

STEAM EXPO

2021-2022

Ideate. Design. Collaborate. Tinker. Create. Innovate.

STEAM EXPO Guests.

Ask most adults and they will likely agree, that in reflecting upon their high school career, it is rare that their best memories will include them sitting in a classroom. For myself, it was performing with the orchestra, launching off the starting block in swim meets, being mentored by a metal-working sculptor, and presenting my bicycle touring business concept to local community leaders.

These impactful memories all share certain themes. One, they were all my choice. I owned my time and purposefully chose to invest my energy in these experiences. Two, they all involved "doing". And three, they all included massive amounts of failure. If you want to see a really mad sculptor, all you need to do is accidentally weld the welder to the sculpture!

Over the last four years, this group of seniors chose to invest in themselves by committing to the STEAM Program. And tonight, at our first ever STEAM Expo and Spotlight, we are blessed with the opportunity to see these students' investment be turned into something that they own completely, that they did, and that they all pushed hard and far enough into to experience and manage failure.

There is a fourth theme here, for these students and my younger self. And that is the community of people who created the opportunities for these students to have this experience. Their parents. Their teachers and principals, coaches, family members, the 40 volunteer Professional Reviewers, and our STEAM Advisory Board. As Ken Robinson, author of "The Element", states, "Our task is to educate their (our students) whole being so they can face the future. We may not see the future, but they will and our job is to help them make something of it." Without these supportive people seeing education as more than classrooms, textbooks, and tests, we will fail to create environments that are rich for authentic learning and growth. Today however, we celebrate the opportunity that these students have risen to.

In December we began this final stage of the STEAM Program. Throughout the last six months students have thought hard about the world they live in and how to make it better. They have identified real solutions and acted on those ideas. They have dealt with frustrations and triumphs, experienced joy and fist-pounding "Are You Kidding Me?!" moments, shared their ideas and goals with the world, and revised those as reality interjected. The pride they feel tonight is proportional to the energy they have invested.

Tonight, as you explore and listen to these student's stories, push them with your questions, thoughts, and ideas. Let us together build a culture of innovation, learning, and growth that extends beyond the classroom, between generations, and into our future.

With Grins, *Todd Hunter*

STEAM Expo Itinerary



7:00 - 7:45

Open Expo

Explore student work and projects, interactive STEAM Challenges, drive a robot, and taste test Culinary class' food.



7:45 - 8:15

Spotlight Speaker Series

Join us in the Auditorium for our Spotlight Speaker Series.



8:15 - 9:00

Open Expo

Watch the Robotics Competition and/or continue exploring!

