

# Opening the Doors to Discovery

Once the Space Shuttle Endeavour reached orbit, NASA's Mission Control announced: "For Barbara Morgan and her crewmates, class is in session." And what a class it was. Witnessing Morgan, a former teacher, make history as she traveled to space was exciting in itself. But for those of us with our feet firmly planted on the ground, the ability to watch the Endeavour's journey on live video streams on the NASA Web site was even more amazing. It reminded me of how far we have come in science exploration and how technology can give us an up-close and personal view of a journey of discovery.

That's really what science is about—the discovery process. Every day in science classes across the country, elementary and middle school children experiment, explore, investigate, and problem-solve to reach varying levels of understanding about the world around them. When children are exposed to the wonders of science, the doors to discovery are opened for them. And when adults see that recognition on a child's face, we are reminded of how magical science can be.

These days, schools are spending less time on subjects like science, art, and music as they work to meet No Child Left Behind testing requirements in reading and math. This year, the amount of time spent on science will no doubt increase as states begin measuring students' progress in science at least once in three grade spans (3-5, 6-9, 10-12). The good news is that elementary school students are making progress in science. Recent results from the National Assessment of Educational Progress (NAEP)—or what's referred to as the Nation's Report Card—show that the average science scores for fourth graders were higher in 2005 than in previous years. The percentage of students performing at or above the basic achievement level increased from 63 percent in 1996 and 2000 to 68 percent in 2005. And the gap is decreasing between white fourth-grade students and their black and Hispanic peers.

But the NAEP results also show that in eighth grade there is no overall improvement in science scores (59 percent of students scored at the basic level). And more disturbing is that as students enter high school, these scores decline—and have been declining since 1996.

What can schools do to maintain their students' enthusiasm for science? For one, principals must advocate instruction that focuses on the major concepts of science through



performance tasks, open-ended questions, and extended investigation and science applications. In addition, principals should work with local school districts, universities, and education departments to provide science training and inservice opportunities for elementary and middle school teachers.

Principals are in a key position to influence how effectively we prepare our children for a globally competitive


future. In order for our children to be more competitive in science, schools will need to employ creative methods of instruction to guide the innovation. None of the core subjects should be taught in isolation; rather, there must be a concerted effort to look at ways to educate the whole child.

NAESP is focusing on whole child development, and through the Vision 2021 process we are examining ways that schools should properly prepare children for the future. Preparation for the future means evaluating all of the core subjects, including science, art, and music, to make sure they are relevant for children as we prepare them to be the kind

of conceptual and creative thinkers demanded of the future work force. For example, Vision 2021 identifies five emerging strategic issues that reflect the Association's enduring values and emerging opportunities for leadership in pre-K-8 schools. One of the issues explores the need to educate global citizens for a challenging and interconnected world. To accomplish this, it is critical that schools focus on enhancing and integrating

all of the core subjects so that students are well-rounded and better prepared to live meaningful and productive lives.

Science instruction in elementary and middle schools has come a long way in the past few decades—the days of rote learning and memorization have thankfully passed. As more schools adopt hands-on experiments, inquiry-based learning, and the increasing use of technology in science classes, our children will be better prepared for the future. And we are hopeful that President Bush's recent signing of the America COMPETES Act, which authorizes \$33 billion for science and math programs, will bring some increased appropriations for education.

The more we encourage our children to explore and appreciate the world through the lens of a discoverer, the more likely they will understand the value of global diversity and want to help fulfill the enormous responsibility we share in preserving our environment. We must also encourage our young people to pursue careers in science and as science teachers so that they can then open the doors to discovery for the generations that follow, just like Morgan and her crewmates have done. 

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