

# HESTEC Middle School Challenge fuels students' STEM interests

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Nearly 1,000 Rio Grande Valley middle school students found The University of Texas-Pan American Ballroom filled with enticing lights and mirrors, things that spin and glow and "light" and "dark" rooms as they entered the [Little Shop of Physics](#) Sept. 27.



At the "Little Shop of Physics" demonstrations sponsored by the National Science Foundation at HESTEC's Middle School Challenge, Andrei Cubero, a 7th grade student at the South Texas Preparatory Academy in Edinburg, got to create light with a drill.

They soon became scientists as they were let loose to explore 150 hands-on demonstrations at the first day of HESTEC's Middle School Challenge designed to stimulate students' interest in science, technology, engineering and math at an age when they start seriously thinking about possible careers.

"I think it is pretty awesome -- all of it is about science," said Anna Cavazos, a seventh grade student at South Texas Preparatory Academy (STPA) in Edinburg, who is considering astronomy or computer science as fields she'd like to study.

She especially liked the mime-like face in the black light room that gave the optical illusion of following you around with its eyes and other experiments that allowed students to touch a cloud and see light beyond a rainbow.

Sponsored by the National Science Foundation (NSF), The Little Shop of Physics is a traveling hands-on science program from Colorado State University (CSU) and part of the education

efforts of one of the NSF's science and technology centers - the [Center for Multiscale Modeling of Atmospheric Processes \(CMMAP\)](#).

At the challenge Sept. 28-30 will be additional NSF-funded demonstrations including Ant Farmers of Texas, Make an Electric Pickle, and others. Nearly 4,000 6th through 8th graders are expected throughout the four days of the challenge.



During HESTEC's Middle School Challenge held during Student Leadership Day, 6th through 8th grade Valley students got to participate in a "mock" archaeological dig at the "Can You Dig It?" exhibit hosted by UTPA's Community Historical Archaeology Project with Schools (CHAPS).

"We want to give students a sense that science is something you do," said Brian Jones, a CSU physics instructor who created the Little Shop of Physics. "Everything we make in here is designed to be made out of everyday objects. One of our rules is that everything we build we want people to be able to duplicate."

Students also got to hear from Gladys Porter Zoo educator Damien Hairston, who talked to them about the careers and volunteer options that a zoo offers and the many different animals he has worked with. He introduced them to three of the zoo's residents -- a ball python, a chinchilla and a macaw who was trained to spread his wings in order to get a treat.

"They all want to touch and hold the animals. Every single student wants to touch at least the snake. Them wanting to do that means they might be inspired to go into a science field or work at a zoo," Hairston said.

Jefferson Lint, a seventh grader at STPA, said he liked science and enjoyed learning more about the animals, especially how the bird cracked a brazil nut.

"I like animals and to know how things work," Lint said.



Ayo Oguniana, a 7th grader from South Texas Preparatory Academy in Edinburg, got to spin on the Swirl & Hurl, one of the 150 demonstrations students got to try at the "Little Shop of Physics" during the Middle School Challenge held Sept. 27 at HESTEC. The challenge will continue through Friday attracting approximately 1,000 Valley students each day.

During an hour spent with UTPA history, archeology and geology professors and student volunteers, the middle school students got to dig up the past in a sand-filled small swimming pool that had bones, coins, shells and other objects hidden in the sand. Other stations in the Community Historical Archaeology Project with Schools (CHAPS) "Can You Dig It?" exhibit allowed students to touch, identify and draw representations of thousands of years old arrowheads, research and document their family tree, identify Rio Grande Valley soils and explore unearthed objects with a metal detector.

"This exhibit provides them an overview of the history of the Valley. It's part of their history," said Dr. Sonia Hernandez, UTPA assistant professor of history.

Victoria Dominguez, a seventh grader at STPA, said she learned about the history of Hidalgo County and got a start on putting together a family tree.

"I am going to go home and ask my grandparents about their parents and grandparents," she said, in order to complete her tree.

Other experiences scheduled for the students were Raytheon's MathMovesU, a tour of the exhibit "Tutankhamun: Wonderful Things from the Pharaoh's Tomb" in the UTPA Visitors Center, a presentation in the H-E-B Planetarium, and a view of the Air Force X1 supercar.

In addition, the U.S. Navy held court with its Navy Assets exhibits in the Sundial area of the UTPA campus during the Middle School Challenge.



Students got a closer look at a chinchilla held by zoo docent and UTPA graduate student Tiffany Anderson during a presentation by the Gladys Porter Zoo in Brownsville during HESTEC's Middle School Challenge activities.

There students could improve their hand-eye coordination on a number of video games, including the Navy Seal SoCom 4. They could also navigate a small and larger version of the Navy's EOD (Explosive Ordinance Disposal) robot that was designed to disarm bombs. At a makeshift swimming pool set up in the circle outside the Fieldhouse, they could also test their skills on steering a Sea Perch Remotely Operated Vehicle (ROV), an underwater robot built from a kit composed of PVC pipes, elbows and three motors.

A SeaPerch Challenge sponsored by the Navy will be held on Friday during HESTEC. High school students will compete to maneuver their underwater robot through a series of obstacles at the UTPA natatorium. Building a SeaPerch ROV teaches basic skills in ship and submarine design and encourages students to explore naval architecture and marine and ocean engineering concepts.

"This is cool stuff," said Lt. Keith King, assistant operations officer, Navy Recruitment District-San Antonio, who hoped students would be able to learn more about opportunities available to them in the Navy during HESTEC.

However, he said the Navy's mission at the Middle School Challenge wasn't just to get students to join the Navy but to also help address the steep decline by the United States compared to the rest of the world in the number of graduates getting engineering degrees by getting more students interested in STEM.

"It is about getting students to join the engineering world," he said. "The best way we can help us out in the Navy is by helping out the entire U.S. in the engineering field."

The Middle School Challenge will continue through Friday, Sept. 30 with 1,000 Rio Grande Valley middle school students scheduled to attend each day.