

## Intel ISEF Judging Guidelines

The following evaluation criteria will be used for judging at the Ritchey Science & Engineering Fair. This list was extensively reviewed and revised by the Intel ISEF Judge Advisory Committee, with additional input from science, engineering and educational experts. One of the most significant changes from the previous guidelines is the use of different criteria for science and engineering projects. As shown below, both criteria have five sections as well as suggested scoring for each section. Considerable emphasis is placed on two areas: *Creativity* and *Presentation* (especially the *Interview* section) and are discussed in more detail below.

**Creativity:** A creative project demonstrates imagination and inventiveness. Such projects often offer different perspectives that open up new possibilities or new alternatives. Judges should place emphasis on research outcomes in evaluating creativity.

**Presentation/Interview:** The interview provides the opportunity to interact with the students and evaluate their understanding of the project's basic science, interpretation and limitations of the results and conclusions.

- If the project was done at a research or industrial facility; the judge should determine the degree of independence of the student in conducting the project.
- If the project was completed at home or in a school laboratory; the judge should determine if the student received any mentoring or professional guidance.
- If the project is a multi-year effort; the interview should focus **ONLY** on the current year's work.
- **Please note that all members of a team** should demonstrate significant contributions to and an understanding of the project.

### Judging Criteria for Science Projects

#### 1. Research Question (10 pts)

- \_\_\_ clear and focused purpose
- \_\_\_ identifies contribution to field of study
- \_\_\_ testable using scientific methods

#### 2. Design and Methodology (15 pts)

- \_\_\_ well-designed plan and data collection methods
- \_\_\_ variables and controls defined, appropriate and complete

#### 3 Execution: Data Collection, Analysis and Interpretation (20 pts)

- \_\_\_ systematic data collection and analysis
- \_\_\_ reproducibility of results
- \_\_\_ appropriate application of mathematical and statistical methods
- \_\_\_ sufficient data collected to support interpretation and conclusions

#### 4. Creativity (20 pts)

- \_\_\_ project demonstrates significant creativity in one or more of the above criteria

## **5. Presentation (35 pts)**

### **a. Poster (10 pts)**

- \_\_\_ logical organization of material
- \_\_\_ clarity of graphics and legends
- \_\_\_ supporting documentation displayed

### **b. Interview (25 pts)**

- \_\_\_ clear, concise, thoughtful responses to questions
- \_\_\_ understanding of basic science relevant to project
- \_\_\_ understanding interpretation and limitations of results and conclusions
- \_\_\_ degree of independence in conducting project
- \_\_\_ recognition of potential impact in science, society and/or economics
- \_\_\_ quality of ideas for further research
- \_\_\_ **for team projects, contributions to and understanding of project by all members**

## **Judging Criteria for Engineering Projects**

### **1. Research Problem (10 pts)**

- \_\_\_ description of a practical need or problem to be solved
- \_\_\_ definition of criteria for proposed solution
- \_\_\_ explanation of constraints

### **2. Design and Methodology (15 pts)**

- \_\_\_ exploration of alternatives to answer need or problem
- \_\_\_ identification of a solution
- \_\_\_ development of a prototype/model

### **3. Execution: Construction and Testing (20 pts)**

- \_\_\_ prototype demonstrates intended design
- \_\_\_ prototype has been tested in multiple conditions/trials
- \_\_\_ prototype demonstrates engineering skill and completeness

### **4. Creativity (20 pts)**

- \_\_\_ project demonstrates significant creativity in one or more of the above criteria

## **5. Presentation (35 pts)**

### **a. Poster (10 pts)**

- \_\_\_ logical organization of material
- \_\_\_ clarity of graphics and legends
- \_\_\_ supporting documentation displayed

### **b. Interview (25 pts)**

- \_\_\_ clear, concise, thoughtful responses to questions
- \_\_\_ understanding of basic science relevant to project
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- \_\_\_ **for team projects, contributions to and understanding of project by all members**