Re-Setting Expectations for Students and Retired Scientists

Chad Stark

The Retired Scientists, Engineers and Technicians (ReSET) program brings retired professionals into the classroom to help teachers and students implement hands-on, inquiry-based science experiments.

"Thank you for coming to our school. I liked when you showed us the oscilloscope. Thank you for teaching us about sound. Thank you for a fun time. We will miss you. Thank you for taking us to Omega Studios. My favorite part was when we went into the control room."

These simple words, from an elementary school student to a ReSET volunteer, convey the power that community volunteers can have to inspire children in the sciences.

Why is this noteworthy? Numerous studies show that, as children move through their K-12 educational experience, they become less and less interested in science. According to the National Assessment of Educational Progress (NAEP), more than one-third of fourth graders in the United States feel disengaged from science learning, and this sense of disconnection tends to worsen through their high school years. Very few are interested in courses covering math and science, and fewer still understand how these subjects can translate into fulfilling careers.

The goal of the Retired Scientists, Engineers and Technicians program is to reverse this trend. Since 1988, the program has recruited and trained volunteers to work in Washington, D.C., metropolitan area schools, many of which are located in low-income and underprivileged sectors.

ReSET taps into the talent and expertise of retired scientists. "The diversity and depth of experience reflected in our volunteers is impressive," said ReSET founder and CEO Harold Sharlin. ReSET's volunteers range from a geologist who helped plan the first landing on the moon to a lab chief at Walter Reed Army Medical Center. "Our volunteers have had successful careers in their respective professions," said Sharlin. "They are living, breathing vocational guides who can make a dry curriculum come alive."

ReSET volunteers encourage exploration, observation and inquiry by using kinesthetic teaching techniques, which emphasize learning by doing. They assist teachers by establishing an environment in which students can broaden their understanding of and interest in the ideas, methods and tools used in scientific study. The volunteers help create an environment where students acquire scientific knowledge as well as the scientific habits of questioning and hypothesizing. Learning and retention become a product of experimentation. "Appealing to the visual, auditory and tactile senses enhances and reinforces young students' ability to understand abstract concepts," said Sharlin.

Principals and teachers cite positive changes in their students—and themselves—as a result of the program. "ReSET has given me a better attitude toward science, and I find I incorporate it in other areas of the curriculum now, such as reading, where we are covering climate, environmental changes and nature theories," said Margrete Hatchett, a Washington, D.C.-area teacher. "I've discovered many of my children are far more science-inclined than I'd thought," she continued. "It's as if this interest lies dormant and untapped in them, and the ReSET volunteers pull it out."

Demand for ReSET participants is high, and more volunteers are needed. Indeed, volunteer recruitment is the program's greatest challenge, according to Sharlin. To help ReSET overcome this challenge, the OSA Foundation has

awarded funding to support their volunteer outreach and recruitment efforts. In addition, the Foundation is donating ten "optics suitcases" for volunteers to use during their classroom visits. Designed by the OSA Student Chapter at the University of Rochester, the optics suitcase is an interactive package of tools and demonstrations to introduce students to optical concepts and phenomena.

ReSET volunteers spend one hour a week performing experiments with their assigned class over a six-week period. They are asked to work in concert with a teacher to prepare experiments related to their field of expertise, and to participate in a field trip to expose students to the real-world applications of the science explored during the lessons.

All volunteers receive orientation and training. Seasoned ReSET volunteers offer insight based on their experiences and suggest effective strategies for engaging and interacting with the teachers and students. ReSET has also developed a handbook that includes teaching ideas, sample experiments and suggested field trips.

OSA members can inspire children to explore the wonders of physics through the science of optics, and the Society would like to encourage retired members in the Washington, D.C., area to become ReSET volunteers. "I have volunteered for ReSET for the last eight years," said Bill Gill, an active ReSET volunteer. "It has been a very rewarding experience. My classroom visits reinforce the basic science curriculum that is taught in the schools. The children learn by being exposed to me—a real engineer—of whom they can ask questions about how things work."

To learn more about ReSET, visit www.resetonline.org or e-mail Harold Sharlin at Harold.sharlin@verizon.net. For more information about programs supported by the OSA Foundation, please visit www.osa-foundation.org or e-mail foundation@osa.org. Contact Steve Jacobs at sjac@lle.rochester.edu for more information about the optics suitcase.

[Chad Stark (cstark@osa.org) is the deputy senior director of the OSA Foundation, membership and education services.]