



The FY 2013 Budget Request: An Overview

On February 13, President Barack Obama unveiled a \$3.8 trillion federal budget request for fiscal year (FY) 2013, which begins on October 1. Here's a detailed breakdown of how the federal agencies and programs of most interest to ASTC and its members fared...

NATIONAL SCIENCE FOUNDATION

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
NSF	6,469	6,873	6,912	7,033	7,373
EHR	846	873	861	829	876
DRL	227	261	322	290	310
ISE/AISL	65.7	65.85	64.2	61.4	47.8
Core: STEM	-	-	-	-	5
MSP	61	57.9	57.1	57.1	57.1
CCE	9.9	10	5.43	5.5	4.8

(in millions of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)

Generally speaking, the National Science Foundation (NSF) did well overall under the President's budget request for fiscal year 2013; the agency is slated to receive \$7.372 billion, a \$340 million increase over the \$7.032 billion estimated for FY 2012. Both the Directorate for Education and Human Resources (EHR) and the Division of Research on Learning in Formal and Informal Settings (DRL) would also see increases.

Informal Science Education

Unlike the agency, directorate, and division that oversee it, however, the Informal Science Education (ISE) program is slated for a significant cut for FY 2013. Under the request, ISE would receive \$47.82 million, \$13.58 million less than the estimated amount for FY 2012 – a 22.1% decrease in funding. In addition, the agency proposes changing the name of the program from "Informal Science Education" to "Advancing Informal STEM Learning" (AISL). The budget request includes the following language related to ISE/AISL:

AISL (formerly ISE) will support fewer awards, focusing on the research and model-building contributions of the program to better understand effective means and innovative models for engaging today's young people and adults in science outside of school settings. Additionally, this reduction helps support the Core Launch area, which will include an emphasis on learning outside of school.

Core Launch/Reframing EHR Investments

The budget request proposes a new framing of EHR investments into three categories: "Core R&D," "Leadership," and "Expeditions." For Core R&D investments, the focus will be placed on STEM Learning, STEM Learning Environments, Broadening Participation and Institutional Capacity in STEM, and STEM Professional Workforce Preparation. According to the request:

These core areas were developed based on national studies and reports, and through consultations with the community. R&D in these core areas will continue to build the knowledge base and evidence needed to achieve excellence in STEM education and workforce development. Each EHR division will take responsibility for the intellectual definition, direction, and coherence of one core R&D area. Resources are requested to create a new \$5.0 million "Core Launch Fund" in each

division, to allow for a first round of grant awards that will give shape to the core R&D areas, provide synthesis of existing work, identify future needs, and highlight important trends and challenges. In FY 2013 EHR will engage in a year of dialogue with key stakeholders and communities concerned with STEM learning to seek response to the early definition of the core foci. In FY 2014 the four core R&D areas will be clarified and additional program realignment and combinations will be proposed. The divisional core R&D emphases are based on depth of staff experience within the divisions and the readiness of the respective research communities to rapidly develop strategic responses.

With regard to Leadership Investments, NSF states that they will:

...accelerate the development of the next generation of diverse and well qualified STEM researchers and educators. These include direct recognition awards, fellowships, and scholarships or grants to students, teachers, and beginning researchers.

In the third category, Expedition Investments, NSF’s intent is that:

...they will be strategic investments that target opportunities through leveraging, partnering, and innovating to take on specific challenges over defined periods. Expeditions will be a key vehicle for EHR partnerships with other NSF directorates and offices and with the U.S. Department of Education (ED).

Again, each of EHR’s four divisions would receive \$5 million in FY 2013 for new Core Launch Fund activities under the budget request for a total of \$20 million; DRL would have responsibility for the “Core Launch: STEM Learning” portion.

