

MAKING STRONGER COMMUNITIES POSSIBLE

A Collaboration with the University of Maryland, Baltimore County
and the Baltimore City Public Schools System



Northrop Grumman's philanthropic initiatives are thoughtfully designed to build meaningful partnerships which transform our communities. Working with our dynamic partners, we strive to support the needs of the communities where we work and live in many ways, including through volunteerism and charitable giving. Northrop Grumman designs, and manufactures some of the world's most advanced technologies. To continue to innovate and excel, it is imperative for us to develop a diverse workforce for the future. Statistics show a low number of students, particularly women and people of color, who are interested in science, technology, engineering and mathematics (STEM) degrees and careers. To help address these challenges, we created a philanthropic strategy that places top priority on partnerships that increase STEM

educational opportunities for students of all backgrounds. These partnerships focus on engineering and technology-based initiatives that excite, engage and educate students, with an emphasis on middle school and university level programs. In addition, we provide support for workforce-relevant professional development to middle school educators.

While Northrop Grumman's philanthropic initiatives are strategically focused and impactful, they cannot alone reform the entire education system. Collaborations among Northrop Grumman, institutions of higher education, and K-12 schools are an ideal way to build a strong pipeline that empower youth from an early age with the skills they need to succeed in STEM careers.

Partnership Development

In 2015, after the unrest in Baltimore City, Northrop Grumman and University of Maryland, Baltimore County (UMBC) collaborated to create a comprehensive strategy geared at uplifting the local community by providing robust curriculum-based STEM education resources, relevant professional development for teachers and state-of-the-art technology at three Baltimore City Schools: Lakeland Elementary/Middle School, Benjamin Franklin High School at Masonville Cove and Excel Academy at Francis M. Wood High School.



"UMBC is delighted to collaborate with Northrop Grumman in this partnership. Our collective work represents the best of what is possible when universities, companies, and schools work together to help children reach their potential."

- Dr. Freeman A. Hrabowski, III, President, UMBC

Objectives

The main objectives of the partnership include the following:

- Foster college and career-ready STEM proficient students, especially young girls and people of color, by exposing them to engaging hands-on activities, technology, curriculum, resources and mentors
- Enhance educators' competence in teaching STEM subjects, in turn, inspiring students to explore STEM careers
- Tap into the expertise and good will of our employees to provide mentorships, professional role models and authentic STEM experiences for students to apply skills learned in the classroom to real problems
- Create a strong STEM pipeline from elementary school through college leading to employment in a STEM-related field

Components

The partnership has three components:

(1) the creation of a Community and Science, Technology, Engineering, Arts and Math (STEAM) Center at Lakeland Elementary/Middle School; (2) the Choice Education Program; (3) on-going volunteer engagement.

The Lakeland Community and STEAM Center

A primary focus of the partnership was the redevelopment and opening of the state-of-the-art Community and STEAM Center at Lakeland Elementary/Middle School with the goal of sparking students' natural curiosity and allow them to experience an industry workspace where they can connect with experts from Northrop Grumman and scholars from UMBC. In addition, the center offers professional development training and resources for teachers to learn how to best utilize the new space and equipment. By partnering to develop skills and capabilities through opportunities at the Lakeland Community and STEAM Center, we are preparing students, families and community members to compete in the workforce of today and tomorrow.

The grand opening of the Lakeland Community and STEAM Center occurred in 2018 and now serves children and adults in the community surrounding Lakeland Elementary/Middle School. Included in the center is a maker-space with 3-D printers, a robotics arena, digital video and sound studio, science and computer labs and more.

The center also creates a positive impact for the community by providing meeting resources not readily available in the past—adult education, fitness, job training and financial education.

“Our involvement with the Lakeland Community and STEAM Center is about introducing young people to technology and putting it right in their hands. For Northrop Grumman, we want to help create the mindset that young people can and will be the next great generation of engineers, computer scientists and more.”

