TEACHING TODAY MN™
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MINNESOTA'S K–12 EDUCATION CONNECTION

2023 MAITC Outstanding Teacher Award

Haley Madson Recognized for Agriculture Education Efforts

Haley Madson, a first-grade teacher at St. Anne's School in Le Sueur, MN has received the Minnesota Agriculture in the Classroom 2023 Outstanding Teacher Award.

Madson is an advocate for agricultural education at St. Anne's and uses her lessons to inspire students to think about how deeply agriculture impacts their lives from a young age.

"I want my students to realize that when learning about agriculture, they will be using reading, math, social studies, and science skills," she says. "There is a connection between agriculture and animals, the economy, the environment, technology, and overall way of life. It is important to give students opportunities to explore those connections starting in elementary school."

Haley has led her students in a variety of agriculture-themed activities including hatching chicks, cultivating and germinating seeds, and engaging her students in making foods such as ice cream and homemade bread. These activities have enabled her to engage with students and teach in a practical way that reinforces science, social students, reading and listening.

Haley's curriculum and future plans include planning and developing a school garden that will be used to teach students about the plant life cycle and the challenges of producing fresh produce. She is developing a plan to collaborate with the agriculture teacher at Le Sueur-Henderson High School to enable engagement and service-learning opportunities for students of a range of grade levels.

Madson received a $500 stipend and had up to $1,500 of her related expenses paid to attend the National Agriculture in the Classroom (NAITC) Conference last June in Orlando, Florida.

All Minnesota licensed K-12 educators who creatively integrate agricultural concepts into non-agricultural education classroom settings are eligible for the Outstanding Teacher Award. Applications are reviewed by a committee of MAITC Foundation board members, who select the recipient each winter.

St. Anne's is a national and state-accredited non-public catholic school serving students in grades pre-kindergarten through fifth grade.

Congratulations Haley!

stanneslesueur.org

MME Seventh Graders Work Together to Design 3D-Printed Prosthetic for Pet Chicken

Minnetonka Public Schools

Last spring, seventh graders in Dawn Sorenson's technology education class worked together to make life a little easier for Maple, a local pet chicken beloved by a Minnetonka Middle School East family. During the winter, Maple's foot was caught in a fence, and she contracted frostbite, which ultimately led to the loss of her claw.

After seeing the effectiveness of the engineering design process, she learned in Sorenson's quarter one class, a seventh grader brought the project idea forward as a learning opportunity for other students. In partnership with the family, Sorenson moved ahead with the project for the class in quarter four. Students collaborated to build a prosthetic foot that might give Maple the ability to rejoin her flock.

To begin their research process, students studied current animal prosthetics for chickens and other animals, shared Sorenson. "They saw what was existing, so they could continue to refine their ideas." Then, Maple came to visit the class, along with fellow flock mate Priscilla. Students were able to observe both Maple's and Priscilla's gait to inform their ideas.

To follow the engineering design process, students begin broadly, with a lot of ideas and then combine the best aspects of each to refine their solutions. Students used the application Sketch Up to create 3D renderings of their ideas, which were then fabricated using a 3D printer.

Once the plastic models were created, Maple's family helped her to try the different models.

The best-fitting and best working design came from a group in Sorenson's first hour class. The students created a "rocker" design that was inspired by existing prosthetics for dogs and horses, as well as from their observations of the way chickens walked. "They then combined several ideas together

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3D-Printed Prosthetic for Pet Chicken

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to create the rocker so Maple could have the most movement with her new foot," said Sorenson.

During the summer months, Maple's leg continued to heal and change, and so the family requested that Sorenson's students work on a second version to redesign the prosthetics for her new needs. During the fall quarter, students in Sorenson's classes revised the previous year's designs with new information about which designs worked and which ones did not to make Maple a newer, improved model prosthetic.

"The engineering design process is important for students to learn because it teaches them that there is no perfect design," said Sorenson. "The process allows the students to work through their ideas and refine them to meet the established criteria."

Four Teachers Earn LEEA Honors

Buffalo-Hanover-Montrose School District

Four teachers have been recognized as exemplary educators and leaders among their peers by the Buffalo-Hanover-Montrose School District.

Each was named a Leadership in Educational Excellence Awardee at the annual LEEA Banquet and Award Ceremony in St. Cloud on Oct. 25.

Those honored include Northwinds Elementary School kindergarten teacher Katie Deneen, Buffalo Community Middle School math teacher Natalie Johnson, Buffalo High School health/physical education teacher Josh Ortmann, and Discovery Elementary School kindergarten teacher Kimarie Tacke.

Katie Deneen

Deneen has taught for 30 years, including 17 at BHM Schools.

"I have always wanted to be a teacher for as long as I can remember," she said. "I wanted to create a classroom that is welcoming to every student who walks through the doors and to make lasting connections with each of them."

Northwinds Principal Carmen Tubbs said Deneen has been successful in that regard, building strong relationships with students and their families, and also serves as "a positive leader, mentor and support for fellow colleagues."

Seeing joy on the faces of her students, whether from simple excitement about their subject matter or from the satisfaction of hard work that yields success, is Deneen's favorite aspect of the job.

"I get to go into work every day and am surrounded by amazing people who constantly inspire me," Deneen said. "I am honored to be recognized as someone who inspires others and humbled to be receiving this award."

Natalie Johnson

The seed of an idea that eventually sprouted into Johnson's 23-year local teaching career was planted early.

"As a student, I saw the difference the right teacher could make in a person's life," she said. "I wanted to become a math teacher because I find joy in helping others."

BCMS Principal Matt Lubben said Johnson is frequently mentioned when students talk about favorite teachers, and she is a standout in her ability to connect theoretical classroom exercises to real-life scenarios.

"I thrive on finding ways to best help my students learn math in a fun and meaningful way so they will see the important role its understanding will have in their future," Johnson said. "I find it so rewarding to watch my students grow and achieve success after learning hard work and perseverance when problem-solving."

Johnson is also a leader among the eighth-grade math department members.

"Our staff absolutely loves Natalie, and the kids too," said Lubben. "She's always positive and smiling, and makes kids feel good about themselves. She's been a great fit for our school and just a real strong leader both academically and culturally."

From Johnson's point of view, the high regard from her peers is mutual.

"I am so humbled to receive this honor because I work in a building filled with amazing teachers who all have a passion for helping children and who are just as deserving," she said.

Josh Ortmann

Ortmann is in his 12th year of teaching, and also serves as the head coach of the BHS boys basketball team – the squad that as a student he once helped lead to its first and only state championship.

"Outside of my parents and family, the people who had the greatest impact on me with who I am as a person today were my teachers and coaches," Ortmann said. "Having that same opportunity to try and give back and positively impact the students that walk our hallways at BHS makes this the greatest job there is."

Because of his classroom and coaching connections with all ages of students at BHS, Principal Mark Mischke said Ortmann is well-positioned to lead in exactly that way.

"So many people get to see him and interact with him, and they walk away in a better spot than they were before they spent time with him. So I think his ability to influence is very noticeable in a very positive way," Mischke said. "If you think about describing a teacher you would want to have to start a school, Josh would be one of those people."

That may be, but Ortmann sees more of a team accomplishment in the very meaningful individual honor he has received.

"This award really doesn't have much to do with me as much as it does the people that I am surrounded with," he said. "We have great leadership here at BHS and have a PE/health department that genuinely wants nothing but the best for each and every student that comes into our classes. This award is a recognition of the hard work that we all are putting fourth together on a daily basis to try and create an environment where every student feels a strong sense of belonging."

Kimarie Tacke

For Tacke, the recognition is a fitting finale to 40 years in the classroom, including 27 years with BHM Schools.

"This is my last year teaching, which has caused me to reflect back over my career," Tacke said. "I have never shied away from leadership opportunities if it meant I could make things better for students, teachers and the school system at large. I am proud of the initiatives I have been involved with to do just that. This award is such a nice honor to wrap up my career."

Discovery Principal Mat Nelson said Tacke is "more than deserving" of the recognition.

"She cares deeply about her students as learners and people, and meticulously maintains a safe classroom learning environment to maximize academic, social, and emotional growth," Nelson said. "Ms. Tacke exemplifies what the highest quality teacher should be and demonstrates so much care and skill in everything she engages in. We are thankful to have her on our team at Discovery Elementary!"

Coming from a long family tradition of teaching, the role has come naturally for Tacke.

"There are definitely things about my job that bring me joy!" she said. "Most of those things have to do with the students and all their personalities and learning styles. I have been able to develop life-long relationships with students and parents/families. I also love the creative outlet I have in the classroom."

www.bhmschools.org

St. Paul Educator Michael Houston is 2023 Minnesota Teacher of the Year

2023 Minnesota TEACHER of the YEAR 59th Anniversary

Michael Houston, a mathematics teacher at Harding High School in Saint Paul Public Schools, is the 2023 Minnesota Teacher of the Year.

Houston is the 59th recipient of the prestigious award, and the fifth from the St. Paul district, to be named Minnesota Teacher of the Year. Houston is a two-time finalist for the award, also having been named a finalist in 2017. An independent selection committee representing Minnesota leaders in education, business and government chooses the Teacher of the Year from individuals who are nominated and who then choose to become a candidate.

Raised in a single-parent household by his mother with help from his grandparents, Houston was the first in his family to graduate from college, first earning a bachelor's degree in St. Paul, and then going on to earn a master's degree from Hamline University. In addition to teaching at Harding, Houston also works as adjunct professor teaching math classes to prospective elementary teachers.

Houston's 19-year career at Harding includes 18 years as a football coach — 10 of which he was head coach. At Harding, Houston is the mathematics department chair, a learning team facilitator and union steward.

"Teaching is important to me because I get to help shape, form, and mold the academic minds of the students in my classroom. In my time here at Harding, being able to witness students' growth academically and athletically has been the most amazing. I have been very fortunate to have built community, a trusting atmosphere, and an enjoyable learning experience within my classroom for many students over my 19 years."

"Michael is passionate about his students and works tirelessly to engage them in the study of mathematics," wrote Kimberley Nichols, a Gordon Parks High School math teacher who previously worked with Houston at Harding and served with him on the SPPS district mathematics team. "His ability to engage all students, particularly students of color, is exceptional; partly due to his lived experiences as a teacher of color and to his determination to help all students achieve success. He meets students where they are and inspires them to learn deeply. His passion and dedication to equity and culturally responsive instruction has made a tremendous difference in the lives of the students he works with every single day."

Houston says his teaching philosophy "has always been centered upon creating classroom community. In the wake of the pandemic and the ongoing trauma our Harding students have endured, my goal every day is to make sure they have fun in their learning and know they are loved."

Courtesy of Education Minnesota and St. Paul Public Schools

www.spps.org

District 916 Honors

916's Emily Thomas Named One of 20 to Watch

Congratulations!

Northeast Metro 916 Intermediate School District's Technology Trainer, Emily Thomas, was named one of 20 to Watch by the International Society for Technology in Education (ISTE) for her work as an innovative educator creating transformational learning experiences for students.

Thomas was honored this summer in Philadelphia at the ISTE Leadership Awards Luncheon with other tech leaders from around the globe. ISTE recognizes 20 individuals who are up and coming and are already making a difference through their work. Winners have exemplified excellence through projects or artifacts that others can replicate.

"Northeast Metro 916 celebrates Emily's dedication, innovative spirit, and commitment to transforming education through technology innovation. This national award is a testament to her relentless pursuit of excellence and her positive impact on our students, colleagues, and the entire 916 community. This is a well-deserved accolade, and I look forward to witnessing Emily's continued contributions as she inspires and shapes the future of education," said Dr. Val Rae Boe, Superintendent of Northeast Metro 916 ISD.

Emily Thomas is a technology integrator and trainer for Northeast Metro 916. She is a Google Certified Trainer/Coach and an ISTE Certified Educator. Her work creating an accessible STEAM mobile Makerspace that provides PK-post-high school transition students access to emergent educational tech is one of the many reasons she received this national honor.