Math and Science Partnerships

The Math and Science Partnership (MSP) program would receive \$57.08 million for FY 2013, the same amount as the FY 2012 estimate. It should be noted that the budget request would shift funding and oversight responsibility for the MSP program from EHR’s Division for Undergraduate Education (DUE) to DRL. In addition, NSF has plans to initiate a new external “expedition” project with the Department of Education in FY 2013. According to the request, the project would:

...build on the partnership model developed between ED and NSF’s MSP programs. The expedition will explore ways to improve STEM-based initiatives within states, regions, or districts based on the lessons learned in NSF’s MSP program, with a focus on mathematics in a tiered-evidence approach. This activity will be based in DRL, with funding in the Discovery Research K-12 (DR-K12) program.

Climate Change Education

Also of note, the agency’s Climate Change Education (CCE) program would receive \$4.76 million in funding for FY 2013 from EHR, \$740,000 less than the amount estimated for FY 2012. Like the MSP program, funding and oversight responsibility for the CCE program would shift in FY 2013, moving from DUE to the Division of Graduate Education (DGE).

NATIONAL INSTITUTES OF HEALTH

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
NIH	30,318	31,010	30,926	30,860	30,860
NCRR	1,226	1,268	1,268	1,298	-
OD	1,247	1,177	1,454	1,457	1,429
SEPA	18	18.3	18.9	20.3	20.3
OSE	3.94	4.04	4.17	3.98	3.98

(in millions of dollars; numbers rounded; FY 2012 reflects enacted; FY 2013 reflects request)

The National Institutes of Health (NIH) would receive level funding for FY 2013 under the President’s proposal; the \$38.86 billion requested is the same as the FY 2012 enacted amount.

Of that total amount, NIH's Office of the Director – which now oversees the Science Education Partnership Awards (SEPA) program – is slated to receive \$1.43 billion, \$28.2 million less than the \$1.45 billion enacted level for the current fiscal year. In previous years, the SEPA program was administered by the National Center for Research Resources (NCRR); NCRR was officially dissolved on December 23, and its programs have been dispersed among seven other NIH Institutes and Centers.

Science Education Partnership Awards

Like NIH overall, the Science Education Partnership Awards program is on track for level funding of \$20.3 million under the budget request, which includes the following description of the program:

The goals of the SEPA Program are to: 1) increase the pipeline of future scientists and clinicians, especially from minority, underserved, and rural kindergarten to grade 12 (K-12) students; and, 2) to engage and educate the general public on the health-related advances made possible by NIH-funded research. By creating relationships among educators, museum curators, and medical researchers, SEPA encourages the development of hands-on, inquiry-based curricula that inform participants about such high interest issues as the prevention and treatment of obesity, stem cell research, and research on specific types of infectious diseases. In addition, SEPA provides professional development for teachers and mentoring opportunities for students. In FY 2011, 18 new SEPA projects and five trans-NIH Blueprint Neuroscience K-12 STEM projects were funded. The SEPA portfolio of 59 awards includes 48 K-12 STEM and 11 science museum projects. SEPA continues its emphasis on developing a diverse workforce pipeline for rural and under-served populations with 21 SEPA projects in 16 of the 23 Institutional Development Award (IDeA) states and Puerto Rico.

The request also notes that:

In November 2008, the NIH Council of Public Representatives, the formal mechanism at NIH for public input into the research decision-making and priority-setting process, recognized SEPA as the science education resource for K-12 and the general public. In FY 2013, the Office of Research Infrastructure Programs (ORIP) will continue to develop outreach efforts to expand the benefits of the SEPA program to other NIH programs such as IDeA, Research Centers in Minority Institutions (RCMI), and Clinical and Translational Science Awards (CTSAs). These efforts include informing high schools about opportunities to participate in SEPA, and encouraging science museums, which reach a wide audience, to educate the public in the benefits of NIH-supported research.

