

Expectations for Intel ISEF Candidates – CUSEF and SLVSEF 2010

Projects that win at ISEF tend to have three characteristics: (1) they follow sound methodologies; (2) they have useful applications and meaningful implications; and (3) contribute something new to the body of science.

Ideally, the students who are selected to represent CUSEF at the Intel International Science and Engineering Fair should:

- Ask a question and design an experiment that makes an original and meaningful contribution to the body of science. Or, if an engineering project, identify a need and follow the engineering design process to produce a useful and innovative product.
- State a logical and sophisticated hypothesis that includes an explanation of why the hypothesis is stated as it is (e.g., what are the theoretical/conceptual underpinnings of the hypothesis?). A statistical hypothesis should also be stated.
- Consult and reference appropriate sources of background information, including articles from peer-reviewed journals, scientific monographs, and other similar sources of information.
- Use experimental procedures, techniques, and methodologies that are similar in quality to that expected of research that might be published in a peer-reviewed journal.
- Collect a sufficient amount of data (e.g. 20-30 replicates) that statistical methods can be safely used during the data analysis process.
- Use appropriate exploratory data analysis and inference procedures to analyze their data.
- State a conclusion that is based on the data collected and analyzed. The conclusion should address the hypothesis and question asked by the student. The “why” of the project must also be addressed in the conclusion or discussion section of the project. Why did the project turn out the way that it did? Or, if an engineering project, the student should present the final version of his or her product with substantial evidence supporting the final design choices.
- Discuss and explain the implications of his or her conclusions/final product.
- Maintain a detailed and complete project notebook.
- Be able to communicate effectively, explain his or her project clearly, and demonstrate extensive understanding of their project’s relevant background information.
- Present a professional appearance in dress and conduct during judging.
- Prepare and display a high quality, easy-to-follow, and detailed display board free from grammatical errors and spelling mistakes. Remember, however, that the interview greatly exceeds the importance of the display board.