

## SCIENCE EDUCATION AND CAREERS

Science education and literacy relate directly to society's progress and well-being. Now more than ever, everyone needs a basic understanding of the nature of science and the natural world. At the same time, science and technology workplaces require well-trained candidates from diverse backgrounds. AAAS education and career programs reach out to all students and job seekers, aiming to encourage their personal and professional development and their contributions to science and technology.



*Members of the AAAS Spark Club, an after-school curriculum for 6th - 8th graders, demonstrated a turbine project at a 2011 Earth Day celebration on the National Mall. Also in 2011, the Spark Club added an activity related to the nature of light and energy and one in which students built passive solar home models. Preliminary analysis of the club's impact has shown that participants are significantly more likely to say they want to be scientists as adults.*

### PROJECT 2061: PROMOTING SCIENCE LITERACY

Project 2061 at AAAS continued to carry out high-quality research and development efforts with support from the National Science Foundation, the U.S. Department of Education and other federal agencies. As part of a new study, the project embarked on a plan to find ways to turn “green” school buildings—along with the technologies they use and the data they generate—into compelling contexts for student learning in mathematics and science.

In April 2011, Project 2061 launched a hugely popular science assessment Web site with more than 700 test questions to help educators monitor not only what students know about science, but what they don't know. Each of the questions on the site was answered by at least 2,000 middle- and high-school students in districts across the nation. The questions were designed to assess a student's ability to explain phenomena and to reason logically; the misconceptions revealed by the questions provide valuable insights for teachers.

Focusing on middle-school curriculum, a Project 2061 research team pilot-tested a four-week unit aimed at building students' comprehension of difficult ideas about chemical reactions in living and non-living systems. The tests showed statistically significant gains in understanding by students in both suburban and urban classrooms.

### TRANSFORMING UNDERGRAD SCIENCE EDUCATION

The 2011 Transforming Undergraduate Education in Science conference, sponsored by AAAS and the National Science Foundation (NSF), attracted 590 registrants. Its urgency was heightened by a recent national report showing that very few K-12 students in the United States have the skills needed to pursue careers in science and technology.

“The performance from K-12 students is connected to the capability of their teachers,” said Shirley Malcom, director of AAAS Education and Human Resources. “The development of this capability is a responsibility that begins in our colleges and universities.”

Conference participants emphasized that although NSF-funded projects have resulted in the creation of innovative teaching techniques, effective means for evaluating and

disseminating those techniques must be further developed.

Carl Wieman, Associate Director for Science at the White House Office of Science and Technology Policy, urged educators at the meeting to adopt techniques that help students to “think like scientists,” rather than to memorizing facts.

### MASS MEDIA FELLOWS AT THE FOREFRONT

To gain direct experience with the media, the most recent group of 11 AAAS Mass Media Science & Engineering Fellowship recipients spent ten weeks reporting on science at the *Chicago Tribune*, *Los Angeles Times*, *Philadelphia Inquirer*, *Oregonian*, *Milwaukee Journal Sentinel*, *Science*, *Scientific American*, *Sacramento Bee*, *Raleigh News & Observer*, National Public Radio, KUNC-FM in Greeley, Colorado, and the Voice of America.

The graduate and post-graduate science, engineering and mathematics students actively produced content for their respective newsrooms after a short orientation at AAAS headquarters.

“Above all else, we hope the fellows will be inspired to incorporate effective science communication into their core professional work,” said AAAS staffer Rahman Culver.

### ENTRY POINT! INTERNS MAKE THEIR MARK

AAAS’s ENTRY POINT! program partnered with organizations such as NASA, IBM and Merck to place 33 undergraduates in internships in 2011. If all goes well, one of those summer interns will watch a precipitation satellite that she worked on launch in 2013.

All of the interns have disabilities, ranging from ADHD, to hearing impairments, to rheumatoid arthritis, which means they are members of one of the most underrepresented groups in science: people with disabilities.

“AAAS can be an advocate by putting a student with disabilities in the mix,” said Richard Weibl, director of the AAAS Center for Careers in Science and Technology and the Project on Science, Technology and Disability.

### EMERGING RESEARCHERS STEM CONFERENCE

Nearly 600 students from more than 170 institutions attended this conference, where in addition to presenting their research, they learned from career scientists that finding a place in the science community might not involve a traditional route. Students were encouraged to perse-

vere, to prepare themselves for maximum marketability, and to consider all possible options as they earn advanced degrees in science.

“Minority students that are first in their family to attend college or that come from high schools that did not prepare them adequately, from a low socioeconomic background ... simply don’t receive information about science career possibilities,” said Sonia Zarate, academic administrator of the UCLA Undergraduate Research Center. Participating in the conference provided those resources, she added.

### AAAS EXPERT RECEIVES TOP APPOINTMENT

Shirley Malcom, director of AAAS Education and Human Resources, served as one of the United States’ six public delegates at the United Nations Commission on the Status of Women, providing her expertise on women’s and girls’ participation in science and technology.

### MEASURING DIVERSITY REPORT RELEASED

AAAS, in partnership with the National Science Foundation, issued a guide offering detailed, practical tools for universities to evaluate graduate programs in science, engineering and related fields, especially with regard to participation and success of minority students.

