

# From Office to Classroom

## *Actuaries Spark Students' Love of Math*

ONE DAY A MONTH, A CLASS FULL OF BOSTON SCHOOLCHILDREN in one of the worst drug- and gang-infested neighborhoods in the city waits excitedly for the arrival of a group of buttoned-down professionals from the city's business district.

In Atlanta, the retired founder of one of the world's largest consulting firms packs up his briefcase with math toys and games and heads to a local elementary school each week.

In Los Angeles, an actuary at one of the state's largest health insurance providers powers up his PC to tutor, via computer, children in Chino, Calif.

In Appleton, Wis., high school students are learning the basics of personal money management from actuary volunteers who visit their schools.

And in rural Alberta, Canada, students in the far-flung regions of the province open a crate packed with math games, toys, books, and curricula.

Similar scenes are occurring in city and rural schools in other parts of North America as actuaries apply their professional expertise to real-life problems.

All of these math education programs are funded by the Actuarial Foundation, and though the organization has contributed nearly \$370,000 to schools, its most important contribution may be the volunteers who work one-on-one with students, teachers, and parents. The program, Advancing Student Achievement, is the first and largest of the Foundation's public outreach programs. In it, actuaries tutor, teach classes, coach teams of kids participating in math competitions, and mentor children who need scholastic, and sometimes personal, guidance.

Other Foundation initiatives benefit adult consumers, the public, and the actuarial profession, but none touches lives in quite the same ways as Advancing Student Achievement. The award-winning program has attracted the involvement of more than



100 actuary volunteers in every age group and from every field of professional practice. Many have surprised themselves by their own teaching ability.

"You wouldn't think actuaries could relate to young students struggling with elementary levels of math," says Foundation Chair Walter S. Rugland, executive vice president and chief operating officer of Aid Association for Lutherans, Appleton, Wis. "But so many of the volunteers have really risen to the challenge of teaching."

Last year, Rugland championed his own company's involvement in a curriculum designed to teach personal money management to high schoolers. North High School, Appleton, piloted a year-long course called Personal Financial Management using volunteers from AAL, and a new text, *Money Math Learning Series on Personal Finance & Investments* by James A. Tilley, former chair of the Foundation.

"It's very rewarding to see the progress," says actuary Lynn Davis, who taught spreadsheets as part of the course, "from their knowing nothing to being able to apply the knowledge to their own lives. I remember one senior who was planning to be married when she graduated. Using the spreadsheets, she was able to plan and make budgets that will help the two of them manage their money in their adult lives."

Davis emphasizes that for the actuaries, one of the biggest hurdles was learning to communicate ideas with students who aren't mathematicians.

"I saw people really working hard at learning to be teachers," she says. "They took it very seriously and learned to teach people who don't have the same math sophistication they do."

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The North students weren't necessarily advanced math students. In fact, Personal Financial Management was taught in the business, not the math, department. Nonetheless, the students, teachers, and parents responded enthusiastically, according to the local press. The pilot program has worked so well, the school system is looking to place it in other Appleton schools. The *Money Math* textbook was also a hit with faculty and students. This textbook is available by calling the Actuarial Foundation.

In the lower grades, actuary volunteers have been equally successful. Teresa Winer in Atlanta and Mark Newton in Boston have created programs that kids love.

Winer, an Atlanta-area actuary and mother of three, approached her eldest daughter's school about getting a Foundation grant. She read about the grants in *The Actuary*.

"The principal was enthusiastic," she remembers. "I got the job of putting together the proposal for after-school math clubs."

She also recruited the actuary volunteers and contributes her own time as a tutor. The program has succeeded and is now "a part of the school," according to Winer. Parents and students have enjoyed it enormously.

"You know, it succeeds to varying degrees with different people," she says. "There have been many kids who have changed their minds about liking math because of the clubs and there are kids who never will enjoy math. The same is true of the actuaries. Some have blossomed as teachers, tutors, or mentors, and some find it difficult to work with the kids. But when you look at it overall, I think you would say it's worth it."

Mark Newton, who created the Financial Wizards program in Boston while with John Hancock, believes every kid can learn math. "If you teach it in an interesting way, they get it," says the AUL actuary.

Newton should know. His innovative course explains fractions, money, and other math concepts to 5-year-olds. To make its points, his program uses Velcro hand-

cuffs, a geometry Twister game, and ring toss. The Financial Wizards program is so successful the U.S. Department of Education created a team to evaluate its potential for export to other schools.

