T-3,2,1 ... Northrop Grumman Launches Weightless Teacher-Education Program

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Math and science workshops, aircraft flights in weightless environment will help teachers inspire students to pursue careers in space exploration

KENNEDY SPACE CENTER, Fla., June 24, 2006 /PRNewswire-FirstCall via COMTEX News Network/ -- Teachers from across the U.S. and around the world will experience first hand the application of math, science and engineering principles to human activities in a weightless or low-gravity space environment under the new Northrop Grumman Corporation (NYSE: NOC) Weightless Flights of Discovery program unveiled here today.

The program, the first of its kind, involves 240 teachers from all 50 states and at least 15 countries. It is designed to help educators inspire and nurture student interest in technical or scientific careers. The program includes hands-on science workshops and the opportunity to participate in a parabolic or "zero-gravity" aircraft flight that creates temporary weightlessness comparable to what humans would experience during space travel to the moon or Mars. It is also similar to how astronauts train for space flight.

Forty teachers took part in the inaugural Northrop Grumman Weightless Flights of Discovery workshop, held June 10 at Kennedy Space Center. Today's announcement was marked by the program's first two parabolic flights, which included approximately 20 teachers per flight.

"The Northrop Grumman Weightless Flights of Discovery educators' program is part of the company's commitment to help NASA and the nation create the well-educated, technically trained workforce needed to undertake and sustain a successful human space exploration program," said Tom Vice, sector vice president for business development at Northrop Grumman's Integrated Systems sector.

The program also serves as a vehicle to spark student interest in pursuing careers in other scientific and technical fields, a key component of the American Competitiveness Initiative introduced by President Bush in his 2006 State of the Union address, he added.

Northrop Grumman is sponsoring the Weightless Flights of Discovery in cooperation with Zero Gravity (ZERO-G(R)) Corporation, Ft. Lauderdale, Fla., which developed and will conduct this unique professional development program for teachers. Plans call for ZERO-G to conduct teacher workshops and parabolic flights in five U.S. metropolitan areas over the course of the summer. The program will include five workshops and 12 flights in all.

Regional sponsors in each area will work with Northrop Grumman, ZERO-G and state space, education and government agencies to select teachers to participate in the program. NASA, the National Science Teachers Association, and ZERO-G developed the educational workshops that use space exploration as a focal point to teach science, technology, engineering and mathematics topics.

During the Northrop Grumman Weightless Flights of Discovery workshops, teachers receive pre-flight training in weightlessness and experiment design where they learn how astronauts and scientists work in lunar, Martian and zero gravity environments. They also learn how to relate those experiments to science, engineering, technology and mathematics curricula development.

On flight day, teachers conduct their experiments on board ZERO-G's specially-modified, FAA-approved aircraft, G-Force One. After the flight, teachers are involved in a debriefing where they evaluate the process and discuss outcomes of the flight and curriculum plans.

Hill-Gustat Middle School (Sebring, Fla.) algebra and 8th grade science teacher Cathy Hardesty, who has was recently named teacher of the year for her school, district and region, was one of the teachers who participated in the inaugural flights. She is excited about using her zero-gravity experiences to float space exploration concepts by her students.

"The Northrop Grumman program is sure to have a dramatic effect on students and their comprehension of basic scientific concepts," said Hardesty. "No textbook, not even the greatest science teachers of all time, can really open a student's eyes wide to principles such as Newton's laws of motion. For my students to see their own teacher on video conducting experiments in zero gravity lets them know that there are no limits to what they can do, including becoming a scientist or engineer."

Florida Space Research Institute (FSRI), a research organization for the State of Florida, is also providing national funding support for the Northrop Grumman Weightless Flights of Discovery program. "We're pleased to support Northrop Grumman in this endeavor," said Samuel Durrance, FSRI's executive director and a former astronaut. "We hope other like-minded public and private entities will join forces to help students seek out and find a place in our nation's space exploration workforce."

AOL, the industry leading educational resource for teachers and students of all ages, will serve as the official online, interactive Web site for the Northrop Grumman Weightless Flights of Discovery. Space enthusiasts can visit (http://homeworkhelp.aol.com/zero-g) throughout the summer for online coverage of the flight program, including videos of teachers in zero gravity action, photo galleries and fast facts about zero gravity. Visitors can also read about all of the teachers selected for the flights.

Additional teacher workshops and parabolic flights for the Northrop Grumman Weightless Flights of Discovery program are planned for Huntsville, Ala; San Diego; Cleveland; and Washington, D.C. The next teacher workshops are scheduled for the week of July 23 in Huntsville, with corresponding zero- gravity flights planned for July 28-29.

Zero-gravity flights are performed in dedicated airspace 100 miles long by 10 miles wide. Specially trained pilots fly the aircraft in a series of maneuvers called parabolas, or arcs, between the altitudes of 24,000 and 32,000 feet. At the beginning of each parabola, the aircraft climbs at a 45-degree angle. At the "top" of the parabola, the aircraft is "pushed over" into a controlled descent that creates a temporary zero-gravity environment.

The teacher flights will include approximately 15 parabolas ranging from low-gravity environments typical of the moon (1/6th G) or Mars (1/3 G) to

complete weightlessness. At the end of each "weightless" period, which lasts approximately 30 seconds, the aircraft is gradually pulled out of the descent, reestablishing a more normal gravity environment inside the plane

Northrop Grumman Corporation is a global defense company headquartered in Los Angeles, Calif. Northrop Grumman provides technologically advanced, innovative products, services and solutions in systems integration, defense electronics, information technology, advanced aircraft, shipbuilding and space technology. With approximately 125,000 employees and operations in all 50 states and 25 countries, Northrop Grumman serves U.S. and international military, government and commercial customers.

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