– Sandra Evers-Manly, vice president, global corporate responsibility, Northrop Grumman, and president, Northrop Grumman Foundation



By leveraging our existing community partnerships, we are able to support faculty advance their ability to teach STEM subjects, as well as provide opportunities for students to expand their exposure to STEM. A few key partnerships include:

- **Cyber Patriot:** The National Youth Cyber Defense Competition was created to inspire students toward careers in cybersecurity or other STEM fields. Youth practice for and successfully compete in this annual competition at the Lakeland Community and STEAM Center.
- **Space Camp:** Over the years, teachers and students from Lakeland Elementary School received Northrop Grumman Foundation scholarships to a week-long camp at the U.S. Space and Rocket Center®.
- **LET'S GO Boys and Girls:** This program provides professional development training and curriculum to Community and STEAM Center facilitators and supports monitoring and evaluation of STEAM programming.
- **VEX Robotics:** VEX gives students the opportunity to develop a passion for robotics in a fun, hands-on way while encouraging teamwork, problem solving, and leadership. Participating students have won their state competitions and participated in the World Championship.
- **Great Minds in STEM VIVA Technology:** The ADELANTE employee resource group led our partnership with VIVA Technology. The program provides a STEM Awarenesses Student Day that features team challenges; direct and intense interaction with college engineering and science students; and conversations with Northrop Grumman professionals.
- **The Digital Harbor Foundation:** The Foundation introduced ideas and concepts on how teachers can create an immersive, hands-on learning environment through making.
- **TryEngineering Together:** Classes at Lakeland Middle School participate in our virtual STEM eMentoring program, which provides teachers and students with engineering-based activities in conjunction with Northrop Grumman eMentors.



The Choice Education Program

The Choice Education program provides college and career access programming, resource connections and holistic case management to hundreds of students in Baltimore City. This means rethinking the traditional college and career pipeline in terms of pathways, offering multiple entry points and destinations that meet the individual needs of students.

The model includes a coordinator stationed at Benjamin Franklin High School at Masonville Cove and one who works with students citywide, including Excel Academy at Francis M. Wood High School. In addition, there is an assistant director who provides broad resources, partnership opportunities, oversight, and support. The coordinators connect students to “college coaches,” who mentor them as they develop college and career pathways. They also host weekly college nights on the UMBC campus where program participants meet with college students for dinner and collaborate on an educational activity and a recreational activity. Finally, they offer schools and students broader resources and opportunities, such as college tours, workforce development programming and opportunities, arts and activism programming, and youth leadership opportunities.

“Not only has this partnership illuminated many STEM-related careers for students to consider after high school and college, but it has also been a catalyst for curiosity in our students.”

– Meghan E. Riordan, M.S.Ed, Secondary Math Teacher, Benjamin Franklin High School

Volunteer Engagement

The passion and support of our employees and UMBC scholars is critical to the long-term sustainment of the partnership. UMBC students volunteer regularly in both classrooms and in the Lakeland Community and STEAM Center's programs. In particular, they work as math and literacy tutors during the school day and assist with a variety of STEAM projects, including designing fun and interactive lessons. Northrop Grumman employee volunteers share their expertise by mentoring students and reinforcing the link of academics to the wide range of STEM-related professions. Our employee resource groups have taken ownership of developing and leading many of the programs with the schools and STEAM Center.



To follow are just a few of the programs and activities our employees support:

- **STEAMFest:** Volunteers conduct a variety of hands-on activities with the students, including planting herbs in a teaching garden. This event at Lakeland Elementary/Middle School is led by our employee resource group, Northrop Grumman Women's International Network.
- **BENFest:** During this event at Benjamin Franklin High School at Masonville Cove, employees collaborate with students as they partake in STEM activities.
- **Mentoring:** Employees from our African American Task Group visit Excel Academy at Francis M. Wood High School to provide 1:1 mentoring and support in their career readiness classes.
- **Celebrity Readers:** Volunteers from our employee resource group, Connect1NG, visit Lakeland Elementary/Middle School every first Friday of the month to read with students, reaching about 400 students per academic year.

Summary

As we continue to cultivate and evaluate this partnership, we are proud of the overwhelming support from our community, partners and employees. Through their engagement and participation, we have provided students with role models, mentors and relevant STEM activities. It is our hope that the impact of these experiences will help keep at-risk students in school and increase the number of students who continue STEM coursework, apply to STEM college programs and ultimately fill workforce shortages. In addition, we will continue to provide resources and professional development to teachers, allowing them to expand their ability to teach STEM subjects and develop the next generation of innovators and problem solvers.

“Our strategic partnership with Northrop Grumman has helped propel energy around learning and excitement into STEAM opportunities. Partnerships like this, that are networked with existing partnerships like UMBC, have made our school one of the top performing schools in the city. This has resulted in Lakeland demonstrating the highest student growth in ELA/Math combined, over the past 5 years as captured by standard PARCC scores. When I think about why our students have advanced as they have, it is not just about what they learned in the classroom, but experiences like what Northrop Grumman has brought to life.”

– Najib Jammal, Principal, Lakeland Elementary Middle School