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Science camp runs on girl power



PAT GREENHOUSE/GLOBE STAFF

Lydia McIntosh (left) and Waridi Kaba tried a math game.

By Megan Woolhouse GLOBE STAFF FEBRUARY 20, 2015

While her peers slept in during school vacation week, 16-year-old Diana Perez of Everett woke up at 4 a.m. for an epic commute that began in darkness at a snow-covered bus stop, continued with a transfer to another bus, and ended with a car ride from a friend to arrive in Lexington at 8:30 a.m.

Her destination: a science camp at Minuteman Career and Technical High School. “I didn’t want to miss it,” Perez said. “So I had to get here.”

It was an uncommon display of determination, but the four-day camp is unlike anything else offered to teenage girls interested in science and math. The campers are middle school girls mentored by high-school students like Perez, who encourage them to stick to their studies of so-called STEM subjects: science, technology, engineering, and math.

Research has shown that girls often lose interest in science-related subjects in middle school, favoring other subjects that emphasize verbal or other skills. The camp seeks to keep them on track, while creating a pipeline of students primed for highly skilled jobs that come with a good paycheck — and continue to be in great demand.

At Minuteman, a school of about 650 students, only about 15 percent of females, or fewer than 30 girls a year, graduate with an emphasis in STEM.

Minuteman’s superintendent, Ed Bouquillon, has declared 2015 the year of “girls in STEM” and asked staffers and students to create a camp that will encourage more girls to pursue the fields. In technology alone, the Department of Labor predicts 1.4 million jobs will be created in computing fields by 2020. But US citizens are expected to fill only about 30 percent of them, and American women are expected to fill just 3 percent.

“We needed to do something,” Bouquillon said. “We’re not going to fill all the jobs that are out there for young people in STEM fields without tapping into young women and getting them interested in it.”



Anastasia Monich spoke about computers at the vacation week camp held in Minuteman High School.

The vacation-week camp was the brainchild of about 20 Minuteman female students, including Perez, and their adviser, engineering teacher Becky Quay. About 30 middle school students arrived by bus each morning this week to undertake math projects and science experiments and to take apart computers under the tutelage of high school girls.

Middle school girls studying math for the day, for example, used graphs and pie charts to tell a story. Some simply told what a student ate that day, while others added imagination to chart the fluctuations in unicorn herd populations. The group also made tie-dyed shirts to study geometric theory and played games with dice to explore probabilities.

Tristan O'Connor, a junior at Minuteman whose favorite subject is math, guided girls through a game of "Math Twister" on the floor of a science lab, which led students to become entangled as she directed them to find coefficients and prime numbers with their hands and feet.

O'Connor said she was in sixth grade when a teacher recognized her math skills and challenged her to do more. Today she takes math courses two years above her grade level and hopes to inspire younger girls to develop an appreciation for math.

"Some of the students are very quiet," O'Connor said. "So it's up to us to get them out of their shell."

In another classroom, Erin Carroll, 12, quietly experimented with ways to drop an egg from three stories up without breaking it, knowing her design would later be tested from a balcony. She contemplated using a plastic bag as a parachute for the egg and buffering its landing using a box, colored pom-poms, and straws.

Carroll, who goes to middle school in Concord, said her mother signed her up for the program. "Science is my favorite subject," she said. "You can do experiments and they never turn out the same."

Kaleena Gulledge, a senior at Minuteman who helped organize and oversee the camp, with help from Quay, said the mentoring aspect of the program is important because the girls influence each other.

"The big stigma is that girls can't do science and math," Gulledge said. "We want to break through that stigma."

Bouquillon said the program also aims to overcome the stigma among parents that vocational schools are where low-performing students go. He said the school offers advanced placement classes, and about 70 percent of Minuteman graduates in 2014 attended two- and four-year colleges or received post-secondary career training.

“We’re trying to reach those parents,” he said. “So we want to expand this and have more camps.”

Students such as Perez, the 16-year-old from Everett, need little encouragement. Her parents are immigrants from El Salvador. Her father is a buyer for Whole Foods, and her mother works in a factory. A sophomore, she is already thinking she may study computer engineering in college.

This week, she worked with middle school girls who were learning to take apart and rebuild a computer. But the other underlying message, she said, was just as important:

“It doesn’t matter what your gender is. Go for it.”

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