EDUCATION

Budget Authority (in $ millions)	Actual FY 2012	FY 2013	FY 2014	Notional FY 2015	FY 2016	FY 2017	FY 2018
FY 2014 President's Budget Request	136.1	136.9	**94.2**	94.2	94.2	94.2	94.2
Aerospace Research and Career Development (ARCD)	58.4	--	**33.0**	33.0	33.0	33.0	33.0
STEM Education and Accountability (SEA)	80.0	--	**61.2**	61.2	61.2	61.2	61.2

EDUCATION

EDUCATION

FY 2014 Budget

Budget Authority (in $ millions)	Actual FY 2012	FY 2013*	FY 2014	Notional FY 2015	FY 2016	FY 2017	FY 2018
FY 2014 President's Budget Request	136.1	136.9	**94.2**	94.2	94.2	94.2	94.2
Aerospace Research and Career Development (ARCD)	58.4	--	**33.0**	33.0	33.0	33.0	33.0
STEM Education and Accountability (SEA)	80.0	--	**61.2**	61.2	61.2	61.2	61.2
Subtotal	138.4	139.2	**94.2**	94.2	94.2	94.2	94.2
Rescission of prior-year unob. balances**	-2.3	-2.3	**--**	--	--	--	--
Change from FY 2012	--	--	**-41.9**				
Percentage change from FY 2012	--	--	**-30.8 %**				

*Note: * The FY 2013 appropriation for NASA was not enacted at the time that the FY 2014 Request was prepared; therefore, the amounts in the FY 2013 column reflect the annualized level provided by the Continuing Resolution plus the 0.612 percent across the board increase (pursuant to Section 101(a) and (c) of P.L. 112-175).*

*** Rescission of prior-year unobligated balances from Aerospace Research and Career Development pursuant to P.L. 112-55, Division B, sec. 528(f).*

A group of educators showing their enthusiasm at a hands-on STEM Research Workshop, posed in front of a 34-meter antenna in the Deep Space Network at Goldstone, in California's Mojave Desert. NASA's investment in educators teaching grades 4-12 provides immediate benefit to their classrooms, transferring the excitement of learning, as well as infusing new materials and strategies to inspire their students.

In support of the Administration's FY 2014 Science, Technology, Engineering, and Mathematics (STEM) Education plan, the Agency's education efforts will be fundamentally restructured into a consolidated education program funded through the Office of Education. The Office of Education will coordinate closely with the Department of Education, the National Science Foundation, and the Smithsonian Institution to achieve the Administration's STEM goals under its wider consolidation strategy. This approach will utilize NASA's expertise and resources to shape the Nation's STEM education portfolio. The FY 2014 request for Education is $94.2 million, and an additional $15 million to support fellowships contained in the Space Technology Mission Directorate Account.

NASA Education's vision is to advance high quality STEM education using NASA's unique capabilities. NASA's education programs will continue to be deliberate in developing and executing strategic partnerships with intergovernmental, academic, industrial, entrepreneurial, and international communities to ensure NASA's education mission and vision are properly addressed. NASA Education activities will define specific

benefits and outcomes from each partnership, develop a method to systematically manage partnerships, and leverage each organization's resources appropriately.

In addition to the National Space Grant College and Fellowship Program (Space Grant), Experimental Program to Stimulate Competitive Research (EPSCoR) and Minority University Research and Education Project (MUREP), NASA will consolidate the education functions, assets and efforts of the mission directorates, offices and Centers, for example GLOBE, into a single coordinated STEM Education and Accountability Project. The assets are critical and unique components that NASA can make available to the National Science Foundation, Smithsonian Institution, and Department of Education as they facilitate federal STEM education activities.

NASA will continue to improve STEM education through an internal competitive process that invests in NASA's most effective education programs, and will remain in alignment with the America COMPETES Reauthorization Act of 2010. NASA's education investments will also be aligned with the federal strategic plans of the Administration's Committee on STEM (CoSTEM). NASA's investments will include support for minority serving institutions and community colleges, which generally serve a high proportion of minority students, preparing them for study at a four-year institution.

EXPLANATION OF MAJOR CHANGES FOR FY 2014

The Agency's STEM education efforts will be fundamentally restructured into a consolidated education program within NASA Office of Education, and will coordinate closely with the Department of Education, the National Science Foundation, and the Smithsonian Institution in leading and executing the Administration's STEM education efforts. The Agency aims to increase both the use of NASA resources and the availability of opportunities to a diverse audience of educators and students, including women, minorities, and persons with disabilities.

The Office of Education will utilize an evidence-based competitive process focusing on NASA's most effective internal STEM education activities and assets. In addition to funding the best NASA STEM education assets, these funds will be used to ensure that on-going activities such as the Aeronautics Scholars and Fellows, Graduate Student Researcher Project Fellows, and educators funded through the Endeavor Science Teacher Certificate Program are not abruptly ended. NASA will also allocate funds to allow the Agency to support a data management system for performance measurement, analysis, evaluation, and reporting of NASA's activities.

NASA will allow offices such as the International Space Station Program Office to make available on orbit assets, open access to launch facilities for consolidated programs to develop STEM engagement efforts.

The resources will support NASA's ability to make its people, facilities, and flight platforms available for educational purposes. Identified are core costs necessary for NASA to support involvement with the STEM consolidation efforts.

NASA's expertise, passion and assets play a unique role in the Nation's STEM education portfolio. In addition to Space Grant, EPSCoR, and MUREP, the STEM Education and Accountability Project will identify functions and assets as critical components that NASA can make available to the National Science Foundation, Smithsonian Institution, and Department of Education as they facilitate federal

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STEM education activities through the Administration's Committee on STEM process for Agency coordination.

Funding is focused on the most effective and highest priority activities.

ACHIEVEMENTS IN FY 2012

NASA Interdisciplinary National Science Project Incorporating Research and Education Experience (INSPIRE) is a research based student pipeline activity designed for students in ninth to twelfth grade. The centerpiece of the INSPIRE activity is its Online Learning Community. NASA's unique mission provides the content for the community with the intent to generate interest of students in NASA STEM-related education and career opportunities. In FY 2012, NASA selected 2,054 students to participate in an online learning community, compared to 1,923 in 2011, an increase of 131 students (6.8 percent) from 2011. The students represent 49 states, Guam and Puerto Rico.

Based on survey data, 90 percent of the students who participated in INSPIRE report they want to take more STEM courses after participating.

NASA Science, Engineering, Mathematics and Aerospace Academy (SEMAA) is a national education activity designed to increase the participation and retention of historically underserved and underrepresented K-12 youth in the areas of science, technology, engineering, and mathematics (STEM). In FY 2012, the SEMAA project served a total of 70,384 students, parents/adult caregivers, teachers and outreach participants representing an overall 14 percent increase over the number of participants served in FY 2011.

After participation in SEMAA, 88 percent of students surveyed expressed an interest in STEM. All of the teachers (1005) reported using NASA resources in their classroom after participating in NASA professional development, far exceeding the goal of 50 percent.

NASA Undergraduate Student Research (USR) activity offers undergraduate students across the United States immersive research and engineering internship experiences at all ten NASA Field Centers and two NASA Research Facilities. In FY 2012, NASA provided 141 experiences for higher education students. Of that number, 28 interns represented an underserved race or ethnicity and 46 were female. In addition, NASA intern Kody Ensley was named Intern Student of the Year by the American Society of Engineering Educators Cooperative and Experiential Division. He has since joined the NASA workforce as a software engineer at Johnson Space Flight Center.

WORK IN PROGRESS IN FY 2013

NASA continues to align its STEM education activities with the priorities identified in the five-year STEM Strategic Plan issued by CoSTEM. The Agency is consolidating the education activities from NASA's mission directorates, offices, and Centers to ensure educational activities are thoroughly integrated with the proposed programs this account funds.

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KEY ACHIEVEMENTS PLANNED FOR FY 2014

The NASA Office of Education will coordinate closely with the Department of Education, the National Science Foundation, and the Smithsonian Institution within the framework of the wider consolidated STEM education effort. The Agency aims to increase both the effectiveness and utilization of NASA resources to reach the Administration's STEM education goals.

STEM education resources within NASA will be focused within NASA's Office of Education, which will employ an evidence-based competitive process to reach NASA's most effective internal STEM education activities and assets across the Agency. NASA seeks to make available its unique assets, such as the International Space Station, open to STEM education programs government-wide on a reimbursable basis in order to enhance their effective reach to students and educators. In addition, the Office of Education will expand its evidence-collection activities, and deploy a data management system for performance measurement, analysis, evaluation, and reporting of NASA's activities.

