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SECTION B
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Oscoda students gain hands-on experience with marine tech

by Karen Rouse

OSCODA — Oscoda Middle School students in Mike Berenkowski's science classes participated in designing, building and testing underwater remotely operated vehicles (ROVs) on Friday, Nov. 8. The project was sponsored by Alpena Community College (ACC), which provided the materials, as well as, instructors.

"This is a good way to introduce the field to students," said Don McMaster, ACC dean of Workforce Development, about the marine technology program offered by the college.

Marine technology is a field new to current high school graduates, pointed out instructor David Cummins, in the introductory session with students.

"Your parents couldn't go in to this," Cummins told a group of seventh graders.

The program is for students interested in a career working with the latest underwater technology, with emphasis on maintenance, repair and operation of ROVs.

Students moved to the high school swimming pool after listening to Cummins and were briefed on what was to happen by Mark Gleason, faculty member at Grand Valley State University.

He explained that they were to design an ROV using PVC pipes, and attaching motors tethered to a remote control device. Gleason challenged the student designers, they were to complete four specific missions with their vehicles – control the ROV to move forward and backward, up and down, left to right and to pick up a rubber ring from the bottom of the pool and bring it back to the surface.

Students quickly went to work dividing into groups of four at tables equipped with all the needed supplies.

"I'm going to look for the rings to see what we have to design," said one heading pool side.

The others took cues from each other to piece together a frame with the pipes.

"We need something to make it

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Photo by Karen Rouse

EXCITEMENT – Students Tate Travis, left, and Jacob Post express their excitement when a design feature on the remotely operated vehicle works.

Photo by Karen Rouse

SUCCESS – A team's remotely operated vehicle successfully moves underwater. Pictured from left are, Noah Vorenkamp, Jacob Post and Tate Travis.

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go up and down," said Noah Vorenkamp, while the team was looking where to attach the four motors.

"Wait! This puts more weight on this side," advised Tate Travis.

Within 15 minutes, the group's ROV was ready for its water test.

Not quite, said Gleason, who stopped by to see the design.

"No two designs are ever alike," Gleason quipped.

He looked at the ROV and asked team members what could be put on the vehicle to help it move around in the water.

"It needs buoyancy," the students responded all at once. They quickly taped foam pieces on strategic sections of the vehicle.

The students were asked who would operate the remote and team members answered they would take turns, allowing the team's birthday girl to go first.

The ROV was placed in the water and was immediately pulled back out when one side of the machine tilted deep into the water. The students decided to add additional foam pieces on the heavier side.

"The main thing is that it gets the students thinking," observed Cummins.

Adults helping at the event offered continuous encouragement, but no correction, which, they said, was difficult to do.

Again and again the ROV was submerged until, finally, the team corrected the balance. The vehicle was soon seen navigating the bottom of the pool and even capturing a floating ring.

The group, after several minutes, pulled the ROV to the surface by its tether.

Sydney Hagstrom explained why. "It went left and right, forward and backward, but not up and down."

So, the students continued to work together to solve the problem. In doing so, their excitement increased as their trials and errors became successes.

Gleason said the student success rate for the project was 100 percent. "All of the vehicles are in the water and working."

The excitement was palpable as the students and instructors finished the project.

Seventh grader Nathan Moeller said he had fun designing and building the ROV. "I didn't think it would work – but it did!"

The ACC project was funded in part by a Trade Adjustment Assistance Community College and Career Training grant.

Photo by Karen Rouse

DESIGN – A seventh grade team begins its design of a remotely operated vehicle. Oscoda High School 2013 graduate Katie Anderson, a student in Alpena Community College's marine technology program, center, gives encouragement to, from left, Noah Vorenkamp, Sydney Hagstrom, Jacob Post and Tate Travis.