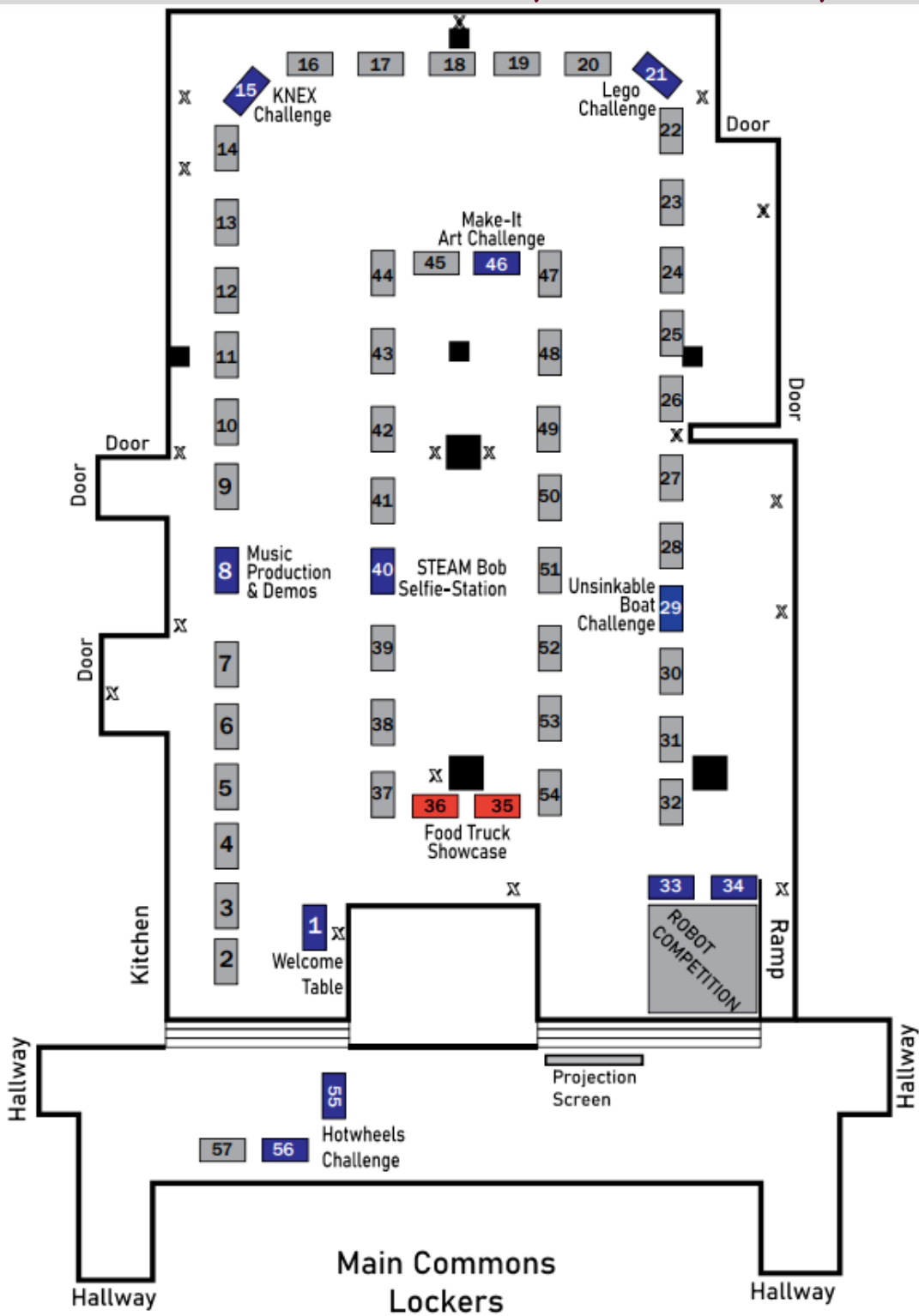


8:50 - 9:20

—Future Focused Schools— STEAM Student Focus Group

Join us in the auditorium for a student-led discussion of their STEAM experience and thoughts on what school could be.

STEAM Expo Map



Who is where?

1	WELCOME TABLE	20	Rural Internet Crisis: Cole Palmer	39	On-The-Go Charger: Declan Goddard
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Capstone Projects

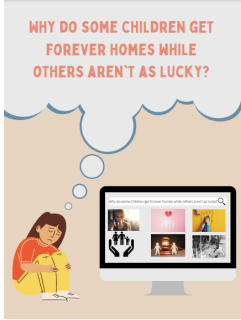
SAMANTHA AMSLER

Improving Foster Care Placements

WHY DO SOME CHILDREN GET FOREVER HOMES WHILE OTHERS AREN'T AS LUCKY?

Foster care placements can be unstable, and insufficient for the foster kids and foster parents.

I have developed a website to try and bring light to the problem, to gain more foster parents, and create a system that better matches foster parents and kids.



Post-Graduation Plans:

I will be attending the University of Jamestown for Nursing.

TABITHA BACH

Responsive Boxing Wrist Brace



If the wrist is in a bent position while boxing, this could cause injuries.

I've created a flexible wrist brace that stiffens when a person makes a fist. Once the person releases the fist, it returns to its flexible form.



