Event aims to humanize science to lure girls

Jackie Jadrnak / Journal North
Reporter

When challenged to make materials science sound exciting to a middle school girl, Ellen Cerreta suggests picturing an airplane that has been downed after sucking birds into its engines.

Maybe the famous “Miracle on the Hudson” in 2009, when all 155 passengers survived the ditching after their U.S. Airways plane ran into a flock of Canada geese.

Now, wouldn’t it be cool, she said, if you could design a material and airplane engine system durable enough to keep operating after an encounter with birds? It could save lives.

That’s the kind of information to appeal to girls’ imaginations, along with lots of hands-on experimentation, that will be offered at the Expanding Your Horizons Conference on Oct. 5 at Santa Fe Community College.

If you go
WHAT: Expanding Your Horizons Conference

OPEN TO: Girls in grades 5-8

WHEN: Check-in at 8 a.m., conference starts at 9 a.m. Saturday, Oct. 5

WHERE: Santa Fe Community College, 6401 Richards Ave.

HOW MUCH: $10, but scholarships are available

REGISTRATION DEADLINE: Monday, or until the 175 slots are filled

MORE INFO: www.expandingyourhorizons.org/conferences/SantaFe/

Cerreta, a deputy group leader in the Materials Science and Technology Division at Los Alamos National Laboratory, is among the women in science who will conduct workshops for girls in grades five through eight to help expose them to the possibilities of careers in STEM-C (science, technology, engineering, mathematics and computing).

“Girls tend to tune (these career paths) out, to think they can’t do them,” said Lina Germann, a co-chair of the event, who holds a doctorate in chemistry and teaches the subject. “They’re not seeing enough role models. We’re trying to expose more girls to that.”

Clio Andris, another one of those role models, said she found that “a lot of women were not into math and science because they didn’t think it would help people, and they wanted to help people. They wanted to feel like they were improving people’s lives. …

“But I think there are some ways to do that in math and science. I do want to tell them you can make a difference by doing this.”

A postdoctoral fellow at the Santa Fe Institute, Andris’ background is in geographic information science (GIS), which she will begin teaching next year at Penn State. GIS takes information and maps it out to spot relationships. It can determine the best place to locate an airport, for example, by mapping the ease of access to particular sites.

Andris herself focuses on social networks and what they can tell about our world. How do people you know affect where you – and larger populations – move? Can tracing the volume of telephone calls among different cities predict or track economic downturns?

“You use these methods to tell a story,” she said.

Outnumbered

Both Andris and Cerreta said they often find themselves vastly outnumbered by men in their work.

“In graduate school, I noticed fewer and fewer women,” Andris said. “And I’m the only female postdoctoral fellow here.”

“We’re certainly the minority,” Cerreta said, while adding, “I think that’s changing.”

The percentage of women among the highest degree-holders in science and engineering increased from 31 percent in 1993 to 38 percent in 2008, according to the National Science Foundation. Their representation in science and engineering occupations rose from 21 percent to 26 percent over that same time period.

But women seemed concentrated in particular fields, making up 53 percent of workers in the social sciences and 51 percent in the medical sciences. In fields such as engineering and computer and math sciences, the numbers linger at 13 percent and 26 percent, respectively, according to the NSF figures.

Citing the presence of the national labs in New Mexico, Cerreta said, “There is a tremendous amount of opportunity… for women in this state if they pursue careers in the STEM fields.”

The Association for Women in Science notes on its website: “Women represent 50 percent of the population and capacity for innovation in the United States, but they represent only 24 percent of the STEM workforce.”

The path to a science career is not always direct.

Cerreta said she wanted to be a pilot until she realized her eyesight was not good enough. So her father suggested she study how to build airplanes instead. After focusing on aerospace engineering in her undergraduate years, she found the materials aspect interested her most, and that’s what she pursued in her graduate education.

Andris was also influenced by her father, preparing to follow in his footsteps in journalism, but found it didn’t suit her. She took a GIS class and really loved it, to the extent that she followed the teacher after that first session and “told her that was what I wanted to do for the rest of my life.”

Girls, Germann said, need to “see for themselves that math and science are not boring.

“And I personally think that the younger they are exposed to it, the better.”