Science, Technology, Engineering and Math (STEM) Education

America must provide students with a strong education in science, technology, engineering, and mathematics (STEM) to prepare them to succeed in the global economy. Despite an annual federal investment of almost $3 billion, too many American students are unprepared in math and science, particularly students from underrepresented groups, and the nation's STEM workforce needs are not being met. Reform in this area is stymied by the Federal's government's fragmented approach to STEM education, which is reflected by Federal investments in over 220 programs across 13 different agencies.

To facilitate a cohesive national strategy, the Administration is proposing a comprehensive reorganization of STEM education programs to increase the impact of Federal investments in four areas: K-12 instruction, undergraduate education, graduate fellowships, and education activities that typically take place outside the classroom. The reorganization involves consolidating or restructuring 114 STEM education programs across 11 agencies and improving the delivery, impact, and visibility of STEM efforts. Nearly $180 million will be redirected from consolidated programs to the Department of Education, the National Science Foundation (NSF), and the Smithsonian Institution to implement initiatives in the four core reform areas.

NSF will focus on improving the delivery of undergraduate STEM education and reforming graduate fellowships. The Smithsonian Institution will improve the reach of federally supported informal education activities, and help align those activities with State standards so that they are relevant to what students are learning in the classroom. The Department of Education will lead the following initiatives to improve K-12 STEM instruction:

- **STEM Innovation Networks ($150 million).** This program will provide competitive grants to local educational agencies (LEAs) in partnership with institutions of higher education, nonprofit organizations, other public agencies, and businesses to increase the number of students who are effectively prepared for postsecondary education and careers in STEM fields. Eligible partnerships will develop comprehensive plans for identifying, developing, testing and implementing evidence-based practices to provide rich STEM learning opportunities for students in participating LEAs and schools. To support the implementation of these plans, STEM Innovation Networks (STEM-INs) will employ of wide range of strategies—depending on local needs— in areas such as the recruitment, preparation, and professional development of effective STEM educators; the development and testing of teaching and learning models that enable students to successfully meet STEM-focused college- and career-ready standards; and student engagement in STEM subjects.

- **The STEM Virtual Learning Network (approximately $5 million).** The STEM Virtual Learning Network (STEM-VLN) will create a professional learning community of STEM educators. This community, operating primarily but not exclusively online, will enable STEM educators to share innovative STEM content, effective STEM teaching strategies, and

research on STEM education. The funding for the STEM-VLN will come from a set aside from the larger STEM-INs program.

- **STEM Master Teacher Corps ($35 million).** In July 2012, the President proposed creating a national STEM Master Teacher Corps that would enlist America's best and brightest science and math teachers to improve STEM education. The Corps would recognize and reward the most accomplished STEM educators by offering them membership in a national community of talented STEM educators, opportunities to serve as instructional leaders in their schools and communities, and additional pay in exchange for their leadership and service. The President's budget request includes $35 million to pilot the STEM Master Teacher Corps before it is taken to scale.

- **STEM Teacher Pathways ($80 million).** To support the President's ambitious goal of preparing 100,000 excellent STEM teachers over the next decade, STEM Teacher Pathways will provide competitive grants to recruit and train effective and highly effective STEM teachers for high-need schools.

- **Effective Teaching and Learning: STEM ($150 million).** Formerly the Mathematics and Science Partnerships program, this program will fund partnerships between local education authorities (LEAs) and institutions of higher education (IHEs) that will help States improve teaching and learning in science, technology, engineering and mathematics. Funds will be used to support State implementation of comprehensive, evidence-based plans; professional development that aligns Federal, State, and local resources to promote 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.

- **Fund for the Improvement of Education ($30 million).** These funds will be used to expand the Improving Mathematics Achievement and Transition to College from High School (IMATCH) program, a joint initiative between ED and NSF. The program will help develop, evaluate, and scale up effective practices that increase student achievement in mathematics during the critical transition period from the last two years of high school through the first two years of college.