86th Twin Cities Regional Science Fairs Awards
32nd St. Paul Regional Science Fair
30th Western Suburbs Regional Science Fair
March 1-3, 2024
Research Papers February 3-17, 2024

Students selected to compete at the 2024 Regeneron
International Science and Engineering Fair

Los Angeles, California
May 11-17, 2024

ISEF Finalist (St. Paul)

S-SOFT6905	Huxley Westemeier	Project Calliope
S-SOFT6904	Bora Mandic	SignalGrab: A Machine Learning Approach to Helping Color Blind Drivers

ISEF 1st Alternate (St. Paul)

S-EAEV5714	Talia Cairns	Rhizofiltration of Nitrate and Phosphate by Elodea Canadensis Under Varying Temperatures

ISEF 2nd Alternate (St. Paul)

S-ROBO6816	Finn Cairns	ViABL: Visual Assistant for the Blind with VLMs

ISEF Finalist (Twin Cities)

T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film
T-PLNT6719	Sriram Sureshkumar	The effectiveness of biochar as an amendment on MGS-1 Mars Global Stimulant and its impact on the growth of Raphanus Sativus.
T-ROBO6814	Ethan Finch	Evaluating the Efficiency of Different Machine Learning Models in Locating the /s/ Phoneme
T-BMED5324	Riddhi Singhvi	Beyond Scans: Predicting Alzheimer's through MRI-Graphology Fusion

ISEF 1st Alternate (Twin Cities)

T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution

ISEF 2nd Alternate (Twin Cities)

T-PHYS6631T	Dylan Tate, Garrett Garms	The Required Distance between the Fluxonium Qubit and the Ground Plane for Optimal T1 Times

ISEF 3rd Alternate (Twin Cities)

T-ROBO6813	Emily Zhou	The Tom and Jerry Algorithm for Nonholonomic robots: Optimized and adaptive path planning and dynamic obstacle avoidance based on A* and mathematical predator and prey insights for real-life simulations

ISEF 4th Alternate (Twin Cities)

T-ETSD6214	Justin Ma	Design and Implementation of A Public Water Area Swimming Safety Monitoring System Based on UAV

ISEF Finalist (Western Suburbs)

W-ENEV6101	Tyler Clair	Food waste-based biocoagulants: a novel approach to sustainably remove polystyrene microplastics for future alternatives in water treatment
W-CELL5510	Georgia Constantin	Using iron and graphene oxide nanoparticles to induce targeted apoptosis in cancerous cells.
W-EGSD5910	Yash Dagade	SkyWindFarm Harnessing High Altitude Wind Power in a Scalable Manner
W-PLNT6709	Quinn Hughes	Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars
W-ROBO6811	Anthony Pu	Neuroevolution of spiking neural networks using HyperNEAT

ISEF 1st Alternate (Western Suburbs)

W-BMED5307	Kyra Martin	The effect of ubiquitination deubiquitinases on breast cancer metastasis

ISEF 2nd Alternate (Western Suburbs)

W-ROBO6801T	Noah Getnick, Evan Johnstone	Collision-Free Commutes: Designing a Blind Spot Detection System for Cyclists Using an Ultrasonic Sensor and Computer Vision

ISEF 3rd Alternate (Western Suburbs)

W-TMED7102	Shreshth Shrivastava	AccuCellAI: A transformative tool for diagnosing and classifying hematological diseases using convolutional neural networks that demonstrates improved speed, accuracy, and transportability

ISEF 4th Alternate (Western Suburbs)

W-ENBM6002	Anna Iordanoglou	Problematic Packaging: Optimizing a method for dissolving alginate sheaths from cell fibers for 3D bioprinting

ISEF 5th Alternate (Western Suburbs)

W-CBIO5403	Milan Darji	Developing Scaffold Proteins for Functional Proteins Using RFDiffusion, an Artificial Intelligence Denoising Diffusion Probabilistic Model

3Mgives Sponsor Award
Plaque and $500

T-PLNT6719	Sriram Sureshkumar	The effectiveness of biochar as an amendment on MGS-1 Mars Global Stimulant and its impact on the growth of Raphanus Sativus.

