

## 4.1 Score Sheet 1: Team Journal

Team: \_\_\_\_\_ Judge: \_\_\_\_\_

Required Components			SCORE
<b>1. Initial Sketch and Description of Machine Design Planned</b>			
<i>Minimal details provided. Machine steps or storyline not provided. 1-2 pts.</i>	<i>Most machine steps identified and storyline clearly articulated through sketch and description. 3 pts.</i>	<i>All machine steps identified with design details and storyline clearly articulated through sketch and description. 4-5 pts.</i>	___ / 5
<b>2. Progress Photos</b>			
<i>Only 1 or 2 progress photos. 1-2 pts.</i>	<i>3 or 4 progress photos, documenting most major aspects of the build. 3 pts.</i>	<i>5 or more progress photos, documenting all major aspects of the build. 4-5 pts.</i>	___ / 5
<b>3. Written Description and Image of Final (or Near Final) Machine Design</b>			
<i>Minimal details provided. Image or storyline not provided. 1-2 pts.</i>	<i>Image provided and clearly articulated machine description and storyline. 3 pts.</i>	<i>Image provided, clearly articulated machine description and storyline with technical details. 4-5 pts.</i>	___ / 5
<b>4. Written and Numbered List of Machine Steps</b>			
<i>Minimal details provided. Several steps not described or numbered. 1-2 pts.</i>	<i>Most machine steps clearly described and numbered. 3 pts.</i>	<i>All machine steps clearly described and numbered. Advanced Component steps clearly identified (Sr.). 4-5 pts.</i>	___ / 5
<b>5. Cost of Machine and Percent of Recycled Materials Used</b>			
<i>Minimal details provided. Machine cost or percent of recycled material not provided. 1-2 pts.</i>	<i>Cost of machine and percent of recycled materials provided with some itemization details. 3 pts.</i>	<i>Complete itemization and calculations of machine cost and percent of recycled materials provided. 4-5 pts.</i>	___ / 5
<b>6. Written or Visual Documentation of Major Successes and Challenges</b>			
<i>Minimal details provided. Only 1 major success/challenge included. 1-2 pts.</i>	<i>2 major successes/challenges included with clear details. 3 pts.</i>	<i>3 or more successes/challenges included with clear details. 4-5 pts.</i>	___ / 5
<b>7. Written or Visual Documentation of the Incorporation of Advanced Components (Sr. Div.) / STEM Processes (Jr. Div.)</b>			
<i>Jr. Div.</i>	<i>Minimal details provided. Very little to no documentation of any STEM processes included. 1-2 pts.</i>	<i>Documentation of a couple STEM processes with details provided. 3 pts.</i>	<i>Documentation of a few STEM processes with clear details provided. 4-5 pts.</i>
<i>Sr. Div.</i>	<i>Minimal details provided. Documentation of only 1 Advanced Component included. 1-2 pts.</i>	<i>Documentation of most Advanced Components with details provided. 3 pts.</i>	<i>Documentation of all Advanced Components with clear details provided. 4-5 pts.</i>
<b>8. Written Reflection(s) of Entire Process (Team and/or Individual)</b>			
<i>Minimal details provided. Superficial reflection(s) with no connection to personal or team learning. 1-4 pts.</i>	<i>Reflection(s) highlighting personal or team learning from start to end of build. 5-6 pts.</i>	<i>Reflection(s) highlighting personal or team learning from start to end of build and connection to future career or pursuits. 7-10 pts.</i>	___ / 10
<b>Organization and Clearly Identified Required Components</b>			
<i>Little to no organization or identification of above 8 components. Evaluator has to search to find most components. 1-2 pts.</i>	<i>Clear organization. Most above 8 components are clearly identified and easy for evaluator to find. 3 pts.</i>	<i>Highly organized. All above 8 components are clearly identified. It is no effort for evaluator to find all components. 4-5 pts.</i>	___ / 5
<b>TOTAL</b>			<b>___ / 50</b>

## 4.2 Score Sheet 2: Team Presentation

Team: \_\_\_\_\_  Preliminary  Finals Presentation Time: \_\_\_\_\_ Judge Initials: \_\_\_\_\_