NASA's education portfolio will focus on the following four priorities, which will contribute toward the Administration's goals for STEM education.

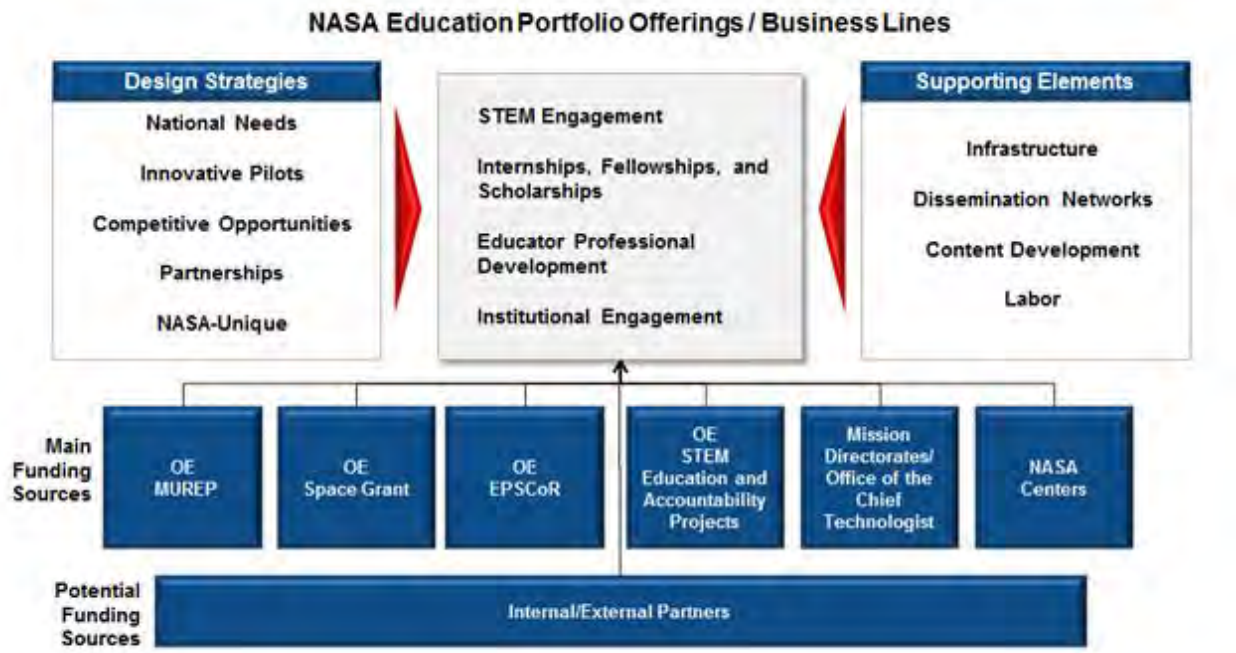
- STEM Engagement: Provide opportunities for participatory and experiential learning activities that connect learners to NASA-unique resources;
- NASA Internships, Fellowships, and Scholarships: Utilize NASA facilities and assets to provide work experiences, research opportunities to improve retention in STEM and prepare students for employment in STEM jobs;
- Educator Professional Development: Prepare STEM educators and leaders to deliver quality STEM instruction utilizing unique NASA assets; and
- Institutional Engagement: Improve the capacity of U.S. institutions to deliver effective STEM education.

An overarching operating principle consistent throughout the portfolio is a focus on making opportunities available to a diverse audience of educators and learners, including women, minorities, and persons with disabilities.

The diagram listed below describes a strategically focused portfolio that ensures scalability and flexibility, and enables NASA education to focus its efforts in areas of greatest national need.

EDUCATION

Agency's Design Strategies & Funding



Programs

AEROSPACE RESEARCH & CAREER DEVELOPMENT (ARCD)

The Aerospace Research and Career Development (ARCD) program strengthens the research capabilities of the Nation's colleges and universities and provides opportunities; those attract and prepare an increasing numbers of students for NASA-related careers. These institutions conduct research that contributes to NASA's Mission Directorates' research needs and furthers the Nation's scientific and technology innovation agendas. The student programs serve as a major link in the pipeline for addressing NASA's human capital strategies. The programs build, sustain, and effectively deploy the skilled, knowledgeable, diverse, and high-performing workforce needed to meet the current and emerging needs of NASA and the Nation.

The projects in the Aerospace Research and Career Development program are: National Space Grant College and Fellowship Program (Space Grant), and Experimental Program to Stimulate Competitive Research (EPSCoR).

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STEM EDUCATION AND ACCOUNTABILITY (SEA)

The STEM Education and Accountability (SEA) program provides unique NASA assets, including its people, resources and facilities available in support of the Nation's STEM education priorities. The program supports the professional development of interns, fellows and educators, while integrating NASA assets and content into programs designed by the Department of Education, National Science Foundation and the Smithsonian Institution. The program also enhances the research, academic, and technology capabilities of Historically Black Colleges and Universities, Hispanic Serving Institutions, Tribal Colleges and Universities, and other Minority Serving Institutions (MSIs); provides targeted opportunities for underrepresented and underserved learners to participate in research and education opportunities through internships, scholarships, and fellowships; and provides opportunities for minority institutions to improve the quality of their faculty preparation programs and thereby improve the quality and diversity of future STEM leaders.

The projects within the SEA Program are: Minority University Research and Education Project (MUREP), and STEM Education and Accountability Project.

NASA invests in a shared Program Evaluation & Accountability effort across both ARCD and SEA programs. Managed from NASA Headquarters, it ensures alignment, and helps identify and eliminate potential duplication of effort across NASA's education portfolio. NASA also actively participates in the National Science and Technology Council Committee on STEM, serving as the co-chair in the development of the Federal Strategic Plan for STEM Education. These two efforts ensure NASA's investments are non-duplicative of other federal agencies, and are internally coordinated among the Office of Education, mission directorates and centers. These efforts are consistent with both a Government Accountability Office report (GAO-12-342SP) and CoSTEM reports on how to better coordinate STEM efforts across Federal agencies. CoSTEM coordinates Federal programs and activities in support of STEM education, pursuant to the requirements of Section 101 of the America COMPETES Reauthorization Act of 2010.

For more information on CoSTEM reports, go to:
http://www.whitehouse.gov/administration/eop/ostp/nstc/committees/costem.

AEROSPACE RESEARCH AND CAREER DEVELOPMENT (ARCD)

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	56.1	--	**33.0**	33.0	33.0	33.0	33.0
National Space Grant College and Fellowship Project	40.0	--	**24.0**	24.0	24.0	24.0	24.0
Experimental Project To Stimulate Competitive Research (EPSCoR)	18.4	--	**9.0**	9.0	9.0	9.0	9.0
Subtotal	58.4	--	**33.0**	33.0	33.0	33.0	33.0
Rescission of prior-year unob. balances*	-2.3	--	**--**	--	--	--	--
Change from FY 2012	--	--	**-23.1**				
Percentage change from FY 2012	--	--	**-41.2 %**				

*Note: * Rescission of prior-year unobligated balances from NASA Space Grant and EPSCoR pursuant to P.L. 112-55, Division B, sec. 528(f).*

Promoting research that helps to advance its science and technical priorities, NASA partners with a variety of external organizations to engage faculty and research teams. Opportunities such as NASA's Advanced Rocketry Workshops take participants through all aspects of NASA Student Launch Projects.

Aerospace Research and Career Development (ARCD) supports national STEM efforts through the National Space Grant College and Fellowship Program (Space Grant) and the Experimental Program to Stimulate Competitive Research (EPSCoR).

The NASA Authorization Act of 1988 (P.L. 100-147) established Space Grant with a goal of enhancing the Nation's science enterprise by funding education, research, and public service projects through a national network of university-based Space Grant consortia. The NASA Authorization Act, FY 1992 (P.L. 102-588) established EPSCoR to strengthen the research capability of jurisdictions that have not in the past participated equitably in competitive aerospace research activities. The goal of the NASA EPSCoR is to provide seed funding that will enable jurisdictions to develop an academic research enterprise directed toward long-term, self-sustaining, nationally competitive capabilities in aerospace and aerospace-related research. This capability will, in turn, contribute to the jurisdiction's economic viability and expand the Nation's base for aerospace research and development.

These national projects enable NASA to advance more strategically STEM literacy by enhancing science and engineering education and research efforts in higher education, K-12, and informal education. In addition to education, ARCD promotes research and technology development opportunities for faculty and research teams that advance the Agency's scientific and technical priorities.

