NASA Education Program 2007 Assessment

Program Code	10002310
Program Title	NASA Education Program
Program Type(s)	Competitive Grant Program
Program Notes	
Assessment Year	2007
Assessment Status	Final Ready to publish/published. No changes will be made from this point on.
Assessment Notes	

Assessment Rating Results Not Demonstrated

Assessment Section Scores

	Section Score
Program Purpose & Design	100%
Strategic Planning	88%
Program Management	60%
Program Results/Accountability	33%

Program funding Level (in millions)

Prior Year	$162
Current Year	$140
Budget Year	$154
Explanation of Composition of Funding	

Funding

	Budget Resources (millions)			Obligations (millions)					
Treasury Account	Prior Year	Current Year	Budget Year	Prior Year	Current Year	Budget Year	Explanation		
800114	$162	$140	$154	Not provided.	Not provided.	Not provided.			

Questions/Answers

Num	Question	Answer	Score
Section 1			

Num	Question	Answer	Score
1.1	**Is the program purpose clear?** ***Explanation***: NASA's Office of Education, Mission Directorates, and centers engaged in a comprehensive strategic planning process during FY 06. The planning process was directed and implemented by the NASA Education Coordinating Committee (ECC), which is composed of representatives from all NASA organizations involved in the implementation of education projects. The ECC's strategic planning work culminated in publication of the NASA Strategic Coordination Framework: A Portfolio Approach which clearly outlines the purpose of NASA's education program. The NASA Education Framework is designed to support the NASA Strategic Plan (NASA Policy Directive [NPD] 1001) and the Vision for Space Exploration. To achieve the Vision and on-going science and aeronautics activities, the Agency requires a highly skilled and diverse workforce. NASA education investments are an important component to ensuring the availability of that workforce. The NASA Strategic Coordination Framework articulates three major education goals, as follows: 1. Strengthen NASA and the Nation's future workforce; 2. Attract and retain students in Science, Technology, Engineering, and Mathematics (STEM) disciplines; and 3. Engage Americans in NASA's mission. Our investments are organized to facilitate a student's progress through a pipeline of opportunities progressing from interest to academic preparation in STEM subjects, leading eventually to employment in the aerospace workforce at NASA, with academia, or in the private sector. ***Evidence***: The following two documents articulate the purposes of NASA's education program. Three purposes are defined in the NASA strategy while three outcomes are defined in the education framework. NASA Strategic Plan, NPD 1001; NASA Strategic Education Framework, NP-2007-01-456-HQ, http://education1.nasa.gov/about/strategy/	YES	20%

Num	Question	Answer	Score
1.2	**Does the program address a specific and existing problem, interest, or need?** ***Explanation***: The NASA Education Program addresses both internal NASA needs and the external needs of the education community. NASA's needs are related to workforce development while the nation's needs in STEM education have been identified in numerous authoritative reports. Both the NASA Strategic Plan, 2006, and the NASA Strategic Coordination Framework clearly articulate the needs to be addressed by the education program. These needs are the development of the highly educated and well-prepared workforce that is critical to the success of the Agency's mission. The NASA education strategy is ultimately designed to identify and develop the critical skills and capabilities needed to achieve the Vision for Space Exploration. As stated in the NASA Strategic Plan, 2006, the Agency's human capital management challenge is greater than ever. NASA must develop and implement Agency-wide human capital management initiatives to ensure that the workforce contains the right skill mix and an appropriate balance between civil service, contractor, and other components to achieve the Agency's Vision. Thus, the program targets development of individuals who become prepared for employment in disciplines needed to achieve NASA's mission and strategic goals. Beginning in the earliest grades, through high school, and then through internships, fellowships, and other professional training, NASA offers individuals a pipeline of opportunities to become participants in the Vision for Space Exploration. NASA's education projects contribute to participating students' preparation for employment with NASA, industry, or academia. More generally, since the inception of the education program in the early 1960s it has contributed to the "expansion of human knowledge of Earth and space phenomena" as provided for in the Space Act of 1958. Evidence of the needs of the external education community regarding STEM education is included in the NSF publication, Science and Engineering Indicators, 2006. Additionally, in a 2005 report by the National Academies, Rising Above the Gathering Storm: Energizing and Employing America for a Brighter Economic Future, two recommendations were made that relate directly to the value for the nation of NASA's education program: (a) increase America's talent pool by vastly improving K-12 science and mathematics education; and (b) sustain and strengthen the Nation's traditional commitment to long-term basic research. NASA's Strategic Education Framework and our projects are designed to address and implement these recommendations. ***Evidence***: The following two documents articulate the purposes of NASA's education program: NASA Strategic Plan, NPD 1001; NASA Strategic Education Framework, NP-2007-01-456-HQ, http://education1.nasa.gov/about/strategy/. The report, Rising Above the Gathering Storm, is available from the National Academies, http://www7.nationalacademies.org. Science and Engineering Indicators is available from the NSF, http://www.nsf.gov/statistics/seind06/. The Academic Competitiveness Council (ACC) report provides additional evidence.	YES	20%

Num	Question	Answer	Score
1.3	**Is the program designed so that it is not redundant or duplicative of any other Federal, state, local or private effort?** ***Explanation***: On the whole, NASA's Education Program fills a unique niche by providing educators and students the opportunity to gain direct experiences using our state-of-the-art equipment and facilities, the agency's unique mission of scientific discovery and exploration, and our highly skilled aerospace workforce. These attributes of NASA enable the implementation of education projects that cannot be directly duplicated by other U.S. organizations. One of the central goals of the program is to strengthen NASA's future workforce; to this end, the program funds space-specific internships, research grants, and other education programs. To minimize redundancies among the multiple NASA organizations involved in education, the program has implemented a process, formalized through a strategic framework, to coordinate internally with our mission directorates and centers and eliminate unwarranted duplication of effort via an Education Coordinating Committee (ECC) with broad stakeholder participation. An important accomplishment in FY 06 was the competitive selection of specific centers to lead designated projects, thus eliminating project duplications and management structures. Each investment in the education portfolio, except Space Grant and EPSCoR has now been transferred to a lead center. Within the federal government, we coordinate through the Academic Competitiveness Council (ACC). While the ACC has thus far only conducted an inventory of government-wide programs, we expect to use the forum to collaborate with other agencies and seek ways to work together to minimize redundancies and replicate effective practices. NASA also relies upon partnerships as a way to minimize redundancies with other efforts. To formalize NASA's agreements with other agencies, we have established Memoranda of Agreement with the National Science Foundation (NSF), the National Park Service (NPS), and the Federal Aviation Administration (FAA). NASA has established a partnership forum to create synergy with a significant number of education and industry organizations. By building strategic partnerships and linkages between STEM formal and informal education providers, the program expects to create a mechanism to coordinate programs and share resources. Even with many coordinating processes in place, many of the grants programs conducted by the program are similar to the type of research support that other federal agencies (e.g., Dept. of Education, Dept. of Energy, National Science Foundation) award; therefore, it is not entirely clear that all NASA education programs can only be conducted by NASA. In addition, some programs, such as the Faculty Awards for Research, duplicate the research grants already offered by other NASA program offices. ***Evidence***: MOUs between NASA and the NSF, the NPS, and the FAA, Detail on the NASA-NSF MOU is posted at http://www.education.nasa.gov/divisions/higher/overview/F_One_Giant_Step_STEM_Education.html	YES	20%

