Alianza students find physics can be fun

By TOM RAGAN
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WATSONVILLE — How do you get a bunch of seventh graders to pay attention in science class when the summer is near and the smell of the beach is in the air?

The answer is simple. There’s actually science to it.

Bring out a big jug of liquid nitrogen, place a few superconductors in small dishes, then tantalize the middle schoolers by making a bunch of magnets float in the air.

That was the scene Thursday morning at Alianza Charter School, brought to life students by their science teacher Caitlin Johnston and Zach Schlesinger, a physics professor at UC Santa Cruz.

They perhaps more fascinating than the gravity-defying physics was the spontaneity and randomness that brought Schlesinger to the classroom.

In an era of the Internet, power lunches, bureaucracy and highly calculated scheduling, Schlesinger merely picked up the phone, called the school, got a hold of Johnston and told her he had some cool science to show the kids — if she was interested, that is.

She was.

With no science lab and never enough money to develop an extensive science curriculum, Johnston said it’s always nice to have a real live scientist visit the classroom.

“It was a real treat,” said Johnston, who prepped the class by telling the students that liquid nitrogen was really, really cold (327 degrees Fahrenheit below zero) and that they should not drink it or mix it with other chemicals.

Schlesinger’s been performing this trick for students since 1987, with the first classroom appearance coming in none other than his daughter’s own nursery school (she now attends Brown University).

For those outside the science circles, a superconductor basically looks like a piece of copper, and it’s made of copper and oxygen.

But here’s the hook: When you place the superconductor in a dish and mix it up with the frosty liquid nitrogen, electricity takes on a whole new meaning, because there’s very little resistance — and with less resistance comes greater capabilities, like floating magnets.

It’s called high temperature superconductivity, and it was discovered in 1987.

But try describing the process to a group of seventh graders. Chance are their eyes will glaze over. Showing them superconductivity at work, however, is another matter.

“It’s fun to actually be doing something instead of reading about it in a book,” said Arabia Ponce, summing up the electrifying atmosphere for all the class.

And that’s what it’s all about, said Schlesinger, who’s been teaching physics at UCSC for the last 19 years.

And just how important has the discovery of high temperature superconductivity been to the human race?

Well, let’s put it this way. Scientists and venture capitalists are actually looking into what would seem to be a far fetched, but nonetheless plausible, invention: Levitating train systems operated by liquid nitrogen.

But that’s probably not going to happen for a long, long time.

For now, the applications are highly educational, as was witnessed in the classroom Thursday.

“It’s just fun to see the excitement in their eyes,” said Schlesinger.

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