL IN FRONT OF LOGBOOK.**

- E. *To be eligible to enter the Humboldt County Science Fair, students wishing to do projects involving animals, human subjects, firearms or weapons, and/or potentially hazardous substances are required to complete the approval process outlined in these rules prior to beginning any work.*

### II. Project Categories

- A. **Life Science - Animals** - zoology, anatomy, physiology, biology, and psychology, sociology, behavioral studies, personal preference surveys.  
***All projects in this category will require a Research Approval Certificate.***
- B. **Life Science - Botany** - plants, fungi, molds, bacteria.
- C. **Earth/Space Science** - minerals, rocks, volcanoes, crystals, geology, weather, gravity, astronomy, stars, and planets.
- D. **Math/Engineering/Inventions** - pure and applied math, geometry, probability, number theory; engineering shapes and structures to test physical laws, projects in which a potentially useful product is created.



- E. **Physical Science** - including studies involving **matter** (i.e. density studies, changes of state, evaporation, crystallization, chromatography or other separation techniques), **chemistry** (i.e. chemical reactions and interactions; rust, decay, discoloration; effects of acids and bases; production of gases and precipitates; effects of chemicals on living organisms, biochemistry), **force and motion** (i.e. simple machines, friction, effect of gravity, applications of force to physical systems) and **energy** (i.e. electricity, magnetism, batteries, motors, static electricity and heat, light, sound studies such as absorption or reflection of light/sound; lasers and prisms, musical instruments; waves, insulation experiments).
- F. **Consumer Science is NOT** an accepted category for the Humboldt County Science Fair. Teachers are encouraged to redirect student interest in product comparisons to studies of scientific principles. For example, "Which Brand of Golf Ball Goes Farthest?" could become "What Properties Have the Greatest Effect on the Distance a Golf Ball Will Travel; Weight, Size, Surface Texture, etc.?", which would then be in the Physical Science category.
- G. Projects with an **environmental emphasis** may occur in all categories. **They should be entered into the category which is the primary focus of the study.** For example, water pollution studies should be placed in Earth Science, energy conservation in Physical Science, effects of acid rain on plant growth in Life Science - Botany, etc.
- H. ***No projects involving illegal drugs, alcohol, or tobacco will be permitted.***
- I. Students have the option to display their work on a backboard (specifications on pages 16-17) or to prepare a multi-media, computer presentation (page 17).



### III. Entry Deadline

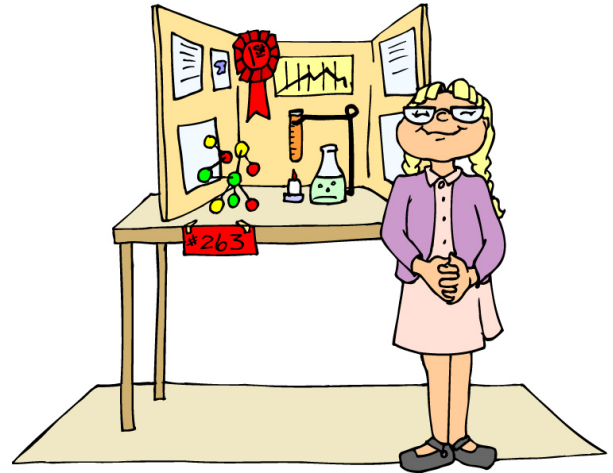
<p>Entry forms - student names, grades, project titles, approval certificates, and abstract for 6-12 grade projects.</p>	<p><b>February 29, 2012 5:00 p.m.</b></p>
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## IV. Entry Numbers

Schools with an enrollment of 150 students or more may send up to 20 projects to the County Science Fair.

Schools with an enrollment of 149 or less students may send up to 10 projects to the County Science Fair.

- Additional entries may be possible. For more information please contact Melody McGuire, Humboldt County Science Fair Coordinator at [mmcguire@nohum.k12.ca.us](mailto:mmcguire@nohum.k12.ca.us) or call 839-1508.



## V. Types of Projects Recommended

A. Students in grades 4-5 may enter:

1. Experiments

2. Non-experimental projects such as:

- three-dimensional displays (i.e. the solar system, structure of atoms) or collections based on research;
- models demonstrating a scientific principle or technology (i.e. what causes erosion or how to build a homemade seismograph);
- observations of the environment (how plants disperse seeds, what lives in a drop of pond water);
- data collection projects (how do the number of seeds in different fruits compare, how fast do bean plants grow).

B. For students in grades 6-12, **judging criteria will favor experiments and observational studies over non-experimental demonstrations and displays.** Students in these grades must follow good scientific methodology.

C. Original, innovative research will be judged higher than projects simply following experiments printed in textbooks or found in other sources for science fair projects.



## VI. Team Efforts



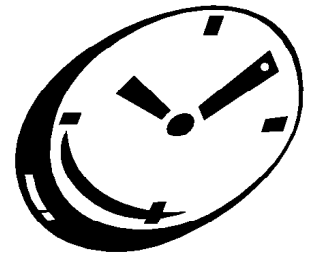
- A. Students in all grades may work on a project individually or with a partner. **Only two students to a team.**
- B. Team projects may be entered in any category. There is no separate category for team projects.
- C. **It is important to note, however, that 1) criteria for judging projects in this category will include evidence of equal contribution by both students, 2) each student working on the project MUST have his/her own logbook, 3) if students are of different ages, the project will be entered in the grade level of the eldest child.**

## VII. Two-Year Projects

- A. Two-year projects will be admissible only if a new question is asked or an extension beyond the previous year's work is apparent.
- B. The logbook from the original project must be displayed.
- C. The project must be prominently labeled "Two-Year Project" and first year results must be indicated separately from second year results.