Required Components			SCORE
<b>1. Introduction of Team Members and Machine</b>			
<i>Little to no introduction. Several team members not introduced. 1-2 pts.</i>	<i>Machine concept and all team members introduced. 3 pts.</i>	<i>Attention capturing introduction to machine concept and all team members. 4-5 pts.</i>	___ / 5
<b>2. Machine Storyline and Theme</b>			
<i>Little to no explanation of machine storyline. 1-2 pts.</i>	<i>Machine storyline explained and integration with theme is clear. 3 pts.</i>	<i>Machine storyline is well developed, explained, and clearly integrated with theme. 4-5 pts.</i>	___ / 5
<b>3. Use of Engineering Design Process</b>			
<i>Little to no communicated understanding of Engineering Design Process or how it was utilized. 1-2 pts.</i>	<i>Clearly communicated understanding of Engineering Design Process and how it was utilized for the build with limited examples. 3 pts.</i>	<i>Thoroughly communicated understanding of Engineering Design Process and how it was utilized for the build with detailed, relevant examples. 4-5 pts.</i>	___ / 5
<b>4. Integration of Advanced Components (Sr. Div.) / STEM Processes (Jr. Div.)</b>			
<i>Jr. Div. Little to no explanation of any STEM process used in machine. 1-2 pts.</i>	<i>Brief or incomplete explanation of a STEM process used in machine. 3 pts.</i>	<i>Clear explanation of a STEM process used in machine. 4-5 pts.</i>	___ / 5
<i>Sr. Div. Little to no explanation of Advanced Components or STEM processes involved in Advanced Components. 1-2 pts.</i>	<i>Clear explanation of primary Advanced Component and some explanation of STEM processes involved. 3 pts.</i>	<i>Clear explanation of primary Advanced Component and detailed explanation of STEM processes involved. 4-5 pts.</i>	
<b>5. Relevant Technical Details</b>			
<i>Little to no explanation of technical details related to how the machine or aspects of the machine operates (energy transfer, physics, etc.). 1-2 pts.</i>	<i>Clearly communicated understanding and explanation of primary technical details related to how aspects of the machine operates (energy transfer, physics, etc.). 3 pts.</i>	<i>Clearly communicated understanding and comprehensive explanation of primary technical details related to how the machine operates (energy transfer, physics, etc.). 4-5 pts.</i>	___ / 5
<b>6. Challenge(s) Faced</b>			
<i>Little to no explanation of challenge(s) faced by team. 1-2 pts.</i>	<i>Clear explanation of challenge(s) faced by team. 3 pts.</i>	<i>Clear explanation of challenge(s) faced by team and reflection or growth from it. 4-5 pts.</i>	___ / 5
<b>Teamwork</b>			
<i>Not all members contributed to the machine or actively engaged in the presentation. 1-4 pts.</i>	<i>All members contributed to the machine and most were actively engaged in the presentation. 5-6 pts.</i>	<i>All members contributed to the machine and were actively engaged in the presentation and supportive of members talking. 7-10 pts.</i>	___ / 10
<b>Overall Presentation and Handling of Questions</b>			
<i>Little to no eye contact, enthusiasm, or organization, poor delivery. 1-4 pts.</i>	<i>Some eye contact, enthusiasm, or organization, adequate delivery and confidence when answering questions. 5-6 pts.</i>	<i>Strong/appropriate eye contact, enthusiasm, or organization, exceptional delivery and confidence when answering questions. 7-10 pts.</i>	___ / 10
<b>Presentation Time Penalty</b>			
<i>Up to 5 Minutes = No Penalty</i>	<i>5 - Up to 6 Minutes = 5 Point Penalty</i>	<i>6 Minutes = 10 Point Penalty and Cut Off</i>	___
<b>TOTAL</b>			<b>___ / 50</b>

