YES Fair

Judges Manual

The Science Fair Opportunity

The judges at the YES Fair are the true backbone of the fair. I can't thank you enough for your dedication to the fair and the kids of Southeast Arizona. As part of the continued growth process for the YES Fair, this manual (modified from the Canadian Science Fair) is to help you as a Judge, and we as a Science Fair improve our judging process. I would encourage you to see the Science Fair web site at **http://www.ssvec.org/CommunityPrograms/yesfair1.asp**

YES Fair—20+ Year History

By LaDonna Burgess (SSVEC)

In 1984 Sulphur Springs Valley Electric Cooperative sponsored its first science fair. There were a total of 17 student entries in the fair. What started as SSVEC's Youth Energy Science (YES) Fair in connection with National Energy Education Day and SSVEC's annual meeting has grown into one of the major science fairs in the Southwest, recognized by and affiliated with the International Science and Engineering Fair (ISEF).

The second YES Fair was held at the old Buena High School Gym in Sierra Vista. That year the Armed Forces Communications and Electronics Association (AFCEA) held a small science fair in the school's library at the same time. As the 1985 SSVEC YES Fair Director, I approached AFCEA's Education Committee Chairman Harold Vangilder about merging the two fairs. The two joined in 1986 and the fair continues today as the Youth Engineering and Science (YES) Fair co-sponsored by SSVEC and AFCEA.

Why do such an event? To offer students in grades 5 through 12 from throughout Southeast Arizona the opportunity to display, compete and earn awards and recognition for their projects. To provide the opportunity for students to think, discover, research, produce and learn! To create interest for work and careers in various fields to build a better America. To give a ribbon to a child who has never received one. To award certificates, money, and prizes to inspire, motivate and reward students for doing science and engineering projects.

The YES Fair awards all-expense-paid trips to the top two high school project winners and their advisers to compete in the International Science and Engineering Fair. These students compete with other student scientists from around the world for special awards. The location of the ISEF changes each year and over the past 19 years has included major U.S. cities, as well as Canada and Puerto Rico. Along with the Grand Prize winners many other projects in each fair are recognized and awarded. Significant monetary contributions from AFCEA and the SSVEC Foundation provide core funds and prizes. Many other sponsors also donate prizes, scholarships, monies and opportunities to inspire and reward participants each year.

SSVEC continues to organize and carry out each fair with the help of numerous employees and many volunteers. Local professionals helped us create and continue to support the fair program. Judges from the military, scientific, technical, governmental and academic fields review and select the prize-winning exhibits. Many thanks to those that have helped make the YES Fair a success each and every year. Being involved in all 20 YES Fairs to date, I've seen many doors open for our students. They go on to become doctors, teachers, engineers, soldiers, farmers, scientists, public officials and, yes, parents. Past participants share that their YES Fair experience was valuable both at the time and later in life.

Science and its discoveries are learned from setbacks as well as successes. The YES Fair, through the efforts of SSVEC and AFCEA encourages, motivates and rewards our youth, the foundation of our future.

The Roles of a Judge

The Judging role is multifaceted. Judging is more than putting scores on paper. As a judge you will step into a number of roles through the judging day. Fulfilling all of these roles is important for having a successful science fair. You may not fill all of these roles as a judge when interviewing a student, but through the day you may have the opportunity to exercise all of the roles.

Evaluator

The main role of a Judge is to evaluate the various projects and assign them a score. You will be evaluating the project on the basis of what you see. Quality of work and presentation fit into this function as a judge.

Facilitator (9-12 Division only)

In the afternoon, you get to meet the students. You will still be evaluating the project, but you will also be a Facilitator, creating an open and positive atmosphere to allow the student to comfortably tell you about their project and the research that they did. This role is important because quality of your facilitation will result in amount of information you will receive to make an accurate evaluation of the project as a whole.

Counselor (9-12 Division only)

When a student asks you, "What could I have done better in this project?", you have then stepped into the role of a counselor. You can make a recommendation of what could have taken the project up to the next level of quality. If the Student does not ask how they could have improved their project, then it is your responsibility to give the student one growth point for improvement on the project. (no more – no less).

Motivator

An important role of a judge is to give the student some compliments that will make them feel good about their work and motivate them to compete again. The students have put in a lot of work to compete in the fair and should be complimented on that as well as the work that they have done. The simplest compliment given to a student can spur them on to future success in life.

Role Model

Remember that when communicating with the students, you are in the role of the judge, a leader in the community, from business or academia. Your actions portray to the students what the science fair is all about. Take care in what you do and say in the presence of the students.

