

Stepping into STEM

Written by By Molly Ann Howell Sun Correspondent
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Internships open to mid-level students

A STEM summer internship gave some Gallup-McKinley County Schools seniors experiences that could alter their career paths.

Last summer, 15 seniors from Gallup High School and Miyamura High School participated in a

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STEM program that partnered with national labs to give the students a chance to see what real-world STEM careers look like. In the six week period between May 17 and June 24, the students worked with Los Alamos National Labs, Sandia National Labs, and Lawrence Livermore National Labs.

The students spent the last year and a half of high school taking high-level math and science classes to prepare for the internship. According to Carrie Lovato, the director of GMCS's College and Career Readiness program, the STEM program isn't meant to target the higher-level or lower-level students, but rather the mid-level students who may otherwise get overlooked.

"We were really trying to target kids who we felt had the skills and the work ethic, and with support they could find success in engineering classes and upper-level math," Lovato explained.

The students took upper-level math classes during the last school year, and then the Navajo Technical University brought in a professor to teach them pre-calculus over the summer.

"Our traditional structure in high schools is not built to get all kids calculus-ready by the time they leave high school," Lovato commented.

She said that the STEM program gives those mid-level students enough support so that they are capable of doing high-level math, which they may not have thought they could do before.

Natalija Varezkina-Elliot, a math teacher at MHS, taught the students upper-level math classes last school year. She also supported them with the calculus class during the summer.

"I think it's a great program, and I look forward to working with the STEM program again this year, as well," Varezkina-Elliot said in an interview with the *Sun*.

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The students spent their mornings in the pre-calculus class, and then they worked with the different labs in the afternoons. According to Lovato, they each got paid a \$3,500 stipend for their work.

A non-profit called Growth Sector helped coordinate and manage the grants. That money was provided through grants from the U.S. Department of Energy and the National Science Foundation.

One of Growth Sector's co-founders, Dave Gruber, explained how the program works.

"We've been working with the national laboratories around the country on workforce development [and] developing a pathway for their next generation of workers, which they would like to be both better trained and more diverse, if possible," Gruber said.

WHAT THE STUDENTS DID

One group of students worked with the Sandia National Lab's cybersecurity department.

Kevin Nauer, a department team member said the program "Tracer F.I.R.E." {Forensic and Instant Response Exercise} teaches students about cyber security and cyber-attacks and how to resolve them.

The cyber security department put cyber-attacks from the past into a simulated environment so the students could see how malware presents itself in a typical corporate setting.

They were organized in teams, and one of the students, Olivia Sage, found the teaching style

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helpful.

“[It was useful] to look at it [the situation] from different points of view when we worked in groups,” she said.

Sage is studying environmental engineering as a freshman at the Colorado School of Mines.

The students learned about forensic analysis, network analysis, and how to look for anomalies in a network.

At the end of the two weeks, they gave a presentation showing Nauer and his team what they found.

“What I’m hoping is that we exposed them to what cyber security is all about,” Nauer commented. “So we’re kind of giving them that experience of if they were to actually be a member of a cyber defense team ... This is kind of the things that they would be doing.”

Christopher Montoya, one of the students who took an interest in cyber security after working with the Sandia cyber security department, said that although he enjoyed the work, the program as a whole could be overwhelming at times.

“[It] was a lot to take in at first working with the labs,” Montoya commented. “We had projects all the time.”

Montoya is currently a freshman at the New Mexico Institute of Mining and Technology majoring in computer science.

During another two-week period with the Los Alamos National Labs, the students worked on a

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3D printing project.

“It was really neat to see them get a new fresh perspective on it, maybe look at things in a different way than we would,” Rory Bigger, one of the lab’s engineers who worked with the students, said. “I thought they were all really bright. They asked a lot of good questions.”

Bigger explained that his lab’s goal was to expand the students’ understanding of engineering and the types of work the national labs do.

“We wanted to let the students know that these laboratories are in your backyard at both Los Alamos and Sandia,” Bigger said. “We’re not just a bomb factory; we do a lot of really cool cutting-edge science in a lot of different fields.”

Gallup High School science teacher Eric Schieldrop told the *Sun* that the school district is planning to continue the STEM program in the future and wants to expand it to other high schools in the district.

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