

Advancing the Vision

Winning Calculation

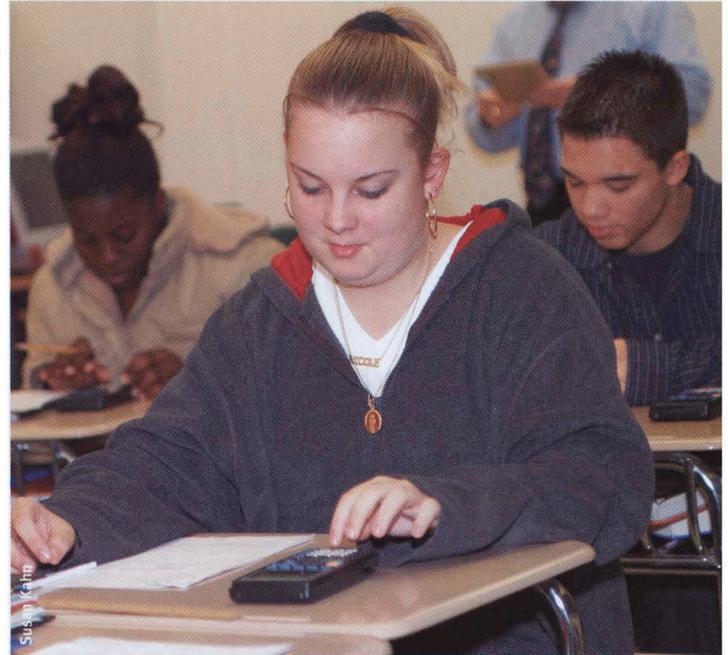
Syracuse University teams with the GE Foundation and the Syracuse City School District to enliven math lessons

How to Succeed in Business Without Really Trying may be a clever title for a Broadway show, but in reality there are no easy shortcuts to career preparation in today's global marketplace. In fact, with the increased need for mathematical understanding in business, engineering, and information technology, students are often inadequately prepared for college or a career when they leave high school. "As educators, we must increase our focus on the link between mathematics and quantitatively oriented careers in business and management," says Joanna Masingila, a Laura J. and L. Douglas Meredith Professor appointed jointly in the School of Education and the Department of Mathematics in the College of Arts and Sciences.

In 2001, the GE Foundation launched the Math Excellence Program to help raise mathematics achievement levels among public school students, particularly among those from underrepresented populations. "Through the Math Excellence Program, the GE Foundation seeks to support comprehensive K-16 [kindergarten through undergraduate college] strategies that result in long-term, sustained impact on the skills, interest, and participation of underrepresented students in engineering, information technology, and quantitative fields in business," says GE Foundation Executive Director Roger Nozaki. "Since the program's inception, the foundation has committed more than \$12 million in grants to programs that focus on strengthening and expanding diversity in these areas."

With a \$357,300 Math Excellence Program grant, Masingila formed a partnership with the Syracuse City School District—where improving math test scores is a focus of effort on the part of teachers and administrators—to help enhance the math skills of students in grades 7-12. Together they developed the Data-Driven Algebra project, which is designed to improve success in algebra—knowledge that is essential to understand, interpret, and use quantitative information. The project focuses on aspects of algebra that are linked to reasoning, communicating, and representing data.

A portion of the grant money was used to purchase graphing calculators to help students solve and better understand math problems. "Any mathematical relationship



Fowler High School ninth-grader Breanna Kelly works on a math assignment using a graphing calculator.

can be represented in three forms: a table, a graph, or an equation," says Julia Hallquist G'02, a math teacher at Fowler High School. "Using graphing calculators, we can see all three simply by pushing a button. This helps students understand the nature of algebra, and lets them see how an equation can represent a slope or a curve." Graphing calculators—unaffordable to most students in the district—make the study of mathematics more interesting and provide a tool that is commonly found in math classrooms of more affluent school districts.

The three-year GE Foundation grant also supports:

- continuing education and other professional development opportunities to help math teachers keep current with the latest teaching methods and strategies;
- two SU graduate assistants to provide teachers with classroom support; and
- a consultant to help refine teaching techniques.

"My students are now studying the mathematics of the forces involved in bridge construction—an instructional concept that was developed by the Data-Driven Algebra project," Hallquist says. "This project has made a tremendous difference in how I teach."

Currently in its first year, the project also has created excitement among the student participants. "My students are more absorbed in their math studies since becoming involved in the project," Hallquist says. "They love being able to see math as less of an abstraction and more as a useful tool."

—John White