Provide a good experience for the Competitors

As a judge you can provide a good experience for the student competitors by using the following tips:

- Be Genuine
- Let the contestants show their stuff
- Encourage conversation
- Avoid value judgments
- Give one opportunity for improvement
- Recognize 3 Project Strengths
- End meeting on a positive note
- Smile

Judge Behavior with Students

When with the students, there are things that you can do to make the experience a learning experience for the students and an enjoyable experience for you:

- Examine the quality of the students work. Look for evidence of laboratory, field or theoretical work, not just library research or gadgeteering.
- Keep in mind that competing in a science fair is not only a competition, but an educational and motivating experience for the students.
- If the project is a continuation of a prior project ONLY the work done in the past year is to be evaluated. Prior work is important but should not unduly impact the judging of this year's project.
- Show you are interested
- Listen actively
- Give positive reinforcement to nourish self esteem (say what you like about project)
- Work to put students at ease, (Sit Down) If students are intimidated they will not speak freely
- Ask students about their Projects, not just what they did
- Ask students enough questions to satisfy yourself that they understood the project.
- When you have reached the student's knowledge limit. STOP asking questions
- Have 1 Positive Comment for every student
- Remember when you were 14 years old and you had to talk to an "adult"
- Let the student teach you something

Sample Questions

These are some good sample questions that will spur on conversations during the judging process.

- Why did you decide to study this topic?
- What are your controlled variables?
- How accurate are your readings?
- What future applications can you see from the results of this project?
- What one outstanding thing did you learn doing this project?
- How would you improve this project if you would do it again?

Suggested Wording

Personalize your language

- I liked….
- I enjoyed….
- I feel that……
- I see that…..

If asked

- 'I suggest…
- A technique I have used…..
- The project would have more impact on me if….

What to Expect on a typical Judging Day

8:00 am	Judges arrive and get ready
8:15 am	Judges assignments and score sheets distributed
8:30 am	Judges begin project category review
9:00 am	Judging of assigned projects begin
11:30 am	Judges begin breaking for lunch
1:00pm	Judging resumes
2:30 pm	9-12 interviews begin
2:30 pm	5-6 & 7-8 category judging completed.
2:30 pm	5-6 & 7-8 Lead Judges begin Grand prize judging for lower divisions
4:30 pm	9-12 Judging completed and projects are ranked

Judging Tips and Tricks

- Look at all of your category exhibits before starting to judge your exhibits
- Don't be late and pace your work to keep on schedule
- Set timing goals for your exhibits (10-15 min per project)
- Contestants understanding is as important as the look of the project
- Every Project must receive a passing Mark
- Revise your scores as many times as you need
- Don't tally judging sheet in front of Contestants
- If stuck on a project, see the Judges Host
- Lower Division Judging is expected to finish about 2:30. Lead Judges remain to select Grand prize winners and must be prepared to stay until 4:00

How to Judge a Project

Before starting to judge take a quick walk-around of all of your assigned projects, to get a feel for what they are about, what they look like, and where they are located.

- Read through the backboard in some logical order; assess its 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?
- If equipment or devices are part of the display, do they serve an obvious purpose, based on what you have seen so far?
- Read through the abstract. Assess it. (If missing, ask for it in interview. No abstract = 0)
  Lower Divison look for something that looks close to an abstract
- Read through the workbook (journal and/or full report).Assess it.
  (If missing, No workbook = 0)
- Write down your questions and compliments, for use in the Interview, and add to comments section of the judging form.
- Note your points on your summary sheet.

- Remember not to "team-judge", but be sure to ask your Judges Host or another experienced judge if you have any questions during judging.
- Turn in your score sheet
- Once all projects judged:

    1) Review your summary sheet.
    2) Which one is best?
    3) Which should be at the bottom of the list?
    4) Is your impression consistent with the points you've assigned?
    5) Decide if you need to revise scores and if so give your revisions to the Judging Host.

Goals for using this scoring system

Our judging in the past has been subjective in nature and various Judges have requested a way to quantify the projects. At the 2002 ISEF, I attended a workshop on Judging and would like to try the form used by the Canadian Science Fair. The following section explains how the sheet works and I feel it will help you as a Judge accurately “grade” the project.

My goal is to reduce the amount of time spent in determining the placements of awards.