Num	Question	Answer	Score
1.4	**Is the program design free of major flaws that would limit the program's effectiveness or efficiency?** ***Explanation***: The program is designed to be free of major flaws. NASA's education outcomes were developed with broad stakeholder input, including input from OMB. Our audiences are clearly defined and they are served through an effective mix of grants, research opportunities, fellowships and scholarships, and professional development activities delivered directly to schools. Additionally, the reorganization of the NASA Office of Education and the development of the new Education Framework was specifically intended to address inadequacies identified by OMB in NASA's FY 04 PART results. Since the FY 04 PART, we have terminated several projects to reduce the total number of projects and concentrate resources more efficiently. Termination decisions were the result of an annual review of the education portfolio and were based on several considerations including, (a) insufficient evidence of effectiveness, (b) redundant investments, or (b) non-competed investments. Approximately 50% of the projects in the education portfolio were terminated, phased out, or restructured. In FY 04, six projects were terminated; in FY 05 three were terminated and three were phased out; and in FY 06-07, seven were phased out or terminated, and eight were restructured. To further reduce the number of investments, we have conducted an inventory and established ratings by peer reviewers in preparation for decision-making. Additional areas for improvement were identified by a review team composed of internal and external stakeholders led by NASA's Office of Program Analysis and Evaluation (PA&E) in FY 05. The PA&E team was chartered by the NASA Administrator to: 1. develop an implementation plan to support the Vision for Space Exploration; 2. define a coordinated portfolio; 3. describe organizational relationships and responsibilities; and 4. define an evaluation process. Among the improvements recommended by the team were to revise NASA's education goals to improve alignment with the NASA Strategic Plan. The team also proposed a new governance model to improve communication and coordination as well as to clarify roles and responsibilities. Actions taken since then respond to the review team's recommendations. The strategic framework, revised management approach, and articulation of outcomes, objectives, and measures represent critical steps taken to address flaws identified in NASA's FY 04 PART results. Notably, NASA conducted an extensive search leading to the appointment of a new Assistant Administrator for education with authority for all aspects of the total NASA education program. ***Evidence***: NASA Strategic Education Framework, NP-2007-01-456-HQ, http://education1.nasa.gov/about/strategy/. Report from the PA&E review team and NASA Administrator's charter to the team. Summary report of project terminations.	YES	20%

Num	Question	Answer	Score
1.5	**Is the program design effectively targeted so that resources will address the program's purpose directly and will reach intended beneficiaries?** ***Explanation***: Foremost, the program targets NASA's human capital needs. NASA's first priority outcome is to develop a workforce to support the NASA mission and our budget allocations reflect this priority. To ensure coordination with human resources, a representative from the Office of Human Capital Management participates in the ECC. NASA's education framework identifies a progression of opportunities to inspire, engage, educate, and employ students. To accomplish this goal, the projects target students at all levels of the education systems, teachers, faculty, and institutions. Thus, we have defined a specific population of beneficiaries. Institutions, including schools, universities, and informal education organizations, receive the majority of NASA's education financial resources which are invested in the form of competitive grants awarded to education institutions. The Space Grant, EPSCoR, and Minority University projects make all awards to the states and institutions designated in legislation through competitive processes. Additionally, the higher education program recently conducted a principal investigator conference, in collaboration with the National Science Foundation, to inform new faculty how to benefit from and participate in NASA's education program. ***Evidence***: Minority University Research and Education Program provides annual reports documenting that HBCUs, Tribal College, and HSIs are served as intended. (Reports posted at http://mured.nasaprs.com/report/) The Space Grant and EPSCoR projects report annually to document that recipients are reached in states as mandated in legislation. The evaluation process articulated in NASA's education framework is designed to validate that our projects are reaching our internal NASA and external audiences. The portfolio assessment process will enable an analysis of our program to not only ensure we are reaching designated segments of the education community but also to ensure that there are no gaps in the portfolio to prevent other potential beneficiaries in the education community from receiving services.	YES	20%
			100%

Num	Question	Answer	Score
Section 2			

Num	Question	Answer	Score
2.1	**Does the program have a limited number of specific long-term performance measures that focus on outcomes and meaningfully reflect the purpose of the program?** ***Explanation***: During the 2006 fiscal year, NASA established two working groups to develop measures and analyze the existing portfolio. The Portfolio Working Group, conducted a project inventory and characterized it with respect to alignment with the outcomes and objectives articulated in the strategic framework. The Evaluation Working Group, working closely with the portfolio group, developed an articulated set of measures linked to each objective to enable performance measurement. The 15 measures that were developed and adopted by the ECC were subsequently approved by OMB. Included are long-term outcome measures designed to determine the degree to which NASA-supported students gain employment in the aerospace workforce in NASA, academia, or industry. Other long-term outcome measures document interest gains among K-12 student participants; another long-term measure tracks the degree to which K-12 teachers use the knowledge and materials acquired from participation in NASA education projects. ***Evidence***: NASA's three prioritized outcomes; 16 objectives, each linked to an outcome; and 15 measures, each linked to an outcome and objective, are documented in the measures section of the PART and in NASA's annual performance plan. The 15 PART measures were approved by OMB (see the PARTweb measures section).	YES	12%
2.2	**Does the program have ambitious targets and timeframes for its long-term measures?** ***Explanation***: NASA has documented ambitious targets for its PART measures as documented in the measures section of PARTweb. For new measures, data will be collected and baselines will be established in FY 07. NASA's objective is to continue serving the same number of participants, despite any funding reductions in the agency's budget for education. ***Evidence***: PARTweb measures section shows the program's measures, ambitious targets, and timeframes through 2011. The targets show that the program is measuring long-term success by the degree to which program participants enter NASA and STEM-related careers.	YES	12%

Num	Question	Answer	Score
2.3	**Does the program have a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals?** ***Explanation***: Yes, the program has a limited number of specific annual performance measures that can demonstrate progress toward achieving the program's long-term goals. Annual measures track, for example, annual numbers of students involved in NASA education programs as well efficiencies gained in program execution each year, such as cost to NASA per participant. ***Evidence***: PARTweb measures section. The annual measures for the program will measure the degree to which the program reaches intended participants and the extent to which it does so in an efficient and cost-effective manner. In general, data are collected and will be reported by calendar year.	YES	12%
2.4	**Does the program have baselines and ambitious targets for its annual measures?** ***Explanation***: The program has established baselines and ambitious targets for the majority of its annual measures. Where baselines have not yet been established, they will be determined by the end of FY07. ***Evidence***: See PARTweb measures section. Baselines and ambitious targets have been established for the program; the targets are intended to improve on and at least not fall below historical performance of the program. Many of the targets intend to show incremental improvement in performance or efficiency in reaching the program's intended participants and beneficiaries.	YES	12%