Congratulations to Northeast Metro 916 Career and Technical Center's Outstanding Educator of the Year, Cindy Landers!

The 916 Career & Tech Center Educator of the Year Award is given each year to an educator who has made significant contributions to the support of the 916 Career & Tech Mission, its students, and staff. The candidates are nominated by their coworkers and chosen by the School Relations Committee, which is composed of representatives from each school district that is a member of 916. This award symbolizes the commitment to excellence in education. There were many great nominations this year, but one staff member rose to the top.

She is described as being dedicated, honest, and passionate. She consistently has students that are willing to come in early and stay late to help out and chat. Cindy builds positive relationships and always has time to check in with a smile. Quote a colleague, "I have never seen someone with so many hands-on learning activities that she cultivates and reworks every single year because of her dedication to helping each student succeed."

Cindy sets high expectations for her students and challenges them to reach their full potential and holds them accountable for their progress as well as provides constructive feedback and encouragement to help students to achieve their goals. She has made a profound impact on her students, and she is dedicated to making a positive difference at 916 Career & Tech.

Northeast Metro 916 is one of four intermediate school districts in Minnesota, serving nearly 5,000 students through shared programming that includes career and technical education, special education services, area learning centers, and care & treatment. Through sharing resources, talent, and ideas, Northeast Metro 916 provides cost-effective, expert, and reliable services to 13 member school districts and the students and families we collectively support.

www.916schools.org

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Minnesota School of Excellence Awards 2023

The Minnesota School of Excellence (SOE) program promotes excellence through a rigorous one or two year-long, self-directed evaluation process. The schools earn validation by completing a school community self-study, developing a plan to build on evident strengths, addressing areas needing improvement, and assessing ongoing results from implementing the plan.

Established by the Minnesota Elementary School Principals' Association (MESPA), the program is recognized by the Minnesota Department of Education, as well as the National Association of Elementary School Principals

Lake Park Audubon Elementary

Congratulations to Lake Park Audubon, under the leadership of Principal Craig Bahr!

Lake Park Audubon Elementary is part of the Lake Park Audubon School District and serves over 400 students, pre-Kindergarten through 6th grade. Its mission is to prepare students with academic, social, and life skills to succeed in a changing world.

Community engagement has been essential to Lake Park Audubon's success and positive impact on students. As the leadership team wrote, "Lake Park Audubon Elementary recently passed a bond referendum for a newly renovated elementary school. This was done through the Pave Your Way project to gain community input and through sharing information with community members. [...]." Principal Bahr adds, We are very fortunate to serve our surrounding communities. We always fill the gym for student showcases, regularly hit 98% conference attendance, and benefit greatly from partnerships with our parents. I hope this award can serve as a badge of pride for our communities. They have helped create a great school that reflects the values and character of the communities it represents."

In addition, the school has partnerships with businesses in the area to expose students to potential career paths in their community. "An onsite visit is held to first introduce students to the company and to learn about local careers within the organization," the leadership team noted. Each grade level partners with a different business or sector.

Lake Park Audubon Elementary invests in a technology-rich culture that connects learning to the global society. As the leadership team shared in their application, "Not only do all students in grades K-12 have their own computer, but all classrooms are outfitted with a Promethean board [which enables students] to share their work easily with the class using screen share. Teachers are able to connect applications to the board, which allows for an improved flow of instruction. Having the newest technology allows for a variety of web-based tools for students to access up to date information and current events."

lakeparkaudubon.com

South Terrace Elementary

Congratulations to South Terrace, under the leadership of Principal Donita Stepan!

South Terrace Elementary is part of the Carlton School District and serves approximately 160 students in grades preK-5. It takes pride in its strong sense of community and commitment to student growth and well-being. Their vision is to become "the leader in educational transformation", while showing P.R.I.D.E. in everything they do. Students at South Terrace are Positive (P) and show Respect (R), while demonstrating Integrity (I), Determination (D) and Empathy (E). They do this by ensuring they have systems in place to educate the students and staff, and empower and inspire the students and staff to try new things. Stepan is both the South Terrace's Principal and Carlton's Superintendent.

Referring to the SOE process, the leadership team mentioned, "it was agreed that this is not only something we should do, it's something we must do. [...] We knew we needed to do the work and were thrilled to have a process to help us get there. We agreed that now is the time."

Diversity is valued and enhances the learning of the entire South Terrace community. Specifically, the school community honors, supports and highly regards diversity as a way to increase learning, not as a barrier to learning. For example, this past school year, our American Indian Coordinator brought in a group of American Indian students from our community to teach and discuss the ricing process within the Ojibwe culture," the leadership team affirmed in the SOE process.

South Terrace strives to build relationships with the school community and reaps the benefits. As they wrote in their SOE application, "We work hard to reach out to parents and ask for their partnership in everything from behavioral expectations for their children to partnering in getting work done. Many of our teachers have relationships with parents outside of school. [...] Many of our staff members volunteer and engage in activities outside of school. They are always looking for ways to create partnerships with area businesses or organizations."

www.carlton.k12.mn.us

St. Croix Preparatory Academy's Lower School

Congratulations to St. Croix Preparatory Academy's Lower School, under the leadership of Principal Joann Karetov!

St. Croix Preparatory Academy's Lower School serves over 400 K-4 students in the St. Croix Valley. They embody the K12 charter school's mission, "St. Croix Preparatory Academy will develop each student's academic potential, personal character, and leadership qualities through an academically rigorous and content-rich educational program grounded in a classical tradition."

"I am most proud of my amazing faculty and staff. They work above and beyond what is expected to make sure our students and community are supported and that their needs are met. Our students also work very hard to meet high expectations – they persevere and accomplish the academic demands…" Principal Joann Karetov shared.

Investing in a comprehensive professional development program for faculty and staff is fundamental to the success of St. Croix Preparatory Academy. They have a detailed onboarding process for teachers that includes work on student seminars. This onboarding occurs for a span of two school years. There are also professional development days throughout the year where teachers can choose from a variety of different learning options. "Our teachers appreciate the flexibility in professional development that meets their specific needs as a teacher or to support their students," the leadership team affirms.

St. Croix Prep recognizes that relationships matter. They start building relationships with families early by dedicating the first four days of school for parent conferences. "Prep for Success conferences provide an opportunity for teachers to complete incoming assessments so the teachers may begin the year already having targeted objectives based on student needs and success," the leadership team shared.

www.stcroixprep.org/lower-school

Winsted Elementary

Congratulations to Winsted Elementary under the leadership of Principal Jennifer Olson!

Winsted Elementary is part of the Howard Lake-Waverly-Winsted School District and serves almost 200 students in grades K-4. It takes pride in its strong sense of community and commitment to student growth and well-being. Their mission is "To prepare students for life by engaging them in meaningful learning experiences."

"Our participation in the SOE process was an intent to be purposeful," expressed Principal Jennifer Olson. "We wanted to look closely at and celebrate the things within the school where we are thriving, and make plans to address identified needs discovered in our outcomes. This self reflective process, especially done with our whole school community, created an automatic investment and sense of pride in our results."

Principal Olson shared, "I am personally most proud of our connectedness to everyone that makes our school community what it is. We are a FAMILY, first and foremost, and relationships matter. Students, staff, families and our community partners expect and hold each other to high standards, help us to create safe spaces for risk-taking and exploration, and have fun learning and being together. I love our ability to embrace each member's unique gifts and find ways to connect talents to different opportunities."

Winsted Elementary has cultivated an environment that sets high standards for the development of all students. As the leadership team wrote, they are "fostering a learning culture that is adaptive, collaborative, innovative, and supportive. The school's principal, administrators, teachers, staff and stakeholders consistently seek opportunities to enhance student and adult performance by embracing diversity in people, ideas, perspectives and experiences. To achieve these goals, the school community engages in various activities and initiatives that promote inclusivity and support diverse learning needs."

hlww.k12.mn.us/wes

Randolph Elementary

Congratulations to Randolph Elementary under the leadership of Principal Matt Rutledge!

Randolph Elementary is part of the Randolph Public School District and serves over 400 students in grades K-6. Their mission is "Working in partnership with the family and the community, [Randolph] is dedicated to providing a caring, disciplined, and chal-

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Retired Edina High School Economics Teacher Receives Top Award

Retired Edina High School economics teacher Michelle Traeger has been co-selected as the Minnesota Council on Economic Education High School Educator of the Year award for 2023. This award was given to Traeger in recognition of her commitment to excellence in economic education for grades 9-12.

"The caliber of high school candidates this year was exceptionally high, prompting us to recognize two educators in this specific category," said Colleen Gray, Education Director of the Minnesota Council on Economic Education at the UMN.

Traeger was honored in October at the council's virtual annual conference, MinnEcon.

"Your dedication to nurturing the minds of your students and empowering them with a deeper understanding of economic and personal finance concepts is an inspiration. Your efforts contribute to building a stronger foundation for the economic and financial well-being of your students, and by extension, our community," lauded Gray.

Traeger taught economics at Edina High School for 18 years after working in the corporate sector. She retired at the end of last school year.

"The MCEE Economic Teacher of the Year award holds immense significance for me as it validates my dedication to fostering academic excellence and enthusiasm for economics among my students," said Traeger. "This recognition also underscores the value of effective education in shaping future leaders and decision-makers."

www.edinaschools.org

North Junior High's Julius Eromosele Named Middle School Principal of the Year

Hopkins Public Schools

North Junior High Principal Julius Eromosele was named the Middle School Principal of the Year in the Hennepin County Division by the Minnesota Association of Secondary Principals.

"I was humbled by the honor," Eromosele said. "Understanding that many principals are working hard daily to serve their communities, I was definitely humbled."

Eromosele strives to serve families and staff to the best of his ability. One of his favorite parts of being school principal is meeting the scholars and working with staff to achieve meaningful goals in service to the kids.

Eromosele's colleagues say he has exemplary leadership skills and his dedication to the academic success of the scholars makes him very deserving of the award. He prioritizes building strong relationships with both students and families and understands the importance of open communication.

"By creating a welcoming and supportive environment, Julius has helped to establish a strong sense of belonging within the school community," said James Ware, associate principal at North Junior High. "Julius has also fostered a supportive and collaborative atmosphere among staff members, encouraging professional development and teamwork."

north.hopkinsschools.org

Minnesota School of Excellence Awards 2023

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lenging environment that enables students to become life-long learners who value themselves, contribute to their community, and succeed in a changing world." Randolph Elementary School is a Blue Ribbon School (2011-2012) and has previously achieved the Minnesota School of Excellence award in 2017.

"On behalf of Randolph Elementary we would like to thank the committee for this prestigious award. We are very honored to have been selected. This award truly reflects the dedication and commitment of our teachers and staff. An award like this means so much to us and shows that all the hard work we do doesn't go unnoticed," expressed Principal Matt Rutledge.

The School of Excellence process uncovered that a major strength of this school is the embodiment of learner-centered leadership and the capitalization on the leadership skills of others. "The elementary students expressed interest in afterschool activities." The school's leadership team wrote in their SOE application. Thanks to the leadership of teachers and even a high school student the school started to offer a total of 8 different clubs, lasting one season long (fall, winter, or spring). "During these clubs, elementary students had new learning experiences that they may not necessarily get from a classroom," their application explained.

Another significant strength of Randolph Elementary is its community engagement. As emphasized in their application, "Randolph Elementary School prides itself on its ability to build strong, meaningful relationships with not only students, but their families as well. These relationships help support improved academic performance and positive social engagement. The high attendance at all school functions is proof of these strong relationships." As an example, the leadership team points out, "There is over 90% attendance rate at both fall and spring parent-teacher conferences."

randolph.k12.mn.us

Ag in Action at Saint Peter High School

The Plants, Animals, Pizza, and You class harvested the lettuce from their hydroponic growing systems. The school's kitchen staff prepared and served the lettuce on the salad bar for lunch.

