

2013 Science Fair Information Packet

Cold Springs Middle School

Parents and Guardians,

This is an informational packet that will explain your child's science fair project. This is a required project that each child is required to participate in school wide. Your child will be doing some of the preparation work (steps of the scientific method) for the project at school during Science class. The actual procedure/experiment of the science project will need to be completed at home.

Please help ensure your child's success by reading through this packet and monitoring the progress of your child's science project.

You will find project guidelines within this packet to use as a springboard for you and your child's imagination. Your child has been provided a list of science fair topics. They must select an *Life Science* project from that list unless approval of a different *Life Science* related project is approved by your child's science teacher. No project may use humans or animals as test subjects.

Here are some important dates to keep in mind for our Science Fair:

- Projects need to be completed and turned in by Friday, February 8th
- The Science Fair will be held at CSMS on Thursday, February 28th from 6:00 to 7:30pm
- Winners will be selected from each category to move on to the regional science fair at the University of Nevada, Reno on March 27th-28th
- Categories are: Earth Science, Life Science, Physical Science and Inventions.
- Display boards are available from your student's science teacher for \$3.00. This is less expensive than any store in town.

Thank you for taking the time to look this packet over and to encourage your child to do his or her very best on this project!

Mandie Sheridan

7th Grade Science

Room 217

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2013 Science Fair Information Agreement

Cold Springs Middle School

Please read the Science Fair Information Packet and then sign and return this page.

I have read and understand all information contained in the Science Fair Information Packet. Further, I agree to do my best quality work on the project and to put forth the appropriate effort to ensure that my project is top quality.

Student Name _____
Please Print

Student Signature _____

Parent Name _____
Please Print

Parent Signature _____

Complete Science Fair Project Due Date: February 8, 2013

7th Grade Science Fair Topics

Fruit

- Does temperature affect the rate at which fruit ripens?
- Does the size of fruit affect the number of seeds it contains?
- Does the size of fruit affect the amount of juice it contains?
- Does the kind of fruit affect the amount of juice it contains?

Seeds

- Does the position in which a seed is planted affect the way its seedling sprouts?
- Does the sprouting time of a seed change with planting depth?
- Does the sprouting time of a seed vary with its size?
- Does the sprouting time vary with soil temperature?
- Can a plant's response to gravity be changed?

Human Physiology

- Does human weight change with time of day?
- How does exercise affect blood pressure?
- How does exercise affect body temperature?
- How does exercise affect respiration?
- Do males and females grow at different rates?

Epidemiology

- Can lifespan of individuals buried in cemeteries be related to medical discoveries?
- Do the lifespan of individuals buried in cemeteries reflect epidemics?
- Do the death rates of individuals buried in cemeteries reflect epidemics?

*** Questions may be modified with prior approval from the science instructor.

Western Nevada Regional Science & Engineering Fair

Display and Safety Regulations

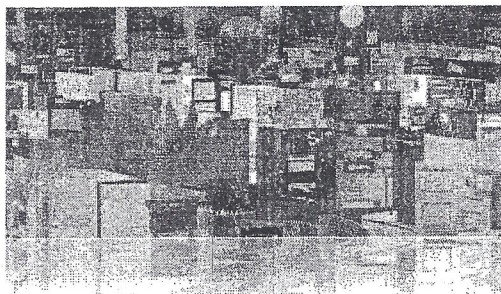
The WNRS&EF Display and Safety Committee is the final authority on display and safety issues for projects approved to compete in the Western Nevada Regional Science & Engineering Fair. Occasionally, the WNRS&EF Display and Safety Committee may require students to make revisions in their display to conform to display and safety regulations.