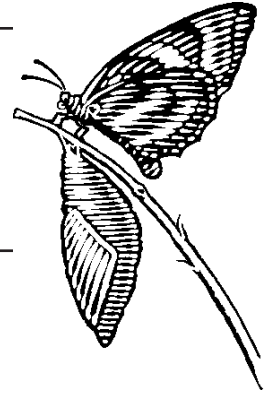
## VIII. Project Removal

- A. **It is the School Science Fair Coordinator's responsibility** to make certain all projects from his or her school are removed between 3:00 p.m. and 8:30 p.m. on Friday, March 16.
- B. Projects **may not** be removed before 3:00 p.m. on Friday.
- C. ***Projects not removed by 8:30 p.m. on Friday will be discarded.***



## IX. Use of Animals in Science Fair Projects

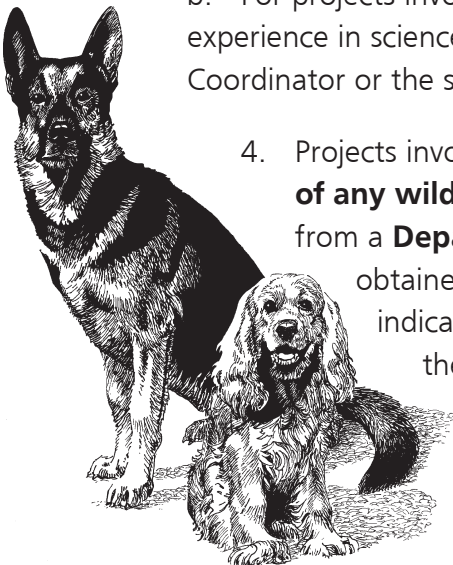
*Animals covered by the regulations below include vertebrates (mammals, reptiles, amphibians, birds, fish) and invertebrates (insects, crustaceans, mollusks, etc.); wild animals including game species, and domestic animals including family pets.*

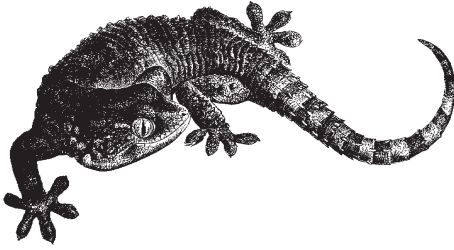


There can be *no exceptions* to the following requirements.

### A. Approval Procedures

1. Students with projects involving **an experiment or observation** of any living animal must have a qualified Research Advisor who will be responsible for the safe treatment of any animal subject to the student's study.
2. **Before any work on the project begins**, the student **must** make an appointment to meet with a Research Advisor. This person will review all pertinent regulations and advise the student on the safe treatment and/or non-invasive observation of animals involved in the project. S/he will also complete Part 1 of the *Humboldt County Science Fair Research Approval Certificate*.
3. Research Advisors must have the following educational background:
  - a. For projects involving **vertebrate animals**, the Research Advisor must have a **doctoral degree in science or medicine** (D.V.M., Ph.D., M.D.). It is recommended that Research Advisors review regulations in the federal Animal Welfare Act of 1966 with students (copies of relevant sections are available from the County Science Fair Coordinator).
  - b. For projects involving **invertebrates**, the Research Advisor must have educational experience in science education. It is recommended this person be the School Science Fair Coordinator or the student's classroom teacher.
4. Projects involving **observations of wild animals or the collection or display of any wild animal part**, must have clearance of the experimental design from a **Department of Fish and Game Control Officer**. This approval may be obtained by telephone. Students must submit a *Research Approval Certificate* indicating the name of the person providing approval, his/her title and the date of the telephone conversation. This documentation must be displayed on the backboard or logbook and be presented at the time the project is set up for judging. (See rules specific to wild animals following this section.)

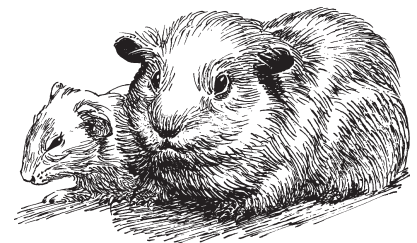




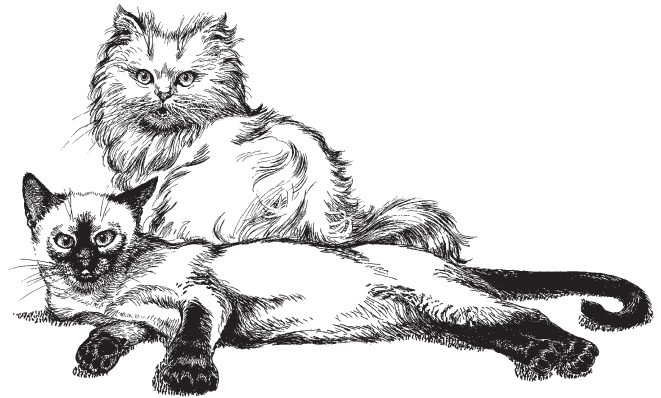
5. At the initial meeting, students must provide the Research Advisor with all of the following:
  - a. a written description of procedures they plan;
  - b. a copy of these Humboldt County regulations; and
  - c. a copy of the *Research Approval Certificate*.
6. A responsible adult must meet with the student and the Research Advisor. This person must agree to supervise the student's work on the project to ensure compliance with the animal care instructions provided by the Research Advisor. This adult supervisor must also sign Part I and Part II of the *Research Approval Certificate*.
7. A copy of the *Research Approval Certificate* **MUST** accompany the student's *Humboldt County Science Fair Entry Form*. The original of this form must be the first page of the student's logbook and be present when the project is set up.
8. Any project not conducted in conformity with these rules and the Humane Laws of California, will not be allowed to compete.

## B. Wild Animals

1. Under **Department of Fish and Game Regulations (Section 3005.5)**, any animal found in the wild is **protected**. It is, therefore, illegal for students to capture or confine any wild mammal, bird, fish, reptile, amphibian or invertebrate animal for the purpose of a science fair project. It is also important that teachers and students are aware:
  - Section 3039 states: it is illegal to sell or to purchase **any part of any animal found in the wild**. This includes feathers or other body parts from any migratory bird or the carcass, skin or other parts of non-game animals including, **but not limited to**, endangered species.
  - The only exceptions to this regulation are:
    - a) fur from mammals taken legally under the authority of a trapping license;
    - b) parts of **domestically reared** game birds; and
    - c) shed antlers from **domestically reared** animals.