Num	Question	Answer	Score
2.5	**Do all partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) commit to and work toward the annual and/or long-term goals of the program?** ***Explanation***: The NASA grants handbook specifies that grantees are accountable for the activities specified in their proposal. The proposal represents the commitment of the institution to the goals articulated in the proposal. Since project managers are accountable for ensuring the proposal targets the programs goals, it represents the grantee commitment. Annually, project managers provide guidance to grantees regarding changes to NASA performance goals for education. Furthermore, the Office of Education's strategy is to manage Congressionally directed projects as integral components of its education portfolio. Thus, each project must contribute to achievement of one of three defined education outcomes and must be implemented according to the objective(s) of the relevant category. Projects are accountable for the same performance requirements, including performance measurement reporting, as are all other projects in the education portfolio. Guiding principles include: 1) Implement a project that fulfills the intent of Congress; 2) Implement a project that contributes to the achievement of the outcomes articulated in NASA's Strategic Education Framework; and 3) Ensure taxpayer funds are spent responsibly, efficiently, and in accordance with applicable legal, regulatory, and policy guidance, including the NASA FY 2006 Earmark Guidance. A NASA Project Officer from the Office of Education or a center education office is designated for each earmarked project. The Project Officer is the primary point of contact at NASA for the recipient organization; the officer reviews the proposal, prepares the technical justification and the grant package, and monitors the grant, ensuring that the project is implemented as proposed and that required performance measurement data are submitted. Formal mechanisms, such as Space Act Agreements (SAA) and Memoranda of Understanding (MOU), are used to establish strategic partnerships with specific long-term goals of the program in mind. Terms of these agreements include defining roles and responsibilities of parties as targeted towards specific purpose that establishes commitment to program goal(s) and reporting on measures and/or results. Furthermore, forums and summits, have been effectively convened to communicate program direction and goals with interested organizations, that have included government, academia, and industry. ***Evidence***: The grants award document represents institutional commitment to working toward Agency education goals. Additionally, guidance was transmitted to each manager responsible for education grants that directs them to ensure proposals are reviewed and monitored for performance. All Earmark recipients must submit a proposal with the Office of Education. Proposals must include the following elements: (a) a detailed description of the work to be performed, including a clear listing and schedule of the specific activities supported by the NASA grant; (b) a description of the resources required, clearly listing expenditures to be funded by NASA; (c) an adequate justification of the proposed budget, including a brief narrative description of major budget items; and (d) a detailed description of the relevance of the project to the NASA education program. Space Act Agreements and Memoranda of Understanding Highlights http://www.education.nasa.gov/divisions/higher/overview/F_One_Giant_Step_STEM_Education.html http://www.nasa.gov/home/hqnews/2004/mar/HQ_04083_honeywell_launch.html http://	YES	12%

Num	Question	Answer	Score

Num	Question	Answer	Score
2.6	**Are independent evaluations of sufficient scope and quality conducted on a regular basis or as needed to support program improvements and evaluate effectiveness and relevance to the problem, interest, or need?** ***Explanation***: NASA has developed and submitted to OMB a planning schedule to accomplish evaluations of all investments in the Office of Education budget. Each investment will be evaluated at least once during a five-year period using the most independent, rigorous, and reliable methods possible. Projects will be selected on the basis of multiple criteria including the size of the investment, the relative importance of the investment within the education portfolio, and the length of time since the last evaluation was conducted. Several project evaluations that are independent and of sufficient scope to guide improvements and evaluation effectiveness have been conducted within the past five years or are now nearing completion. An outcome evaluation of the Explorer Schools project will be completed in FY 07. This evaluation is extremely important in that it tests the feasibility of using Randomized Control Trials (RCTs). To date, five progress reports have been submitted by the independent evaluator who works closely with project management staff to ensure findings are implemented. As a result of this evaluation, several improvements to the project have been made. These improvements include management consolidation at a NASA center for greater efficiency, implementation of specific instruction modules to support the school curriculum, and a greater focus on professional development. An evaluation of the Graduate Student Researchers Program (2000 and 2006) documented its effectiveness and led to an improvement to stipend levels based on recommendations. Other evaluations that evaluate effectiveness and support improvements have been conducted by university-based evaluators using professionally-accepted methods on the Aerospace Education Services Program (2004), the NOVA Preservice Education Program (2003), EarthKam (2006), and the Faculty Fellowship Program (2006). The Evaluation Work Group (EWG), chartered by the NASA Education Coordinating Committee to define an evaluation strategy, designed a three-component performance measurement process. The second component, defined in this context as the review process, establishes a process for conducting outcome evaluations of effectiveness. To the greatest extent possible, we will implement evaluations through credible, objective evaluators using techniques based on RCT methodologies, as recommended by the Academic Competitiveness Council (ACC). In situations in which an RCT-based method is not appropriate, methodologies will be adopted that are rigorous, objective and in conformance with recognized professional standards. ***Evidence***: Evaluation reports of each of the projects cited above are available. The NASA education framework documents our approach to performance measurement and evaluation. An evaluation of the NASA Explorer Schools project is being conducted by an external, university-based evaluation team. Preliminary results have been obtained through periodic progress reports and these reports have been shared with OMB. Beginning in FY 08 an additional evaluation is planned for the Science, Engineering, and Mathematics Aerospace Academy (SEMAA) project. An evaluation of the NASA elementary and secondary education portfolio is being conducted by an expert panel convened by the National Research Council (NRC). Two meetings of the NRC panel have been conducted with two more to be held in CY 2007; the panel's pre-publication report is	YES	12%

Num	Question	Answer	Score
2.7	**Are Budget requests explicitly tied to accomplishment of the annual and long-term performance goals, and are the resource needs presented in a complete and transparent manner in the program's budget?** ***Explanation***: The portfolio review process established by the strategic framework is designed to ensure performance is factored as a key element in budget decisions. Additionally, the three education outcomes have been prioritized and this prioritization scheme is used as a significant factor in making decisions about resource allocations. NASA's annual Integrated Budget and Performance Document links budget requests, made in full cost, to specified performance standard. ***Evidence***: NASA's budget documents are located at http://www.nasa.gov/about/budget/ Program plans have been submitted by each NASA center that is responsible for implementation of one or more projects. These plans clearly describe and budget for all necessary program costs, including personnel and financial requirements, and managers are held accountable for conformance to the plan. Similarly, grant projects must submit a budget establishing major cost categories. This budget is reviewed, approved, and monitored for grantee compliance. The NASA Office of Education fully complies with all requirements of the NASA project management process articulated in NASA Policy Directive, NPD 7120.	YES	12%