Office of Science Education

In addition to the SEPA program, the Office of the Director includes NIH's Office of Science Education (OSE), which is charged with developing programs, instructional materials, and career resources that serve America's science teachers, students (K-16), and the public. OSE also:

...advises NIH leadership on education policy issues, coordinates related activities with NIH extramural and intramural offices, and represents NIH in federal STEM education initiatives. OSE supports the NIH Director's Theme of "New Investigators and New Ideas" by working to foster a pool of talented students well-prepared in mathematics and science that can then choose to pursue medical science, health, and other challenging careers. To better inform the development of future OSE programs and career development programs, OSE is interacting with researchers engaged in studying why students select and persevere in scientific and medical careers. Engaging scientists in K-16 education – through resource and program development – is the Office's newest focus. LifeWorks E-Mentors program matches students with scientists for one-on-one career guidance. The LifeWorks website and SciLife Programs encourage students to explore health and medical careers and learn how to achieve their career goals. The NIH Curriculum Supplements are lesson plans and web-based activities on current health science topics that help students develop the workforce skills they need to succeed in the 21st century. In response to teacher requests, since FY 2000, OSE distributed more than 400,000 supplements to a diverse national audience, and OSE continues to make a special effort to reach-out to underrepresented populations.

The budget request indicates that OSE will continue to work with the White House Office of Science and Technology Policy through the National Science and Technology Council (NSTC); the NSTC – and its Committee on STEM Education – is currently working on the development and implementation of a five-year federal STEM education strategic plan, which is expected to be released this spring.

NATIONAL AERONAUTICS AND SPACE ADMINISTRATION

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
NASA	17,782	18,724	18,448	17,770	17,711
Education	169	183	145.4	136.1	100
STEM Ed. & Act.	-	-	46.5	50	37
Sci. Mus. Grants	7	7	-	-	-

(in millions of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)

The President’s budget request includes a [relatively] small decrease in overall funding for the National Aeronautics and Space Administration (NASA). If enacted, the agency would receive \$17.71 billion for FY 2013, \$59 million less than the estimated amount available for FY 2012.

Education and STEM Education and Accountability

The NASA education account would see a \$36.1 million reduction, from \$136.1 million in FY 2012 to \$100 million in the upcoming fiscal year. Furthermore, funding for the STEM Education and Accountability program – which consolidates projects and activities that were previously funded in earlier budgets under “K-12 STEM Education,” “Informal STEM Education,” and “Higher Education STEM Education” titles – would also be reduced in FY 2013; \$37 million is proposed, \$13 million less than the \$50 million available for FY 2012.

The Science Museums and Planetarium Grant program – which saw \$7 million in annual funding in recent fiscal years – was referred to in the budget request, but was not included as a line item.

The following “key achievements” planned for FY 2013 are especially noteworthy:

- *Continue to provide opportunities for learners to engage in STEM education through NASA content provided to informal education institutions;*
- *Maintain no fewer than 1,000 online STEM-based teaching tools for K-12 and informal educators and higher education faculty;*
- *Conduct no fewer than 200 interactive K-12 student activities that leverage the unique assets of NASA’s missions;*
- *Increase NASA’s engagement in national STEM education policy discussions to improve curricula, inform national standards in STEM subjects, and ensure coordination and sharing of best practices across federal STEM agencies to avoid duplication, overlap, or fragmentation by participating in STEM education advisory boards, STEM-related committees, or other events or activities related to national STEM education policy.*

DEPARTMENT OF EDUCATION

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Dept. of Ed.	45,358	46,600	45,300	45,300	47,000
Race to the Top	4,000*	-	698.6	549	850
i3	650*	-	149.7	149.4	150
ET: STEM	-	-	-	-	149.7
MSP	179	180.5	175.1	149.7	-
Promise Neigh.	-	10	29.9	59.9	100
21st CCLC	1,131	1,166	1,154	1,152	1,152

(in millions of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)

*funding was provided via the American Recovery and Reinvestment Act of 2009

The Department of Education (ED) would receive \$47 billion in overall discretionary funding (plus Pell Grant funding) for FY 2013 under the budget request, an increase of \$1.7 billion over the comparable amount provided for FY 2012.