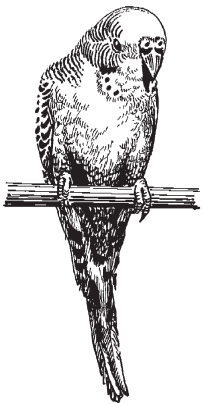


- Students should also be aware these protections extend to **marine life**. The collection of tide pool animals is prohibited except for those species subject to sport regulations. In the case of these animals, students must obey all Fish and Game sport regulations on limits, opening and closing dates, specific locations and required licenses.
  - Game species that are hunted are subject to sport fishing and/or hunting limits and regulations and require the appropriate licenses, proof of which must be included with the student's logbook.
2. Care should be taken to return animals to their native habitat and to avoid releasing non-native species into a non-suitable environment.
  3. Projects using any animal parts (teeth, stomachs, hides, etc.) must have written documentation indicating the source of the animal parts.



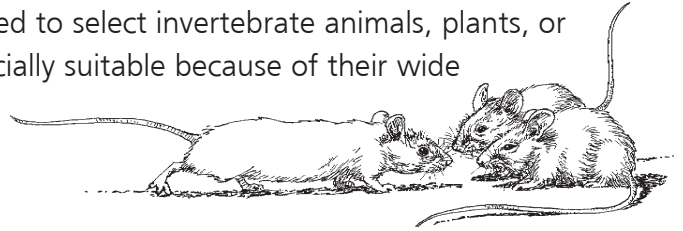
### C. State Law

1. California State Law and the California Educational Code require:



- a. The comfort of all animals used in any project shall be a prime concern. Animals **MUST** be obtained from a reliable source and the following basic needs **MUST** be assured: appropriate, comfortable quarters; adequate food and water; cleanliness and humane treatment; exercise when required for the species of animals used. Students **MUST** make arrangements to provide these basic needs at all times, including weekends, vacations, and holiday periods.
- b. No vertebrate animal will be subjected to any procedure or condition, including nutritional deficiency experiments, which results, **either by intention or negligence**, in pain, distinct discomfort, abnormal behavior, injury, or death.
- c. No surgery, including biopsy, will be performed on any living animal.
- d. When planning the project, the student **MUST** arrange for the humane disposition of all animals involved after the project is completed. This may be done by placing them in an environment where they are assured of continued humane care or by releasing undomesticated species into a suitable wildlife environment. Students **MUST NOT** perform euthanasia on vertebrate animals under any circumstances. A complete account of the final disposition of all animals used **MUST** be included in the final report of all projects involving living animals.

- e. The basic aim of any project involving living animals should be to increase the knowledge and understanding of life processes. It should not include the demonstration or development of surgical techniques. All projects involving animals must, therefore, have a clearly defined objective which requires the use of animals to demonstrate a biological principle or to answer a specific question.
- f. A lower form of life should be selected for the project, rather than a higher form, whenever possible. Students are strongly urged to select invertebrate animals, plants, or tissue cultures. Invertebrate animals are especially suitable because of their wide variety and availability in large numbers.
- g. California humane laws specifically forbid the mistreatment or neglect of animals, including animals used in schools and school-sponsored activities. Students, teachers, and supervisors must know and obey these laws. Any student research involving animals **MUST COMPLY** with the requirements of the California Education Code stated here:



*HUMANE TREATMENT OF ANIMALS, State of California Education Code Title 2, Division 2, Part 28, Chapter 4, Article 5, Section 51540.*

*In the public elementary and high schools or in public elementary and high school sponsored activities and classes held elsewhere than on school premises, live vertebrate animals shall not, as part of a scientific experiment for any purpose whatsoever:*

*a) be experimentally medicated or drugged in a manner to cause painful reactions or induce painful or lethal pathological conditions; or*

*b) be injured through any other treatments, including, but not limited to, anesthetizing or electric shock.*

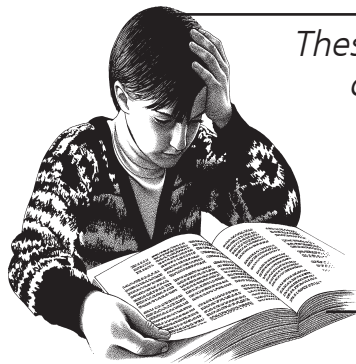
*Live animals on the premises of a public elementary or high school shall be housed and cared for in a humane and safe manner.*



## **X. Use of Plants**

Care must be taken that no rare or endangered plant species be collected or disturbed for a science fair project.

## XI. Use Of Human Subjects In Science Fair Projects



*These rules apply to all projects involving human subjects in any of the following:*

- physical activity
- blood testing
- tasting or sampling of food or drink
- surveys of opinions or behaviors

### A. Research Advisors

1. In order to protect the health, safety and legal rights of human subjects, the student conducting the project must have a Research Advisor approve his/her plans **prior** to any work with human subjects. The Advisor will meet with the student and a responsible adult who will supervise student work. Qualifications for Research Advisors vary with the type of project as follows:

a. If the project involves:

- 1) a physical activity **in any way beyond the scope of any subject's everyday life** (running endurance trials, sitting in hot tubs of different temperatures, studying test performance after sleep deprivation, etc.);
- 2) work with human blood; and/or
- 3) the ingestion of a food, drink or any other substance **in any way beyond the scope of any subject's everyday life...**

**...the Research Advisor must be a medical doctor (M.D.).**

b. If the project involves:

- 1) the ingestion of a food, drink or any other substance **completely within** the scope of any subject's everyday life;
- 2) a physical activity **completely within** the scope of any subject's everyday life (i.e. Does color affect taste? Do different ages have different food preferences? Measuring changes in height before and after sleep, etc.); and/or
- 3) the collection of information through a questionnaire or survey...

**...the Research Advisor must be the School Science Fair Coordinator or the School Site Administrator.**

2. At the initial meeting, students must provide the Research Advisor with all of the following:
  - a. a written description of procedures they plan;
  - b. a copy of these Humboldt County regulations pertaining to human subjects;
  - c. a copy of the *Humboldt County Science Fair Research Approval Certificate*; and
  - d. the form to be sent to parents for their approval of their child's participation in the project.
3. The Advisor will complete Part 1 of the *Research Approval Certificate*. A **copy** of this Certificate must be submitted with the County Science Fair Project Entry Form.
4. Research Advisors must assure that each individual human subject will not be exposed to any risk of possible injury either physical, psychological, or social as a consequence of participation in a science fair project.

