

4.4 Score Sheet 4: Machine Design and Operation

Team: _____ Judge: _____

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