

From left, Milo Queen, Tallulah Sebastian, Claire Porter, Alita Aldana and Zoey Ware, sixth-graders from Blue Heron Middle School in Port Townsend, attempt to pick up their makeshift lunar landing module by piloting a drone. (Brian McLean/Peninsula Daily News)

Peninsula students use drones, rovers to replicate Apollo 11 mission

By Brian McLean

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PORT TOWNSEND — The buzzing sound in the corner of the room caught the students' attention.

A small group of sixth-graders at Blue Heron Middle School in Port Townsend watched as one of their classmates attempted to gracefully lower a drone with a remote control to hook a piece of wire with one of its legs.

The wire was attached to a makeshift lunar module — connected Dixie cups with straws sliced in half and taped at a downward angle to provide support — made to replicate the spacecraft of NASA's Apollo 11 mission.

The next Buzz Aldrin may be in one of the North Olympic Peninsula's fifth-through-12th-grade classrooms.

The top two teams from Olympic Peninsula competitions in late May — TechRex from Dry Creek Elementary in Port Angeles and W.O.W. Women of the World from Forks Intermediate — advanced to the regional competition July 19 at the University of Washington in Seattle.

From there, they could earn the regional spot in the winners showcase Aug. 5-7 at Johnson Space Center in Houston.

The challenge, organized this spring by the Northwest Earth and Space Sciences Pipeline (NESSP), celebrates the 50-year anniversary of the Apollo mission.

Called the Next Giant Leap, it is sponsored on the Olympic Peninsula by the Northwest Discovery Lab, a nonprofit organization in Port Townsend.

The Northwest Discovery Lab nominated three additional teams — Spartan's Giant Leap from Forks Intermediate (third place), Mission Possible from Kitsap 4-H/Silverdale Ridge Elementary (fourth place), and the Jefferson Challengers from Jefferson Elementary in Port Angeles (fifth place).

"NESSP is reviewing the nominations and will invite selected teams in the coming weeks," said Aric Mackey, the executive director of the Northwest Discovery Lab.

Alysia Percy, a Clallam County 4-H leader who is the coach and flight director for TechRex, said her five-member all-girls team met for about three hours once per week for two months in Port Angeles to work toward solving the puzzle.

"It was built so everybody could succeed, no matter if you're really good at art, math, geology or history," Percy said. "There were no kits, no instructions to follow, just a guide book that said this is the mission, and you need to figure out how to solve it."

Northwest Discovery Lab provided equipment for 33 teams for more than 200 students from four counties — Clallam, Jefferson, Kitsap and Mason — and arranged for two teachers' professional-development classes in March.

“The kids will build a lunar lander, use a 3-D printer, the drone and part of the field kit, and they will land it and release it onto this big field mat,” Mackey said.

They earn more points based on how close to the designated landing zone they can drop their lunar module with the drone.

But that's not all.

With Lego Mindstorm kits, the students built replica rovers, and a command module inside needed to be programmed with blocks coding connected to a computer. The coding determines how far the rover moves in any direction before it stops and needs further instructions.

Ultimately, a color sensor on the bottom of the rover determines one of three possible rock samples, and the students tell the rover through programming how to pick up the correct sample on a different part of the map.

“The most challenging aspect was programming the robot,” said Hailey Charles, 11, of TechRex.

Charles was joined by 11-year-olds Mackenzie Percy, Lily Meyer, Chasity Matson and 12-year-old Ember Runion.

“The programming was really challenging with all that math, and having to beat fifth- and up to 12th-graders is very nerve-wracking,” Matson said.

The only difference between middle school and high school students was an extra challenge on the mat, Mackey said.

“Fifth-graders don't have any advanced math skills yet,” Alysia Percy said. “They've never had to calculate a circumference or a radius, or how to figure out that rotation, but they came up with other ways to do it.”

Team TechRex used a light clay to sculpt its lunar lander. They worked through problems such as how heavy it could be in order for the drone pilot to safely pick it up and set it down.

Team members eventually used scissors to pare down the lander, and they learned in a video conference with NASA engineers how important duct tape can be to missions in space, Percy said.

Each team also got to choose an item of “cultural significance” to leave on the mat-based moon.

Percy said her team was fascinated by a Port Angeles Rocks page on Facebook, where people find decorated rocks purposely hidden around town with a note that asks the finder to post on social media where they found them.

To honor that idea, TechRex team members created a playful rock out of Styrofoam to leave on the mat as their payload.

“At first they didn’t even know where to start,” Percy said. “It was neat to see their confidence grow.”

