

Comparing Projects with Different Levels of Sophistication

One of the most difficult judging tasks is comparing projects carried out in university or industrial laboratories under professional guidance with projects done at home with no professional help. Judges should not be in the position of arguing that a particular student would have done much better (or poorer) if only they had had access (or no access) to state of the art equipment. Among students with access to professional laboratories, every year there are those for whom the facilities are the enabling mechanism for their efforts, and there are those for whom the facilities are a mask for little effort. Both types of students should be judged on their personal scientific accomplishment and their ability to exploit the resources available.

Students who work entirely on their own may appear to be at a disadvantage when judged solely on the basis of the project's title and display. If their accomplishments are, in fact, superior to others, the interview is where the playing field is leveled. It is important to identify how the student made a difference in the direction of the project.

Regardless of where the science project is conducted, good scientific principles and engineering practices must be evident. The student's level of scientific understanding should be consistent with the project's level of technical sophistication and complexity. Judges should apply this standard in evaluating the student's project.

Comparing Team Projects with Individual Projects

It is important that judges keep in mind that all projects, regardless of the number of participants, are to be evaluated primarily on the quality of the personal contribution(s) of the student(s) to the science in evidence. In order for the judge to be able to evaluate the level of science of a team project, it is essential that all students in the team participate in the interview (unless otherwise acknowledged).

All students on the team should have general and specific knowledge of the project such as how the question was conceived and subsequently attempted to be answered.

The judge has the freedom to ask a question of anyone in the group. However, the judge should be aware that the group has the equivalent freedom to choose a spokesperson and may refer a particular question to a specialist.

In your comparison of a team project with one done by an individual, it is fair to have a higher expectation of the team project regarding the overall level of effort involved in the project. In other words, team projects have greater resources (the number of minds working together) and therefore a greater capacity for more research and data collection, more time, effort, and thought spent on the project, and more analysis than someone acting alone.

There also must be evidence of team collaboration and synergy among team members (which should become evident during the interview process). In particular, the judge should try to ascertain how fully the resources of the group have been exploited. Remember that one of the primary goals of team projects is to encourage students to work as a team (mimicking the way science is done in the real world), and to encourage project management. Each team member should have made a significant contribution to the overall project.

Finally, please do not discount any student for having worked in a team (or in a research lab for that matter) because you feel they have had an unfair advantage.