Jasmine Witty, Agriculture Science Teacher
Saint Peter High School

The Myra J. Hermel Agri-Science Academy and FFA Chapter (of Saint Peter High School) moved to its current location in the fall of 2017.

The program oversees a 22-acre farm field, an FFA Garden located at the Nicollet County Fairgrounds, the 'Saints Bus' Greenhouse, and an apple orchard located just outside the SPHS west entrance. Each of these facilities contributes to hands-on learning, higher education, and student success. We also have a very large classroom featuring a garage door which is a huge plus for the program.

The Greenhouse, which students can utilize on a daily basis, is the most utilized. For example, in "Plants, Animals, Pizza and You", our intro to agriculture course, students assembled hydroponic growing systems and planted buttercrunch lettuce. They managed these systems during quarter one and were able to harvest their lettuce in the second week of November. The harvested lettuce was offered to students on the salad bar during lunch. This class is currently growing cherry tomatoes which will be also used in the cafeteria during lunch upon harvesting.

In addition to the agricultural side, we also have a great Industrial Technology facility. Some highlights of this area include seven welding booths, two automated milling and lathe machines, a car hoist and a full tire repair system. With these machines, we have the ability to provide an education that is one of a kind to our students. The machines and equipment that students work with, align with current manufacturing standards in the workforce. This allows our students to gain industry knowledge, so they can be prepared for the workforce and/ or college.

All students in grades 9–12 are eligible to take these courses. They take part in hands-on learning opportunities, career exploration, and use current technology within the Industrial and Agricultural classrooms. The current course offerings in these departments are, Automotive, Welding, Small Engines, Woodworking, Building Trades which partners with Habitat for Humanity, Plants, Animals, Pizza and You (Intro to Ag course), Wildlife and Natural Resources, Animal Science, Plant Science, and more!

FFA is a large part of this department. Eight FFA members recently attended the National FFA convention in Indianapolis, Indiana. Students had the opportunity to attend FFA general sessions and tour several locations such as a farm equipment assembly plant, an Amish community, and a koi farm.

The St.Peter FFA Chapter hosts many events throughout the year. Our most popular events being our annual Farm to School Day, and the Roll'N for Landon.

Our Farm to School event takes place during the school day. FFA assists the kitchen in cooking a lunch of some kind, in the past it has been things such as chicken that was raised by the ag department. We also host a career fair during lunch and invite agriculture related businesses from the surrounding area to set up a table and chat with students. This is a great event that gets the community involved.

The Roll'N for Landon event is a car roll in that was started to honor the memory of Landon Gran (2001-2019), a SPHS student who passed away unexpectedly in a farming accident. Landon was very active in the FFA chapter. This event is open to the public. Cars, Trucks, and Motorcycles enter and compete for a trophy in their divisions. In addition to the car competition, there is also a raffle drawing and meal available.

One of the goals of the department is to create strong partnerships within the community. These partnerships are critical to providing a well-rounded, current, and effective learning environment for our students.

www.stpeterschools.org

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FARMER / RANCHER
Grain Plant Operator
Wind Turbine Technician
Water Treatment Specialist
GIS Technician
Arborist / Tree Worker
Industrial / Manufacturing Engineer
ANIMAL CARETAKER
Commodity Marketer
AGRONOMIST / SOIL & PLANT SCIENTIST
Fermentation Microbiologist
Land Surveyors
BIOLOGICAL LAB TECHNICIAN
Chemistry Lab Technician
Veterinary Technician
FOOD PRODUCT MACHINE OPERATOR
Landscape Designer
Environmental Compliance Inspector
Supply Chain Analysts
Environmental / Field Technician

MINNESOTA STATE
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www.centerofagriculture.org
www.agcentric.org

LEARN. GROW. DO.

Agricultural Education Teachers are In High Demand – Both In and Out of the Classroom

Robin Tidd (right) works with a high school student at Mankato Area Public Schools

Amy Smith, CFANS (The College of Food, Agricultural and Natural Resource Sciences)

When Liz Knutson presents to a group of people at work, she leans heavily on skills she developed studying Agricultural Education at CFANS. It's where she learned how to set direction and expectations, to command a room, and to galvanize an audience to act. While student teaching is where she honed these skills, they've proven invaluable in the corporate world.

"I'm better because of the time I spent working with high school students in the classroom," said Knutson, who joined Corteva Agriscience after graduating with her teaching license in 2014. She now serves as Pioneer soybean marketing leader for the U.S. "The Ag Ed major made me more versatile and, I believe, a more marketable potential employee."

The Ag Ed major prepares students for a variety of careers through hands-on classes, highly applicable course material, and a supportive network of staff and alumni.

"Through early field experiences, internships and student teaching, Ag Ed students are able to try on different options to find their career fit," said Amy Smith, associate professor of Agricultural Education and major coordinator. "By graduation, they typically have their career path identified, whether that leads to a classroom, county extension office, or the corporate world."

Smith says that over the past three years, 92 percent of undergraduates who completed the program immediately accepted employment within the profession. For those who didn't, the primary reason was geographic limitations.

For Ag Ed students destined for a middle or high school classroom, there is no shortage of opportunities. "In many cases, demand is coming from school districts wanting to expand existing Ag Ed programs or start new ones," said Smith. "At the same time, due to teacher shortages in other areas of career and technical education, some schools are leveraging the versatility of an Ag Ed curriculum to address topics often included in family and consumer science education or technology education."

This growth is evident at Mankato Area Public Schools. It grew from one introductory course with about 40 students to nine diverse courses with over 400 students today. Robin Tidd joined the district as an agriculture, food and natural resource teacher in 2021 after graduating from CFANS.

"One reason the program came back here was because of community support," said Tidd. "They saw how many jobs we have in Mankato that relate to agriculture, and we weren't training high school students in that area. Now we're introducing hundreds of students each year to agriculture education and all of the possibilities within it."

"There is a broad array of subjects that fall under the agriculture umbrella, such as biotechnology, environmental services, and food products and processing, just to name a few," said Smith. "Many people don't realize that the subjects they are passionate about teaching are actually agriculture, just called something else."

The Ag Ed program at CFANS continues to evolve to meet that challenge, most recently with the addition of a minor and a new master's degree. As the program has expanded, one thing has stayed the same: a personalized approach to supporting students.

"There's a place for everyone in agriculture," said sophomore Noah Erickson. "I know that the versatility of this major will help set me up for success."

MDA Awards Grants to Bolster Meat Processing Education in Minnesota

Minnesota's meat processing industry has received a boost from the Minnesota Department of Agriculture (MDA), which has awarded $350,000 in one-time grants through its Meat Education and Training (MEAT) Grant Program.

The MEAT Grant provides the opportunity for Minnesota schools to fund equipment purchases, facility renovation, curriculum development, faculty training, and more processing-related activities at new or established training programs for secondary students. Nine schools received grants through this funding, with a maximum award of $70,000.

"Minnesota's meat cutting and butchery training programs are vital to the future of our state's processing industry," Agriculture Commissioner Thom Petersen said. "The MDA is pleased to support these nine schools providing new pathways for students to receive more hands-on training experiences and learn about careers in this field."

A full list of MEAT Grant recipients can be found below. For more information, visit the MDA's program webpage https://www.mda.state.mn.us/meat-education-training-meat-grant

Ashby Public School

Partner with West Central Area Schools and West Central Initiative to teach meat processing through the purchase of equipment for a meat processing mobile trailer.

Award Total $41,296.58

Bertha-Hewitt Schools

Renovate an existing space to accommodate a walk-in cooler as well as upgraded sinks to allow for proper cleaning of equipment and ensure proper food and student safety.

Award Total $50,000

Byron High School

Build upon current programming by developing and adding a meat processing course with local processing partners.

Award Total $27,175.47

Lac qui Parle Valley High School

Build a mobile meat processing trailer and collaborate with a technical college College to develop a curriculum for meat processing classes.

Award Total $70,000

Morris Area High School

Expand the current Ag Processing course to further provide hands-on experiences and in-depth learning about meat cutting and processing, and provide a culinary experience through Family Consumer Sciences classes by preparing the meat in different ways.

Award Total $5,037.80

Nicollet Public School

Utilize the National Food Science Safety and Processing Curriculum (CASE) to impact student career readiness in meat science and processing.

Award Total $60,000

ROCORI Public Schools

Develop two classes: one focused on meat science and food safety and the second about further processing, safety, and cultural differences.

Award Total $39,527.16

Sibley East Public Schools

Update an old Family and Consumer Sciences lab to become a meat cutting lab and develop a pathway in which students will build upon skills every year in grades 8-12, culminating in a work-based capstone.

Award Total $21,962.99

West Central Area Schools

Further support the purchase of a meat processing mobile trailer and provide up to 100 hours of hands-on training for one agriculture instructor at a local butcher shop.

Award Total $35,000

Information courtesy of the Minnesota Department of Agriculture

University of Minnesota | CFANS College of Food, Agricultural and Natural Resource Sciences

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- Hands-on learning experiences
- Engaging field experiences and internships
- High job placement after graduation in careers such as:
  - School-based Agriculture Teachers
  - Extension Educators
  - Youth Outreach Coordinators
  - Sales Representatives
  - Conservation Technicians

TEACHING CAREER OPPORTUNITIES:

- Minnesota has over 320 teaching positions in agriculture, food, and natural resources (AFNR) and demand continues to grow!
- Average starting salary for new AFNR teachers in MN in 2021-22 was $45,034
- Scholarships and state/federal student loan forgiveness available

DID YOU KNOW?

TEACHERS AND STUDENTS HAVE ACCESS TO FREE RESOURCES FROM AECM:

- Campus and classroom visits
- Workshops for clubs and organizations
- ***AgriCast*** online resource platform
  - Lesson plans
  - Podcasts
  - Virtual field trips
  - Video library, and more!

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Working in Partnership is AGmazing!

A poem written in honor of the Carrots Gone Viral by Sara Paul

Carrots gone viral, from North Branch comes a story,
Of a teacher and students capturing learning s glory.

The vibrant orange gems, students canning their flavor,
and a story unfolding, thousands of people would savor.

Who would have predicted the viral ascent,
Of students and carrots, and the comments sent.

We are proud of our Vikings and how they inspire,
trying new things, and how learning is set on fire!

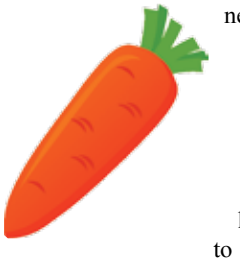
Sara Paul, Superintendent
North Branch Area Schools

Vikings value working in partnership. Developing formal ways for organizations to contribute to our strategic direction is vital to increasing learning opportunities for students inside and outside of the regular school day. Through working in partnership, we are proud to launch our newest career pathway in Agriculture (AG)!

Why AG? Agricultural education encompasses the analysis of agriculture, natural resources, food sources and related subjects. As informed consumers of food, students are better equipped to make decisions. Potential career paths include agricultural engineering, agribusiness, agricultural marketing, food inspection, natural resource management and more!

We are fortunate to have an AGmazing teacher leading the launch of our AG program. Amanda Cook works as a full-time teacher for NBAPS, and has her own farm in Almelund, which she runs with her husband Adam while also raising three kids, and actively participates in the Minnesota farming community. She was recently featured by the Minnesota Farm Bureau and said, "Farming has been a constant in my life. I really enjoy the process of raising the animals and working with them and learning with them." Amanda is passionate to bring her life experiences and knowledge of the broad field of AG to our students.

This year, middle and high school students have opportunities to get exposure to AG. One example of the AGmazing experiences students have is an education project regarding pollinator planting. Teacher Amanda Cook worked alongside donors on our ecological restoration project to get a a list of species that were included in the seed mix so that each student can do an in depth study of a species and share their knowledge via QR codes on plaques by the planting so when people walk by, they can scan and learn about the species. This year's AG offerings include a middle school course called AGmazing, and the following high school AG courses: Fish and Wildlife, Floral Design, Food Science, Horticulture and Landscaping.



