

**FIRST Robotics & Kettering University Robotics Community Center**

Dr. Robert K. McMahan, president, Kettering University  
Harrison Ford, FIRST Robotics Graduate, Kettering University student

**Dr. Robert K. McMahan** is the seventh president of Kettering University and a professor in the Department of Physics. McMahan has served in various capacities in both the public and private sectors, including as founding dean of the Kimmel School and professor of engineering at Western Carolina University; senior advisor to the governor of North Carolina for science and technology; executive director of the North Carolina Board of Science and Technology; senior technology strategist for In-Q-Tel, professor of physics and astronomy at UNC Chapel Hill, and founder of McMahan Research Laboratories. McMahan is a leading national advocate for the transformational power of experiential STEM education and is a former FIRST Robotics mentor and coach. He is a firm believer in the ability of FIRST Robotics to inspire students to develop a passion for science and engineering and to pursue education and careers in STEM.

**Harrison Ford**, 22, is a junior at Kettering University studying mechanical engineering. As part of his studies at Kettering, he is employed as a co-op student at Flexible Products in Auburn Hills. He is a graduate of Carman-Ainsworth High School in Flint. Harrison participated in FIRST Robotics in high school and is now a mentor with the Flint Community Schools' Flint F.I.R.E. team, one of five mid-Michigan teams currently housed in Kettering University's FIRST Robotics Community Center. Harrison has stated that the main goal of Flint F.I.R.E. mentors is to expose kids in the city of Flint to STEM concepts, inspire them to pursue a college education and share with them the possibilities STEM careers offer.

Kettering University, in Flint, is a national leader in experiential STEM education, integrating rigorous academic curriculum with applied professional experience better than any university in the country. Kettering has had an active and engaged relationship with FIRST Robotics since 1999, and was one of the first universities in the country to award FIRST Robotics scholarships to entering students. Currently, approximately 25 percent of Kettering's student body participated in FIRST in high school.

**The FIRST Robotics Community Center at Kettering University** – the first facility of its kind on any college campus in the country – provides build space for up to eight teams, with expansion plans to house up to 16. High school students on our resident teams have access to state-of-the-art tools, machinery and software, but more importantly, they also have unprecedented access to Kettering's students, faculty and staff as mentors. The FIRST Community Center enables more students – many who would otherwise have no access to FIRST or dreams of higher education – to gain immersive experiences as valued members of a national-ranked university and STEM community at Kettering.

### **Cascade Engineering Welfare to Career Success Story**

Fred Keller, founder and chair of Cascade Engineering

Amy Valderas, Level C core operator and production team leader, Cascade Engineering

Joyce Gutierrez-Marsh, DHS caseworker

**Fred Keller** started Cascade Engineering in 1973 with three employees in a 10,000-square-foot building in Grand Rapids. Today, Cascade Engineering employs 1,600 people in 14 U.S. facilities with additional operations in Budapest, Hungary.

Keller believes that business has the unique opportunity to complement its focus on financial performance with important work in the social and environmental arenas. He has emphasized the key role business can play in building financial, social and ecological capital, often through partnerships with government and community agencies. His innovative management approach and work in advancing sustainability are featured regularly in business and industry publications.

In 1998, **Amy Valderas** was a single mom with three kids, all under the age of seven. She had no work experience and lived with her sister. She went to sign up for government assistance at a DHS office and instead of welfare benefits, she received a job offer at Cascade Engineering. Soon she was working 12-hour days on the factory floor and coming in on weekends.

It was not easy for Valderas in the beginning. With three young children, she had a hard time finding day care and transportation to and from work. Around the time Valderas arrived, Cascade Engineering was starting a new program called Welfare to Career. What made this program different is Cascade paid the state of Michigan to bring a public caseworker to the company. The caseworker, **Joyce Gutierrez-Marsh**, assisted Valderas in arranging day care for her children and transportation – eliminating the barriers of the structurally unemployed.

Today, with over 16 years at Cascade Engineering, Valderas now owns her own home and has worked her way up to become the highest level of trained operator and team leader at Cascade Engineering. She now helps other employees climb the ladder to be successful.

Valderas, whose children are now adults, says the most important part of participating in Cascade's welfare to career program has been the impact it had on her children. It allowed her to teach and show them that hard work and self-reliance is a more gratifying life than living on government assistance.