AEROSPACE RESEARCH AND CAREER DEVELOPMENT (ARCD)

EXPLANATION OF MAJOR CHANGES

See Explanation of Major Changes section of Education Account Overview. Funding is focused on the most effective and highest priority activities.

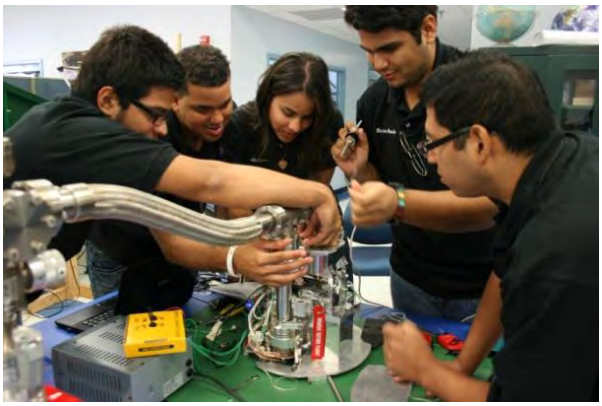
NASA SPACE GRANT

Formulation	Development	Operations

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	38.9	--	**24.0**	24.0	24.0	24.0	24.0
Subtotal	40.0	--	**24.0**	24.0	24.0	24.0	24.0
Rescission of prior-year unob. balances*	-1.2	--	**--**	--	--	--	--
Change from FY 2012	--	--	**-14.9**				
Percentage change from FY 2012	--	--	**-38.3%**				

*Note: * Rescission of prior-year unobligated balances pursuant to P.L. 112-55, Division B, sec. 528(f).*



The best reinforcement for learning is doing. Through a series of design challenges for experiment payloads and launches, Space Grant provides students with hands-on experiences. Taking the knowledge and skills gained from these experiences back to the classroom helps to foster greater academic success.

The National Space Grant College and Fellowship Program (Space Grant) is a competitive grant opportunity project, enabling the active involvement of the entire country in NASA activities through its national network of 52 consortia in 50 states, the District of Columbia, and the Commonwealth of Puerto Rico. Space Grant supports and enhances science and engineering education and research efforts for educators and learners, by leveraging the resource capabilities and technologies of over 1,000 affiliates from universities, colleges, industry, museums, science centers, and state and local agencies. Training grants with each consortium align their work with the Nation's STEM education priorities and the annual performance goals of the Agency.

Space Grant enables NASA to provide flight opportunities for students to access space to gain research and hands-on engineering experiences on a variety of authentic flight platforms, including high-altitude balloons, sounding rockets, aircraft, and space satellites. Space Grant leverages Agency investments in STEM education through collaborations with other national NASA education activities. Space Grant also supports student participants in internship experiences at NASA Centers.

EXPLANATION OF MAJOR CHANGES

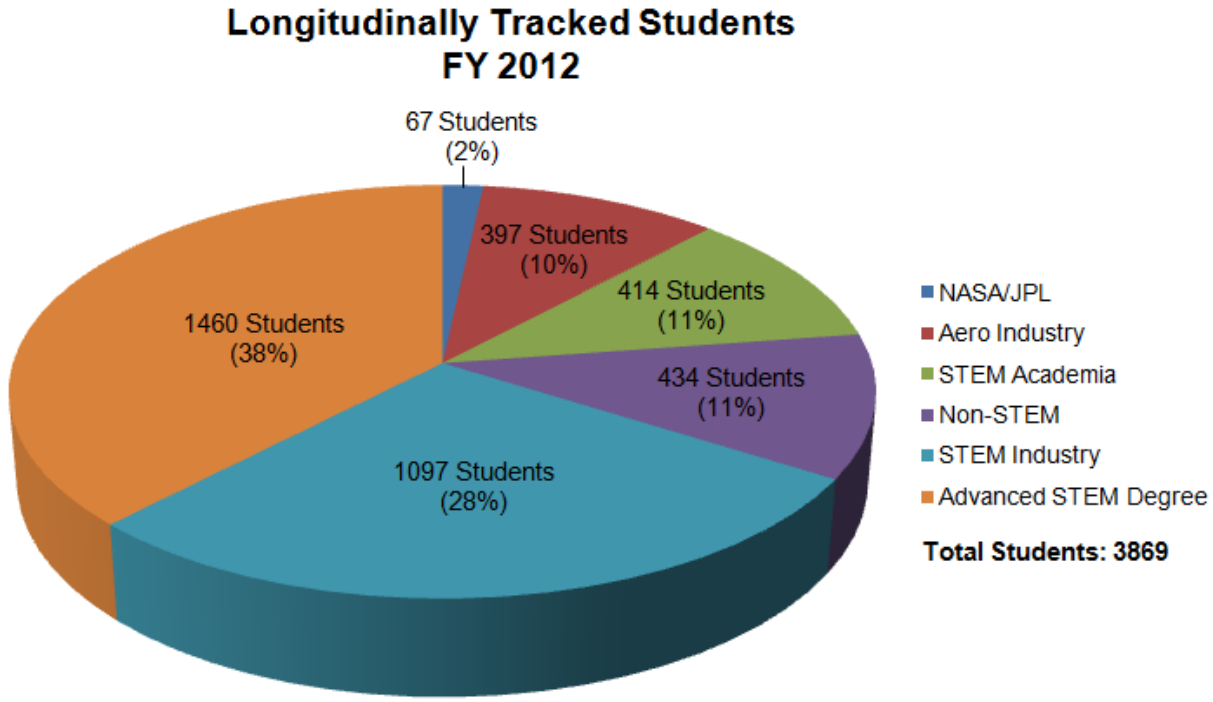
See Explanation of Major Changes section of Education Account Overview. Funding is focused on the most effective and highest priority activities.

NASA SPACE GRANT

Formulation	Development	Operations

ACHIEVEMENTS IN FY 2012

In FY 2012, over 24,000 Space Grant-supported undergraduate and graduate students participated in scholarships, fellowships, internships and authentic hands-on research and engineering challenges. Diversity is a key component within the Space Grant project, achieving a 23 percent participation of underrepresented students, and 34 percent participation of female students in Space Grant activities. Educators are an important target audience of Space Grant. This year over 19,000 educators participated in NASA education activities. Space Grant also targets elementary and secondary students through NASA instructional and enrichment activities, reaching over 164,000 precollege students. The Agency conducts longitudinal tracking of Higher Education students receiving significant investments. The table below shows the status of 3,869 students who were longitudinally tracked in 2012 after taking their "next step" from Space Grant.



The Space Grant consortia supported flight project activities led by teams of students. Those project activities included:

Three payloads as part of the CubeSat Launch Initiative;
The fifth Rock-On Workshop with representation from twelve universities;
The third Rock-Sat-C launch with representation from ten universities;

NASA SPACE GRANT

Formulation	Development	Operations

The second Rock-Sat-X launch with representation from four universities; and
A flight of the High Altitude Student Platform (HASP) with 12 payloads from 14 universities.

WORK IN PROGRESS IN FY 2013

The currently open Space Grant solicitation directly addresses the need to improve retention rates in STEM majors during the first two years of undergraduate STEM education and to increase the number of pre-service K-12 educators qualified to teach in STEM fields. Additionally, the solicitation seeks to insure that participants are representative of the diversity of the United States. The Agency will award the cooperative agreements during the second quarter of FY 2013. The Space Grant team is currently preparing to solicit an organization to conduct an independent external evaluation to be completed in 2014.

