

Scientists use interactive shows to draw youngsters



Erika Angle (second photo from left) showing how sound frequencies affect flames. Scientists (from left) burning isopropyl alcohol; creating elephant toothpaste; and lying on nails.

By Anne M. Steele

Globe Correspondent / February 27, 2013

FOXBOROUGH — Having experienced her share of major storms, including the Blizzard of 2013 earlier this month, 16-year-old Erin Lynch says she wants to be an atmospheric scientist when she grows up.

“I like the idea of studying something that’s abstract and not everyone completely understands it yet,” said the high school student from Easton, who says her favorite subject is science. “In the future I want to help to create better prediction and preparation for these dangerous storms.”

But Erika Ebbel Angle, founder and chief executive of Science From Scientists, said Lynch’s aspiration to pursue science as a career is not common among today’s youngsters. Through her Boston-based nonprofit, Angle is trying to improve attitudes and aptitudes of children in science, technology, engineering, and mathematics. In interactive shows at Patriot Place over the February school vacation, Angle, a biochemist, and several other scientists demonstrated how math and science are part of the world around us — and how they can be fun.

The shows, which drew over 300 middle schoolers (and chaperones) from south suburbs and beyond, were part of Raytheon Co.’s nationwide celebration of National Engineers Week.

Angle, an accomplished pianist originally from California and Miss Massachusetts 2004, who calls herself “a huge geek,” said there’s a perception that scientists are not interesting people, that they have no life outside of the lab. “I think that for a lot of the children, it’s what is a deterrent for them — they think that science is boring,” she said. “If you ask a kid to draw a scientist, they will draw a freaky-looking, big-haired, glasses-wearing, sort of stereotypical mad scientist, rather than what most scientists are, which is normal people, with hobbies, with lives, with interests, with passions.”

At interactive demonstrations last week, goggle-clad and google-eyed children of all ages participated in experiments like making elephant toothpaste (a colorful foam that’s formed when hydrogen peroxide interacts with potassium iodide) and answered questions like: “Would

you rather sleep on one nail or 1,000 nails?” (Take the latter, because weight is better borne when distributed.)

“It relates back to things that these kids see every day — it’s not just some nebulous biology done by some biologist in a lab,” said Angle. “It’s real to them, and it’s understandable.”

For 11-year-old Ella Petroni, of Framingham, it’s just that. She said she especially liked the parts that dealt with air pressure because she was able to connect it with what she knew about water pressure from swimming. “I understand it because I’m a swimmer and the water pressure is kind of like the air pressure — it presses down on you,” she said.

Angle said studies show a real need to show science to children at a young age. “There is a massive shortage of people going into these fields — and we need them — who are going to become the doctors, the engineers, the scientists, the people who are going to go build the buildings or cure cancer.”

She pointed to a 2011 Georgetown University study showing that of 100 students entering college to obtain a bachelor’s degree, 19 would graduate with a major in science, technology, engineering, or mathematics — the so-called STEM subjects — and only 10 would work in a job corresponding with their STEM degree. Eight would be in a STEM job 10 years later, she said.

Getting children hooked when they’re young — Angle said the 9-to-14 age group is most susceptible — is key. She said in many schools where her organization runs short classes, there aren’t designated science teachers, or real science programs. Many teachers struggle with teaching science, especially in elementary school, because they don’t have a lot of background in it, she said.

“A teacher has the ability to spark interest, but if they’re uncomfortable with the material, it ends up being uninteresting and you end up turning kids off completely to science,” said Angle. “If you have a parent or a teacher that is excited, the likelihood that you will be excited is exponentially greater.”

Petroni said hers is one of the best science and math teachers because of the “fun and cool stuff” she does. “She is definitely one of my role models,” the 11-year-old said.

Angle added that parents also have the ability to encourage their children to think about careers in science, pointing out that “there are many job opportunities that are very lucrative.”

She said she tries to emphasize the excitement of working on the cutting edge in science. [Continued...](#)

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Dr. Erika Angle, CEO of Science from Scientists, demonstrates how sound frequencies can affect flames.

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Scientists Corinne Brauer, Amanda Schutt, and Andrew Solomon lead students in creating "elephant toothpaste," discussing the breakdown of hydrogen peroxide and the concept of a catalyst.

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Amanda Schutt explores pressure and weight as she breaks a cinderblock atop Rounak Rawal, while he lies on a bed of nails.

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Faith Dukes teaches that changing air pressure can crush what appears to be an uncrushable can.

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