Three partnership opportunities allowed us to access grant funds to support our AG program: a Perkins consortium grant, a Statewide Health Improvement Partnership (SHIP) grant and a Youth Skills Training grant from the MN Department of Labor and Industry. Funds will be used for students' traveling expenses for events such as field trips, activities, competitions and social/leadership opportunities related to the agriculture field, to purchase needed supplies and equipment for our greenhouse, food science class supplies and Safe Serve training and certifications for students. This funding also enables us to partner with local employers to develop and implement safe, healthy and meaningful paid work experiences for students16 years of age and older in our community in the agricultural industry.

Working in partnership is AGmazing. Many thanks to a team that has worked hard to launch these opportunities for our students: Teacher Amanda Cook, Middle School Principal Kelly Detzler, Career Navigator Kristin Mayne, Director of Teaching and Learning David Treichel, High School Assistant Principal Andrea Thiner, and High School Principal Clint Link. We will keep thinking big and working in partnership to make it happen!

www.isd138.org

Agriculture is Everywhere!

Stephanie Forliti,
Marketing and Communications
The Academy for Sciences & Agriculture
(AFSA K–12)

Agriculture is everywhere! It is the food we eat, the vehicles we travel in, and the stores we shop in. It includes careers in food science, plant science, animal science, engineering & mechanics and environmental & natural resources. Whether students simply want to become knowledgeable and educated consumers or go on to research plant metabolomics (look it up), agriculture and all of its pathways play an important role. With ag related businesses making up 20% of the job market, a small charter school in the Northeast Suburbs of the Twin Cities has been dedicated to bringing agriculture to urban and suburban students for over twenty years.

Through AFSA K–12's curriculum, students are exposed to real-world, hands-on experiences that bring all of the ag pathways and career possibilities into focus. Preparing them for post-secondary education and beyond. No matter what pathway students want to explore or concentrate on, classes at AFSA K–12 cover it all: metals & welding, fish & wildlife, Natural Resources, Economics, Agriscience just to name a few.

It's early morning and the hammering has begun. The shop at AFSA High School is a buzz with students learning the basics of building homes. Mr. Roessler's construction class is learning to frame, sheetrock and finish residential walls. The Construction Careers Foundation helped make this opportunity possible. Supplies for this project were purchased through their generous donation.

In the corner of Ms. Degidio's elementary ag classroom stands a tower of leafy greens. These plants were germinated from seed by her fourth grader's in a state of the art 4 section growth chamber donated to the school by Garden Cruisers. As the plants develop they are transplanted into a hydroponic Tower Garden. From seed to table students have the opportunity to learn the process and taste the results.

Agriculture is the foundation of everything AFSA. By providing real world hands-on projects where we can apply the disciplines of agrisciences we are able to make the connection between the classroom and the fields both academic and agricultural. Throughout their years at AFSA K–12, students are able to begin to define areas that they are interested in and may ultimately pursue in a 2 year, 4 year or trades school. From the youngest grades to

Continued on Page 16

Careers in Agriculture

Agribusiness Systems

Buyers and Purchasing Agents, Farm Products

Purchase farm products either for further processing or resale. Includes tree farm contractors, grain brokers and market operators, grain buyers, and tobacco buyers. May negotiate contracts.

Farm Labor Contractors

Recruit and hire seasonal or temporary agricultural laborers. May transport, house, and provide meals for workers.

Farmers, Ranchers, and Other Agricultural Managers

Plan, direct, or coordinate the management or operation of farms, ranches, greenhouses, aquacultural operations, nurseries, timber tracts, or other agricultural establishments. May hire, train, and supervise farm workers or contract for services to carry out the day-to-day activities of the managed operation. May engage in or supervise planting, cultivating, harvesting, and financial and marketing activities.

Animal Systems

Animal Breeders

Select and breed animals according to their genealogy, characteristics, and offspring. May require knowledge of artificial insemination techniques and equipment use. May involve keeping records on heats, birth intervals, or pedigree.

Animal Caretakers

Feed, water, groom, bathe, exercise, or otherwise provide care to promote and maintain the well-being of pets and other animals that are not raised for consumption, such as dogs, cats, race horses, ornamental fish or birds, zoo animals, and mice. Work in settings such as kennels, animal shelters, zoos, circuses, and aquariums. May keep records of feedings, treatments, and animals received or discharged. May clean, disinfect, and repair cages, pens, or fish tanks.

Animal Scientists

Conduct research in the genetics, nutrition, reproduction, growth, and development of domestic farm animals.

Farmworkers, Farm, Ranch, and Aquacultural Animals

Attend to live farm, ranch, open range or aquacultural animals that may include cattle, sheep, swine, goats, horses and other equines, poultry, rabbits, finfish, shellfish, and bees. Attend to animals produced for animal products, such as meat, fur, skins, feathers, eggs, milk, and honey. Duties may include feeding, watering, herding, grazing, milking, castrating, branding, de-beaking, weighing, catching, and loading animals. May maintain records on animals; examine animals to detect diseases and injuries; assist in birth deliveries; and administer medications, vaccinations, or insecticides as appropriate. May clean and maintain animal housing areas. Includes workers who shear wool from sheep and collect eggs in hatcheries.

Environmental Service Systems

Environmental Engineering Technologists and Technicians

Apply theory and principles of environmental engineering to modify, test, and operate equipment and devices used in the prevention, control, and remediation of environmental problems, including waste treatment and site remediation, under the direction of engineering staff or scientists. May assist in the development of environmental remediation devices.

Environmental Engineers

Research, design, plan, or perform engineering duties in the prevention, control, and remediation of environmental hazards using various engineering disciplines. Work may include waste treatment, site remediation, or pollution control technology.

Environmental Science and Protection Technicians, Including Health

Perform laboratory and field tests to monitor the environment and investigate sources of pollution, including those that affect health, under the direction of an environmental scientist, engineer, or other specialist. May collect samples of gases, soil, water, and other materials for testing.

Hazardous Materials Removal Workers

Identify, remove, pack, transport, or dispose of hazardous materials, including asbestos, lead-based paint, waste oil, fuel, transmission fluid, radioactive materials, or contaminated soil. Specialized training and certification in hazardous materials handling or a confined entry permit are generally required. May operate earth-moving equipment or trucks.

Pest Control Workers

Apply or release chemical solutions or toxic gases and set traps to kill or remove pests and vermin that infest buildings and surrounding areas.

Refuse and Recyclable Material Collectors

Collect and dump refuse or recyclable materials from containers into truck. May drive truck.

Water and Wastewater Treatment Plant and System Operators

Operate or control an entire process or system of machines, often through the use of control boards, to transfer or treat water or wastewater.

Water/Wastewater Engineers

Design or oversee projects involving provision of potable water, disposal of wastewater and sewage, or prevention of flood-related damage. Prepare environmental documentation for water resources, regulatory program compliance, data management and analysis, and field work. Perform hydraulic modeling and pipeline design.

Food Products and Processing Systems

Agricultural Technicians

Work with agricultural scientists in plant, fiber, and animal research, or assist with animal breeding and nutrition. Set up or maintain laboratory equipment and collect samples from crops or animals. Prepare specimens or record data to assist scientists in biology or related life science experiments. Conduct tests and experiments to improve yield and quality of crops or to increase the resistance of plants and animals to disease or insects.

First-Line Supervisors of Farming, Fishing, and Forestry Workers

Directly supervise and coordinate the activities of agricultural, forestry, aquacultural, and related workers.

Food Science Technicians

Work with food scientists or technologists to perform standardized qualitative and quantitative tests to determine physical or chemical properties of food or beverage products. Includes technicians who assist in research and development of production technology, quality control, packaging, processing, and use of foods.

Food Scientists and Technologists

Use chemistry, microbiology, engineering, and other sciences to study the principles underlying the processing and deterioration of foods; analyze food content to determine levels of vitamins, fat, sugar, and protein; discover new food sources; research ways to make processed foods safe, palatable, and healthful; and apply food science knowledge to determine best ways to process, package, preserve, store, and distribute food.

Graders and Sorters, Agricultural Products

Grade, sort, or classify unprocessed food and other agricultural products by size, weight, color, or condition.

*Source: O*NET Online — www.onetonline.org*

Agriculture is Everywhere!

Continued from Page 15

our graduates AFSA K–12 is bringing agriculture to urban and suburban communities.

We are always looking for community partners and volunteers to be Science Fair Judges and Career Day Speakers as well as locations for our Farm and Community Service Day.

Check out our website for more information about AFSA K–12 www.afsak12.com or contact our Executive Director, Becky Meyer at bmeyer@afsak12.com.

The Academy for Sciences & Agriculture (AFSA) engages learners in academically rigorous, student-centered learning experiences and leadership opportunities within a science and agricultural context. AFSA brings agricultural literacy to urban and suburban populations.

This K–12 public charter school was founded by the Minnesota Agricultural Education Leadership Council (MAELC) in 2001. AFSA began as a 9th–12th grade high school with 41 students. Currently over 425 students are enrolled and the school will grow to about 600 students over the next three years. AFSA's locations, in Vadnais Heights and Little Canada, allow inclusion of students from all north/east Twin Cities areas. Currently students from 19 different school districts attend AFSA.

AFSA K–12 prepares students to be wise consumers, savvy decision makers, and successful, career-oriented lifelong learners. The unique curriculum with hands-on and experiential learning drives the success of the students through high school and beyond.

afsahighschool.com

Preparing Students For Careers in Agriculture, Food and Natural Resources

Katie Christopher, Deb Martin, Matt Tripp, and Brett Schmidt.
Worthington Agriculture Program, ISD #518

In a world where we are in need of highly skilled workers more than ever, the Worthington Agriculture Program focuses on preparing students within the Worthington School District to fill these roles and learn valuable career and technical skills in agriculture.

Our program reaches students in seventh through 12th grade, with classes at both the middle and high schools. At WHS, we offer 23 courses that range from horticulture to metals and manufacturing to livestock production. Last year, over 1,110 students had a seat in one of the many classes offered in the agriculture department.

Our program focuses on hands-on learning and appreciates the importance of students learning from agricultural experts in the community. Throughout our year, we prioritize taking students to local businesses and invite experts in. Our students were able to engage with over 30 business and industry professionals last year. We are grateful for our community partners inviting our classes out and giving our students new opportunities and experiences.

We have seen exciting growth with the addition of a fourth agriculture teacher and the addition of a seventh-grade course last year. Additionally, one of the opportunities students now have is to take concurrent enrollment courses in our agriculture department at the high school to earn free college credit.

We are excited to have partnered with a local community college to offer classes in animal science, horticulture and agronomy. Another new course offered this year is farm to table. Students enrolled in this course will learn more about where their food comes from, breaking down misconceptions about food and agriculture, and then taking that knowledge they learn to teach others about their food.

The agriculture department follows and encourages the integral three circle model of agricultural education, which includes classroom, Supervised Agriculture Experience (SAE) and FFA. In addition to the classroom, students are encouraged to have an SAE, which is a job or experience outside of the classroom to learn and apply new skills on the job. We have students working in local businesses as well as students who start their own business.

FFA is a student-led organization founded in agriculture that promotes premier leadership, personal growth and career success. Any student enrolled in an agriculture course can participate in our FFA chapter.

This fall is off to a busy start with our agriculture courses visiting businesses and community experts, creating planters, making dog treats, learning how to weld, taking apart a small engine and more!

In September, our FFA chapter kicked off the year with our first meeting. These next coming weeks members present at the fifth-grade wetlands tours, attend Greenhand Day and officer workshops and are practicing for Career Development Events (CDEs).

A special thanks to the community for supporting our students at the FFA Food Stand during the Nobles County Fair and your continued support of our program. We look forward to continuing to prepare Worthington Public School students for skilled jobs in our community!

www.isd518.net

Fergus Falls Preparing Students through CTE

Fergus Falls Public School District

One of the age-old questions regarding education is whether the purpose of education is to prepare students academically or to prepare them for the world of work. In Career and Technical Education, we know the answer to this question is both. At Fergus Falls High School we have a strong CTE program that is long-standing and forward thinking. Two of these programs include our Manufacturing and Agriculture programs.

