

2010 Visitor Center Funds
Administered by Kennedy Space Center (KSC)
Cheryl Johnson Thornton
KSC Education Department
321-867-4602

PROJECT DESCRIPTION – The KSC Visitor Center Funds project strengthens the partnership between the KSC Education Office, including its Educator Resource Center (ERC), and the KSC Visitor Complex (KSCVC), who have worked together to develop NASA STEM (Science, Technology, Engineering, and Mathematics) education activities, including 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. The components listed below aimed to achieve the following: (1) Strengthen NASA and the Nation's future workforce; (2) Attract and retain students to STEM; and, (3) Engage Americans in NASA's mission.

PROJECT GOALS – The KSC Education Office strives to attract and retain students in STEM through a variety of educational opportunities afforded both in and outside of the classroom. We aim to inspire the next generation of future explorers while engaging Americans in NASA missions through the components of this project. This will be achieved through developing partnerships and working toward long-term component sustainability. Our project will meet and/or exceed the following goals:

- Develop, sustain and improve the educational partnerships between the KSC Education Office, the KSC Visitor Complex and other designated formal/informal education providers
- Create a strategic partnership to promote STEM awareness of NASA missions with the Challenger Learning Centers and Regional Educator Resource Centers in the KSC geographical region
- Develop educational opportunities for students, teachers and education providers outside of the KSC geographical region
- Increase KSC educational outreach through digital connectivity via webcasts and video conferencing
- Improve KSC's local community/school involvement through educational outreach events
- Provide NASA-related educational activities, exhibits, and events focusing on increasing NASA content and Science, Technology, Engineering, and Math (STEM) for the general public, students, teachers, and for the underserved, underrepresented and high minority student population
- Develop new and improve current enrichment experiences for the KSC Visitor Complex
- Highlight skilled and diverse careers within NASA

PROJECT BENEFIT TO OUTCOME – The full scope of the project's benefit to Outcomes 2 or 3 will not be known until all data is collected and analyzed. When applicable, evaluation data will be collected utilizing NASA's Office of Education Performance Measures (OEPM) database. 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. The projects contribute to the following outcomes:

Outcome 2: Attract and retain students in STEM disciplines through a progression of educational opportunities for students, teachers, and faculty

Outcome 3: Build strategic partnerships and linkages with STEM formal and informal education providers that promote STEM literacy and awareness of NASA's mission.

PROJECT ACCOMPLISHMENTS – The full scope of the project accomplishments will not be known until all data is collected and analyzed. All of the components outlined above align to one or more of NASA's Program Performance Measures, as well as matching numerous national and state standards of education.

The project expects to increase the percentage of elementary and secondary educators using NASA content-based STEM resources in the classroom.

(a) Science on a Sphere (SOS) – This component continued the 2nd year of technical support for the current interactive exhibit shared between the KSC Education Office and the KSCVC. The SOS is a room- sized global display system that uses computers and video projectors to display planetary data on a six foot diameter sphere, analogous to a giant animated globe. In the future, the SOS will continue to extend NASA educational content and STEM knowledge through formal and informal educational programs.

The KSC Education Office and the KSCVC Education Department partnered to acquire this exhibit from the National Oceanic and Atmospheric Administration (NOAA) in June 2009. The SOS exhibit is an active tool used by KSC and KSCVC Education staff for student/teacher/youth sessions. The opportunity has also been offered for local area teachers use the exhibit as a regular teaching tool. Team members continue to develop NASA/STEM themed data set playlists for private showings, classroom settings and public presentations.

(b) RoboThespian – The RoboThespian will be located in the IMAX Theater Building on the KSCVC property and will engage students, teachers and visitors in a unique manner while highlighting STEM content and robotics throughout NASA programs. This exhibit is not yet open so specific metrics can't be reported. Installation and training is scheduled for January 25 and 26, 2011.

(c) NASA Schools Connection and Saturday Academy – NASA Schools Connection is a program aimed at getting underserved/underrepresented eighth grade students in Brevard County excited about Science, Technology, Engineering, and Math (STEM) before entering High School. We inspire students and increase their interest in STEM subjects by having NASA STEM hands-on activity workshops, which are conducted monthly by designated KSC ERC educators. In 2010, five Brevard County middle schools were selected to participate. Ninety (90) students from each school were selected to receive monthly NASA/STEM training in order to build a pipeline and generate student interest toward pursuing NASA/STEM careers. To date, KSC Education Specialists have conducted over 32 student workshops for 360 students. This is the second year for the NASA Schools Connection educational outreach program.

