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Spaceport News

John F. Kennedy Space Center - America's gateway to the universe

http://www.nasa.gov/centers/kennedy/news/snews/spnews_toc.html

The STS-120 crew shares its eagerness for launch with spectators before getting on the Astrovan to ride to the launch pad. Commander Pamela Melroy (right) leads the way.

Discovery soars between clouds

Shuttle program on schedule with on-time launch

WITH clouds crowding the coastline, space shuttle Discovery found a place of harmony in space and time, climbing into blue sky after a spectacular on-time launch at 11:38 a.m. Oct. 23 on mission STS-120 to the International Space Station.

There were early concerns about the weather shifting before launch, with an ocean breeze forecast to roll in at 11 a.m., possibly bringing with it some rain and clouds. Fortunately, the front held off until liftoff.

Earlier, during the countdown, other concerns surfaced about an area of "clear ice" near the liquid hydrogen umbilical on the external tank. Managers determined this would not be an issue for launch.

At the post-launch briefing, Shuttle Launch Director Mike Leinbach said the launch was "one of the cleanest countdowns here since I've been a launch director.

"Both weather and the ice issue were things we had to work through prior to launch. We were challenged by both. All we can do is evaluate the weather and hope to get lucky," he added.

When it counted, the unanimous decision was "go" for launch.

The STS-120 mission is ambitious in its schedule of activities, including five spacewalks.

The primary objectives for STS-120's spacewalks are to temporarily install the Node 2 module, known as Harmony, and relocate the space station's P6 truss and solar arrays. The first three spacewalks will focus on these activities.

The fourth spacewalk, recently added to the mission, involves a demonstration of space shuttle thermal protection system repair techniques.

The fifth and final spacewalk prepares for the relocation of Harmony and the Pressurized Mating Adapter-2, scheduled to occur just after the shuttle mission. This will be conducted by the space station crew.

The spacewalks were planned on flight days four, six, eight, ten and eleven.

Five spacewalks will be the most conducted during a shuttle mission to the space station. STS-120 also is the first mission with five different spacewalkers: Mission Specialists Scott Parazynski, Doug Wheelock and Daniel Tani from Discovery, and station Commander Peggy Whitson and Flight Engineer Yuri Malenchenko.

Discovery and its crew of seven are expected to complete the mission with a landing at NASA's Kennedy Space Center at 5:11 a.m. on Nov. 7.

For a full spectrum of color images on the Web of Discovery's launch, go to **http://mediaarchive.ksc.nasa.gov/search.cfm?cat=101**.

In addition, NASA Web coverage of STS-120 includes current mission information, interactive features, and news conference images, graphics and videos. Mission coverage, including the latest NASA TV schedule, also is available on the main space shuttle Web site at: **http://www.nasa.gov/shuttle.**

Employees recognized for modification efforts on STS-117 external tank

SEVERAL hundred NASA, Lockheed Martin and United Space Alliance workers were recently recognized for their unparalleled efforts in repairing the foam on the external tank for the STS-117 mission. In late February, while on the launch pad, space shuttle Atlantis' external tank received hail damage during a severe thunderstorm that passed through the Kennedy Space Center Launch Complex 39 area. The hail caused visible divots in the giant tank's foam insulation as well as minor surface damage to about 25 heat shield tiles on the shuttle's left wing.

Shuttle Program Manaager Wayne Hale congratulates Michael L. Young, director of Engineering Integration, for his hail damage work on the STS-117 external tank.

The team worked 24 hours a day, seven days a week, for 70 days to complete the unprecedented repairs. Their efforts ranged from assessing the damage, building unique scaffolding to access the areas, developing new tools such as a device that became dubbed the "pencil sharpener" and using several repair options, from sanding to injecting foam.

> "You have been selected to receive this medallion in recognition of your vital contribution to the recovery of the STS-117 External Tank significantly damaged in a hail storm."

At a special ceremony on Oct. 10, Shuttle Program Manager Wayne Hale presented team members with medallions to honor their work.

