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NEWS / COMMUNITY

'Physics in a box' helps fuel RHS' STEM success

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From left: Gary Tripp, an administrator leadership development instructor and consultant for Cooperative Educational Services; Dr. Anatoliy Glushchenko, developer of Physics in a Box and Las Vegas City Schools Superintendent L. Laryssa Archuleta watch a STEM presentation Tuesday at Robertson High School.

Vanessa Maciel/Optic photo

An innovative approach to teaching STEM – science, technology, engineering and mathematics – is credited with helping Robertson High School students excel during the recent New Mexico Governor’s STEM Challenge.

Known as Physics in a Box, the program is based on how the sciences are taught in Asia and Europe, according to its creator, Dr. Anatoliy Glushchenko.

Currently a physics professor at the University of Colorado in Colorado Springs, Glushchenko said he has

taught the subject to young students around the world, including South Korea, France, Germany, the United Kingdom and Italy.



Glushchenko said he came to the United States 20 years ago, and saw then that there was a stark difference between the American school system and systems in Europe and Asia.

“The one main difference is that each country in the world teaches physics three times a week, as a separate discipline,” Glushchenko said. “And, they do it in grades six, seven, eight, nine (and) 10.”

Glushchenko said the educational system in Asia and Europe fosters a love of physics and hones math skills.

“Imagine, the rest of the world (is) doing this, and our country does not,” Glushchenko said. “This is why our students don’t like mathematics, because they don’t have a practical application of mathematics.”

“That’s why our math scores are low, and our reading scores are low,” Glushchenko added.

This deficiency prompted Glushchenko to create Physics in a Box, a program that takes a hands-on approach to teach the content found in European and Asian textbooks.

The program involves actual boxes containing tools and artifacts that students use to learn about three subjects: optics, mechanics and electricity.

Glushchenko credited RHS' use of Physics in a Box as helping four of the school's STEM students achieve top marks during the New Mexico Governor's STEM Challenge on Jan. 20.

Las Vegas City Schools have been using Physics in a Box for about four years, since it was brought to the district by Superintendent L. Larryssa Archuleta back when she was curriculum director.

Margaret Lewis, a physics and chemistry teacher at RHS who is also the teacher sponsor of the STEM team recognized during the New Mexico Governor's STEM Challenge, said she too believes that the Physics in a Box program helped her students succeed in the competition.



In a letter to Archuleta, Lewis gives thanks for the official's support of STEM at her school.

"Your unwavering commitment to STEM education at RHS has made a significant difference in the lives of our students," Lewis tells Archuleta in the letter. "I firmly believe that the 'Physics in a Box' program gave our STEM team an advantage in the latest (New Mexico) Governor's STEM Challenge where we won two corporate sponsors."

LVCS is one of several school districts in New Mexico to have adopted Physics in a Box. Other public school districts to do so are Moriarity, Bernalillo, Socorro, Floyd, Grady, Zuni, Gadsden, Des Moines and Cimarron.

Gary Tripp, an administrator leadership development instructor and consultant for Cooperative Educational Services, a purchasing cooperative for New Mexico's school districts, said that, since 2010, Physics in a Box has been brought to 15 states and 100 school districts across the United States.

As a purchasing agent, CES uses its profits to help develop New Mexico classrooms. For example, CES helps teachers with professional development, helps administrators receive coaching, and helps people get certification in areas in which they are on waiver, Tripp said.

Tripp and Glushchenko travel across New Mexico to talk to school districts about Physics in a Box. They visited RHS Tuesday morning, met with Lewis and watched a physics presentation given by students Austin Perales, 18, and Param Detha, 16. Both students are 11th graders at RHS.

When asked why the subject of physics is important, Detha did not hesitate with his answer.



"Physics is important because it defines everything," Detha said. "Especially in our current world, we have so much understanding of it now because of physics."

Archuleta was also present at RHS Tuesday morning to meet the STEM students and watch their presentation.

Archuleta said she wanted to give every student in the district a chance to have a hands-on approach to learning physics.

“The learning style of our community is very hands-on and visual,” Archuleta noted. “I feel everyone should receive an opportunity such as this.”

Archuleta said the students’ math scores are higher than the scores of students in area schools. She said SAT scores have also improved since implementing Physics in a Box.

Archuleta said the Physics in a Box program cost the district \$30,000. She noted that funds from the American Rescue Plan Act – an economic stimulus plan passed in 2021 – helped offset the cost of the program.

She said she was very excited for the four RHS STEM students who won \$1,000 each for their efforts during the New Mexico Governor’s STEM Challenge.

“We are very proud of them,” Archuleta said.