



Judging Guidelines & Evaluation Criteria

Points are assigned to creative ability, scientific thought or engineering goals (II a. and b. respectively), thoroughness, skill, and clarity. Team projects have a slightly different balance of points that includes points for teamwork. A chart of these point values is located at the end of these criteria and again in Appendix Two for easy reference. Following is a list of questions for each set of criteria that can assist you in interviewing the Finalists and aid in your evaluation of the Finalists' projects.

I. Creative Ability (Individual - 30, Team - 25)

- 1) Does the project show creative ability and originality in the questions asked?
 - a. in the approach to solving the problem?
 - b. in the analysis of the data?
 - c. in the interpretation of the data?
 - d. in the use of equipment?
 - e. in the construction or design of new equipment?
- 2) Creative research should support an investigation and help answer a question in an original way.
- 3) A creative contribution promotes an efficient and reliable method for solving a problem. When evaluating projects, it is important to distinguish between gadgeteering and ingenuity.

II a. Scientific Thought (Individual - 30, Team - 25)

(If an engineering project, please see II b. Engineering Goals.)

- 1) Is the problem stated clearly and unambiguously?
- 2) Was the problem sufficiently limited to allow plausible attack? Good scientists can identify important problems capable of solutions.

- 3) Was there a procedural plan for obtaining a solution?
- 4) Are the variables clearly recognized and defined?
- 5) If controls were necessary, did the student recognize their need and were they used correctly?
- 6) Are there adequate data to support the conclusions?
- 7) Does the Finalist/Team recognize the data's limitations?
- 8) Does the Finalist/Team understand the project's ties to related research?
- 9) Does the Finalist/Team have an idea of what further research is warranted?
- 10) Did the Finalist/Team cite scientific literature, or only popular literature (e.g, local newspapers, magazines)?

II b. Engineering Goals (Individual - 30, Team -25)

- 1) Does the project have a clear objective?
- 2) Is the objective relevant to the potential user's needs?
- 3) Is the solution: workable? acceptable to the potential user? economically feasible?
- 4) Could the solution be utilized successfully in design or construction of an end product?
- 5) Is the solution a significant improvement over previous alternatives or applications?
- 6) Has the solution been tested for performance under the conditions of use?

III. Thoroughness (Individual - 15, Team - 12)

- 1) Was the purpose carried out to completion within the scope of the original intent?
- 2) How completely was the problem covered?
- 3) Are the conclusions based on a single experiment or replication?
- 4) How complete are the project notes?
- 5) Is the finalist/team aware of other approaches or theories?
- 6) How much time did the Finalist or Team spend on the project?
- 7) Is the Finalist/Team familiar with scientific literature in the studied field?

IV. Skill (Individual - 15, Team - 12)

- 1) Does the finalist/team have the required laboratory, computation, observational and design skills to obtain the supporting data?
- 2) Where was the project performed? (i.e., home, school laboratory, university laboratory)
Did the student or team receive assistance from parents, teachers, scientists or engineers?

- 3) Was the project completed under adult supervision, or did the student/team work largely alone?
- 4) Where did the equipment come from? Was it built independently by the Finalist or Team? Was it obtained on loan? Was it part of a laboratory where the Finalist /Team worked?

V. Clarity (Individual - 10, Team - 10)

- 1) How clearly does the finalist or team discuss his/her/their project and explain the purpose, procedure, and conclusions? Watch out for memorized speeches that reflect little understanding of principles.
- 2) Does the written material reflect the Finalist’s or Team’s understanding of the research?
- 3) Are the important phases of the project presented in an orderly manner?
- 4) How clearly are the data presented?
- 5) How clearly are the results presented?
- 6) How well does the physical display explain the project?
- 7) Was the presentation done in a forthright manner, without tricks or gadgets?
- 8) Did the Finalist/Team perform all the project work, or did someone help?

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VI. Teamwork (Team Projects only—16)

- 1) Are the tasks and contributions of each team member clearly outlined?
- 2) Was each team member fully involved with the project, and is each member familiar with all aspects of the project?
- 3) Does the final work reflect the coordinated efforts of all team members?

POTENTIAL MAXIMUM SCORE CHART

	Individual	Team
Creative Ability	30 points	25 points
Scientific Thought / Engineering Goals	30 points	25 points
Thoroughness	15 points	12 points
Skill	15 points	12 points
Clarity	10 points	10 points
Teamwork	—	16 points
Total Possible Score	100 points	100 points

The maximum score a Finalist or Team can obtain is 100.