KEY ACHIEVEMENTS PLANNED FOR FY 2014

In 2014, the program budget will support the base awards for Year 5 of 5 for the 52 consortia which includes the following elements:

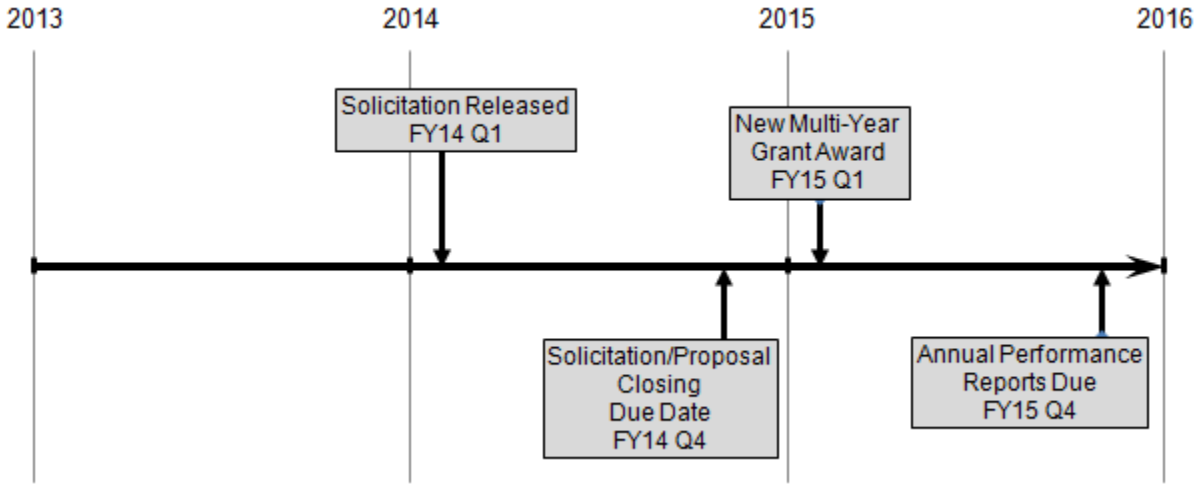
- Provide hands-on experiences for U.S. graduate and undergraduate students to prepare them for the future workforce and/or academic careers;
- Conduct programs and projects that align with the NASA Education priorities, missions and state-specific needs to build upon the education pipeline in pre-college, higher education, and informal education;
- Promote a strong STEM education base from elementary through secondary levels while preparing teachers in these grade levels to become more effective at improving student academic outcomes;
- Continue to build upon and maintain the existing national network of universities with interests and capabilities in aeronautics, space and related fields; and
- Leverage the opportunities emerging from the NASA Education strategy to develop high-impact, nationwide partnerships.

Space Grant will assess the results of the completed independent external evaluation to determine possible changes to the program in conjunction with the NASA Education strategy and direction. The solicitation will reflect this new direction.

NASA SPACE GRANT

Formulation	Development	Operations

Project Schedule



Project Management & Commitments

The Space Grant Project Manager at NASA Headquarters provides management responsibility for day-to-day Space Grant operations. Award selections by the 52 lead institutions are based on peer reviews by external panels that evaluate performance, and internal/external panels that assess performance, merit, and alignment to Agency education, research, and technology goals. Each consortium program or project must demonstrate alignment with NASA education objectives that align with NASA strategic goals. Civil servants at NASA centers actively engage with regional space grant consortia, providing direction, oversight, and integration with center and mission directorate activities.

NASA SPACE GRANT

Formulation	Development	Operations

Acquisition Strategy

NASA solicits Space Grants through full and open competition for proposals accepted from Space Grant consortia in each state, Washington D.C., and the Commonwealth of Puerto Rico. Each consortium program or project must demonstrate alignment with NASA education objectives that align with NASA strategic goals. Awards are based on peer reviews by external panels that evaluate performance, and internal/external panels that assess performance, merit, and alignment to Agency education, research, and technology goals. Awards are typically for five years.

Consortia must submit annual performance data, student profile and award information (for students who meet the longitudinal tracking threshold), project information, and other performance data. The Space Grant Program Office also performs comprehensive program reviews every five years.

INDEPENDENT REVIEWS

Review Type	Performer	Last Review	Purpose	Outcome	Next Review
Independent/ External	TBD	N/A	An independent review by an external organization to assess the accomplishments and strategy of the Space Grant program		2014

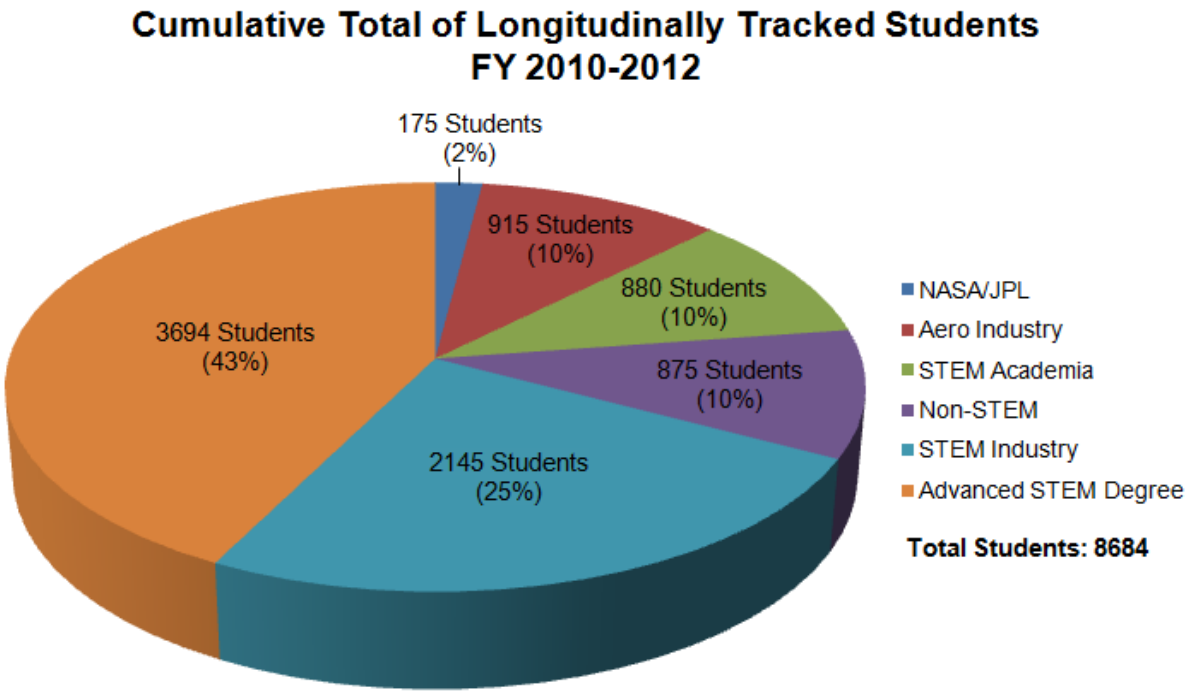
The Space Grant Program evaluation, which concluded in 2009, covered the five-year period 2003-2007 and focused on a merit review of the performance by each consortia in three primary areas: overall performance and results (Program Performance and Results), effectiveness in terms of key elements of grant management practices (Network Participation and Responsiveness), and feedback from the consortium members (Affiliate Opinion Survey). Individual consortium results fell into four categories: Pass, Pass with Weaknesses, Pass with Deficiencies, and Serious Deficiencies. Depending on the category, consortia with results other than "Pass" were required to address the areas cited.

HISTORICAL PERFORMANCE

Between 2010 and 2012, Space Grant reached over 67,000 higher education participants, including 12,626 individuals receiving significant education and research support. Consistent with the definition of all Office of Education higher education student participants, significant awardees receive greater than or equal to $5,000 in monetary support or participate in activities of greater than or equal to 160 hours in duration. Longitudinal tracking of significant student awardees indicates that typically 90 percent of Space Grant award recipients either obtain employment in STEM fields after graduation or matriculate into an advanced STEM degree program. The following graph illustrates student post-graduation employment in STEM career fields over the last three years.

NASA SPACE GRANT

Formulation	Development	Operations



EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCOR)

Formulation	Development	Operations

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	17.3	--	**9.0**	9.0	9.0	9.0	9.0
Subtotal	18.4	--	**9.0**	9.0	9.0	9.0	9.0
Rescission of prior-year unob. balances*	-1.2	--	**--**	--	--	--	--
Change from FY 2012	--	--	**-8.3**				
Percentage change from FY 2012	--	--	**-48.0%**				

*Note: * Rescission of prior-year unobligated balances pursuant to P.L. 112-55, Division B, sec. 528(f).*

The Native American Research Laboratory (NARL) was established at the University of Montana for native scholar research in the natural and biological sciences. The EPSCoR Research Grant supports undergraduate, graduate, and high school students with significant research experiences in an interdisciplinary environment, as well as exciting inter-governmental and international internships.

The Experimental Program to Stimulate Competitive Research (EPSCoR) is a competitive grant opportunity project that establishes partnerships between government, higher education, and industry and promotes lasting improvements in the R&D capacity of that state or region. By improving research infrastructure, a region will improve its national research and development competitiveness and economy. EPSCoR develops academic research projects to establish long-term, self-sustaining, and nationally competitive activities in states with modest research infrastructure so that they become more competitive in attracting non-EPSCoR funding.

EPSCoR funds states and regions that have not historically participated equitably in Federal competitive aerospace and aerospace-related research activities. EPSCoR supports competitively funded awards in eligible states (as identified by the National Science Foundation) and provides research and technology development opportunities for faculty and research teams. NASA actively seeks to integrate the research conducted by EPSCoR jurisdictions with the scientific and technical priorities pursued by the Agency.