Our Manufacturing program is housed in our Roosevelt Education Center. Students are able to walk between this building and our main campus. Several years ago, manufacturing partners in our community saw a need for updates in our lab and raised a significant amount of money for upgrades to the facility and new equipment that would give our students a realistic view of what is being used in industry today. All of our 9th grade students have the opportunity to utilize these resources in our required Introduction to Technical Education class. This class serves as a way to ignite interest in students who can go on to enroll in our other manufacturing classes. These classes include Fabrication I and II and Metals I, II and III.

Five years ago, our school saw the need to help students make the connection between what they were learning in the classroom and what is happening in the world of work, so a Work-based Learning coordinator was hired to bridge this gap. We are proud to say that our students coming out of our manufacturing classes at Fergus Falls High School are prepared to enter the workforce at an entry level position. They are also OSHA-10 certified through our WBL program. So far, we have three manufacturers in town who are committed to working with our students in a work-based learning relationship. Each of these businesses has gone through the Youth Skills Training approval process so are able to hire 16-17 year olds to work as welders in a paid internship experience. Cyndi Young, HR Manager at one of our partner programs, had this to say about our program. "Here at Innova Industries, we have had some great students working as part of the Work-based Learning Program. They are able to expand their skills in welding and take this trade with them for their future. We have also had a couple students continue employment with us after they graduated. This is a great program for the Fergus Falls Schools and we hope it continues."

Since having these businesses approved, we have placed five of our students in this program and hope there are many more to come. As Cyndi stated, we are seeing students staying on in these positions after the program is complete and becoming a part of the workforce. Bringing our students into the manufacturing workforce brings the donations of our manufacturing partners full circle. The investment they made years ago is starting to show returns for them in the form of an educated, skilled workforce.

Agriculture is another growing part of our CTE program, housed in our Roosevelt Education Center. In fact, this past year we added a full-time staff person to this department. This coming year, we are able to offer Agribusiness: Sales and Marketing, Landscape Design and Horticulture, Natural Resources and Wildlife Management, Plant Science/Agronomy and Veterinary Science. Our students also have the opportunity to enhance their skills by being part of our strong FFA program that builds leadership as well as technical skills.

As with our Manufacturing program, we have a work-based learning piece in place to tie classroom learning to real world work. One business, that works alongside our WBL program to offer students experience in the agricultural field, has had two of our students apply for and work as part of their Titan Edge program. This program allows students to experience several different areas within the business. A representative from the company stated that "We believe in connecting students to career opportunities and exploration programs. We value the partnership with educational partners, such as Fergus Falls Public School, and the valuable programming they have created to best serve their students and community. It is these relationships that will help build a future workforce in the agricultural industry and assist in building strong talent pipelines across Minnesota." Another company has also developed a high school internship program that we have teamed up with. Both of these businesses also offer sponsorships for our students who go through the program. This is a win-win for the business and the students.

We have also been able to place students from our Veterinary program in our local veterinary clinic. One of these students will be starting a Vet Tech program this fall after this experience confirmed for her that this is the career path she would like to pursue. The classroom knowledge gained in our Vet Science class is an asset to students who are placed in this hands-on setting.

As we look to the future in our manufacturing and agriculture programs, we will continue to build upon what we have found to be true in the past. Our job as educators is to build academic and workplace skills and to give our students the opportunity to put them into practice in real world settings.

www.fergusotters.org

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9
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Information based on 2022 NDSCS data.

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See why students choose NDSCS for their future.

MHS Career Academy in Action

Moorhead Area Public Schools

The Moorhead High School Career Academy finished the 2022–23 school year strong, hosting fantastic events and giving MHS students the opportunity to network and get important hands-on experience. The vision of MHSCA is to help students discover passions and explore career options to graduate choice ready. In the process, the Career Academy will help meet regional workforce needs through community and business partnerships.

1. Career Fairs

MHSCA hosted multiple career fairs this spring for students to explore careers and meet potential future employers. The first of these events featured 33 different corporate partners; these corporate partners signed up so quickly that the event was fully booked within a week. The second event featured Sanford Health and allowed students to explore the many different career options available to them with one of the region's largest employers.

2. Automotive Program Repairs Fix It Forward's 400th Vehicle

The first year of the MHSCA automotive program's partnership with Fix It Forward hit a crescendo in May when students completed repairs on the sedan that became the 400th vehicle donated by the community non-profit organization. Fix It Forward held a ceremony at MHSCA to celebrate this milestone that included the students who helped work on the car. *(See the Summer 2023 issue of Teaching Today, MN)*

3. Team 4360 Spudnik Receives Multiple Grants

MHS' FIRST Robotics Competition (FRC) Team 4360 "Spudnik" received a pair of grants in early 2023. At the Great Northern Regional FRC event in March, the Gene Haas Foundation presented Spudnik and MHSCA with a check for $8,000 for manufacturing scholarships—this was in addition to the $2,500 grant that the foundation gave to Spudnik in December. In May, a local business awarded a $5,000 grant to Spudnik as well.

Celebrating Fix It Forward's 400 Vehicle.

4. Machining Lab Completes First Year of Classes

Brand new for the 2022–23 school year, the MHSCA machining lab completed its first year of classes in May. 32 students participated in machining classes in this lab over the course of the year. The machining lab provides students with the opportunity to use state-of-the art equipment for unparalleled hands-on experience.

5. Jumpstart Provides Hands-on Experience for Students

While most of the district's Jumpstart pre-school classes operate out of Probstfield Center for Education, one class is held at MHSCA. This allows high school students the opportunity to get hands-on experience working with small children. An MHS art class provided a great example of this partnership in Spring 2023, joining with the Jumpstart kids to help them learn to create art. This collaboration culminated in the high schooler students helping the Jumpstart students create Mother's Day cards in May.

Students enrolled in the Jumpstart program.

6. ALC Students Get Virtual Reality Career Tours

When students are able to experience new places—buildings, organizations, colleges, etc—it helps expand their base of knowledge. Unfortunately, tours can be tricky to schedule, especially for high school students. This year, the Alternative Learning Center partnered with a Fargo-based virtual reality company, to bring tours to Moorhead students. This partnership provided ALC students with 12 Virtual Reality goggles used to tour job sites and area businesses to learn about specific careers without ever leaving MHSCA. Using these headsets to show students new environments is a great way to engage students and teach with technology that is becoming more prevalent throughout the workforce.

7. MHSCA Hosts UND SHaPE for Med Student Simulations

On May 16, MHSCA hosted the University of North Dakota's School of Medicine and Health Science for a day of medical simulations as a part of UND's Supplemental History and Physical Enhancement (SHaPE) program. Throughout the day, 34 third-year medical students participated in clinical simulations and a birthing simulation to help improve their Clinical Skills Assessment scores.

In October, 2021 Moorhead area public schools celebrated a ribbon cutting for their new Career Academy. The building is approximately three miles south of Moorhead High School on 17 acres of land. The finished career academy is 177,000 square-feet, including a second level. The building includes learning labs, classroom space and collaborative huddle spaces.and allows students to explore career pathways and take personalized courses. Programming continues to grow and evolve as we utilize this state-of-the-art space.

A Trades and Industry teacher at Moorhead Career Academy commented, "The goal of the Moorhead Career Academy is to show kids the variety of these trades and to fulfill our needs and shortage of skilled workers, and to show students that these careers are tremendous opportunities for development."

www.isd152.org

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St. Cloud State University and America's Cutting Edge (ACE) CNC Machining Center for Manufacturing

SCSU's mobile training center, ideal for reaching rural communities throughout Minnesota

The Institute for Advanced Composites Manufacturing Innovation (IACMI), in partnership with Department of Defense (DoD)'s Manufacturing Capability Expansion and Investment Prioritization (MCEIP) office, announced on Sept. 14 that St. Cloud State University is one of two Minnesota institutions chosen as a new machine tool workforce development center via the America's Cutting Edge (ACE) program. ACE is a national initiative aimed at revitalizing U.S. manufacturing, and SCSU was chosen along with the University of St. Thomas to provide essential training in manufacturing across the state.

ACE now has regional machine tool training centers in nine states, providing free online and in-person training for the machine tool industry. SCSU will use a 53-foot semi-trailer as their mobile training center, ideal for reaching rural communities throughout Minnesota. CEU and college credits will be available to successful graduates of the program.

"The ACE initiative aligns with SCSU's focus on providing innovative learning experiences to serve a need and meet the demands of our workforce." said Dr. Kurt Helgeson, an SCSU professor in the Department of Environmental and Technological Studies and ACE Program Director.

ACE is comprised of two parts. The first is an online requirement that covers an introduction to Computer Numerical Control (CNC) machining and 3D modeling using Fusion 360. Additional courses in metrology, composites, and cybersecurity have been added. Upon completion, students become qualified to advance to hands-on lab training. Whether in an engineering department or a mobile shop, "bootcamps" provide opportunities for eligible students to learn in a high-intensity environment through hands-on, in-person training—all at no cost.

Education Involvement

St. Cloud State University's TEC Network has partnered with over 60 schools across the state for the last 10 years. The ACE Program will enhance the program by providing free CNC training to students, teachers, and industry workers in outstate Minnesota.

As part of this program, SCSU TEC Network will make training and HAAS or Forest Scientific mills portable to bring to your school. There will also be a mobile training center to do training at schools or businesses starting the spring of 2024. Anyone completing the training will also receive industry certification from Credly Digital Badging.

The first phase of program will be to train teachers who will then be able to bring the training to their students. Equipment and supplies will be available to the schools at no cost.

This is a 2-part training:

- 6 hours of online training
- 40 hours of in person training at SCSU or in your area or at the school once a teacher is trained.

If you are interested or would like more information, complete the survey at: www.surveymonkey.com/r/ACE_edu Once you have completed the survey, you will be given additional details about the program and a link to register for the online training. After you have completed the online training, SCSU will work with you to schedule the in person training.

Industry Involvement

Starting spring of 2024, the program will also be available to current or future employees of manufacturing companies around the state. As noted above, SCSU is developing a Mobile training Center. The training center will focus on training for industry. It will move around the state and park at a company or in a community where there is a group of people interested in the training.

Programs are being added in metrology, composites and casting / foundry. Additional information can be found at: https://www.americascuttingedge.org.

Contact Information

For more information or questions on the program at St. Cloud State University, contact Kurt Helgeson, ACE Net Program Director, krhelgeson@stcloudstate.edu 320-308-3127.