Space doesn't permit naming all of the individuals who were recognized. The NASA personnel involved were Sherman L. Avans, Anthony P. Bartolone, William R. Becker, Brad J. Berman, John B. Blue, James S. Bolton, Todd Brandenburg, Greg S. Breznik, Christopher Broadaway, Jack Burritt, Daniel R. Callan, Amy C. Canfield, Richard W. Care, Katie E. Carr, Joseph C. Cianciola, George T. Cole, Richard B. Danyus, James H. Davis, Simon Davis, Otis E. Deal, Darrell Deweese, Gregg M. Eldridge, Romeo C. Enriquez, Thomas F. Ford, Michael B. Frizzell, Brian K. Goode, Gordon B. Grooms, Eugene T. Healey, Christopher E. Hill, Christopher Hoffman, Steven G. Holmes, John Honeycutt, Gary W. Jerome, John E. Key, Diana Kiesling, Charles R. Kirch, John E. Legere, Scott A. Lockwood, Gregory Lohning, Jonathan D. Looser, Jeffrey D. Lund, Brian Miller, Thomas A. Miller, Charles A. Mister, William Ondocsin, Brent A. Pautler, Jeffrey C. Pilet, Terry L. Prickett, Mike Prince, Kenneth C. Priske, Alison B. Protz, Jorge E. Rivera, Robert Russo, Patrick W. Ryan, Sarah L. Schilling, Shawn Selvidge, Jonathan B. Sharpe, Eartha M. Shoemaker, Clayton B. Shrock, Wandaanne A. Sigur, Jimmy D. Sisco, Dennis K. Sparks, Jeffrey S. Sparks, Robert F. Speece, Brian Steeve, Fernando M. Teran, John W. Thiers, Mary A. Thompson, Jeffrey S. Thon, Robert C. Torrez, Ronald L. Troxle, Kevin D. Vega, Gregory S. Vinyard, Kenneth J. Welzyn, Timothy White, Chad Woods, Roy C. Worthy.

A cake decorated for the celebration features both sides of the medallion given to the team members.

Buoniconti speaks about new beginnings

By Linda Herridge
Staff Writer

MARC Buoniconti is looking forward to the day when he can stand up and walk away from the wheelchair he has been in for 22 years. The son of former Miami Dolphin and Hall of Famer Nick Buoniconti suffered a spinal cord injury during a football game in 1985 that left him paralyzed from the neck down.

Buoniconti was the guest speaker during a National Disability Employment Awareness Month event sponsored by the Disability Awareness and Action Working Group at Kennedy Space Center. He told an attentive audience that what he thought was the end of his life was very much a new beginning.

"I am humbled and overwhelmed to be here at Kennedy Space Center," Buoniconti said. "It was exactly 22 years ago today that I was paralyzed — Oct. 26."

During treatment at the Miller School of Medicine at the University of Miami, Buoniconti met Dr. Barth Green, a renowned neurosurgeon with a vision to bring the best medical team together to help find a cure and improve function and quality of life for people paralyzed by spinal cord disorders. Thus was born the Miami Project.

Buoniconti serves as Ambassador for the Miami Project to Cure Paralysis and president of the Buoniconti Fund to Cure Paralysis, the Miami Project's international fundraising arm founded by his father.

"My life has purpose," Buoniconti said. "And I have some exciting news to share with you."

According to Buoniconti, the project's laboratory research has brought them very close to a cure. In 2008, they will launch the first FDA-approved human clinical trials using cellular transplants to replace damaged nerves and cells.

Buoniconti said the Miami Project has helped to change the way the world looks at paralysis. "We are faced with physical and mental challenges. We also want challenge in life," Buoniconti said. "You can consider me a member of your DAAWG team." He encouraged disabled workers to get out there and live, get out there and work.

At podium, Nicole DelVesco, DAAWG co-chair and NDEAM event co-chair; seated from left, Annie Miller, NDEAM event chairperson; Susan Kroskey, DAAWG executive advisor; and Marc Buoniconti, NDEAM special guest speaker.

Center Director Bill Parsons said it takes an entire team to launch a shuttle and process the hardware. That team includes disabled workers. He praised the DAAWG and said the group does great work here at Kennedy.