This is the 1st year for the Saturday Academy, an outreach program partnering with the Boys and Girls Clubs of Brevard County. Fifty 4th-8th grade students will meet one Saturday per month to participate in NASA/STEM hands-on activities, NASA/KSC career panels, etc. Parents are also invited to attend; plans are to work with them on nutrition, student homework time, and other parenting issues.

(d) Fostering Relationships – In order to sustain partnerships between NASA/KSC Education Office and the Regional Educator Resource Centers (RERC) and Challenger Learning Centers (CLC) plus other establishments such as museums, science centers, Scout groups, etc., the KSC Informal Education Team completed site visits to the Virgin Islands RERC (1300 students) and the Tampa and Jacksonville CLCs and various selected informal/formal establishments: Suwannee County Education Outreach (600 students); Miami Science Center (114 students, 18 mentors). Educational supplies were sent to the Virgin Islands RERC, Georgia RERC, the Puerto Rico RERC, and the Tallahassee, Jacksonville, Tampa and Columbus CLCs. DLN equipment has also been loaned to various museums, science centers, planetariums, RERCs, and CLCs to aid in the fostering of relationships, and educational materials and publications were distributed to selected museums, science centers, and planetariums.

(e) Volusia County Space Week – Volusia Space Week 2010 was a pilot program for that county which ran on October 19-21 and supported students from all academic levels who showed an interest in science, targeting all schools to include minorities, and underserved, underprivileged students. The funding allowed 2,000 8th grade students in a day long program supported by the Kennedy Space Center Visitor Complex and the ERC. Provided one-day (September 10, 2010) training at the KSCVC for 25 teachers from Volusia County at the KSCVC and provided 3 days (October 19, 20 & 21, 2010) for 2000 eighth grade students and 70 teachers to participate in the KSCVC STEM experience. Although it is the 1st year for this FL county to take part in this experience, it is the 2nd project of its kind (the first, in 2008, funded FL Orange County, FL students) to inspire middle school students.

(f) Digital Learning Network (DLN) Education Outreach – Completed STS-131 and 132 Launch Day Live Education webcasts; 2010 “Launch Back to School Event; Collaborated with AMES and Vandenberg Air Force Station for the Extended Launch Vehicle Vandenberg Launch Day Live webcasts; Continued Center Director’s DLN monthly sessions; Started coordination for the Busch Gardens “Physics Day” DLN Event; Planning the last shuttle launches extended live launch day webcasts.

(g) Aerospace Education Services Project (AESP) – The KSC Education Office sustained a second year of the “Launch Mission Activity Stations” through partnerships with Penn State University, the AESP Program/Langley, KSC Education, Stennis Education and the Kennedy Visitor Complex. This provides educational resource activity tables during all Space Shuttle missions and selected Expendable Launch Vehicle (ELV) missions at the KSCVC Complex, Astronaut Hall of Fame and the Saturn V Building on L1 and Launch Days. The funds procured mission-unique items and instructional materials needed to provide informal NASA and STEM education to the public.

(h) Education Technical Support Contractor – Funding provides for a 0.4 WYE contract support position (including travel funding) in partnership with NASA/KSC LSP Education, which funds 0.5, and the HQS/ESMD Waste Limitation Management Recycling (WLMR) Challenge, which funds 0.1 for this position. This employee is hired to ensure success of the KSC Visitor Complex project initiatives; makes certain the KSC Education Office fulfills numerous aspects of NASA Education’s Outcomes 2 and 3 PART measures; provides expertise in national and state standards of education; creates and reviews NASA/STEM content development; and, assists in implementing the KSC Visitor Complex projects. The Education Technical Support Contractor provided expertise and detailed support including content development and review, multimedia product design, online and print advertising, educational instruction and implementation as well as all aspects of logistics, scheduling and coordinating associated with the following:

