2015 MATE ROV Competition Sales Presentation Evaluation Rubric Judge:_____

Class (circle one): RANGER EXPLORER Team#:_____ School Name and #:_____

Team Presentation					
Category	**Scoring Criteria**				**Points**
Teamwork	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**0 – Poor or missing**	
Preparation of presentation and required documentation	Strong whole team effort, exceptionally prepared, documentation very strong	Clearly prepared, organized, articulate, each team member contributed, documentation in order	Prepared, fairly organized, partial team effort, good documentation	Underprepared, not well organized, lack of whole team effort, poor or missing documentation	
Originality/Salesmanship					
Style of presentation, effective salesmanship	Dynamic presentation, team went above and beyond expectations, tied presentation well into theme/mission	Good presentation, satisfied expectations, make links to theme	Lackluster presentation, below expectations, vague mention of theme	Poor presentation, lacked any salesmanship or connection to theme	
Insight/Creativity					
Innovations, challenges faced, determination to resolve challenges	Innovative/creative solutions presented to well described challenges, tenacity quite evident	Interesting solutions, not necessarily novel, described challenges faced, demonstrated tenacity	Solutions demonstrated for challenges faced, but not particularly creative, did not demonstrate tenacity	Did not face challenges well, did not understand challenges or solutions well enough to describe	
Understanding					
Demonstration of ROV systems, science, operation and mission theme	Strong understanding of ROV systems, provided much detail of underlying science, and application to theme	Good understanding of ROV systems, provided some detail of underlying science, and application to theme	Some understanding of ROV systems, underlying science, and application to theme	Little understanding of ROV systems, underlying science, and application to theme	
Resources/Budget					
How was budget developed and adhered to during competition phases, cost analysis, overall cost of vehicle	Thorough description of budget planning and following, acknowledgement of donations, fundraising strategies, excellent use of funds	Adequate description of budget planning and faltering, acknowledgement of donations, fundraising strategies, justified re-use of components, good use of funds	Loose description of budget planning and faltering, acknowledgement of donations, fundraising strategies, non-justified re-use of components, mediocre use of funds	Poor description, poor use of funds, no acknowledgement of donations	
Corporate team memory					
	Described how the team and vehicle evolution	Described influences from past team	Little corporate team memory demonstrated,	It was clear that the team or only one team member	

	and year's mission contributed to the design decisions or if new team, excellent description of research conducted to begin decision process	members or vehicle design or if new team, good description of research conducted to begin decision process	or if new team, good little description of research conducted to begin decision process, basically just got lucky	understood the vehicle	

Team Presentation – continued					
Category	**Scoring Criteria**				**Points**
Design/Workmanship	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**0 – Poor or missing**	
Strengths of the overall design, aesthetically pleasing	Excellent overall design, well conceived, elegant design, aesthetically pleasing in addition to excellent functionality	Very good overall design, nice features to make the vehicle attractive as well as functional	Good overall design, functional, but some better design choices could have been made, as well as a bit more effort to make the vehicle attractive as well as functional	Poor overall design, many better decisions could have been made, very clunky, unattractive design	
How is design important/tied into mission, ease of maintenance	Components well designed and very easy to access, design specific to mission	Components easy to access, design specific to mission, but a few issues	Components not easy to access, design not specific to mission	Components inaccessible, design not specific to mission	
Robustness, craftsmanship, water ready	Tested vehicle prior to event, durable, strong attention to craftsmanship and marketability	Tested vehicle prior to event, attention to craftsmanship and marketability	Tested components prior to event, mediocre craftsmanship, some attention to marketability	Did not test before event, vehicle does not appear to be robust, no attention to mission or marketability	
Meets design & build specs	All specifications met, electrical systems neatly contained and wired, tether neatly bundled and protected, tether well designed to withstand mission requirements	All specifications met, electrical system and tether contained, tether well designed	Most specifications met, electrical system and tether contained, tether should not affect mission	Not all specifications met, issues with electrical system or with tether system	
Safety					
Safety features and philosophy highlighted	Thoroughly describes safety philosophy and specific safety features of vehicle	Describes safety philosophy and safety features of vehicle	Describes safety features of vehicle	Does not describe safety features	
Safety checklist/ Passed safety check	Team custom developed and shared a copy of	Shared a copy of checklist and protocol,	Vehicle built in accordance with safety	Did not pass safety inspection	

	checklist and protocol, vehicle built in accordance with safety specifications and inspection sheet handed to judges	a few items missing or with issues, vehicle built in accordance with safety specifications and inspection sheet handed to judges	specifications and inspection sheet handed to judges, many issues with the checklist, missing items or issues with clarity		
Warning labels and safeguards on potentially hazardous parts, other vehicle specific safety precautions	Clearly marked warning labels, safeguards clearly in place, fuses in place, thoroughly described other safety precautions	Warning labels, safeguards in place, not as well marked as could be, fuses in place, mentioned safety precautions	Some warning labels, safeguards in place, fuses in place, no mention of safety precautions	No warning labels	

