

Northrop Grumman Foundation | 20
09

FOUNDATION

2009 ANNUAL REPORT

NORTHROP GRUMMAN
Foundation





A MESSAGE FROM THE PRESIDENT

On behalf of the Northrop Grumman Foundation and its Board of Directors, I am pleased to present our 2009 annual report.

Tremendous challenges to the philanthropy world and the country's education system came this past year. Now, more than ever, we see the need to invest in education and to do everything we can to help prepare today's students for tomorrow's careers. The Northrop Grumman Foundation is focused on providing students and teachers unique experiences related to science, technology, engineering and mathematics. This report describes the Foundation's programming and how we are working with nonprofit partners to ensure learning opportunities are available for students and teachers.

Highlights include:

- The Matching Gifts for Education Program
- Weightless Flights of Discovery
- Earthwatch Educator Program
- Space Camp
- Diversity Scholarships
- Future Programming

As we continue our commitment to students, teacher and our non-profit partners, we hope to continue our quest to inspire the next generation of scientists, engineers and technicians who will guide us through a whole new world of unimaginable discoveries.

Thank you for your interest in the Northrop Grumman Foundation.

Sincerely,

Sandra Evers-Manly, President
Northrop Grumman Foundation





Foundation Overview

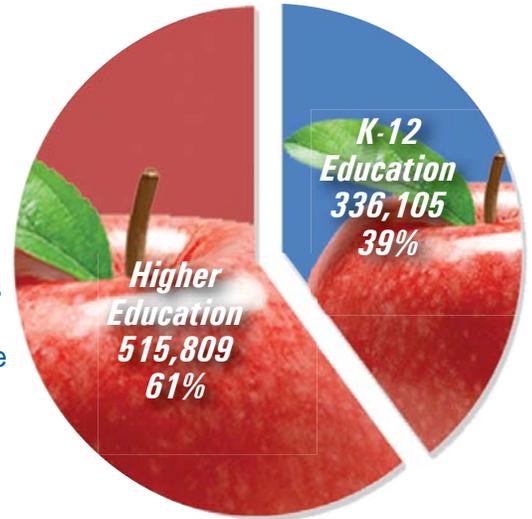
The Northrop Grumman Foundation supports diverse and sustainable national-level programs for students and teachers. These programs create innovative education experiences in science, technology, engineering and mathematics (STEM).

The Foundation has two primary methods for giving – Matching Gifts for Education and Northrop Grumman Foundation grants. All Foundation funding focuses on education and in 2009, \$4 million in Foundation giving supported a variety of education programs.

2009 Matching Gifts for Education

The Northrop Grumman Foundation Matching Gifts for Education program is a popular way for employees to increase their contributions to qualified educational institutions. While we had to lower our match amount in 2009 to sustain the program, we are happy to report that the Foundation matched 2,377 gifts for a total of \$851,915.

- K-12 39% (\$336,105.55)
- Higher education 61% (\$515,809.33)



TOP 10 Matching Gift Recipients

Manhattan Beach Education Foundation	....\$36,760
University of California, Los Angeles	.....\$20,209
Peninsula Education Foundation	.....\$15,621
Virginia Tech	.....\$14,157
Purdue University	.....\$13,750
Penn State	.....\$11,080
U.S. Naval Academy	.....\$9,830
Massachusetts Institute of Technology	.....\$8,298
Cal Poly, San Luis Obispo	.....\$8,109
California State University, Long Beach	.....\$7,790

In 2009, the Northrop Grumman Foundation invested nearly \$3 million with a variety of organizations that offer STEM programming to teachers and our nation's youth. From floating in a zero-gravity environment to developing the perfect science project, each opportunity provides essential support to a student's success. Below are highlights from just a few Foundation-supported programs.



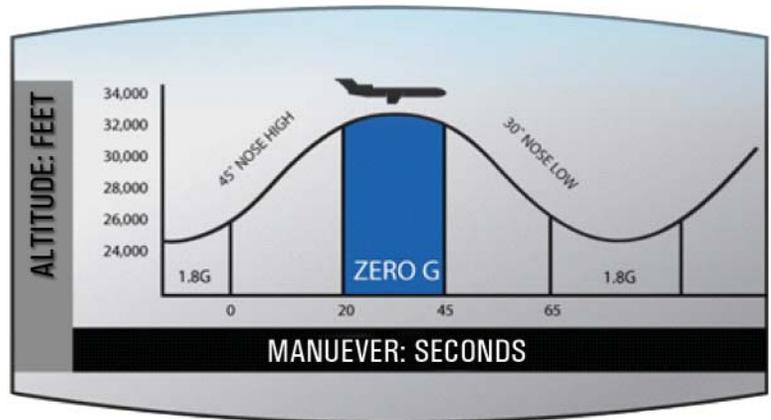
2009 Program Highlights

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Weightless Flights of Discovery

The number of American students entering the STEM fields across the country is steadily declining. Making science and math fascinating and applicable for students is one way to reverse this trend. We believe that to effectively engage students, the nation needs educators who are excited about these fields and who can bring unique learning opportunities into their classrooms, directly impacting student's interest in the areas of STEM.

