Southern Minnesota Regional Science & Engineering Fair
Elementary (Grades 3-6) Judge Guidelines

The following evaluation criteria will be used for judging at the Elementary (grades 3-6) Southern Minnesota Regional Science & Engineering Fair.

As shown below, both criteria have five sections as well as suggested scoring for each section. Each section includes key items to consider for evaluation both before and after the interview. Students are encouraged to design their posters in a clear and informative manner to allow pre-interview evaluation and to enable the interview to become an in-depth discussion. Considerable emphasis is placed on two areas: Creativity and Presentation, especially the Interview section, and are discussed in more detail below.

Creativity: A creative project demonstrates imagination and inventiveness. Such projects often offer different perspectives that open up new possibilities or new alternatives. Judges should place emphasis on research outcomes in evaluating creativity.

Presentation/Interview: The interview provides the opportunity for judges to interact with the students and evaluate their understanding of the project's basic science, interpretation and limitations of the results and conclusions. Judges and Fair Officials will consider the following:

- Was the project completed at, or with substantial assistance from, a University, Research Lab, or other professional service? If so, that is OK, but students should clearly acknowledge that assistance on their poster board.
- If the project was completed at home or in a school laboratory, the judge should determine if the finalist received any mentoring or professional guidance.
- If the project is a multi-year effort, the interview should focus ONLY on the current year's work.
- *Please note that both team and individual projects are judged together*, and projects should be judged only on the basis of their quality. However, *all team members should demonstrate significant contributions to and an understanding of the project.*

NOTE: Students at the Regional Fair will NOT receive copies of the scoring sheet, as those will only be used for internal rankings and ribbon assignments. Therefore, as judges, it is imperative that constructive and positive feedback be provided to the students on the comments forms – as this is what the student's will get back from the Fair staff.

Southern Minnesota Regional Science & Engineering Fair Criteria

Elementary Fair Engineering/Design Form

Do NOT give this SCORE sheet back to the student. Awards judging is conducted using a 100-point scale with points assigned to Research Problem, Design & Methodology, Execution (Construction and Testing), Creativity, Presentation (Poster and Interview).

Student name(s): _____

Project #: _____Grade:_____ Judge Initials: _____ Judging Team: _____

I. Research Problem (**10 pts**)

___Student provides a clear and definable research question and/or problem statement.
___Research question and/or problem statement is based on solid reasoning and foundations.
___Student(s) understands/relates question/statement to real issues and challenges.

II. Design and Methodology (**15 pts**)

___Student demonstrates exploration of alternatives to answer need or problem.
___Methods/design approach appropriate to address research problem/statement.
___Approach used led to the development of a prototype/model.

III. Execution: Construction and Testing (**20 pts**)

___The prototype demonstrates intended design.
___The prototype has been tested in multiple conditions/trials (when possible and appropriate).
___The prototype demonstrates engineering skill and completeness.

IV. Creativity (**20 pts**)

___project demonstrates significant creativity in one or more of the above criteria

V. Presentation (**35 pts**)

a. Poster (10 pts)

___Display was organized in a logical and/or creatively effective way.
___Graphs, Tables, Figures, etc. are clear and used appropriately.
___Display is aesthetically pleasing and easy to read.

b. Interview (25 pts)

___Students provided thoughtful and enthusiastic responses to questions.
___Student understands engineering/design sufficiently to have completed the project.
___Student understands interpretation and limitations of project.
___Evidence supports independence in conducting project (outside assistance is not excessive).
___Student recognizes the potential impact in science, society and/or economics of the project.
___Student provides quality ideas for further research/design.
___For team projects, contributions to and understanding of project is provided by all members.

____**Total**

SUGGESTED RIBBON POINTS

Purple Ribbon= 85-100
Blue Ribbon= 70-84
Red Ribbon= 0-69

Judges' Comment Form for Project - TEAM / INDIVIDUAL

Note: This sheet WILL be returned to the students and will be the only written feedback they get from the judges. Please make at least one constructive comment in each section. Use the back of this sheet if necessary.

Student name(s): _____

Project #: _____ Grade: _____ Judge Initials: _____ Judging Team: _____

CREATIVE ABILITY Questions asked are student-initiated and original; approach to solving the problem is creative; equipment is creatively used or had to be made/modified; interpretation of the data shows creative and original thinking by students; students understand project implications beyond their research

SCIENTIFIC THOUGHT (A) OR ENGINEERING GOALS (B) A: Clear and unambiguous statement of problem; clearly defined procedural plan for obtaining a solution; variables clearly recognized and defined; proper controls used correctly; data adequately supports students' conclusions; limitations recognized; scientific literature cited, not just popular literature (i.e. newspapers, web) OR B: Project has a clear objective relevant to potential user's needs; solution is workable and economically feasible; solution could be used in the design or construction of an end product; solution is a significant improvement over current alternatives; solution has been performance tested under conditions of use

THOROUGHNESS Original question was completely addressed; conclusions are based on repeated observations (not single experiments); project notes / lab notebook are complete; students are aware of alternate approaches or theories

SKILL Data was obtained & analyzed appropriately by student; students worked largely independently; students have required skills/understanding to continue research on own

CLARITY Clear discussion of project (not a memorized speech); written material/poster reflects understanding of research project; data and results are presented clearly; presentation is forthright; students designed and created poster largely independently

TEAMWORK Tasks and contributions of each team member clearly outlined; each team member fully involved with project; coordinated effort evident