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From left, Hailey Charles, Mackenzie Percy, Chasity Matson, Lily Meyer and Ember Runion formed Team TechRex, a Clallam County 4-H group of fifth-graders from Dry Creek Elementary School in Port Angeles that won the 33-team Olympic Peninsula NASA Challenge. They will compete along with Team W.O.W. Women of the World from Forks Intermediate on July 19 in a regional event at the University of Washington in Seattle. (Melanie Greer)

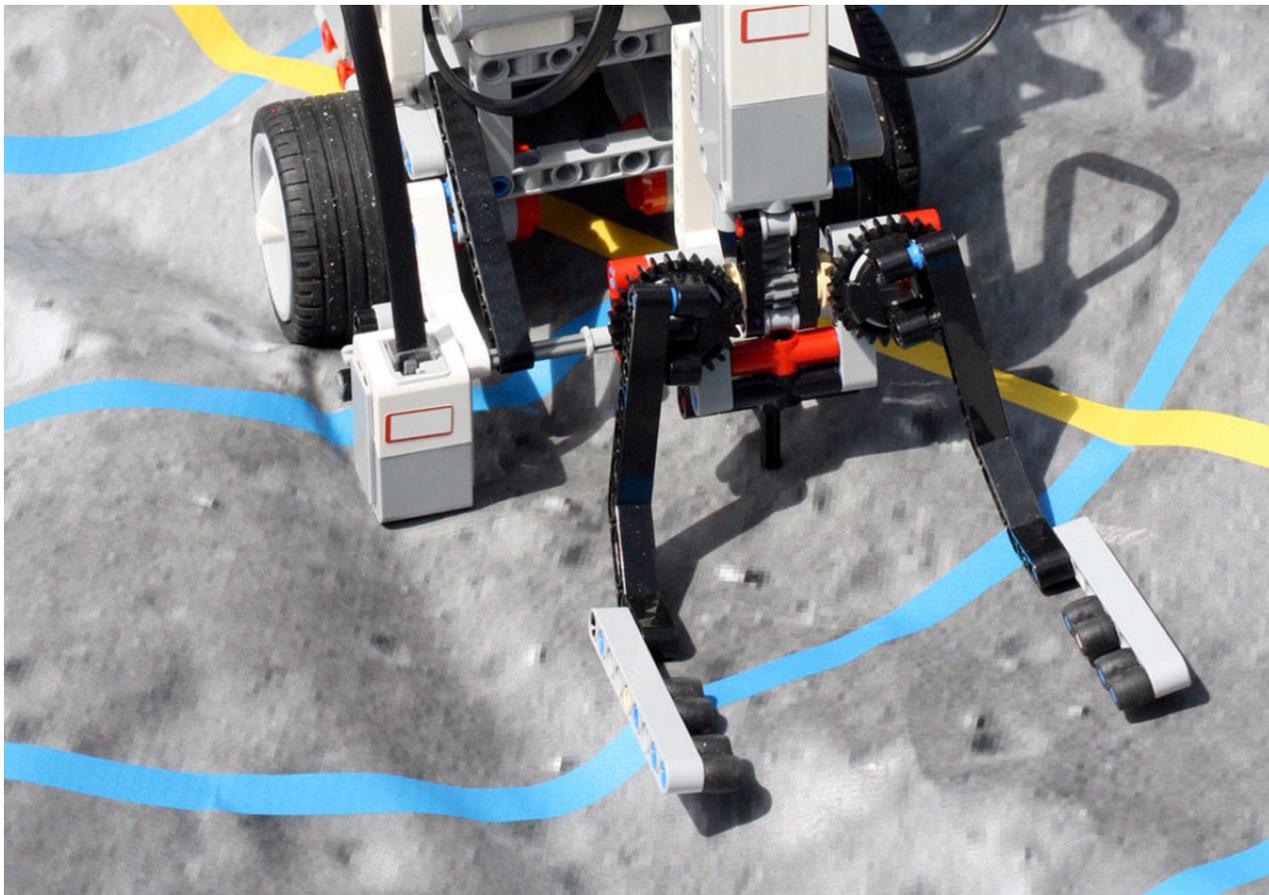


Zoey Sonandre, Tallulah Sebastian and Juliette O'Hara, sixth-graders from Blue Heron Middle School in Port Townsend, use Lego Mindstorm pieces to build a rover as part of their simulation of the Apollo 11 mission. The NASA Challenge included piloting a drone and coding a control device that would move a Lego rover across a mat that displayed the surface of the moon. (Brian McLean/Peninsula Daily News)



Rowan Santerre, a sixth-grader at Blue Heron Middle School in Port Townsend, decorates her team's lab coats as part of the NASA Challenge. (Brian McLean/Peninsula Daily News)





The Team TechRex astronaut sits atop the Lego Mindstorm rover with a symbolic roll of duct tape attached to its hand. (Melanie Greer)

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