



## Keeping science in children's orbit

—by Theresa Vargas

**A**n educator has students' eyes on the skies. He can make the sun rise in the west, the stars come out at noon, and the moon wax and wane with his whims.

"I will show you what the sky will look like on your last day of fifth grade," the 56-year-old Bob Nicholson told students gathered one afternoon this month in the domed planetarium at T.C. Williams High School in Alexandria, Virginia.

"This is not only a space machine," he continued, "it's a time machine." Open-mouthed, fifth-graders stared up as the sun suddenly took Nicholson's cue, rising and setting on the course it would take June 19, the last day of school.

In an era in which the federal No Child Left Behind law has pushed schools to focus on reading and math, Nicholson occupies a perhaps under-appreciated position: He's "the science guy." He runs the school planetarium and within the past year has become the elementary school science coach, a new position for the city schools. In that job, he rotates through classes, helping teachers energize lesson plans on topics including sound waves and types of matter.

This type of focus on science is especially important at the elementary level. Unlike in middle and high schools, science is one of several subjects that compete for lesson time at this level. The subject also is neglected at times,

educators say, because science test scores are not used to grade schools under No Child Left Behind and there aren't many science teachers in elementary schools.

Alexandria created Nicholson's job after realizing that its hopes of placing a science teacher at every elementary school would cost too much. Originally, he was to rotate through those schools that did not have a bona fide science teacher, but as word of his expertise spread, other schools wanted his services, too.

"One of the best things he's done is help teachers get messy with science," said Kris Clark, executive director of elementary programs. "As educators, one of our main goals is to help children live wide-awake lives in regard to nature and the world and to have a million questions. We have to expose them to those questions and those what-ifs." For all the controlled chaos Nicholson brings to the classroom, his lessons are grounded in concepts the students need to learn for Virginia's Standards of Learning tests. Nicholson takes science beyond memorization, making it memorable instead. "Science was a subject," Clark said, "now it is a very exciting endeavor."

Tucked away on the top floor of the new \$100 million T.C. Williams campus, the planetarium consists of a black room topped with a dome. In the middle sits a 30-year-old projector donated by the U.S. Army that few know how to

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operate. With a touch of the control panel that day, Nicholson lured out the stars above and launched into a story about a king sending a warrior to rid the sky of a dragon, explaining the placement of the constellations Northern Crown, Hercules and Draco. In the darkness a boy asked how to find the North Star.

Nicholson pointed out the Big Dipper and traced it to the star while launching into another story, this time about slaves traveling in the night before the Civil War. "If you walked far enough north, where would you end up?" he asked. "Freedom," chimed a voice in the dark.

Nicholson, a high school science teacher for much of his three-decade career, said he first proposed that Alexandria create the science coach position in 1987. Nathan Pipke, 30, a fifth-grade teacher at Douglas MacAr-

thur Elementary School, said that some teachers weren't comfortable at first "with this guy coming into the room with all those toys and getting kids riled up" but that he has learned from Nicholson.

"He has a way of taking something children deal with every day, and apply it to a huge concept they need to know," Pipke said. Teaching his students recently about the classification of animals, the younger teacher recalled Nicholson's "shoe method." Students placed their shoes in a pile, and then they worked together to separate them by categories, starting with broad ones, such as tennis shoes, down to more detailed ones, such as black Nikes with red laces. With that, the students learned kingdom, phylum, class, order, family, genus and species.

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Over the years, Nicholson's methods of teaching science have made an impression on educators and students alike. "Our kids call him the science guy," said Deborah Thompson, principal at MacArthur, a well known area school. "To them, he's like a celebrity. . . . As one of my fifth-graders said, 'He makes science so much fun that we forget that we're also learning.' "

Obviously, we need more science teachers in Nicholson's mold. His next science experiment? To figure out how to be cloned... with the help of our educational system and all the scientific professions, including surveying and mapping.

*[Adapted from a story published in The Washington Post, 26, 2008; Page B02.]*

## Science, not political science, needed in the years ahead

—by Keith B. Richburg

Science in the United States "has kind of died over a quarter of a century, even as the need for science has grown to combat climate change, global food shortage, and the looming world energy crisis," said Nina Fedoroff, a plant molecular biologist and Secretary of State Condoleezza Rice's top scientific advisor, in New York City this May.

Although the United States has long been the recognized global leader in science, that position is now being challenged by others, specifically China, which is raising its global profile. "They're educating ten times as many students as we are," Fedoroff said. "The next generation of scientists in other countries might not speak English."

Attending a science summit that opened the first World Science Festival in the U.S., the expert

panel of scientists and audience members agreed that the U.S. needs to address a perceived high-level disdain for science. They cited U.S. officials and others questioning scientific evidence of climate change and the reluctance to federally fund stem cell research as examples.

Misconceptions and suspicion of motives seem to have relegated science to an ivory-tower pastime, rather than using science to free people from dependency on food, on crude oil, on unpredictable world...

Science summit panelists also expressed concern that science funding has not been a major issue for any of the presidential candidates. The campaign so far has given too little attention to what science means for our own economy and our status in the world, casting some doubt on how

fast science in the U.S. can regain its once celebrated world stature.

New York Mayor Michael R. Bloomberg echoed many of the same themes in his opening address. He bemoaned a tendency toward "political science," which he called "the willingness to disregard or suppress scientific findings when they don't conform to a predetermined political agenda."

Bringing the science festival to New York, Bloomberg said, will showcase the city as a hub of innovation. New York is known more as the site for the hit television series and new film "Sex and the City." But Bloomberg, who majored in engineering, called science "just as exciting, just as cool, just as cutting-edge" and said the festival will "make science in New York City sexy."