Appendix D: Competition Classes Overview

The 2025 International SeaPerch Challenge will include three (3) competition classes. These classes are updated from past years so please review the chart below carefully. Please note, stock classes are limited to PVC, CPVC, and PEX pipe for the ROV frame and may not include 3D printed frames, or frame parts. Frame parts are any parts that add structural integrity to the frame or connect frame parts together. For stock classes, 3D printed parts may not extend the frame to attach other 3D printed parts, this will be considered a frame part.

Rules	Middle School Stock Class	High School Stock Class	Open Class
BUDGET*			
The total cost of modifications to the final ROV must be $25 or less	X	X	
The cost of modifications may exceed $25			X
MATERIALS			
Frame built using only PVC, CPVC, PEX pipe and fittings. Any size pipes and pipe fittings may be used. Pipes and pipe fittings may be modified using hand and power tools, but may not be machined using CNC or other automated process.	X	X	
Frame may include 3D printed or additive manufactured parts as well as other materials, and may be made using CNC machinery or other automated process.			X

Attachments and non-frame parts (i.e., hook, gripper, propeller shroud) may be made from various materials to include 3D printed or additive manufactured parts. For stock classes, the majority of the parts used must be pipes and pipe fittings.	X	X	X
POWER SUPPLY			
Must design for and utilize a 12-volt power source	X	X	X
May utilize a second power source (no more than 12-volts) to power auxiliary equipment	X	X	X
MOTORS			
All motors must be waterproofed	X	X	X
Must use ONLY stock SeaPerch motors (Jameco Electronics 232022) for propulsion**	X	X	X
Additional non-stock motors may be used for non-propulsion uses	X	X	X
May include more than 3 thrusters (i.e., motor and propeller assembly)			X
Rules	Middle School Stock Class	High School Stock Class	Open Class
CONTROLLERS			
Must only use simple on/off switches for thruster controls	X	X	

May use power conditioning or pulse-width modulation (PWM) controls for thruster controls			X
May use PWM, microcontrollers, or other devices for non-thruster controls	X	X	X
May use a fixed or variable resistor to reduce voltage	X	X	X
STRUCTURE/SIZE			
Must fit through 18″ diameter hoop	X	X	X
COMPETITION CRITERIA			
ROV must not be modified after compliance check (except for buoyancy)	X	X	X
The same ROV must be used for both pool events	X	X	X
Team may include a student in 8th grade or below	X		X
Team may include a student in 9th grade or above		X	X

*Budget Guidelines include:

- Donated material will be assessed at what the cost would be to procure the material.
- Spare parts and tools are not included in this budget.
- Materials used on earlier prototypes are not included in this budget. Only materials and supplies used on the competition ROV and controllers that are not part of the standard SeaPerch ROV kit should be included.
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Proof of budget compliance must be made available to the compliance inspectors upon request.

- 3D printed parts will be costed out at $0.02 per gram.

** Thrusters used for propulsion are thrusters that directly exert force against the water causing the ROV to move in any direction.