EXPLANATION OF MAJOR CHANGES

See Explanation of Major Changes section of Education Account Overview. Funding is focused on the most effective and highest priority activities.

EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCOR)

Formulation	Development	Operations

ACHIEVEMENTS IN FY 2012

NASA funded Year 1 (of 3) of the multi-year Research Infrastructure Development awards, representing all 29 eligible jurisdictions, with a net value of $3.6 million. These awards will be funded until FY 2014 for a total funding of $10.9 million. NASA also received 57 proposals in response to its annual competitive call for research. NASA funded 17 proposals from 16 states and the U.S. Virgin Islands with a net value of $12.6 million over the 3-year term of the grants. The selected proposals represent research or technology development in NASA's mission directorates. These awards expire at the end of FY 2015. Scientific and technical achievements by the research teams will be identified in the annual and final reports.

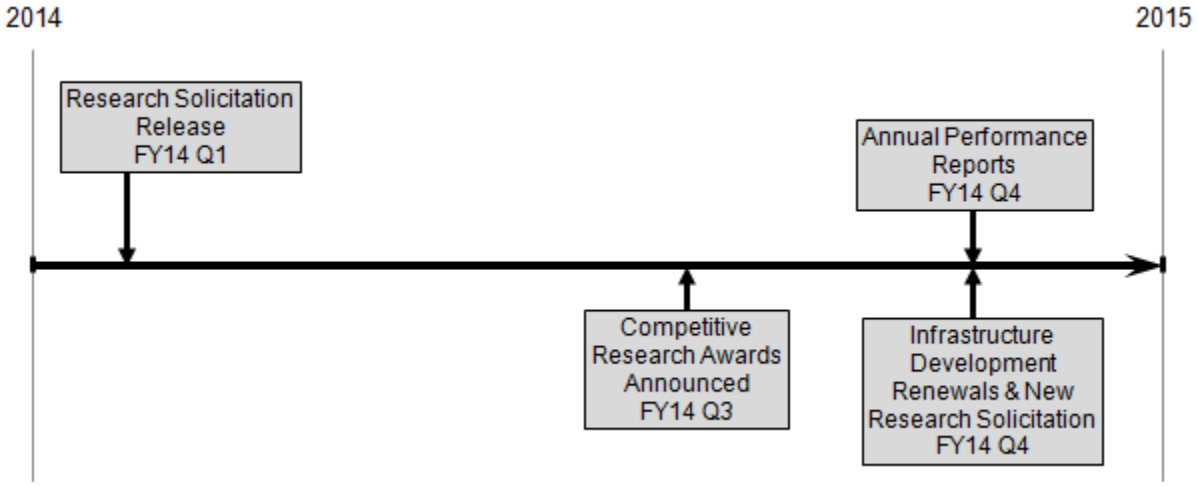
WORK IN PROGRESS IN FY 2013

EPSCoR will make new research awards in January 2013. Each funded proposal is expected to establish research activities that will make significant contributions to NASA's strategic research and technology development priorities and contribute to the overall research infrastructure, science and technology capabilities, higher education, and economic development within the jurisdiction.

KEY ACHIEVEMENTS PLANNED FOR FY 2014

In FY 2014, NASA EPSCoR will issue a competitive call for extramural research awards and will support the third and last year of the Research Infrastructure Development awards. The new research solicitation will focus on priority research and the technology development needs of NASA's mission directorates.

Project Schedule



EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCOR)

Formulation	Development	Operations

Project Management & Commitments

The EPSCoR project manager based at Kennedy Space Center (KSC) provides management responsibility for day-to-day operations. Representatives from each of NASA's mission directorates work closely with EPSCoR project management so that current and future research and engineering needs are reflected in EPSCoR solicitations. The mission directorate representatives serve as the proposal selection committee, further ensuring that the selected work contributes to NASA priorities. Technical monitors at the NASA Centers and Headquarters monitor and assess the progress of each award. They provide scientific guidance and technical advice throughout the year, as required, on the overall progress of the proposed effort, and review all progress reports. Additional involvement may occur, depending upon the nature of the collaboration already established or desired. This includes integrating the EPSCoR research into ongoing activities or research efforts, and increasing the principal investigator and his or her team's awareness of other related or relevant research in NASA.

NASA is a member of the Federal EPSCoR Interagency Coordinating Committee, chaired by the National Science Foundation. The committee works to improve the leveraging of Federal EPSCoR investments.

Acquisition Strategy

NASA solicits and awards EPSCoR through full and open competition among institutions from designated EPSCoR states. Each consortium proposal must demonstrate alignment with the goals of NASA's education programs and the NASA Strategic Plan. Selections are based on peer reviews by external panels that evaluate technical merit and internal and external panels that assess content, merit, feasibility, and alignment to Agency education, research, and technology goals. Awards of up to three years may be made for research and awards of up to five years may be made for infrastructure development, depending on the availability of appropriated funds. Grantees are required to submit performance data annually.

INDEPENDENT REVIEWS

Review Type	Performer	Last Review	Purpose	Outcome	Next Review
Independent	National Academies	N/A	Cross-agency evaluation of EPSCoR and other Federal EPSCoR-like programs and accomplishments per H.R. 5116 America Competes Reauthorization of 2010	Successful	2013

EXPERIMENTAL PROGRAM TO STIMULATE COMPETITIVE RESEARCH (EPSCOR)

Formulation	Development	Operations

HISTORICAL PERFORMANCE

The graph below shows overall statistics of the active research and infrastructure development awards from FY 2009 through FY 2011.

The data elements monitored are consistent with the EPSCoR Interagency Coordinating Committee expectations to measure EPSCoR project performance and the elements of the federal-wide Research Performance Progress Report established by the National Science and Technology Council, Committee on Science, Research Business Models Working Group.

As a consistent set of data are collected over time, EPSCoR anticipates being able to identify significant trends and make program adjustments as necessary.

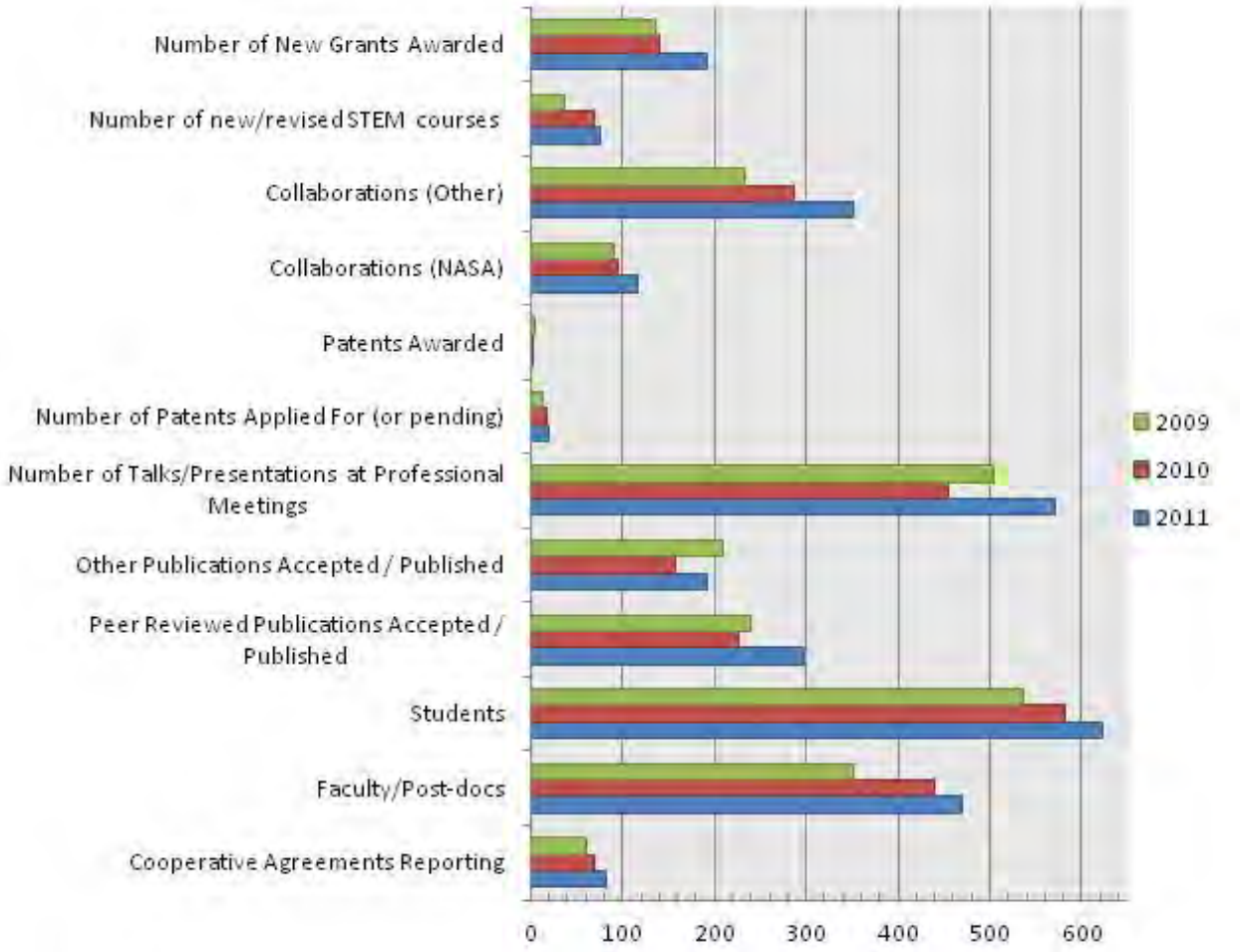


Figure 1: EPSCoR 3-Year Historical Performance Trend Data

STEM EDUCATION AND ACCOUNTABILITY (SEA)