For more information or questions on the program at St. Thomas program, contact John Wentz, director of advanced manufacturing at St. Thomas, john.wentz@stthomas.edu or 651-962-5413

Environmental and Technological Studies

St. Cloud State University

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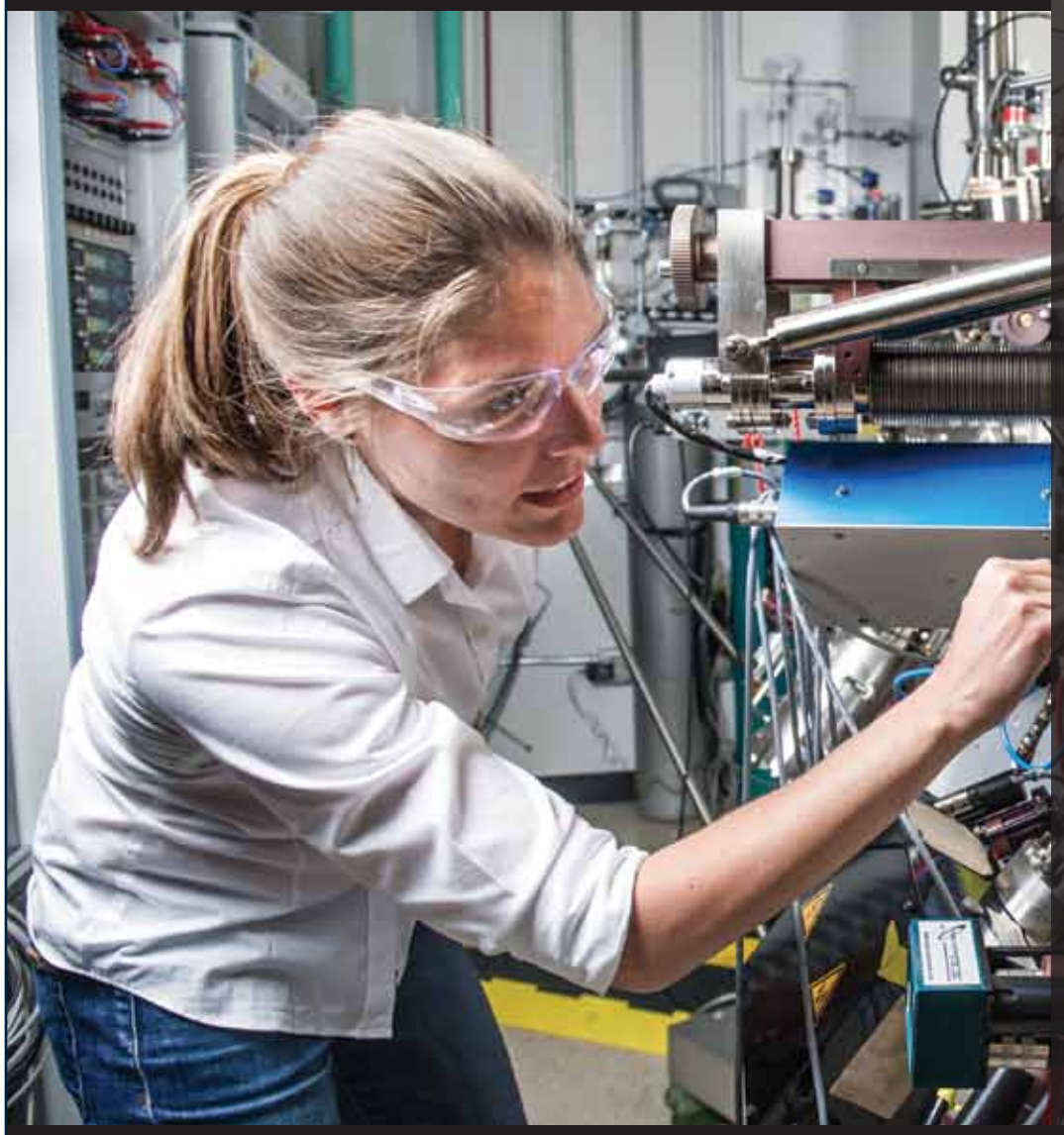

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- **Manufacturing Engineering Technology**
- **Construction Management**
  - ★ *Program Available Online* ★
- **Environmental Studies**
- **Environmental Science**

Manufacturing Engineering Technology

- The Manufacturing Engineering Technology program is a Bachelor of Science Degree in an applied engineering field that looks for better ways to manufacture products. This includes reducing cycle times, maintaining quality, and keeping costs reasonable.
- The field emphasizes engineering problem solving using a hands-on approach rather than the complex analysis that an engineer would typically use. The curriculum focuses on hands-on experiences to prepare the graduate for an exciting career in the midst of production activity

Technology Education

- Bachelor of Science Degree
- Master of Science Degree

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- CTE —Career and Technical Education
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  - Construction
  - Manufacturing
  - Transportation
- Work Based Learning

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- **Huskies Invent —** *A non-stop weekend "invent-a-thon" for collaboration with businesses and students.*
- **Husky Make It Space —** *Bring ideas to life, from design to the creation of visual models/ functional prototypes.*
- **ACE Net Program —**
  - *CNC training to Minnesota for high school students, teachers and industry employees.*
  - *Program includes mobile HAAS mills and Forest Scientific mills.*
  - *Training, equipment and supplies available at no cost.*

Contact: Chuck Hentges — Department Chair
E-mail: crhentges@stcloudstate.edu
Phone: (320) 308-2118

Learn more about Environmental and Technological Studies at St. Cloud State University at:

www.stcloudstate.edu/ets

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World of Opportunities with Welding Program

Sue Smith-Grier, Brainerd Public Schools

High school is just the beginning for many youths seeking well-paying jobs or careers. The foundation provided by secondary education often leads to the exploration of what can become exciting opportunities in the future. The field of welding is a prime example. Learning to weld opens doors to all types of opportunities including professional and artistic endeavors.

Instructor Curtis Brisk can attest to this fact. Brisk is also the Applied Technology instructor at Brainerd High School and an assistant football and wrestling coach. Teaching classes of 25-28 young people about the intricacies of welding keeps him on his toes. Brisk teaches four levels of welding and for those who stay with the entire series of classes, opportunities for jobs or furthering their welding education at the local community college await them.

From Basics to Boeings

The initial class teaches students the basics of motors and metals. Students in 9th and 10th grade begin with this introductory class. Once they complete the basics they have the opportunity to join Welding One and they can move through Welding Two and Three consecutively if they wish to continue the course. "Each level gets more and more in depth," said Brisk. "We go over stick welding, wire feed welding, and different transfer modes of wire welding." Stick welding is very versatile and is often used to weld metal alloys such as aluminum, copper, nickel and ferrous metals such as steel and iron. Unlike some of the other welding methods, stick welding does not require the use of a shielding gas. Because of this, stick welding can be performed outdoors and in challenging conditions such as on windy days.

He also explained the process of TIG welding, or in technical terms, gas tungsten arc welding or GTAW. This process uses a non-consumable tungsten electrode to deliver a current to the welding arc. The tungsten and weld puddle are cooled and protected by an inert gas; in most cases, argon. TIG welding is most often used in pipe welding and pipelines. It is also used in sheet metal industries for thin materials or special metals such as titanium. Students can seek out careers in aerospace and aviation with this type of welding experience.

Advancing to a Career

After completing these welding classes, students have an opportunity to go into the advanced class — fabrication — which is a project-based class. In this class, students are provided the freedom to be creative.

> "Even though welding classes are traditionally a young man's path, [Instructor Curtis] Brisk has young women taking classes also. "I have about six to eight girls every semester. The girls actually pay more attention to the detail of their welds than most boys do," Brisk explained. "It's quite surprising how good girls can weld when they are trying to break that stigma. "

With each graduating class, Brisk has the pleasure of seeing some of his students continue their welding education at the community college. Brisk is a graduate of the college's welding program himself. "On average we usually have four to seven kids that go on to the CLC welding program," he said.

Even though welding classes are traditionally a young man's path, Brisk has young women taking classes also. "I have about six to eight girls every semester. The girls actually pay more attention to the detail of their welds than most boys do," Brisk explained. "It's quite surprising how good girls can weld when they are trying to break that stigma. In years past, I've had a couple of girls go into welding. Not everyone decides to go to college for it. They may take this skill they learn in the class and go right into the workforce as well." Brisk shared he has several students who have landed jobs with local companies.

Local Industries Take Interest

Specialized learning opportunities such as welding classes require materials that may not be easily accessed. Brainerd High School is fortunate in that regard. There are local businesses that are huge components to the success of the program. One of the largest contributors is a local metal stamping and fabrication company. They donate most of the scrap steel students use for their classes.

From Wielding the Ball to Welding with Students

Brisk first became interested in welding when he was in high school. He liked working with aluminum and decided he would take that career path. His destiny changed when he received a football scholarship and was told academically he could major in business or teaching. He chose teaching. Fortunately, he did not have to abandon his dream of welding. Since becoming a welding teacher, he can also enjoy the fruits of his labor.

Students have an opportunity to learn important soft skills through welding. "The first thing I think of is time management. Welding offers students a chance to learn time management," Brisk said.

Self-advocacy is another one. If a student is struggling with a weld, they learn to advocate for getting help. Another thing would be communication. They are able to talk about a weld with their instructor. This is a big thing because they are able to communicate to their instructor how they can improve a weld.

When asked what he likes most about teaching, Brisk shared, "I like the students. The students are the main thing I really enjoy about my class. Most of my students, when they start the class, they've never welded and some of them go on to get jobs. Seeing that and their success is what I enjoy the most."

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Apply at: **Jobs.Cretex.com**

Manufacturing News from Anoka-Hennepin

Gene Haas Foundation Awards a Total of $21,000 to Three Anoka-Hennepin High Schools

Three Anoka-Hennepin high schools received grants from the Gene Haas Foundation to support student scholarships and machining and manufacturing engineering program needs.

Anoka High School — Center for Science, Technology, Engineering, Arts and Math (AHS) and Anoka-Hennepin's Secondary Technical Education Program (STEP) each received $8,000 in grant money. Blaine High School — Center for Engineering, Mathematics and Science (BHS) was awarded $5,000.

The gift to AHS was to support student scholarships, as well as its Supermileage team. It is the fourth grant received by the high school for manufacturing scholarships by the Foundation, bringing their total thus far to $27,000. A check was presented to instructor Dean Joslin and students on April 6.

At STEP, the funds will be used for its manufacturing program and it is the third grant received by the high school program for manufacturing scholarships by the Foundation, bringing their total to $22,000. A check was presented to students, assistant principal Sean Beggin, and instructors Greg Kapitzke and Mike Hilber on April 6.

BHS was awarded the grants to support student scholarships and for BHS's Supermileage and Robotics teams ($2,500 each) to compete at events. It is the school's third grant received by the Foundation, bringing their total received to $9,500. A check was presented to Robotics Team members at a competition in January.

The Foundation's primary goal is to build skills in the manufacturing industry by providing scholarships for CNC machine technology students. For high schools, a portion of the funds may also be used to support the school's participation in student competitions such as FIRST or VEX Robotics, SkillsUSA and Supermileage programs that highlight their manufacturing programs.

The Gene Haas Foundation was established in 1999 by Gene Haas, founder and owner of Haas Automation, Inc., to support manufacturing education and the community through grants, manufacturing, and training programs.

Step Students Build Knowledge, Interest in Manufacturing Careers

Anoka-Hennepin students attending the Secondary Technical Education Program (STEP) have multiple opportunities to experience manufacturing careers through internships, career tours and field trips.

Currently, students have internship positions at seven different companies, some of which are through the Minnesota Department of Labor and Industry's Youth Skills Training (YST) Program. Already this school year, students have visited more than a handful of companies and college campuses on tours and field trips. Blaine High School student Davontae Williams said, "The trips open up options for what you could want to do for your career."

Zoom in: On Oct. 31, students wrapped Manufacturing Month by visiting a nearby technical & community college to learn about programs in plumbing, HVAC and water environment technologies. Matt Olsen, a student from Anoka High School said, "I liked hearing from the instructors because it gave me more of an idea of how the program would go."

The group also visited a Minneapolis – based apprenticeship training committee in Maple Grove to learn about programs for aspiring plumbers.

www.ahschools.us

Building the Next Generation of Manufacturers

Hope Riska, Productivity Inc
Education & Events

How many times have you looked at different products in your home and wondered, "How was this made?" Or, when you go to the doctor (or even hospital) and ask yourself, "Who had the idea for THAT life-saving device?" Better yet, do you ever drive by companies and ask, "I wonder what they do or make?" Well, you are asking about MANUFACTURING.

When we look at anything in our daily lives — from things as simple as our toothbrush, cereal box (or bowl), the spoon you eat the cereal with . . . or even anything to do with technology (phone, electronics, automotive, etc.) or look around in your home…what about the house itself? Everything we see, feel, hear has been manufactured. What would happen if it all went away and you couldn't BUY anything anymore?

One of our responsibilities is to help the next generation (and current) keep the world going! But how do we encourage them to do so? By educating them on HOW and WHY things are made and how THEY can help to continue (or improve) for the future generations. Today's generation is all about making a difference, being sustainable and let's face it . . . THEY are responsible for the FUTURE.

