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Oahu Girl Scouts team reaches new heights

PHOTOS COURTESY OF GIRL SCOUTS OF AMERICA

The group's experiment is headed to the space station for observation

By Marcie Kagawa
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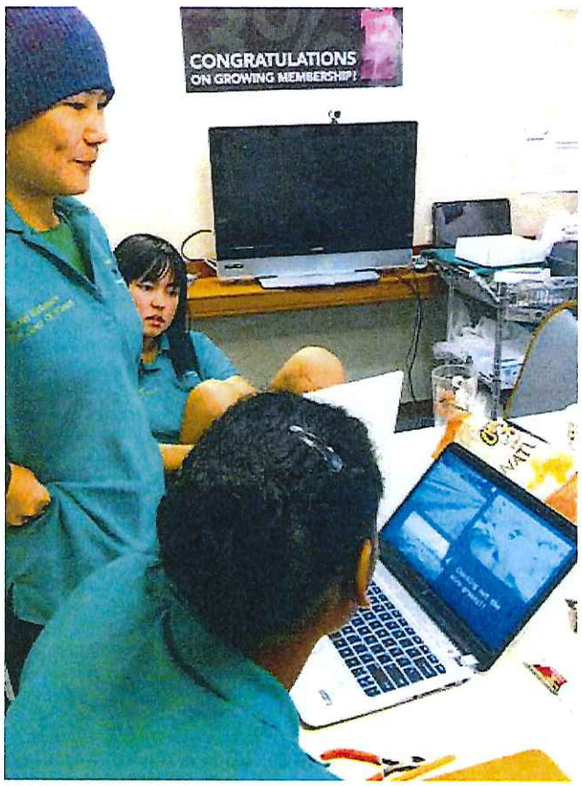


At top, the Girl Scouts team works on its lab experiment, headed for the International Space Station, examining hydroponic plant growth in space. Above, members look up plant information.

The International Space Station is about to get another commercial shipment, including a hydroponic lab experiment from a team of eight Oahu Girl Scouts.

The California company known as SpaceX was set to launch its unmanned Falcon rocket this morning, hoisting a Dragon capsule containing more than a ton of food, tools, computer hardware and science experiments.

The local Girl Scouts from public and private schools across the island are part of the first high-schoolers in the state to send a Microlab — an automated, self-contained science lab in a 4 ½-by-2-by-2-inch module — to the International Space Station, said Gail Mukaihata Hannemann, CEO of Girl Scouts of Hawaii.

"I think it's amazing for us to be the start of this," said Jordan Feeley, a Punahou senior and team leader for the project. "I think everyone should know about this. We're just eight girls but we're doing this. More people should be doing this, too."

The experiment, which will look at the variable growth of hydroponically grown arugula in microgravity while the team performs a control experiment on Earth, is scheduled to head for the International Space Station from Cape Canaveral Air Force Station at 5:10 a.m. today Hawaii time. It will be among 12 experiments sponsored by high schools and organizations from around the nation to go to the space station aboard the SpaceX Falcon 9 rocket and Dragon spacecraft as part of a commercial resupply mission.

"We decided to do something that would contribute to research on growing produce in space," Feeley said. "We also wanted to connect it back to Hawaii and focus on sustainability because sustainability is a big thing and it's a 21st-century problem. Doing this hydroponic plant experiment was a good fit."

The experiment will be plugged into a space station rack that will supply power to the experiment and transfer data for 30 days, said Bella Githere, membership and program services manager at Girl Scouts of Hawaii and the project team's adviser. It might be brought back to Earth on a Russian Soyuz return voyage in April.

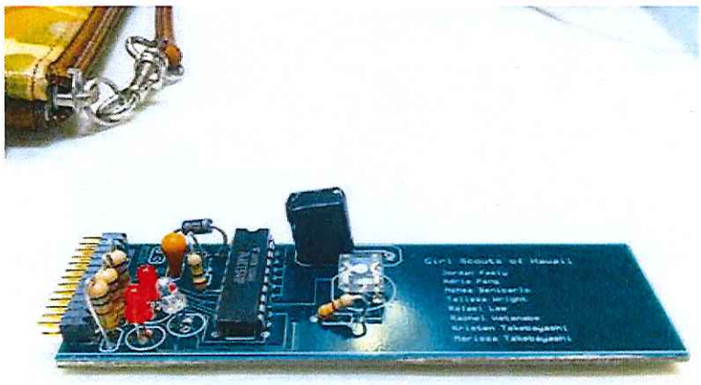
NASA astronauts will send data, such as temperature, humidity and photos taken every four hours by a digital camera installed in the Microlab, to the team every three days so the girls can monitor progress in the experiment.

Renting space on the International Space Station and flying the experiment up there doesn't come cheap. Hannemann said that would have cost the organization about $10,000, but a grant from the Marguerite Gambo Wood Foundation, private donations and project fees made it affordable for Girl Scouts of Hawaii to participate in the project.

Work on the experiment started in September, with the girls meeting weekly to design, program and build the module with help from local mentors who volunteered their time and expertise.

"The way the project is designed, it's meant to be very student-oriented, and the girls were making all the decisions," Hannemann said. "But community support and help from mentors played a big role in this project. It's not just on the financial side, but the

Please see **SCOUTS**, *A20*



COURTESY GIRL SCOUTS OF AMERICA

The circuit board used in the team's hydroponics lab experiment bears the names of the Girl Scouts who worked on the project.

SCOUTS: Project aims to boost STEM participation

Continued from ***A17***

girls really appreciated the help (from mentors) and recognized that these people didn't have to show up, but they did."

With his knowledge of LEDs and hydroponic planting, Kent Kobayashi, associate professor in the University of Hawaii-Manoa Department of Tropical Plant and Soil Sciences, helped the team create the optimal environment in which the arugula could grow.

"I got to really like the project, and I thought it was fascinating," he said. "The opportunity for the girls to do something like this is great, and it's something we all learned from."

Other professionals and local businesses also contributed to the experiment, including Nalo Farms, which donated the arugula seeds for the experiment, and Oceanit, which provided use of its facilities and helped the team build components for the experiment using a three-dimensional printer.

Hannemann said Girl Scouts of Hawaii is participating in the International Space Station project, started by San Jose, Calif.-based Valley Christian High School in 2010, to involve more local girls in science, technology, engineering and math, or STEM, programs.

"We know most girls want to make a difference in the world; they have strong personal aspirations but don't necessarily know how STEM issues can fulfill those aspirations," she said. "We're trying to introduce STEM to girls to connect to things they're really interested in doing. We felt the best way to do that was through a project like this."

Feeley, who has been interested in programming since middle school, added, "I'm excited because I'd always wanted more hands-on (programming) experience, and the idea of putting an experiment in space sounded amazing. I was always the only girl or just one of two in engineering and other STEM classes at Punahou, so it's nice to be in a group of all girls and prove that we can do this."

This will be the third space station visit for SpaceX, formally called Space Exploration Technologies Corp., which is the creation of Elon Musk, who previously was known for founding PayPal and Tesla Motors.

NASA is paying the company to supply the orbiting lab; the contract is worth $1.6 billion for 12 delivery runs.

If launched today, the Dragon should arrive at the space station Saturday morning. Astronauts will use the station's robot arm to grab the Dragon and attach it to the orbiting complex.

The Associated Press contributed to this report.