Action Items from *Rising Above the Gathering Storm* (AAAS)
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http://www7.nationalacademies.org/gatheringstorm/index.html (download link lower-right)

**Charge**

What are the top 10 actions, in priority order, that federal policymakers could take to enhance the science and technology enterprise so that the United States can successfully compete, prosper, and be secure in the global community of the 21st century? What strategy, with several concrete steps, could be used to implement each of those actions?

**10,000 TEACHERS, 10 MILLION MINDS, AND K12 SCIENCE AND MATHEMATICS EDUCATION**

**Recommendation A:** Increase America’s talent pool by vastly improving K12 science and mathematics education.

Action A-1 Annually recruit 10,000 science and mathematics teachers by awarding 4-year scholarships and thereby educating 10 million minds.

Action A-2 Strengthen the skills of 250,000 teachers through training and education programs at summer institutes, in master’s programs, and in Advanced Placement (AP) and International Baccalaureate (IB) training programs.

Action A-3 Enlarge the pipeline of students who are prepared to enter college and graduate with a degree in science, engineering, or mathematics by increasing the number of students who pass AP and IB science and mathematics courses.

**SOWING THE SEEDS THROUGH SCIENCE AND ENGINEERING RESEARCH**

**Recommendation B:** Sustain and strengthen the nation’s traditional commitment to long-term basic research that has the potential to be transformational to maintain the flow of new ideas that fuel the economy, provide security, and enhance the quality of life.

Action B-1 Increase the federal investment in long-term basic research by 10% each year over the next 7 years.

Action B-2 Provide new research grants of $500,000 each annually, payable over 5 years, to 200 of the nation’s most outstanding early-career researchers. The grants would be made through existing federal

Action B-3 Institute a National Coordination Office for Advanced Research Instrumentation and Facilities to manage a fund of $500 million in incremental funds per year over the next 5 years.

Action B-4 Allocate at least 8% of the budgets of federal research agencies to discretionary funding.

Action B-5 Create in the Department of Energy an organization like the Defense Advanced Research Projects Agency (DARPA) called the Advanced Research Projects Agency-Energy (ARPA-E).
Action B-6 Institute a Presidential Innovation Award to stimulate scientific and engineering advances in the national interest.

BEST AND BRIGHTEST IN SCIENCE AND ENGINEERING HIGHER EDUCATION

Recommendation C: Make the United States the most attractive setting in which to study and perform research so that we can develop, recruit, and retain the best and brightest students, scientists, and engineers from within the United States and throughout the world.

Action C-1 Increase the number and proportion of US citizens who earn bachelor’s degree in the physical sciences, the life sciences, engineering, and mathematics by providing 25,000 new 4-year competitive undergraduate scholarships each year to US citizens attending US institutions.

Action C-2 Increase the number of US citizens pursuing graduate study in ”areas of national need” by funding 5,000 new graduate fellowships each year.

Action C-3 Provide a federal tax credit to encourage employers to make continuing education available (either internally or though colleges and universities) to practicing scientists and engineers.

Action C-4 Continue to improve visa processing for international students and scholars.

Action C-5 Provide a 1-year automatic visa extension to international students who receive doctorates or the equivalent in science, technology, engineering, mathematics, or other fields of national need at qualified US institutions to remain in the United States to seek employment. If these students are offered jobs by US-based employers and pass a security screening test, they should be provided automatic work permits and expedited residence status.

Action C-6 Institute a new skills-based, preferential immigration option.

Action C-7 Reform the current system of ”deemed exports”.

INCENTIVES FOR INNOVATION

Recommendation D: Ensure that the United States is the premier place in the world to innovate; invest in downstream activities such as manufacturing and marketing; and create high-paying jobs based on innovation by such actions as modernizing the patent system, realigning tax policies to encourage innovation, and ensuring affordable broadband access.

Action D-1 Enhance intellectual-property protection for the 21st-century global economy.

Action D-2 Enact a stronger research and development tax credit to encourage private investment in innovation.

Action D-3 Provide tax incentives for US-based innovation.

Action D-4 Ensure ubiquitous broadband Internet access.