

Category Awards judging is conducted using a 100 - point scale with points assigned to criteria: (1) creative ability, (2) scientific thought **or** (3) engineering goals, (4) thoroughness, (5) skill, and (6) clarity. The maximum point values are given for each criterion. The following is a list of questions for each set of criteria which are designed to aid the judges in evaluation of the projects in the morning session.

1. Creative Ability

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

0 - 15

2. Scientific Thought – Not to be used if Engineering Goals are Evaluated

- a. Is the problem stated clearly and unambiguously?
- b. Was the problem sufficiently limited to allow plausible attack? Good scientists can identify important problems capable of solutions.
- c. Was there a procedural plan for obtaining a solution?
- d. Are the variables clearly recognized and defined?
- e. If controls were necessary, did the student recognize their need and were they correctly used?
- f. Are there adequate data to support the conclusions?
- g. Does the student recognize the data's limitations?
- h. Does the student understand the project's ties to related research?
- i. Does the student have an idea of what further research is warranted?
- j. Did the student cite scientific literature, or only popular literature (i.e., local newspapers)?

0 - 40

3. Engineering Goals – Not to be used if Scientific Thought is Evaluated

- a. Does the project have a clear objective?
- b. Is the objective relevant to the potential user's needs?
- c. Is the solution workable? Is it acceptable to the potential user? Is it economically feasible?
- d. Could the solution be utilized successfully in design or construction of an end product?
- e. Is the solution a significant improvement over previous alternatives?
- f. Has the solution been tested for performance under the conditions of use?

0 - 40

4. Thoroughness

- a. Was the purpose carried out to completion within the scope of the original intent? If not, why?
- b. How completely was the problem covered?
- c. Are the conclusions based on a single experiment or replication?
- d. How complete are the project notes? Are they organized (e.g. – contained in a binder)?
- e. Is the student aware of other approaches or theories?
- f. How much time did the student spend on the project?
- g. Is the student familiar with scientific literature in the studied field?

0 - 15

5. Skill

- a. Does the student have the required laboratory, computation, observational and design skills to obtain supporting data?
- b. Where was the project performed? (I.e., home, school laboratory, university laboratory) Did the student receive assistance from parents, teachers, scientists or engineers?
- c. Was the project completed under adult supervision, or did the student work largely alone?
- d. Where did the equipment come from? Was it built independently by the student? Was it obtained on loan? Was it part of a laboratory where the student worked?
- e. If the student received help, does the student understand the work?

0 - 15

6. Clarity

- a. How clearly does the student discuss his/her project and explain the purpose, procedure, and conclusions? Watch out for memorized speeches that reflect little understanding of principles.
- b. Does the written material reflect the student's understanding of the research?
- c. Are the important phases of the project presented in an orderly manner?
- d. How clearly are the data presented?
- e. How clearly are the results presented?
- f. How well does the project display explain the project?
- g. Was the presentation done in a forthright manner, without tricks or gadgets?

0 - 15

The afternoon interview session may consider the following considerations in addition to questions on the projects you may have:

- a. Did the student communicate a detailed understanding of the subject matter?
- b. Was the student's research his own or were others heavily relied upon?
- c. Was there any indication of background research not otherwise indicated?
- d. Did the student fully understand the questions and respond appropriately?