Though Advancing Student Achievement is not specifically directed at schools with "disadvantaged" populations, many children benefiting from this program have some very serious needs. At Newman Elementary School, Chino, Calif., many pupils are the children of inmates of the nearby men's and women's correctional facilities. In Boston's Roxbury district, the pupils of the Samuel Mason Elementary School cope with homelessness. In Nashville, one of the Advancing Student Achievement sites was a school threatened with closure for its poor test scores. It has now been taken off the governor's list of potentially closable schools.

Despite the challenges faced by some of these young students, results have been encouraging.

- At the Warren T. Jackson Elementary School in Atlanta, math scores for the entire school are up based on the percentiles for the Iowa Standardized tests; the school qualified for the 2000 Georgia Public School of Excellence award based in part on time invested by community volunteers such as the math tutors; and more students than ever signed up for Teresa Winer's math clubs in fall 2000. Sixty-five students signed up, and more were placed on waiting lists.

- At the five schools represented by the Nashville, Tenn., PENCIL Foundation, 62 percent of the students showed dramatic increases in math scores—up to a 74 percent improvement.

- At the Newman Elementary School in Chino, the first math fair was held, volunteers wired the school for the Web, and Chino teachers began to attend the California State math conference. Because the school is not convenient to Los Angeles by car where most of the actuaries work, they meet with the kids by phone and computer hookup in a process they call "telementoring."

- At the Benjamin Franklin Elementary School in Binghamton, N.Y., kids are

learning the many uses of computers and learning about careers that rely on math aptitude.

- At the Samuel W. Mason Elementary School in Boston, Mass., 73 children participated in the first year of the Financial Wizards program; parental involvement climbed to 94 percent vs. 4 percent when the program started; and parents were taught how to teach their own children. Financial Wizards explains practical financial material, e.g., the use of money.

- At the Liberty Elementary School in Springfield, Mass., the program was so popular parents demanded the expansion of the program in its second year.

- A generous grant from the AXA (formerly the Equitable) Foundation, New York, funded the creation of a "tool kit" for explaining to educators and volunteers the step-by-step process of creating a math tutoring/mentoring program. The kit is available free to schools seeking grants from the Advancing Student Achievement program and to schools trying to establish different but similar programs.

- The Advancing Student Achievement program won a 1999 Summit Award from the American Society of Association Executives (ASAE) for its work in education.

In 1999, the program expanded its outreach to include older students, partnering with Junior Achievement on the development of a "virtual high school." A directed grant from Milliman & Robertson in Seattle made the project possible, and a team of actuaries put together the economics and personal money management component of the school's curriculum.

According to a 1998 survey of 1,509 U.S. high school seniors, students are under-informed about the basics of finance and leave school without the knowledge and skills they need to thrive in a world driven by complex financial factors. Last year, Junior Achievement's Educator Blue Ribbon Panel urged Junior Achievement to help solve the problem by enhancing its curriculum.

With the assistance of a team of actuaries, the Junior Achievement Personal

Finance program was developed, approved, and will be released nationally in spring 2001. The scope and sequence of the finance program will include five major themes: income, money management, spending and credit, savings and investing, and risk management. The purpose and vision of this program stem from the shared belief of Junior Achievement and the Actuarial Foundation that all young people should have the financial literacy necessary to make informed financial decisions.

One of the most active actuarial clubs in the United States is that of Indianapolis. The club has worked for three years as tutors, coaches, and mentors to the students of All Saints, a Catholic grade school in the heart of the city. The volunteers, who come from diverse companies around the city, both tutor and coach the members of the school's Math Pentathlon team. The seventh graders compete in the city-wide competition in which students play

board games based on math principles.

Ten of the school's "Math Pentathletes" visited the annual meeting of the Society of Actuaries last October in Chicago. They came to demonstrate their math ability in a presentation before the opening session that included remarks from teachers and students and a whirlwind game of Remainder Island, one of the Pentathlon games.

Accompanying the 12-year-olds was Mary Anderson, president of the Actuarial Club of Indianapolis. In her remarks to the membership, she emphasized how easy involvement is and how, once involved, volunteers can find the program meaningful very quickly.

"Get your company involved, your actuarial club, your university and call the Foundation," she said. "There is no reason actuaries in any city or professional situation should not be part of this great program."

In that same presentation at the Society's annual meeting, Rugland also urged

actuaries to become involved in their communities through the work of the Foundation.

"The mission of the Actuarial Foundation is to contribute to the understanding and resolution of present and future social and economic problems," he said. "We do that by investing in research, education, and communications initiatives, applying actuarial skills to problems, working with universities, government, industry, professions, and others with similar missions.

"Through this work we facilitate and broaden the actuarial profession's contribution to society through research and outreach to the public. As a grant-making institution, the Foundation builds partnerships to develop an interactive relationship with other organizations. As a funding partner, the Foundation is able to undertake larger multi-disciplinary projects focused on social issues and expanding horizons." ●