Local News

Catching up in math and science

Honeywell and Stevens Tech hold workshop for teachers

By Al Sullivan
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Fifty years ago, Americans were shocked when the Soviet Union launched the world's first manmade satellite into space.

Sputnik became a symbol of America's need to better educate its students in mathematics and science.

Educational programs improved, and America not only caught up with the Soviets, but succeeded in landing men on the moon a decade later.

Recently, a 26-state study revealed some disturbing news. One-fifth of college-bound students in the United States must take remedial math courses. In fact, according to the National Science Foundation, the average math scores among U.S. eighth grade students lags behind students in 14 other countries, including Singapore, South Korea, Japan, and Russia.

This comes at a time when careers in science, technology, engineering, and math are growing five times faster than all other careers combined.

To help teachers develop new innovations for teaching in these areas, Honeywell, Homestown Solutions and Stevens Institute of Technology recently expanded their Teachers for the 21st Century Summer Institute.

"Teacher reaction to the program has been terrific, causing us to expand it to two weeks this summer," said Tom Buckmaster, president, Honeywell Homestown Solutions. "Our commitment continues into the school year with classroom support and equipment to help science come to life for their students."

More than 40 teachers throughout Hudson County and Northern New Jersey spent two weeks at Stevens Tech in Hoboken to bolster their science knowledge and develop new approaches that might energize the imagination and curiosity of students they teach, in hopes that these students will seek careers in science, math and engineering.

Launching a workforce

*The program addresses the very critical workforce needs by preparing the next
generation for careers in science and technology," said Beth McGrath, director of innovations in engineering and science education at Stevens Tech. "Teachers are the critical link. But teachers are also constrained by many things. Time is precious, and resources are not always available. We want to help them bolster their science and engineering content and give them innovative tools they can use to motivate students."

McGrath called it a matter of national pride and economic urgency. The world is facing some of the biggest challenges in human history, including global warming and an impending oil shortage.

"The economic health of this country involves the ability to innovate and create new technologies, and that means we need people to learn math and science," McGrath said.

McGrath said the program teaches educators how to engage children, show how science and technology can be fun, and how to collect data and perform experiments.

Some of these experiments could also involve checking the results of experiments done by others elsewhere in the world to see if they come up with the same results, part of a collaborate effort using the internet and involving international partners.

"Engineering is not viewed by the general public as making a difference in the world," McGrath said. "Yet engineering plays a role in everything from the Mars rover to medical implants, and in the future will help solve some of the problems concerning fuel and the environment."

Countywide

This is the second year the program has been run. Last year, a pilot program involved only Jersey City teachers. This year, Honeywell helped double the budget for the program, allowing teachers from Bayonne, Jersey City, West New York, Secaucus, and schools outside the county to take part.

The curriculum for the program has been recognized by the American Association for the Advancement of Science and the National Science Teachers Association, and meets the state's core curriculum standards.

"The program was wonderful," said Larissa Drennan from Woodrow Wilson School in Bayonne. "Basically, we learned how to take our regular classroom materials - such as genetics, plate tectonics and weather - and make them much more real and compelling for our students.

Her students will post the findings and check the results against students from around the world.

Dan Monagle of Academy 1 Middle School in Jersey City called it "a fantastic experience."

"Honeywell Teachers for the 21st Century was a great opportunity not only to learn about great hands-on collaborative projects, but also a chance to meet and collaborate with other science teachers," he said. "We learned new ways to bring technology into the science classroom, which will help improve the teaching of difficult topics."

Arif Hall of Henry Harris School in Bayonne called it "very informative and fun."

"Many of the activities, and even little things that I have learned from the other participants, I will definitely bring back to my classroom," he said. "Using Google Earth and the genetics labs, I will incorporate [these things] in my lessons for my classroom. The amount of hands-on activities and the presenter's attitude are a definite positive aspect to this week."

Melanie Defilippis of P. S. No. 26 in Jersey City said one experiment, the Boiling Point Project, allowed her to see how data from around the world has been implemented and how different elevations affect the point at which water boils.

"I will definitely bring this project back to my classroom in the fall to help my students understand from a different perspective on the scientific method in helping them with their science fair projects," she said.

Cathleen Ferguson of Secaucus Middle School called the program "a valuable resource" that will help her enhance lessons she already teaches in her classrooms.

"I learned a few new activities that I can do with my classes, [and gained] a better understanding of the concepts that I teach, which will help me to teach these topics more effectively," she said, noting that part of the lesson was also on using the internet as an effective tool for teaching.

Honeywell, she said, is also providing her with $250 in supplies to implement one of her projects.

Lauren Mauruz of West New York Middle School said she took away a lot of useful information.

"As a first year teacher, it was a struggle to come up with interesting, hands-on experiments for all of the lessons we had to cover," she said. "This workshop gave me some great projects that the students will definitely love."

Joyce DiPaola from Midtown Community School in Bayonne said she got a number of terrific ideas from the workshop.
"I am a life science teacher at Midtown Community School, and I was impressed with the human genetics research they are conducting," she said. "My students will greatly benefit from this experience, and will also have a lot of fun in the process."

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