Productivity Inc helps promote (and encourage) today's generation — and even OUR generation – to look at what they can DO to make a difference and even carry on legacies is by supporting Manufacturing Education. One of the ways we do so is through our Biennial Machine Tool Show called "Oktoberfest" and by devoting the first day TO Education by holding an event called "Oktoberfest Student/Career Day" in which we invite High Schools and Post-Secondary students to come and explore Manufacturing Careers by showing them the latest (and greatest) technology in Manufacturing. We have approximately 50 machines on display, showcasing different techniques (and even some really cool demos) to show them how COOL careers in Manufacturing can be. With machines from CNC Milling, Turning, Waterjet, High-Precision EDM, Grinding, Laser Marking, CMM equipment and many, many tooling suppliers, there is LOTS to see and learn for the students. They are given a handout where they need to seek out answers to questions and many instructors give the students credit for doing the work and sharing We also invite some of our customers (manufacturers) to set up a Career Fair Booth so they can SHOW students what they do, how they are making a difference and how the STUDENTS can potentially work WITH them to someday help them continue what they are doing.

This year's Student/Career Day we hosted OVER 600 Students and 74 Instructors from 25 Schools (8 High Schools and 17 Post-Secondary Schools) and had 8 Manufacturing Companies as part of the Career Day area and we look forward to doing it again in 2025!

The remaining three days of the event we host our regular manufacturing customers and this year we hosted 3,100 customers (in addition to the Student Day attendance) and continue to do what we can to promote manufacturing education and the future of manufacturing.

Why a career in Manufacturing? I always use my Mom as my best example. She has a Medtronic Pacemaker and Defibrillator. She is still with us today because of MANUFACTURING. If nobody had the IDEA, nobody had the SKILLS to design, build and sell the life-saving device, she would not be here. I thank God and Manufacturing every day – we are truly blessed.

What has manufacturing done to make a difference in YOUR life?

SAY *YES* TO A CAREER IN MANUFACTURING

EVERYTHING **we have,** ***EVERYTHING*** **we use,** ***EVERYTHING*** **we see, taste, hear, smell, feel, or rely on for our way of life, and our very existence, at this moment in human history, has been made possible by** ***MACHINISTS and ENGINEERS*****.**

MANUFACTURING is *EVERYWHERE!*

- **Medical:** Bandages, needles & pain medicine.
- **Computers/IT:** Flash drives, laptops & mobile devices.
- **Furniture:** Beds, chairs, stools & outdoor furniture.
- **Construction:** Beams, shingles, screws & nails.
- **Food:** Frosted donuts, canned veggies, licorice & cereals.
- **Textiles/Clothing:** Socks, shoes, shirts sunglasses & jewelry.
- **Automotive:** Car frames, engines, horns, gas caps & cup holders.
- **Aerospace:** Airplanes, helicopters, & space capsules.
- **Household:** Lamps, microwaves, toothbrushes & refrigerators.

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- Fabricator
- Welder
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- Operations Manager
- Engineer
- Buyer or Purchasing Manager
- Technician
- Service
- Robotics
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Scan To Apply

What Would You Like to Do in Manufacturing?

Aerospace Engineering Technicians
Operate, install, and maintain equipment that tracks air and space vehicles.
Wages — $31.31/hour

Aircraft Structure and Systems Assemblers
Assemble, fit, and install parts of aircraft.
Wages — $26.11/hour

Biofuels Processing Technicians
Work on various parts of the production of biofuels, such as ethanol.
Wages — $30.26/hour

Cabinetmakers and Bench Carpenters
Build wooden objects such as cabinets or furniture.
Wages — $19.40/hour

Chemical Equipment Operators
Operate equipment to control chemical changes or reactions during a production process.
Wages — $19.31/hour

Chemical Plant and System Operators
Control entire chemical processes through a system of machines.
Wages — $22.73/hour

Coating, Painting, and Spraying Machine Operators
Operate machines to coat or paint a variety of products.
Wages — $19.26/hour

Computer Numerically Controlled (CNC) Machine Tool Programmers
Develop programs to control the processing of metal or plastic parts by machines.
Wages — $28.90/hour

Crushing, Grinding, and Polishing Machine Operators
Operate machines that crush, grind, or polish materials like coal, glass, grain, stone, food, or rubber.
Wages — $20.03/hour

Cutting, Punching, and Press Machine Operators
Operate machines to saw, punch, bend, or straighten metal or plastic material.
Wages — $18.14/hour

Drilling and Boring Machine Operators
Operate machines to drill, bore, ream, mill, or countersink metal or plastic pieces.
Wages — $16.47/hour

Electrical and Electronic Engineering Technicians
Apply electrical and electronic theory to design or build electrical equipment.
Wages — $30.42/hour

Electrical and Electronics Drafters
Prepare diagrams that are used to create, install, or repair electrical equipment.
Wages — $28.15/hour

Extruding and Drawing Machine Operators
Operate machines to push thermoplastic or metal materials into tubes, rods, hoses, or structural shapes.
Wages — $18.52/hour

Fabric and Apparel Patternmakers
Make precision fabric patterns.
Wages — $26.77/hour

Forging Machine Operators
Operate forging machines to shape or form metal or plastic parts.
Wages — $20.75/hour

Furnace, Kiln, Oven, Drier, and Kettle Operators
Operate specialized heating equipment.
Wages — $19.53/hour

Gas Plant Operators
Distribute or process gas for utility companies.
Wages — $32.27/hour

Geothermal Technicians
Install or maintain geothermal (ground source heat) systems.
Wages — $22.18/hour

Hydroelectric Plant Technicians
Monitor activities involved in hydropower generation.
Wages — $30.26/hour

Industrial Engineering Technicians
Help industrial engineers to design processes to make better use of resources at work sites.
Wages — $24.71/hour

Industrial Machinery Mechanics
Repair, install, or adjust manufacturing equipment.
Wages — $26.12/hour

Jewelers and Precious Stone and Metal Workers
Design, create, or repair jewelry.
Wages — $18.04/hour

Lathe and Turning Machine Operators
Operate lathe and turning machines in production processes.
Wages — $19.35/hour

Machinists
Set up and operate a variety of machine tools to produce precision parts.
Wages — $23.40/hour

Mechanical Drafters
Prepare diagrams of machinery and mechanical devices.
Wages — $27.94/hour

Mechanical Engineering Technicians
Apply principles of mechanical engineering to help to develop machinery.
Wages — $26.44/hour

Medical Appliance Technicians
Construct, fit, or repair medical devices such as braces or prosthetics.
Wages — $16.59/hour

Metal and Plastic Layout Workers
Lay out reference points and dimensions on metal or plastic work pieces.
Wages — $21.29/hour

Nanotechnology Engineering Technicians
Operate equipment to produce or test materials at the molecular level.
Wages — $27.47/hour

Non-Destructive Testing Specialists
Test the safety of various types of structures using x-ray, ultrasound, or fiber optic equipment.
Wages — $27.47/hour

Nuclear Power Reactor Operators
Operate or control nuclear reactors.
Wages — $45.56/hour

Petroleum Pump System and Refinery Operators
Operate systems that refine petroleum.
Wages — $29.08/hour

Photonics Technicians
Build, install, or maintain optical or fiber optic equipment.
Wages — $27.47/hour

Power Plant Operators
Operate machinery to generate electric power.
Wages — $39.85/hour

Production, Planning, and Expediting Clerks
Coordinate the flow of work and materials between departments, following a production schedule.
Wages — $23.75/hour

Purchasing Agents
Purchase all the goods and services that are needed to run an operation.
Wages — $29.87/ hour

Radio, Cellular, and Tower Equipment Installers and Repairers
Repair, install, or maintain equipment used in radio transmission or other communications.
Wages — $32.33/hour

Robotics Technicians
Build, install, test, or maintain robotic equipment or related automated production systems.
Wages — $27.08/hour

Supervisors of Production and Operating Workers
Directly supervise and coordinate the activities of production and operating workers.
Wages — $29.47/hour

Welders, Cutters, Solderers, and Brazers
Weld or join metal pieces together using hand-welding, flame-cutting, or brazing tools.
Wages — $20.94/hour

Welding, Soldering, and Brazing Machine Operators
Operate welding, soldering, or brazing machines or robots.
Wages — $20.58/hour

Woodworking Machine Operators
Operate woodworking machines, such as drill presses, lathes, shapers, sanders, planers, or nailing machines.
Wages — $16.07/hour

Source - https://www.onetonline.org

District 196 Fab Lab Offers Unparalleled Flexibility

James Lynch, STEM Program Coordinator
Apple Valley High School

Eight years ago when the Fabrication (Fab) Lab officially opened its doors at Apple Valley High School, it seemed the opportunities it unlocked were endless. There was a design space to ideate in, a production area with equipment to fabricate in and a finishing space to put it all together. The first big project completed in the lab was to collaborate and build the tables the students utilize every day to create their solutions in the Fab Lab for the problems they find!

Today, we know that this space offers interdisciplinary flexibility that is unparalleled when placed alongside traditional project-based classrooms. As one of many examples, Interior Design students in the Family and Consumer Science courses at AVHS utilize the Fab Lab to create remarkable models of interior spaces by creating innovative home interior projects. They do this by combining the elements and principles of design they learned in class, physical crafting materials, the apps used to design all features, and then process all of these through the Fab Lab equipment which then connects the dots between them.

Students in the Interior Design beginner course create and produce a diorama of a living room or bedroom and its essential elements to scale. These students design chosen elements within a floor plan and create model furniture using 3D printers. Students learn how to use 3D CAD software to digitally form and design a piece of furniture. The Fab Lab equipment is then used to make a prototype of that piece which could include items such as a table, bed, chair, couch, desk, shelving, and wall hangings. These designs are then built with Fab Lab equipment and can be painted or covered in fabric before being adhered to the floor plan in their diorama. The students also incorporate textiles into their design, including rugs, pillows, curtains, flooring, wall coverings, and other creative elements. Designs and patterns used on textiles are printed directly onto fabrics and then placed in the dioramas. Students use craft supplies, donated textiles and their own ingenuity to add their creative touch to the interior space of their project.

Going a step further in the Advanced Interior Design course, the project uses the student's original prototype and they manufacture a full-sized functional element from their conceptual to-scale design. Students choose from their tables, stools, wall hangings, or other items that can be utilized within their own home. To create these pieces, they may expand their equipment experience by utilizing CNC routers to cut pieces from their design to assemble together. Students then use epoxy, mosaic, and/or paint their piece according to their original plan, finding out what works and what may need to be adjusted along the way. These Interior Design projects build off their original objectives to incorporate the elements and principles of design, as well as the AVHS STEM Design Pathway, through a "hands on" application in a "real world" approach.

Our partnership with a St. Paul architect and engineering firm has allowed for career coaching, financial support of our ideas and serves as a valuable resource for students to gain an understanding of how to work with customers. The designs described above are submitted by students to the company and are critiqued by these professional interior designers, architects, and engineers. Students receive this feedback and criticisms of their designs and are required to respond professionally as a customer/client interaction would be expected. The employees in turn help the students develop valuable life skills that can be applied to any future career.

This publication could be filled with examples such as this one that are completed over the course of the school year in the Fab Lab, and we welcome visitors to see other ways we adapt to what is needed for a learning target in classes here at AVHS. It is continually joyful to open the doors of the Fab Lab and see how the space has evolved over the years to meet the needs of the curriculum being taught in the classrooms surrounding it. All teachers here are welcome to create problem finders within a project and in turn produce solution makers out of every student through the Fab Lab experience. What would you do with your lesson plans if this space was provided at your school?

www.district196.org

New CTE Teachers

The Minnesota Department of Education (MDE), in partnership with the Minnesota Association of Career and Technical Educators (MNACTE), is offering a statewide professional development program for new Career and Technical Education (CTE) teachers. The purpose of the Minnesota Career and Technical Educators Teacher Induction Program (CTE TIP) is to function as a professional learning community and to support development, efficacy, success, resilience, and retention of CTE teachers.

