Grant to Help Teach About Air Pollution

By Matt Kristoffersen

mkristoffersen@scng.com @mattkristoffers on Twitter

A $1.19 million grant will bring lessons about air pollution to over 2,000 Riverside high school students as early as next year.

Riverside Unified School District teachers will collaborate with the UC Riverside Center for Environmental Research & Technology to create 18 new lesson plans to add to high school biology, physics and chemistry classes about air quality. Instead of a traditional curriculum, students will use data from air monitors placed across the city to learn science concepts once found only in the depths of heavy textbooks.

David Haury, program director of the National Science Foundation's Division of Research on Learning in Formal and Informal Settings, said UCR researchers will also use the money to investigate how teachers mix local environmental issues into their lesson plans.

When students make connections between their own experiences and textbook concepts, he said, learning is easier.

"Air quality made this (proposal) rise to the top because that is the local issue that they're confronting," he said.

The grant comes on the heels of a $500,000 grant from the California Air Resources Board to UCR and J.W. North High School last year, which will go toward construction of an air-quality lab and monitoring sites on campus and in the surrounding neighborhood as part of the new Riverside Air Monitoring Project. Students will learn to handle and analyze data from the monitors to identify areas with high pollution, reasons why it exists and trends that can help residents plan outside activities for when the air is cleaner. Though today's high school science classes already include chapters on air pollution, Linda Christopher, the district's Manager for Grants and Project Development said the grants will make the subject more interesting for students.

"Working with higher education, doing big projects together, working with teachers and working with college professors so that they can make a really cool local curriculum is a new way of working with students so that they stay engaged," she said. "That's the most important thing."

Riverside has consistently received a failing grade from the American Lung Association for particulate matter and ozone health since it started monitoring air quality in its State of the Air report more than two decades ago. In addition, air pollution contributes to over 4.2 million deaths a year worldwide and causes the most damage to vulnerable populations under 18 and over 65.

Of the approximately 40,000 proposals the National Science Foundation receives each year, few come from K-12 institutions, Haury said.

The Riverside Air Monitoring Project will serve as a model for surrounding districts as they start to follow California's Next Generation Science Standards, officials said. The new education goals will train students to answer broad science questions — called storylines — through experimentation and investigation. For example, a storyline about resistance to antibotics could lead to biology students learning about natural selection, genetics, and speciation by studying a population of birds. If the program is successful, it could be adapted for school districts in San Bernardino and Los Angeles counties, which received failing grades in the American Lung Association's reports as well, Christopher said. UCR psychologist and principal investigator Cecilia Cheung said in a statement that she hopes to use the study's results to find new ways to encourage underrepresented students to pursue careers in science, technology, engineering and math.

"This environmental crisis is a call to action for the entire Southern California region," she said.