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Knowles teachers exchange ideas

By **BARBARA S. ROTHSCHILD** · Courier-Post Staff · August 1, 2010

CHERRY HILL — The Knowles Science Teaching Foundation is growing by leaps and bounds, as evidenced by its three-day summer meeting -- more like a full-blown conference -- that wrapped up at the Cherry Hill Crowne Plaza Saturday.

The Moorestown-based foundation has added math and biology to its focus since inventor C. Harry Knowles and his wife, Janet, established it for physical science teachers 11 years ago. From an initial class of four fellows in 2002, the number of awards has grown annually. When KSTF gave out its five-year fellowships this year, there were 32 members of the class of 2010.

About 150 fellows from all over the country -- along with 10 of the foundation's 17 alumni plus staff members and special guests -- converged in Cherry Hill to share ideas and experiences on how to improve teaching and foster real learning in some of the most abstract and vexing subject matter for high school students.

The sessions -- from tips on thriving during the first year of teaching to a hands-on workshop on open-ended projects using giant inflatable prisms as examples -- are an indication of how far the foundation has come.



Kevin Henson, who teaches chemistry and earth science at Lenape High School in Medford, demonstrates a "think tube," an educational tool where participants pull strings from a tube and try to figure out how they are connected. (CHRIS LaCHALL/Courier-Post)

Marlton resident Kevin Henson, who teaches chemistry and earth science at Lenape High School in Medford, is an early alumnus of the program who was selected for its second class of scholars in 2003.

Along with other alumni, Henson led sessions this weekend in taking on leadership roles as a teacher and making a lasting impression on students during the first week of school.

"This program addresses the reflective component of teaching, which is overlooked a lot. You get to sit back, see what you taught, and make sure the kids are getting something. That's the biggest thing about these fellowships," Henson said.

At 30, Henson is about to begin his seventh year teaching at Lenape. He had a bachelor's degree in oceanography from Richard Stockton College and was earning his master's degree in teaching from Rowan University when he applied for the Knowles fellowship.

During a session with 21 fellows Thursday, Henson clued them in on how they could take on leadership roles outside of their own schools and districts.

Henson described some of the work he's done on a committee that is helping to define and refine science curriculum and the New Jersey state standards that govern it.

"I'm now working on a document for chemistry, and (the state [Department of Education](#)) wants to know the minimal knowledge that students need. It's a question of what would you be embarrassed about your students not knowing after taking your course," he said.

Henson also talked about opportunities at the school level, advising the Knowles fellows never to be deterred. "There are changes (to the curriculum) I'd like to make that I can't because of school constraints. But I'm finding that if you've got a bigger idea for a course, it's something you can talk about. I'm excited because there are doors opening for that to happen."

He noted that new teacher perspectives are welcomed by more experienced colleagues, administrators and students.

Celebrating young teachers has been at the foundation's core since Moorestown residents C. Harry and Janet Knowles started it.

C. Harry Knowles, a physicist, founded Metrologic Instruments in Blackwood in 1968 and sold it to industry giant Honeywell International two years ago.

Now semi-retired, he holds more than 350 patents and is known as the inventor of the hand-held bar-code scanner. He and his wife began the not-for-profit foundation with a generous donation that, through [investments](#), pays for operating costs and funds the growing number of fellowships.

"Harry and Janet had always been interested in giving back in math and science education," said KSTF Executive Director Angelo Collins, an Illinois native whose life has been devoted to science education.

"The Knowleses were successful because they had strong teachers who make a difference," added Collins, a Haddonfield resident.

The foundation moved from Haddonfield to Moorestown in 2005, where it occupies a building that formerly housed a fertilizer company. Its hallways are lined with portraits of KSTF fellows and maps that pinpoint where they are teaching from coast to coast.

There are Knowles teaching fellows in 38 states and 70 different teacher education programs nationwide.

"What makes us unique is that we take a long view. People gasp when we say our fellowships last five years when most take one or two years to complete. But it's our belief that teaching is really difficult and it takes a lifetime to learn," Collins said.

The foundation started off low-key but has grown in prestige. This year, there were 200 applications for the 32 available slots. The successful candidates survived a rigorous process that includes interviews, vetting for depth of content knowledge, and indications that they have the spark to become teachers and the ability to take ownership of their careers.

"These people really want to teach, and have an ability to teach. We expect them to become leaders," Collins said.

Fellows must have earned or be in the process of earning a degree in math, science or engineering. They must also earn a science or mathematics teaching certification, and teach at a U.S. high school.

The foundation staff of 14 includes a senior program coordinator and six program officers who each work with a cohort of fellows divided by subject matter.

The five-year program is valued at nearly \$150,000 per fellow. Each fellow receives tuition assistance, monthly stipends, financial support for professional development and grants for teaching materials,

leadership and mentoring.

Among the issues addressed is what makes some teachers leave the profession, including isolation, lack of support and the perception that teaching is easy. Fellows work together through regular meetings -- including the summer meeting and smaller ones in the fall and spring -- and online discussions with others in their cohort.

Collins said Knowles fellows and the 17 alumni who have completed the program are teaching in every kind of school imaginable, including public schools, parochial schools and independent private schools.

Only two awardees have lost their fellowships since the program started -- either because they decided to leave teaching, or for family reasons.

Henson, the Lenape teacher, envisions a long career and said the fellowship -- particularly professional development opportunities that have taken him as far as Berkeley, Calif. -- has been particularly valuable in shaping what he does in his own classroom.

At his session with current fellows Saturday, he demonstrated hands-on activities he uses to get students to think like scientists during the first week of school -- from watching plastic fish curl a certain way in the palm of their hands to pulling strings from a prop he calls a "think tube."

Other alumni at the summer meeting also touted "outside-the-box" ideas to make science and math relevant -- not only to honors students, but also to students who are not initially as motivated.

One young teacher demonstrated how to reach out to marginalized students through real-world challenges in a projects-based class that applies laws of physics to running a demolition derby and feeding monkeys.

Another, who teaches in Philadelphia, has her students ride SEPTA trains to experience laws of motion first-hand. Still another has his students design and build musical instruments, and then perform as a rock band, to investigate the physics of sound.

Janeen Sucharski, 28, a fifth-year fellow who teaches chemistry in Rye Brook, N.Y., said she was gratified by the support she gets through the program.

"I've been a new teacher and gone through the process of learning on my own. Now, I have some great tools and resources," Sucharski said.

"I've learned that leadership is something attainable and you don't have to have that fear about it. Every math and science teacher should have a program like this."

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