The Northrop Grumman Foundation Weightless Flights of Discovery Program (WFOD) focuses its efforts directly on teachers. As a result, the program is able to send teachers back to the classroom to deliver its message to students. Since its inception in 2006, more than 1,100 teachers have participated in the program, reaching an estimated 450,000 students. Over time, the program can make a significant impact in helping to fill the STEM-related positions needed to keep the United States at the forefront of science and technology.



Research

With the demand for scientists, technologists, engineers and mathematicians on the rise, Northrop Grumman noticed the pool of qualified applicants shrinking. To effectively address the United States' shortage of college graduates in these disciplines, the Northrop Grumman Foundation began targeting middle-school math and science teachers to reach students at a formative stage in their education.

In 2006, the Foundation teamed with Zero Gravity Corporation to develop the WFOD program, offering practicing and future school teachers the chance to participate in hands-on science workshops and perform experiments in a parabolic or "zero-gravity" aircraft flight. Now a successful annual program, the flight creates temporary weightlessness comparable to what humans would experience in outer space. Educators are able to experience for themselves the theories of physics that they have been teaching their students. Armed with their videotaped experience and the results of their experiments, WFOD teachers are able to enhance their curricula and share their first-hand experience in a space-like environment with their students.

Strategy

The Northrop Grumman Foundation has held the WFOD program in cities where the company maintains a strong presence, including Los Angeles, Newport News, Va., Baltimore, Colorado Springs, Colo., Washington, D.C., Bethpage, New York, Dallas and New Orleans. The 2009 WFOD program targeted four markets: Albuquerque, NM, Detroit, Norwalk, Conn; and Washington, D.C. A geographically-diverse set of locations allowed 120 teachers from across the country to participate in the program, ensuring a broad range of program participants and maximizing local community outreach.

WFOD utilized a standardized, sequential program for participants in all cities. Teachers were required to: complete the National Science Teachers' Association online course on force and motion; attend a day-long, pre-flight workshop conducted by trained microgravity educators on how to design experiments; perform experiments in a zero-gravity environment aboard ZERO-G's G-Force One aircraft; integrate the experience back in their classrooms; and complete a follow-up survey.



In February 2009 the Northrop Grumman Foundation released a feature documentary film, “Inspire Me! Weightless Flights of Discovery,” that chronicles the crisis affecting science and technology education in the U.S. as it follows the journeys of several teachers who participated in the program. The film shows the teachers experiencing “zero-G” aboard the micro-gravity training aircraft, and provides an inside look at the inspiration the teachers drew from their experiences and how the program impacted their teaching methods and their students. The film was rolled out at the 2009 National Science Teachers Association annual conference, and digital copies are being provided to educators for classroom discussion.

Northrop Grumman also integrated social media into its communications strategy in June 2009 to keep teachers, students, and science and space enthusiasts informed about the program. Through continuous news updates and information sharing on Facebook and Twitter, Northrop Grumman engaged fans and followers in real-time conversation on the importance of high-quality STEM education in American schools.

Execution

In each city, flight day consisted of a 1.5- to 2.5-hour flight, during which teachers performed their experiments while being videotaped and photographed. With this hands-on learning experience, teachers were able to convey major concepts, principles, theories and laws of microgravity to their students.

Evaluation

The Northrop Grumman Foundation’s WFOD program has been a quantitative and qualitative success. In 2009, the program trained nearly 120 teachers from 21 of states, thus reaching an estimated 36,000 students. In a survey of more than 200 WFOD teachers published in 2008, 78 percent reported a rise in the number of students who have expressed a desire to pursue a career in a science or math-related field. Seventy-four percent report an increased number of students expressing a desire to continue to study science and math in high school and/or college. Also, according to the survey, nearly 84 percent of teachers report that previously disinterested students have shown renewed interest in science and math. In program evaluations, WFOD teachers report that they were inspired and motivated to improve and enhance their teaching methods, and flight videos provided critical educational value in the classroom.



Diversity Engineering Associations

Studies show a national-level decline in women and minority students going into STEM fields. This is further complicated by the fact that the trend indicates that minorities will make up about half of the U.S. population and a corresponding percentage of the U.S. work force in the next 40 years. The Northrop Grumman Foundation support of diversity and inclusion is an important element of our education efforts.

The mission of the diversity engineering associations is to educate, motivate and enable students to pursue STEM careers. Diversity enriches our programs, allows us to meet our business objectives and positions our nation for success. Our partnerships with NACME, NSBE, SHPE, SWE, AISES, Great Minds in STEM and other organizations allow us to work collaboratively with educators to increase interest in STEM fields and provides students with the financial resources necessary to achieve their education goals.



