

IMPROVING SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) EDUCATION

President Obama has identified three overarching priorities for STEM education necessary for laying a new foundation for America's future prosperity: increasing STEM literacy so all students can think critically in STEM subjects; improving the quality of math and science teaching so American students are no longer outperformed by those in other nations; and expanding STEM education and career opportunities for underrepresented groups, including women and minorities. In the knowledge-based economy of the 21st Century, our students will need to graduate from high school with a solid grounding in the STEM fields so they are prepared for postsecondary education and careers.

The President's 2012 budget request and *Blueprint for Reform of the Elementary and Secondary Education Act* will help to strengthen America's leadership in the 21st century by improving STEM education.

- **\$206 million for Effective Teaching and Learning: STEM**, an increase of \$26 million over the 2011 CR level for the current Mathematics and Science Partnerships program. This new program would support the transition to college- and career-ready standards by helping States improve teaching and learning in science, technology, engineering and mathematics. Funds would be used to support State implementation of comprehensive, evidence-based plans; professional development that aligns Federal, State, and local resources to provide high-quality STEM instruction; and for subgrants to high-need LEAs to support comprehensive STEM instruction in the grades and schools with the greatest needs.
- **The President has announced an ambitious goal of preparing 100,000 STEM teachers over the next decade**, with at least 10,000 STEM teachers recruited over the next two years. To move toward this goal the President's budget includes:
 - **\$250 million for Teacher and Leader Pathways**, including \$80 million that would help prepare and retain effective STEM teachers. This program would support the creation and expansion of high-quality pathways into the teaching profession that increase the number of effective teachers serving in high-need and low-performing schools and in high-need fields and subjects such as STEM.
 - **\$185 million for a new Presidential Teaching Fellows program** to fund formula grants to States to support scholarships for talented students to attend top-tier teacher preparation programs and work in high-need schools and subjects, including STEM. Presidential Teaching Fellows would be selected on the basis of grade-point average, major in a high-need academic subject, and commitment to working in high-need schools, with a priority for low-income students.
- **Targeted support for STEM projects in the \$300 million Investing in Innovation program**, which makes competitive awards to develop, validate, and scale up innovative programs, practices, and strategies that are effective in improving education outcomes for students.
- **\$90 million for a new Advanced Research Projects Agency for Education**, which will foster breakthrough developments in educational technology and learning systems, support systems for

educators, and tools that result in improvements in student outcomes.

- **Assessment and accountability.** Our budget will invest \$420 million in the development of improved assessments, including mathematics. States will be allowed to incorporate science and other subjects in addition to English language arts and mathematics into their accountability systems.
- **An ambitious research & development effort,** led by the Institute of Education Sciences (IES), in mathematics and science education. Our budget request supports new investments in research to: expand our understanding of how students learn; develop better mathematics and science curricula and assessments; provide more effective professional development for teachers in these areas; and enhance the use of technology to expand student access to, and achievement in, mathematics and science courses.
- **Statistics on student achievement in math and science,** including increased support for the IES National Center for Education Statistics, which will collect and analyze information on student achievement in math and science, including international student assessments and a 2012 National Assessment of Educational Progress long-term trend assessment that includes mathematics.
- **\$41 million for the Graduate Assistance in Areas of National Need** which provides students with exceptional promise and high financial need with fellowships to pursue graduate studies in areas of national need, including critical scientific and technical fields.
- **\$35 million for the Upward Bound Math-Science program** to support mathematics and science centers that encourage high school students to pursue postsecondary degrees in those fields.
- **\$9.5 million for the Minority Science and Engineering Improvement program** to support grants to predominantly minority institutions of higher education to help them make long-range improvements in science and engineering education and to increase the participation of underrepresented minorities in scientific and technological careers.
- **\$100 million in mandatory funds in 2012 for the Hispanic-serving Institutions (HSIs) STEM and Articulation program,** to increase the number of Hispanic and other low-income students attaining degrees in STEM fields and to develop model transfer and articulation agreements between the 2-year and 4-year HSIs in such fields.
- **More than \$3 billion for STEM education activities across all Federal agencies.** The President's budget includes major investments in STEM education at the Department and in a variety of science mission agencies, including the National Science Foundation and NASA.
- **A coordinated strategy.** The Department is working closely with the Office of Science and Technology Policy, the National Science Foundation, and other Federal agencies to implement a coordinated STEM education strategy that optimizes the delivery of services, takes advantage of the core resources of individual agencies, and minimizes duplication and inefficiency.