

2018 Sea Perch Design Notebook

Due by 5:00 p.m. on: **2/16/2018**

Submit to: SeaPerchNotebooks@gmail.com

General Notes:

- 1 It is expected that the notebook submitted was **written only by students and is original and unique** for this competition year. Notebooks with substantial portions copied from previous years' submittals will have major point deductions applied.
- 2 When submitting your notebook to SeaPerchNotebooks@gmail.com please put the school name in the e-mail subject line (e.g. "Seaperch Notebook submission for John Paul Jones Middle School")
- 3 The **File name** for your school's notebook should follow this convention: SP18-MS(or HS)-YOUR-SCHOOL-NAME.pdf (e.g. SP18-MS-John Paul Jones.pdf"). NOTE: The file name must contain the official school name (matching how you submitted to the competition), not the team name.
- 4 **File Size:** Files should be limited to 3 meg. Files received that are larger will have points deducted.
- 5 Files should be submitted in Microsoft WORD or Adobe PDF (preferred) format.

School Guide				
Notebook Section		Maximum Points	Notes	
I. Front Matter				
A.	Cover Page	0.5		
B.	Title Page, including:			
	Team Name	0.5	The title page should have the team and school name and some art work. The title page should contain all of the required information. The school name should match the Official name under which you applied to the competition. Clearly state that you are a middle school or high school.	
	School, School District			
	Advisor Name and Contact			
C.	Table of Contents included (and all pages numbered)	0.5		
E.	List of References	0.5	References should be cited throughout the document and listed numerically at the front.	
II. Naval Engineering Research				
Note: Sections II. through V. should be no more than a total of 20 pages. This constitutes the bulk of the Notebook score.				
A.	Naval engineering principles that the team researched and used in the building of the SeaPerch.	10	Teams should research what Naval Engineering is and investigate how ROVs are used in the world today.	
		10	Teams should research what scientific and engineering theories/principles are important to the design of an ROV. Multiple theories should be discussed in details. Discussion on engineering modules from the SeaPerch website can be included in this section. The more different topics that are discussed the better.	
		4	Overall impression - Judges will be looking for breadth and depth of knowledge demonstrated here.	
III Design and Engineering Process				
A.	Design			
	1.	Description of the process used to refine the design and manufacture the final product.	10	The Design & Engineering section is a key part of the notebook. It is important to demonstrate that a scientific process was used in the design of the team's SeaPerch. It is important to show that the team understood the design requirements and followed an organized process in coming up with the final design.
		Application of science and engineering concepts in the design.	12	It is also important to apply science and engineering concepts into the design with explanation of how these concepts will impact the performance of the SeaPerch.
	2.	Discussion on what design modifications were considered to enhance ROV performance and why they were or were not incorporated.	15	Highlight any alternate designs that were considered and reasons for accepting or rejecting them. Include discussions on modifications considered to enhance ROV performance and why they were or were not incorporated. Use of drawings and calculations encouraged. NOTE: The team does not have to have implemented any design modifications, just considered them.
	4.	Overall Impression of Design Section	5	Overall impression - judges will be looking for understanding how application of scientific/engineering theory improved the final design. Use of a structured design process will be rewarded.
B.	Experimentation			
	1.	Description of any experiments completed to test theories, validate performance, etc...	6	This section should include pool testing, validation of ballast, etc... anything done to validate the performance of the team's design. NOTE: This is not the same as doing learning modules. This is experimentation designed by the teams to either test a theory or validate the design by testing the completed module.

IV Naval Scenario for Sea Perch		
A. Detailed discussion related to how the Sea Perch could be implemented in a practical scenario or task. Highlight how their particular design aids in the accomplishment of the requirements.	10	Teams are encouraged to be creative in envisioning how their SeaPerch could be used by the Navy in a real world problem or other situation. NOTE: This is a creative writing exercise , not just a repeat of the design requirements or a description of the competition Mission.
V. Teamwork		
The focus of the teamwork section should be on interpersonal dynamics, not on technical issues.		
A. Team participant list.	1	List all participants
B. List indicating how the responsibilities were split up among team members.	1	Show clearly how responsibilities were divided among team members.
C. Provide concrete examples of how team members worked together and helped each other.	4	The team should provide details about how they worked together and used teamwork to complete the task.
D. Detailed discussion of the challenges the team faced, the steps they took to overcome the challenges along with the biggest lesson learned by the team, including the biggest factors for the	6	The team should provide details about challenges they faced and how they overcame them. The team should provide an explanation of the things that contributed to their team's success. Teams should comment on group dynamics and benefits of a team environment vs. a collection of individual efforts.
VI Bill of Material		
A. List of all material used	2	All teams should provide a detailed list of all parts and quantities used in building their SeaPerch (basic kit and additional). If items in addition to the basic kit were used they should be listed in the Bill of Materials with the cost. NOTE: Donated items should be listed with a realistic estimated cost.
B. Included receipts for purchased materials.	2	If items in addition to the basic kit were used receipt(s) for their purchase should also be attached (in no extras purchased, specifically state that). NOTE: the maximum allowance is \$20.00. Guidelines for use of a 3D printer: 1. 3D printed parts (vs. replacement or modified) are only permissible for object manipulation or recovery. 2. Part must be used to make physical contact with the mission object. 3. Shall provide technical advantage or innovation. 4. Rationale for use of the 3D printer should be documented in the design notebook and presentation. 5. Value of 3D part is based upon the value of part it replaces. 6. Value of 3D printed parts shall not exceed \$10. 7. Included in \$20 design improvement budget limit.
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