Ecolab Sponsor Award
Plaque and $500

S-ENEV6111	McKinley Garner	The Effectiveness of Aspergillus niger as a Remedy to Microplastic-Contaminated Soil

DuPont Water Solutions Sponsor Award
Plaque and $250

T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution

Northrop Grumman Sponsor Award
Plaque and $100

W-ROBO6801T	Noah Getnick, Evan Johnstone	Collision-Free Commutes: Designing a Blind Spot Detection System for Cyclists Using an Ultrasonic Sensor and Computer Vision

Office Depot Sponsor Award
Plaque

W-EGSD5902 Evelyn Engebretson   Carbon neutral biofuels: the fermentation of
Sargassum macroalgae using Clostridium
beijerinckii to create butanol

Premier Bank Sponsor Award
Floret Ribbon

T-ENEV2109 Norah Bergerson   Glitter, a Million Pieces of Litter: Quantifying
microplastics in laundry effluents released from
textiles during washing

City of St. Paul Youth Fund Sponsor Award
Plaque

S-MATS6413 Humza Jameel   Investigating The Effects of Rubber Aggregate as a
Substitute for Natural Aggregate on the Strength of
Concrete

Mintahoe Catering and Events Sponsor Award
Plaque

T-BMED5326 Bersy Yonas   Optimizing stent design geometry using macro
models

3M Display Materials and Systems Division
Certificate + $100 check + invitation to 3M Inventor Event

W-TMED7102	Shreshth Shrivastava	AccuCellAI: A transformative tool for diagnosing and classifying hematological diseases using convolutional neural networks that demonstrates improved speed, accuracy, and transportability
W-TMED7101	Amanda Webster	Effect of cholesterol concentration in liposomes on transfection efficiency of mRNA in model blood brain barrier cells
T-EGSD1901	Lilly Bilek	Factors affecting anode performance in an alga I metal II carbon I ferric chloride circuit
W-EGSD5902	Evelyn Engebretson	Carbon neutral biofuels: the fermentation of Sargassum macroalgae using Clostridium beijerinckii to create butanol
S-BCHM5106	Annika Lillegard	The Effect of Trans-Resveratrol on the Longevity of Caenorhabditis Elegans

3M E&MT Global Manufacturing Technology
Certificate + $100 check + invitation to 3M Inventor Event

S-MATS2404	Nolan Rosenberger	Testing 3D Printing Infill Patterns for Strength, Deformation and Printing Time.
S-MATS2406	Claire Young	What are the Effects of Playing Softball on Different Types of Fields
W-EGSD1912	Sandor Pratt	Sour Power!
S-ENEV6111	McKinley Garner	The Effectiveness of Aspergillus niger as a Remedy to Microplastic-Contaminated Soil
W-EGSD1907	William Rogers	How Does the Kind of Potato Impact How Much Electricity it Produces?

3M Specialty Materials Development Lab
Certificate + $100 check + invitation to 3M Inventor Event

W-EGSD5910	Yash Dagade	SkyWindFarm Harnessing High Altitude Wind Power in a Scalable Manner
S-ENEV6108	Nicholas McCarthy	The Effect of Synthetic and Composted Manure Fertilizers on the Growth of Brassica Juncea in Copper-Contamianted Soil
S-ENEV6106	Milan Mishra	Usage of a Convolutional Neural Network in Drone-Based Algae Bloom Monitoring
S-EGSD5906	Jacob Colton	Effect of Annealing Time on Electrodeposited Zinc Samples for Use in Dye Sensitized Solar Cells
W-ENEV6105	Sabrina Pietrafitta	Excess nutrient removal in estuaries - dead zone prevention

3M Personal Safety Division
Certificate + $100 check + invitation to 3M Inventor Event

W-MATS6410	Noah Measells	Testing abrasion-resistant fabrics for their use in dual material glove protectors for skiers and snowboarders
W-PLNT6709	Quinn Hughes	Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars
T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution
W-MATS6408	Vick Tan	A Revolutionary Material for Medical and Environmental Applications, Scalable Synthetic Mucins
S-EAEV1711	Jake Olson	How Does Air Quality Differ in Urban and Rural Areas
S-EAEV1728	Ferran Peckosh	Filtering Fire
W-CHEM1640	Lila Foster	Where'd All the Bubbles Go?

