Winter 2016 SeaPerch DESIGN CHALLENGE

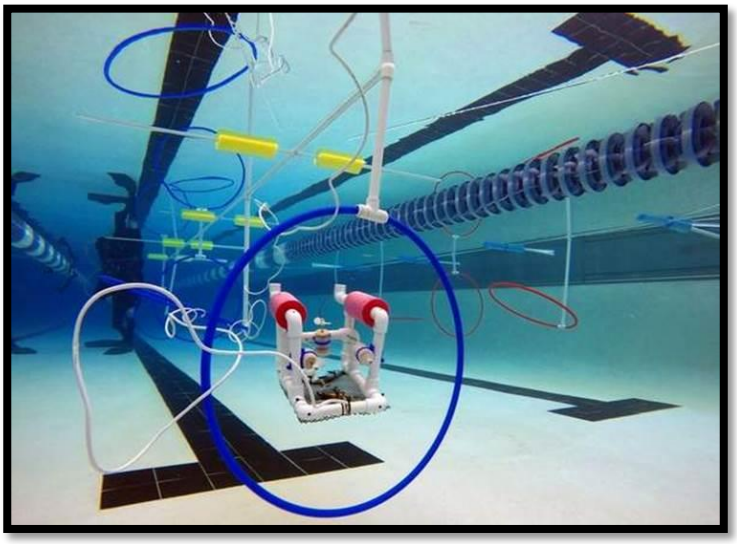
Challenger Center Colorado, with the financial support of the United States Air Force Academy, is again sponsoring a SeaPerch Design Challenge event for middle and high school students. Challenger is awarding grants to qualified teachers at this time.

SeaPerch is an innovative, project-based engineering activity in which students build a remotely operated vehicle (ROV) from off-the-shelf parts. Working in teams, students learn about robotics, problem solving, and engineering through designing, building, and testing a SeaPerch ROV. The project can be accomplished in either a classroom or in an after-school club setting. SeaPerch is sponsored by the Office of Naval Research (ONR) and managed by the Association for Unmanned Vehicle Systems International (AUVSI) Foundation. Additional information about SeaPerch, including photos and videos, can be found on their website, www.seaperch.org.

The SeaPerch Design Challenge event will be divided into two divisions, the Junior Division for grades 6 – 8 and the Senior Division for high school students in grades 9 – 12. The Design Challenge is comprised of two separate competitions. In the Obstacle Course, teams must maneuver their SeaPerch through a submerged PVC obstacle course in six minutes or less. The Real-World Design Challenge presents teams with a "real-life" engineering situation on competition day; teams then have one hour to reconfigure their SeaPerch to meet the challenge. A team consists of up to 8 students and one coach. **The TENTATIVE date for the event is Saturday, February 27, 2016.** The event is open to all middle and high school students and teachers.

Grants are available for qualified teachers that include (up to) 4 SeaPerch kits, 1 SeaPerch toolkit, and teacher training/support from CCESSE staff. Teachers who participated in a past Design Challenge or have built SeaPerch in the past are eligible to receive two new SeaPerch kits. Please specify which grant you are applying for.

The SeaPerch ROV comes with curriculum that closely aligns with Colorado state standards (see chart below) in the areas of science, technology, engineering and mathematics for both middle and high school students.



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Colorado State Standards

		Project Phase	
	Subject Area	**Design, Construction & Testing**	**Reporting & Presentation**
High School	Science	1.1, 1.5	
	Math	1.2, 3.1, 4.4, 4.5	
	Reading/Writing/Communicating	1.2, 4.1 (12th grade) 2.2, 2.3 (11th grade) 1.2, 4.1 (10th grade) 1.2, 4.1, 4.2 (9th grade)	1.1, 1.2, 3.1, 3.2, 3.3, 4.1 (12th grade) 2.2, 2.3, 3.2, 3.3, 4.1, 4.2 (11th grade) 1.2, 3.2, 3.3, 4.1 (10th grade) 1.1, 1.2, 3.2, 3.3, 4.1, 4.2 (9th grade)
	EducationalTechnology-Information Literacy*	I, II, III, IV, VI	I, II, III, IV
Grade 8	Science	1.1	
	Math	3.1, 2.2	
	Reading/Writing/Communicating	2.2, 4.1	2.2, 3.3, 4.2
	EducationalTechnology-Information Literacy*	I, II, III, IV, VI	I, II, III, IV
Grade 7	Science	n/a	
	Math	2.2, 4.2	
	Reading/Writing/Communicating		1.1, 3.2, 3.3
	EducationalTechnology-Information Literacy*	I, II, III, IV, VI	I, II, III, IV
Grade 6	Science	1.4	
	Math	2.2, 3.1, 4.1	
	Reading/Writing/Communicating	1.1, 4.1	1.1, 3.2, 3.3, 4.1
	EducationalTechnology-Information Literacy*	I, II, III, IV, VI	I, II, III, IV

*Although there are no state subject standards for Technology or Engineering, the Colorado Department of Education has created ET-IL Standards for Students:

I. Creativity and Innovation: Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.
II. Communication and Collaboration: Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.
III. Research and Information Fluency: Students apply digital tools to gather, evaluate, and use information.
IV. Critical Thinking, Problem-Solving & Decision-Making: Students use critical thinking skills to plan and conduct research, design and manage projects, solve problems, engineer solutions and make informed decisions using appropriate digital tools and resources.
VI. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.

2016 SeaPerch Design Challenge
Grant Application

Teacher Name:_____

School: _____

District: _____

Building Principal: _____

Grade Level: _____

Email: _____

Phone: _____

Please choose the option that applies:

_____ *This is my first time applying for the SeaPerch grant through Challenger Colorado.*

** I would like _____ kits for my club/classroom. (Up to 4)*

_____ *I have received the grant in the past and would like to receive 2 SeaPerch* kits.

Approximate number of students who will use the kits: _____

First time applicants only: Please check all that apply:

_____ The kits will primarily be used in an after school club/program

_____ The kits will primarily be used in the classroom

_____ I have experience using the engineering design process in my classroom.

_____ I would be interested in attending a SePerch training at Challenger

Please read the grant requirements on the next page and obtain the signature of your building principal.

2016 SeaPerch Design Challenge
Grant Application

By submitting this application, I agree to do the following:

- Register and attend the Design Challenge (official date is TBA)
- Provide digital pictures/video of students participating in the engineering process of designing, building, testing, and operating the SeaPerch kits.
- Complete Media Release Forms for all students who participate in the class/club.
- Complete short surveys consisting of student demographic data

Any teacher who receives the SeaPerch kits but does not attend the event or complete the above documentation will be asked to return the kits to Challenger.

I have read and agree to the terms above:

_____

Teacher Signature Date

_____

Principal Signature Date

Please submit your application packet to Ron Bush at 10215 Lexington Drive, Suite 110, Colorado Springs, CO, 80920 or rbush@clccs.org no later than 4:00PM on **Friday, December 11th, 2015.**