JUDGING CRITERIA

The GSEF judging process places special emphasis on the student's ability to discuss the project effectively during the interview, as well as the project's demonstration of originality, creativity, imagination, discovery, and inventiveness. Exhibits should serve two functions: 1) to present the research clearly when the student is not present, and 2) to guide the interview toward an in-depth discussion. Judges may examine the student notebook (three-ring binder), which should include ISEF Forms (see below) and optional items such as a research paper.

JUNIOR DIVISION (Grade 6-8)

Most Projects	Engineering Projects (and some math, computer science)
I. SCIENTIFIC THOUGHT (10 pts) • Clear purpose • Testable using scientific methods • Variables and controls defined, appropriate, complete • Systematic data collection and analysis • Conclusions based solely and directly on the collected data	**I. ENGINEERING GOALS (10 pts)** • Clear problem or need to be solved • Clear criteria for proposed solution • Identification of a solution • Development of prototype that demonstrates intended design, has been tested, demonstrates engineering skill
II. CREATIVITY (5 pts) • project demonstrates significant creativity/originality/inventiveness	
III. PRESENTATION (5 pts) • Student is interested and professional • Can clearly explain the logic, purpose, procedures, and conclusions of the project • Information in exhibit is presented in an orderly manner, with clear data and results • Student has "ownership" of the topic and project	

SENIOR DIVISION (Grade 9-12)

Most Projects	Engineering Projects (and some math, computer science)
I. RESEARCH QUESTION (10 pts) • clear and focused purpose • identifies contribution to field of study • testable using scientific methods	**I. RESEARCH PROBLEM (10 pts)** • description of a practical need or problem to be solved • definition of criteria for proposed solution • explanation of constraints
II. DESIGN & METHODOLOGY (15 pts) • well-designed plan and data collection methods • variables and controls defined, appropriate and complete	**II. DESIGN & METHODOLOGY (15 pts)** • exploration of alternatives to answer need or problem • identification of a solution • development of a prototype/model
III. EXECUTION: Data Collection, Analysis & 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	**III. EXECUTION: Construction & Testing (20 pts)** • prototype demonstrates intended design • prototype has been tested in multiple conditions/trials • prototype demonstrates engineering skill and completeness
IV. CREATIVITY (20 pts) • project demonstrates significant creativity/originality/inventiveness in one or more of the above criteria	
V. PRESENTATION (35 pts) Poster (10 pts): • logical organization of material • clarity of graphics and legends • supporting documentation well selected and displayed	Interview (25 pts): • clear, concise, thoughtful responses to questions • understanding of basic science relevant to project • understanding of 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

All projects (grades 6-12) must adhere to the ISEF Rules & Guidelines (*www.societyforscience.org/isef/international-rules)* governing the forms and approvals (often before experimentation begins) required for research. The following forms are required for **ALL** projects and must be completed correctly; photocopies must be available at the project booth:

- ☐ **OFFICIAL GSEF ABSTRACT FORM**
- ☐ **FORM 1: CHECKLIST FOR ADULT SPONSOR**
- ☐ **FORM 1A: STUDENT CHECKLIST**
- ☐ **RESEARCH PLAN/PROJECT SUMMARY**
- ☐ **FORM 1B: APPROVAL FORM**

The following forms are also required for certain types of research. Forms must be completed correctly and available at the project booth:

- ☐ **FORM 1C: REGULATED RESEARCH SETTING -** for research done in hospital, university, lab, or setting other than home, school, or field
- ☐ **FORM 2: QUALIFIED SCIENTIST -** for research involving human participants, vertebrate animals, potentially hazardous biological agents, or DEA-controlled substances
- ☐ **FORM 3: RISK ASSESSMENT -** for research involving hazardous chemicals, activities or devices, or DEA-controlled substances, some human participants projects, and some potentially hazardous biological agents
- ☐ **FORM 4: HUMAN PARTICIPANTS -** for research involving human participants
- ☐ **FORMS 5A/5B: VERTEBRATE ANIMALS -** for animal research done at home, school, field (5A) or regulated research institution (5B)
- ☐ **FORM 6A: POTENTIALLY HAZARDOUS BIOLOGICAL AGENTS & 6B: HUMAN/ANIMAL TISSUE -** for research involving microorganisms, rDNA, tissue, blood, bodily fluid. 6B also required if research involves fresh or frozen tissue, cells, blood, bodily fluid
- ☐ **FORM 7: CONTINUATION** - for projects that continue or expand upon a previous year's work. Must be accompanied by previous year's abstract and Research Plan