3M Young Inventor Recognition
Certificate + $100 check + invitation to 3M Inventor Event

W-EGSD1911	Sebastian DeLeo	Different Angles of Polarizing Light
W-TECA3001	Shagun Shrivastava	In Search of Sound: Creating Solutions for Sound Localization Challenges Using MicroBit Architecture to Aid Spatial Hearing Loss
T-PHYS2624	Liam O'Keefe	Effects of Temperature on Hitting Home Runs
W-ANIM1008	Adlai Jeevanathan	Spectrum of Feathers: Analyzing Bird Behavior and Color
T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film
W-EGSD5903	Liam Cassidy	Optimizing Algae Biodiesel Parameters for Power Using Chemical Additives
W-ETSD6201	Caleb Li	Optimizing School Traffic During Morning Drop Off
W-ROBO6811	Anthony Pu	Neuroevolution of spiking neural networks using HyperNEAT
T-ROBO6814	Ethan Finch	Evaluating the Efficiency of Different Machine Learning Models in Locating the /s/ Phoneme
W-BMED5307	Kyra Martin	The effect of ubiquitination deubiquitinases on breast cancer metastasis

Inspiring Excellence Project
$50 check and a certificate

W-EAEV5719T	Laila Abdelhakim, Randa Zahran	The Harm of Electromagnetic Radiation on Living Organisms
T-BEHA1221	Laura Hansen	Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music
S-EGSD5906	Jacob Colton	Effect of Annealing Time on Electrodeposited Zinc Samples for Use in Dye Sensitized Solar Cells
W-BMED1317	Lucy Johnson	Furry Friends Decrease Stress
T-BMED5326	Bersy Yonas	Optimizing stent design geometry using macro models
T-EGSD5908	Sarah Zamudio	Composting Inputs and Outputs.

Inspiring Excellence Teacher
$100 and a certificate

Mike Huemoeller	Burnsville HS

United States Department of Agriculture Research Service
certificate and book

W-PLNT2729	Faith Mick	Digging Deep to get to the Root of the Issue: The Effect of Fertilizers on Plant Root Growth
T-BCHM1107	Jai Nair	Comparative analysis of calcium content in plant based foods for dietary recommendations
W-PLNT2708	Addison Duppong	How Does Light Affect a Plant
S-ENEV6106	Milan Mishra	Usage of a Convolutional Neural Network in Drone-Based Algae Bloom Monitoring
W-PLNT6709	Quinn Hughes	Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars

Integrated Science Award
certificate and $50

W-CHEM1612	Lola Dixon	Science behind the laundry fairy
T-BEHA1221	Laura Hansen	Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music
W-BEHA1235	Claire Carlson	How Does Lyrical, non Lyrical, or No Background Music Affect Memory When Learning New Content?
W-BEHA5227	Ameya Bhaskar	Beyond Numbers: Investigating the Relationship Between Socioeconomic Status and Big 5 Personality Traits Through Metadata Analysis

American Chemical Society
HS $75, MS $50 (send information to receive)

T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film
W-CHEM1643	Olivia Zhou	Growing Marshmallows

Aquatic Sciences Excellence Award, presented by the MN Chapter of American Fisheries Society
Certificate and book

W-EAEV1718	Batoul Taha	Measuring Tap Water Qualities In Different Cities (Fridley, Blaine, New Brighton, Brooklyn Park, Columbia Heights) From Public Facilities (Library, Clinic, Schools)
S-EAEV1710	Keagan Corcoran	How Do Microplastic Levels in the Ocean Impact the Penguin Population?
S-EAEV5715	David Schumacher	Bioremediation of Nickel with Chlorella Vulgaris and Chlorella Pyrenoidosa
T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution
S-EAEV5714	Talia Cairns	Rhizofiltration of Nitrate and Phosphate by Elodea Canadensis Under Varying Temperatures
S-SOFT6902T	Oliver Thompson, Finn Miller-Fimpel	Fisher-MN: Using a Mobile Application to Increase Accessibility to Minnesota's Lakes While Mapping Invasive Species and Diseases Among Fish Populations
S-EAEV5729	Alexander Winnett	Assessing the Influence of Green Space Directly Surround Lakes on Water Quality

