

Volunteers conduct STEM outreach

By Sharon Beard

The Durham (North Carolina) Alumnae Chapter of Delta Sigma Theta Sorority conducted its ninth annual Science and Everyday Experiences (SEE) Summer Day Camp June 21 at the Durham Alumnae Delta House.

The theme, "STEM in the News," intrigued the 32 students in grades 4-9 who attended the half-day camp. The program highlighted the impact of science, technology, engineering, and math (STEM) issues in the world around them, during various modules conducted by volunteers from the sorority, NIEHS, area universities, and the Durham community.

The morning began with a welcome and introductions, including remarks by Gloria McNeil, Ph.D., president of the Durham Alumnae Chapter. Relays, dance, and other health and fitness activities, lead by Eboni Quick of Durham Alumnae, kick-started the day of learning and fun.

During the STEM hands-on rotations, students engaged in learning activities, while parents participated in a parent involvement workshop (see [text box](#)).

Thinking critically about pollution on the Dan River

Stephanie Luster-Teasley, Ph.D., an engineering professor at North Carolina Agricultural and Technical (A&T) State University, developed a thought-provoking activity titled "So What Happened at Duke Energy? The Dan River Runs Black." She described the February 2014 incident at a Duke Energy facility, involving a break in a pipe that resulted in coal ash contamination of 70 miles of the Dan River in North Carolina and Virginia (see related [story](#)).

The Dan River is used for recreation, habitat for animals and fish, and a source for drinking water for many towns located downstream. The students worked as a team of environmental engineers to design a water treatment system to filter contaminated water and track the cost of building the system. Students received certificates for accomplishments, such as best design, best cost, and best treatment.

Engineering humanitarian rescue

Led by SEE co-chair Lauren Davis, Ph.D., professor of engineering at A&T, the engineering rescue mission module introduced the concept of engineering design in the context of humanitarian activities. Students watched a video about the delivery of food, medicine, and water to Haiti by the U.S. Air Force and other aid organizations after the 2010 earthquake. They were challenged to design a landing pad capable of supporting the weight of a cargo container dropped from a specific height.

The cargo container was made from Lego blocks. The students were given supplies for constructing their landing pad and had a great time testing their Lego cargo containers and parachutes with their innovative designs. The winning team created a landing pad that supported a five-foot drop.

Understanding Internet cost and accessibility

In a module designed by Delta Sigma Theta member Lauren Thomas, Ph.D., the students learned about net neutrality, or the idea that Internet service providers should not charge more for access to certain content. Many companies sell access by bandwidth. The greater the bandwidth, the more content can be received at one time without interruption, creating a level of artificial demand that some providers want to incorporate into their pricing structures.

Earlier this year, Google began to explore bringing its broadband fiber network to the Raleigh-Durham area. To gauge the impact of this potential new provider, the students compared costs with four other cable Internet providers, based on a Raleigh News and Observer [article](#).

(<http://www.newsobserver.com/2014/02/19/3635956/google-fiber-eyes-triangle-for.html>)

In addition, the students used fiber optics to develop their own laser optics demonstration.

(Sharon Beard is an industrial hygienist with the NIEHS Worker Education and Training Program. She is a Durham Alumnae member and co-chair of the Durham SEE.)

Kudos for community service

In recognition of its SEE activities, the Durham Alumnae Chapter received a first place South Atlantic Region Educational Awareness Award for its program at the sorority's Regional Conference in Raleigh in July.



SEE camps traditionally begin with warm-up exercises, including the ever-popular rope pull. (Photo courtesy of Sharon Beard and Willis Page)



When the students moved inside for learning activities, Beard helped activity leaders transition through the modules and gave them certificates of participation. (Photo courtesy of Sharon Beard and Willis Page)



Luster-Teasley, right, circulated around the room as students conducted water filtration exercises related to the Dan River coal ash spill. (Photo courtesy of Sharon Beard and Willis Page)



Davis led students in the engineering rescue exercise, which included the construction of parachutes for delivering supplies. (Photo courtesy of Sharon Beard and Willis Page)



Students and volunteers gathered to mark the ninth successful summer science camp. (Photo courtesy of Sharon Beard and Willis Page)

Parent involvement at summer science camp

Ten parents participated in an informative parent involvement workshop organized by Marian Johnson-Thompson, Ph.D., retired NIEHS director of science education and outreach. It featured several presentations on STEM resources and opportunities in the Durham community.

Robert Panoff, Ph.D., D.Sc., president of [The Shodor Education Foundation](http://www.shodor.org/),
(<http://www.shodor.org/>)

and Jamie Lathan, Ph.D., dean of distance education at the North Carolina School of Science and Mathematics (NCSSM),
(<http://www.ncssm.edu/>)

described the computer-based programs and materials available to students, how best to access information about [camps](#)
(<http://www.shodor.org/succeed/workshops/current/>)

and [distance learning opportunities](#),
(<http://www.ncssm.edu/learn/>)

and the road to success for several underserved students from their programs who have graduated and started computer businesses. Lathan also provided an overview of NCSSM and described the best ways to prepare children to successfully enroll in the school and various distance-learning classes available to any public school in North Carolina.

Pamela Gilchrist, Ph.D., of the Imhotep Academy, part of the [Science House](http://www.thesciencehouse.org/)
(<http://www.thesciencehouse.org/>)

at North Carolina State University, introduced parents to the academy created to encourage students from African-American backgrounds to pursue mathematics and science, celebrate their heritage, and equip them for careers in STEM and the humanities. Today, the Imhotep Academy is a year-round STEM program for students in grades 6-8. Students discover the world of science through hands-on projects, laboratory tours, field trips, and communication with STEM professionals.

Jaclyn Ellis, Ph.D., explained how she participated in similar programs, beginning in middle school, and described the support and mentoring she received to become a STEM professional.. The parents asked her about her journey and the support systems that were important to making her STEM career successful.

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