



## Major Push for Science, Technology, Engineering, and Mathematics (STEM) Education

Public-private investments of more than \$250 million in "Educate to Innovate" campaign

By [Dr. Dobb's Journal](#)

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On January 6 at the White House, as part of his "Educate to Innovate" campaign to lift American students to the top of the pack in science and math achievement over the next decade, President Obama announced several new partnerships involving major companies, universities, foundations, non-profit organizations and government agencies designed to attract, develop, reward and retain outstanding educators in science, technology, engineering, and mathematics (STEM). These partnerships will build upon initiatives already announced by the President in November 2009 at the launch of the "Educate to Innovate" campaign to motivate and inspire students to excel in STEM subjects.

Five new public-private partnerships that will use proven models to prepare more than 10,000 new math and science teachers over the next five years and will support the professional development of more than 100,000 current teachers in STEM fields. These partnerships -- Intel's Science and Math Teachers Initiative, Expansion of the National Math and Science Initiative's UTeach Program, a Commitment of Public University Presidents to Train 10,000 Math and Science Teachers Annually by 2015, the PBS Innovative Educators Challenge and Woodrow Wilson Teaching Fellowships in Math and Science -- represent a combined commitment of more than \$250 million in financial and in-kind support, adding to the more than \$260 million in support announced in November at the launch of the "Educate to Innovate" campaign.

Intel's Science and Math Teachers Initiative is a \$200 million cash and in-kind campaign to support teaching in math and science. Intel will provide training to more than 100,000 U.S. math and science teachers over the next three years, with elementary school teachers participating in an intensive 80-hour professional development math course and teachers receiving new web-based instruction and collaboration tools, including targeted professional development for science teachers. This teacher training, which is currently available to teachers in four states, will be available to school districts in all 50 states at no cost to the teachers. Intel will also commit to its employees achieving 100,000 annual volunteer hours, with an emphasis on improving STEM education, and will maintain its support for Intel Science Search and the Intel Science Fair, which reach 600,000 students per year.

The National Math and Science Initiative (NMSI), in a partnership that brings together companies, foundations (such as the Texas Instruments Foundation), states, and federal agencies, will launch a major expansion of the "UTeach" program that will prepare more than 4,500 undergraduates in STEM subjects to be new math and science teachers by 2015, and 7,000 by 2018 -- a commitment that promises to improve the education of more than 1 million students by 2017 and more than 20 million during the course of these new teachers' careers. The UTeach program produces teachers with deep content expertise, by enabling science and math undergraduates to concurrently receive a teaching certificate. Ninety-two percent of UTeach graduates become teachers, and eighty-two percent are still in the classroom after five years. With investment in excess of \$13.5 million by the partners, NMSI will expand to 20 university campuses from its current 14, with three additional campuses soon to follow. With funding from the Carnegie Corporation and the Michael & Susan Dell Foundation, NMSI will also launch a teacher alumni network to increase the impact of the program.

The presidents of more than 75 major public universities are committing to collectively prepare 10,000 science and math teachers annually by 2015. This is a significant increase from the 7,500 teachers that are currently trained by the universities that participate in the Science and Mathematics Teacher Imperative, an initiative led by the Association of Public and Land-grant Universities. University leaders will assess and scale programs that have a strong track record of success, innovate to create new preparation models, ensure that teaching is valued as a career option, and work closely with states to address teacher shortages.

PBS and its 356 partner stations, in collaboration with the National Science Teachers Association, will launch a multi-year STEM initiative to dramatically expand the PBS teacher community, provide a platform for sharing effective teaching practices, and inspire the next generation of teacher-leaders. PBS will sponsor an annual competition called the "Innovative Educators Challenge" to highlight 50 outstanding teachers each year. These teachers will be provided support to be leaders in their communities, as well as have their methods of instruction collected as part of a public media repository -- the 'Digital Learning Library' -- to create a platform for sharing of effective practice.

The Woodrow Wilson National Fellowship Foundation will announce a major expansion of its program, which provides future math and science teachers with a Master's degree in education and places them in difficult-to-staff middle and high school, using a model very similar to Teaching Residency Programs. With the support of the Governors in each state and more than \$40 million in funding from the W.K. Kellogg Foundation, the Lilly Endowment, the State of Indiana, the State of Ohio, and Ohio Foundations, this program will train 120 math and science teachers per year in Michigan and 700 over the next three years in Indiana, Michigan, and Ohio. These teachers will improve math and science achievement of an estimated 87,500 students every year.

NASA, in partnership with companies, non-profits, and states, will launch a pilot program to substantially enhance STEM learning opportunities for students during the summer, with an emphasis on broadening participation of underrepresented groups. Through competitive grants to states, NASA's "Summer of Innovation" Enrichment Program will use its substantial STEM assets -- including the more than 11,000 NASA scientists and engineers -- to create multi-week summer learning programs (a blend of classroom time, camp programs, internships, and mentoring), that will help thousands of teachers and students in the first year. The program will culminate in a national event, in partnership with other departments and agencies.

"The quality of math and science teachers is the most important single factor influencing whether students will succeed or fail in science, technology, engineering and math," President Obama said. "Passionate educators with issue expertise can make all the difference, enabling hands-on learning that truly engages students -- including girls and underrepresented minorities -- and preparing them to tackle the grand challenges of the 21st century such as increasing energy independence, improving people's

health, protecting the environment, and strengthening national security."

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