Susan Kroskey, Kennedy's Chief Financial Officer and DAAWG executive advisor, said Buoniconti topped the scales in bringing awareness of spinal chord injuries to the Kennedy community.

Annual Business Opportunities Expo provides companies 'one-stop' shopping

By Linda Herridge
Staff Writer

KENNEDY Space Center's 17th annual Business Opportunities Expo on Oct. 16 provided an opportunity for local and national business leaders to learn more about how to contract with the government and for government purchasing agents to learn what local and national vendors have to offer. The one-stop environment at Port Canaveral Cruise Terminal 4 was sponsored by the NASA/Kennedy Prime Contractor Board, 45th Space Wing and Canaveral Port Authority.

Nearly 900 people attended the event, which featured 175 exhibitors and 24 NASA small business specialists and contractor small business liaisons. Other NASA centers participated, including Headquarters, Goddard Space Flight Center, Johnson Space Center, Langley Research Center, Marshall Space Flight Center, Ames Research Center, Glenn Research Center and the NASA Shared Services Center.

Dudley Cannon, director of Kennedy's Procurement Office, welcomed exhibitors and attendees to the expo. He said the event is an example of the successful partnering among the U.S. Air Force, NASA and the Port Authority.

From left, clockwise, Business Expo participants talk with representatives from ITT engineering, NASA's Office of Small Business Programs, Rockwell Automation, and Florida Motion Control.

"It is also an example of the partnership between government and industry, which has made the United States the great country it is today," Cannon said. "The expo showcases both large and small businesses and their important role in helping the Air Force guard our nation from space and NASA explore our solar system and beyond."

Other speakers included Fred Kirschstein, district director for U.S. Congressman Dave Weldon; Lynda Weatherman, president and chief executive officer of the Space Coast Economic Development Commission; Tom Goodson, chairman and port commissioner for the Canaveral Port Authority; Air Force Col. Stephen Butler, vice commander of the 45th Space Wing at Patrick Air Force Base; James Hattaway, NASA associate director for business operations at Kennedy; and Glenn Delgado, associate administrator for the Office of Small and Disadvantaged Business Utilization at NASA Headquarters.

Hattaway said what makes the expo unique is the concentration of primarily small business exhibitors from Brevard County and Central Florida.

"The small business community is vital to our economy and our mission success," Hattaway said. "This event provides these businesses the opportunity to showcase their capabilities to NASA, the Air Force and other firms."

Exhibitors included vendors from a variety of product and service areas such as computer technology, communication equipment and services, construction, engineering and safety products.

During the expo, NASA Small Business Specialist Connie Wilcox announced the 2007 Kennedy contractor awards. The Boeing Company was named Large Prime Contractor of the Year, SGT Inc. was awarded Small Prime Contractor of the Year and Bionetics was declared Subcontractor of the Year. These companies will be recognized during Kennedy's annual awards ceremony in November.

The expo is managed by NASA's Central Industry Assistance Office, which provides support to businesses desiring to do business at Kennedy.

From historical to pop culture, artifa

(Above) Employees near the Shuttle Landing Facility at NASA's Kennedy Space Center watch space shuttle Discovery climb through clouds into blue sky on mission STS-120 to the International Space Station. Discovery carries seven astronauts, the Harmony module payload, and a few other unique items.

By Steven Siceloff
Staff Writer

THE Wright Flyer got only a few feet off the grou during its maiden flight in 1903, but traveled to t moon 66 years later.

A lead cargo tag that took months to cross the Atlant Ocean from England to the nascent colony at Jamestow cently made the same crossing in minutes.

Now a plastic handle whose sole role was to make th tional world of Star Wars look realistic has taken a real t the stars aboard space shuttle Discovery for mission ST

From pieces of history to articles of pop culture, the ment of items astronauts have taken with them into spac varied as the world the artifacts represent.

Most of the objects find esteemed homes when they such as a stuffed teddy bear that STS-116 Commander N Polansky took into orbit. The bear was a replica of one c by a Holocaust survivor. After the flight, the astronaut re the replica to a museum for its collection.

