

NASA engages the next generation with HUNCH

April 19 2017, by Bill Hubscher



NASA astronaut Peggy Whitson installs a storage locker on the International Space Station. The locker is covered with signatures of students who built it as part of the HUNCH - High Schools United with NASA to Create Hardware - program. Credit: NASA

NASA is making sure the next generation of high school graduates

understand the variety of career paths that can lead to missions exploring space. In fact, hundreds of students are already helping NASA's astronauts live and work aboard the International Space Station - the orbiting research platform making discoveries that benefit Earth while developing the technology that will allow humans to live and work in deep space.

For more than 50 years, NASA has sponsored programs to get students interested in the aerospace industry. This involves extensive outreach efforts, finding and developing the next generation of scientists and explorers to help humans reach the stars. This also includes students who decide to work in more hands-on technical fields and even the culinary arts.

The HUNCH program—High Schools United with NASA to Create Hardware—shows [high school students](#) the many ways they can put their talents to work for NASA, beyond the role of astronaut. The program provides students a hands-on experience with the [space](#) agency—building NASA-designed parts for use by agency personnel.

"When we started this program 14 years ago, we had two main goals," said Bob Zeek, HUNCH co-founder and program manager at NASA's Marshall Space Flight Center in Huntsville, Alabama. "We needed full-size models of actual space station flight hardware to train ground support personnel. And we wanted to get kids who are good at machining, welding or other technical skills involved with NASA. All the things we do in HUNCH are preparing these students for the future and helping NASA at the same time."



Eugenio Martinez holds a prototype of a lint catcher that was 3-D printed for the HUNCH program when he was a senior at Conroe High School in Texas. Credit: NASA

The program started with three schools in two states. Now 117 student classrooms in 26 states participate, helping build NASA's future as well as their own. The HUNCH team also joined forces with the SME Education Foundation to help encourage students pursuing engineering and technology degrees. The foundation is a network of manufacturing professionals, researchers, educators and students working to connect and share knowledge and experience through mentoring, internships and job-shadowing. HUNCH and SME's Partnership Response in Manufacturing Education (PRIME) program is a new collaboration to introduce more high school students to career opportunities in the [aerospace industry](#).

While students have used machining and welding skills to build exact replicas of hardware used on the space station, the program has expanded beyond manufacturing training fixtures. HUNCH has created programs for students to learn about computer-aided design, welding technology, graphic arts and even sewing. Select schools are building actual flight hardware. A student-built locker was recently delivered by the 10th SpaceX cargo resupply mission and installed on the station.



Students from the Huntsville Center for Technology in Alabama provide servings of their entry into the HUNCH culinary challenge to judges at the U.S. Space & Rocket Center in Huntsville. The finals of the competition at NASA's Johnson Space Center in Houston will determine which recipe will be processed and sent to the space station. Credit: NASA/MSFC/Fred Deaton

Here are some of the recent projects completed by HUNCH student teams:

- **Culinary Challenge:** Culinary arts students were invited to create a dessert item for astronauts to enjoy on the space station. They had to create a dish that followed specific dietary restrictions while making something that can be packaged and delivered to space. For example, crumbs do not simply land on a table for

easy clean-up in space, so dry, crunchy items are generally not sent to the station. The 10 finalists were selected and a winning recipe is scheduled to be selected in April.

- **Sleeping Well in Space:** Students studying sewing and fabric helped design and build specialized slippers and new sleeping bag liners for the crew.
- **Science Lockers:** Students were given precise designs for new storage lockers and bolts to be used on the station. They needed to match exactly the area in which the lockers will be installed on the station because making changes after they are delivered to the [space station](#) is not as simple as popping down to the local hardware store for a replacement.
- **Crew Quarters Lint Catchers:** A [student](#) team in Texas developed a replacement for air filters to use in the crew quarters, improving the design by making them magnetic and removing the need to have screws affix the filters in place and the time it takes to replace them. NASA also is showing how one group will design parts for a different group to fabricate: These lint catchers will be built by teams in Kentucky and Tennessee.
- **Video Challenge:** The program is also engaging students to help with outreach by encouraging them to create original video products aimed at communicating to new audiences NASA's mission, accomplishments and efforts. The best of these videos will be posted to NASA's YouTube and Facebook pages.

"This is one of those programs that benefits the agency and the students," said Glenn Johnson, HUNCH design engineer at NASA's Johnson Space Center in Houston. "Students gain valuable working skills creating tangible products that meet a real need for NASA."

Provided by NASA

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