KSCVC Visitor Fund’s Yearly Report and all activities associated within; shuttle launch webcasts; DLN Back to School Webcast Events; KSC Informal Education Office material and item purchases; KSC Center Director Bob Cabana DLN & LSP Video Production; Science on a Sphere exhibit completion and Grand Opening; SOS conference with NOAA in Boulder, Colorado; LSP Rocket Launch Webcast for the Solar Dynamic Observatory; Lunabotics Mining Competition; US Virgin Islands Outreach for RERC’s and informal education providers; Science Museum Exhibit Collaborative site visit to KSC; Suwannee County NASA Days; Pinellas Science Center ISS Downlink Event ; Boy Scout Jamboree 100 year Anniversary; Miami Science Museum Virtual Education Conference; SEMAA; Upward Bound Overnight Adventure and Educational Event; US Engineering Festival exhibit and staff support coordination; San Francisco Google Workshop; Jacksonville Challenger Learning Center Site Visits; LSP and DLN Webcast Site Visit to the Vandenberg AFB; “You’ve Been Sentenced” gameplay design and expert panel review; 2010 WLMR

Design Challenge; KSC Informal Education Poster design; MOSI expert panel review for LEAP Mission; RoboThespian exhibit design and communication review; IAAPA event participation and product exhibit review; 2010 Busch Gardens Physics Day Show; ESMD Outreach events at the Little league World Series; KSC Informal Education booths at 7 conferences; Brevard Group Treatment Home Educational Workshops; GE Educator Workshop at the KSC ERC; PSTI Educator Workshop at the KSC ERC; Department of State Workshop at the KSC ERC; SDO Teacher Workshop at the KSC ERC; NASA FRC 2010 Grant applications; Pinellas County Professional Development Workshop at Seminole High School.

- (i) Informal Education Support Contractor** – Funding provided for a full time WYE contract support position from July 5, 2010 through September 3, 2011. The employee has and will continue to accomplish numerous tasks associated with KSC informal education components associated with the KSC Visitor Complex project and the NASA/KSC Education Department initiatives. The Informal Education Support Contractor provided expertise and detailed support including content development and review, multimedia product design, educational instruction and implementation as well as all aspects of logistics, scheduling and coordinating associated with the following:

Coordinated and hosted the Miami Science Center Upward Bound Group; Attended and staffed NASA Booths at 4 conferences; Entered over 3000 OEPM surveys into the system; Attended and assisted during Vandenberg AFB, DLN Site Visit; Attended and assisted Challenger Learning Center and RERC/ERC site visits; Attended and supported Pinellas ISS Downlink Event ; Submitted proposal, coordinated visit and organized hands-on activity kits for Suwannee County NASA Day(s) ; Coordinated tour and interviews for MOSI design team; Oversaw planning between KSCVC and Volusia District Schools for Volusia County Space Week ; Attended and assisted during the Denver Museum Technical Officer Site Visit; Assisted in the scheduling process for future events with both Girl Scouts and Boy Scouts; Assisted in the scheduling and planning of DLN events with KSC Center Director Cabana ; Supported one of the KSC Family Nights as part of the Summer of Innovation; Auditing NASA Education property and its current location; Revised the word list for “You’ve Been Sentenced” game and communicated with the designing company; Supported WLMR with the distribution of posters and flyers, and reviewing the PowerPoint for the competition overview; Coordinated meetings between KSC and Engineered Arts Limited to help in decision of robot location, delivery day, set up, etc.; Assisting in the relocation of loaned items to Space Walk of Fame; KSC Informal Education Office material and item purchases; Attended MOSI LEAP Mission expert review panel

- (j) Educator Resource Center (ERC) and Exploration Station (ES)** – The One NASA Education and Visitors Center Partnership Logic Model specifically promotes supporting and updating NASA ERCs. The KSC/ERC is one of the most visited ERC’s in the network, annually interacting with over 30,000 visitors, students and teachers. The ES is a hands-on science room for both formal/informal education activities/workshops/etc. It is open to the public when not scheduled for educator workshops and student enrichment events. The items purchased have been and will continue to be used in both areas. Examples of items purchased: NASA logo 5x7 notebooks which are distributed to students/educators attending NASA/KSC workshops; 2 inch cloth NASA logos are given to Girl/Boy Scouts who complete a badge at the KSC ERC/ES; Drawstring bags, pencils and pens are given to NASA/KSC workshop participants.

