

Space Gallery Exhibits, Educational Programming & Enhancements

Administered by Virginia Air & Space Center

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PROJECT DESCRIPTION

I. Site preparation for the new *Space Quest* gallery. This gallery will focus on NASA technologies and space science through interactive exhibits and compelling stories of human ingenuity. Over half-a-million cubic feet of existing space in the Center is being developed into a state-of-the-art space gallery.

When this project commenced, the space gallery was nearly 14 years old, many of the interpretations were dated, and interactive components had exceeded their lifespan. As the official visitor center for NASA Langley and a well-known science museum, it is imperative that the Center's exhibits are up-to-date, high-tech and highlight the past, present and future of space exploration. In order to enhance the total visitor and student experience, the renovation will incorporate displays featuring current and future technological advances. The key concepts that the new gallery will include are: Human Spaceflight – Living and Working in Space; The Universe - Basic Science; Unmanned Space Exploration; Rockets and Satellites; Visions of Spaceflight; and NASA Spin-off Technologies.

II. A new **Digital Discovery Lab** to better position the Virginia Air & Space Center to serve as a forward thinking/learning museum and provide support for a variety of programs targeted toward underserved students.

Components of this lab will include state-of-the-art educational technology such as a 3D depiction wall, a smart lectern, additional audio-visual equipment, and exciting new tools such as Global Imagination and enhanced computer equipment and programs. Programs will integrate teaching strategies that address multiple learning styles such as kinesthetic, visual, tactile and auditory—or by doing, seeing, feeling, and hearing, in addition to reading. Also operated from this lab will be distance learning programs, a Space Explorers shuttle simulation program and student competitions in the fields of science and math.

III. **STEM Education Programming** and initiatives as follows:

- New and improved Virginia SOL-based science and technology programs to address current and future student needs, i.e. new programs, activities or events focusing on climate change
- Dynamic programs for life-long learners
- New programs and camps for after-school, teacher days off and winter breaks
- Overnight camp-ins and summer camps, including the new NASA Space Explorers camps planned for summer 2008
- Sponsorship of VASC First Robotics Team
- Home school family workshops and after school programs
- Summer Teacher Tech Fair
- Improved live presentations of NASA TV programming
- Publicity for upcoming NASA missions such as the Hubble Space Telescope Servicing Mission, Phoenix Mars Lander and Lunar Reconnaissance Orbiter using technology available through "NASA Links "and "ViewSpace."
- Promotion of NASA activities such as NASA Langley's 90th anniversary and NASA's 50th anniversary celebrations.

PROJECT GOALS

1. Complete installation of the *Space Quest* gallery with state-of-the-art space exhibits highlighting NASA's significant contributions to space exploration and spin-off technologies.
2. Expand the Center's mission as a world-class facility devoted to science, aviation, space and technology through development of new educational programs, a Digital Discovery Lab and hands-on space exhibits.
3. Play an aggressive role in educating students and the public about the past, present and future of space exploration.
4. Improve the science and technology literacy of students, families and the public through hands-on, educational activities that focus on science, technology, engineering and mathematics.
5. Encourage students to pursue educational disciplines critical to NASA's future engineering, scientific and technical missions.

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

Outcome 3. 412, 815 guests visited the VASC during the fiscal year, of which 220, 475 were school age children, and the Space Gallery was our main attraction.

PROJECT ACCOMPLISHMENTS (CONNECTION BACK TO ANNUAL PERFORMANCE GOALS AND PLANS)

Goal 1. Phase 1 of the installation of the *Space Quest* gallery with state-of-the-art space exhibits highlighting NASA's significant contributions to space exploration and spin-off technologies is completed.

We have completed the site preparation of the gallery including tearing out walls, rebuilding, painting, carpeting and moving iconic artifacts. New installations for Phase 1 of the gallery construction have been completed under other contracts and Phase 2 has been designed. The refurbished gallery gave us space to install over 22 hands-on exhibits and much more will be completed in Phase 2 as this is a work in progress.

Goal 2. We have expanded the Center's role as a world-class facility devoted to science, aviation, space and technology through development of new educational programs, a Digital Discovery Lab and hands-on space exhibits.

We have created 13 new programs for students from pre-K through 12th grade and the general public. Our program content matter ranges from earth science to space science, highlighting NASA's role in finding out more about the universe and the world around us. The Digital Discovery Laboratory has been initiated with laptop computers and Space Shuttle Mission Simulation rooms. The rooms have glass walls and a separated 75% scale mock-up of an orbiter flight deck and mission control room blocked from view of each other. Training students for realistic mock shuttle take-off and landing instills in them a better appreciation for the teamwork necessary to achieve space flight.

Goal 3. Play an aggressive role in educating students and the public about the past, present and future of space exploration.

We have 13 new programs and are continually revising Virginia SOL and NSES

based science and technology programs to address current and future student needs. One area we are now concentrating on are new programs, activities and events focusing on global climate change and what it means for the world as a whole and Hampton Roads in general. We have had major collaborative efforts with NASA LaRC for the 400 years of astronomy, two NASA Space Explorers science camps specifically addressing NASA achievements and instituting "NASA Aerospace Ambassadors" (11th and 12th grade mentors) to help teach the camp; and expanded "NASA Days" for employees, contractors and families to visit the Center. We are planning a Summer Tech Fair for 2009. We are aiding National Institute of Aerospace to improved live presentations of NASA TV programming (eClips). We actively promote and collaborate with NASA activities such as NASA Langley's 90th anniversary and NASA's 50th anniversary celebrations.

