

EVIDENCE OF DESIGN PROCESS SKILLS

	8 or 7 or 6	5 or 4 or 3	2 or 1 or 0	Points Awarded
Design Process Skills	Exhibits a thorough understanding and the application of the design process. The student has acquired design skills.	Exhibits a lesser understanding of the design process. Demonstrates minimal acquired design skills.	Demonstrates little to no understanding or application of design skills.	
Design Approach: Overall	Has identified a need or a real world problem. Uses a logical, orderly method for addressing the problem or need. Method was appropriate and effective.	Has an adequately defined problem AND/OR real world need, AND/OR method was appropriate, but not both.	Little to no evidence of a design problem or real world need.	
Design Approach: Performance Criteria	Clear performance criteria for a proposed solution have been developed to address the features of the product, algorithm, proof, model, etc.	Performance criteria have been developed but are not fully developed or sufficient.	Performance criteria are poorly developed or absent.	
Design Approach: Preliminary Design Plan	A clear plan has been presented using a block diagram, flowchart or sketch. The design plan shows all of the parts and/or subsystems of the design and how all parts of the design work together, and identifies a proposed solution.	A plan was presented but did not include a block diagram, flowchart, or sketch OR did not include all parts or subsystems OR doesn't describe how all of the parts work together.	An inadequate plan was presented or no plan was presented.	
Constructing and Testing the Design Prototype	Has constructed and tested a prototype of their best design. This may involve targeted users and/or analysis of data sets. (This may or may not include traditional data).	The construction was not precise OR testing was not thorough.	Construction and testing were inadequate.	
Redesign and Retest	Shows evidence that changes in design were made to better meet the performance criteria established at the beginning of the project. Test results may be included in tables, if applicable. Data analysis/validation may be present.	The data has been analyzed but not discussed OR the discussion did not demonstrate adequate analysis. The inferences made were illogical.	No data analysis was made or the inferences were illogical.	
Validity of Evaluation/ Conclusion	The conclusion accurately reports the successes and failures of the preliminary design, what changes were made, and how the redesign more closely met the performance criteria.	The conclusion was not thorough in addressing successes, failures, OR how the redesign met the performance criteria.	No conclusion or no valid conclusion present.	
Originality	Demonstrates a novel approach and/or idea. Exhibits a creative approach to design. Shows evidence that other designs were investigated that addressed the same need or real world problem. Has the potential to dramatically impact a field of science.	Some creativity and/or originality demonstrated, OR did not investigate other designs that addressed the same need or real world problems.	No originality or creativity demonstrated.	

COMMUNICATION

DISPLAY

	3	2	1	Points Awarded
Information: Design	Gives complete explanation of the project. Display includes supporting documentation such as graphics, charts, and/or pictures.	Adequate information is present, but not thorough.	Missing pertinent information.	
Artistic Qualities	Display board is neat, organized, and appealing. No spelling errors are present.	Display board is neat, but not well organized. Spelling errors are present.	Display board was carelessly prepared; sloppy.	

ORAL PRESENTATION

	3	2	1	
Presentation Quality	Clear presentation; concisely summarizes the project. Information is thoughtful, relevant, and pertinent. Student exhibits a thorough independent understanding of their topic area. Student can explain their conclusion related to their data. Student recognizes potential impact to science, society, and/or economics, and has ideas for future research.	Information given is adequate, but presentation is difficult to follow OR student does not exhibit a thorough understanding of their topic area.	Information jumbled, irrelevant; presentation is unclear.	
Dynamics	Speaks fluently with good eye contact; polite; dynamic; and interested in their project.	Student was polite and interested in their project. Moderate eye contact, relied heavily on note cards.	No eye contact; read from note cards. Did not seem interested.	

DESIGN REPORT – The parts of the written report should be evaluated for their merits as further evidence of design process skills.

Abstract	Abstract present; contains a concise summary, procedure, and conclusion in 200 words or less. The proper format was used.	One or two parts of the abstract is (are) missing or inadequate.	Abstract is missing or is entirely inadequate.	
Safety Sheet	Safety sheet identifies all the major safety hazards, precautions taken, and any necessary endorsement sheets. Proper forms were used.	Safety sheet is present, but not all major hazards have been identified OR precautions are missing.	Safety sheet is not present or any necessary endorsement sheets are missing.	
Title Page & Table of Contents	Title page is clear and concise. The table of contents is complete and includes pagination.	One or two elements is (are) missing.	The title page and/or table of contents is/are missing.	
Acknowledgements	Credit has been given to those who have helped with the project.		Acknowledgements are missing.	
Problem or Need	Described in detail a real world problem or need.	A less detailed problem or need was identified.	A real world problem or need was not identified.	

DESIGN REPORT – The parts of the written report should be evaluated for their merits as further evidence of scientific process skills.

Background Research (Review of Literature)	5 or 4	3 or 2	1 or 0	
	Background research is in depth and the information is pertinent and supports the design. The background research is adequately cited. Background research is clearly focused and identifies a contribution to the field of study.	Background research is inadequate OR citations are not sufficient.	Little or no use of citations and/or information is not pertinent to the experiment.	
Design Plan	2	1	0	
	Design plan is complete and easily followed, all of the parts and/or subsystems of the design are included.	Plan is present, but not complete or is confusing.	Plan is missing.	
Results of Testing and Redesign	2	1	0	
	Testing results have considered the parts and subsystems that required redesign in order to meet the performance criteria, and the redesign shows the changes in parts and subsystems.	Testing results were considered but redesign was not implemented OR some of the parts or subsystems that needed redesign were not identified.	Testing results/redesign are inadequate or not present.	
Evaluation/Conclusion	2	1	0	
	A concise evaluation and interpretation of the design, redesign, and testing were made as they are related to the performance criteria.	Evaluation/Conclusion is present, but redesign was not implemented OR some of the parts or subsystems that needed redesign were not identified.	No Evaluation/Conclusion is present.	
Reference List (Bibliography)	2	1	0	
	Quality, quantity, and variety of sources are adequate for topic. Sources listed are cited within Background Research. Most sources are current.	Quality, quantity, and/or variety of sources are less than adequate, or sources were not all cited within Background Research. MLA format was not followed.	No Reference List present.	
Technical Aspects	3 or 2	1	0	
	Good grammar and spelling are evident. Font size and type are appropriate.	Two or three of the required elements are missing.	More than three elements are missing.	
Neat and Orderly	2	1	0	
	Project is neat and follows proper order.	Project is neat or property ordered, but not both.	Project is neither neat nor ordered.	

JUDGES' NAMES – PLEASE PRINT

Total Points
