George Wolfe
Director, Loudoun Academy of Science

The Academy of Science is a public school that is a magnet school. We are in our fifth year of existence, and our mission literally is to create citizens who are great thinkers and have a passion for math and science.

What we designed was this program every other day for only their math and science instruction. And at their other schools, they take their other instruction. They'll take P.E. there, they'll take English there, they'll take social studies there so we at the academy therefore have the liberty to specialize in math, science and research. We call that the best of both worlds for obvious reasons. When the kids apply here, yes they're applying to a specialty school but no they don't have to leave their friends behind, all their teams behind, all the kids they grew up with behind. They end up getting nurtured in two different places instead of one.

My first training in science was as a biologist. And later in life, by necessity, I learned physics. And I learned something very quickly, that I should have had a very strong basis in the physical sciences before I went anywhere near the biological sciences. So I brought that lesson here, and every biologist agrees with me because as they delve deeper into the world of biology, a knowledge of chemistry and physics and earth science is crucial.

What we realized early on is that we needed to take the physical sciences and get students very strong in physics, chemistry, and earth sciences and build a curriculum that's centered on those three subjects. My dream is that a kid would never know whether they're doing physics, chemistry or earth science because they're the same thing.

The idea when I went to school and the way I learned, is pretty much what I call the sage on the stage, and it's what many of us are used to and it's where the teacher stands in the front of the room and fills the students with knowledge from his or her experiences and tells them what they need to know. And that has worked, and many of us have survived that educational system quite well. But what we're thinking is that it's way more important that students are asking the questions as opposed to the teacher asking the questions. Because when you think about it, when someone else asks you a question, well, you give them the answer because they want to know the answer. But if *you* ask the question, then it matters. And you will own not only that question, but you will own the answer.

One of the things I've seen is we build self-confidence in kids because what they learn in doing science is that most of science is dead-ends. And failure is just an opportunity to try something new. And so we give them the freedom to fail here when we teach them inquiry, we give them the freedom to fail when they're doing their research projects. And so one of the things I see anecdotally is that once a kid has gone through four years of this program, you get the feeling that there's not much you can throw at them that's is going to shake them.

Like I said yesterday, I said to the kids, you guys have an opportunity here, don't blow it. There's no place like this in the world.

Photo credit: Wolfe: James Kegley