

## Judges' 2017 Engineering Notebook Score Sheet

**Purpose:** To document the process used to design, build, and test the robot. (30 pts.)

<b>Research Paper (4 pts.)</b>				Possible Points	Points Awarded
<b>Correlation between the game and how the science/technology is being used at a company/industry/research lab in the team's state or region</b>					
8-10	In-depth discussion of how this year's game theme relates to industry in this region.				
4-7	General discussion of how this year's game theme relates to industry in this region.				
1-3	Hard to understand in places, labels are missing in places, there is unnecessary material.	0	No discussion of game theme.		
<i>Comments:</i>				<b>10</b>	
<b>Any related information of the game theme such as history, famous inventor(s), major milestones, etc.</b>					
8-10	In-depth discussion of history and people related to this year's game theme.				
4-7	General discussion of history and people related to this year's game theme.				
1-3	Some mention of history or people.	0	No discussion of related info		
<i>Comments:</i>				<b>10</b>	
<b>Creativity in linking the game to appropriately related science content</b>					
8-10	Very creative in linking this year's game theme to other science/technology.				
4-7	Attempted to link this year's game theme to other science/technology.				
1-3	Mentioned other science/technology.	0	No discussion of other science/technology.		
<i>Comments:</i>				<b>10</b>	
<b>Proper formal writing - Proper use of grammar &amp; composition throughout ; source citations used to gather information; within 2-5 page limit</b>					
8-10	Very few grammar mistakes/misspellings, included citations, 2-5 pages.				
4-7	Noticeable grammar mistakes/misspellings or did not include citations, 2-5 pages.				
1-3	Many grammar mistakes/misspellings, no citations, or not within 2-5 pages.	0	Incomprehensible or missing.		
<i>Comments:</i>				<b>10</b>	
<b>Design Process (17 pts.)</b>					
<b>Implementation of the Engineering Design Process (Evidence that the engineering design process was effectively used)</b>					
21-25	Process is explicitly identified; steps are obvious and explanation is thorough.				
16-20	Process is identified; steps are discernible and there is some explanation.				
11-15	Process is not identified; there is some discussion of a design process.	6-10	Discussion of process is minimal.		
1-5	You can tell there was a design process of some sort.	0	No discernible design process.		
<i>Comments:</i>				<b>25</b>	
<b>Brainstorming Approaches - How well organized and productive was the brainstorming approach? How well was it documented?</b>					
21-25	Approach is explicitly identified, organization & productivity are obvious, explanation is thorough, discussion of how decisions made.				
16-20	Approach is identified, organization and productivity are discernible, there is some explanation.				
11-15	Approach is not identified, there is some discussion of brainstorming.	6-10	Discussion of approach is minimal.		
1-5	You can tell there were ideas generated.	0	No discernible brainstorming.		
<i>Comments:</i>				<b>25</b>	
<b>Analytical evaluation of design alternatives - Use of analytical and mathematical skills in deciding upon and implementing design alternatives</b>					
21-25	Evaluation is explicitly identified, analytic/mathematical approach is obvious, alternative designs are explained.				
16-20	Evaluation is identified, analytic/mathematical approach is discernible, alternative designs are identified.				
11-15	Evaluation is not identifiable, alternative designs are identified.	6-10	Discussion of alternative designs is minimal.		
1-5	You can tell there were alternatives.	0	No discernible evaluation.		
<i>Comments:</i>				<b>25</b>	
<b>Offensive and defensive evaluation - Analysis of gaming strategies and design elements used to achieve team goals</b>					
21-25	Evaluation of offensive/defensive strategies is explicitly identified, goals of this team are clearly identified, discussion shows a deep knowledge of the game.				
16-20	Evaluation is identified, goals are discernible, discussion shows a knowledge of the game.				
11-15	Evaluation is not identified, there is some notion of goals and game knowledge.				
6-10	Discussion of goals and game knowledge are minimal.				
1-5	There is some slight mention of strategy.	0	No discernible evaluation.		
<i>Comments:</i>				<b>25</b>	

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<b>Software Design (from additional scoresheet)</b>			
<ul style="list-style-type: none"> <li>• Evidence of custom software design;</li> <li>• Demonstration of a software design process including identifying requirements, design/coding, test/debug, and release;</li> <li>• Evidence of design/verification methods and tools utilized in the design process.</li> <li>• Consideration of good software design practices such as comments, naming conventions, design simplicity, modularity, portability, etc.</li> </ul>			
<i>Comments: <b>Scored on the Software Design Score Sheet, Enter Points Here &gt;&gt;</b></i>			<b>25</b>
<b>Safety - Evidence that safety training occurred and safe practices were followed to prevent students' misuse of tools and other devices/equipment that may result in personal injury or damage to property</b>			
17-20	Clear evidence that safety training occurred, clear evidence that the team verified safety procedures were followed.		
13-16	Clear evidence that safety training occurred, some evidence that procedures were verified.		
9-12	Some evidence that safety training occurred, some evidence procedures were verified.		
5-8	Some evidence that safety training occurred, no evidence on verifying procedure.		
1-4	It seems like safety was mentioned; unsafe methods might be visible in photos.	0	No mention of safety.
<i>Comments:</i>			<b>20</b>
<b>Support Documentation</b> - CAD/other drawings, photos, team organization, meeting minutes, test results, etc. that support the main document (max 20 double -sided pages)			
21-25	Clearly identifies and includes design drawings, photos, team organization chart, meeting minutes and test results; references made from primary document.		
16-20	Identifies items from the list above but is missing one or two categories.		
11-15	Identifies items from the list above but is missing three categories.		
6-10	Includes items from several categories but they are not identified.		
1-5	Items from at least one category above are included.	0	No listed items are included.
<i>Comments:</i>			<b>25</b>
<b>Overall Quality and completeness of Notebook (9 pts.)</b>			
<b>Organization and appearance - Table of contents, summary, page numbers, discussion of evaluation points, linkage to appendices</b>			
21-30	Well organized, looks good, includes Table of Contents, summary, page numbers, discussion of evaluation points (e.g. Items on the score sheet), linkage to appendices.		
11-20	Reasonably organized, looks good, missing one or two items from list above.		
1-10	Poorly organized, no attention to looks, missing multiple items from list above.	0	Disorganized, missing most items.
<i>Comments:</i>			<b>30</b>
<b>Adherence to specifications</b> Cover sheet and/or title page that identifies the school team name, teacher contact information, and team number 1" margins, Business font no smaller than 12 pt., double-spaced (single spaced ok in tables and outlines); <i>per Hub option, Softcopy Format = PDF or Hardcopy in Standard Binder, 35 one-sided page max for main section, 20 double-sided page max for appendices</i>			
21-30	Adheres to the specifications listed above.		
11-20	Violates one of the specifications listed above.		
1-10	Violates two or three of the specifications listed above.	0	Violates for or more specs.
<i>Comments:</i>			<b>30</b>
<b>Quality of content</b> - Well written descriptions, clear photo labels, lack of extraneous material such as community or promotional efforts, spirit development, team building, etc.			
21-30	Everything is well written/clear/logical, everything is clearly labeled, no excess material.		
11-20	You can follow everything with some effort, one or two things that are unnecessary.		
1-10	Hard to understand in places, labels missing in places, unnecessary material.	0	Very difficult to follow, unnecessary material.
<i>Comments:</i>			<b>30</b>
<b>SCORE CALCULATION</b> and Additional Comments:		<b>Total</b>	300
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		<b>Final Score</b>	<b>30 max</b>

**Judge name/number (print):** \_\_\_\_\_

**Team Number:** \_\_\_\_\_ **School:** \_\_\_\_\_