



Sigma Zeta Math-Science Competition continued
The Sigma Zeta Math-Science Competition, now in its 36th year, draws pupils grades 9 to 12 from up to 20 high schools throughout Virginia's southwest region. Students compete individually and in teams. Northrop Grumman's donation will help acquire classroom equipment and resources.

Mentoring Program Graduates More Than 100 Students

Still going strong after 37 years, the High School Involvement Partnership (HIP) Program at the Integrated Systems sector graduated 108 students in 2007. In addition, three students received the first Paul Marchisotto HIP Scholarship award. Northrop Grumman established this scholarship in memory of late employee Paul Marchisotto, an avid supporter of the mentoring program during his NGC tenure.

Paul's family attended the graduation ceremony in El Segundo, California, and presented an award to one of the winning students. The Rancho Bernardo, California, and Bethpage, New York sites also presented these special scholarships to several students.

Employees Raise More Than \$300,000 for March of Dimes

In early 2007, Integrated Systems launched its ninth year of supporting the March of Dimes. Raising money through WalkAmerica for research and treatment of premature babies, Northrop Grumman employees, family members and friends raised \$321,000.

ENGINEERS WEEK: I think I can!

It took a "can-do" spirit at this year's edition of Engineers Week. Puns aside, this year marked the first "Cengineering" competition supported by the Women in Northrop Grumman (WINGS) recreation club. Spinach in hand, employee teams in El Segundo, Rancho Bernardo, and Palmdale, California designed and built models of Northrop Grumman products out of cans.

These creative sculptures included likenesses of the B-2, the UCAS, an aircraft carrier, and a Fire Scout unmanned helicopter. After the competition, local food banks received all of the cans.

Each year, Engineering Week allows Integrated Systems sector

The creative genius behind the building of this Fire Scout display (back row, left to right): Robert Freeman, David Oakey, Jennifer Jensen, Frederick Burke, and Quang Diep-Tran. At front (left to right): Jeanie Cady and LouAnn Kocsis. Also part of the team but not present for the photograph were Kimtri Truong, John Nguyen, and Dung (Tina) Phan.



engineers to visit local schools, and students get a peek inside Northrop Grumman sites.

THE HOME FRONT CARES – Northrop Grumman takes on lead sponsorship

Since its inception in 2003, The Home Front Cares (THFC), a not-for-profit organization comprised almost entirely of local Colorado volunteers, has supported more than 2,000 troops and their families and donated more than \$400,000. To further these efforts, Northrop Grumman announced its title sponsorship role for THFC's 2007 fundraising events.

THFC has three active programs: (1) The General Fund program that provides assistance for vehicle, house repairs, evictions, food and other family emergencies; (2) The Energy Assistance Fund program through grants received from Colorado Energy Outreach, which has assisted families with their energy bills since July 2003; and (3) The Wounded Troops Fund program, which assists the wounded soldiers and their families with travel, food, lodging and other problems arising from extended hospitalization and recuperation. For more information, visit www.thehomefrontcares.org.



Northrop Grumman presented a \$25,000 check at a June fundraising event in Castle Pines, Colorado. From left: Ed Soriano, Technical Services vice president; Mick Anna, Mission Systems sector director of regional marketing for Colorado Springs; Jeff Dahlberg, THFC president; Tim McMahon, vice president of strategic programs and corporate lead executive, Colorado Springs; Mike Shanahan, Denver Broncos head coach and honorary THFC chairman; and Retired Air Force Gen. Lance Lord.

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COMMUNITY PARTNERSHIPS IN MOTION

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FOCUS ON EDUCATION – Teachers Take "Weightless Flights of Discovery"

As children, many of us drank the Tang and dreamed of becoming astronauts. We mused that perhaps one day we, too, would feel the freedom of floating through space. With Northrop Grumman's help, more than 700 teachers throughout the country have received the training necessary to take one giant leap toward that dream.

The Northrop Grumman Foundation "Weightless Flights of Discovery" program aims to energize students to pursue science and technical careers by first inspiring their teachers. Since being introduced in June 2006, the program has doubled in enrollment size; it has provided professional development to 720 current teachers and eligible college students studying to become teachers.

"Reaching out to current and future teachers is a great way to increase student interest in math and science," says Sandra Evers-Manly, president of the Northrop Grumman Foundation and vice president of Office of Corporate Responsibility. "The Northrop Grumman Foundation is pleased to support a program that excites educators because empowered and motivated teachers who can share unique learning experiences in the classroom lead to enthusiastic and well-educated students."

"The impact of the Weightless Flights of Discovery program on science classrooms is impossible to measure. But the impact on these teachers can be seen and felt in their expression and actions. They are clearly inspired."

Linda Froschauer

2006-2007 President, National Science Teachers Association

"It's our duty to give every child – male, female, white, African American, Native American –the opportunity to develop their knowledge and their imagination. That's what the ACI is about, that's what the Weightless Flights program is about, and that's what we teachers are about."

Allan Miller

6th Grade Teacher, Einstein Distinguished Educator Fellow

IN THIS ISSUE

• Mentoring Program Going Strong

• Employees Raise Morale For Wounded Soldiers

• Math and Science Competition Brings Out Students

Teachers participate in zero-gravity aircraft flight, which creates temporary weightlessness similar to what humans experience during space travel. The experience simulates how astronauts train for space flight. During workshops, teachers learn about science and engineering concepts, zero gravity environments, and science and math curriculum development.

How Does Parabolic Flight Work?

