

Judging Criteria for All projects

Judging a science project involves judging whether the student has explored the problem with a scientific approach. A simple project done well should receive a higher score than a complicated, "significant" project done poorly. The score for all projects is divided into six sub-scores. Each subscore evaluates a different part of the overall scientific approach. Those scores will be determined by examining each part of the student's project and presentation.

1. Creative Ability (30 points)

- Problem
 - Is this a new problem? If not, is it an original or unique approach to solve an old problem?
- Hypothesis
 - Does the hypothesis suggest an original or unique solution to the problem?
- Equipment
 - Is project equipment and project material utilized in an ingenious manner?
 - Is the equipment built from a kit, involve parts of a kit, or parts of a packaged project?
- Project Design
 - Does the project design demonstrate the student's creative involvement?
 - Is the student aware of other ways to accomplish the same result?
 - Is it evident that the project required student to explore beyond the classroom?
- Analysis / Conclusion
 - Has the student used an original or unique method of evaluating the data and drawing conclusions?
- Display / Presentation
 - Does the project presentation or display demonstrate a creative or unusual approach?

2. Scientific Thought (30 points) - not used for Engineering Projects

1. Problem
 - Is the problem stated clearly and unambiguously?
 - Was the problem sufficiently limited to allow a plausible approach?
2. Background Research

- Does the student understand the project's ties to related research?
- Did the student cite scientific literature, or only popular literature?
- Does the project show depth of study and effort?

3. Hypothesis

- Hypothesis is clearly stated and the project is clearly designed

4. Project Design

- Was there a procedural plan for obtaining a solution?
- Are the variables clearly recognized and defined?
- If controls were necessary, did the student recognize their need and were they correctly used?
- Were the scientific procedures appropriate and well organized?
- Were sampling techniques and data collection appropriate for the problem?

5. Data/Analysis

- Are there adequate data to support the conclusions?
- Does the student recognize the data's limitations?

6. Conclusion

- Does the student have an idea of what further research is warranted?
- Are the conclusions formulated logical, based on the data collected and relevant to the hypothesis?
- Do the conclusions show evidence of understanding that unanswered questions remain?

3. Engineering Goals (30 points) - Engineering Projects Only

0. Objective

- Does the project have a clear objective?

1. Relevance

- Is the objective relevant to the potential user's needs?

2. Design Process

- Does the project follow the scientific method?
- Are the conclusions logical and based on the data collected?
- Were the testing procedures appropriate? Well organized?
- Do the conclusions meet common sense criteria?
- Do the stated conclusions show evidence of the student understanding that unanswered questions remain?

3. Feasibility

- Is the solution workable, acceptable to the potential user, and economically or ecologically feasible?

4. Performance

- Are the testing procedures appropriate and well organized?

- Is the solution a significant improvement over previous alternatives?
- Has the solution been tested for performance under the conditions of use?

5. Marketability

- Could the solution be utilized successfully in design or construction of an end product?
- Has the process or product been tested? Is the concept ready for market?

4. Thoroughness (15 points)

0. Background Research

- Is it apparent the student spent considerable time on the project?
- Is the student aware of other approaches or theories?
- Is the student familiar with scientific literature in the studied field?

1. Completeness

- Is the study complete? Within the scope of the problem?
- Does the project exhibit orderly recording? Is the collected data analyzed properly?
- How complete are the project notes?

2. Reproducibility

- Does the student understand the necessity of repeated experimentation?
- Were the experiments repeated to ensure that the results were consistent?

5. Clarity (15 points)

0. Written Materials

- Are the title, hypothesis, purpose, procedures and conclusions clearly outlined?
- Is there a working logbook?
- Was the logbook obviously used as a project tool?
- Is the final report notebook well organized, accurate, easy to read?
- How clearly is the data presented?
- How clearly are the results presented?
- Does the written material reflect the student's understanding of the research?

1. Backboard

- Are the title, hypothesis, purpose, procedures and conclusions clearly outlined?

- Are the important phases of the project presented in an orderly manner?
- How clearly is the data presented?
- How clearly are the results presented?
- How well does the project display explain the project?

2. Presentation

- How clearly does the finalist discuss the project and explain the purpose, procedure, and conclusions?
- Can the student discuss the project without resorting to notes or prepared speeches?
- Was the presentation done in a forthright manner, without tricks or gadgets?
- Can the student make a complicated subject understandable to the layman (judge)?

6. Skill (10 points)

0. Equipment

- Were special skills needed for the conception, construction, or use of project components?
- Were special test equipment methods and equipment conceived, designed or fabricated by the student?
- Does the student have the required laboratory and / or technical skills to obtain supporting data?
- Was the project completed under adult supervision, or did the student work largely alone?

1. Procedures/Analysis

- Were special mathematical, computational, or observational skills evident?
- Were special skills needed for the conception or use of project components?
- Were special skills needed for the care of living organisms, or treatment of subjects?
- Do you feel that the project in front of you corresponds to the students capability as demonstrated to you?