## B. Parent Permission

1. **Prior written permission approving any activity or tasting by a student "subject" must be obtained from the parent or guardian. These permission forms must be kept on file and a copy must be included in the student's logbook.**
2. California Education Code 60650 requires that parents review and approve any **surveys** their children are asked to complete. The intent of this Section is based on the protection of family privacy and personal beliefs, nonetheless all surveys including those, for example, with questions about television viewing habits, birth weights, etc. must still comply with this requirement for parental pre-approval. **Written approval by the parent or guardian must be on file for each student subject.** Simple notification of the questionnaire to be administered is **not** sufficient.



## C. Surveys

1. See parent permission requirements in Section B, previous page.
2. The **data collected from surveys** must be presented in such a way that no one can identify the individual who completed a specific survey, including the student administering the survey.

## D. Additional Restrictions

1. **No bio-medical deprivation studies** involving human subjects will be allowed.
2. Any human **blood samples** used in the project must follow safety procedures for the handling of bloodborne pathogens as stated in the California Occupational Safety and Health Standards, Section 5193. Copies of these guidelines are available from the Humboldt County Science Fair Coordinator. Written documentation that blood samples are free of HIV and Hepatitis B, must be presented with the *Project Entry Form*. Testing may be done at the Humboldt County Health Department or other medical laboratory.
3. The **exhibition of human parts** is prohibited except for teeth, hair, and nails. Slides or other samples of human tissue professionally encased by a scientific supply company may be displayed provided proof of source is attached to project or in logbook.



## XII. Use of Firearms and Weapons in Science Fair Projects



*Students must be at least 12 years old to enter a project that involves the use of a weapon of any kind.*

The regulations below govern student use of handguns, rifles, shotguns and other firearms, as well as knives, bows and arrows used in hunting and other similarly dangerous weapons.

### A. Research Advisors

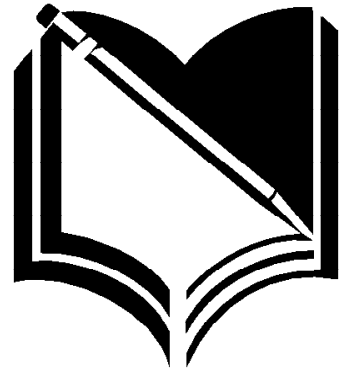
1. To ensure the safety of the student and any people or animals in the vicinity of the project, students with projects using firearms or other weapons must have a Research Advisor approve his/her plans **PRIOR** to using the weapon. Research Advisors for such projects **must be the student's School Site Administrator**. The Advisor will meet with the student **and a responsible adult** who will personally supervise **all** student work involving the firearm or weapon.
2. Students must provide the Research Advisor with all of the following:
  - a. a written description of procedures they plan;
  - b. a copy of this page which explains the Humboldt County regulations pertaining to the use of firearms and/or weapons;
  - c. a copy of the Humboldt County Science Fair Research Approval Certificate;
  - d. Dept. of Fish & Game Hunter Safety Certificate earned by the student; and
  - e. Dept. of Fish & Game Hunter Safety Certificate earned by the Adult Supervisor.
3. The Research Advisor must:
  - a. research the prevailing ordinances regulating the possession and firing of guns or the shooting of arrows, etc. within the city or county limits in which the student lives and will be working;
  - b. inform the Adult Supervisor of all limits and regulations contained in local ordinances and in these regulations;
  - c. see and review the student's *Hunter Safety Certificate*; and
  - d. complete Part 1 of the *Research Approval Certificate*. A copy of this Certificate must be submitted with the *Humboldt County Science Fair Project Entry Form*.

## **B. Protection of Animal Life**

*Under no circumstances will students be allowed to aim at, shoot, harm or kill any form of animal life in conjunction with any part of a science fair project.*

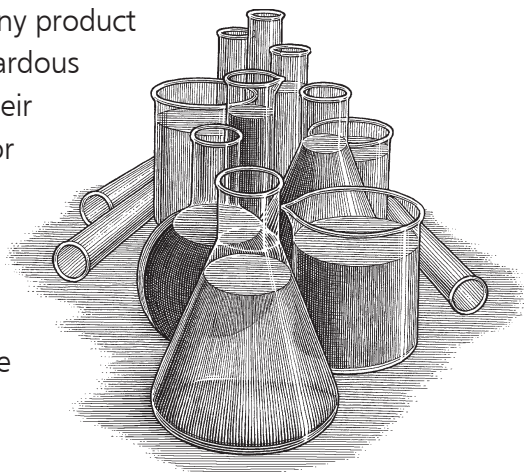
## **C. Recommendation to Pursue Alternate Topics**

The Humboldt County Science Fair Committee strongly encourages Research Advisors to redirect student interest to other topics not involving the use of firearms, ammunition or other weapons.



### **XIII. Use of Hazardous Substances in Science Fair Projects**

Students intending to work with substances that may be hazardous must follow the rules below. For the purposes of the County Science Fair, any product labeled "Danger, Caution or Warning" will be considered a hazardous substance. Students using products of this type must submit their experimental methods to the School Science Fair Coordinator for approval. The School Science Fair Coordinator will advise the student of safe handling procedures, safe concentrations of chemicals, concerns about fumes or if eye wear is required for safety. Teachers, students and parents should be aware many chemicals and commercial products commonly used in the home may pose potential health hazards.

