

# Science Fair **Inventions: Engineering Innovations** (9<sup>th</sup>-12<sup>th</sup> Grade)



## Rubric for School Site Science Fair

	<b>Attempted 1</b>	<b>Proficient 3</b>	<b>Advanced Proficient 5</b>
<b>Abstract</b>	Abstract is missing one or more of the five key components. Or, the solutions, final product, and conclusions are not connected to the original problem.	Runs more than one page, or is incomplete in listing <u>the problem</u> as a question, or <u>relevant research highlights</u> . Or mentions fewer than <u>three possible solutions</u> , or <u>description of the final product</u> is incomplete. Or, explanation of <u>how well the final product addresses the original problem</u> is vague.	In less than one page, clearly <u>states the problem</u> as a question, lists <u>relevant research highlights</u> , mentions at least <u>three possible solutions</u> considered, with a complete <u>description of the final product</u> , and makes <u>summarizes how well the product addresses the original problem</u> .
<b>Purpose &amp; Problem</b>	Addresses a practical need to which there is already a common solution, or addresses an issue of little practical value.	Addresses a somewhat practical need some people have, which may have an expensive or uncommon solution.	Creatively addresses a practical need some people have, which may have an expensive or uncommon solution.
<b>Possible Solutions</b>	Proposes three or fewer solutions, some of which may be fanciful. Solution description is unclear or incomplete.	Proposes three or more practical solutions with limited description.	Proposes three or more practical solutions. One or more are very creative. Provides sufficient description for reader to easily understand.
<b>Plan &amp; Create</b> <i>(Double Points)</i> <b>(x2)</b>	Provides few details, leaving the reader unclear about how the invention works. Or, obstacles encountered in the building process are not mentioned.	Provides adequate diagram and explanation of the invention, giving the reader a general understanding of how the invention works. Obstacles encountered in the building process and their solutions are mentioned briefly.	Diagrams and explains the invention, providing all labels and details needed to give the reader a clear understanding of how the invention works. Obstacles encountered in the building process are described well and solutions to the obstacles are explained.
<b>Test &amp; Improve</b> <i>(Double Points)</i> <b>(x2)</b>	Student-developed criteria may be generic and do not apply specifically to the problem. Or, criteria may not be student-developed. Or, there is no evidence of redesign and retesting.	Criteria are student-developed. Some criteria apply to how the invention addresses the problem. There is evidence of a design change, but connection to data may be unclear. Improved design is tested.	Criteria are student-developed specifically to test how well the invention addresses the problem. The student uses data from the test to improve the design. The improved design is tested using the same criteria as before.
<b>Conclusion &amp; Applications</b>	Fails to analyze obstacles related to the practical design and function of the invention (i.e., may list obstacles that refer only to shopping for materials or cosmetic issues). Or, fails to mention applications.	Provides some analysis of the obstacles related to the practical design and function of the invention (i.e., durability, strength, ease of use, etc.). Mentions potential applications.	Demonstrates in-depth analysis of data related to the obstacles in the practical design and function of the invention (i.e., durability, strength, ease of use, etc.). Invention is clearly connected to real world applications.
<b>Science Concepts</b>	Provides limited or no explanation of science concepts. Explanation may not apply to the project.	Provides an adequate explanation of at least one science concept, which has some application to the project.	Provides in-depth explanation of at least one science concept directly applying to the project.
<b>Display Presentation</b>	Project has limited eye appeal or is not easily readable at approximately two feet distance. The project has limited organization, or contains confusing visuals, or contains major language or spelling errors.	Project is appealing and readable at approximately 2 feet distance. It is organized and clear, uses understandable visuals and/or models, and contains few language and spelling errors.	Project is appealing and neat, and is readable at approximately 2 feet distance. It is well organized and clear, makes striking use of inventive or amusing visuals and/or models, and uses language and spelling flawlessly.

**Projects will receive between 10 and 50 points when all rubric criteria have been addressed.**

Class grade should also include how well timelines were met and elements of the written report not found on the display board:

Title Page, Acknowledgements, Table of Contents, Research Detail, and Sources/Bibliography

<b>Abstract</b>																			
<b>Purpose &amp; Problem</b>																			
<b>Possible Solutions</b>																			
<b>Plan &amp; Create</b> <i>(Double Points)</i> <b>(x2)</b>																			
<b>Test &amp; Improve</b> <i>(Double Points)</i> <b>(x2)</b>																			
<b>Conclusion &amp; Applications</b>																			
<b>Science Concepts</b>																			
<b>Display Presentation</b>																			
<b>Total Score</b>																			

**Science Fair**  
**Engineering Projects**  
**(9<sup>th</sup> – 12<sup>th</sup> Grade)**  
 Judge's Score Sheet for  
 School Site Science Fairs

<i>Teacher:</i>	<i>Period:</i>
Student(s):	
Project:	
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**NOTES TO TEACHER:** For grading purposes, 5-10 pts = Not Proficient (1), 11-24 pts = Partially Proficient (2), 25-39 pts = Proficient (3), 40-50 pts = Advanced Proficient (4).  
 Class grade should also include how well timelines were met and elements of the written report not found on the display board: Title Page, Acknowledgements, Table of Contents, Research Detail, and Sources/Bibliography