Num	Question	Answer	Score
2.8	**Has the program taken meaningful steps to correct its strategic planning deficiencies?** ***Explanation***: In the previous PART review, supported by internal reviews, several strategic deficiencies were outlined for this program including an under developed performance management system, unclear alignment to NASA's workforce needs and an under developed strategic investment framework that aligns the projects and tasks to the program goals. Albeit the program has made significant progress on addressing these deficiencies it has not completed the work. The program has adopted new long-term and annual performance measures that reflect its purpose and content. During FY 2006, a rigorous process was initiated and completed by the NASA Education Coordinating Committee (ECC). The principal purpose of the ECC's work was to address deficiencies that had been identified in the 2006 PART and that had been identified through an internal review. With respect to strategic planning, the ECC engaged in a thorough review of the existing strategy and substantially revised it. The revision articulated three specific outcomes with five to six objectives to address each outcome. Additionally, a management evaluation process was defined. In the Portfolio review process we will be using a group decision support software application called Expert Choice. Expert Choice was selected to provide a systematic decision-making tool to achieve better, faster, and more justifiable decisions while also ensuring organizational and strategic alignment of all projects. Expert Choice was used by the ECC in the second quarter of FY 2007, to prioritize outcomes and objectives to guide future decisions, through a mapping of the Education projects to these priorities. This important work has been started but is not yet complete. Decsions have not been made from this analysis yet but will be. Planned completion is later this calendar year. ***Evidence***: The NASA Education Framework: A Portfolio Approach is the principal document that defines the strategic plan. Measures corresponding to each objective and outcome has also been defined. The portfolio and framework have been communicated to all managers. Additionally, the National Research Council evaluation of our current elementary and secondary projects is expected to result in objective conclusions and recommendations that we will factor into planning reviews.	NO	0%
			88%

Num	Question	Answer	Score
Section 3			

Num	Question	Answer	Score
3.1	**Does the agency regularly collect timely and credible performance information, including information from key program partners, and use it to manage the program and improve performance?** ***Explanation***: The Office of Education does collect timely and credible performance information as shown below. The office fully complies with the process and principles of strategic management outlined in the NASA Strategic Management and Governance Handbook (NASA Policy Directive 1000 and with the NASA Program and Project Management Processes and Requirements (NASA Procedural Requirement 7120) requiring the development of Program and Project Plans. Program and project plans have been established for Higher Education, Elementary & Secondary Education, Informal Education, and e-Education. These plans require projects to conduct annual performance planning and reporting; submit monthly reports and conduct quarterly reviews; conduct annual reviews with results of the review used to develop an improvement plan to be integrated within its next annual performance plan; and submit performance data to the education data system. NASA has established a data collection system, comprised of three linked databases, to collect data from each project regularly with the goal that project managers will use the data to make project improvements as warranted. Inconsistencies exist, however, in that the projects do not all report the same data elements. The program also does not collect consistently data on program beneficiaries and participants or track for all of its projects beneficiaries and participants' schooling or career paths after their involvement in the program; the program therefore does not have solid information on how well it performs in terms of reaching and having lasting impacts on its intended beneficiaries. In addition, the program has not yet established baselines for all of its performance measures or begun to collect data for most of the measures. ***Evidence***: The NASA grants web site (http://nodis3.gsfc.nasa.gov/) provides clear guidance stipulating data reporting requirements, responsibilities, and procedures is disseminated annually. Responsibility for compliance with data reporting requirements is clearly delineated in the Education Framework. NASA project managers are required through their individual performance plans to use these and other data reported to assess progress toward goals and make adjustments via the annual performance planning and reporting, and performance goal development periods. Project partners collect and report performance data. Examples of data collected which support performance measures include: National Space Grant College and Fellowship Project - for 2005 data (most recently available), longitudinal fellowship/scholarship results - 31% employed by NASA, industry, academia, or other STEM fields, 49% moved on to an advanced degree program, and 18% were seeking STEM employment. Jenkins Pre-doctoral Fellowship Program - cumulative results total 26 Ph.D. and 33 M.S. degree recipients in STEM with 8% of graduates entering the NASA workforce. Undergraduate Student Research Project - for 2001-2003 data (most recently available), longitudinal results show 26% of participants in aerospace-related employment (vs. 21% of applicants who were not selected); University Research Centers - for 2005 data (most recently available), longitudinal awardee results - 8% of undergraduate participants moved on to advanced degrees, 7% of undergraduate participants were employed in STEM; 11% of master's degree participants moved on to doctoral programs, 16% of master's degree participants were employed in STEM.	NO	0%

Num	Question	Answer	Score
3.2	**Are Federal managers and program partners (including grantees, sub-grantees, contractors, cost-sharing partners, and other government partners) held accountable for cost, schedule and performance results?** ***Explanation***: Since NASA's FY 04 PART was conducted, actions taken have ensured that managers and grantees are held accountable. In accordance with the NASA Employee Performance Communication System (EPCS), all project managers' personal performance plans document their responsibilities for project or program performance and they are accountable for effective performance. To maximize accountability, the Assistant Administrator will provide input to Center Directors regarding the performance of all Center Education Directors. Grantees who fail to fulfill their requirements risk having their projects discontinued. For example, five Space Grant state consortia were required to restructure their consortium and document results as a condition for further support. The NASA Education Strategic Coordinating Framework aligns the project management accountability for cost, schedule and performance results to the expected outcomes of each project. Each level of project management that includes the Federal program manager, project managers, grantee/contractors, and other partners, fully complies with NASA Procedural Requirement (NPR) 7120.7 Institutional/Infrastructure Program/Project Management Processes and Requirements, which is detailed in each Education Project Plan. Project managers have submitted annual performance plans, detailing accountability measures. The ECC oversees the portfolio through annual reviews, using a formal decision-making software tool, Expert Choice, to address accountability and to specify corrective actions when necessary. ***Evidence***: Project Managers are accountable for cost, schedule and performance results through the implementation of compliance approved project plans maintained by the Office of Education. In general, action is taken regarding grant projects that fail to meet schedule and performance objectives because grants represent at least two-thirds of the education budget. Specific management changes and corrective actions have been taken. For example, in FY 06 five projects were terminated or phased out due to inadequate performance and a lack of strategic alignment with education objectives and an additional three projects were restructured. These plans specify the critical elements of responsibility for performance at all project management levels. Projects plans meet the compliance requirements of NPR 7120.5C, NASA Program and Project Management Processes and Requirements (http://nodis3.gsfc.nasa.gov/). Further, project management compliance is a key factor in decisions used to determine grantee award renewals and project continuations. Managers are accountable for project performance through their individual performance plans. These plans specify the critical elements of responsibility and, in the case of education project managers, performance elements are specified for each project for which he or she is accountable.	YES	10%