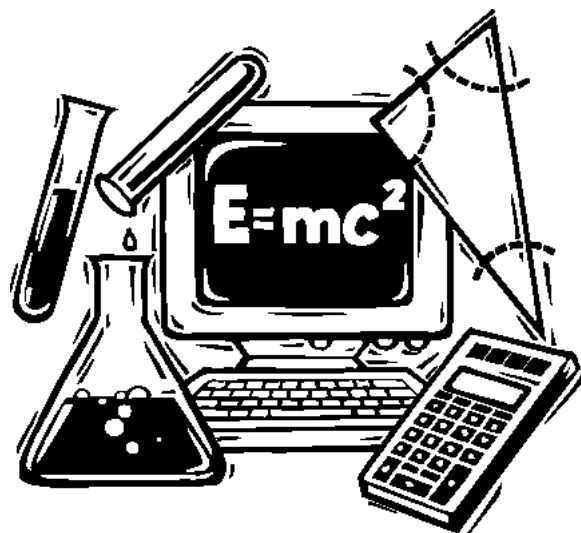


#### **A. Research Advisors**

1. To ensure the safety of the student and any people or animals in the vicinity of the project, students using hazardous materials in their projects must have a Research Advisor approve his/her plans **PRIOR** to beginning work on the project. Research Advisors for such projects **must be the School Science Fair Coordinator**. The Advisor will meet with the student **and a responsible adult** who will personally supervise **all** student work involving the substance.
2. Students must provide the Research Advisor with all of the following:
  - a. a written description of procedures they plan;
  - b. a copy of these Humboldt County regulations pertaining to the use of hazardous substances;
  - c. a copy of the *Humboldt County Science Fair Research Approval Certificate*; and
  - d. a copy of the Materials Safety Data Sheet (MSDS) for any hazardous substance with a label including the words 'danger', 'caution', or 'warning' if the substance is used in the science fair project.
3. The Research Advisor must:
  - a. research the potential hazard and safety guidelines identified on the MSDS for each substance;
  - b. inform the Adult Supervisor of potential risks associated with the substance to be used; and
  - c. complete Part 1 of the *Research Approval Certificate*. A copy of this Certificate must be submitted with the *Humboldt County Science Fair Project Entry Form*, and a copy must be placed in the logbook.

## **B. Materials Safety Data Sheets (MSDS)**

1. Materials Safety Data Sheets are required for all hazardous substances purchased from scientific supply companies (as identified by the General Industry Safety Order 5194). A copy of the MSDS sheet can be obtained at the store where the item was purchased or by writing to the address of the manufacturer of the product.
2. Copies of any MSDS needed must be included in the student's logbook.



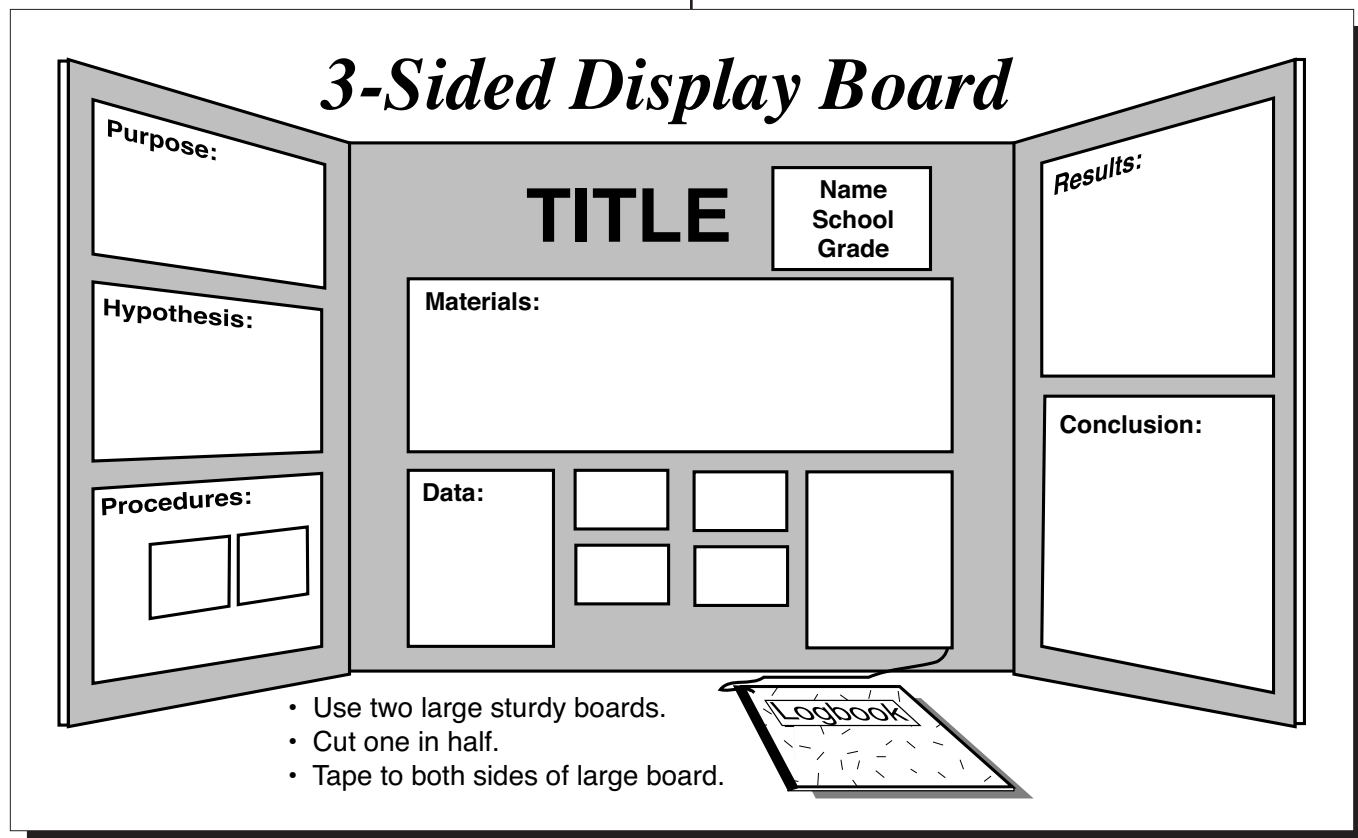
## **C. Illegal Drugs, Alcohol & Tobacco**

1. ***Students may not use any illegal drugs, alcohol, or tobacco products for a science fair project investigation.***

## XIV. Exhibit Display Specifications

### A. Backboards

- All science fair backboards must:
  - **stand upright** (without leaning against other backboards).
  - **be labeled** by the student with his/her:
    - 1) name
    - 2) school
    - 3) grade level
  - **NOT** contain valuable or fragile items. Photographs, models and drawings are **preferred** to real items.
  - **NOT** display ribbons or awards won at school or district science fairs.
- All projects must be** within the following specifications:
  - 36" wide x 30" deep (no height limit)
  - High school projects may be** 48" wide
- Logbooks must be attached** to the project backboard with string or cord at least **one meter in length**.
  - Logbooks must be hand written, except by advance permission from the County Science Fair Coordinator for special circumstances.
  - The **Bibliography** listing sources of background information must be behind a clearly marked tab in the student's logbook. Students are encouraged to gather information from people as well as books. Dates and times of interviews with people should be noted on the Bibliography.
  - Research approval form and abstract if required **must** be in front cover of logbook.