Race to the Top

The Race to the Top (RTTP) program, first authorized by the American Recovery and Reinvestment Act of 2009 (ARRA), would receive \$850 million in funding for FY 2013, \$301 million more than the amount available for FY 2012. RTTP, which the Administration wants included in a reauthorized Elementary and Secondary Education Act (ESEA), is intended to create incentives for comprehensive State and local reforms and innovations designed to close achievement gaps and produce significant improvements in student achievement, high school graduation rates, and college enrollment rates for all students. Under the reauthorized program, ED would make competitive awards to States, local education agencies, or a combination of the two. According to the request, in FY 2013, the program:

...will be poised to deepen the Administration's investments in the program's five core reform areas – implementing rigorous standards and assessments, using data to improve instruction and decision-making, recruiting and retaining effected teachers and principals, turning around the lowest-performing schools, and improving State systems of early learning and care – and to address the unmet demands of States and districts that have demonstrated a commitment to implementing comprehensive and ambitious plans in these areas. Additional resources will be provided for Race to the Top – Early Learning Challenge, to be paired with new investments by the Department of Health and Human Services in improving child care quality and preparing children for success in school.

Investing in Innovation Fund

ED proposes the continuation of another program that was initially supported through the ARRA: the Investing in Innovation Fund (i3). The program received \$650 million in ARRA funds in FY 2009 and roughly \$149 million in each of the last two fiscal years; for FY 2013, the Administration is proposing nearly the same amount -- \$150 million. i3 has made competitive awards to develop and expand innovative strategies and practices that have been shown to be effective in improving educational outcomes for students. According to the budget request, additional funding for FY 2013 would:

...build on the first three i3 competitions by supporting grants, under a new ESEA authority based on the existing i3 program, to develop, validate, and scale up practices, strategies, or programs to improve student outcomes, with the amount of funds tied to the strength of evidence of effectiveness. Priority could be given to projects proposing to improve early learning outcomes; improve student attainment in science, technology, engineering, and mathematics (STEM) subjects; and increase productivity by improving student learning or other educational outcomes while increasing efficiency in the use of time, staff, money, or other resources. In addition, the request would support the Advanced Research Projects Agency-Education (ARPA-ED), a new entity modeled after similar agencies in the Department of Defense and Department of Energy that would pursue breakthrough developments in educational technology and learning systems, support systems for educators, and educational tools.

Effective Teaching and Learning for a Complete Education

Also in ED's budget request is a \$426.6 million proposal for Effective Teaching and Learning for a Complete Education, a program that is similar to one introduced last year and which would replace the Department of Education's Math and Science Partnerships (MSP) program in FY 2013. According to the budget request, the new program would:

...address the need to strengthen instruction and raise student achievement across the core academic content areas, especially in high-need LEAs, by replacing a patchwork of programs and funding streams in current law with three comprehensive, coherent programs that provide

increased flexibility for States and LEAs to design, develop, and implement strategies that best meet the needs of their students, including students with disabilities and English learners. The initiative also would support State and local efforts to use technology and interdisciplinary approaches to improve academic instruction and to expand the use of evidence-based practices. Finally, while continuing to emphasize literacy and STEM (Science, Technology, Engineering, and Mathematics), this initiative recognizes the importance of providing every student with a well-rounded education.

The STEM-related piece of this initiative, “Effective Teaching and Learning: STEM,” would receive \$149.7 million in funding for FY 2013 and provide competitive grants to State Education Agencies, alone or in partnership with other entities, to implement a comprehensive strategy for the provision of high-quality STEM instruction and support to students. ED would give grant award priority to States that have adopted and are implementing a set of K-12 college- and career-ready standards in at least mathematics.

Promise Neighborhoods

\$100 million in funding is also proposed for the Promise Neighborhoods initiative, which received \$59.9 million for FY 2012; the request reflects an increase of \$40.1 million. FY 2013 funding would:

...support the fourth cohort of planning grants and the third cohort of implementation grants for the development and implementation of plans for comprehensive neighborhood projects, including a continuum of family and community services and ambitious education reforms, designed to combat the effects of poverty and improve education and life outcomes, from birth through college to career, for children and youth within a distressed geographic area. The core belief behind the initiative is that providing both effective, achievement-oriented schools and strong systems of support to children and youth in poverty will offer them the best hope for overcoming poverty and building a better life. Eligible applicants, which may include nonprofit organizations, institutions of higher education, and Indian tribes, must demonstrate their ability to sustain the Promise Neighborhood once the federal grants end, through effective partnerships with schools, nonprofit organizations, foundations, and local and State agencies.