The purpose of the interview process is to prepare the students for ISEF. All projects will have an interview with a team of two to three judges. These Judges will have already read and scored the project. The projects with the higher scores (ISEF potential) will be interviewed by a second interview round with all Judges.

Score sheets will then be tallied and the projects ranked by score. In the case of a tie at a specific award level, discussion and consensus of the Judges will determine final ranking.

Using the Judging Form

As a judge the main tools that you will use are a pencil, a clipboard, and judging forms. All tools are supplied on the judging day. To use the judging form effectively, follow the steps on the following pages. It is just that easy.

The Form (Page 1)

Youth Engineering & Science Fair Judging Form

Project: _____ Judge #: _____

A		B		C		D		E		TOTAL
	+		+		+		+		=	

Scientific Thought

1. Determine whether the project is either an experiment, a study, or an innovation.
2. Determine the level of the project by matching the description with the project.
   Circle the deserving points out of a maximum of 45 (see Note on Team Projects).

Definition	**Level 1** (acceptable)	**Level 2** (fair)	**Level 3** (good)	**Level 4** (excellent)
☐**Experiment** Investigation undertaken to test one or more hypothesis.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
☐**Study** A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic issue.	Study of material collected through compilation of or expansion of existing data and through observation. The study attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new approach to the study of a problem which correlates information from a number of sources. The report also offers new insights or solutions to the problem.
☐**Innovation** The development and evaluation of models or innovative devices, using techniques or approaches from the field of technology or engineering.	Building models or other devices that duplicate existing technology; minimal reporting.	Make improvement to an existing technology or use an existing technology for new applications.	Design and build an innovative adaptation of an existing technology for a new application.	Build a novel technology or integrate technologies to form an innovative system that has commercial or human benefit.
Score out of a possible 45 points. (See note below on Teams)	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

Team projects: Based on the following deduct up to 10 pts for part A	**A**	**Score:**
1. Are the tasks and contributions of each team member clearly outlined? **2. Was each team member involved and familiar with the project?** **3. Does the final work reflect the coordinated efforts of all team members?**		

The Form (Page 2)

Display Part 1 **Skill** (maximum 10 points) • Is workmanship neat and carefully done? • Is lettering clear? • Are colors strong and suitable? • Is the layout complete, logical and self-explanatory? • Is the content clearly and logically presented? **Circle: 1 2 3 4 5 6 7 8 9 10**	**B**	**Score:**
Display Part 2 **Dramatic Value** (maximum 10 points) • Is the display simple and visually balanced? • Does it capture attention? • Does it have impact? • Is there good balance and use of contrasts? • Do the blackboards, table and all displays meld together? **Circle: 1 2 3 4 5 6 7 8 9 10**	**C**	**Score:**
Notebook / Work Journal (maximum 10 points missing = 0) • Is the notebook clear, concise and neat? • Is it different from the backboard display? • Is it well organized? • Is there a journal summarizing actual work noting both successes and failures? • Is there a bibliography? • Are there acknowledgements? **Circle: 0 1 2 3 4 5 6 7 8 9 10**	**D**	**Score:**
Abstract (maximum 5 points missing abstract =0 points) • Is the abstract present? • Does the abstract contain all aspects of the project? • Is the information concise, complete, and accurate? • Is the abstract well written? (grammar, syntax and spelling) **Circle: 0 1 2 3 4 5**	**E**	**Score:**

***Team projects:**

Deduct up to 2 points per section (Max of 6 for page) if the answers to these questions are NO.

1. **Are the tasks and contributions of each team member clearly outlined?**
2. **Was each team member involved and familiar with the project?**
3. **Does the final work reflect the coordinated efforts of all team members?**

Comments for Students (check any that apply)

☐ Good use of photos ☐ Excellent display ☐ Interesting topic explore it more for next year
☐ Run the experiment more times to see if the trend continues. ☐ Text is hard to read
☐ Increase the size of your ___control group ___sample group
☐ Be careful about spelling ☐ Great Job ☐ You need more quantifiable data
☐ Try a larger sample to see if the results are the same ☐ Work on improving your penmanship

☐ Other _____

Side One Step One - Choose a Definition

A. Scientific Thought (maximum 45 marks)

1. Select whether the project is either an experiment, study, or innovation.
2. Determine the level of the project by matching the description with the project. Circle the deserving mark out of a maximum of 45.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
Study A collection and analysis of data showing evidence of a correlation, or pattern of scientific interest. Variables are identified and controlled.	Study and presentation of printed material related to the basic issue.	Study of material collected through compilation of or expansion of existing data and through observation. The study attempts to address a specific issue.	Study based on new observations and research of a previously studied topic. Appropriate analysis of data and correlations made.	A new approach to the study of a problem which correlates information from a number of sources. The report also offers new insights or solutions to the problem.
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Score out of a possible 45 marks.	15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30	20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35	25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40	30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45