Num	Question	Answer	Score
3.3	**Are funds (Federal and partners') obligated in a timely manner, spent for the intended purpose and accurately reported?** ***Explanation***: Funds are largely obligated in a timely manner and spent for the intended purposes. For all projects, managers review proposals, maintain regular communications, and evaluate progress reports to ensure funds are spent according to plan and for intended purposes. The exception is that funds are not obligated in a timely manner for Congressionally-directed projects because proposals are often not received from the recipient institutions in a timely manner. All Congressionally-directed projects are reviewed against Agency criteria (merit, strategic alignment, & cost) as well as education criteria in accordance with guidance transmitted to managers. However, directly appropriated projects must be awarded regardless of merit review, ensuring the proposal is at least minimally acceptable. New financial controls have put in place to allow tracking of program expenditures at centers. ***Evidence***: NASA's budget system is based on full-cost principles and includes work breakdown structures. The system provides full visibility into obligation status. Contractors are required to submit monthly or quarterly costing reports that documents the funds are being used according to requirement. Additionally, the Office of Education fully complies with the requirements of NPD 7120, which establishes guideline for the approval and obligations of funds.	YES	10%

Num	Question	Answer	Score
3.4	**Does the program have procedures (e.g. competitive sourcing/ cost comparisons, IT improvements, appropriate incentives) to measure and achieve efficiencies and cost effectiveness in program execution?** ***Explanation***: The program's has efficiency measures with baselines or plans to establish baselines, in addition to output and outcome measures. These measures will, for example, demonstrate the program's ability to reduce the cost per participant of its programs and show how well the program leverages funds contributed by program partners. The e-Education program is specifically designed work closely across NASA education initiatives within the Office of Education and across the Mission Directorates to facilitate the incorporation of technology and distance education delivery methods as well as existing libraries of programming for professional development and internet-based product dissemination with the goal of reaching a broad audience of participants at a relatively low cost. Additionally, our partnership initiatives are intended to achieve synergy among participating organizations and to leverage the resources and external expertise of these organizations in order to achieve our planned outcomes with a greater level of efficiency. For example, FMA Live engages middle-school students in math and science through a live stage show that demonstrates science in kids' everyday lives. The entire program is funded by Honeywell. To improved efficiencies we are also consolidating projects. For example, several elements of the Minority University Research and Education Program (MUREP) have been merged (e.g. we have consolidated the Partnership Awards for Integration in Research (PAIR) and the Curriculum Improvement Partnership Awards (CIPA) projects). ***Evidence***: NASA developed efficiency measures with input from and the approval of OMB. Additionally, NASA is making extensive use of the library of distance education projects to deliver information, professional development training and to conduct virtual symposiums and kick off events for members of the formal and informal education community. Distance education allows NASA to serve a much higher number of participants per unit of investment. Virtually all of our education investments are competitively selected to facilitate selection of the most efficient and effective projects.	YES	10%

Num	Question	Answer	Score
3.5	**Does the program collaborate and coordinate effectively with related programs?** ***Explanation***: NASA employs three principal methods to collaborate and coordinate with related programs. Internally, the Education Coordinating Committee (ECC) is the mechanism to ensure coordination among the NASA offices involved in education. These offices include the Office of Education, the Mission Directorates, and the NASA Field Centers. The NASA Education Strategic Coordination Framework (http://education.nasa.gov/about/strategy/index.html) documents each organization's requirements for collaboration and coordination. Second, federal Government collaborations include participation on the government-wide Academic Competitiveness Council (ACC), NASA has developed agreements with STEM-related agencies and organizations across the government and with the private sector. We have designated staff to represent NASA on each of the ACC working groups and this process facilitates coordination at the working level. And third, NASA convened two conferences to bring together our external collaborators from federal agencies, industry, foundations and the external education community. As a result, "Futures Panels" at each NASA Center have been formed to analyze the status of STEM education, leading to a report expected to be completed in December, 2007. The report will identify additional methods for collaboration. We collaborate with several external federal agencies as evidenced by MOUs and joint activities. For example, a model partnership with ExxonMobil, leveraged funds to support the Bernard Harris Summer Science Camp (BHSSC). NASA provided start-up funding for the BHSSC and now contributes content and expertise with major funding now assumed by ExxonMobil. Another example of a specific collaboration is with the National Science Foundation with which we implemented the Joint NASA-NSF Research and Education Opportunities Conference for Principal Investigators, Faculty, and Partners on February 22-24, 2007. NASA also collaborates with professional STEM education organizations, including (a) the National Science Teachers Association, a key partner in the Explorer Schools project; (b) the National Alliance of State Science and Mathematics Consortium, with which NASA conducts state STEM education improvement initiatives, and (c) the International Technology Education Association, with which NASA assisted in the development of new technology standards, published in 2004. NASA works with the International Space University (ISU) by coordinating student internship placements at NASA centers. ***Evidence***: External Partners: The external collaborations were extensive through the two meetings of the emerging NASA partnerships. Conferences were held & documented at (http://education.nasa.gov/about/team/partnership.html). Partnership Forum on September 12, 2006 & Partnership Summit on January 17, 2007. Girl Scouts U.S.A. & NASA collaborated to raise comprehension & interest of girls, leaders, & leader-trainers in science & science-related topics, & to encourage girls & women to pursue STEM careers. The MOU resulted in a STEM conference held at the US Department of Education that was sponsored by NASA, Girl Scouts, & the US Department of Education. MOUs support Educator Astronaut, Barbara Morgan, on STS-118: America OnLine. Kids Service & Mad Science have collaborated to develop the Pennant Design Challenge ; Orbital Technologies Corporation & Planet LLC for Educational Growth Chambers have developed an engineering design challenge; Imaginary Lines (www.SallyRideScience.com) for three Educator Institute; & Park Seed Company for "SEEDS in Space" (Space Exposed Experiment	YES	10%

Num	Question	Answer	Score
3.6	**Does the program use strong financial management practices?** ***Explanation***: The most recent Independent Auditor report for NASA identified two (2) material weaknesses, all of which are repeats, as well as noncompliance with the Federal Financial Management Improvement Act. ***Evidence***: NASA's FY 2006 Performance and Accountability Report (www.nasa.gov/about/budget/index.html) includes the communication from the NASA Inspector General and the report of the Independent Auditor. In addition, the GAO has published numerous reports identifying shortcoming in NASA's new financial management system as well as its financial management processes (example is GAO-04-754T released on May 19, 2004).	NO	0%
3.7	**Has the program taken meaningful steps to address its management deficiencies?** ***Explanation***: During FY 2006, a rigorous process was initiated and completed by the NASA Education Coordinating Committee (ECC). The principal purpose of the ECC's work was to address deficiencies, including management issues, that were identified through an internal review. The ECC engaged in a thorough review of the existing management structure and substantially revised it. A specific management process was defined with a clear articulation of roles, responsibilities, and organizational relationships. Several management revisions have been identified by the ECC and are being implemented. These changes are documented in the Education Framework. The office organization has been revised with new positions specified to more clearly define roles and responsibilities. In particular, a new Assistant Administrator for Education has been identified and has assumed leadership. One significant change is the designation of Outcome Managers who are responsible for ensuring projects are implemented in a way that ensures the outcomes will be achieved. Another significant change is the transfer of project management responsibilities to the field centers. Center education offices provide expertise in state standards and requirements in their geographic area. These offices also work closely with their regional customer base to support systematic school improvement programs. ***Evidence***: Report of the NASA Administrator-chartered team to review the education program; NASA Strategic Coordination Framework: A Portfolio Approach.	YES	10%

