

HANDS ON LEARNING

Students learn engineering concepts

Sixth grade science students at Benjamin Franklin welcomed classroom visitors

BY HOWARD PROSNITZ
Staff Writer

For the past month, Walter Hickey's sixth grade science students at Benjamin Franklin Middle School have been budding engineers.

Hickey has been teaching his students basic engineering concepts in a program designed by Stevens Institute of Technology and funded by Verizon. The goal of the program, which began 18 months ago, is to introduce students to engineering at a young age, said Jayne Mayer, of the Verizon Foundation.

During the four weeks, Hickey's students built toy cars from kits supplied by the Society of Automotive Engineers. Stevens provides training for teachers in the program and Verizon supplies funding.

The program culminated on

"They created their own toys," said Hickey. "They had to decide on the scientific criteria and do experiments. They learned about concepts such as power, torque and friction. It's hands on learning of the same concepts that are in their science book."

In addition to building the cars, the students decorated them and gave mock sales presentations to classmates.

Students worked in groups of three and had a choice of building a fast car, a powerful car or one that combines speed and power.

The project involved a variety of skills.

"I noticed they had better language arts and math," said Hickey, who teaches both subjects in addition to science.

On Thursday, Tony Calderon, of Verizon, led the class in a simple experiment that demonstrated how fiber optic technology works.

Using small flashlights, students sent signals through lengths of rubber tubing. Hickey explained that fiber optics uses a similar process with lasers and the binary code.

Greg Bartus, an instructor in engineering at Stevens, said that so far the program has been presented at 18 districts in New Jersey. Separate programs are designed for elementary, middle school and high school levels.

"The goal is to make sure that all K-12 students get the experience of engineering integrated into their curriculum," said Bartus.

"Mr. Hickey is a very engaging teacher, and the students asked a lot of intelligent questions," he said. "They knew that communication is done mostly digitally and using the binary code. They asked me if they could really sell the toys they designed. They seemed very responsive and engaged in the project."





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Verizon engineer Tony Calderan working with students.



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Benjamin Franklin science teacher Walter Hickey helps two students with an experiment that demonstrates how fiber optic technology works.