- (k) Brevard Learns About Science And Technology (BLAST)** – This project, in partnership with the Brevard County Public Schools, enables every 7th grader in Brevard County to experience the KSCVC complex and participate in NASA/STEM learning activities. This educational opportunity began in

September 2010 and will continue through March 2011. The funding provides coordination, supplies, transportation, and a STEM educational experience including highlights of the Shuttle Mission Simulation, Science on a Sphere, and a motion based simulation provided by the Kennedy Space Center Visitor Complex. BLAST days funded by NASA/KSC (100 students per day) are as follows: October 4, 5 and 7, 2010; November 2, 8, 9, 15, 16, 17, 22 and 23, 2010; December 13 and 14, 2010; January 18, 19, 20, 21, 24, 25, 26, 27, 28 and 31, 2010; and, February 1, 2011.

(l) Pinellas International Space Station Downlink – In compliance with the ISS component of the One-NASA Education and Visitor Center Partnership Logic Model, this funding provided support for the Pinellas Science Center ISS Downlink on September 9, 2010. The Informal Team worked with the Science Center and organized a 4 hour NASA/STEM event around the downlink which included the appearance of former astronaut Bob Springer, KSC ERC Educators conducting hands-on activities plus a “Gee Whiz” presentation and distribution of education outreach materials. The event was concluded with an ISS Downlink coordinated by the Johnson Space Center (JSC) Teaching from Space Office. This event not only strengthened the relationship between NASA KSC Education and the Pinellas Science Center, but also touched approximately 300 students. The group was comprised of minorities, and students who are underserved, underprivileged.

(m) Travel – In compliance with the One-NASA Education and Visitor Center Partnership Logic Model, this funding provided travel support for the various on-location and site-visit components such as NASA travel to: (1) Vandenberg Air Force Station in support of DLN; (2) Virgin Islands Educational Outreach Initiative; and (3) Various formal/informal/afterschool conferences.

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. Projects were aligned with the 15 NASA Program Performance Measures.

- (a) Science on a Sphere (SOS)** – The SOS was installed in a public museum, which supports and /or contributes to the following PART Measures 2.1.1, 2.4.1, 3.1.1 and 3.1.2
- (b) RoboThesbian** – The full scope of the project accomplishments will not be known until the exhibit arrives and is up and running for a certain length of time to report. An example of the expected contribution to Part Measures is 3.1.2
- (c) NASA Schools Connection and Saturday Academy** – Professional Development workshops are provided while curricular support materials are distributed to the title 1, high minority schools and girls/boys clubs participating. Students are presented with NASA missions information and informed about STEM career opportunities. Part Measures 2.1.1, 2.3.1, 2.4.1, 2.2.1, 3.2.1, 3.2.2
- (d) Fostering Relationships** – This component increases the use of video conferencing to communicate information regarding NASA missions. Partnerships are implemented with the KSC Regional ERC’s as well as Challenger Learning Centers, public museums and science centers. It also increases the availability of short/long duration, NASA-themed workshops for students/teachers. Part Measures 2.1.1, 2.4.1 and 3.1.1
- (e) Volusia Space Week** – Opportunity for 2000 Volusia County 8th graders to experience the KSCVC Complex and NASA/STEM activities. Part Measures 2.1.1, 2.3.1, 2.3.2, 2.4.2 and 3.1.2
- (f) Digital Learning Network (DLN) Education Outreach** – Provides launch day webcasts that communicate information regarding NASA missions and allows students, teachers and the general public access to STEM engineers and scientists. This component also highlights NASA STEM careers available for students and hosts various DLN events. Part Measures 2.3.1, 2.3.2, 2.4.1, 2.4.2 and 3.1.2

- (g) **Aerospace Education Services Project (AESP)** – Provides informal/formal educational opportunities and informs the public and students about STEM career opportunities. Part Measures 2.4.1, 3.1.1 and 3.1.2
- (h) **Education Technical Support Contractor** – Develop, implement and monitor formal/informal educational outreach projects. Part Measures 2.1.1, 2.2.1, 2.3.1 and 3.1.2
- (i) **Informal Education Support Contractor** – Assists in financial accountability for KSCVC projects, procurements, and outreach. The contractor also travels for and with the informal education specialist to support in fostering relationships. Part Measures 2.1.1, 2.2.1, 2.3.1 and 3.1.2
- (j) **Educator Resource Center (ERC) and Exploration Station (ES)** – Engages students and teachers in mission-specific content while highlighting skilled and diverse careers with NASA. The ERC also provides short and long term, professional development and distributes curricular resources to support NASA education in the classroom. Part Measures 2.1.1, 2.3.1, 2.4.1 and 3.1.2
- (k) **Brevard Learns About Science And Technology (BLAST)** – Opportunity for every 7th grader in Brevard County to experience KSCVC and NASA/STEM activities. Part Measures 2.4.2 and 3.1.2
- (l) **Pinellas International Space Station Downlink** – Contributed to the downlink by enabling students to participate in NASA/STEM activities. Part Measures 2.4.2 and 3.1.2