Num	Question	Answer	Score
3.CO1	**Are grants awarded based on a clear competitive process that includes a qualified assessment of merit?** ***Explanation***: The program is committed to awarding grants through full and open competition to the greatest extent possible and encourages the participation of new and less experienced participants. All of our major projects, such as Space Grant, EPSCoR, University Research Centers, and the NASA Explorer Schools, select participating institutions through a competitive process. In some instances, such as EPSCoR, the competition is restricted by legislation to a designated category, such as the defined EPSCoR states, but the specific grants selected for award are determined through a competitive process. In the case of Space Grant, the enabling legislation requires that each state have a Space Grant award but all proposals are reviewed for merit. Congressionally directed appropriations represent an exception to the use of competitive processes. Congressional interest items are designated to a specific organization, such as a university, obviating the need for a competitive process. (However, in all cases, the program requires that the grantee submits a proposal before funding is released. Proposals are reviewed to ensure the project is an effective investment and aligns with NASA framework and outcomes.) In FY 06, approximately 50% ($78 million) of NASA's education budget was reallocated to Congressional interest items as directed in the appropriations report. ***Evidence***: The requirements for competition are formally specified in the NASA Grants Handbook. Program solicitations and proposal guidance also define the requirements for competition. Each year, guidance is issued specific to the requirements for Congressionally directed appropriations.	NO	0%

Num	Question	Answer	Score
3.CO2	**Does the program have oversight practices that provide sufficient knowledge of grantee activities?** ***Explanation***: Each project in the NASA portfolio is assigned a designated project manager. It is this manager who is responsible for providing oversight. The manager's responsibility is first to thoroughly review proposals and approve only those proposals that are found acceptable. After award, managers are responsible for maintaining frequent communications, making site visits as necessary, reviewing status reports, and reviewing performance data. The grant project directors are required, through a provision in the award document, to submit annual progress reports. Examples of how these oversight practices are used can be illustrated by the Space Grant and EPSCoR projects which collect highly reliable and comprehensive data in compliance with the project manager's guidance. These data are used each year to issue guidance to each state consortium for improvements. These data are also used to conduct reviews every five years as required by legislation specific consortia improvement plans or re-competition of those consortia that do not demonstrate effectiveness. As a result of the last five-year review five states were required to submit improvement plans or were terminated. The MUREP portfolio is closely monitored resulting in an annual report for each project. In FY 05-06, NASA required each institutional recipient of a Congressionally Directed Appropriation to submit a proposal according to guidance provided by an designated NASA manager which was then reviewed for compliance prior to award. ***Evidence***: Oversight of grantees is in compliance with the NASA Grants and Cooperative Agreement Handbook (Subpart C, 14 CFR Part 1273) and the guidance of the NASA Shared Services Center and NSPIRE. Project managers conduct annual performance reviews which are followed with on-site grantee visitations as necessary. Grantees obtain renewal of their awards based upon the accomplishment of objective and outcome measures. The requirements for oversight are formally specified in the NASA Grants Handbook. The annual performance measurement guidance to project managers specifically cites the managers' oversight responsibilities. The grant project directors are required, through a provision in the award document, to submit annual progress reports.	YES	10%
3.CO3	**Does the program collect grantee performance data on an annual basis and make it available to the public in a transparent and meaningful manner?** ***Explanation***: The program currently does not make grantee performance data available to the public. Beginning in FY 07, NASA will publish a publicly accessible annual report, covering the performance of all grantees, on the NASA education web portal. ***Evidence***: None.	NO	0%
			60%

Num	Question	Answer	Score
Num	Question	Answer	Score
Section 4			
4.1	**Has the program demonstrated adequate progress in achieving its long-term performance goals?** ***Explanation***: As a result of the restructuring and strategic planning efforts during FY 2006, a new set of outcomes, objectives, and measures were defined and reviewed and approved by OMB. At this point, the long-term measures do not have baselines and no data have been collected (although the FY07 goal for each long-term measure is to establish a baseline). Meanwhile, the program has continued to assess during this transition period where performance data from existing projects could be mapped to the new set of long-term goals. Notable achievements by specific projects exist. ***Evidence***: Data collection protocols must be developed for the new measures and data must be collected for many of the new measures. Notable achievements by specific projects, but not the full Education program, exist. For example, the NASA Explorer School provide valuable instructional resources and professional development activities to 251 schools. NES has been recognized with a "Top 50 Innovations in Government Award" and the SEMAA project has advanced to finalist status in the 2007 Innovations in Government competition. The Jenkins Fellowship program has produced a cumulative total of 21 Ph.D. and 33 M.S. degree recipients in STEM and notably succeeded in moving five of those graduates into the NASA workforce. National Space Grant College and Fellowship Project; 2005 data show the following results: longitudinal fellowship/scholarship awards - 31% employed by NASA, industry, academia, or other STEM fields, 49% moved on to an advanced degree program, and 18% were seeking STEM employment. Jenkins Predoctoral Fellowship Program - cumulative results total 26 Ph.D. and 33 M.S. degree recipients in STEM with 8% of graduates entering the NASA workforce. Undergraduate Student Research Project - for 2001-2003 data (most recently available), longitudinal results show 26% of participants in aerospace-related employment (vs. 21% of applicants who were not selected).	NO	0%
4.2	**Does the program (including program partners) achieve its annual performance goals?** ***Explanation***: As a result of the restructuring and strategic planning efforts during FY 2006, a new set of outcomes, objectives, and measures were defined and reviewed and approved by OMB. NASA met the targets associated with the annual-only output measures. The annual efficiency measures lack data for FY 2006. ***Evidence***: See performance measures section. NASA met the targets associated with the annual-only output measures. The annual efficiency measures lack data for FY 2006.	SMALL EXTENT	7%