Post-Graduation Plans:

I plan to go to the University of Wisconsin Milwaukee for a double major in Actuarial Science and Computer Science.

AARON BARTH

Wibbly Wobbly Website



Most people can't explain how everyday technology or various aspects of a computer work.

I MaDe a website that explains how various popular websites and applications work, what they do, and how they do it.



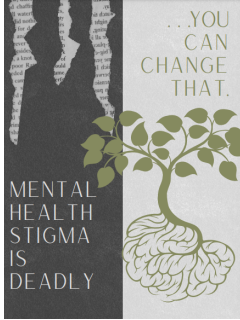
Post-Graduation Plans:

I plan to attend school at Anoka Technical College in the fall.

ELLA BECK



Project Mindful



There is deep rooted negative stigmatization of mental health and how it affects society.

I have created a multi-social media campaign addressing the issue of the massive stigma formed around people and their mental health, by addressing the problem in both creative and informative ways.

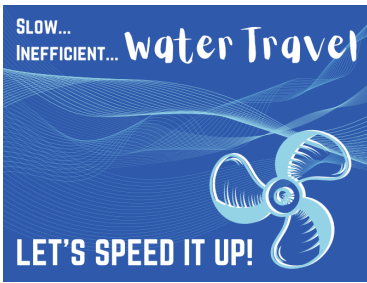
Post-Graduation Plans:

I am going to the University of Minnesota Duluth for Psychology.

NICHOLAS BECKER



Eazy E Prop



Personal water travel is slow, inefficient, and expensive.

I've created an electric propeller that attaches to any kayak or paddle board, to speed up water travel.

Post-Graduation Plans:

I plan to attend North Dakota State University to study Mechanical Engineering.

SAMMIE BERGE

EMDR Plush



Traditional mental health approaches aren't suitable for neurodiverse children.

I've created a stuffed animal that incorporates consistent "back and forth" tapping to be used in EMDR therapy sessions for children.

Post-Graduation Plans:

I will be getting my Pharmacy degree from the University of Minnesota - Twin Cities.



AMANDA BROAD

Mental Health Sensory Room



High school students have no outlet to release their emotions in a safe environment.

I designed a floor-plan of a mental health sensory room to accommodate the students' needs.



Post-Graduation Plans:

I plan to go to Anoka Tech for Interior Design.

BRIANNA BRUNNER

Sanitizing Single Use Gloves



Single use gloves are a critical component to personal protective equipment, but they create a lot of excess waste.

I designed a device that utilizes UV-C light to sanitize single use gloves, so that they can be reused multiple times.

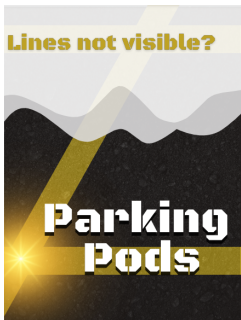


Post-Graduation Plans:

I am going to Anoka Ramsey for my generals and then the University of Minnesota for Biosystems Engineering.

ANDREW BYRNES

Parking Pods



Parking becomes dangerous when parking lines become less visible.

I have created a light, insertable into the asphalt, that lights up points along the middle line of parking lots.



Post-Graduation Plans:

I plan to attend the University of Minnesota Twin Cities for a Business degree.

LEONARDO CANO MEDINA



The Stinger

Spare tires go flat too often.

I have created a tire with specifically designed 3d cylinders that go inside the tire.

These help support the foam that goes inside the tire, and they also provide stability to the tire.



Post-Graduation Plans:

I am going to take a year off to think about what I really want to do. I am currently thinking about going into the trade field to become an Electrician.

AMARI COLEY



Anti-Natural Disaster Project

People lose their homes and loved ones to natural catastrophes.

I have developed home improvements that could be implemented around the world.

They would protect homes and lives.



