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PRESIDENTIAL ADVISORS HIGHLIGHT PLAN FOR IMPROVEMENTS IN K-12 SCIENCE, TECHNOLOGY, ENGINEERING, AND MATHEMATICS (STEM) EDUCATION

New Report Reveals STEM Education-Related Strengths, Weaknesses; Outlines Road Ahead to Regain and Maintain U.S. Competitiveness

America is home to extraordinary assets in science, engineering, and mathematics that, if properly applied within the educational system, could revitalize student interest and increase proficiency in these subjects and support an American economic renewal, according to a new report from an independent council of Presidential advisors.

The new report by the President's Council of Advisors on Science and Technology (PCAST)—20 of the Nation's leading scientists and engineers appointed by the President to provide advice on a range of topics—makes specific recommendations to better prepare America's K-12 students in STEM subjects and also to inspire those students—including girls, minorities, and others underrepresented in STEM fields—to challenge themselves with STEM classes, engage in STEM activities outside the school classroom, and consider pursuing careers in those fields.

"Getting America back to the top of the pack in math and science achievement is going to require everyone's involvement. The Federal Government has a critical role to play, especially through a partnership between the Department of Education and the National Science Foundation," said Eric Lander, a co-chair of PCAST, which is administered by the White House Office of Science and Technology Policy. "The recommendations in this report have great catalytic potential and, if implemented, could transform STEM education in America," said Lander, who is also President of the Broad Institute of MIT and Harvard in Cambridge, Mass.

Among the recommendations in the report, *Prepare and Inspire: K-12 Education in Science, Technology, Engineering, and Math (STEM) for America's Future*, are that the Federal government should:

- Recruit and train 100,000 great STEM teachers over the next decade who are able to prepare and inspire students;
- Recognize and reward the top 5 percent of the Nation's STEM teachers, by creating a STEM master teachers corps;

- Create 1,000 new STEM-focused schools over the next decade;
- Use technology to drive innovation, in part by creating an advanced research projects agency—modeled on the famously innovative Defense Advanced Research Projects Agency (DARPA)—for education;
- Create opportunities for inspiration through individual and group experiences outside the classroom;
- Support the current state-led movement for shared standards in math and science.

All told, said Jim Gates, co-chair of the PCAST Working Group on STEM Education, the report provides a practical roadmap for significantly improving Federal coordination and leadership on STEM education so American students today will grow into the world's science and technology leaders of tomorrow.

"I think of this report as giving my generation a guidebook for how to step up to its `greatest generation moment'," said Gates, who is also Professor of Physics at the University of Maryland and Director of the University's Center for String and Particle Theory.

While recognizing that improvements in STEM education will require input by educators, the private sector, non-profits, and philanthropies, the report's recommendations focus primarily on the Federal Government—primarily the Department of Education and the National Science Foundation. Its release coincides with an event today in which the President will announce an expansion of his "Educate to Innovate" initiative, with new public-private partnerships to improve STEM education and expand opportunities to better prepare all students to thrive in, and contribute to, the 21st century economy.

In preparing the report and its recommendations, PCAST assembled a Working Group of experts in curriculum development and implementation, school administration, teacher preparation and professional development, effective teaching, out-of-school activities, and educational technology. The report was strengthened by additional input from STEM education experts, STEM practitioners, publishers, private companies, educators, and Federal, state, and local education officials.

Many of the recommendations in the report can be carried out with existing Federal funding of current programs, the report concludes, although new authorities may be required in certain cases. The report does not attempt to conduct a detailed budgetary analysis. Instead it offers an array of choices for the President to consider. Fully funding all of the recommendations could require investments of approximately $1 billion per year, according to PCAST—much of which, the report notes, could come from private foundations and corporations, as well as from states and districts.

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The President's Council of Advisors on Science and Technology (PCAST) is an advisory group of the nation's leading scientists and engineers who directly advise the President and the Executive Office of the President. PCAST makes policy recommendations in the many areas where understanding of science, technology, and innovation is key to strengthening our economy and forming policy that works for the American people. PCAST is administered by the Office of Science and Technology Policy (OSTP).

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