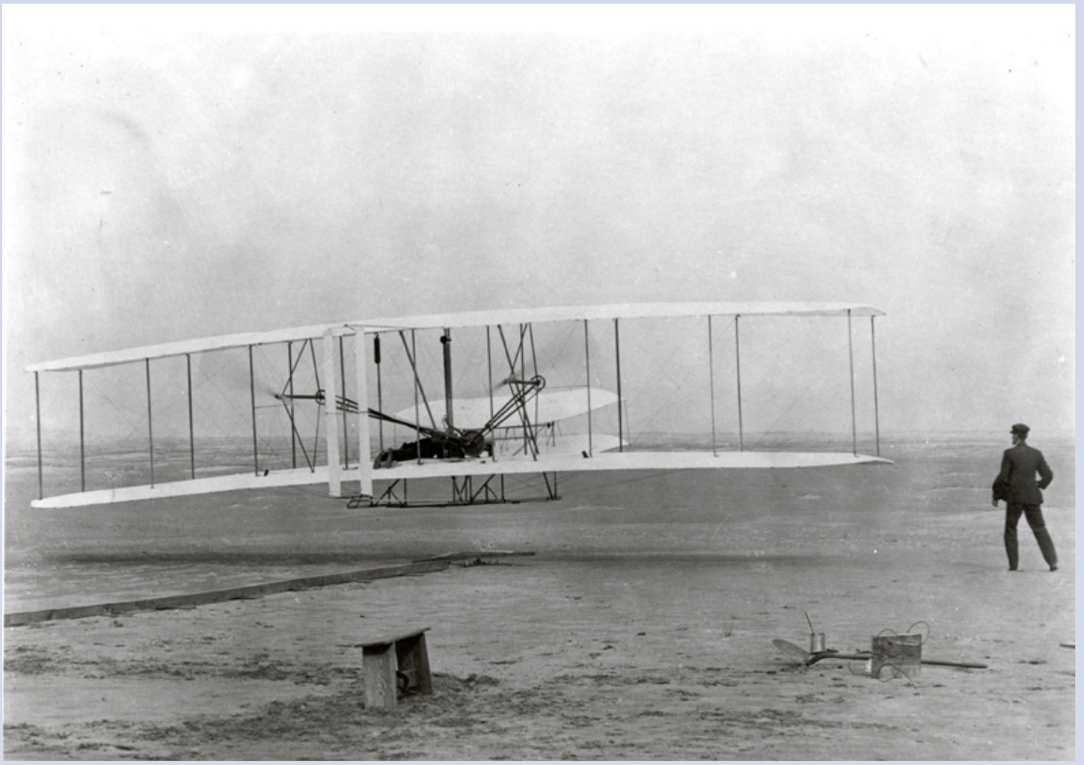
For the Star Wars prop, a lightsaber handle that was by Luke Skywalker, even the send-off was celebrated. A tors dressed as characters including Chewbacca and X-w pilots escorted the item to an airport in California for the to NASA's Johnson Space Center in Houston, where it w packed into a shuttle locker and taken to NASA's Kenne Space Center for loading aboard Discovery.

Astronaut Jim Reilly, who flew three missions and h ducted eight spacewalks, said there is a symbolic tie bet the lightsaber and the real-life work NASA does in spac

"There's a kind of a fine line between science fiction reality as far as what we do, and it's only just time, reall

(Above) The original lightsaber used by Luke Skywalker in the film Sta stowed on Discovery for its launch to the International Space Station o STS-120. Taking the science-fiction weapon into space commemorat 30th anniversary of the film. The saber will be taken to Houston for di the Space Center after Discovery returns to Earth Nov. 7.

acts hitchhike for ride in space



(Left) The Wright brothers' plane made its historic flight in 1903 on the sands of Kitty Hawk, N.C. In July 1969, a piece of the plane flew farther than could be imagined at that time when it traveled on Apollo 11 for the first manned lunar landing.

because a lot of what we're doing right now was science fiction when I was growing up," he said. "I think it's a neat link because it combines two space themes all at one time."

The lightsaber will spend 14 days in orbit on mission STS-120, but is not expected to leave the locker during the flight. It will be on display at the Space Center in Houston after the mission.