Num	Question	Answer	Score
4.3	**Does the program demonstrate improved efficiencies or cost effectiveness in achieving program goals each year?** ***Explanation***: NASA is making increasing use of distance learning technologies as a mechanism for reaching larger numbers of participants per unit of investment. For example, Office of Education project managers and Mission Directorate Education Leads are utilizing existing programming to conduct professional development workshops and special events. We have repurposed much of the supplementary curriculum portfolio and are using distance education technologies to reach as many participants as possible. Elements of MUREP have been merged. The Museum Alliance network continues to grow and deliver information about NASA's missions to museums, science centers, and planetariums. ***Evidence***: In FY 07, NASA increased efficiency, reduced costs, increasing coordination, and implemented consistent project implementation practices by delegating management responsibilities to a single lead center for each project (except Space Grant and MUREP), including Congressionally Directed Appropriations. Additionally, printing costs for instruction products has been drastically reduced by making all materials and resources available primarily through web-based technology with only a limited number of material.	SMALL EXTENT	7%
4.4	**Does the performance of this program compare favorably to other programs, including government, private, etc., with similar purpose and goals?** ***Explanation***: The ACC is the relevant organization in the federal government responsible for comparing and coordinating the STEM education programs in the federal government. In the 2001 NASA Education Program Review (NEPER), which was cited in the program's 2004 PART report, the external panel of experts concluded that NASA's education program was effective in comparison to comparable programs. In 2005, the Government Accountability Office (GAO) compiled information about federal STEM education programs. However, the GAO did not directly report comparisons among programs. ***Evidence***: The NASA Explorer Schools project has been recognized with a "Top 50 Innovations in Government Award" and the SEMAA project has advance to finalist status in the 2007 Innovations in Government competition. This competition compared the accomplishments of these two investments to similar public and private projects. http://www.innovations.harvard.edu/ The ACC report summarized the STEM education program implemented by federal agencies. NASA's is comparable, though not redundant, to these and based on the working group discussions and on the inventory report, NASA's program compares favorably to those of the other agencies. However, the ACC report does not directly make comparisons among federal STEM education program.	LARGE EXTENT	13%

Num	Question	Answer	Score
4.5	**Do independent evaluations of sufficient scope and quality indicate that the program is effective and achieving results?** ***Explanation***: Several evaluations of investments have been conducted within the past five years or are now nearing completion. An outcome evaluation of the Explorer Schools project is nearing completion. This evaluation is extremely important in that it tests the feasibility of using Randomized Control Trials (RCTs). To date, five progress reports have been submitted by the independent evaluator who works closely with project management staff to ensure findings are implemented. Other evaluations that evaluate effectiveness and support improvements have been conducted on the Aerospace Education Services Program (2004), the NOVA preservice education program (2003), the Graduate Student Researchers Program (2000 and 2006), EarthKam (2006), the Faculty Fellowship Program (2006), and the Space Grant College and Fellowship Program (2003). These evaluations are conducted through external panels of experts or credible, objective evaluators. As a result of the work of the ACC, a new definition of rigorous evaluation has been adopted. This is a new requirement that we are just now beginning to implement. While other models are acceptable depending on the project being evaluated, we intend to implement RCTs for any relevant project. For those for which the RCT method is not appropriate, alternative credible, objective evaluation methodologies will be employed in accordance with professional standards. One of the most significant and important evaluations currently under way is being conducted by the National Research Council. They are using a panel of experts to conduct a meta-analysis of our elementary and secondary education projects. Two meetings of the NRC panel have been conducted with two more to be held in CY 2007; the panel's pre-publication report is expected in November, 2007, with the final report due in February, 2008. NASA has developed and submitted to OMB a planning schedule to accomplish evaluations of all investments in the Office of Education budget. Each investment will be evaluated at least once during a five-year period using the most independent, rigorous, and reliable methods possible. ***Evidence***: All reports are available through the NASA Education Portal. These reports are used to improve project operations. For example, several improvements to the Explorer Schools project have been made. These improvements include management consolidation at a NASA center for greater efficiency, implementation of specific instruction modules to support the school curriculum, and a greater focus on professional development. An evaluation of the Graduate Student Researchers Program (2000 and 2006) documented its effectiveness and led to an improvement to stipend levels based on recommendations. The five-year evaluation of Space Grant resulted in improvement plans implemented by consortia the did not achieve their objectives.	SMALL EXTENT	7%
			33%

Program Performance Measures

Term	Type	
Annual	Output	***Text***: Number of new or revised courses targeted at the STEM skills needed by NASA that are developed with NASA support. ***Explanation***: These are university-level courses based on the results of NASA's science and space exploration missions. Of the 60 courses, NASA expects that approximately 40 will be new and 20 will be revised versions of existing courses. NASA's budget request reflects a reduction each year through FY 11. NASA's objective is to continue serving the same number of participants, despite these funding reductions. **Year Target Actual State** 2007 60 Courses 2006 60 Courses 110 Courses 2008 60 courses 2009 60 Courses 2010 60 Courses 2011 60 Courses
Annual	Output	***Text***: Number of institutions served in designated EPSCoR states. ***Explanation***: Baseline estimated from FY 06 data. In addition to knowing the number of institutions, it is important to know the number of faculty (baseline: 716) and student (baseline: 954) participants. NASA's budget request reflects a reduction each year through FY 11. NASA's objective is to continue serving the same number of participants, despite these funding reductions, through achievement of efficiencies. **Year Target Actual State** 2006 132 institutions 132 institutions 2007 132 institutions 2008 132 institutions 2009 132 institutions 2010 132 institutions 2011 132 institutions
Annual	Output	***Text***: Number of underrepresented and underserved students participating in NASA education programs. ***Explanation***: These graduate and undergraduate students (approximately 8,500) are served at 139 institutions. NASA's budget request reflects a reduction each year through FY 11. NASA's objective is to continue serving the same number of participants, despite these funding reductions. **Year Target Actual State** 2006 8,500 students 8,500 students 2007 8,500 students 2008 8,500 students 2009 8,500 students 2010 8,500 students 2011 8,500 students

<table>
<tr><th>Term</th><th>Type</th><th></th></tr>
<tr><td>Long-term/ Annual</td><td>Output</td><td>Text: Percentage of elementary and secondary educators using NASA content-based STEM resources in the classroom.

Explanation: New measure. Equip educators with context-rich resources to support curricular needs and STEM standards; used to inspire student interest in STEM disciplines and careers. The percentage of the educators who use these resources is an important measure of their utility, effectiveness, and relevance. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals).
Year Target Actual State
2010 baseline plus 5%
2011 baseline plus 10%
2007 FY 07 actual
2008 baseline plus 3%
2009 baseline plus 4%</td></tr>
<tr><td>Annual</td><td>Output</td><td>Text: Number of museums and science centers across the country that actively engage the public in major NASA events.