The objectives of the CTE TIP are to:

- provide monthly professional development
- provide teaching, program, and curricular resources
- provide mentoring and coaching
- facilitate programming to address early career teacher challenges
- provide CTE-focused pedagogical resources and support
- provide an opportunity to analyze and reflect upon teaching
- build teacher efficacy, resilience and influence job satisfaction and teacher retention

Face-to-Face Conferences

Summer Seminar:

Monday, June 10, 2024 – Tuesday, June 11, 2024

Virtual Meetings

Monthly virtual meetings will be held during the school year. Delivery of professional development by use of Zoom conserves valuable travel resources and is a convenient and efficient approach for new teachers to meet. CTE TIP participants will form inquiry groups around topics of the groups' choosing to explore topics that will improve their classroom and program. Teachers will work together to identify common challenges, analyze potential solutions, test out approaches, and share the resources they develop.

Contact and Register

New CTE teachers are welcome to become involved at any time during the year. Please contact Shelli Sowles mde.cte@state.mn.us to learn more or register for CTE TIP participation.

https://education.mn.gov/MDE/dse/cte/new

"It's not 'How smart are you?', it's 'HOW are you smart?'"

Andrea Moore, TigerPath Coordinator
Hutchinson Public Schools — ISD 423

This is the philosophy behind Hutchinson Public School's TigerPath program. We know that a "one-size-fits-all" educational system does not serve students or society in the most productive way because every student has a unique set of abilities, gifts, and interests. Hutchinson's TigerPath program is a partnership between the school system, Hutchinson Chamber of Commerce, Hutchinson Economic Development Authority, a local community college, Southwest Initiative Foundation, and dozens of local businesses and organizations, designed to provide more opportunities and better educational outcomes for our youth.

The four TigerPath Academies, condensed from the Minnesota Department of Education's 6 Career Fields, are as follows: STREAM, SCI=HI, Business, and Human Services. Each TigerPath Academy has a set of recommended classes designed to prepare students for further education and/or future careers within that general area of study. Any of the academies can lead a student to a 2-year school, 4-year school, graduate school, a military career or even directly into the workforce. Students have flexibility to "try on" different academy options and switch academies if they wish.

The concept of TigerPath has been around since at least 2014 in Hutchinson, but really came to fruition with the 2018 renovation of the high school, and the subsequent hiring of the full-time TigerPath Coordinator. The funding for the TigerPath Coordinator position was largely provided through the Youth Skills Training Grant from the MN Department of Labor and Industry, and this has been crucial to the success of the program.

Our largest TigerPath Academy is the STREAM academy, which focuses primarily on the areas of science, technology, renewables, engineering, art, agriculture, mathematics and manufacturing. Hutchinson is after all, "Minnesota's Manufacturing City", being home to the largest plant, belonging to one of the largest multinational companies in North America. We have received generous funding and support from this company and many other manufacturing and non-manufacturing businesses. This has allowed us to purchase industry recognized, up-to-date equipment, and to highlight a beautiful, new, clean, CTE area within our high school. Each lab within our CTE area has huge windows so that students, parents, community members, and any other visitors can SEE the awesome hands-on learning that is happening in our CTE courses.

Examples of the hands-on learning that takes place include the following:

- Students in residential construction class build a tiny home every year that gets sold to the public for a small profit, which is then put back into the program. This class has also built saunas and fish houses to sell to the public.
- We have a very robust Robotics program in our school district, and the community provides mentors, spaces and funding to support that program.
- Students "work" in our Tiger Manufacturing program (TigerMFG). They make Adirondack chairs, cutting boards, lake maps, coasters, and even make parts for companies in our city that don't have the capacity to do it in-house.

All of these activities and more are possible largely because of the amazing equipment we have been able to purchase through the generosity of our local partners.

Along with the wonderful opportunities that happen WITHIN the walls of our schools, we are able to provide additional opportunities for students OUTSIDE the walls of our schools. As one of our long-time counselors said, "Since the creation of TigerPath, career exploration is so much more of a COMMUNITY conversation." We are able to offer students access to career fairs, job shadows, internships, quality tours, industry recognized credentials, and career mentoring opportunities, all because of our supportive community partners. Many visitors to our school have remarked on the amazing level of collaboration within our community and the obvious benefits that it has for our students. We are incredibly grateful for that collaboration, and we cannot wait to see what the future holds for our students and our community!

If you have any questions about our program, please feel free to contact Andrea Moore, TigerPath Coordinator, at andrea.moore@isd423.org.

hutchtigerpath.com

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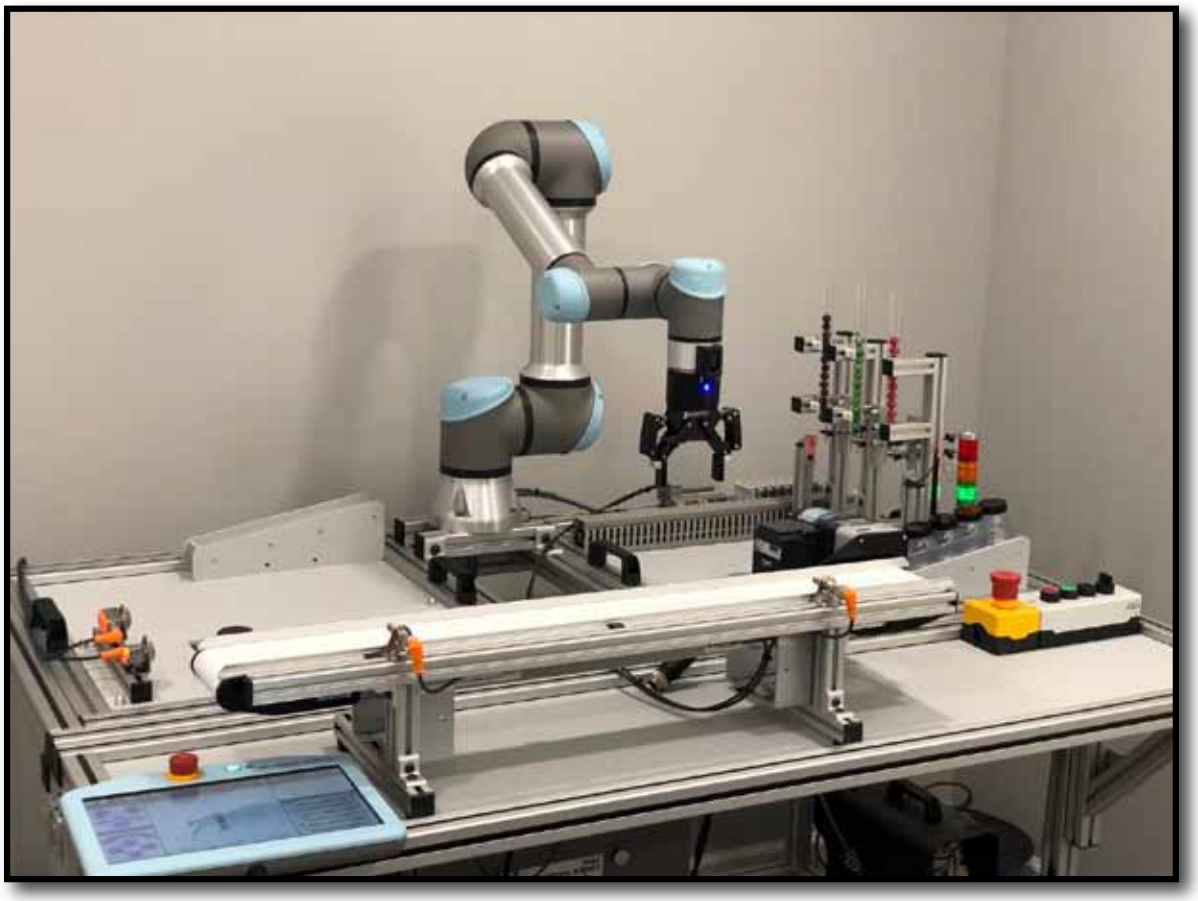

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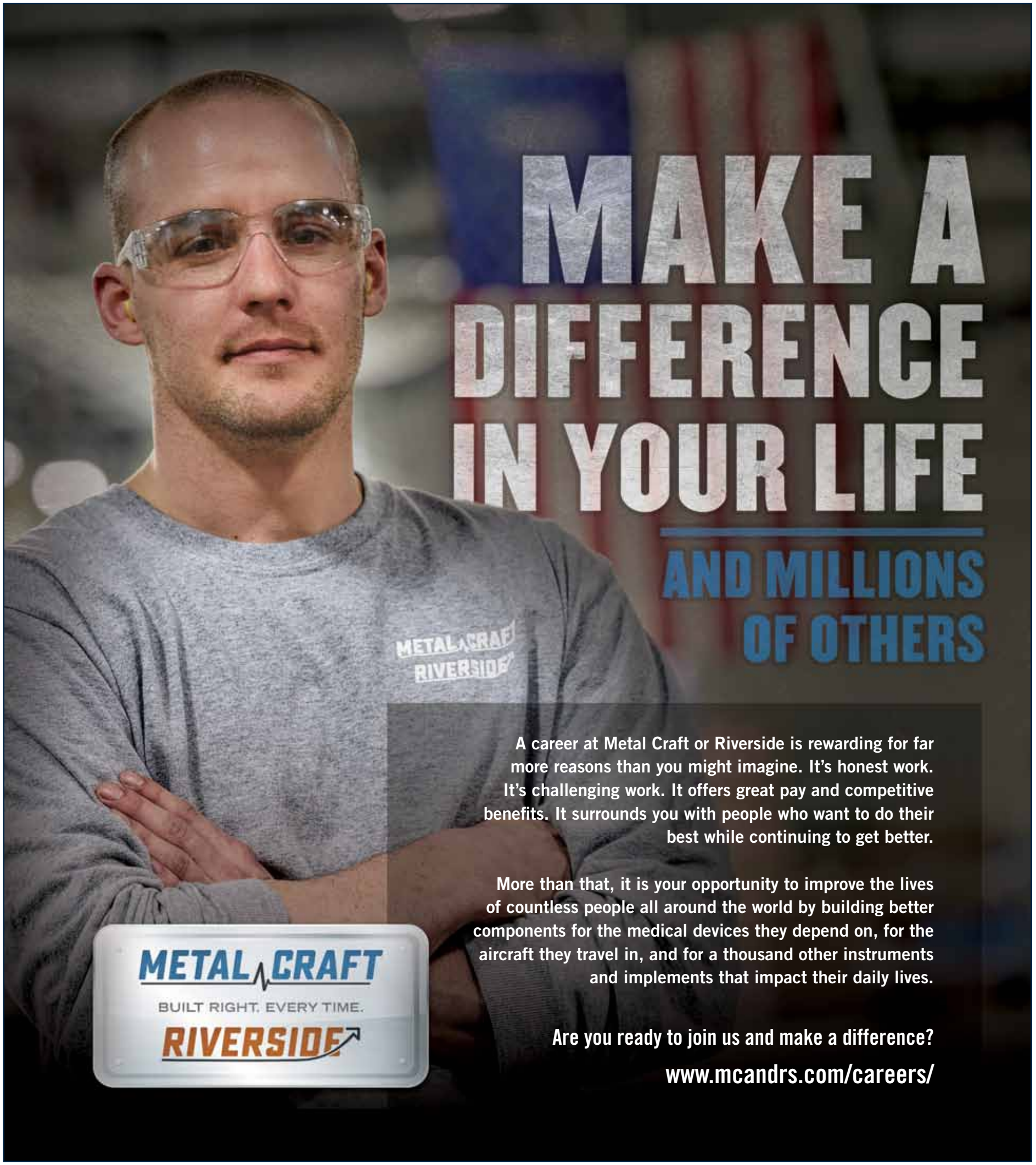
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