Earthwatch Educator Program

The Northrop Grumman Foundation has partnered with the Earthwatch Institute to develop an innovative career development program for educators. In 2009, the Foundation's Earthwatch Educator Program funded fellowships for 22 middle school teachers from communities nationwide that enabled them to participate in environmental science research expeditions. The immersive experience of this field work empowers and inspires teachers to incorporate more knowledgeable and exciting instruction in their classrooms.

The goals of the program are to achieve the following:

- Positively impact math and science education in Northrop Grumman communities through professional development and learning opportunities for teachers from these communities
- Provide teachers with the tools to share their experience with students, faculty, and community through this unique pilot project reaching an estimated 6,000 students
- Provide unique opportunities for Northrop Grumman to continue its commitment to supporting math and science education

Earthwatch supports research that addresses four key areas: the impact of climate change on natural habitats, species and human livelihoods, the health of the coastal oceans, cultural heritage and ecosystem biodiversity. The organization's mission is to engage people worldwide in scientific field research and education in order to promote the understanding and action necessary for a sustainable environment.

Through the Northrop Grumman Educator Program, the selected educators contributed their time and energy as research volunteers for approximately two weeks in "the field", collecting and analyzing environmental data side-by-side with top scientists who study climate change or ocean health.

The 22 fellow participated in one of the following expeditions: Coastal Ecology of the Bahamas, in the Bahamian archipelago —Just off the coast of Florida, stretching across the Tropic of Cancer, this island chain has been surprisingly unmarred by development until recently. Biologists are developing powerful new tools to examine the effects of growing coastal development on the plants and animals living nearby. Expedition participants compared satellite photographs, featuring the swirls of coastal currents, to on-the-ground information. Mapping the distribution of changing coastal habitats supports sustainable development of these scenic isles.



Climate Change at the Arctic's Edge, Churchill, Manitoba, Canada —

Global warming is being felt first and most dramatically at the edge of the Arctic, where the world's peatlands run in a broad strip around the globe. These wetlands contain as much as 20 percent of the world's carbon, often locked in permafrost. If global warming thaws the permafrost, the decomposing peat could release carbon dioxide and methane, the most important greenhouse gases. What happens to the peat here will not only alter the local ecosystem, but could also have dramatic consequences for the ecology of the entire planet. Participants helped monitor ecosystem responses to global warming at the Churchill Northern Studies Center, on the edge of the Arctic tundra in Manitoba.

The teachers selected for these missions were enthusiastic about the benefits they will bring back to their students. All of the fellows are taking their newfound knowledge about environmental issues beyond their classrooms—by sharing their insights with fellow teachers, by forming environmental clubs that pursue community advocacy or by blogging with colleagues and friends. The teachers also commented on the valuable professional development they expect will result from working alongside leading environmental scientists.



U.S. Space and Rocket Center – Space Camp

In partnership with the U.S. Space and Rocket Center in Huntsville, Ala., the Northrop Grumman Foundation sent a group of 64 teachers and students from Northrop Grumman communities nationwide to Space Camp, a program designed to inspire and motivate the next generation of explorers, scientists and engineers through classroom instruction and hands-on activities.

The program’s mission is to provide authentic, inspiring and entertaining education experiences in space science and aviation. The immersive program places students in a real-world context, allowing students to view math and science outside the classroom. During camp, students are given the chance to build and launch their own rocket, experience 4Gs during liftoff on the Space Shot, and climb the Mars climbing wall.

The program’s teacher component, Space Academy, amplifies the mission by using the excitement of the space program to create an immersive learning environment where teachers learn new ways to effectively present concepts in their classrooms.



“There is a growing concern regarding the number of students in the United States entering science, technology, engineering and mathematic careers,” said Sandra Evers-Manly, president of the Northrop Grumman Foundation. “One way to reverse that trend is to make science and math fascinating and applicable for students. Space Camp aims to provide life-changing experiences to underperforming students who have the unlocked potential to excel with the right support, inspiring them to dream big and work to make those dreams a reality.”

Student and educator feedback indicated that they experienced a program that brought math and science to life and are now well-prepared to tackle learning and career choices from a new perspective.

2010 Programming

In 2010, the Foundation will renew its commitment to Weightless Flights of Discovery, the Earthwatch Educator and Space Camp programs.

A complete list of Foundation partners (click on link) for 2010 includes:

- [American Indian Science and Engineering Society](#)
- [Earthwatch Institute](#)
- [Great Minds in STEM](#)
- [JASON Science](#)
- [MATHCOUNTS](#)
- [National Action Council for Minorities In Engineering](#)
- [National Engineers Week Foundation](#)
- [National Society of Black Engineers](#)
- [Sally Ride Science](#)
- [Science Buddies](#)
- [Society of Hispanic Professional Engineers](#)
- [Society of Women Engineers](#)
- [Teach for America](#)
- [United Negro College Fund](#)
- [U.S. Space and Rocket Center \(Space Camp\)](#)
- [PBS / WGBH Design Squad](#)
- [Weightless Flights of Discovery](#)



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For additional information on the Northrop Grumman Foundation or the grant application process, visit: www.northropgrumman.com and keyword search: foundation.

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