Goal 4. Improve the science and technology literacy of students, families and the public through hands-on, educational activities that focus on science, technology, engineering and mathematics.

We conducted 102 outreaches to public and private schools as well as public events. The Center has hosted field trips to the Virginia Air & Space Center for more than 50,000 students and we have a robust overnight camp-in program where we saw over 1,500 scouts, students and home school students. We provide publicity for upcoming NASA missions such as the Hubble Space Telescope Servicing Mission, Phoenix Mars Lander and Lunar Reconnaissance Orbiter using technology available through "NASA Links" and "ViewSpace."

We have created dynamic programs for life-long learners to be delivered on site at the museum, senior centers and retirement facilities.

Goal 5. Encourage students to pursue educational disciplines critical to NASA's future engineering, scientific and technical missions.

In addition to our other STEM offerings, we have added new programs and camps for Saturdays, after-school, teacher days off and winter breaks. We have increased our attendance at overnight camp-ins and included home school children and girls scouts, two groups not traditionally involved in the camp-in program. We have added new summer camps and off-site camps, including the new NASA Space Explorers camps in summer 2008. We are an official sponsor of the FIRST Robotics Team annual kick-off event every January. We have held three home school family workshops and host an open house for home educators and their students where 579 people attended.

PROJECT CONTRIBUTIONS TO PART MEASURES (*INCLUDE DATA PLUS EXPLANATION*)

Forty (40) educational programs and demonstrations were developed and/or revised, and were presented to 64,455 students.

No new exhibits were completed in the Space Gallery as part of this project, but site preparation has been completed to allow for the second and third phases of the exhibits to be installed as funds become available (exhibit construction was not part of this proposal). While awaiting exhibit construction funds, this site hosted the following temporary exhibits:

From Smithsonian Institute Traveling Exhibit Services (SITES):

- Earth From Space

From NASA:

- AGAM Closet with Rotating Inflatable Moon
- Four Jamestown Exploration Kiosks
- Living and Working in Space (with space vacuum)
- A New Age of Exploration
- Aerospace Design
- NASA Langley Children's Art Exhibition
- 1:20 Scale Orion
- NASA Life and Work on the Moon Art Contest Winners, 2008

Relocated to the Space Gallery from other locations in VASC:

- AstroBulletin
- Calipso Exhibit Kiosk
- Shuttle Landing Simulator
- Mars Update

Thirteen (13) new programs were developed for students that included *From Little to Big*, *It Matters*, *Laws of Attraction: Magnets*, *Patterns in Nature*, *Go Green!*, *Shape Up*, *That's How It Grows*, *Weather Around Us*, *Robots (for grades K-2 and 3-5)*, *Risky Business*, *Spaceship Earth* (grade 6), and *Conditions in Space* (grade 4).

102 outreach activities were conducted to public and private schools, and public events. 50,000 students were hosted at these events. Our over-night camp-in programs were attended by 1,500 scouts, students, and home school students.

Provided support to NASA 50th anniversary, Langley's 90 anniversary and in collaboration Langley hosted or supported the 400 Years of Astronomy program,

NASA Space Explorers science camp, NASA Aerospace Ambassadors program, and NASA Day for employees.

The Digital Discovery Laboratory was recently completed and 85 participants (students, homeschoolers, and scouts) have participated in the hands-on activity, namely the Space Explorer Shuttle Simulator program.

IMPROVEMENTS (e.g. project management, efficiencies, etc.) MADE IN THE PAST YEAR

The ERC has seen more exposure due to an increase in the use of the lunar samples for school groups visiting the VASC on field trips, along with an increase in educators checking out materials from the ERC. Approximately 45 teachers visit the ERC each month, a significant increase from the previous year.

Overnight camp-ins have doubled in numbers, with a lot more boy scouts and girl scouts participating in the overnight activities provided here at VASC. Homeschool families also recently participated in the overnight camp-ins.

PROJECT PARTNERS AND ROLE OF PARTNERS IN PROJECT EXECUTION ***(THIS IS WHERE FURTHER FOLLOW-UP TO OCCUR FOR COLLECTING 2008 GRANTEE PERFORMANCE SUMMARIES FOR PUBLISHING TO OUR EDUCATION HOME PAGE)***

- NIA – eClips
- Virginia Space Grant Consortium – Gear Up program
- Langley Federal Credit Union – Corporate sponsorships for educational programs
- Hampton City Schools – school programming
- Newport News City Schools – school programming
- Beazley Foundation – grant for educational programs for Portsmouth Public Schools
- VuBay Foundation – funding for educational programs for Hampton City Schools
- Contracts with the following schools for outreach programs and field trips to VASC:
 - o Hampton Roads Academy Lower School
 - o Norfolk Academy

- Nansemond Suffolk Academy
- Hampton City Schools – grade 5 and Pre K
- Newport News City Schools – grade 6
- Yorktown Elementary School