21st Century Community Learning Centers

The 21st Century Community Learning Centers (21st CCLC) afterschool program would receive level funding of \$1.15 billion under the FY 2013 request. The Obama Administration states that its proposal would:

...support before- and after-school programs, summer enrichment programs, summer school programs, expanded-learning-time programs, and full-service community schools. All local projects would provide additional time for students, including both students with the greatest academic needs and those who are meeting State academic achievement standards, to participate in (1) academic activities that are aligned with the instruction those students receive during the regular school day and are targeted to their academic needs; and (2) enrichment and other activities that complement the academic program. Projects could also provide teachers the time they need to collaborate, plan, and engage in professional development within and across grades and subjects. This enhanced flexibility would allow communities to determine the best strategies for enabling their students and teachers to get the time and support they need, particularly in the context of supporting rigorous and comprehensive interventions in their lowest-performing schools.

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
NOAA	4,374	4,748	4,597	4,907	5,061
Education	46.1	53.8	25	25.1	11.3
Comp. Ed. Grants	8.5	12	5.8	5.1	-

(in millions of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)

The National Oceanic and Atmospheric Administration (NOAA) would receive \$5.061 billion under the President’s request, an increase of \$153.9 million above the FY 2012 enacted level.

Education Program and Competitive Education Grants

Of the total amount proposed for NOAA, \$11.3 million is requested for the agency’s education program, a \$13.8 million reduction from the FY 2012 level of \$25.1 million. Furthermore, the Administration proposes to cut external grants provided by NOAA’s Office of Education; the grants have supported environmental literacy. Since 2005, the Environmental Literacy Grants program has awarded 61 grants totaling over \$27 million in support of informal science education.

According to the Administration:

NOAA is responsible for supporting multiple missions including weather forecasts, climate projections, and management of coastal zones and marine ecosystems. Certain activities, including extramural grants for education, will need to be curtailed in order to continue progress towards addressing NOAA’s other responsibilities. The 2013 budget also includes approximately \$30 million for STEM education within individual NOAA programs and coordinated with the Office of Education. These funds leverage programs that are place-based or jointly funded by States, as well as support secondary education through the Ernest F. Hollings Undergraduate Scholarship Program, the Dr. Nancy Foster Scholarship Program, and the National Sea Grant Program. The 2013 budget sustains funding for most of these activities, and continues to improve the effectiveness of STEM programs through other Government-wide initiatives.

INSTITUTE OF MUSEUM AND LIBRARY SERVICES

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
IMLS	274,840	282,251	237,393	231,954	231,954
Library Grants	212,179	213,523	189,035	184,704	184,704
Museum Grants	33,697	33,727	30,140	29,449	29,449
Mus. for America	19,176	19,176	18,453	18,030	20,643
CPS	3,052	3,052	2,675	2,675	-
NLG	7,981	7,981	6,050	5,911	7,880
21MP	1,280	1,280	2,015	1,969	-
Native/Hawaii	945	975	947	926	926
African Am. Hist.	1,310	1,485	1,443	1,410	1,410
Cong. Earmarks	10,737	16,382	-	-	-

(in thousands of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)

Like NIH, the Institute of Museum and Library Services (IMLS) would receive level-funding under the FY 2013 budget request; the \$231.95 million proposed is the same amount estimated to be available for FY 2012. Overall funding for both library grants and museums grants would also be supported at current year levels – \$184.7 million and \$29.45 million respectively.

Museums for America and Conservation Project Support

The FY 2013 budget request calls for \$20.65 million in funding for Museums for America (MFA), the agency’s largest grant program for museums. On paper, this would reflect an increase of \$2.61 million over the FY 2012 estimated level. It should be noted, however, that IMLS plans to merge MFA with Conservation Project Support (CPS) in FY 2013; CPS was funded at \$2.68 million in FY 2012. Therefore, the new, expanded MFA program – which will include CPS and is being called a “larger funding opportunity for museums” – is essentially slated for level-funding. In its budget request, IMLS states that the purpose and goals of the CPS program will be included in the MFA program and that:

The merger of these two programs will eliminate the confusing overlap that existed between the collections stewardship category projects under MFA and collections conservation projects under CPS.