A	Score:

Side One Step Two- Choose a level

A. Scientific Thought (maximum 45 marks)

1. Select whether the project is either an experiment, study, or innovation.
2. Determine the level of the project by matching the description with the project. Circle the deserving mark out of a maximum of 45.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new approach to the design, modification or application of an existing experiment with control of some variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
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A	Score:

<u>Side One</u> Step Three - Choose the appropriate score for the Definition and Level chosen. Adjust as needed for Team projects. Transfer number chosen to Score box.

A. Scientific Thought (maximum 45 marks)

1. Select whether the project is either an experiment, study, or innovation.
2. Determine the level of the project by matching the description with the project. Circle the deserving mark out of a maximum of 45.

Definition	Level 1 (acceptable)	Level 2 (fair)	Level 3 (good)	Level 4 (excellent)
Experiment Investigation undertaken to test one or more hypotheses.	Duplication and reporting of an experiment to test a previously confirmed hypothesis.	Extension of a known experiment through modification of its procedure, data collection, analysis or application.	A new a[illegible] to the design, [illegible]tion or applicat[illegible] with co[illegible]ome variables.	A new experimental approach to a research problem in which most of the significant variables are controlled.
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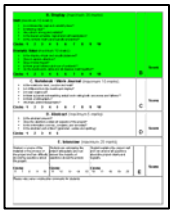
Score:

<u>Side Two</u> Step Four - Circle the appropriate scores for Skill and Dramatic value Transfer number chosen to "B" and "C" Score box. Adjust for Team projects



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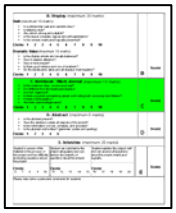
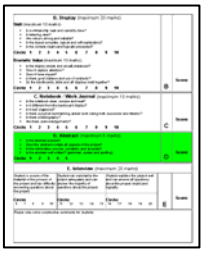
Display Part 2 **Dramatic Value** (maximum 10 points) • Is the display simple and visually balanced? • Does it capture attention? • Does it have impact? • Is there good balance and use of contrasts? • Do the blackboards, table and all displays meld together? Circle: 1 2 3 4 5 6 7 8 9 10	C	Score:

<u>Side Two</u> Step Five - Circle the appropriate score for Notebook/Work Journal. Transfer number chosen to 'D' Score box



Notebook / Work Journal (maximum 10 points) • Is the notebook clear, concise and neat? • Is it different from the backboard display? • Is it well organized? • Is there a journal summarizing actual work noting both successes and failures? • Is there a bibliography? • Are there acknowledgements? Circle: 1 2 3 4 5 6 7 8 9 10	D	Score:

<u>Side Two</u> Step Six – Circle the appropriate score for the Abstract Transfer number chosen to "E" Score box



Abstract (maximum 5 points missing abstract =0 points) • Is the abstract present? • Does the abstract contain all aspects of the project? • Is the information concise, complete, and accurate? • Is the abstract well written? (grammar, syntax and spelling) Circle: 0 1 2 3 4 5	E	Score:

<u>Side Two</u> Step Seven – Provide the student with positive feedback on how to improve the project. These are the most common comments provided by Judges over the years. The Students will receive a copy of this sheet so you can add additional comments as well.

Comments for Students (check any that apply)

☐ Good use of photos ☐ Excellent display ☐ Interesting topic explore it more for next year
☐ Run the experiment more times to see if the trend continues. ☐ Text is hard to read
☐ Increase the size of your ___control group ___sample group
☐ Be careful about spelling ☐ Great Job ☐ You need more quantifiable data
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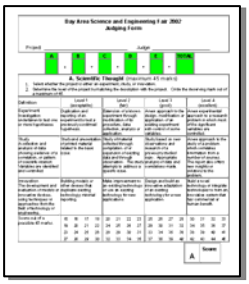
☐ Other _____



Side Two Step Eight - Transfer Scores, Total Scores

Final Word

We at the YES Fair would like to thank you for your participation as a volunteer judge. We could not have a successful fair without your time and effort.

The Yes Fair would also like to thank the Bay Area Science and Engineering Fair of Ontario Canada for the new scoring sheet and judge's manual.