

Mu Alpha Theta Award Selection Criteria

We recommend judges use the following 100-point scale with points assigned for creative ability, scientific thought, thoroughness, skill, and clarity. Team projects include points for teamwork.

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

- a) Does the project show creative ability and originality in the questions asked, the approach to solving the problem, the analysis of data, or the interpretation of that data?
- 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.

II. Use of Mathematics (Individual - 15, Team - 13)

- a) Does the project use more than just arithmetic and basic statistics?
- b) Are mathematical conclusions displayed using computer graphics for better visualization?
- c) If mathematical proof is involved, are steps clear, concise, and lead directly from prior statements?
- d) If simulation or approximation methods are used, are they appropriate to the problem? Is there an analysis of possible errors involved in using these methods?

III. Scientific Thought (Individual - 15, Team - 12)

- a) Is the problem stated clearly?
- b) Was the problem sufficiently limited to allow a solution to be found?
- c) Was there a procedural plan for obtaining a solution? What types of mathematics were involved in this solution?
- d) Were the variables clearly recognized and defined?
- e) If controls were necessary, did the student recognize their need and were they correctly used?
- f) Was there adequate data to support the conclusions?
- g) Does the finalist/team recognize the data's limitations?
- h) Does the finalist/team understand the project's ties to related research?
- i) Does the finalist/team make recommendations for further research?
- j) Did the finalist/team cite scientific literature?

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

- a) Was the purpose carried out to completion within the scope of the original intent?
- 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?
- e) Is the finalist/team aware of other approaches or theories?
- f) Was the time spent on the project appropriate?
- g) Is the finalist/team familiar with scientific literature in the studied field?

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

- a) Does the finalist/team 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)? Was there assistance from parents, teachers, scientists, or engineers?
- c) Was the project completed under adult supervision or did the finalist/team work mainly alone?
- d) Where did 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 work was done?

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

- a) How clearly does the finalist discuss his/her project and explain the purpose, procedure, and conclusions? Is there real understanding of the project?
- b) Does the written material reflect that understanding?
- c) Are important phases of the project presented in an orderly manner?
- d) How clearly is 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?

VII. Teamwork (Team Projects only- 16)

- a) Are the tasks and contributions of each team member clearly outlined?
- b) Was each team member fully involved with the project and familiar with all aspects?
- c) Does the final work reflect the coordinated efforts of all team members?

POTENTIAL MAXIMUM SCORE CHART	Individual Points	Team Points
Creative Ability	30	25
Use of Mathematics	15	13
Scientific Thought/Engineering Goals	15	12
Thoroughness	15	12
Skill	15	12
Clarity	10	10
Teamwork	N/A	16
Total Possible Score	100	100