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It will not be the first time a Star Wars-related item has gone into orbit, though. Reilly said astronauts have taken small Star Wars toys into space with them when asked.

"People have taken toy mementos, things like a Star Wars toy that might have meant something in their life, so there are any number of things that might be just a little out of the ordinary," he said.

More solemn markers have also accompanied astronauts. For example, Reilly's STS-117 mission carried a medal earned by a World War II pilot who died in the war.

Patches, flags and medallions are routinely carried by the dozens or more on each flight, with some going on display and many going as awards to shuttle workers and VIPs.

"I think it makes it real," astronaut Rick Arnold said. "I lived in several countries and I think it's nice to be able to present one of the flags that flew on our mission to those host countries as a thank you."

Arnold has been picked to fly aboard STS-119 in 2008, and is just starting to contemplate what to take with him to mark the occasion.

"There's not a lot of room for personal items," he said.

Wedding rings and other small tokens are often taken into orbit. They are small enough to fit and large enough to have meaning. Each crew member is allowed to take about two pounds of mementos on their flight, but they must fit in a comparatively tiny area.

Astronaut Stephanie Wilson took a sheet of music from the Boston Symphony Orchestra onboard Discovery for mission STS-120. The music comes from Beethoven's "Ode to Joy," a favorite in the orchestra's extensive repertoire. Wilson worked at one time in a music store in Tanglewood, Mass., which is the summer home of the orchestra.

Some items never leave space, notably mission emblems like those stuck to the walls inside the International Space Station.

Another example is a golf ball astronaut Alan Shepard carried to the moon on Apollo 14 and hit with an improvised club.

Moonwalker Charles Duke left a portrait of his family on the lunar surface.

Thousands of signatures have also gone into the solar system in the form of computer codes imprinted on compact discs, which flew on several probes such as Deep Space 1.

Whether they go into space to stay or to be appreciated anew back on Earth, the artifacts manage to find a unique home.

"When you get the chance to deliver that stuff back to your family and friends, they're really excited about it," Reilly said.

Astronauts to ride rails for emergency exit from Orion

By Steven Siceloff
Staff Writer

AS NASA revamps Launch Complex 39B to host the new Orion spacecraft and Ares I rocket of the Constellation Program, engineers are preparing to install a new kind of departure system to evacuate astronauts.

The agency calls it the Orion Emergency Egress System, but it is fundamentally a group of multi-passenger cars on a set of rails reminiscent of a roller coaster. Its purpose is to move astronauts and the ground crew quickly from the vehicle entry on the launch pad to a protective concrete bunker in case of an emergency.

Similar systems have been built into launch pads since the Saturn rockets and for the space shuttle. Both earlier systems were cables running from the spacecraft's crew ingress level to an area near a bunker. There has never been an emergency on the pad that required the crew use these systems.

For Orion, the railcar would stand some 380 feet above the ground. It will be at the same height as the hatch on the Orion capsule, which is where the astronaut crews enter the spacecraft before launch.

Kelli Maloney, the lead designer for the launch pad escape system, said a trade study showed the railcar best met NASA's requirements. Those requirements call for astronauts to be able to get out of the spacecraft and into the bunker within 4 minutes.

One of the benefits of the rail system, Maloney said, is that the track can take the astronauts directly to the bunker door. That would be a big help if one of the crew members or a ground crew member was incapacitated.

Scott Colloredo, NASA's senior project integrator for Constellation ground systems, said the group called on the world's roller coaster designers for help with the concept.

"It's obviously not a thrill ride, but we're taking advantage of technology that's there," he said.

This artitst's concept shows Ares I on the launch pad next to the launch tower.

NASA, contractors form board for small businesses

THE prime contractors for NASA and the Kennedy Space Center recently signed the charter for the "NASA/KSC Prime Contractor Board."

The board was formed to foster the development, operation, clarification, implementation and improvement of the Small Business Utilization Program at Kennedy.

Members of the board represent Kennedy and NASA, as well as on-site/near-site, mission support and operational prime contractors.