**Marquette Alger Technical Middle College**

Fritz Erickson, president, Northern Michigan University

Cody W. Revord, junior at Marquette Senior High School & Student at Marquette-Alger Technical Middle College

Chantae Lessard, corporate responsibility manager, Eagle Mine

Stu C. Bradley, chairman, Marquette-Alger Career Technical Education Committee/Retired U.S. Air Force colonel

The Marquette Alger Technical Middle College is a public, tuition-free, early/middle college program that enables students from throughout Marquette and Alger counties to earn a high school diploma, college credits toward an associate degree, and a technical certificate from Northern Michigan University at no cost to the students or their families. To take advantage of this incredible opportunity, students (during the junior year) must commit to a five-year program of study as opposed to the typical four-year path through high school. MATMC students must also pursue either a career and technical Education (vocational) or STEM (science, technology, engineering and mathematics) postsecondary certificate/degree program, which are designed to train students in the skills needed for those careers with the greatest demand. This educational option is the result of extraordinary public-private collaboration between the Marquette-Alger Regional Educational Agency, Northern Michigan University, local school districts, the Marquette-Alger College Access Network, the Great Lakes Center for Youth Development, the Marquette-Alger Career Technical Education Committee, and Eagle Mine, a wholly owned subsidiary of Lundin. It reflects the belief that it truly “takes a village” to provide students with the best possible education.

Enrollment in the MATMC has grown from 11 students in its pilot year to 50 when the first full year (open to all districts in Marquette and Alger counties) began on January 12, 2015. Just yesterday Eagle Mine officials announced a partnership with Marquette-Alger Regional Educational Service Agency, local school districts and Northern Michigan University to commit \$250,000 over three years, 2015 through 2017, with the intent to sustain support of the middle college with an endowment that will be grown through Eagle's eight-year mine life ending in 2022.

**Cody Revord**, a junior at Marquette Senior High School & MATMC student was initially uncertain about his future after high school. He was one of the first eleven students that enrolled in the MATMC during its pilot year and he is now taking college courses at Northern Michigan University towards his Industrial Maintenance degree, which he is earning at no cost to him or his family, thanks to this extraordinary private-public partnership. Cory is now an “avid welder.” While he once viewed college as “intimidating,” he has proven that he can handle the rigor of postsecondary education through the MATMC and will have the skills necessary to get a good-paying job in one of the region’s most in-demand careers.

**Techno Dragons, Davison Elementary – Middle School, Detroit, MI**

LaDora Young, teacher, founder and creator of the Techno Dragons  
Sharim Begum, student, age 13  
Atiq Miah, student, age 12  
Rhiannon Young, student, age 10

Teacher LaDora Young, a Detroit native, has always had a desire to work with students and especially in the field of technology. She has worked over 10 years in the field of technology and is proficient in numerous applications, operations and designs. She has worked in the Detroit Public Schools since 1998 and became a member of Davison Elementary Middle School in 2008. Young facilitates learning in the Computer Labs at Davison and creatively improves student achievement through technology. She is the founder and creator of the Techno Dragons – students who are well educated in technology and operate, produce, design, repair and implement all of the components of technology in the school. The students have become excellent students academically, they have exceptional communication skills, they have excellent customer service skills and are mentors – all while infusing technology with academics.

There currently are twenty two Davison Techno Dragons, ranging from grades 5-8. Under the direction of two educational technicians the students not only handle all of the technology within the school but also have expertise in customer service. They service equipment and ensure that all are feeling good about that service once it is rendered.

Some of the services the Techno Dragons perform include:

- First line of tech support/customer service for the school
- Setup of equipment for school events and programs
- Video-taping of all school events and programs
- Post production of videos, CD's and the school yearbook
- Prepare flyers and programs for events using graphic design and typing proficiency skills
- Repair and install tech equipment
- Teach kindergarten and Grade 1 tech classes

The students have outstanding academic achievement and their GPAs range from 2.8-4.0. They are becoming prepared for the world of technology. The students have learned to incorporate their knowledge gained in technology to improve their classroom performance, citizenship, and their interpersonal skills. Some of their career aspirations include: Computer software engineer, technology expert, surgeon, business woman, doctor, engineer, nurse, photographer, game designer and technology engineer.