Post-Graduation Plans:

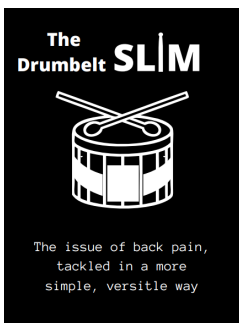
I am taking a gap year to pay for college tuition. Afterwards, I plan to attend the Minneapolis College of Arts and Design, to work towards a career in the animation entertainment industry.

RYAN COLLINS

The DrumBelt Slim

Lower back pain can be common for marching drummers, but applicable to everyone.

I have designed a belt with padding that creates pressure on your lower back, in turn helping to relieve back pain.



Post-Graduation Plans:

I will be going to Anoka Tech to be an Automotive Mechanic.

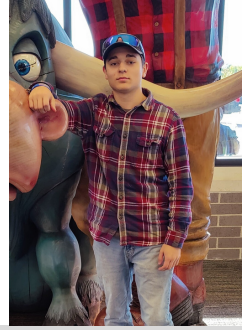
ANTHONY FORSYTH

Lawn Mower Conversion Kit



Not enough people are participating in renewable energy.

I built an electric lawn mower that can easily switch from gas to electric.



Post-Graduation Plans:

I will be attending Anoka Tech for Construction and to become an Electrician.

DECLAN GODDARD

On-The-Go Charger



Phone batteries die too quickly, and the current methods of charging are too rudimentary.

I have built a sweatshirt equipped with thermoelectric generators and solar panels to charge small devices, on the go.



Post-Graduation Plans:

I plan to start with a year of community college out in Colorado and then transfer to CU Boulder to finish my degree in Engineering.

GAVIN HUGHES

Shelf Aquaponics



Many people do not have affordable access to fresh produce.

We've created an aquaponics system from commonly available materials, that can easily fit in a home.

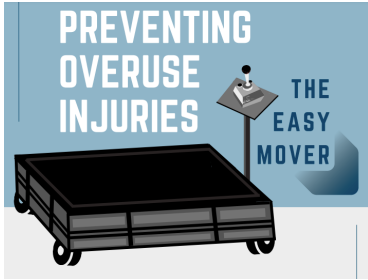


Post-Graduation Plans:

I will be getting my Anthropology Bachelors at the University of Minnesota Twin Cities.

NICOLE HUMM

AM^2 (assisted motorized mover)



I've been working to reduce injuries within the workplace. My partner and I have built an assisted motorized robotic platform to safely transport material throughout indoor workspaces.

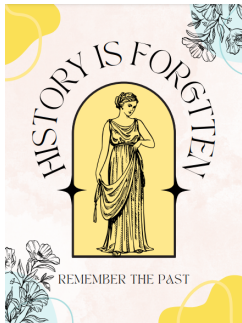
Post-Graduation Plans:

I plan to get a certificate from Google in project management, and plan to pursue my career in the state of Colorado.



ALEXI JOHNSON

Passing Through



People are disconnected from history and culture in the modern era.

I created a podcast that focuses on a wide range of historical topics anywhere from ancient to modern. Each is connected with its own art piece.

Post-Graduation Plans:

I plan to go to trade school and to do my generals before going to University to get either a degree in Public History or Anthropology.



JADEN JOHNSON

Modular Study Space Design



It is difficult to create quiet study spaces when and where needed.

I've created a 3D rendering on a virtual reality platform, which shows the implementation of my idea.

Post-Graduation Plans:

I plan to attend a trade school.



MALU JOHNSON

The Convertible Backpack



Homelessness is dangerous in Minnesota weather.

I have created a backpack with a bed and a tent. The purpose of this backpack is to help homeless people have a place to stay while on the road to wherever they are going.



Post-Graduation Plans:

I will be attending Concordia College, majoring in Nursing.