The board comprises a Working Committee to identify appropriate action items and develop potential solutions and approaches, and an Executive Committee to establish policy, direction and strategies.

Contractors represented on the committees are The Boeing Company, Space Gateway Support, United Space Alliance, ASRC Aerospace Corp., C&C International, Dynamac Corp., Delaware North Inc. and Chickasaw Nation Industries.

Space Gateway Support Director of Contracts Victoria Lockard signs the charter; at left is Small Business Liaison Cindi Minter.

Signing the charter is NASA Director of Procurement Dudley Cannon (right), along with Larry Third (left) of the NASA Industry Assistance Office and KSC Small Business Specialist Connie Wilcox (center).

Remembering Our Heritage

Apollo launch team in two sites

By Kay Grinter
Reference Librarian

FOR the Apollo Program, blockhouses located on the perimeters of the pads became passé. The state-of-the-art firing rooms were safely tucked away in the new Launch Control Center, or LCC, located more than three miles from either Pad A or Pad B in Launch Complex 39.

The LCC was a marvel and won the 1965 Architectural Award for the Industrial Design of the Year. Each of the four firing rooms, located on the building's third floor, was two stories high. Each room housed 470 monitors and consoles for guiding the assembly and checkout of a Saturn vehicle in the bays of the Vehicle Assembly Building and controlling the launches from both pads.

Roy Lealman was an engineer on the launch team in Firing Room 1, also known as FR1, for the Apollo 11 launch. A division chief in Kennedy's Launch Vehicle Operations, he oversaw the electrical networks and gyroscope positioning of the Saturn V. Now retired, he recalled from his home on Merritt Island: "Those of us at the consoles on the main floor faced west, away from the pads. Once we had the vehicle off the pad, Mission Control in Houston took control. Only then did we stand up and turn around to watch liftoff through the windows."

The photos showing a jubilant launch team in FR1 only captured part of the picture, though.

July 16, 1969: Members of the Kennedy Space Center Government-Industry Team rise from the consoles in the Launch Control Center to watch the Apollo 11 liftoff.

The ACE Station 3 in the Operations & Checkout Building on Jan. 15, 1969, where personnel support an integrated systems test on lunar module 3, part of the flight readiness test for Apollo 9. Leaning, at right, is Daniel Evans, now a senior manager at Kennedy.

The teams controlling the command service module and lunar module, the CSM and LM, were stationed in the Acceptance Checkout Equipment, or ACE, control rooms in the Operations and Checkout Building about 10 miles away.

At the heart of these six rooms was a computer system that could process 34,000 samples of test data per second from the checkout systems. Data collected in the ACE control rooms was transmitted to FR1, where it was monitored for any problems.

Charlie Mars was NASA's chief lunar module project engineer in Spacecraft Operations at Kennedy and was in the ACE control room for the Apollo 11 launch. Now retired and managing the U.S. Space Walk of Fame Museum in Titusville, he recalled: "The control rooms had windows that looked into the building's high bay. Small-screen black-and-white televisions were mounted on the walls for our launch-viewing pleasure."

Daniel Evans was a young engineer also assigned to the Checkout Equipment Branch of Spacecraft Operations. Now senior manager of configuration management in International Space Station and Spacecraft Processing at Kennedy, he recalled: "I worked third shift in the ACE control room for the lunar module for Apollo 11, but I was on console for the launch of Apollo 13."

FR1 will be outfitted to support the 2009 demonstration Ares 1-X flight for the Constellation Program.

KSC makes a difference

BECAUSE of generous Kennedy Space Center workers who donated items to the Make a Difference Day Project, about 1,000 Brevard County residents will receive basic necessities such as canned vegetables, pasta, shampoo and diapers.

After two months of work, volunteers loaded three vehicles with the donations and delivered them to the Brevard Sharing Centers in Titusville and Cocoa on Oct. 26. These goods are certainly needed, seeing that the crisis service 2-1-1 Brevard received 11,328 calls for basic needs during its last fiscal year. The project was formally launched three years ago and is coordinated by the Federally Employed Women, or FEW, organization.