4. For reasons of safety, it is highly recommended students bring only a project backboard and their logbook to the County Science Fair. **Under no circumstances may students display:**

- Glass or other fragile or easily breakable items
- Live cultures (molds, bacteria, etc.) in covered petri dishes or in any other containers
- Food samples
- Pills, drugs or medications of any type
- Live animals (including live insects)
- Blood or other tissue samples, human or animal
- Fire or open flames, or the equipment to make them
- Dangerous chemicals
- Batteries with open top cells

**NOTE: Students may use some of these items if necessary to *conduct* their experiments, but none can be *displayed* at the County Science Fair.**

**Science Fair officials reserve the right to remove any exhibit or any portion of an exhibit that is objectionable or hazardous.**

## **B. Multi-media Format**

Students may choose to present their project findings using computer software such as PowerPoint. Projects in this category must address all the same elements required on the standard backboard (Statement of Purpose, Procedures, Conclusions, etc.).

In addition to the computer presentation, students with multi-media projects are required to display:

- 1) their logbooks and bibliographies, and
- 2) a printed copy of the text on the computer program.

## **C. Liability**

*Students must be prepared to assume all risks for any damage to their projects. The County Science Fair Committee **will not be responsible for losses or for projects not picked up by 8:30 p.m. on Friday, March 16.***



## **XV. Recognition**

### **A. Project Judging**

1. There are two levels of judging.
  - a. Display Judging - 4th, 5th, 6th, 7th, 8th grade students' work will be judged against the standards outlined on the 2012 judging score sheets which will be given to School Science Fair Coordinators. Students are encouraged to review these forms **before** beginning work on their projects. Medals, rosettes, and ribbons will be awarded to 4th and 5th grade students based on these scores.
  - b. Interviews - 6th, 7th, and 8th grade students will be interviewed by a second group of judges. Medals will be awarded based on the total of the interview judges' scores (1/2) and the display judges' scores (1/2).
2. 9th - 12th grade students will be interviewed on Thursday, March 15.  
All high school projects are included in one judging category.
3. Projects that do not meet "Basic Requirements" will not be eligible for medals.
4. Judges' comments will be available for students to pick up on Friday, March 16.

### **B. Awards**

1. The following ribbons are awarded based on the number of points earned:
  - *Science Fair*
  - *Honor*
  - *Excellence*
2. Honorable Mention rosettes are given to all students participating in the interview judging and not receiving medals.
3. 1st, 2nd, and 3rd place medals are awarded for the top projects at each grade level.
4. Winners' exhibits will be identified on Thursday, March 15. Students will receive their medals at the Awards Ceremony on Friday evening.

## **C. What Special Recognition Will Be Awarded?**

### **Rotary Club of Eureka Grand Prize**

#### **6<sup>th</sup>-12<sup>th</sup> grade**

“Grand prizes” will be awarded to assist selected students in their travel to Los Angeles to compete in the California State Science Fair. Grand prize winning projects will be selected on the basis of potential for competitiveness at the state level from projects receiving 1st, 2nd and 3rd place awards.

The following special scholarships for travel to the State Science Fair or other special recognition may also be awarded by local businesses, service organizations, or individuals:

### **The Air District**

#### **4<sup>th</sup>-12<sup>th</sup> grade**

An award of \$500 will be presented towards student travel to the state competition, and certificates awarded for air quality related projects.

### **California Association of Professional Scientists**

#### **7<sup>th</sup>-12<sup>th</sup> grade**

A \$100 savings bond will be presented to an “Outstanding Young Scientist.”

### **The California Native Plant Society**

#### **4<sup>th</sup>-12<sup>th</sup> grade**

They present an award of \$50 and a 1-year membership to CNPS. Each year, they recognize one Humboldt County Science Fair project that investigates some aspect of native plant science. They can also provide contacts with scientists willing to correspond with students about their projects. For more information, contact David Loya at 834-5013 or e-mail to: davidloya1@msn.com <http://www.northcoast.com/~cnps/>

### **Dr. Doris Kildale Niles Perpetual Trophy**

#### **4<sup>th</sup>-5<sup>th</sup> grade**

The trophy will be presented to a young student of promise.

### **Humboldt Botanical Gardens**

#### **4<sup>th</sup>-12<sup>th</sup> grade**

A Certificate of Recognition and a \$50 savings bond will be awarded to 6 students within the botanical plant field.

### **Professional Engineers in California Government (PECG)**

#### **4<sup>th</sup>-12<sup>th</sup> grade**

They award a prize to assist a student in their travel to the State Science Fair.

### **The Redwood Regional Audubon Society**

#### **4<sup>th</sup>-12<sup>th</sup> grade**

They award a student a membership to the Audubon Society and a \$50 award for the study of wild birds.

**Humboldt County Doris Niles Science Fair  
Research Approval Certificate  
Vertebrate Animals, Human Subject, or Human Tissue**

Student Name \_\_\_\_\_

***If project will involve:***

***Research Advisor must be:***

- vertebrate animals..... Doctor (D.V.M., Ph.D., or M.D.)
- human subjects (involved in activity beyond the scope of everyday life) Medical Doctor
- human tissue, blood or viruses ..... Medical Doctor

**PART I** (*Must be filled out PRIOR to beginning any work on project.*)

I certify that I have met with \_\_\_\_\_,  
(*printed name of Adult Supervisor, School Administrator, Teacher, or School Science Fair Coordinator*)  
and have given him/her clear and specific instructions on safe procedures that must be followed. The Adult Supervisor named above will supervise the actual work with animals, humans, or human tissue and has agreed to be responsible for this student's compliance with my instructions and with State law, local ordinance and County Science Fair Rules.