### 4.3 Score Sheet 3: Machine Specifications and Run Penalties – Technical Judge

Team: \_\_\_\_\_  Preliminary  Finals Judge: \_\_\_\_\_

**Machine Specification Penalties** SCORE

1.	Machine Dimensions < 5'x5'x5'	<input type="checkbox"/> Yes	<input type="checkbox"/> No   -10 Points	_____
2.	Sr. 15-20 / Jr. 10-15 Steps	<input type="checkbox"/> Yes	<input type="checkbox"/> No   -10 Points	_____
3.	Each Step Labeled	<input type="checkbox"/> Yes	<input type="checkbox"/> No   -10 Points	_____
4.	4 Advanced Components ( <i>Sr. Div. ONLY</i> )	<input type="checkbox"/> Yes	<input type="checkbox"/> No   -10 Points (Per Missing Component)	_____

**Machine Specification Subtotal:** \_\_\_\_\_

Machine Run Penalties	Run 1	SCORE	Run 2	SCORE
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5.	Human Intervention	<input type="checkbox"/> -3 pts (Per Occurrence)	<input type="checkbox"/> -3 pts (Per Occurrence)	_____
6.	Run Time > 2 Minutes	<input type="checkbox"/> -5 Points	<input type="checkbox"/> -5 Points	_____
7.	Machine Restart (1 Allowed per Round)	<input type="checkbox"/> -5 Points	<input type="checkbox"/> -5 Points	_____
8.	Resetting During Restart > 4 Minutes	<input type="checkbox"/> -5 Points	<input type="checkbox"/> -5 Points	_____
9.	Causing Delay in Judging	<input type="checkbox"/> -5 Points	<input type="checkbox"/> -5 Points	_____
10.	Unintentional Loose or Flying Object	<input type="checkbox"/> -5 pts (Per Occurrence)	<input type="checkbox"/> -5 pts (Per Occurrence)	_____
11.	Outside Coaching During Judging	<input type="checkbox"/> -10 Points	<input type="checkbox"/> -10 Points	_____
12.	Unsportsmanlike Conduct	<input type="checkbox"/> -20 Points	<input type="checkbox"/> -20 Points	_____

**Run 1 Subtotal:** \_\_\_\_\_ **Run 2 Subtotal:** \_\_\_\_\_

**Disqualifications**

a.	Safety Issue(s)	<input type="checkbox"/> DQ
b.	Intentional Loose or Flying Object(s)	<input type="checkbox"/> DQ
c.	Corporate Logo without Permission	<input type="checkbox"/> DQ
d.	Live Animals, Hazardous Material(s), Explosives, or Flames	<input type="checkbox"/> DQ
e.	Profane, Indecent or Lewd Expressions, Offensive Symbols, Graphics, or Language	<input type="checkbox"/> DQ
f.	Motor or Other Device Requiring Outlet or Combustion Engine	<input type="checkbox"/> DQ
g.	Damaging Another Team's Machine	<input type="checkbox"/> DQ