"We can't do something like this if people aren't willing to help, and these volunteers have been very gracious," said Sandra Getter, Community Outreach Chairwoman for FEW's Space Coast chapter. "Charity begins at home. Here we are in Brevard County with people who can't afford food. We with jobs should give back."

Chau Le and Sandra Getter finish loading one of two vans and an SUV used to collect donations for the Make A Difference Day Project to take to Brevard Sharing Centers.

Students get experience of a lifetime

ON a brilliant October morning, students and teachers from six schools around the United States gathered at NASA's Kennedy Space Center to watch as space shuttle Discovery roared off its launch pad on mission STS-120.

Safely nestled inside the shuttle's payload bay was the Italian-built Node 2, which the students named Harmony, destined to become a permanent part of the International Space Station.

But let's step back in time and explain how the students ended up at Kennedy for the launch on Oct. 23.

Last year, NASA extended a "Name the ISS Node 2 Challenge" to schools throughout the country. More than 2,200 kindergarten through high school students from 32 states took part in the naming contest.

After researching how humans live and work in space, the students were tasked with building scale models, writing essays, creating electronic scrapbooks about the module and coming up with a meaningful name.

The contest submissions were sent to a panel of NASA scientists, engineers and educators and the winners were announced at a Kennedy event in March.

The name Harmony was chosen by six different schools to win the competition. This was the first time a piece of the space station was named by anyone outside of NASA.

"We chose the name Harmony because our class had to work together in harmony and we thought that would be a good name," said Megan Littleton from Buchanan Elementary School in Baton Rouge, La.

NASA invited teachers and about 150 students with their parents to visit Kennedy for a grand tour of the center and to watch the shuttle launch.

Diana Winter from Browne Academy in Alexandria, Va., said she became interested in space after seeing the rings of Saturn through a telescope her grandpa had given her.

"I've been in awe of everything I've seen through the telescope that you can't really see (otherwise)."

Tanli Sun from Lubbock High School in Lubbock, Texas, is fascinated by the immensity of the universe. "Space is so limitless and infinite and mysterious. It grabs your attention because we don't know much about it and we would like to know more."

The students agreed that the name Harmony represented the coming together of people from different countries with a mutual purpose of exploring space and working on science and research projects together.

The module also will physically connect many international parts of the space station, serving as the uniting point between the U.S. Destiny lab, the European Columbus module and the Japanese Kibo module.

On the first of their five scheduled spacewalks, the STS-120 astronauts installed Harmony in a temporary position on the station on Oct. 26.

The 24-foot-long module became the first expansion of the station's living and working space since 2001.

The youngsters take pride in having participated in a history-making event. According to the students, they believe that everyday people should care about the space program.

Diana remarked that people never know how they'll be affected by the items NASA carries into space, like science experiments that could lead to a cure for cancer that couldn't be found on Earth because of certain conditions.

"Who knows what will happen when we go further to another planet and we figure out what's beyond what we know."

Former NASA astronaut Frank Culbertson (front row center) spoke to the Harmony-naming group after their tour of the Apollo/Saturn V Center at Kennedy. They stayed for the STS-120 launch that carried Harmony to the International Space Station.

World Space Expo promotes support for space exploration

THE Kennedy Space Center Visitor Complex will host the inaugural World Space Expo event Nov. 1-4 to promote public support for space exploration. The event will feature unique exhibits, personal appearances and an education program at the Visitor Complex.

Additionally, an aerial salute featuring the U.S. Air Force Thunderbirds will take place over the NASA Causeway. Employees can still purchase up to six tickets at NASA Exchange Stores for activities scheduled on Nov. 3 or 4. The discounted cost is $15 per person, which includes admission to the Visitor Complex, special exhibits, appearances and the air show.

Everyone attending the aerial salute on Nov. 3 or 4 will be required to board buses at the Visitor Complex for transport to the NASA Causeway. No personal vehicles will be allowed at the causeway. Bus boarding begins at 11 a.m. at the Visitor Complex. Small folding/bagged chairs are permitted.

For additional information, go to **www.kennedyspacecenter.com** or **www.worldspaceexpo.com**.

John F. Kennedy Space Center

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