

Students in NIEHS program WOW! supporters with interactive presentations

By Jacqueline Powell

NIEHS scientists reaped the rewards of teaching and service, as they participated in the [Citizen Schools](http://www.citizenschools.org/)

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WOW! Event Dec. 12 at Lowe's Grove Middle School in Durham, N.C. After spending 10 weeks learning about cells and DNA in a new learning module designed and taught by NIEHS volunteers, it was time for students to share what they had learned with family, friends, and teachers.

The door to the presentation room was decorated as an ion channel within a cell membrane. Inside, students presented posters and guided adults through hands-on cell biology presentations. One group illustrated cell division, by presenting a poster, making model cells out of clay, and using a light microscope. Another team of students focused on the properties of DNA, by performing a strawberry DNA extraction, while others illustrated cellular structures, by decorating cookies with different types of candy.

When one of the middle school students was asked about his favorite part of the apprenticeship, he said, "I don't even know. I liked all of it." He then quickly returned to extracting DNA from mashed up strawberries.

"I think this new curriculum on cell biology really lets [NIEHS scientists] play to their strengths. All of us deal with cells and DNA in some way, so it's easy to pick a topic that you're excited about," said Shannon Whirlledge, Ph.D., an Intramural Research Training Award (IRTA) fellow in the NIEHS Molecular Endocrinology Group.

Citizen School apprenticeships depend on volunteer teachers

In the reception preceding the student presentations, Citizen Schools staff emphasized the utility of this academically focused after-school program, which depends on community volunteers to teach 21st century skills in a broad range of areas.

Coordinating such an ambitious program required commitment on both sides, and Jesula Charles, Citizen Schools teaching fellow and liaison to NIEHS volunteers, served many important functions. She coordinated the children's after-school learning activities, oversaw enrollment, and monitored students' performance to make sure everyone was progressing. NIEHS scientists and staff also made significant contributions, by developing the students' curriculum. Huei-Chen Lao, K-12 science education and outreach coordinator with the NIEHS [Office of Science Education and Diversity \(OSD\)](#), played a crucial role in helping volunteers share the responsibility of teaching.

"While I play a leadership role to keep things moving along, Huei-Chen makes it happen," said Ericka Reid, Ph.D., OSD director. "She's great and she really knows the science."

(Former NIEHS postdoctoral fellow Jacqueline Powell, Ph.D., is a writer and analyst with Education and Training Systems International.)

Volunteers for the fall Citizen Schools apprenticeship

Floyd Adsit
Sara Andres, Ph.D.
Miranda Bernhardt, Ph.D.
Terry Blankenship-Paris,
D.V.M.
Christopher Campos, Ph.D.
Felicity Davis, Ph.D.
Bill Fitzgerald
David Goulding
Sylvia Hewitt
Jacqueline Locklear, D.V.M.
Page Myers
Palmyra Romeo
Kirsten Verhein, Ph.D.
Shannon Whirlledge, Ph.D.
Tanya Whiteside
Kimberly Wiggins, Ph.D.
Wipawee (Joy) Winuthayanon,
Ph.D.
Gary ZeRuth, Ph.D.



A Lowe's Grove Middle School student, right, described two forms of cell division, mitosis and meiosis, before using handmade clay model cells to illustrate the physical changes that accompany different stages of cell division. Visitors were also encouraged to observe cells on a slide, using a light microscope. (Photo courtesy of Steve McCaw)



One of the program's students, center, guided visitors through an interactive game that demonstrated his newfound knowledge of DNA. (Photo courtesy of Steve McCaw)



Another of the students, left, helped a Citizen Schools supporter, right, extract DNA from a strawberry, as volunteer instructor Hewitt, an NIEHS biologist, looked on. (Photo courtesy of Steve McCaw)



Volunteers and OSED staffers showed off the poster for the NIEHS program, "It's a Small World: Cells and DNA." Shown, from left, are Davis, Reid, Hewitt, Lao, Wiggins, and author Powell, a veteran of the spring 2013 outreach effort. (Photo courtesy of Steve McCaw)

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