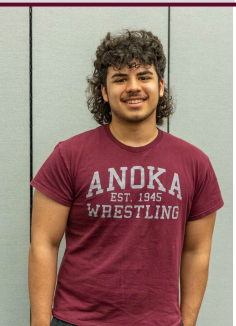
SEAN JORDAN

Flavored Fountain



I've been working to create a way to make flavored water more convenient to help with dehydration.

I created a water bottle cap that stores water flavoring in it.

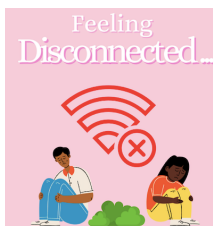


Post-Graduation Plans:

I plan on going to Grand Canyon University to get a bachelor's degree in Cyber Security.

MARY KELEEKAI

Multicultural Workshops



Find out how a good experience can raise your social signal!

Minority students are often underrepresented in extracurricular activities, due to feelings of fear and discouragement.

I came up with the Multicultural Workshop Series to create a positive experience for minority students in extracurricular activities.



Post-Graduation Plans:

I plan to get my cosmetology license and better my small business called "Colored by Mary".

JAMES KENNEY



Benefits Bourg



People need access to job opportunities without having to rely on personal transportation, or public transportation that may not be accessible.

I'm developing low cost, low impact housing in underutilized areas to provide job opportunities to those who would benefit from living nearby.

Post-Graduation Plans:

I plan to go to Anoka Technical College to further my familiarity with CAD as an Architecture major.

LUCAS LIABRAATEN



Shelf Aquaponics



I am addressing the existence of urban food deserts.

My partners and I have built an aquaponics system with the goal of it being able to serve as a home or community farm.

Post-Graduation Plans:

I will be attending Hamline University for a degree in Applied Physics.

GRACE MCCULLOUGH



The Algae Cup



We create a lot plastic pollution.

I have designed a 3D printed hot to-go coffee cup made of algae plastic that is biodegradable.

Post-Graduation Plans:

I plan to get my Associates of Science at Anoka Ramsey, and then transfer to the University of Minnesota for a Bachelor's degree in Environmental Science.

LOGAN MILLESS

Neo-Jacket



Motorcycle-related accidents happen too often at night.

I developed a LED leather jacket for visibility and safety.



Post-Graduation Plans:

I am joining the Marine Corps where I will go to San Diego.

JOSEPH MORPHEW

Shelf Aquaponics



Many people, especially in high population density areas, struggle to access nutritious food because of distance.

This Aquaponics system provides an in-home, year-round solution for a one-time investment. The system can supplement individual families or be implemented at scale for larger operations.



Post-Graduation Plans:

I'm attending the University of Minnesota Duluth in the fall to major in Physics and Philosophy. After, I hope to attend law school.

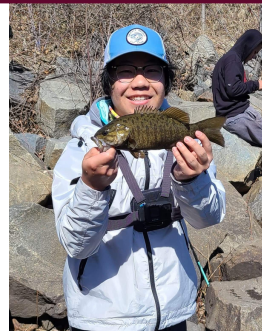
TOSH MOUA

Veggie Snipper



Elders who garden struggle from stress and pain from constant movement.

As a solution, I have built a rollable contraption with snippers in order to roll alongside roots and snip vegetables.



Post-Graduation Plans:

I plan to go to Century College for Engineering.

ANDY NGUYEN

Hands Free Slip-Grip



People often get injured when slipping and falling on ice. I created a detachable sole that you can take on and off an existing close-toed shoe, hands-free. This sole incorporates protruded metal spikes that increase traction with ice to prevent accidental slipping.



Post-Graduation Plans:

I'm attending the University of Minnesota Twin Cities to pursue a degree in Computer Science.

SHAE'A NICKELSON

Adulting 101



The skills we need to successfully 'adult' are often ignored or underdeveloped.

I created a video series that addresses these adulting skills and teaches viewers how to complete them efficiently. I also provide resources and interviews from professionals and/or seasoned adults.