System Design and Vehicle Inspection					
Category	**Scoring Criteria**				**Points**
Engineering design rationale	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**0 – Poor or missing**	
Description of how functionality increased with design or component selection	Excellent description in a clear, logical manner of how vehicle was built to perform specific tasks, decisions on shape and materials used	Good description of how vehicle was built to perform specific tasks, decisions on shape and materials used, could have been a bit more organized and detailed in descriptions of decision making process	Fair description of how vehicle was built to perform specific tasks, decisions on materials used, descriptions needed more detail or made some weak design choices, or weak materials choices, better organization of information needed	Poor description or understanding of vehicle design	
Design decisions for components	Described exactly why design decisions were made and which materials were used and why (plastic v. metal, machining, 3D printing)	Described some design decisions and which materials were used and why (plastic v. metal, machining, 3D printing)	Unable to thoroughly describe design and materials decisions	It was clear that the team or only one team member understood any component design decisions	
Design vs. Technology	Excellent balance, the design of the vehicle is extremely well integrated with the onboard tools and sensors, a holistic systems design approach	Good balance, the design of the vehicle is integrated with the onboard tools and sensors, a holistic systems design approach	Reliant on technology, not engineering design, tools “strapped” on to a platform approach, but functional	Over-reliance on technology over design, not a functional design	
Vehicle Structure					
Waterproofing, pressure housings, how was it tested	Description of design of pressure housings, o-	Description of design decisions and cost,	Design decisions and cost described, much	Poor description or understanding of vehicle	

	rings, etc, design decisions and cost, total weight of vehicle	total weight of vehicle	more detail needed to fully understand	design	
Vehicle Systems					
Original vs. commercial components	The majority of the components were designed and built by the team	Many of the components were designed and built by the team	A few of the components were designed and built by the team	None of the components were designed by the team	
New vs. re-used	Majority of components are new this year	Some components are new this year	A few components are new this year	Same vehicle as last year	
Decisions for use of components	Described exactly the decision making process to re-use any components	Described decisions, not completely clearly, to re-use any components	Unable to thoroughly describe decisions to re-use any components	It was clear that the team or only one team member understood any decisions	
Cost Analysis	Excellent description in a clear, logical manner of how materials were selected to perform specific tasks in a cost effective manner	Good description in a logical manner of how materials were selected to perform specific tasks in a cost effective manner	Description of how materials were selected to perform specific tasks in a cost effective manner	Poor description or understanding of incurred costs verses vehicle design	

System Design and Vehicle Inspection					
Category	**Scoring Criteria**				**Points**
Control/Electrical System	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**0 – Poor or missing**	
Control scheme	Well conceived, well organized, designed logically, efficient, able to describe system and any unique features	Organized, designed logically, efficient, able to describe well, nothing novel or unique	Organized, bit inefficient and/or design flaws	Poorly conceived, inefficient	
Computer/manual controller*	**score one set OR if hybrid system, score……*				
Computer	Code efficient and logical, clearly designed and understood by team	Code logical, designed well and understood by the team	Code a bit inefficient, not fully understood by all team members	Major code issues, only understood by one team member	
Manual	Intuitive, thoughtful design, clearly designed by team, all team members able to drive	Design logical, well understood and all team able to drive	Controller/switch location inefficient, not all team members able to drive	Major design issues, only one team member can drive	
Propulsion					
Thruster location and rationale	Thrusters securely attached, do not obstruct water flow, optimal number of thrusters,	Thrusters securely attached, some issues with location, optimal number of thrusters,	Thrusters securely attached, not well place number of thrusters and understanding of power	Thrusters very insecure, not well placed, poor decision making on number of thrusters,	

	optimal power consumption/thrust ratio for mission needs	power consumption/thrust ratio bit questionable	requirements questionable	power requirements for mission needs	
Buoyancy and Ballast					
Description of system and rationale	Accurately describes how the system works and application and importance to mission, full demonstration of knowledge of selection and use of system, can explain stability well	Provides a description of the system and importance to vehicle, demonstration of knowledge of selection and use of system, can explain stability	Provides a description of the system, demonstration of knowledge of system	Cannot provide a substantive description of the system, cannot provide a substantive demonstration of knowledge of the system	
Tether					
Tether management system	Tether is securely attached (1 point), neatly bundled (1 point), and excellent tether management protocol developed (1 point) **Total = 3 points**	Tether is not securely attached (-1 point), Tether is not neatly bundled (-1 point), Deficient tether management or no protocol developed (-1 point)			

