

Pts.	Evaluation Criteria	Excellent 17-20 points	Good 13-16 points	Fair 9-12 points	Poor 0-8 points
20 score	<p>Science Project:</p> <ul style="list-style-type: none"> Objectives Hypothesis (question) Use of Resources* <i>*jr/sr projects only</i> <p>Engineering Project:</p> <ul style="list-style-type: none"> Problem Statement (design criteria) 	<ul style="list-style-type: none"> Clearly stated & well-written Appropriate for grade level & original Creative approach to problem solving <p>I. Testable, clear, bounded hypothesis</p> <hr/> <ul style="list-style-type: none"> A comprehensive, correctly formatted bibliography was included & footnotes are present in text and display Student(s) used full resources available (e.g. labs, advisors, experts, scientific periodicals & texts, internet) <hr/> <p>A. Clear, original problem statement that meets potential users' needs B. Clearly defined design criteria and goals</p>	<ul style="list-style-type: none"> Lacking in 1 area: clarity, appropriate level, or creativity <p>I. Hypothesis present, but not completely testable</p> <hr/> <ul style="list-style-type: none"> Incomplete citations Used most available resources Most internet resources are scientific & reputable <hr/> <p>A. Statement is not original B. Goals/criteria are measurable but vague</p>	<ul style="list-style-type: none"> Lacking in 2 areas: clarity, appropriate level, and/or creativity <p>I. Hypothesis incomplete or not testable</p> <hr/> <ul style="list-style-type: none"> Minimal effort on citing sources Used some available resources Some internet resources are scientific & reputable <hr/> <p>A. Incomplete statement B. Goals/criteria are poorly defined/not measurable</p>	<ul style="list-style-type: none"> Poorly conceived or lacking in all 3 areas <p>I. Hypothesis missing or poorly defined</p> <hr/> <ul style="list-style-type: none"> No sources or citations Project suffered as a result of not using available resources Internet resources are not scientific or reputable <hr/> <p>A. Statement missing or poorly defined B. Goals/criteria missing</p>
20 score	<p>Science Project:</p> <ul style="list-style-type: none"> Design & Procedures <p><i>Experimental design & implementation (hypothesis testing)</i></p> <p>Engineering Project:</p> <ul style="list-style-type: none"> Engineering process (design & prototype) 	<p>I. Exemplary, creative plan to support / refute hypothesis with valid testing II. Sequential experimental procedures are quantitatively and/or qualitatively listed, and connect hypothesis, data & results III. Procedures are logical and repeatable IV. Sample sizes, number of trials are sufficient. Valid control group. V. All other variables are carefully controlled</p> <hr/> <p>A. Design goals & approach clearly stated & reproducible, alternatives considered B. Design creative, schematics / software provided (as applicable), well labeled C. Assembly details or set-up instructions for device are clearly laid out D. Photos provided or prototype on display E. Materials used in appropriate ways</p>	<p>I. Sufficient plan to support / refute hypothesis with all other criteria met, or II. Exemplary plan and 3 of 4 other criteria for excellence met, or III. Some improvements needed throughout</p> <hr/> <p>A. 3-4 of 5 criteria required for excellence are met or B. Some improvements could be made</p>	<p>I. Sufficient plan with 3 of 4 other criteria for excellence met, or II. Exemplary plan and 2 of 4 other criteria for excellence met, or III. Major improvements needed throughout</p> <hr/> <p>A. 1-2 of 5 criteria required for excellence are met or B. Existing information is incomplete, or needs major improvement</p>	<p>I. Sufficient plan with 1-2 of 4 other criteria for excellence met, or II. Plan information is unclear / missing / insufficient, or III. Criteria II-V are lacking or grossly deficient</p> <hr/> <p>A. Description of design & implementation not included or inadequate to show how design works and/or if design meets requirements B. No engineering. Project was merely tinkering.</p>
20 score	<p>Science Project:</p> <ul style="list-style-type: none"> Data & Results (experimentation) Documentation* (notebook) <i>*jr/sr projects only</i> <p>Engineering Project:</p> <ul style="list-style-type: none"> Problem Solution (testing and redesign) 	<p>I. Experiments run are appropriate for hypothesis being tested II. Sufficient data. Repetition of experiments III. Correct & appropriate statistical tests run</p> <hr/> <ul style="list-style-type: none"> Clearly written, complete and clear Procedures are easy to follow Comments, observations included Records include dates, signatures <hr/> <p>A. Measures of performance/improvement have been made (including cost) B. Functionality is fully tested & validated C. Records on testing are included D. Prototype was redesigned or potential design improvements were identified</p>	<p>I. 2 of the 3 criteria for excellence met II. Some improvements could be made</p> <hr/> <ul style="list-style-type: none"> 3 of 4 standards for excellence were met or Some improvements could be made <hr/> <p>A. Final design works but has not been fully tested B. No advantage over original C. Some improvements could be made</p>	<p>I. 1 of the 3 criteria for excellence met II. Major improvements required</p> <hr/> <ul style="list-style-type: none"> 2 of 4 standards for excellence were met or Major improvements required <hr/> <p>A. Final design does not meet end user's needs B. No improvement over original C. Major improvements required</p>	<p>I. Incorrect experiments and data analysis for hypothesis II. Insufficient data</p> <hr/> <ul style="list-style-type: none"> 1 of the standards for excellence were met or No notebook or missing <hr/> <p>A. Little or no testing B. No records C. No redesigns</p>
20 score	<p>Science Project:</p> <ul style="list-style-type: none"> Discussion & Conclusions <p>Engineering Project:</p> <ul style="list-style-type: none"> Evaluation 	<p>I. Status of the hypothesis is correctly and logically addressed, and stated in an unbiased manner (confirmed / refuted) II. Completeness of work and validity of conclusions are substantiated III. Discussion is insightful, demonstrates clear understanding of research project, broader subject & suggested new work</p> <hr/> <p>A. Significance, relevance, applications, utility, cost effectiveness, improvements, benefits and performance addressed</p>	<p>I. 2 of 3 criteria for excellence met, or II. Some improvements could be made</p> <hr/> <p>A. Some evaluation areas not addressed</p>	<p>I. 1 of 3 criteria for excellence met or II. Overall information is lacking in quality and perspective</p> <hr/> <p>A. Many evaluation areas not addressed</p>	<p>I. No discussion / conclusions provided</p> <hr/> <p>A. No evaluation areas addressed</p>
20 score	<p>Science+Engineering:</p> <ul style="list-style-type: none"> Interview Display 	<p>Exemplary understanding...</p> <ul style="list-style-type: none"> Research findings / design results Ability to interpret graphs, statistics, etc... Related background information Project rational, details & validity <hr/> <p>Exemplary display...</p> <ul style="list-style-type: none"> Creativity, clarity, logic, interpretability, construction, writing, graphics, grammar All information directly relates to project 	<p>Good understanding...</p> <ul style="list-style-type: none"> Research findings Ability to interpret graphs, statistics, etc. Related background information <hr/> <p>Good display</p> <ul style="list-style-type: none"> Most information is appropriate, organized and easily accessible. 	<p>Fair understanding...</p> <ul style="list-style-type: none"> Research findings Ability to interpret graphs, statistics, etc... Related background information <hr/> <p>Fair display ...</p> <ul style="list-style-type: none"> Some information is appropriate, organized and easily accessible. 	<p>Poor understanding...</p> <ul style="list-style-type: none"> Cannot answer questions adequately and precisely Does not incorporate display into interview Unfamiliar with related background information <hr/> <p>Poor display...</p> <ul style="list-style-type: none"> Confusing, unorganized, incorrect or inappropriate information