PROJECT PARTNERS TECHNICAL POINT OF CONTACT INFORMATION AND ROLE OF PARTNERS IN PROJECT EXECUTION

Aerospace Education Services Project (AESP) – Provide funding, personnel and STEM activities in support of the “Launch Mission Activity Stations” and several on-site and on-location Visitor Center Funds Components – POC: Langley AESP Project Manager and Penn State AESP Director

Brevard County School System – Participate in the NASA Schools Connection Project, Saturday Academy, BLAST and KSC ERC Exploration Station student enrichment events – Active collaboration for providing formal/informal Professional Development – POC: Science Coordinator, Brevard Public Schools

Challenger Learning Centers (CLC) – Utilization of mobile Digital Learning Network units – Increase connectivity between NASA centers and formal/informal institutions – Provide outreach and NASA/STEM workshops for students, teachers, youth groups, pre-service teachers, etc. – POC: The Education Coordinator at each of the four CLCs

Delaware North Parks and Resorts at KSC, Inc. – Support “Launch Mission Activity Stations” – Development & utilization of the Science on a Sphere Project – Contract support for Volusia County Space Week, BLAST and “Sleep under the rocket” projects – Collaboration on the RoboThesbian project – POCs: The KSCVC Education Office and Content Coordinator

Educator Resource Center (ERC) – Provide specialists and STEM activities to support the NASA Schools Connection, Saturday Academy and conduct informal/formal on-site and on-location workshops – Collaborate with the Informal Team on new projects – POC: ERC/UCF Program Manager

Engineered Arts Limited – Contract support for production, setup, programming and training for RoboThesbian – POC: CEO, graphic, software and technical divisions of the Company

Girl & Boy Clubs of America – Provide children to attend Saturday Academics – POC: Club Leaders

Girl & Boy Scouts of America – Provide development toward educational workshops in support various Badges – POC: Marketing/Sales Departments, Leaders, Volunteers

KSC Press Site – Production assistance for the Space Shuttle and ELV webcasts – Production assistance for video packages used during launch webcasts – POC: NASA/KSC Education Public Affairs Officer, TV Producer and Web Producer

KSC Regional ERC's – Increase connectivity between NASA centers and formal/informal institutions – POC: Lead Coordinator at each of the 3 sites

Miami Science Center/SEMMA – Participate in ERC Workshops and KSCVC Overnight Adventure – POC: Senior Director, Science and Technology

NASA/KSC Guest Services Office – Collaborates with every aspect of the Visitor Center Funding – POC: Supervisor, Procurement and Exhibit Leads

NOAA – Science on a Sphere support – POC: Chief: Technology Outreach Branch

Oklahoma State University – DLN Contractor – POC: DLN Program Manager, Langley

Penn State University – Provides personnel and STEM activities in support of the “Launch Mission Activity Stations” from across the Agency – Provides educational staff in support of several on-site and on-location Visitor Center Funds Components – POC: Penn State AESP Director

Pinellas Science Center – Hosted the ISS Downlink Event – POC: Executive Director

University of Central Florida – Contractor providing Kennedy ERC Education Specialist to conduct the educational outreach involved with several Visitor Center Fund Components – Provide specialists and STEM activities to support the NASA Schools Connection and Saturday Academy programs – Provide educators to conduct informal/formal on-site and on-location workshop – Collaborate with the Informal Team on new projects – POC: ERC/UCF Program Manager

Various NASA Centers – Provided support for the Pinellas ISS Downlink, “Launch Mission Activity Stations”, Launch Day DLN Live Webcasts and various digital learning events and Collaborate on and participate in various informal events across the nation – POC: NASA Centers Informal Education and various other areas

Volusia County School Board – Assisted with coordination and participated in the Volusia County Space Week – POC: Science Specialist, Volusia County Schools