Items Not Allowed at Project

1. Living organisms including plants
2. Soil or waste samples **unless permanently encased in a slab of acrylic**
3. Taxidermy specimens or parts
4. Preserved vertebrate or invertebrate animals
5. Human or animal food
6. Human/animal parts or body fluids (for example, blood, urine)
7. Plant materials (living, dead, or preserved) which are in their raw, unprocessed, or non-manufactured state. EXCEPTION: manufactured construction materials used in building the project or display.
8. Laboratory/household chemicals including water.
9. Poisons, drugs, controlled substances, hazardous substances or devices (for example, firearms, weapons, ammunition, reloading devices and lasers)
10. Dry ice or other sublimating solids.
11. Sharp items (for example, syringes, needles, pipettes, knives)
12. Flames or highly flammable materials
13. Batteries with open-top cells
14. Awards, medals, business cards, flags, endorsements and/or acknowledgements (graphic or written) unless the item(s) are an integral part of the project
15. Photographs or other visual presentations depicting vertebrate animals in surgical techniques, dissections, necropsies, or other lab procedures
16. Active Internet or e-mail connections as part of displaying the project.
17. Prior years' written material or visual depictions on the vertical display board. [Exception: the project title displayed in the Finalist's booth may mention years or which year the project is (for example, "Year Two of an Ongoing Study")].
18. Glass or glass objects unless deemed by Display & Safety Committee to be deemed an integral part and necessary part of the project
19. Any apparatus deemed unsafe by the Display & Safety Committee

Items Allowed for Display BUT with the Restrictions Indicated

1. Soil, sand, rock, and/or waste samples if **permanently encased in a slab of acrylic.**
2. Postal addresses, World Wide Web and e-mail addresses telephone numbers, and fax numbers **of participant only.**
3. Photographs and/or visual depictions if:
 - a. **If not deemed offensive or inappropriate** by the Display and Safety Committee.
 - b. Credit lines if their origins ("Photograph taken by ..." or "Image taken from...") are attached. (If all photographs being displayed were taken by the participant or are from the same source, one credit line prominently displayed is sufficient.)
 - c. They are from the Internet, magazines, newspapers, journal, etc., and credit lines are attached. (If all photographs/images are from the same source, one credit prominently displayed is sufficient.)
 - d. They are photographs or visual depictions of the participant.
 - e. They are photographs of human subjects for which signed consent forms are at the project.
4. Any apparatus with unshielded belts, pulleys, chains, or moving parts with tension or pinch points **if for display only and not operated.**
5. Class II lasers (**High School ONLY**) if:
 - a. Operated only by the participant
 - b. Operated only during judging
 - c. Labeled with a sign reading "Laser Radiation: Do Not Look Into Beam"
 - d. Enclosed in protective housing that prevents physical and visual access to beam
 - e. Disconnected when not operating
6. Class III and IV laser (**High School ONLY**) **if for display and not operated**
7. Any apparatus producing temperature that will cause physical burns **if adequately insulated**



ORMAT®


ORMAT Technologies has stepped forward and is sponsoring our Overall Winner to Intel ISEF.

General Electric (GE)

GE Energy is awarding students for outstanding projects with Engineering Application.

K - 8- 1st Jr. GE; 2nd Jr. GE and two 3rd Jr. GE Awards.
High School- 1st Sr. GE, 2nd Sr. GE & 3rd Sr. GE Awards.



imagination at work



Washoe County Health District Air Quality Management Program

Middle School Awards

TWO Outstanding Individual Science Projects and TWO Outstanding Team Science Projects related to air quality, public health or environmental sustainability.

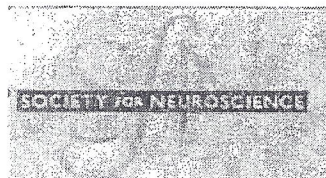
High School Award

ONE Outstanding Individual Science Project and ONE Outstanding Team Science Projects related to air quality, public health or environmental sustainability.

"REACH FOR THE STARS" AWARDS

Young Researcher Awards

The Reno Air Race Foundation (RARF) is proud to sponsor the "Reach for the Stars" Young Researcher Awards presented to the student participant or Team in several categories that best develops the theme of air and/or space contributions in the International, National or Local community.