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	80.0	--	**61.2**	61.2	61.2	61.2	61.2
Minority University Research Education Project	30.0	--	**30.0**	30.0	30.0	30.0	30.0
STEM Education and Accountability Projects	50.0	--	**31.2**	31.2	31.2	31.2	31.2
Change from FY 2012	--	--	**-18.8**				
Percentage change from FY 2012	--	--	**-23.5 %**				

The T-shirt says it all! Administrator Bolden is engaged with students as they countdown for their rocket launches during a hands-on Summer of Innovation event in Columbia, South Carolina. Going to special camps and events, participating in activities that challenge and excite, and meeting role models from diverse disciplines helps motivate and encourage students to continue exploring their interests in STEM.

The STEM Education and Accountability program makes unique NASA assets, including people, resources, and facilities available in support of the Nation's STEM education priorities. The program supports professional development of interns, fellows, and educators, while integrating NASA assets and content into programs designed by the Department of Education, National Science Foundation, and the Smithsonian Institution. It connects NASA's partners, including higher education institutions, minority-serving institutions, community colleges, NASA visitor centers, museums, and planetariums to the broad scientific discoveries, aeronautics research, and exploration missions of the Agency.

Through the Minority University Research and Education Project, NASA supports the Nation's Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges through multi-year research grants. Additionally, the project provides internships, scholarships, fellowships, mentoring, and tutoring for underserved and underrepresented learners in K-12, informal, and higher education settings, that includes community colleges, particularly those serving a high proportion of minority and underserved students, including persons with disabilities and women.

EXPLANATION OF MAJOR CHANGES

See Explanation of Major Changes section of Education Account Overview. Funding is focused on the most effective and highest priority activities.

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	30.0	--	**30.0**	30.0	30.0	30.0	30.0
Change from FY 2012	--	--	**0.0**				
Percentage change from FY 2012	--	--	**0%**				

The Harriet G. Jenkins Pre-Doctoral Fellowship Project seeks to increase the number of graduate degrees awarded to women, minorities, and persons with disabilities. Graduate students benefit from research experiences and skills gained through this program, including public presentations of their research findings.

NASA targets recruitment and retention of underrepresented and underserved students, including women and girls, and persons with disabilities. Participation in NASA projects and research stimulates increasing numbers of learners to continue their studies at all education levels and encourages students to earn advanced degrees in STEM fields critical to NASA and the Nation. NASA's Minority University Research and Education Project enhances the research, academic, and technology capabilities of Historically Black Colleges and Universities (HBCUs), Hispanic Serving Institutions (HSIs), Tribal Colleges and Universities (TCUs), and other Minority Serving Institutions (MSIs); provides targeted opportunities for underrepresented and underserved learners to participate in research and education opportunities through internships, scholarships, and fellowships; and provides opportunities for minority institutions to improve the quality of their faculty preparation programs and thereby improve the quality and diversity of future STEM leaders.

EXPLANATION OF MAJOR CHANGES

None.

ACHIEVEMENTS IN FY 2012

Curriculum Improvement Partnership Award for the Integration of Research (CIPAIR) assisted two and four-year minority institutions with strengthening their science, technology, engineering and mathematics academic fields and technical programs. In FY 2012, there were 24 CIPAIR grantees, which included 8 HBCUs, 8 HSIs, 4 TCUs, and 4 MSIs. 145 CIPAIR students engaged in NASA-related research where 119 were underrepresented minority students in STEM. Thirty four percent of the total CIPAIR students engaged were females.

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

Motivating Undergraduates in Science and Technology (MUST) awards scholarships and internships to undergraduates pursuing degrees in STEM fields. In FY 2012, a total of 108 students were supported. Twenty seven percent of the students were first generation college attendees. Fifty percent of the MUST Scholars are females and 6.5 percent are disabled students.

NASA Innovations in Climate Education (NICE) is a competitive activity to promote climate and Earth system science literacy. Over 1,400 higher education students participated in 42 new or revised NICE courses offered at four-year institutions and community colleges. In addition, 3,593 elementary and secondary educators and 4,000 elementary and secondary students participated in NASA climate-related educational activities.

University Research Centers (URC) provide a broad-based competitive NASA-related research capability among MSIs that foster new aerospace science and technology concepts. Two hundred sixty-eight students and faculty authored NASA-related research paper. There have also been 4 patent applications with 3 patents granted and 45 students successfully defended their master's thesis or doctoral dissertation.

Achieving Competence in Computing, Engineering, and Space Science (ACCESS) provides summer internships to highly qualified students with disabilities. Since its inception, 265 students have participated in ACCESS internships with 17 students hired at NASA. In FY 2012, ACCESS hosted 15 students with disabilities. Three of the ACCESS interns were women, 11 were undergraduate students and 4 were graduate students.

WORK IN PROGRESS IN FY 2013

MUREP is currently funding internships, fellowships and scholarships for underrepresented and underserved students and support for the development of STEM curricula at minority institutions and community colleges to help prepare underrepresented and underserved students in STEM disciplines and careers. MUREP currently supports 21 HBCUs, 21 HSIs, 4 TCUs, 2 MSIs, and 9 non-profit organizations, which help contribute to MUREP's goals. Some institutions and organizations are recipients of multiple awards. For NASA's full report of accomplishments in MUREP, go to: http://www.nasa.gov/offices/education/performance/index.html.

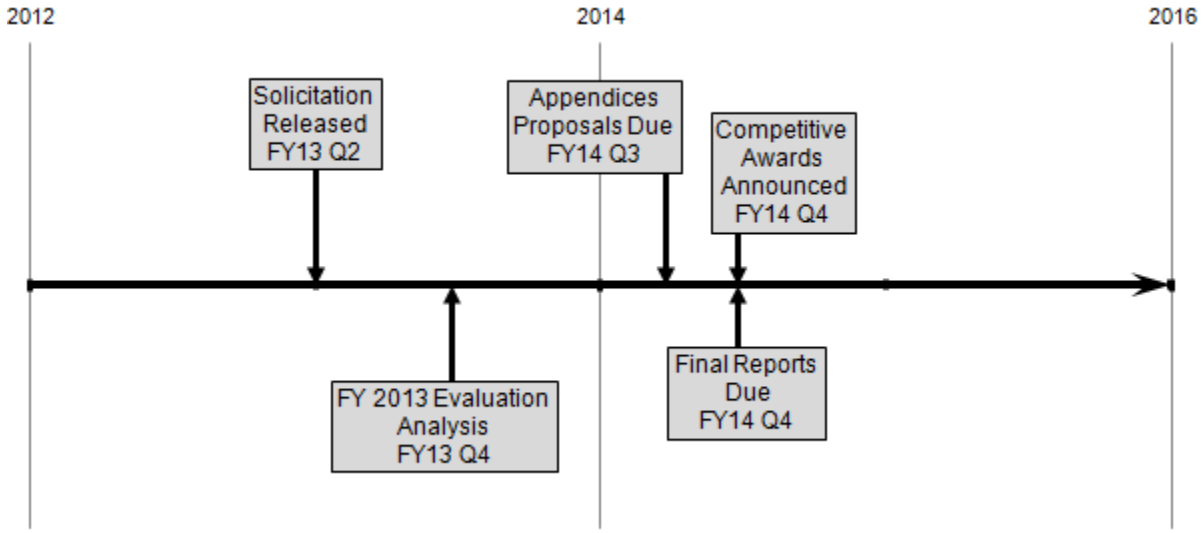
KEY ACHIEVEMENTS PLANNED FOR FY 2014

MUREP will continue to provide competitive funding opportunities to MSIs through an omnibus solicitation called Educational Opportunities in NASA STEM (EONS).

