

Summer teacher program helps expand skill set

By Neil Gonzales, STAFF WRITER

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A few days' break following the end of school was more than enough for Carlmont High School teacher Dan Raffa.

"After two weeks of summer vacation, I need to be doing something," said Raffa, who teaches science on the Belmont campus.

So he donned a white laboratory coat, safety goggles and purple gloves for several weeks this summer, doing molecular-biology experiments at the science research and testing company Applied Biosystems in Foster City. He joined about 70 other educators from the Peninsula and South Bay who decided to become students again for a while and intern at a company or university instead of taking the whole season off or teaching summer school.

The teachers will bring what they have learned to their students when classes resume soon.

They were among 188 instructors from around the Bay Area chosen for a fellowship program by the Industry Initiatives for Science and Math Education, a Santa Clara-based nonprofit that partners with companies and universities to improve teaching and learning in those subjects.

"We are delighted to be able to provide this invaluable professional-development experience for so many Bay Area local teachers this summer," said Jennifer Bruckner, Industry Initiatives' executive director. "We're confident that their experience will be translated to updated instruction in the classroom."

Part of the fellowship requires participants to develop curricula to be used at their schools.

Raffa learned how to analyze DNA and isolate a gene, using state-of-the-art instruments. That's something he'll apply with his students at Carlmont High.

"I'm going to have my students grow a plant and look for a specific gene in that plant by analyzing DNA," Raffa said.

Raffa picked up other techniques and ideas that he plans to incorporate in his teaching. For instance, he wants to show students how to keep a scientific lab notebook and encourage them to be detail-oriented "so you can trace your steps when things go wrong," he said.

Fellow Carlmont High science teacher Kristina Doss also interned at Applied Biosystems. She designed kits that tested for dangerous pathogens in food.

She applied for the fellowship "to get lab experience, stay current and see what the new techniques and equipment are so I can keep my students current," Doss said.

Doss and Raffa's time at Applied Biosystems will also help them make improvements to the biotechnology program they started at Carlmont High four years ago.

"The next step for us was to prepare ourselves to see what specific skills the biotech industry was looking for in students," Raffa said.

They realized it's important to teach students "leadership and critical thinking — not only science skills," he said.

Janice Yee, another Industry Initiatives fellow, spent the summer at Lockheed Martin Space Systems Co. as a production coordinator.

"At the lab, I discovered a new career area that I could share with my juniors and seniors as they start to explore their career options," said Yee, a math and special-education teacher at Sunnyvale's Homestead High.

Bruckner said the fellowship does not lure teachers permanently into the corporate world. Rather, it helps "retain teachers by inspiring them and giving them renewed confidence," she said.

Typically, she said, about 10 percent of teachers nationwide leave the field or retire every year. But the attrition rate is about 4 percent for those who have gone through the fellowship, she said.

Manohar Furtado, director of research and development at Applied Biosystems, said the fellowship offers "a great learning tool" for the teachers.

"You get the opportunity to work in a lab and with scientists working with cutting-edge technology," Furtado said.

In turn, the fellows provide companies and universities with skilled professional summer employees and with a way to tap into a future workforce, organizers said.

Most of the fellowship projects focus on science, math or technology, but other work involves fields such as marketing and technical writing.

In its 23rd year, the fellowship pays a teacher \$6,400 for eight weeks and an additional \$1,000 for developing classroom lesson plans. Fellows can also apply for funds of up to \$1,000 for school laboratory supplies.

Raffa acknowledged that the stipend is "good money" but said, "the experience lasts a lifetime."

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