Sierra Nevada Chapter of the Society for Neuroscience

consists of University of Reno and Las Vegas faculty, University of Nevada School of Medicine faculty, clinicians, and researchers from private institutes, post-doctoral fellows and graduate students.

A Sierra Nevada Chapter of the Society for Neuroscience is the local chapter of the international Society for Neuroscience, which has an annual meeting of over 20,000 participants from all areas of neuroscience. Sierra Nevada Chapter of the Society for Neuroscience will offer a \$50.00 prize for the best neuroscience project in the high school and middle school divisions in the regional science fair.

Western Nevada Regional Science & Engineering Fair

Project Title: _____ **Project #:** _____

Project Type (circle all that apply): Individual Team Class

Project Grade (circle one): K 1 2 3 4 5 6 7LS/7PS 8LS/8PS

Circle the appropriate rating for each of the following items (considering age level):

Excellent 5	Very good 4	Good 3	Partial 2	Attempted 1	Absent 0
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I. Communication of ideas

- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Use of language (considering age level) | 5 | 4 | 3 | 2 | 1 | 0 |
| b. Overall understandability | 5 | 4 | 3 | 2 | 1 | 0 |
| c. Overall organization | 5 | 4 | 3 | 2 | 1 | 0 |

II. Scientific thinking and methodology

Question

- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Clarity of the question | 5 | 4 | 3 | 2 | 1 | 0 |
| b. Creativity or originality of the question
(A good, but unoriginal, question is good=3) | 5 | 4 | 3 | 2 | 1 | 0 |

Hypothesis/Prediction

- | | | | | | | |
|--|---|---|---|---|---|---|
| c. Statement of expectation or <u>prediction</u>
(Did they explain <u>what</u> they think will happen?) | 5 | 4 | 3 | 2 | 1 | 0 |
| d. Statement of explanation or <u>hypothesis</u>
(Did they explain <u>why</u> they think it will happen?) | 5 | 4 | 3 | 2 | 1 | 0 |

Methods/Procedures

- | | | | | | | |
|--|---|---|---|---|---|---|
| e. Suitability of the approach taken to answer the question
(Are the methods or procedures appropriate?) | 5 | 4 | 3 | 2 | 1 | 0 |
| f. Creativity or originality of the methods
(Good, but unoriginal, methods are good=3) | 5 | 4 | 3 | 2 | 1 | 0 |
| g. Experimental design and robustness of data
(Did they replicate procedures/use controls/try to verify?) | 5 | 4 | 3 | 2 | 1 | 0 |
| h. Systematic and objective approach to data collection | 5 | 4 | 3 | 2 | 1 | 0 |

Results/Analysis

- | | | | | | | |
|---|---|---|---|---|---|---|
| i. Analysis of the data
(Did they make appropriate calculations and comparisons?) | 5 | 4 | 3 | 2 | 1 | 0 |
| j. Presentation of the results
(Are the results presented as graphs, %, averages, etc.?) | 5 | 4 | 3 | 2 | 1 | 0 |

Discussion/Conclusions

- | | | | | | | |
|--|---|---|---|---|---|---|
| k. Logical interpretation of the results
(Do the conclusions make sense based on the results?) | 5 | 4 | 3 | 2 | 1 | 0 |
| l. Critical interpretation of the results
(Did they relate the conclusions back to their hypothesis?) | 5 | 4 | 3 | 2 | 1 | 0 |
| m. Overall logic and critical thinking
(Did they consider alternate explanations/what to do different?) | 5 | 4 | 3 | 2 | 1 | 0 |

III. Notebook and Bibliography (required for all grades –student's display may serve as notebook grades K-2)

- | | | | | | | |
|--|---|---|---|---|---|---|
| a. Clarity and thoroughness of the journal or notebook | 5 | 4 | 3 | 2 | 1 | 0 |
| b. Thoroughness of bibliography or references | 5 | 4 | 3 | 2 | 1 | 0 |

