

Charles County Students Participate in NSWC STEM Summer Program

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More than 30 Charles County Public Schools students participated in the first science, technology, engineering and mathematics (STEM) summer program sponsored by the school system and the Naval Surface Warfare Center, Indian Head division.

The two-week-long program was held at Theodore G. Davis Middle School from June 30 through July 11, and 33 Charles County middle school students participated. The students were divided into groups of seven and were from Mattawoman and Davis middle schools. Each team had a county science teacher assigned to serve as their team's referee and were paired with an engineer from NSWC.

The program introduced students to a series of science and engineering problems through Material World Modules (MWM), various engineering challenges, robotics challenges and a research project.

The modules are a series of kits students use to investigate real world engineering problems. One module covered why specific sports equipment, such as golf balls, tennis balls, footballs and basketballs, are used for specific sports. Students examined the physical properties of the balls, including the size, mass and weight of distribution and how many layers of materials are used to create the equipment.

The second of two modules consisted of smart sensors, including light, infrared and magnetic sensors. Students were required to investigate the sensor's trigger and hypothesize what sets the sensor off, such as light, temperature, motion and pressure. Student teams also had to map out where, in the area surrounding the sensor, the sensor went off to try and figure out how to avoid the trigger. Teams were then required to compete against each other in a contest to see which team could successfully pass by each sensor without being detected.

The robotics challenge tested the teams in eight different challenges. Student teams were required to create robots from metal legos. Using a programmable controller and a laptop computer, students tested their robot on an 8 ft. x 8 ft. challenge board in eight events. The goal was for students to use their robot on the board to rescue a swimmer, clear mines, recover a ship, create a sea base, deliver humanitarian aid, search for a submarine, transport troops and dock their robot. All of the board exercises used magnetic legos and were students were evaluated by teachers, who served as referees.

Kirstin Miller, a science teacher at North Point High School, served as a team teacher, and said she was amazed at what the students were learning. "It is really nice to work with a group of kids on these challenges. Some of these challenges would be hard for my ninth-graders and even my honors students," she said.

Other challenges in the program focused on electronics, ballistics, packaging and rocketry skills, including an egg drop challenge and a rocket launch. Each team also had to work with a water balloon cannon to correlate the launch conditions with a target range.

Each team also had to create a research proposal based off of one of the eight challenges presented in the robotics event. They were required to investigate one of the challenges for ways to improve the technology. Each team presented a proposal on the last day of program and the top three teams were given "funding" for their proposals.

The program was solely funded through NSWC, who provided CCPS with \$31,000 to cover materials, student transportation, classroom supplies and additional funding for STEM initiatives.

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