**To be filled out by D.V.M., Ph.D., or M.D.**

If the Project described by the student's proposal involves any vertebrate animal, I certify that I have a doctoral degree and have been trained on the university or professional level in the care and handling of animals.

This is to certify that I, \_\_\_\_\_, have met with \_\_\_\_\_  
(*printed name of Research Advisor*) (*printed name of student*)

from \_\_\_\_\_ and have reviewed and approved his/her research proposal for a Science Fair Project,  
(*name of school*)

I certify that, to my personal knowledge, the above-named student has read and understands all pertinent Humboldt County Rules for Science Fair Projects and that this Project will be conducted in such a manner as to ensure the humane and safe treatment for all animal and human life.

Signature \_\_\_\_\_ Degree \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ Phone # \_\_\_\_\_

**PART II** (*Fill out when project is COMPLETE.*)

This is to certify that I, \_\_\_\_\_  
(*printed name of Adult Supervisor*)

supervised the entire Project submitted by \_\_\_\_\_  
(*printed name of student*)

and that the Project has been conducted in compliance with the instructions given by the Research Advisor mentioned above and with the Humboldt County Science Fair Rules.

Signature of Adult Supervisor \_\_\_\_\_ Date \_\_\_\_\_  
(*Must be the same person who met with Research Advisor*)

**A copy of this form must accompany Humboldt County Science Fair Entry Form.  
Original must be displayed with project backboard or in student logbook.**

**Humboldt County Doris Niles Science Fair  
Research Approval Certificate  
Invertebrate Animals, Firearms, or Hazardous Substances**

Student Name \_\_\_\_\_

*If project will involve:*

*Research Advisor must be:*

- human subjects.....School Science Fair Coordinator or School Administrator  
(involved in activity within the scope of everyday life)
- invertebrate animals .....School Science Fair Coordinator or Classroom Teacher
- firearms or weapons.....School Administrator (Principal or Superintendent)
- hazardous substances.....School Science Fair Coordinator

**PART I (Must be filled out PRIOR to beginning any work on project.)**

I certify that I have met with \_\_\_\_\_,  
(printed name of Adult Supervisor, School Administrator, Teacher, or School Science Fair Coordinator)

and have given him/her clear and specific instructions on safe procedures that must be followed. The Adult Supervisor named above will supervise the actual work with animals, firearms, or hazardous substances, and has agreed to be responsible for this student's compliance with my instructions and with State law, local ordinance and County Science Fair Rules.

Signature \_\_\_\_\_ Position \_\_\_\_\_ Date \_\_\_\_\_

Address \_\_\_\_\_ Phone # \_\_\_\_\_

**PART II (Fill out when project is COMPLETE.)**

This is to certify that I, \_\_\_\_\_  
(printed name of Adult Supervisor)

supervised the entire Project submitted by \_\_\_\_\_  
(printed name of student)

and that the Project has been conducted in compliance with the instructions given by the Research Advisor mentioned above and with the Humboldt County Science Fair Rules.

Signature of Adult Supervisor \_\_\_\_\_ Date \_\_\_\_\_  
(Must be the same person who met with Research Advisor)

**A copy of this form must accompany Humboldt County Science Fair Entry Form.  
Original must be displayed with project backboard or in student logbook.**

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

*(Note: Each project must be entered on a separate form.)***Humboldt County Science Fair 2012 • ENTRY FORM**

Name of School Science Fair Coordinator \_\_\_\_\_

Phone number\* where Coordinator can be reached

**Wednesday, March 14th, 12:00 noon - 8:00 p.m.** \_\_\_\_\_

Phone number where Coordinator can be reached

**Friday evening, March 16th, 8:00 - 9:00 p.m.** \_\_\_\_\_*\* Please note - Phone numbers requested above are for teacher/coordinators, not students.*Student Name \_\_\_\_\_ Grade \_\_\_\_\_  
(First Name) (Last Name)(If Team) Student Name \_\_\_\_\_ Grade \_\_\_\_\_  
(First Name) (Last Name)

School \_\_\_\_\_ School Phone \_\_\_\_\_

Project Category (Check one)

 Life Science, Animal Life Science, Botany Earth/Space Science Physical Science Math/Inventions/Engineering

Project Title \_\_\_\_\_

*(Please no more than 30 letters. Shorten or abbreviate title if necessary to fit limit.)***Brief summary of project purpose or problem statement:**

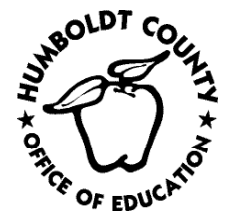

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**6th-12th grade – Required project Abstract is attached. Check here.** \_\_\_\_\_**Circle number of students working on this project.**     1     2**Check at least one line below. This project involved:** No Approval Certificates required for this project. Vertebrate animal. Approval Certificate attached. Wild vertebrate animal. Approval Certificate attached. Human subject. Approval Certificate attached. Human or animal tissue. Proof of source attached. Parent permission for students to complete surveys. Invertebrate animal. Approval Certificate attached. Hazardous substances. Approval Certificate and MSDS attached. Firearms. Proof of Gun Safety Course attached.**A copy of any required Approval Certificate MUST accompany this Entry Form.****6th-12th grades - a copy of abstract must also accompany Entry Form.****Return to:****Mel McGuire, c/o Humboldt County Office of Education  
901 Myrtle Avenue, Eureka, CA 95501-1294 • Fax: 707-445-7149*****Entry form must be received by February 29, 2012, 5:00 p.m.***

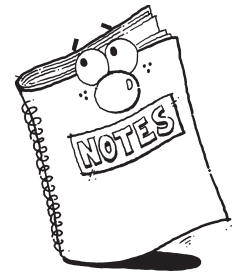


Name \_\_\_\_\_  
 School \_\_\_\_\_ Grade \_\_\_\_\_  
 Category \_\_\_\_\_ Project # \_\_\_\_\_

**HUMBOLDT COUNTY SCIENCE FAIR PROJECT SCORE FORM**

**A. Required Research Approval Forms**

The Science Fair Committee will pre-screen projects to determine if special approval forms for projects involving animals, human subjects, human blood, firearms or hazardous substances have been submitted.