Weightless Flight (also known as Parabolic Flight) is achieved aboard ZERO-G's Boeing 727 aircraft named G-FORCE ONE. Weightlessness is achieved by flying G-FORCE ONE through a parabolic flight maneuver. Specially trained pilots fly these maneuvers between approximately 24,000 and 34,000 feet altitude. Each parabola takes 10 miles of airspace to perform and lasts approximately one minute from start to finish.

The maneuver is somewhat like a roller coaster in that the plane is initially pulled up to approximately 45 degrees 'nose high.' Next the plane is 'pushed over' the top to reach the zero-gravity segment of the parabolas. For the next 25 - 30 seconds everything in the plane is weightless. At approximately 30 degrees 'nose low' a gentle pull-out is started which allows the Flyers to stabilize on the aircraft floor. Finally, the g-force is increased smoothly to about 1.8 g's until the aircraft reaches a flight altitude of 24,000 feet. The maneuver is then repeated.

The weightlessness experienced by everyone inside the airplane is actually equivalent to the type of "free fall" you experience when sky diving. In this case however, the body of the aircraft surrounds you and protects you from the on-rushing wind. At the end of the free fall period, the aircraft also scoops you up and carries you back up to the top of the arc to begin the free fall process again.

In addition to achieving zero-g or weightlessness, G-FORCE ONE can also fly a parabola designed to offer Lunar (1/6th) or Martian (1/3rd) gravity. These reduced gravity environments are also created with a modified parabola that is not quite as steep as zero gravity parabola.

Courtesy of Zero Gravity Corporation, the first and only FAA-approved provider of commercial weightless flights for the general public.

philanthropy to the education enterprise," says Tim McMahon, corporate lead executive for Colorado Springs. "This is a particularly special opportunity because we recognize and appreciate the critical importance of what teachers do and what comes out of their classrooms to the future of our country."

"What are the odds that a teacher from a school named after an Apollo 15 astronaut would get an opportunity like this?" asks Gina Daugherty, a seventh grade math teacher at James Irwin Charter Middle School. "My students already have an aerospace hero watching over them in the hallways. My experiences as a participant in Northrop Grumman's program will help them understand how following in his footsteps begins with the foundations they are building in my class."

Northrop Grumman created the program in cooperation with Zero Gravity Corporation and has conducted eight teacher workshops and 16 parabolic flights in Baltimore; Bethpage, New York; Colorado Springs; Dallas; Los Angeles; New Orleans; Newport News, Virginia; and Washington, D.C.

"You could tell right away how excited these teachers were to be afforded such a unique opportunity," says Marynoele Benson, Mission Systems senior manager of media and public relations. "It will truly be a learning experience of a lifetime!"

"Northrop Grumman's work for the U.S. government is, at its core, based upon a fundamental understanding of science, technology, engineering and math, so we look carefully for opportunities to bring



Weightless Flights of Discovery' participants, from 2007, demonstrate just how much fun science can be.

SECTOR ROUNDUP

A quick look at some of the many community outreach efforts here at Northrop Grumman.

"Scoops for Troops" Donations Raise Morale for Wounded Soldiers

Hundreds of Information Technology Sector employees in the Washington, D.C. area participated in the "Scoops for the Troops" program to help wounded soldiers.

Employees generously donated a wide variety of comfort necessities for recuperating American soldiers at Walter Reed Army Medical Center in Washington, D.C. The donated items – everything from phone and gift cards to games, books and toiletries – reached the troops through the CAUSE Gift Pack program, which regularly distributes personal items and notes at the medical center.

Corporate Vice President and President of Northrop Grumman Information Technology Linda Mills led the first Scoops event in Falls Church, Virginia followed by similar efforts in Reston, Chantilly, and Washington, D.C. To date, the estimated value of employee donations from these four Scoops events is almost \$8,000.

Sigma Zeta Math-Science Competition Gets Boost from Northrop Grumman

Thanks in part to Northrop Grumman, high school students in the southwest Virginia region got to lock wits at the Sigma Zeta Math-Science Competition. Held at the University of Virginia's College at Wise (UVa-Wise), the event is one of the most prestigious competitions in the region.

With a \$5,000 contribution, Northrop Grumman demonstrated an ongoing commitment to fostering economic development in Virginia's southwest corner. NGC already has its Information Technology Infrastructure Partnership with the Virginia Information Technologies Agency (VITA) and has selected southwest Virginia as a location for National Work Force Centers.

"With the support of teachers and organizations such as Sigma Zeta, I am confident that students in this region will continue to master the skills needed to compete globally, whether in school or as part of the work force," says Mike King at the check presentation ceremony. He is director of Strategy and Business Development for Northrop Grumman's Commercial, State and Local group.

Continued on next page

FAST TRACK TO THE FUTURE – Festival Features Next Wave of Technology



When it absolutely, positively has to be there by Jetpack.® WIRED NextFest executives and sponsors receive a proclamation via special delivery.

Thanks to the Northrop Grumman Foundation, 10,000 Southern California students participated in festivities marking the first day of WIRED NextFest, a four-day festival of inspired inventions and cutting-edge technologies. Held in Los Angeles, hosted by

WIRED magazine and sponsored in part by Northrop Grumman Corporation and the Northrop Grumman Foundation <<http://www.northropgrumman.com/community/foundation.html>> , the event garnered a number of outstanding reviews. As part of the event, Los Angeles Mayor Antonio Villaraigosa deemed a "The Future of Education and Innovation Day in Los Angeles."

WHAT IS NEXTFEST?

WIRED's vision of a new World's Fair, WIRED NextFest is a four-day festival of innovative products and technologies transforming our world. The 2007 NextFest in Los Angeles featured more than 160 interactive exhibits from leading scientists and researchers from around the world. Attendees experienced the future of communication, design, entertainment, exploration, health, play, robots, transportation, security, and green living.