

# Cyber boot campers see science, security

BY RACHEL RILEY

[rachel.riley@gazette.com](mailto:rachel.riley@gazette.com)

While most kids in the Colorado Springs area were likely at swimming pools or summer camps, ninth-grader Dharma Mackey spent Thursday morning learning to identify binary code, the numbered language used by computers to convert text into stored data.

Mackey was one of 15 students at a “Cyber Boot Camp” held at Falcon High School this week, where participants were taught the basics of computer networks, online safety and operating system troubleshooting.

“All the stuff we learned here we’re able to do at home,” said Mackey, who will be a freshman at Falcon High in the fall.

The camp was created by Thomas Russell, a Falcon High IT teacher, as part of his Student Engagement and Mentoring in Technology program. The five-day course aims to introduce kids of all ages to the principles of cyber-oriented topics and spark their interest in STEM (science, technology, engineering and math) careers.

“A lot of kids think that majoring in computer science is just sitting around a computer, and they think it’s boring,” Russell said. “It takes away the mystery.”

While there are a wealth of computer-related extracurriculars offered in programming and coding, Russell said the camp is unique because it focuses on cyber security and ethics, as well as other topics related to computer networking and the web.

“That’s the largest growing part of computer sciences right now,” Russell said. “The FBI, the government, even the military are having trouble filling these cyber positions, so there’s a lot of opportunity.”

Each morning, students arrived to find a slip of paper filled with an incoherent string of letters that they had to decode into their instructions for the day — an exercise that teaches basic cryptography, Russell said.

“These are real world skills you learn here,” said Andrew McGrath, a former student of Russell’s who will be a freshman majoring in computer science at University of Colorado at Colorado Springs in the fall.

Students also used simulator programs to practice fixing vulnerabilities in the Windows operating system and building computer networks. Russell also staged a contest where each student made their own working electrical circuits and raced to see whose light bulb would illuminate first.

“I’ve always wanted to make my own computer,” said Logan Right, a fifth-grader at Grand Valley Elementary School, while clicking imitation router and server icons connected by black lines on the computer screen before him. “I think experimenting with laptops and desktops is cool.”

Several of the participants were elementary schoolers as young as fourth grade. Kiana Harkema, a student of Russell’s who helped out at the camp, said the earlier children are exposed to computer science topics, the better.

“I like dealing with younger kids and instilling that interest,” said Harkema, a senior. “Once they’re in high school, it’s really hard to get them into this stuff because a lot of them are dead set on what they want to do.”