The agency also argues that they will be able to support a larger number of museums in the upcoming fiscal year as a result of the merge and by restricting applications to one per eligible institution for the revised program.

National Leadership Grants for Museums and 21st Century Museums Professionals Grants

In keeping with the consolidation theme on the museum side of the agency, IMLS also proposes that the National Leadership Grants for Museums (NLG) program, which would absorb the smaller 21st Century Museum Professionals Grants (21MP) program. The newly expanded NLG program would receive \$7.88 million in FY 2013, the same collective amount the two distinct programs received for FY 2012. IMLS contends that the newly expanded NLG program would offer a streamlined application process for applicants, and indicates that the program will solicit proposals that:

...focus on providing communities with models or research relating to successfully engaging diverse audiences, building communities of practice, facilitating partnerships, training and development of museums professionals to meet 21st century needs, and positioning museums as strong community anchors that enhance civic engagement, cultural opportunities, and economic vitality. In 2012, the Institute solicited specific proposals to support the nationwide Campaign for Grade Level Reading. In 2013, the Institute will continue to be more intentional in soliciting applications that address national movements and trends that can position museums to play a substantive role not only in advancing the profession but also in building stronger communities.

DEPARTMENT OF ENERGY

	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
Dept. of Energy	26,037	26,406	26,692	26,299	27,155
ARPA-E	415*	-	179.6	275	350
EERE	2,158	2,216	1,772	1,810	2,337

**(in millions of dollars; numbers rounded; FY 2012 reflects estimate; FY 2013 reflects request)
*most funding was provided via the American Recovery and Reinvestment Act of 2009**

The Department of Energy (DOE) is slated to receive \$27.16 billion for FY 2013 under the budget request, \$856 million (3.2%) more than the amount appropriated for FY 2012.

Advanced Research Projects Agency-Energy

\$350 million of DOE’s total funding is proposed for the agency’s Advanced Research Projects Agency-Energy (ARPA-E), which received \$275 million for FY 2012; this reflects an increase of \$75 million (27.3%). According to the budget request:

ARPA-E sponsors specific high-impact transformational research and development projects that overcome the long-term technological barriers in the development of energy technologies to meet the Nation’s energy challenges, but that industry will not support at such an early stage. ARPA-E is funding transformational research to create revolutionary technologies that will fuel the economy, create new jobs, reduce energy imports, improve energy efficiency, reduce energy-related emissions, and ensure that the U.S. maintains a technological lead in developing and deploying advanced energy technologies.

To date, ARPA-E has issued 12 Funding Opportunity Announcements and has funded over 180 projects.

Office of Energy Efficiency and Renewable Energy

Of the total funding amount proposed for DOE for FY 2013, the agency’s Office of Energy Efficiency and Renewable Energy (EERE) – an office ASTC and a number of members have worked with recently – would receive \$2.34 billion, an increase of \$527.4 million (29.1%) over the FY 2012 level. According to the budget request:

The Office of Energy Efficiency and Renewable Energy supports clean energy research, development, demonstration, and deployment activities on technologies and practices that help meet national security, environmental, and economic goals. EERE-supported technologies further these goals by reducing dependence on oil, minimizing the emissions associated with energy production and use, and stimulating economic growth and job creation in the U.S. through the reduction of energy costs and investment in next generation renewable energy and manufacturing. The EERE portfolio emphasizes work areas where the potential impact is largest, and where federal funds are most critical. It balances investments in high-risk early-stage research with partnerships with private firms that speed the translation of innovations into practical business opportunities. The diverse set of technologies supported by EERE helps ensure that the U.S. has many options for meeting its energy goals. Program management is designed to identify the best groups in the country to address these challenges and supports work in universities, companies, national laboratories, and consortia.