**Machine Specification Penalties Subtotal:** \_\_\_\_\_

**Machine Run 1 Penalties Subtotal:** \_\_\_\_\_

**Machine Run 2 Penalties Subtotal:** \_\_\_\_\_

**Penalties TOTAL or Disqualification (DQ):**

## 4.4 Score Sheet 4: Machine Design and Operation

Team: \_\_\_\_\_  Preliminary  Finals Judge: \_\_\_\_\_

			SCORE
<b>1. Engineering Design</b>			
<i>Little to no demonstrated competence in the machine design, <b>inadequate</b> use of appropriate processes and simple machines or <b>not</b> solving a problem. 1-9 pts.</i>	<i>Demonstrated competence in the machine design, successfully solving a problem through the use of appropriate processes and simple machines. 10-15 pts.</i>	<i>Demonstrated <b>high level</b> of competence in the machine design, successfully solving a problem through the use of a <b>variety</b> of appropriate processes and simple machines. 16-20 pts.</i>	___ / 20
<b>2. Use of Building Materials</b>			
<i>Limited use of recycled or repurposed materials and <b>lack</b> of resourcefulness and effective use of materials. 1-9 pts.</i>	<i><b>Most materials</b> are recycled or repurposed and used in a resourceful and effective way. 10-15 pts.</i>	<i><b>All or nearly all</b> materials are recycled or repurposed and used in a <b>highly</b> resourceful and effective way. 16-20 pts.</i>	___ / 20
<b>3. Innovation and Creativity</b>			
<i>Limited to no creative use of everyday items and materials in new or different ways. <b>Lack</b> of innovative use of materials to construct machine. 1-9 pts.</i>	<i><b>Several</b> steps rely on creative use of everyday items and materials in new or different ways. <b>Some</b> innovative use of materials to construct machine. 10-15 pts.</i>	<i><b>Most</b> steps rely on creative use of everyday items and materials in new or different ways. <b>Highly</b> innovative use of materials to construct machine. 16-20 pts.</i>	___ / 20
<b>4. Integration of Advanced Components (Sr. Div.) / STEM Processes (Jr. Div.)</b>			
Jr. Div.	<i>Little to no demonstrated competence of STEM processes or precise integration of simple machines. 1-9 pts.</i>	<i><b>Some</b> demonstrated competence of STEM processes and/or precise integration of simple machines. 10-15pts.</i>	
Sr. Div.	<i>Little to no demonstrated competence of Advanced Components or precise integration with other steps. 1-9 pts.</i>	<i>Demonstrated competence of <b>some</b> Advanced Components and precise integration with other steps. 10-15pts.</i>	
		<i><b>High degree</b> of demonstrated competence of STEM processes and precise integration of simple machines. 16-20 pts.</i>	___ / 20
<b>5. Machine Complexity</b>			
<i>Simple transfers of energy from step to step with <b>little to no</b> degree of difficulty. 1-9 pts.</i>	<i><b>Several</b> steps demonstrated a higher degree of difficulty and precise transfer of energy. 10-15 pts.</i>	<i><b>Most</b> steps demonstrated a higher degree of difficulty and precise transfer of energy. 16-20 pts.</i>	___ / 20
<b>6. Step Sequence</b>			
<i>Limited logical arrangement of steps and <b>poor</b> use of energy transfer. 1-9 pts.</i>	<i><b>Most</b> steps are arranged in a logical sequence with <b>good</b> use of energy transfer. 10-15 pts.</i>	<i><b>All or nearly all</b> steps are arranged in a logical sequence with <b>exceptional</b> use of energy transfer. 16-20 pts.</i>	___ / 20
<b>7. Completion of Task</b>			
<i>Machine executed the task or goal <b>poorly</b>. 1-7 pts.</i>	<i>Machine executed the task or end goal <b>successfully</b>. 8-12 pts.</i>	<i>Machine executed the task or end goal <b>exceptionally and completely</b>. 13-15 pts.</i>	___ / 15
<b>8. Integration Theme</b>			
<i>Centralized theme is <b>unclear</b> or <b>not well</b> integrated in the machine. 1-7 pts.</i>	<i>Centralized theme is <b>clearly</b> integrated through <b>most</b> of the machine. 8-12 pts.</i>	<i>Centralized theme is <b>highly developed, cleaver and clearly</b> integrated through <b>all</b> aspects of the machine. 13-15 pts.</i>	___ / 15
<b>TOTAL</b>			<b>___ / 150</b>

## 4.5 Score Sheet 5: Score Summary

Team: \_\_\_\_\_  Preliminary  Finals Judge: \_\_\_\_\_

### Team Journal, Team Presentation, and Machine Design and Operation Score Averages

	Journal	Presentation	Machine Design and Operation
Judge 1	_____	_____	_____
Judge 2	_____	_____	_____
Judge 3	_____	_____	_____
Judge 4	_____	_____	_____
Judge 5	_____	_____	_____
<b>SUBTOTAL:</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>
<b>AVERAGE:</b>	<input type="text"/>	<input type="text"/>	<input type="text"/>

### Final Score

Team Journal Average:	+	_____
Team Presentation Average:	+	_____
Machine Design and Operation Average:	+	_____
<b>SUBTOTAL:</b>		<input type="text"/>
Machine Specifications and Run Penalties Subtotal:	-	_____
<b>TOTAL or Disqualification (DQ):</b>		<input type="text"/>

### Final Placing

### Special Awards

<input type="checkbox"/>	Die Hard
<input type="checkbox"/>	Theme Award
<input type="checkbox"/>	People's Choice Award
<input type="checkbox"/>	Curb Appeal
<input type="checkbox"/>	Everything but the Kitchen Sink
<input type="checkbox"/>	Wonderfully Wacky