Post-Graduation Plans:

I will continue with the Army and attend Hamline University in St. Paul Minnesota for Chemistry and Biochemistry.

ELIZABETH NYEMA

I.M.P.A.C.T



Many of our young high school students deal with behavioral problems.

In response, I have created a mentoring group for underclassmen.



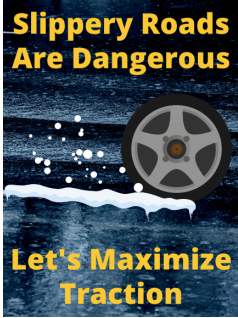
Post-Graduation Plans:

I plan to get my RN at North Hennepin, and then transfer to the University of Houston Texas for my BSN.

EVAN OLSON



Tire Brush



Tires on cars need the most traction possible.

I created a device that will clear the treads on the tire and will give it the most traction possible.

Post-Graduation Plans:

I am planning on joining the military and then going to college.

COLE PALMER



Rural Internet Crisis



Many people living in rural areas don't have good internet access.

I have built a 3D model of a city to represent my idea on how I plan to get internet access to rural areas.

Post-Graduation Plans:

I am going to a community college to get my generals and figure out what I want to do next.

OWEN PHELPS



SMART_SHIELD Hockey Gear



Injuries are the single greatest issue plaguing athletes of all ages and caliber.

To help identify injury and prevent further damage, I've created "smart" hockey equipment that incorporates various sensors, microcontrollers, IoT software, and more.

Post-Graduation Plans:

I will be attending the University of Wisconsin - Madison to major in Mechanical Engineering.

CONNER REEDY

Smart Car AR Safety System



Your Light in the Dark



Car accidents are often hard to avoid.

I've created a system to identify threats before you can be harmed by them.

Post-Graduation Plans:

I'm attending the University of Minnesota Twin Cities to pursue a degree in Computer Science.

JOHNNY ROTONDO

Stop the rage with a redesign.



Students can't make it out of the parking lot in a reasonable time because the parking lot is inefficient.

I made a scale replica of the Anoka High School parking lot showing new one-ways and different entrances/ exits to help the flow of traffic.

Post-Graduation Plans:

I plan to attend Dunwoody College of Technology to become a Construction Project Manager.

MADDY SLININGER

Homestyle Renewable Energy



We as a society don't use small scale renewable energy as much as we could, due to a number of misconceptions. I created two working demos of small scale renewable energy sources. I have also created visuals that demonstrate the importance of small scale renewable energy to present to the community.

Post-Graduation Plans:

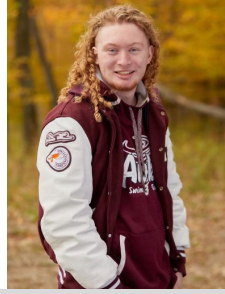
I will attend the University of Minnesota to major in Environmental Engineering.

ABE SPARTZ

Am2



Many electric wheelchairs are not fully maneuverable. I've created a multi-purpose omnidirectional vehicle.



Post-Graduation Plans:

I plan to go to Anoka Tech for a degree in Computer Engineering.

PATRICK STANLEY

Kevlar Tire Chains



Driving on icy or slippery roads is dangerous and causes many accidents because tires lack enough traction.

I created a new form of chain and attachment system that will keep cars on the road while not destroying the roads.



Post-Graduation Plans:

I plan to go into automotive right after school and then go to college for carpentry in the fall.

EBONEY SVACINA

Mobile Clinic for Homeless People Struggling with Mental Illness



Homeless individuals with mental illness can struggle to get access to an actual mental hospital.

I designed a mobile clinic that will offer the psychological help they need, and also provide a safe and comfortable environment.



Post-Graduation Plans:

I'm going to Aveda Arts and Sciences Institute Minneapolis for Cosmetology.

JESSICA THANGHE



Healthy Bonds



There are too many abusive relationships among high schoolers. I have created a collection of educational content focusing on videos that address aspects of healthy connections and relationships for school-aged kids to help aid their social development.

