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Seminole County Public Schools reveals Physics Bus to promote STEM learning earlier in students

The New Physics Bus made its inaugural visit to Hamilton Elementary in Sandford on Tuesday.

By Steve Paradis, Herald Staff

When the new Physics Bus rolled into the parking lot of Hamilton Elementary Tuesday, officials said they hoped it would usher in a new era for U.S. students to compete with those in other countries.

"Seminole County is the pearl of physics education in the United States," said Dr. Anatoliy Glushchenko, founder of Physical Science Research Associates, or Physcira, which partnered with Seminole County Public Schools to develop the bus program.

Glushchenko spoke on a cool Tuesday morning at the ribbon-cutting ceremony at Hamilton Elementary Magnet School of Engineering and Technology.

In a statement, Seminole County Public Schools Superintendent Dr. Walt Griffin said the program will prepare elementary students for the district's renewed physics curriculum in middle and high school.

"Compared to a number of other countries, schools in the U.S. don't start teaching physics early enough or in a way that many students find interesting or are able to grasp," Griffin said.

Perhaps no one knows more about physics education in other countries than Gluschchenko, who left his native Ukraine because he could no longer be a physicist there, he said. He

worked in South Korea, Japan, France and Germany before arriving in the United States.

He noticed when his daughter was in sixth grade that U.S. students didn't even take physics courses. He explained that this is a big difference compared with other nations, where more physics education is required. He said those countries don't struggle to produce engineers, and they don't need STEM programs to supplement teaching. 'STEM stands for science, technology, engineering and mathematics.

So Glushchenko developed a grade 6 to 8 curriculum centered on physics, and he created Physics in a Box.

When he brought the idea to the Seminole County school district, it was adopted, but the idea arose for a mobile bus unit to bring hands-on experiences to elementary age students.

Glushchenko attributed the idea to Griffin, who said in a news release that students need to experience the joy of math and science in a fun setting.

Seminole County Public Schools Officials cut the ribbon for the Physics Bus at Hamilton Elementary in Sanford

"Bringing physics to students at an early age will help remove the stigma of physics and encourage participation beyond elementary school," said Griffin, who also attended the Tuesday ribbon-cut- ting ceremony. "The SCPS Physics Bus was created to capture the attention of elementary school students and inspire them to pursue accelerated STEM courses in middle and high school."

Glushchenko said the students should get excited, but excited is not sustainable. He said many programs in the United States try to excite students about physics and STEM, but if you don't know how to apply that excitement, he said, it doesn't matter.

The Physics Bus, he said in an interview, will deliver knowledge in an exciting way, using the Physics in a Box experiments.

"Students will learn fundamental laws of physics," Glushchenko said, adding that there are other bus pro- grams that don't meet these standards. "This is the first bus that delivers on fundamental knowledge."

He said this is the first of what he hoped would be three buses, one for each box of Physics in a Box. The first bus will have experiments from the first box: mechanics. The second includes optics education, while the third covers electricity and magnetism. The same thing happens with middle school education. Sixth grade covers mechanics. Seventh grade centers on optics and eighth grade will include electricity and magnetism education.

Addressing students at the Hamilton Elementary event on Tuesday, Glushchenko said that some professions in the future will be lost to technology, but others will be developed by technology. Physics education will prepare them for the future, he said. The first people to create these new technologies are physicists.

He predicted biophysicists may solve the problem of cancer. Drones will deliver items and food in the future. Physicists will drive these technologies that lead to jobs we can't imagine yet.

This new bus will give students physics experiences based on fourth- and fifth-grade math and science standards.

Griffin said the new program with Physics in a Box builds science, technology and math knowledge and skills.

"Each box includes 100 hands-on experiments using professional custom-made equipment, curriculum, and teacher training to help students better understand physics and mathematical concepts in a real-world setting, something vital to their future success," Griffin said.

This bus will visit Seminole County elementary schools. The aim is for students and their families to have STEM experiences to develop critical math skills.

Funding for the new SCPS Physics Bus came from donations from the school board members, Dr. Tina Calderone, the Walt Disney Company, Glushchenko's Physcira company, and the Foundation for Seminole County Public Schools, according to a district news release.

For his part, Glushchenko said he wanted to thank the school district and Griffin, but also Deputy Superintendent Anna-Marie Cote, who took the Physics Bus idea and devoted the time and energy into organizing people and making it happen.

Now Seminole County students will see the world through a different lens. At the launch ceremony for the new bus, he told students that when they see a double rainbow and wonder why or when someone wonders why the grass is green or the sky is blue, they will know why through their education.

No one questions whether students should take math courses. It should be the same for physics, Glushchenko said, because that's how it is in Europe and Asia.

"People will see that Seminole County is one of the pioneers in the nation's K12 physics movement."