System Design and Vehicle Inspection					
Category	**Scoring Criteria**				**Points**
Sensors	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**0 – Poor or missing**	
Cameras	Thorough explanation of camera selected, number and placement, waterproofing	Good explanation of camera selected, placement, waterproofing	Adequate explanation of camera selected, placement, waterproofing	Poor understanding of camera system or no camera	
Sensors used	Sensors are original, designed, built by team	Some sensors are original	COTS sensors used	No additional sensors	
Sensor application to mission	Clearly understands the design and purpose of appropriate sensors selected for mission	Somewhat understands the design and purpose of appropriate sensors selected for mission	Additional sensors do not strongly correlate to the mission	No additional sensors	
Payload Tools					
Payload tools used	Payload tools are original, designed, built by team or unique modifications	Some payload tools are original	COTS tools used	No payload tools	
Application to mission	Clearly understands the design and purpose of appropriate tools	Somewhat understands the design and purpose of appropriate tools	Additional tools do not strongly correlate to the mission	No payload tools	

	selected for mission	selected for mission				
Design Elegance	**4 - Excellent**	**3 – Very Good**	**2 - Good**	**1 - Fair**	**0 – Poor**	
Simplistic design	Excellent design, simplistic, well conceived, easily repairable or interchangeable components, demonstrates excellent systems thinking skills	Very good design, simplistic, well conceived, easily repairable, demonstrates good systems thinking skills	Good design, well conceived, could have been simpler, fairly easy to repair, demonstrates systems thinking skills	Overly complicated design, repairable with effort, demonstrates some systems thinking skills	Overly complicated, not repairable, lacked any system design thinking	
					Score Sub-Total (100 points max)	

Discretionary Points (3 points max)				
Originality	**3 - Excellent**	**2 - Very Good**	**1 - Good**	**Points**
Vehicle and/or systems exhibit unique concepts or innovations	Exceptional innovation demonstrated in vehicle design, tools or other feature	Very clever innovation in vehicle design, tools or other feature	Interesting innovation in vehicle design, tools or other feature	
Innovations or modifications resulting in higher functionality at reduced costs	Exceptional cost/benefit ratio of innovation demonstrated in vehicle design, tools or other feature	Very good cost/benefit ratio of innovation in vehicle design, tools or other feature	Good cost/benefit ratio of innovation in vehicle design, tools or other feature	
Clever materials solutions, original safety features	Exceptionally clever materials solutions or safety features, etc	Very clever materials solutions or safety features, etc	Interesting materials solutions or safety features, etc	
Deductions (-15 points max)				
Deductions	**- 5 Extreme**	**- 3 Moderate**	**- 1 Minor**	
Commercial assistance	Vehicle was designed/created by a commercial company and lack of any justification	Some assistance was provided by a commercial company and some justification	Minor assistance was provided by a commercial company and with justification	
Interference	Significant interference by coaches, mentors, parents providing assistance during presentation (with exception of language barriers)	Some interference by coaches, mentors, parents providing assistance during presentation (with exception of language barriers)	Minor prompting by coaches, mentors, parents providing assistance during presentation (exception of language barriers)	
Overuse of	Significant overuse of commercial	Overuse of commercial components	Some use of commercial	

components	components without adequate justification and/or overuse of re-used components without adequate justification	without adequate justification and/or overuse of re-used components without adequate justification	components without adequate justification and/or overuse of re-used components without adequate justification	
			TOTAL SALES PRESENTATION SCORE	

Sample Questions:

What was your company's "work breakdown structure" (tasks, time, and people)?
What were the greatest constraints (schedule, budget, equipment, labor, logistics, etc.) on your design process?
How did the product demonstration tasks and rules influence your design and decisions?
What systematic process, such as a tradeoff matrix, did you use to evaluate competing design solutions?
What were the most important design decisions you made and why?
How did you arrive at your final power budget? What concessions, if any, did you have to make and why?
How did you design and calibrate your sensors?
If your vehicle uses software, where does the code execute? Describe the flow and format of the data.
Did you have a noteworthy troubleshooting experience?