

Magnets to Go: A Science Attraction

For the past two years, 158 fifth-grade classes in Suffolk County have spent part of a day working intently on the floor, not at their desks.

They have been absorbed in putting together a coil, a power source and connecting wires to see if they can make an iron bar magnetic — all included in a "Magnets to Go" lesson, provided by the Tour Program of BNL's Public Affairs Office.

"Magnets to Go" is a hands-on educational program that encourages students to explore magnetism and the relationship between electricity and magnets. Janet Tempel, Tour Program Head, and Eloise Gmur, also of the Tour Program, saw the package at a conference of the American Association of Museums. They recommended that Associated Universities, Inc., buy it for use in the BNL Exhibit Center/Science Museum, Bldg. 701.

"In 1990, as well as using it in our science museum, we started offering 'Magnets to Go' to local schools as part of our outreach program," said Tempel. "We present it to fifth-graders because their curriculum includes magnetism and electromag-



Dolores O'Connor helps fifth-graders from the Hampton Avenue School, Bellport, make their first electromagnet during a "Magnets to Go" outreach lesson from BNL's Tour Program.

Coming Up

The Boehm Quintette, a wind chamber ensemble, will appear in concert in Berkner Hall on Wednesday, February 5, at 8 p.m. The concert is open to the public. Tickets may be purchased at the door for \$12, general admission; \$9, students and people over age 65; and \$5, youths under 18.

test an electromagnet, and produce electricity by moving a magnet inside a coil."

In addition to the lesson materials, the tour program staff members take other large pieces of magnetic equipment for the students to examine, reinforcing the concepts already covered. "We have a really large electromagnet and some floating magnets," said Lowenstein. "These usually set off more questions. We find that most of the students are very interested and enjoy the class."

Sometimes there is hands-on evidence of the students' interest and enjoyment. On a recent Monday, Fernow visited Mrs. DeVit's fifth-grade class in the Pulaski Street School, Riverhead. Recalled Fernow, "Part of our material deals with mass. We explain that a person is made up of about 2×10^{27} atoms, which we show in the outline of a human body as a '2' plus 27 zeros. Since the kids wanted to know how to describe this in words, we worked out that it must be about two octillion atoms. They thought the word was quite funny."

And, when Fernow returned to the school to visit more classes on the Thursday of that week, she was presented with a splendid signed banner, output of the Monday class's computer. It read, "Thanks an octillion, Mrs. Fernow." — Liz Seubert



Riverhead's Pulaski Street School fifth graders sent "an octillion" of thanks to Ruth Fernow (left), shown here with Tour Program Head Janet Tempel.

Photos for this story by Roger Stoutenburgh

netism. It's been very successful, and we're usually booked to capacity."

"The kids love learning by doing," said Dolores O'Connor, who, with other Tour Program staff Ruth Fernow and Elaine Lowenstein, is most often out in the magnetic field.

"For example," continued O'Connor, "with our equipment, first the children experience for themselves what is attracted to a magnet and see magnetic fields and polarity. Then, after we provide more background information and more equipment, with very little help they set up a closed circuit. They also build and

BWIS Seminar

Shut Up and Let the Lady Teach

The lack of American mathematicians, scientists and engineers, especially those who are female and/or members of minority groups, has been blamed on the sorry state of math and science education in this country. Why educating children in math, science and other technical subjects is so difficult, however, remains an unsolved problem — but not a mystery.

Nominated for the 1992 Pulitzer Prize, the book *Shut Up and Let the*

Lady Teach unveils this problem as encountered by *Newsday* reporter Emily Sachar during her year as a math teacher at a New York City public school, Walt Whitman Intermediate School in Flatbush, Brooklyn. Published in April 1991 by Simon and Schuster, Sachar's book is an expansion of a nine-part series that was published in *Newsday* in November 1989, following her leave of absence from the newspaper's education beat to teach.

Sachar will share her insights about "Teaching Math in the Inner City: Thoughts of a First-Year Teacher," on Wednesday, January 29, at 5:15 p.m., in Room B, Berkner Hall. Sponsored by Brookhaven Women in Science (BWIS), the talk is free and open to the public.

Sachar will relate a story about the depressing state of mathematics teaching and learning in an impoverished environment. Rather than assigning individual blame, she will review how all the pieces of this jigsaw puzzle — the students, their parents, teachers, school and the system — have not connected. Above all, Sachar gives failing marks to society for neglecting at least some of its children — who are potentially future mathematicians, scientists and engineers.

As Sachar related in her book, her attempt to work through the eighth-grade math curriculum with children whose abilities ranged from the 97th



Emily Sachar

down to the 1st percentile resulted in her encountering the litany of economic, historical, political, sociological and psychological problems plaguing inner-city youth.

As she will explain, Sachar also had to deal with a bureaucratic school system that promoted a curriculum too abstract for eighth graders and too irrelevant to their desperate day-to-day existence. Despite Sachar's idealism and best intentions, she found that, since she couldn't fight the bureaucracy, she joined it by passing and promoting students lacking the minimum competency to tackle arithmetic, let alone mathematics, at any level.

Coming to terms with her own anger and frustration as a teacher, Sachar decided not to return for a second year — but also not to forget the struggles of her students and her colleagues who remained at IS 246.

Emily Sachar received a bachelor's degree in economics from Stanford University in 1980. Following a two-year stint as a business reporter for *The Home News* in New Brunswick, NJ, Sachar joined *Newsday* as a reporter in 1982.

After covering Long Island business and the Albany statehouse, 1982-86, she reported on the New York City Board of Education from 1986-88. Wanting to get the inside scoop on the city's school system motivated Sachar to take a leave of absence to teach during the 1988-89 school year. Back at *Newsday*, she currently covers the State Supreme Court beat in Manhattan.

Following Sachar's talk, all are invited to have supper with the speaker at an off-site restaurant. For reservations, contact Jane Setlow, Ext. 3420.

BWIS Meeting

As an epilogue to the Emily Sachar lecture, two East Islip High School science teachers will present their perspectives on teaching science, at the next meeting of Brookhaven Women in Science (BWIS), on Thursday, January 30, at noon, in Room A, Berkner Hall.

Judy Callaway, who teaches biology, and William Lynch, who teaches physics, both combine teaching with work at BNL — Callaway at the Protein Data Bank in the Chemistry Department and Lynch in the Office of Educational Programs.

All are invited; please bring your lunch. Coffee, tea and cookies will be available.

P.M. Car Switches To Ronkonkoma

Effective Monday, January 27, the courtesy car that takes passengers to the Long Island Rail Road every afternoon will change destinations. Rather than go to Mastic/Shirley, the car will deliver passengers to the Ronkonkoma railroad station.

Every working weekday, the car will depart from the Transportation Office, Bldg. 179B at 4 p.m. to meet the train that will leave from the Ronkonkoma station at 4:46 p.m., arriving in Pennsylvania Station in New York City at 6:08 p.m.

