

LOS ANGELES UNIFIED SCHOOL DISTRICT SECONDARY SCIENCE FAIR

Judging Guidelines

I. Background

The science fair provides a student the opportunity to experience and develop an understanding for the scientific process beyond that which can be obtained in the classroom. As such, student projects should present an experimental based research design exemplifying a scientific methodology. There is a two step judging process for the LAUSD Science Fair. On the first day, the judges will view and evaluate the displays to provide the students with feedback and to screen for finalists. On the second day, the finalists are asked to return for oral interviews. Following the interviews the 1st, 2nd, 3rd Place and Honorable Mention winners will be determined. In general, a quality science project would demonstrate originality, understanding of the scientific process, organization, completeness, effort, motivation, and clarity. The judging rubric was developed using five criteria: Creativity, Scientific Thought, Thoroughness, Clarity, and Skill. Under each category there are specific elements to be judged. The categories and elements that can be evaluated by a visual inspection of the students display have been included in the rubric for the first day; the remaining left for the oral interview on the second day.

II. Day One:

A. Criteria

Creativity:

Originality:

Is the research student initiated and original? Has it been done before? Is the answer already known? Is it a project that will lead to a testable question or is it just a demonstration? Originality may be in the scientific concept, a new approach to an old problem, or anew interpretation of data.

Creative Approach:

Does the design of the project show ingenuity, creativity and original thought? Is it a novel and carefully designed way to answer the question?

Display creatively designed:

Has the student shown creativity in the design of the display? Does the display draw your attention to the flow of the information?

Scientific Thought:

Question clearly stated:

Appropriate for scientific investigation. The problem is sufficiently narrow and capable of a solution. A good project will direct the student toward a particular result or expectation.

Hypothesis:

Hypothesis is clearly stated as to what is expected to happen and why. A good hypothesis might take the form of: "If I do this then that should happen."

Experimental Design and Data Analysis:

There is a well defined plan for obtaining a solution. Procedures are appropriate and organized. The design anticipates the nature of materials and equipment needed for a solution. Variables are recognized and defined: Independent (manipulated) variable and Dependent (observed) variable. Controls used correctly. Are other variables controlled so the data is collected under similar conditions? Data adequately supports conclusions. Limitations are recognized.

Conclusions:

Conclusions are logical, based on the data, and relevant to the hypothesis. Recognize new questions arising from the results. It is OK to disprove the hypothesis; negative results provide an acceptable answer. Does the student have an alternate hypothesis?

Thoroughness:**Data sufficient for the study:**

Conclusions are based on repeated observations.

Research:

The scientific literature cited is relevant to the study and appropriate to the students' grade level. It indicates an effort to collect information related to the problem.

Display and Log Book:

Does the display include all the important elements of the study: for example Title, Question, Summary, Hypothesis, Methods, Results, Conclusion, and References? The Log book should be a record of the daily progression of work done on the project including all notes on research, changes in procedures, or any important items that may be discovered during the project.

Clarity:**Data and Results:**

How clearly are the data presented? Is there an effective use of tables and graphs with descriptive titles and labels with proper units? Are the results relevant to the question and clearly presented? Do the results follow logically from the data?

Display:

How well does the display explain the project? Is it self explanatory or does it leave out important information?

B. Judging Suggestions:

Before starting to judge take a quick view of all the assigned projects to get a feel for what they are about and what they look like. Read through the materials in some order to assess the impact and how well it tells the story of the project. Were you able to understand quickly what the project is trying to do and what the results were? The quality of the students work is more important than the amount of work. A less sophisticated project that the student understands should get higher marks than a more sophisticated one that is not clearly understood. It is OK if the student ended up disproving the hypothesis. As a judge, in addition to being an evaluator you are a motivator and mentor. Try to have two positive comments and one positive suggestion.

III. Day Two – Oral Interview:

During the interview there are some things that can be done to ensure a learning experience for the student.

- + Try to win the student's confidence first and reduce any fear or anxiety in the interview.
- + Show you are interested.
- + Listen actively.
- + Encourage conversation.
- + Ask students about their projects, not just what they did.
- + Ask students enough questions to satisfy that they understand the project.
- + When you have reached the student's knowledge limit, stop asking questions.
- + End the interview on a positive note; say what you liked about the project.

The topics to be evaluated in the interview are listed below with some sample questions.

Speaks Knowledgeably About the Project:

Where did you get the idea for your project?

What is the purpose of your study?

How did you arrive at the hypothesis?

Briefly describe the procedure you used.

Explain the results of your experiment.

Were the results what you expected?

Can you explain why the experiment turned out why it did?

Explain how your model/equipment works.

Demonstrates Knowledge of the Scientific Method:

On what did you base your conclusions?

What quantity were you measuring?

What other quantities might affect your measurement?

How did you control other factors that might affect your results?

What are your controls?

Did you take all data under the same conditions?

What problems arose during your investigation?

How did you overcome them?

What are some of the sources of errors?

What might you do differently?

Shows An Understanding of Scientific Research:

What did you learn from your background research?

What are some of the previous studies?

As a result of your research, did you come up with any new ideas?

Would you do anything different next time?

Could you try another approach to the same topic?

What might you try to improve the study?

Shows Individual Involvement and Skill:

When did you start your project?

How much of the work did you do this year?

How much time did the study take?

Did other people help you with your project?

How did they help you?

What are some of the skills you learned from this project that will help you in the next?

Do you think you can extend the project on your own?

When working in a team, how did you share the work?

Can Identify the Scientific Significance of Project:

What do you think is the significance of your study?

What could other people learn from you project?

Can you relate your project to everyday life or to the future?

Do you think there is an application for the knowledge you gained?

Student Communicates Well:

Observe the student's attitude and demeanor. Does/do he/she/they show interest and enthusiasm? Is/are he/she/they eager to talk about the project? Was the presentation well organized?