KSC Visitor Center Funds
Administered by Kennedy Space Center
Congressionally Directed Funding
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PROJECT DESCRIPTION

KSC's Education Office, including its Educator Resource Center, and the KSC Visitor Complex partnered to develop NASA-related STEM educational activities, exhibits, events and materials that address one or more of the NASA Education Outcomes and align with NASA Education principles, and state or national standards/needs. A priority of this project included upgrading materials and exhibits that provide continuing return on investment long after funds have been disbursed; and, providing STEM-related workshops and demonstrations that use these materials/exhibits for participants in NASA/Visitor Complex education activities. More specifically, the funding for this project supported the following eight STEM educational activities.

1. **Orange County Space Week (OCSW)**
   Currently KSC and Delaware North Parks & Resorts at KSC, Inc collaborate on bringing all Brevard County 6th grade students to the Kennedy Space Center Visitor Complex and 7th grade students to the Astronaut Hall of Fame for a STEM related study trip. OCSW, a pilot activity, will expand this opportunity beyond Brevard County to test the feasibility of future, on-going programs. The KSC Education Office, the KSC Visitor Complex and the KSC Educator Resource Center have partnered to provide a one-day workshop to selected students and teachers focusing on STEM content, including Hubble and LRO/LCROSS. Approximately 2500 8th graders from Orange County Florida will participate in this immersive one-day STEM experience during the week of December 15-18, 2008.

   A professional development workshop was conducted on September 27, 2008, to educate 80 participating teachers on spectroscopy and the solar system. The workshop also familiarized teachers with the Visitor Complex, and the schedule of activities that will take place in December. The topics for the workshop were identified as a need by the Orange County Science Resource Teacher and are aligned with Florida Sunshine State Standards.

2. **NASA Explorer School Family Involvement Workshop**
   NASA Explorer School (NES) educators from across the country participated in an intensive family involvement content workshop held at Kennedy Space Center from July 20-25, 2008. Workshop participants experienced hands-on/minds-on investigative activities that promote STEM content for children and youth in grades 4-6. Aerospace Education Specialists and virtual presenters facilitated interactive group activities that will enable participants to increase student understanding about problem solving, measurement, data analysis and probability. Topics such as NES-developed family tools; family outreach and sustaining family involvement were presented. Along with these activities, participants also had an opportunity to visit world-class facilities where they met NASA experts and learned about the space program and how it can be used to inspire students and their families. Often families may not know how to reach and utilize NASA formal/informal education materials nor take advantage of educational opportunities at an informal education institution. This workshop focused on these issues to strengthen family support of students within the NES project.

3. **KSC Educator Resource Center Team Professional Development**
   This component supported professional development opportunities for educational specialists at Kennedy. The specialists met with experts from other NASA Centers to garner knowledge

on specific NASA-related research in order to create new presentations and hands-on activities for formal and informal educational venues. While at GSFC they were educated on the Hubble mission and mission-related curricula. At JSC they met with spacesuit researchers/developers to learn about the technological advances that will be incorporated in the suits for Constellation. The experts at MSFC educated the specialists on the upcoming LRO/LCROSS mission. Two education specialists completed an intensive one week telescope course entitled, "The Tools of Astronomical Inquiry" at Penn State.

Funding from this component allowed Kennedy to expand its existing partnership with One NASA Girl Scouts by supporting the 2008 National Girl Scouts Convention. Education specialists from KSC will conduct hands-on activities with hundreds of scouts and educators attending the conference.

4. **Folklife Festival**
   This project involved the creation of a new exhibit entitled "Launching the Future for 50 years" which focuses on KSC's role in launch processing and liftoff throughout the Apollo, STS and future constellation program and features the facilities in LC39 area which were used in Apollo, converted for 30 years of STS and now begin conversion to support constellation. It supports logic model focus on NASA's 50th anniversary and special events and included funding for speakers/workers' travel and exhibit materials. This exhibit will be utilized for years by KSC's Visitor Complex, KSC Traveling Exhibits (Display Management Team), air shows, and technical conferences based on the messaging planned for the targeted audience at each venue.

5. **Portable Inflatable Dome Planetarium**
   This new exhibit expands the educational programs offered by both the KSC Visitor Complex and the KSC Educator Resource Center. Collectively KSC's ERC and The Visitor Complex reach over 100,000 educators/students each year. This resource will be utilized by NASA's External Relations Directorate and Delaware North Park Services in many venues other that KSC. It is especially useful as we prepare to launch a Hubble servicing mission.

6. **Teacher/Student Workshop Equipment**
   Both the KSC Visitor Complex and the KSC Educator Resource Center provide workshops to students and teachers. An important part of these workshops is demonstrating STEM concepts with unique NASA mission materials. Equipment purchased in this activity is available to both organizations to utilize as needed. The equipment purchased to date includes: museum quality EVA space suit, a liquid cooling garment, two large models of Orion, and a flight simulator. Additional items to be used for workshops to teach STEM concepts include: a thermal imaging camera, air table, sun spotters, force plates and UVA sensors. These items will enhance both formal and informal workshops and demonstrations. Evaluation is already an integral measurement for assessing long-duration, short-duration, and informal workshops.

7. **KSC/Library Partnership**
   This pilot project included thirty librarians from the KSC region that were selected to participate in an onsite workshop held September 20 - October 1, 2008. Libraries have numerous enrichment workshops for students. This Train-the-Trainer workshop equipped librarians with the knowledge and skills needed to conduct NASA-related workshops at their local library. The workshop highlighted interactive discussions and activities that educated librarians on NASA's Space Exploration Program, the LRO Mission, and NASA's plans for exploring the Moon. The majority of the workshop featured hands-on, inquiry-based activities and demos designed for after-school library programs. The librarians were also informed about NASA static display exhibits that will be available for short-term loans.