IV. Physical Display

- | | | | | | | |
|---|---|---|---|---|---|---|
| a. Neatness and completeness | 5 | 4 | 3 | 2 | 1 | 0 |
| b. Creativity and artistry of the display | 5 | 4 | 3 | 2 | 1 | 0 |

Judges Notes (especially strengths not quantified by the above rating): _____

Overall score: _____
(100 possible)



What Judges are Looking for in a Science Fair Project

1. Communication of Ideas 15 points

- In your opinion, will the average person understand what is displayed?
- Are labels and descriptions neatly yet briefly presented?
- Is there sensible progression of attention of the spectator across or through the display?
- Is this a reasonable experiment for a 2nd grader?

2. Scientific thinking & Methodology 65 points

QUESTION (10 PTS), HYPOTHESIS (10 PTS), & PROCEDURE (20 PTS)

- Does the project include the basic steps in the scientific method?
- Is the question clear and understandable?
- Does the exhibit have organized procedures?
- Did the student plan well, observe and record data accurately, and maintain the basics of a controlled experiment?
- Are the methods or procedures appropriate?
- Did the designed experiment really test the hypothesis?
- Did the student explain what and why they think it would happen?
- How much of the work shows an original approach?
- Does the project reflect original and creative research?
- Was the research conducted properly?

RESULTS (10 PTS), AND CONCLUSION (15 PTS)

- Did the student make appropriate calculations and comparisons?
- Are the results presented as graphs, percentages, averages, etc?
- Are data Calculations, and conclusions visibly evident?
- Did the student reach a logical conclusion from the data gathered?
- Did the student relate the conclusions back to their hypothesis?
- Did the student consider alternate explanations or what to do differently?

3. Notebook and Bibliography 10 points

(Required for all grades – student's display may serve as Notebook in K-2 grades)

- How complete and clear is the notebook or journal?
- How Much time did the student spend on the bibliography and references?

4. Display Board 10 points

- Is the exhibit more attractive than others in the same field?
- How skilled is the handling, preparation, mounting and presentation?

At the lower grade levels, good printing and penmanship is just as good as any work done on a computer. All projects should be judged on their scientific merit and not on computer skills. The higher the grade level, the more computer skills can and should be incorporated into the project, but again the project should be judged on its scientific merit.

*It is Perfectly Acceptable
If a First Grader's Project Looks
Like a First Grader DID it!*

Cold Springs Middle School Science Fair Project Rubric
(100 points)

Display Board	Possible Points	Earned Points
Title: _____ <ul style="list-style-type: none"> • Eye catching • Bold • Neat 	10 points	
Question: <ul style="list-style-type: none"> • Clarity of Question • Creative/Originality 	5 points	
Hypothesis: <ul style="list-style-type: none"> • If..... then..... because.... • What & Why 	10 points	
Materials: <ul style="list-style-type: none"> • Numbered list • Quantities of each material 	10 points	
Procedure: <ul style="list-style-type: none"> • Numbered easy-to-follow steps 	10 points	
Results: <ul style="list-style-type: none"> • Bar/Line Graph • Pie Chart • Table 	15 points	
Conclusion: <ul style="list-style-type: none"> • Hypothesis accepted/rejected • Interpret data (using numbers) • State the concept, variables, control • Errors ? 	15 points	
Bibliography: <ul style="list-style-type: none"> • List of 3 references • Google is NOT a reference 	5 points	
Organized and Neat: <ul style="list-style-type: none"> • Proper format 	10 points	
Grammar and Spelling	5 points	
Creative and Colorful Display	5 points	
TOTAL SCORE	100 points	/100

Purpose	<div>Project Title</div> <div>Materials & Procedures</div> <div><div><div></div><div></div><div></div><div></div></div><div>DATA Charts Photos Models</div><div><div></div><div></div><div></div><div></div></div></div>	Results
Hypothesis		Conclusion & discussion
Background / Research		