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

Project Schedule



Project Management & Commitments

The MUREP project manager is located at NASA Headquarters and provides management and oversight for overall program operations. NASA Centers manage significant investments in project activity elements. In FY 2013, the current MUREP elements are as follows:

Element	Description	Provider Details	Change from Formulation Agreement
University Research Centers (URCs)	URCs are multi-disciplinary research centers at Minority Serving Institutions (MSI) that are supported to expand the Nation's base for aerospace research and development, and increase the production of underrepresented/underserved students who obtain degrees undergraduate and graduate degrees in NASA-related fields.	Provider: All NASA Centers Lead Center: NASA DFRC Participating Centers: All NASA Centers Cost Share Partners: N/A	

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

Curriculum Improvements Partnership Award for the Integration of Research (CIPAIR)	CIPAIR was designed to strengthen the curricula of MSIs and community colleges in order to attract more students into STEM-based academic programs, retain them, and prepare them for success when they take the next steps in their education or in their careers	Provider: All NASA Centers Lead Center: NASA HQ Participating Centers: All NASA Centers Cost Share Partners: N/A	
Motivating Undergraduates in Science and Technology (MUST)	MUST increases the number of underrepresented/ underserved students in STEM disciplines. Each MUST participant receives three-years of support in the form of a scholarship, internships at a NASA Center, mentoring, and professional development.	Provider: All NASA Centers Lead Center: NASA GRC Participating Centers: All NASA Centers Cost Share Partners: N/A	
Tribal Colleges and Universities Project (TCUP)	TCU activity supports the Nation's Tribal Colleges through grants that provide funding for academic and research infrastructure development and support of STEM students at tribal colleges and universities.	Provider: All NASA Centers Lead Center: NASA GSFC Participating Centers: All NASA Centers Cost Share Partners: N/A	
MUREP Small Projects (MSP)	MSA advances MUREP priorities by identifying gaps or areas where new projects will enhance NASA higher education portfolio and better meet Agency objectives. Achieving Competence in Computing, Engineering, and Space Service is an example of an MSA activity that now fills an identified programming gap (i.e., internships for students with disabilities).	Provider: All NASA Centers Lead Center: NASA KSC Participating Centers: All NASA Centers Cost Share Partners: N/A	
Jenkins Pre-Doctoral Fellowship Project (JPFP)	JPF increases the number of underrepresented/ underserved STEM students at the graduate level. JPF provides three-years of support for each participant with a stipend, tuition off-set, a NASA internship, mentoring, and professional development.	Provider: All NASA Centers Lead Center: NASA ARC Participating Centers: All NASA Centers Cost Share Partners: N/A	

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

NASA Science and Technology Institute for Minority Institutions (NSTI-MI)	NSTI-MSI increases the research capacity of MSIs, increases the number of undergraduate STEM students, and supports Agency research objectives.	Provider: All NASA Centers Lead Center: NASA ARC Participating Centers: All NASA Centers Cost Share Partners: N/A	
NASA Innovations in Climate Education (NICE) (Note: renamed from Innovations in Global Climate Change Education)	NICE provides grants to MSIs to: enhance climate change education; improve the teaching and learning about climate change and Earth system science; increase the number of underrepresented and underserved K-12 teachers of math and science; and increase the number of students prepared for graduate study in climate-related subjects.	Provider: All NASA Centers Lead Center: NASA LaRC Participating Centers: All NASA Centers Cost Share Partners: N/A	

Acquisition Strategy

MUREP solicits new and innovative education products, tools, and services from qualified MSIs and nonprofit organizations. This occurs in response to changes in STEM education trends, identified gaps or opportunities in the education portfolio of investments, a response to demonstrated customer need or demand, or when the Administration or Congress identifies new priorities. NASA awards education cooperative agreements, grants and contracts through full and open competition. Selections are based on peer reviews by external panels that evaluate educational merit and internal/external panels for content, merit, feasibility, and alignment to education goals.

INDEPENDENT REVIEWS

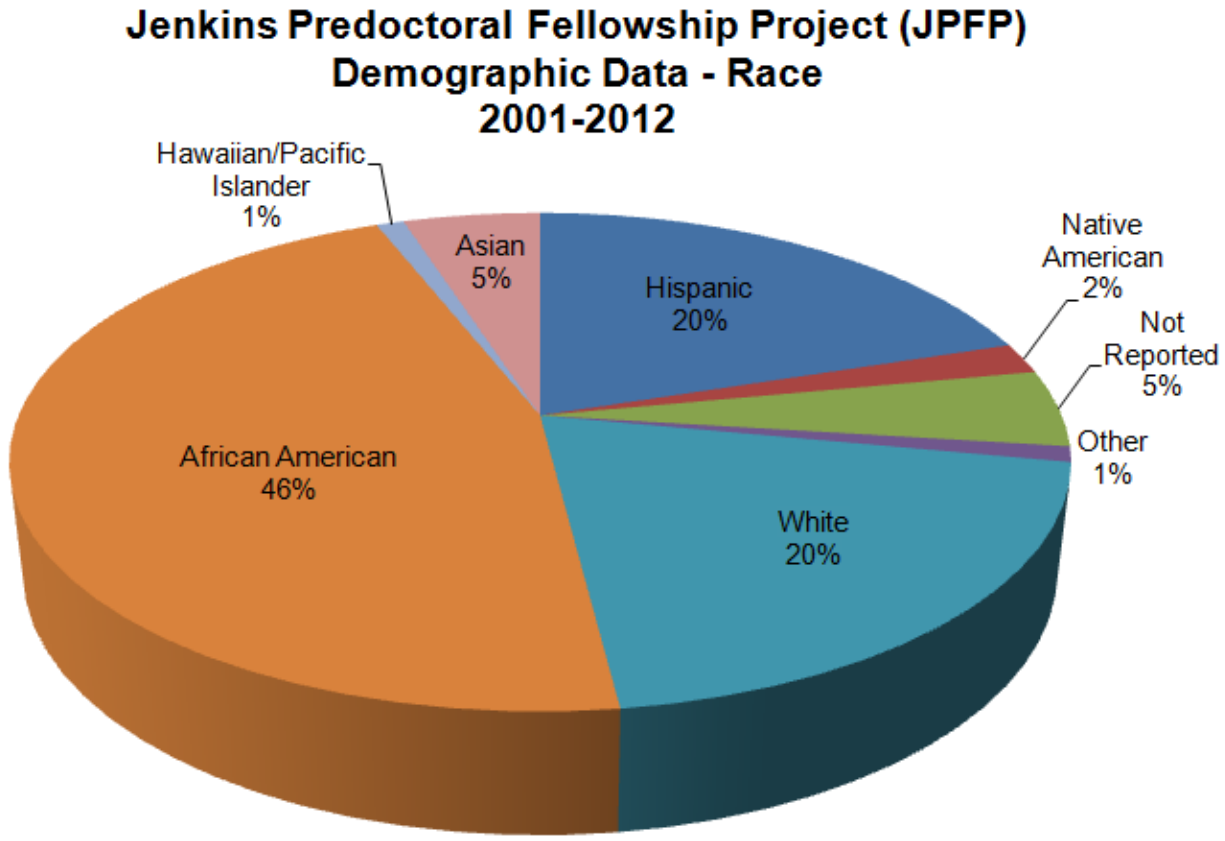
All MUREP activities document performance either through external evaluations or internal reviews conducted by NASA staff. For example, a Technical Review Committee, made up of NASA and industry engineers and scientists, reviews each University Research Centers grantee annually during the five-year performance period. All review reports are used as a part of the renewal package for the individual grantee.

MINORITY UNIVERSITY RESEARCH EDUCATION PROGRAM

Formulation	Development	Operations

HISTORICAL PERFORMANCE

The Harriett G. Jenkins Predoctoral Fellowship (JPF) seeks to increase the number of graduate degrees awarded to underrepresented and underserved persons (women, minorities and persons with disabilities) in the science, technology, engineering and mathematics (STEM) disciplines. The ultimate goal is to increase the U.S. talent pool by developing a more inclusive, multicultural and sustainable STEM workforce. Since its inception JPF has produced 54 M.S. graduates and 121 Ph.D. graduates. There are currently 34 students being supported by the activity as they work to obtain their degree.



Since its inception in 2001, JPF has supported 210 students as they obtained masters and doctoral degrees.

