How to be a Good Science Fair Judge

Being a judge for the Science Fair is hard, but it's worth the effort. You are making a memorable impact on the lives of some very talented young people. Some students' perceptions of you could influence their career choices. It is a good idea when you approach a student to introduce yourself and your background.

Asking Questions

Your best tool in judging is asking questions. The student should be doing most of the talking.

There are some questions all students should be able to answer, including:

- How did you come up with the idea for this project?
- What did you learn from your background research?
- How long did it take you to design the experiment?
- How did you build the equipment/apparatus?
- How much time did it take to run each experiment?
- How many times did you repeat the trials?
- Did you make it a fair test?
- What do you mean by (terminology or jargon used by the student)?
- Do you think there is a use for this in the real world?
- Is there another study you'd like to do?
- Would you change anything about this project?
- Are there any areas that we not have covered which you feel are important?
- Do you have any questions for me?

Note: these are only suggestions to keep the dialog going. You may find other questions to be more useful.

One type of question to avoid is "*Why didn't you do....?*" Probing questions are useful to stimulate the thought processes of the student. A solution or extension to the work presented may be obvious to you but the student may not understand why you're asking such a question.

If you ask a question of this type, be sure to imply the correct intent, as in "*Could you have done... ?*" or "*What do you think would have happened if you had done....?*" When phrased this way the question is an invitation for the student to think about the experiment in a different way, and can turn the question into a positive experience.

Science or Technology

Remember this year has separate judging forms for science or technology, science questions may not always be applicable to a technology project and vice versa, please read the judging criteria carefully, particularly if it is not your area of expertise.

Conveying Fairness

It is important to be fair and consistent. Your fairness is indicated by a few simple actions:

- You spend about the same amount of time with each student
- You listen to the student's explanation of the project
- The questions you ask are intended to find out more about the project and how it was done, they are an opportunity for the student to shine.
- To assure the perception of fairness, you also need to make sure that one student doesn't monopolize your time. Some have a well-rehearsed pitch that may prevent you from having a chance to interact with the student. You have to find some way to break the pattern by politely interrupting with a question. The idea is not to stop the student from talking, but to get the student to interrupt the tape recording and think about what is being communicated to you.

Guiding the Discussion

Sometimes we come across projects in technical areas with which we are intimately familiar, and the student just didn't get it -- they made some incorrect assumptions, missed a key indicator in the data, came up with a false conclusion, or didn't look at or understand some common principles. It can be tempting to share your knowledge about the topic, to help the student appreciate what happened (or should have happened) in the experiment.

You may be tempted to enthusiastically pontificate while a student stands idly listening. Before you do this, please consider that these students are smart, and the next judge may hear the student parroting back the knowledge you imparted. Try to to lead the student toward the right answers, but please don't give the answers. If you really feel compelled to make explanations, save them until near the end of the judging time when your knowledge will not be relayed to judges following you. Alternatively, you may give the student your card and invite future discussion about the project**.**

Improving Communication

Since you are a judge, most students instinctively think of you as an intimidating figure. The more you can dispel this image, the more likely you are to help the student be less nervous, and get a better discussion. Simple things can make a difference:

- Make eye contact with the student;
- If the student is short and you are tall, stoop, bend, or squat down to lower your eye level if possible
- Whenever a student shows a good idea, clear chartsmanship, a clever way to get expensive results with inexpensive equipment, or anything you can complement, be sure to use a compliment;
- Use a tone of voice that indicates interest or inquisitiveness, not scepticism or contempt.

General

Many of these students are exceptionally bright, and it is easy to think -- when facing an incredibly impressive display and a supremely confident student -- that this student's research is beyond your knowledge. If a project is really and truly completely outside your experience, you are still knowledgeable in the area of problem-solving and the scientific method. Concentrate on these aspects rather than the details of a particular project.

Determining the scores

Points to remember:

- The quality of the student's work is what matters, not the amount of work;
- Team projects are judged like other projects -- it is the quality of the work that matters (an individual project of equal quality to that of a team project may be ranked higher because of the comparatively greater effort required by the individual);
- A less sophisticated project that the student understands gets higher marks than a more sophisticated project that is not understood;
- Access to sophisticated lab equipment and endorsements from professionals do not guarantee a high quality project (Did the student really understand what was going on?);
- It's okay if the student ended up disproving the objective or hypothesis of the experiment. A nil result is still a valid result.

High marks go to:

- Genuine scientific/technological breakthroughs
- Discovering knowledge not readily available to the student
- Correctly interpreting data/
- A clever experimental apparatus/ use of material and processes
- Repetitions to verify experimental results /logical process from idea to solution
- Predicting and/or reducing experimental results with analytical techniques
- Experiments and new technology applicable to the "real world"
- Ability to clearly portray and explain the project and its results

Low marks go to:

- Ignoring readily available information (e.g. not doing any background research)
- An apparatus (e.g. model) not useful for experimentation and data collection/materials not adequate for product function
- Improperly using jargon, not understanding terminology, and/or not knowing how equipment or instrumentation works
- Presenting results that were not derived from experimentation (e.g. literature search)

Feedback

Finally, but most importantly… your feedback. It can be quite a daunting day for some students, being interviewed by several judges can be quite intimidating. Our overall objective is for their experience to be positive, for students to be thrilled by the process and hopefully consider a career or further studies in science or technology. Part of this can be done by giving positive and encouraging feedback. Please find the element you found best about the project and comment on this. If you have further suggestions, please also try hard to word it as a positive solution such as “it would be interesting to further investigate…” A lot of hard work and effort has been put in to these projects and we hope for them to learn and want to come back next year.