



Lisa Nugent

Dan Seaton (center) helps Portsmouth High School physical science students Judee Utoh (left) and Sam Kesseli (right) take data using a computer controlled motion detector.

Double life of grad student sparks inquiry at local high school

UNH graduate student Dan Seaton is one of 10 Project PROBE fellows at the Joan and James Leitzel

Center for Mathematics, Science and Engineering Education. Project PROBE is helping schools develop

more student-centered and inquiry-focused science courses. The long-term goal is recruiting more

high school students into careers in science, technology, engineering and mathematics, as well as

helping graduate students be better communicators of science.

Before this fall, the last person to call me “Mr. Seaton” was my ninth-grade history teacher, who felt that such courtesies made his young students feel like adults. He may have been right, but the main effect was simply to terrify everyone he called on. So it was with some degree of trepidation that I adopted this moniker for my second identity. I spend most of my time as Dan Seaton, mild-mannered graduate student in physics, aspiring cyclist, occasional—and very amateur—musician. But since September, I’ve spent two days a week being Mr. Seaton to the students in Mr. O’Reilly’s physical science classes at Portsmouth High School.

My double life has been arranged by the Leitzel Center’s new Project PROBE (Partnerships for Research Opportunities to Benefit Education), funded by a grant from the National Science Foundation’s GK-12 program. Our mission is simple: bring scientific inquiry into high school classrooms. At UNH, ten graduate fellows from different programs spend time at nine schools across southern New Hampshire developing projects and lessons, and mentoring student research.

I grew up in a family of educators: both my parents are school teachers and administrators, half my aunts and uncles are professors, as is my older sister. So my interest in education is long-standing. And although my real interest is higher education, the opportunity to share my experience with young

people and make some kind of contribution to the community was still incredibly appealing. At the same time, I approached the project nervously. Would the kids accept a relatively young grad student who visits the class only every couple of days? Would they be excited about science? Willing to work on very nontraditional projects? Interested in taking an active role in their own education?

The answer to all of the above was a resounding “yes.” At Portsmouth, I make it my daily mission to challenge the students with the hardest problems I can dream up. The students good-naturedly solve everything I throw at them. One afternoon I asked the class to design a system to shield its user from the radiation produced by a quarter-sized piece of strontium-90 and to do it for less than 30 cents. A few days later I found myself with a pile of clever, inexpensive, and effective radiation shielding containers. As the kids took turns describing their solutions to the problem, I found myself thinking, “Why didn’t I do things like this in high school?”

So it follows, I think, that this is the lesson I’ll take away from this experience: let the students take control. I spend a good deal of time helping students with the answers to homework problems, helping with lectures, answering questions, and I’m sure they get something out of it when I do this. But when we hand them a problem, provide the resources, and let them invent their own solutions, then they get it.

—Dan Seaton