**B. Evidence of Scientific Knowledge Score**

**1. FOUND IN LOGBOOK**

- Entries are in student's handwriting. If done on computer, wording appears to be his/her own. 0 2 4
- Origin of idea for project is explained. 0 2 4
- Work done on all phases of project is recorded as appropriate (dates, times, places, diagrams). If a team project, each student has a separate logbook. 0 2 4 6
- Notes or comments on problems, methods, conclusions are included. 0 2 4 6
- Notes from background reading are present. 0 2 4 6
- Bibliography and sources of information (written materials, interviews) are cited. *May be on display.* 0 2 4 6

**2. FOUND ON DISPLAY BACKBOARD (or in computer presentation)**

- Purpose or problem is clearly stated. If experiment, hypothesis is included. 0 1 2 3 4
  - Methods and procedures followed are clearly stated. If a team project, evidence indicates both members have contributed equally. 0 1 2 3 4
  - For experiments: results in the form of observations, graphs, charts or written explanations are present. For demonstrations: models, collections or diagrams are present. 0 1 2 3 4
  - Conclusions that are justified by student observations are presented. 0 1 2 3 4
  - Project is neatly labeled and organized. 0 1 2 3 4
  - Grammar and spelling on backboard are correct. 0 1 2 3 4
- (Do not deduct for spelling or grammar errors in **logbook**.)

Subtotal

**3. OVERALL QUALITY**

- Originality of idea for investigation 0 1 2 3 4 6
- Creativity of approach (methods/procedures) 0 1 2 3 4 6
- Level of difficulty of task 0 1 2 3 4 6
- Relates project to broader scientific principles, real-world applications 0 1 2 3 4 6

Subtotal

Subtotal

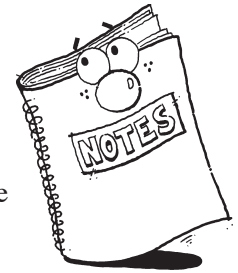
Judge's I.D. # \_\_\_\_\_

TOTAL POINTS \_\_\_\_\_

Name \_\_\_\_\_  
 School \_\_\_\_\_ Grade \_\_\_\_\_  
 Category \_\_\_\_\_ Project # \_\_\_\_\_

**GRADES  
6, 7, 8**

**HUMBOLDT COUNTY SCIENCE FAIR PROJECT SCORE FORM**



**A. Required Research Approval Forms**

The Science Fair Committee will pre-screen projects to determine if special approval forms for projects involving animals, human subjects, human blood, firearms or hazardous substances have been submitted.

**B. Evidence of Scientific Knowledge, Procedures**

**Score**

1. FOUND IN LOGBOOK

- Entries are in student's handwriting. If done on computer, wording appears to be his/her own.
- Origin of idea for project is explained.
- Notes from background reading, research are present.
- Work done on all phases of project is recorded as appropriate (dates, times, places, diagrams). If a team project, each student has a separate logbook.
- Tables, tally marks or notes used to record preliminary results or thoughts about the project are included.
- Bibliography is present; sources for information are cited (books, magazines, interviews with people, etc.). *May be on display.*
- Abstract accurately summarizes project.

0	2	4		
0	2	4		
0	2	4	6	
0	2	4	6	
0	2	4	6	
0	2	4	6	
0	2	4	6	

Subtotal

2. FOUND ON DISPLAY BACKBOARD (or in computer presentation)

- Purpose or problem is clearly stated.
- Hypothesis is clearly stated.
- Methods and procedures followed are clearly stated. If a team project, evidence indicates both members have contributed equally.
- Variables to be controlled and to be manipulated are identified.
- Observations in the form of graphs and/or charts are presented.
- Experiment was repeated to establish validity.
- Written explanation of results are clearly stated.
- Factors that could have influenced results are discussed.
- Conclusions are related to the hypothesis and are clearly stated and justified from student's observations.
- Project is neatly labeled and organized.
- Grammar and spelling on backboard are correct.  
(Do not deduct for spelling or grammar errors in **logbook**.)

0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4
0	1	2	3	4

Subtotal

0	1	2	3	4
0	1	2	3	4
0	1	2	3	4

Subtotal

3. OVERALL QUALITY

- Originality of idea for investigation
- Creativity of approach (methods/procedures)
- Level of difficulty of task
- Relates project to broader scientific principles, real-world applications

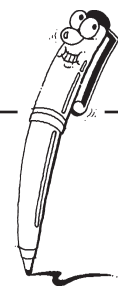
0	1	2	3	4	6
0	1	2	3	4	6
0	1	2	3	4	6
0	1	2	3	4	6

Subtotal

Judge's I.D. # \_\_\_\_\_

TOTAL POINTS \_\_\_\_\_

# Science Fair 2012 Scoring Rubrics



## 1. Logbook 0, 2, 4, 6 points

- 0 - Not present in any form.
- 2 - Limited completion of requirements. May be missing some components.
- 4 - Meets requirement stated.
- 6 - Exceptional work that goes beyond requirements.

## 2. Display 0, 1, 2, 3, 4 points

- |                 |   |
|-----------------|---|
| 0 - Not present | Not on board display or in logbook.   |
| 1 - Minimal     | Unclear or not comprehensive (needs elaboration).   |
| 2 - Standard    | Clearly stated. Accomplishes purpose of the task.   |
| 3 - Good        | Clear, and demonstrates SOME understanding of scientific principles or practices.   |
| 4 - Excellent   | Clear, comprehensive and demonstrates STRONG understanding of scientific principles or practices (exceptional insights into the nature and resolution of problems encountered). |

## Spelling and Grammar

### All Grades

- 0 pts - for 8 or more errors
- 1 pt - for 5, 6 or 7 errors
- 2 pts - for 3 or 4 errors
- 3 pts - for 1 or 2 errors
- 4 pts - for 0 errors

## 3. Overall Quality

**No suggestions for score values for this section are offered. Judges are advised to use their personal experience and expertise in assigning scores in this section.**