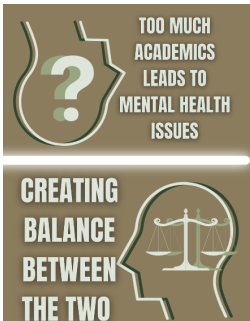
Post-Graduation Plans:

I plan on attending a 4 year college for a bachelor of arts in Theater.

ALLY THEIS



Balance



We need to find a balance between high school students' mental health and academics.

I have created a quiet space for students where they can come and relax when they need a mental break.

Post-Graduation Plans:

I'm going to St. Cloud State University for Biology. Go Huskies!

ETHAN VOGT



Car Cover



Over time, the exteriors of cars experience significant damage from natural weather conditions.

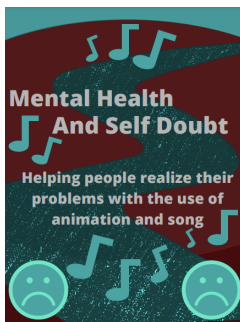
I created a 3d model of a box that houses the tarp and can wind up the tarp.

Post-Graduation Plans:

I plan to attend the University of Minnesota - Duluth, for Civil Engineering.

JACOB WOJCIAK

The Mental Health and Self Doubt AMV



People struggle with mental health.

I have created an animated music video for those with mental health issues to listen to, get it stuck in their heads, and come to the positive realizations that are helpful to them.



Post-Graduation Plans:

I plan to go to the University of Minnesota, Morris for Biology and Studio Art.

Thank you to our...

Professional Reviewers

Aaron Amsler	Jerry Noller
Christine Amsler	Brandon Orr
Leslie Becker	Amy Pelkey
Becky Carson	Nick Reedy
Jenna Dorst	Renee Reedy
Chuck Engebretson	Kory Reiners
Janice Engebretson	Ann Rotondo
Karl Engebretson	Dustin Rupprecht
Sue Graske	Shauni Salmonson
Tom Graske	Matthew Sandahl
Susan Hagerty	Heather Schultz
Kelly Hildre	Randy Sieben
Emily Johnson	Sophia Skoglund
Erin Johnson	Michelle Spartz
Shawn Kipka	Tim Spartz
Nicole Lang	Ashley Stroud
Jennifer Manion	Sean Sutter
Megan Marcy	Dan Weishaar
Gail Noller	Patti Weishaar

Spotlight Selection Committee

Andrew Berg
Jolanda Dranchak
Lana Rice
Justin Brama
Mike Farley
Amy Pelkey
Paul Tatkenhorst
Abbey Engebretson
Chris Hay
Shelby Sandstrom
Mark Bjork
Gary White
Brandon Cooper
Jackson Omanga
Ben Jagerson
Jeff Zenk
Phillip Erdahl

Internships

DYLAN ALLISON

Assistant Team Lead at Target

In my role, I hold team members accountable to meeting their productivity goals. To increase employee moral, I created an award system around order completion.

I also proposed and implemented full remodels of spaces in the store that were not being used. For example, we transformed an old fitting room area into a hold space for fulfillment purposes.

This experience opened my eyes to how management chains work, what you need to do to have a successful team, and how to influence people to be more productive. Overall, it really improved my communication skills.

Post-Graduation Plans:

Through Target Guild Education, I will work towards my Frontline Leadership Management Certificate at the University of Denver this summer. I then plan to get my associate's degree in General Business at the University of Massachusetts.



LEONARDO CANO MEDINA

Stocking Associate at Walmart

I work with my team to unload trucks and stock Chemicals, OTC (pharmacy), HBA, and the Food and Pets section. At other times, I work FDD (Frozen, Dairy, Deli), and Remix (pallets full of different items that need to be sorted).

