

JUDGING CRITERIA

The GSEF judging process emphasizes 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 (3-ring binder preferred), which should include research forms (see below) and optional items such as a research paper. All exhibits must adhere to the [GSEF Display & Safety Regulations](#).



JUNIOR DIVISION (Grades 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, • Information in exhibit is presented in an orderly manner, with clear data and results • Student has "ownership" of the topic and project	

SENIOR DIVISION (Grades 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	

REQUIRED RESEARCH FORMS All projects (grades 6-12) must follow the [ISEF Rules & Guidelines](#) and have all required [forms and approvals](#).

Forms required for ALL projects:

- ☐ Official GSEF Abstract Form
- ☐ Form 1: Checklist for Adult Sponsor
- ☐ Form 1A: Student Checklist
- ☐ Research Plan/Project Summary

Photocopies of all required research forms must be displayed at the exhibit at GSEF, preferably in a 3-ring binder.

Please keep originals at home or in another safe place.

Additional forms required for certain types projects:

- ☐ **Form 1C: Regulated Research Institution** - research done in hospital, university, lab, or setting other than home, school, or field
- ☐ **Form 2: Qualified Scientist** - some research involving human participants, vertebrate animals, potentially hazardous biological agents, or DEA-controlled substances
- ☐ **Form 3: Risk Assessment** - research involving hazardous chemicals, activities, devices, or DEA-controlled substances, some human participants projects, and some potentially hazardous biological agents projects
- ☐ **Form 4: Human Participants** - research involving human participants
- ☐ **Forms 5A/5B: Vertebrate Animals** - research involving vertebrate animals
- ☐ **Form 6A: Potentially Hazardous Biological Agents** and **6B: Human/Animal Tissue** - 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** - projects that continue or expand upon a previous year's work