STEM EDUCATION AND ACCOUNTABILITY PROJECTS

Formulation	Development	Operations

FY 2014 Budget

	Actual			Notional			
Budget Authority (in $ millions)	**FY 2012**	**FY 2013**	**FY 2014**	**FY 2015**	**FY 2016**	**FY 2017**	**FY 2018**
FY 2014 President's Budget Request	50.0	--	**31.2**	31.2	31.2	31.2	31.2
Evaluation Performance Monitoring & Acct	25.0	--	**25.0**	24.8	24.5	24.3	24.1
Informal and Formal Education	15.0	--	**5.1**	5.2	5.4	5.6	5.8
Innovation In Education	10.0	--	**1.1**	1.2	1.2	1.3	1.3
Change from FY 2012	--	--	**-18.8**				
Percentage change from FY 2012	--	--	**-37.6 %**				

NASA Deputy Administrator Lori Garver talks with students at a NASA Educational Forum aimed at sharing the excitement of space exploration. Speakers encourage students to think about different careers and how science, technology, engineering and mathematics would help them pursue the career of their dreams.

NASA will consolidate the education functions, assets, and efforts of the Aeronautics Research Mission Directorate, Science Mission Directorate and Human Exploration and Operations Mission Directorate into a single coordinated STEM Education and Accountability Project (SEAP). The project assets are critical and unique components that NASA can make available to the National Science Foundation, Smithsonian Institution, and Department of Education, as they facilitate federal STEM education activities through the Administration's Committee on STEM process for Agency coordination.

SEAP will enhance coordination with other agencies and will focus on those areas of STEM education where the Federal government can have maximum impact. The project will support innovations in performance monitoring, evaluation and formal and informal education. Through grants, cooperative agreements and other mechanisms, NASA will make its people, resources, facilities, and discoveries available to key stakeholders and strategic partners, such as Boys and Girls Clubs, Challenger Centers, NASA visitor centers, science museums, and planetariums.

EXPLANATION OF MAJOR CHANGES

See Explanation of Major Changes section of Education Account Overview. Funding is focused on the most effective and highest priority activities.

SEAP will coordinate three distinct activities:

STEM EDUCATION AND ACCOUNTABILITY PROJECTS

Formulation	Development	Operations

- The Global Learning and Observations to Benefit the Environment (GLOBE) is a worldwide hands-on, primary, and secondary school-based science and education program. GLOBE's vision promotes and supports students, teachers, and scientists to collaborate on inquiry-based investigations of the environment and the Earth system working in close partnership with NASA, NOAA, and NSF Earth System Science Projects in study and research about the dynamics of Earth's environment.
- The Agency allocates funds through a coordinated competitive process to ensure the best application of NASA education assets to meet the goals of the Nation's STEM education efforts, including engagement. The most meritorious existing scholarship, fellowships, and grants for graduate students and educators will be supported, as well as many other such experiences previously funded by the Aeronautics Research Mission Directorate, Science Mission Directorate, Human Exploration and Operations Mission Directorate, NASA Centers and the Office of Education.
- NASA will implement a STEM interagency coordination effort, which will serve as the focal point for NASA to ensure that the Agency's assets are put to use effectively in support of the STEM activities that will be directed by the National Science Foundation, the Smithsonian Institution, and the Department of Education. This includes the infrastructure necessary to support the rigorous collection, evaluation, and dissemination of evidence of NASA's contributions towards the achievement of the wider STEM goals.
- Through previous consolidation efforts, NASA had planned to sunset many activities by FY 2014. With a new focus on STEM reorganization across the federal government, NASA is terminating additional activities.

ACHIEVEMENTS IN FY 2012

The goal of SEAP is to engage learners, especially those from underserved and underrepresented populations, in evidence-based learning opportunities designed to increase their involvement and interest in STEM, educate them on the value of STEM in their lives or positively influence the perception of their ability to participate in STEM by connecting them to NASA-unique resources. During FY 2012, the number of elementary and secondary students participating in NASA instructional and enrichment activities was 1,184,786. The percentage of elementary and secondary students expressing interest in STEM careers following their involvement in NASA education programs was 84 percent, a positive indicator that STEM engagement is positively influencing students' interest. In addition, the Summer of Innovation project launched in 2010 in response to the President's Educate to Innovate campaign, engaged 38,949 students in grades four to eight. The majority of the students served by Summer of Innovation were from underserved/underrepresented populations, including:

- 58 percent minority;
- 50 percent female; and
- 79 percent received free/reduced lunch.

Exhibits, planetarium shows, and community-based programming are among 18 new grants NASA selected to receive Agency funding in 2012. The awarded institutions consist of 11 informal education

STEM EDUCATION AND ACCOUNTABILITY PROJECTS

Formulation	Development	Operations

providers and 7 NASA visitor centers that are sharing $10 million resulting from the 63 proposals submitted through NASA Research Announcement, 2011 Competitive Program for Science Museums and Planetariums Plus Opportunities for NASA Visitor Centers and Other Informal Education Institutions.

Nearly 9,000 undergraduate, graduate and high school students applied for NASA-unique formal education opportunities including internships, fellowship, and scholarships through the One Stop Shopping Initiative resulting in 1,173 students selected for support.

WORK IN PROGRESS IN FY 2013

In FY 2013, NASA issued a NASA Research Announcement: Competitive Program for Science Museums, Planetariums, and NASA Visitor Centers Plus Other Opportunities that will operate through FY 2014. This investment in domestic assistance funding enables awardees to share NASA with the public, educators, and learners to provide opportunities to participate in NASA's Mission, foster innovation and contribute to a strong national economy. In FY 2012, NASA began a design review of the Summer of Innovation pilot focused on initial awardees and partners. The future of the project depends on the results of NASA's evidenced-based competitive process.

KEY ACHIEVEMENTS PLANNED FOR FY 2014

SEAP will establish the structure to provide efficient coordination of education efforts throughout NASA, and with external partners. Through the Education Coordinating Council, it will ensure that the most effective NASA assets are made available to support the Nation's STEM education priorities. In collaboration with federal partners, it will review GLOBE and other NASA activities to support the rigorous collection, evaluation, and dissemination of evidence of NASA's contributions towards the achievement of the Nation's wider STEM goals.

Project Schedule

Consistent with the status report on the National Science and Technology Council five-year Federal STEM education Strategic Plan, the STEM Education and Accountability projects will align its portfolio of activities over the next five years.

In year one, NASA will work with the Committee on STEM to finalize criteria for success, develop common evidence standards, evaluation and research toolkits, and identify efficiency and productivity opportunities.

In years two through five, the Agency will establish baselines and increase alignment with the adopted criteria. NASA will align its future evaluation strategy with the status report on the National Science and Technology Council five-year Federal STEM Education Strategic Plan. Successful STEM education practices and strategies identified through STEM education research studies and evaluations will be used to guide NASA investments in STEM education.

STEM EDUCATION AND ACCOUNTABILITY PROJECTS

Formulation	Development	Operations

Project Management & Commitments

The STEM Education and Accountability project managers are located at NASA Headquarters and provide oversight for overall activities and operations. In 2013, NASA will be making new commitments when it selects awardees based on the competitive acquisition strategy described below. Other funds go to NASA Centers, Jet Propulsion Laboratory contractors or other awardees to support competitive commitments made in prior fiscal years.

Acquisition Strategy

SEAP solicits new and innovative education products, tools, and services from qualified organizations. This occurs in response to changes in STEM education trends, identified gaps, or opportunities in the education portfolio of investments, a response to demonstrated customer need or demand, or when the Administration or Congress identifies new priorities. NASA awards education cooperative agreements, grants and contracts through full and open competition. Selections are based on peer reviews by external panels that evaluate educational merit and internal/external panels for content, merit, feasibility, and alignment to education goals. The Education Coordinating Council will make recommendations to the Associate Administrator for Education on any funding allocated to activities implemented directly by NASA.

INDEPENDENT REVIEWS

Independent review is responsive to both a Government Accountability Office report (GAO-12-342SP) and reports from the National Science and Technology Council Committee on STEM. NASA embeds evaluation and accountability requirements within SEA, and will integrate performance monitoring within all three activities and any legacy grant investments from prior fiscal years.

External experts reviewed the Summer of Innovation Pilot as explained in the table below.

Review Type	Performer	Last Review	Purpose	Outcome	Next Review
Program design review	External experts	May-Jun 2012	Identify preferred program models; Identify new project requirements based on research evidence	New project requirements identified and implemented in 2013	Nov-Dec 2014
Evaluation design review	External experts	Aug 2012	Identify new evaluation design and develop high-level evaluation plan to assess preferred program model	New evaluation plan developed and implemented by Abt Associates in 2013	Jan 2013 Mar-Apr 2014