Explanation: Participants in the NASA Museum Alliance, Space Place Network, and Office of Education Focus Group participants. NASA's budget request reflects a reduction each year through FY 11. NASA's objective is to continue serving the same number of participants, despite these funding reductions, through achievement of efficiencies.
Year Target Actual State
2009 350 museums
2010 350 museums
2006 350 museums 350 museums
2007 350 museums
2008 350 museums
2011 350 museums</td></tr>
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Term	Type	
Long-term/ Annual	Outcome	***Text***: Percentage of student participants employed by NASA, aerospace contractors, universities, & other educational institutions. ***Explanation***: New measure. Targets estimates are based on the NSF Survey of Earned Doctorates. This measure is fundamental to determining achievement of Outcome One, intended to prepare students for employment in NASA, academia, or the aerospace industry. Substantial accomplishments to date that have been documented are derived from Space Grant (31% employed), MUREP (19%, self-reported), GSRP (17%, self-reported), USRP (91%, self-reported). NASA recognizes that it must improve its ability to track student participants over time and is collaborating with NSF and other agencies to develop more effective processes to do so. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals). **Year Target Actual State** 2007 FY 07 Actual 2008 baseline plus 5% 2009 baseline plus 15% 2010 baseline plus 30% 2011 baseline plus 50%
Long-term/ Annual	Outcome	***Text***: Percentage of undergraduate students who move on to advanced education in NASA-related disciplines. ***Explanation***: New measure. Baseline estimated based on NSF Survey of Earned Doctorates. This measure is fundamental to determining achievement of Outcome One, intended to prepare students for employment in NASA, academia, or the aerospace industry. NASA recognizes that it must improve its ability to track student participants over time and is collaborating with NSF and other agencies to develop more effective processes to do so. **Year Target Actual State** 2007 FY 07 actual 2008 baseline plus 5% 2009 baseline plus 10% 2010 baseline plus 20% 2011 baseline plus 30%

Term	Type	
Long-term/ Annual	Output	***Text***: Percentage of higher education program participants who have participated in NASA elementary or secondary programs. ***Explanation***: Eligible 12th grade students who have participated in NASA projects will continue to remain engaged in NASA education opportunities at the higher education level. NASA recognizes that it must improve its ability to track student participants over time and is collaborating with NSF and other agencies to develop more effective processes to do so. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals). **Year Target Actual State** 2009 baseline plus 10% 2007 FY07 actual 2008 baseline plus 5% 2010 baseline plus 20% 2011 baseline plus 30%
Long-term/ Annual	Output	***Text***: Percentage increase in number of elementary and secondary student participants in NASA instructional and enrichment activities. ***Explanation***: New measure. Equip educators with skills/knowledge to attract and retain students in STEM disciplines. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals). **Year Target Actual State** 2009 baseline plus 10% 2007 FY07 actual 2008 baseline plus 5% 2010 baseline plus 15% 2011 baseline plus 20%
Long-term/ Annual	Output	***Text***: Percentage of elementary and secondary educators who participate in NASA training programs who use NASA resources in their classroom instruction. ***Explanation***: New measure. Result in deeper content understanding and confidence in teaching STEM disciplines. The percentage of the educators who use these resources is an important measure of their utility, effectiveness, and relevance. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals). **Year Target Actual State** 2009 baseline plus 10% 2010 baseline plus 25% 2011 baseline plus 35% 2008 baseline plus 5% 2007 FY 07 actual

Term	Type	
Long-term/ Annual	Outcome	***Text***: Level of student interest in science and technology careers resulting from elementary and secondary NASA education programs. ***Explanation***: New measure. A prerequisite to student achievement in STEM subjects is a high level of interest. Therefore, NASA's projects are designed to take advantage of NASA's mission to enhance students' interest in aerospace-related, STEM subjects. Interest is measured by surveys of students conducted before and after participation in the NASA education program. This measure will report the percentage of students who report a post-participation increase in interest. **Year Target Actual State** 2007 FY 07 actual 2008 50% > interest 2009 50% > interest 2010 50% > interest 2011 50% > interest
Long-term/ Annual	Output	***Text***: Percentage of Museums and science centers that participate in NASA networks and that use NASA resources in programs & exhibits. ***Explanation***: Approximately 20% of the 460 U.S. members of the Association of Science and Technology Centers, including museums, science centers, and planetariums, are members of NASA's Museum Alliance (MA). All members of the MA utilize NASA resources in their programs and/or exhibits. NASA's budget request reflects a reduction each year through FY 11. NASA's objective is to continue serving the same number of institutions, despite these funding reductions. **Year Target Actual State** 2009 20% U.S. museums 2007 20% U.S. museums 2008 20% U.S. museums 2010 20% U.S. museums 2011 20% U.S. museums
Annual	Efficiency	***Text***: Dollar invested per number of people reached via e-education technologies. ***Explanation***: New measure. NASA will continue to use web-based technology to deliver content, via the NASA Portal, to reach ever larger numbers of participants. Percentage reductions are per year over the preceding year. Note: Number of people reached is estimated based on page views. **Year Target Actual State** 2007 $0.048 per page view 2008 $0.01 reduction 2009 $0.01 reduction 2010 $0.01 reduction 2011 $0.01 reduction

Term	Type	
Annual	Efficiency	***Text***: Cost per participant of programs ***Explanation***: New measure: NASA will work to achieve a reduction in the cost per participant. As articulated in the education framework, we will draw from audiences that have demonstrated interest in NASA and connect participants to the next level of engagement. A blend of projects and activities encourage continued student affiliation with NASA throughout their academic career, resulting in efficiencies in recruitment and retention. NASA's budget request reflects a reduction each year through FY 11. To continue serving the same number or participants, it will be necessary to reduce the cost per participant as shown in each fiscal year. **Year Target Actual State** 2007 FY 07 actual 2008 8.2% reduction 2009 1% reduction 2010 1% reduction 2011 2% reduction
Annual	Efficiency	***Text***: Ratio of funds leveraged by NASA funding support. ***Explanation***: New measure: NASA will work to maximize the efficiency of its investments by collaborating with partner organization. Targets are based on historical performance in the Space Grant and EPSCoR projects. Note: Targets reflect a percentage step increase from baseline (FY07 Actuals). **Year Target Actual State** 2010 baseline plus 70% 2011 baseline plus 75% 2007 FY 07 actual 2008 baseline plus 60% 2009 baseline plus 65%

Program Improvement Plans

Type	Improvement Plan	Action Taken
Performance	Collecting performance data consistently and annually for all program activities, reporting performance against the program's established metrics and targets, and using results to improve performance.	No action taken
Performance	Conducting independent evaluations to assess the program's effectiveness and efficiency against the program's established metrics and performance goals and applying resources based on the results.	No action taken
Budgetary	Offering opportunities not addressed by other agencies and that are unique in their use of NASA's resources and benefits to NASA's mission and collaborating with other agencies where appropriate.	No action taken
Budgetary	Avoiding duplication with other NASA education programs.	No action taken
Performance	Filling NASA's workforce needs using a stronger effort to consider eligible program participants and facilitate their entry into positions at NASA.	Action taken, but not completed

Type	Improvement Plan	Action Taken
Performance	Establishing baselines for all performance metrics.	No action taken
Management	Fully execute the new education investment framework, per the framework's implementation plan, to complete the strategic alignment of the Education portfolio that best supports the Agency strategic direction and the Exploration Vision. This action is a continuation of a former follow-on action to develop the investment framework and implementation plan.	Action taken, but not completed