Program gives a scientific jump-start

73 area high schoolers team up with professionals to do high-level work.

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Indirectly, the work Christina Taylor did during her summers as a high school student led to a job as a scientist at Washington University's Genome Center. And Peter Niecastro gained enough confidence during his work after his junior year in high school to ask for an internship in college, which led to his job as a protein chemist at Pfizer.

A fresh group of 73 students from 29 mostly local high schools are doing similar work this summer alongside scientists, engineers, researchers, chemists and other professionals. They’re measuring dendrites, grading up hip muscles from mice and are being hosted up in bucket trucks to study caterpillars in trees.

They’re part of a program called STARS, or Students and Teachers as Research Scientists. For a tuition of $1,850, students work for six weeks with research mentors from the University of Missouri-St. Louis, St. Louis University, Southern Illinois University at Edwardsville, Washington University and the Donald Danforth Plant Science Center.

“They’re going to be the faculty the next decade,” said Ken Mares, director of the STARS program. “They’re going to be the researchers at Pfizer!”

Students work in the labs with their mentors, who direct them in research projects. Students submit technical reports and present their results in a seminar on the last day of the program. It’s not uncommon for these papers to get published in scientific journals.

This year, students are writing about adult and newborn responses to respiratory ailments, why schizophrenia develops at an older age, the facial laterality of lip reading and “Using Nanoporous Gold as a Platform for Electrochemical Detection of the Carcinoembryonic Antigen.”

That’s the title of Amy Hacken’s paper.

She’s 16 years old and a rising senior at Wentzville Holt High School. She’s working with Ken Stine, a professor at UMSL. The part-time work her friends do in the drive-through lane or bagging at the pool pales in comparison.

See STARS  •  Page B3

“In research projects, mentors treat students as collaborators who have something valuable to contribute,” she says, laughing at the improbability of it all.

The students also tour labs in the St. Louis area, attend career workshops and listen to lectures from area scientists. Last week, they heard from UMSL professors Tom George and Andrew Black, who spoke to them with the expectation that they would do similar work some day.

“My advice to people is if you think you want to be an administrator, is to do what you do best at each level. You’re generally going to get promoted,” said George, the chancellor of the school’s Departments of Chemistry, Biochemistry and Physics.

And that’s how students get treated by their mentors — as collaborators who have something valuable to contribute. “I thought I was going to go in and be told what to do,” said Tom Eavestwick, 16, who will be a senior at Clayton High School. He’s working with Michael Tomasson at Washington University, studying tumor-suppressing proteins and genes. “He doesn’t tell me what to do. We talk about it,” Eavestwick said. And if he has an idea, he’s free to give it a try.

Niecastro, the protein chemist, also remembers being taken seriously as a Hazelwood Central student. “They treated me like you would treat an undergraduate kid — committed, but not necessarily knowledgeable, but willing to work hard and be able to understand at a high level,” he said.

Taylor, the Genome Center scientist, was a student at McClure North High School when she attended a predecessor program to STARS in 1993. She has since mentored STARS students for two summers in her lab.

“That really makes them realize what a scientist does,” she said. “Rather than just going in the lab and doing experiments for the heck of it, you actually have to think about what you’re doing.”

Some students confess: At first, it was difficult understanding some topics and terms. But for John Burroughs student Shamatta Majumdar, she pleasantly surprised herself.

“A lot of these subjects are pretty complex,” she said. “But the coolest part is understanding something that I thought was well beyond me.”
Meredith Redick consults with Jim O'Brien, chemistry professor at the University of Missouri-St. Louis, on her high-resolution molecular spectroscopy experiment.