8. WYE

This cross-cutting element supports a contractor for half a year to oversee the implementation of each activity. This WYE is responsible for ensuring evaluation data is planned/collected and aggregated for the project. The collected data related to specific Outcomes, Objectives, and Measures will be used to develop a portfolio for the VC Project investments in STEM education documenting a significant contribution to the NASA education strategic framework. KSC will incorporate the Academic Competitiveness Council metrics in the final evaluation.

PROJECT GOALS

The long-standing goal of the project includes the strengthening of NASA and the Nation's workforce. This will be accomplished by attracting and retaining students to STEM and by engaging Americans in NASA's mission. The project activities aim to inspire, engage, and educate utilizing NASA Education Operating Principles (Relevance, NASA Content, Diversity, Evaluation, Continuity, and Partnerships/Sustainability). The initial goals of the project include: increased participation in high quality experiences from existing or potential visitors, students, faculty, and families; continued interaction and sharing of project information between Centers, Visitor Complexes, and NASA's Museum Alliance; introduction of new or upgraded exhibits, materials and products based on NASA's mission; development of a symbiotic relationship between existing NASA education projects and activities held at the Visitor Complex; and formation of strategic partnerships between formal and informal education providers.

PROJECT BENEFIT TO OUTCOME (1,2, OR 3)

The full scope of the project's benefit to Outcomes 2 or 3 will not be known until all data is collected and analyzed. KSC Education, the Educator Resource Center, and the KSC Visitor Complex provide the avenue for supporting each outcome with the necessary content, resources, opportunities, and instruction to inspire, engage, and educate. Evaluation of each activity centers on one or more of the Outcomes.

Orange County Space Week: Outcome 2
NASA Explorer School Family Involvement Workshop: Outcome 2
KSC ERC Professional Development & Teacher/Student Workshop Equipment: Outcome 2 and Outcome 3
Folklife Festival: Outcome 3
Portable Inflatable Dome Planetarium: Outcome 2
KSC/Library Partnership: Outcome 2 and Outcome 3

PROJECT ACCOMPLISHMENTS

The full scope of the project accomplishments will not be known until all data is collected and analyzed. Through the activities outlined above, however, all projects are aligned to one or more of NASA's 15 Program Performance Measures. The project expects to increase the percentage of elementary and secondary educators using NASA content-based STEM resources in the classroom (2.1.2); increase the percentage of elementary and secondary educators who participate in NASA training programs who use NASA resources in their classroom instruction (2.2.5); contribute to a percentage increase in the number of elementary and secondary student participants in NASA instructional and enrichment activities (2.4.4); maintain or increase the level of student interest in science and technology careers resulting from elementary and secondary NASA education programs (2.2.5); increase the number of museums and science centers across the country that actively engage the public in major NASA events (3.2.2); and increase the percentage of

Museums and science centers that participate in NASA networks and that use NASA resources in programs and exhibits (3.2.3); and reduce cost per participant of programs.

PROJECT CONTRIBUTIONS TO PART MEASURES

The full scope of the project contributions to part measures will not be known until all data is collected and analyzed. Evaluation of each activity is mapped to specific PART measures. Data is still being collected and cannot be evaluated at this time. Projects were aligned with the 15 NASA Program Performance Measures.

Orange County Space Week- 2.1.2, 2.4.4, 2.4.9
NASA Explorer School Family Involvement Workshop- 2.1.2, 2.2.5
KSC ERC Professional Development & Teacher/Student Workshop Equipment - 2.1.2, 2.2.5, 2.4.4, 2.4.9, 3.2.2
Folk life Festival – 3.2.2, 3.2.3
Portable Inflatable Dome Planetarium- 2.1.2, 2.4.4, 2.4.9
KSC/Library Partnership 2.1.2, 2.2.5, 3.2.2

IMPROVEMENTS

This project has provided an opportunity to strengthen the relationship between NASA and Kennedy's Visitor Complex. Although we have worked together in the past, this project has fostered a relationship that will provide a continuing return on investment long after funds have been depleted. This has allowed our education specialists to remain current on upcoming NASA missions and increased their overall knowledge on NASA.

PROJECT PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION

Aerospace Education Services Project- Conducted workshop for NES; conducted tours for librarian workshop

Delaware North Parks and Resorts at KSC, Inc- Contractor for Orange County Space Week; conducted tour for NES workshop; access and utilization of portable planetarium, access to new exhibits that will be exhibited in formal and informal venues for years to come

Florida and Georgia Librarian Network- Utilized to competitively select participants for librarian workshop

GSFC, MSFC, and JSC- Provided educational enrichment for specialists

Lunar Planetary Institute- Contractor for librarian workshop

Merritt Island National Wildlife Refuge- Presentation at NES Family Workshop

NASA Explorer Schools-Participation in Family Workshop

Oklahoma State University- Provided DLN for Librarian Workshop, and NES Family Workshop, managed/facilitated NES Family Workshop

Orange County Schools- Students/Educators attending OCSW

Science, Engineering, Mathematics, and Aerospace Academy (SEMAA) - Presentation at NES Workshop

Sylvan Learning Center-Information on their resources for NES Family Workshop

University of Central Florida-Contractor providing education specialists who conducted the professional development workshops for OCSW, NES family attendees, and librarians; Team leaders for portable planetarium sessions; recipients of professional development opportunities