My internship has helped me build time management, since I have to finish my homework around my working hours. I've found that I have a lot of time once I know how to manage it right. This internship has also held me accountable to keeping my grades up and committing to a certain number of working hours.

Post-Graduation Plans:

I am going to take a year off to think about what I really want to do. I am currently thinking about going into the trade field to become an Electrician.



Thank you to all the incredible staff that helped make this event happen!

Emma Ahart

Tim Anderson

Tyler Bakken

Mark Bjork

Jill Blake

Abbey Engebretson

Mike Farley

Jill Gandrud

Susan Hagerty

Katie Hale

Ron Hallstrom

Chris Hay

Paul Heida

Brittney Kurtz

Eric Lakanen

Dax Larson

Tammy Luukkonen

Shannon Madison

Zac Mans

Kathy McSherry

Ted Mitshulis

John Palm

Pat Pangborn

Amy Pelkey

Amanda Romano

Dustin Rupprecht

Shelby Sandstrom

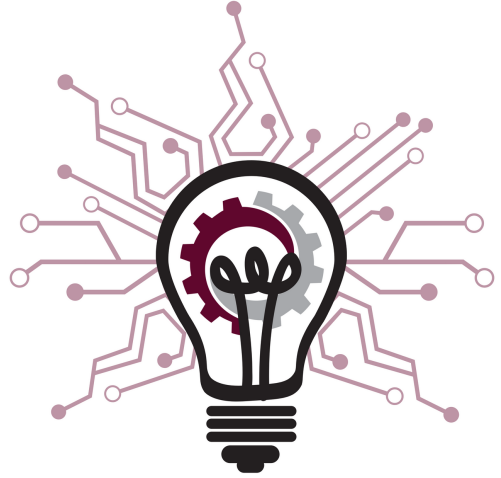
Kate Ward

Allison Weishaar

Manny Williamson

Brad Zahler

And of course, our wonderful custodial staff!



Come collaborate with us!

Our STEAM Expo is focused on showcasing the creative power and innovative mindsets of our Anoka High School students. In doing so, we want to engage and collaborate with our community!

Our community partners can support us in a variety of different ways:

- Lead a series of workshops at AHS
- Host a field trip and a workshop at your company
- Serve as a senior capstone project mentor
- Serve as a Professional Reviewer or on our Spotlight Selection Committee

NEW! Spotlight Speaker Scholarship

This year, our 5 spotlight projects were chosen by a selection committee composed of district and school staff, as well as professionals from our community.

Next year, you or your organization have the opportunity to provide a scholarship to a spotlight speaker! The scholarship amount can be any size and will be used by the student for educational purposes.

Please reach out to our STEAM Coordinator, Jill Luoma-Overstreet, if you would like to support us! Email: ahs.steam@ahschools.us

What does the STEAM Program offer?



- Priority access to cutting-edge technology
- Career and industry field trips
- Professional mentors + networking opportunities
- Digital portfolio-building for college and careers
- Annual STEAM Expo participation
- STEAM certification + STEAM graduation medal

The Center for Science, Technology, Engineering, Arts, and Math

Our STEAM Program believes that...

We must leverage **CUTTING-EDGE TECHNOLOGY** and learn to **PROBLEM-SOLVE CREATIVELY** in order to successfully engage in real learning. By doing so, we learn within contexts that are relevant to our world today and prepare to become the innovators, engineers, and artists of tomorrow.

The STEAM program focuses on the real-world application of our classroom learning, hands-on interactive experiences, making connections between disciplines, and building relationships between peers, teachers, and industry professionals. Our students have the opportunity to delve into 3D modeling, design and fabrication, dance, engineering and robotics, photo/video/digital media, music, and more.

ADDITIONALLY... We encourage and work with our students to participate in any programming that speaks to them. Our students include AP scholars, athletes, band members, student council members, and more.

Jill Luoma-Overstreet

STEAM Coordinator & Curriculum Integrator

Todd Hunter

STEAM Teacher & Makerspace Facilitator