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SCIENCE

EDUCATION

Steering Girls into Science

Forty-five Girl Scouts in Rochester, Minn., spent last Thursday evening solving a crime. Although their three-hour foray into forensics was a bit sugar-coated—the girls, ages 9 to 15, were given cocoa powder to dust for fingerprints and chocolate bars to study teeth imprints—there was also a heavy dose of science and math. The troops measured the "culprit's" footprints to extrapolate how tall he or she might be and used deductive reasoning to eliminate suspects from further investigation. The workshop, organized by IBM for the fifth annual Introduce a Girl to Engineering Day, emphasized another skill crucial to the girls' future success in science and engineering: the troops were advised to spend their 15-minute snack break networking.

You have to catch them young if you want to increase the number of women in the upper ranks of science and math. Otherwise, says Anneila Sargent, an astronomy professor and radio-observatory director at the California Institute of Technology, if you wait until graduate school, "the pot of candidates just isn't that big." Nor is there much turnover on the tenure track. Even after a high-profile push at the Massachusetts Institute of Technology, women accounted for just 34 of the school's 262 science professors in 2003—or 13% of the total, up from 8% in 1993. Says M.I.T. molecular biology professor Nancy Hopkins: "If you were to proceed at the current rate of hiring, it would take 95 years to get to 50%."

Attitude makes a big difference. Research by Stanford University's dean of education, Deborah Stipek, and others indicates that by age 12 children have formed hard and fast beliefs about the subjects at which they excel and those in which they fail. Perhaps that's why last year only half as many girls as boys chose to take advanced-placement tests in physics. To even out those numbers, former astronaut Sally Ride launched a science camp two summers ago that so far has kindled the interests of nearly 800 middle school girls.

Meanwhile, scores of elementary and middle schools have started separating classes by gender in an effort to eliminate the shrinking-violet syndrome. In San Antonio, Texas, for example, a dozen public middle schools offer single-sex math courses, which has helped Latinas, in particular, speak up in class. In a similar vein, North Carolina State University last year became one of several colleges that have created dorms solely populated by female science and engineering students. This year the number of freshmen and sophomores bunking there has more than doubled, to 165. The biggest benefit, according to program director Rachel Collins Butler, in addition to sanctioned study groups and study breaks, comes from live-in mentors, the dozen juniors and seniors who can provide academic pointers as well as pep talks.

MARK MCCARTY

BREAKING BARRIERS **Rensselaer chief Jackson combines K-12 outreach with an aggressive campaign to hire more female faculty**

Perhaps the ultimate role model for women in science is Shirley Ann Jackson, the president of Rensselaer Polytechnic Institute. The first African-American woman at M.I.T. to get a Ph.D.—in theoretical physics in 1973—Jackson knows a thing or two about overcoming discrimination. Shot at and spit upon by whites while a college student, she went on to do research at Fermilab and Bell Labs. In 1995 she became chair of the U.S. Nuclear Regulatory Commission and in 2003 was elected president of the American Association for the Advancement of Science, the world's largest general-scientific society. In less than five years as the top executive at Rensselaer, in Troy, N.Y., she has managed to increase the number of female faculty members 34%, from 50 to 67, in part by tapping into new funds to add more professors.

Jackson warns that there aren't enough young people (men included) in the pipeline to replace all the talent that flooded the sciences after Sputnik. The looming shortage, she says, will hinder the U.S. economy and national security. So maybe there's a silver lining to the Larry Summers controversy. "It allows us to have a broader conversation about our capacity for innovation," she says. "My focus is on the complete talent pool. It's an all-in proposition from my perspective." ***—By Julie Rawe***