STUDENT TIME LINE

Name: _____

Advisor/Teacher: Sheridan

Week (Date)	Check When Completed
<u>12/12/12</u>	_____

<u>N/A</u>	_____
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*Once your Advisor/Teacher has approved and signed your proposal, you may begin to work on your project.
Exception—When LSRC approval is needed.*

<u>1/9/13</u>	_____
12/19/12	_____

<u>12/19/12</u>	_____
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<u>12/12/12</u>	_____
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<u>ON YOUR OWN</u>	_____
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<u>1/9/13</u>	_____
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<u>1/16/13</u>	_____
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<u>1/23/13</u>	_____
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<u>2/8/13</u>	_____
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<u>2/8/13</u>	_____
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1. Choose an area that interests **YOU**. Identify a problem or Specific topic to investigate within that area.
2. Complete the project entry form and submit it to your advisor/teacher for approval. If you are experimenting with vertebrate animals, humans or animal tissues or organs you must have your project approved by the school's Local Scientific Review Committee (LSRC).
- 3 a. Research your topic thoroughly. Sources include science books, technical journals, interviews with people in your field of study and even an Internet Search.
- b. Organize everything you plan to do.
- c. Write out your procedure.
- d. Propose a hypothesis. This is an educated guess concerning the outcome of your experiment.
- e. Gather all necessary materials.
- f. Perform your experiment. Remember to include a control, if applicable, properly manage all variables, maintain an adequate sample size and collect your data in metric units when possible.
- g. Analyze your results. Use tables or graphs to show important relationships.
- h. From your results, formulate your conclusions. Was your original hypothesis correct? Must you perform any additional experiments to prove or support your conclusion?
4. Begin work on your display. Present the information you collected in easy-to-read graphs or tables. Reserve special areas on your display for your Problem, Hypothesis, Procedure, Results and Conclusion. If you plan to use photographs allow enough time to have them developed. Include a project report (notebook) and secure it to the backboard with a chain or cord. Also, prepare a 200--250 word project summary (abstract) describing the problem, procedures, results and conclusions (this is important in the judging process).
5. Be prepared to give a 3--5 minute presentation that describes your project (this can simply be a presentation of your problem, how you went about solving it and what you discovered).
6. Bring your project to school or to the science fair location.

Science Buddies:

<http://www.sciencebuddies.org/>

Free Topic Selection Wizard, science fair project ideas, step by step how to do a science fair project, Ask an Expert discussion board, and science fair ...

Intel International Science and Engineering Fair:

<http://www.societyforscience.org/isef>

Science Service administers the Intel International Science and Engineering Fair. We have developed our website to help interested persons find information about the fair, rules and guidelines, affiliated fairs, and all other pertinent information that we can think to put up on the site. Also available are all of the Intel ISEF forms available for pdf downloading.

NASA Life Sciences Support Contract Science Project Guidelines:

<http://atlas.ksc.nasa.gov/education/general/scifair.html>

This is a site that provides a comprehensive set of guidelines on the fundamentals of putting together a science fair project. The Guide has been written from the experience of judges from the Life Sciences Support Contract at the Kennedy Space Center who have judged at their local science fairs.

The All Science Links:

www.all-science-fair-projects.com/resources.php

General Information on Science Fair Projects and the study of Science ... A site with beautiful multimedia content providing online lessons and interactive movies on the study of science and technology.

Neuroscience For Kids - science fairs:

<http://faculty.washington.edu/chudler/fair.html>

Successful Science Fair Projects ... Projects become frustrating to students, parents and teachers when they are left to the last minute and thus don't have the chance to be as good as they possibly can.

California State Science Fair:

<http://www.usc.edu/CSSF/Resources/GettingStarted.html>

The California State Science Fair has an excellent resources page of Science Fair links to help get started with projects including other fairs and school district resource pages.

Mad Scientist:

<http://classroom.all-science-fair-projects.com/forum/>

Absolutely the best way to get help for your science project. Now with over 1000 members and growing, the Mad Scientist and his team of Mentors have helped thousands of students from all over the world with their science project problems!.