

2002 Colorado Science and Engineering Fair Scientific Review Committee Report

I will begin this year's report with the positives that improved from looking at last year's report and comparing it to this year's problems.

1. The number of students using old ISEF forms has drastically dropped in the past few years. I attribute this to the availability of the forms on-line and my sending a copy of the International Rules for Precollege Science Research to all previous year's Adult Sponsors. I hope to continue to do this every year.
2. Team registrations and paperwork is also getting better and better each year. This is probably due to ISEF having separated several key forms into individual and team. We must always remember that an Approval Form 1B must be submitted for each student.
3. Consistency between the Adult Sponsor Checklist Form 1 and the Research Plan Form 1A has gotten better, but we need to make sure they are marked the same and correctly in order to avoid confusion. This same information needs to be transferred over to the CSEF Registration Form.
4. I had a lot less 'missing Research Plan Attachment' problems this year as ISEF instituted a new form to remind students that they need to submit this information. I am hoping that this gets better and better each year. However, it needs to be noted that if a student uses this new form (it is not required at this point), USE IT! Do not simply write "See attached" and then staple the research plan to that blank form. Begin the research plan on the form and continue on other pages, or don't include the form at all! There were way too many wasted sheets of paper using this form that way.

Now on to the areas that still need improving and some new issues that have come up.

1. We lost ground in the area of Designated Supervisors Form 3 this year. This form is not being used properly and adult sponsors are overlooking the use of hazardous substances and equipment in many projects.

ISEF has included in the rulebook (pages 7 & 8) some definitions in order to clarify some things for us users of the forms. They define hazardous substances as 'any dangerous chemical, equipment, or radioactive material that exposes a researcher or research subject to risk or harm.' Now I know that the CSEF SRC may sometimes go overboard in finding the use of what they would consider 'hazards' in some projects, but they have the best interests of the student at heart. What we need on Form 3 is a clear listing of the hazards involved in the project and how the designated supervisor will ensure the safety of the student. Also, if special training is required (such as with the use of guns), we require the designated supervisor to provide proof of such training (i.e., Colorado Hunter Safety course training). And finally, even if a Qualified Scientist or the Adult Sponsor is directly supervising the student, and hazards are used, a Form 3 is required.

2. The use of human subjects is really becoming an issue with the CSEF SRC and the ISEF SRC. We need to remember that a human subject is 'a person about whom an investigator (professional or student) conducting research obtains 1) data through active or passive intervention or interaction with the person, or 2) identifiable private information.' If the student is using himself/herself only as 'test subjects', then it is not a Human Subjects project. There also needs to be a better understanding of what risk is. ISEF defines it in the rulebook on pages 8 & 17 and I urge you to read that carefully. The safest way to go is to insist on marking Human Subjects Form 4A "More than minimal risks involved" and using a Qualified Scientist Form 2 and Informed Consent Forms 4B if anyone in the Risk Groups listed on page 17 is going to be used in the research.

3. Another area that needs to be addressed is the use of vertebrate animals. There were several projects (in the Junior Division) where a student used only two animals in experimentation. This is highly risky, for if one of them dies, for whatever reason, the student would then have a death rate of more than 50% and they would have been disqualified from competition. It must be stressed that animal experiments must be done at school or at a research institute and not at home. The only exception to this would be behavioral/observational studies done with pets or work done with farm animals. Also, students mustn't get animals from a local pet store for use during experimentation and then return them to the pet store!! This does not constitute a pet!!!
4. Finally, we need to stress the importance of detail in students' research plan attachments. A good rule of thumb in writing procedures is that there is enough detail for someone else to duplicate the experimentation (lab) part of the research.