ASM Material Award
Emailed Certificate and $100 check

S-EGSD5906 Jacob Colton   Effect of Annealing Time on Electrodeposited Zinc Samples for Use in Dye Sensitized Solar Cells

W-EAEV5717 Ladan Hassan   Bioplastics' Degradability and Strength Relative to Plastic Bags Through the Use of Alternative Starch Sources.

S-MATS6413 Humza Jameel   Investigating The Effects of Rubber Aggregate as a Substitute for Natural Aggregate on the Strength of Concrete

MAS STEM Advocacy Award

Certificate, lunch, and opportunity to participate in a STEM Advocacy Day at the Capitol in St Paul on March 26 (9-noon). Opportunity to speak to state legislators about their project and the value of doing pre collegiate science research.

W-EAEV5708 Jos Buffington   Paleoenvironmental and paleoceanographic changes across Ocean Anoxic Event 2 indicated by a southwest Minnesota core section

MAS STEM Advocacy Award Alternate
Certificate and opportunity to collaborate with MAS staff on an advocacy project of their choosing if they wish.

W-EAEV5723	Adithi Rupireddy	Prescribed Burn Management Strategies: A Longitudinal Analysis of Decision-Making and Burn Efficacy in Pinus Resinosa Stands at the Cloquet Forestry Center
T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film

University of Minnesota College of Pharmacy Award
Certificate and trophy

S-BMED5315 Cerena Karmaliani   The Absorbency of Home-Compounded
                                     Transdermal Pain Medication in Comparison to
                                     Industrially Manufactured Voltaren Gel

Minnesota Space Frontier Society
Certificate

W-PLNT6706 Tyler Vos   Space plants
W-PLNT6709 Quinn Hughes   Mars or Bust! A Method to Build a Martian Regolith-
                                     Based Substrate for Sustainable Agriculture on
                                     Mars
T-PLNT6719 Sriram Sureshkumar   The effectiveness of biochar as an amendment on
                                     MGS-1 Mars Global Stimulant and its impact on the
                                     growth of Raphanus Sativus.
W-PHYS6602 Lux Bodell   Unified field theory: manipulating and engineering
                                     spacetime
W-ETSD2207 Sam Kessler   Windy Day how does Windspeed impact Drag and
                                     Lift?
S-ETSD2202 Hannah Steines   How the Shape of a Car Affects Aerodynamics
S-PHYS2629T Keegan Campos,   How does the size of fins affect a rockets height
            Jennifer Calles Vazquez when at flight?

MarsCon Certificate of Merit
Certificate, Invite to event with +1 parent /guardian: MarsCon 2024 March 8-10th, 2024

W-PHYS6602 Lux Bodell   Unified field theory: manipulating and engineering
                                     spacetime

US Air Force (St. Paul)
US Air Force Sling pack, Power Bank, USB Flash Memory Drive, USB Car Charger, and Official AF Certificate

S-MATS6409	Rohan Kharbanda	The Effects of Varying Sizes of Polylactic Acid as a Supplement for Concrete Aggregate on the Maximum Stress and Young's Modulus of Concrete
S-EGSD5906	Jacob Colton	Effect of Annealing Time on Electrodeposited Zinc Samples for Use in Dye Sensitized Solar Cells
S-EBED5801	Henry Whelan	Mind Mobility Management
S-BEHA5226	Oliver Chan	Examining the Impact of Positive Affirmations on the Confidence Perception and Academic Performance of High School Students

US Air Force (Twin Cities)
US Air Force Sling pack, Power Bank, USB Flash Memory Drive, USB Car Charger, and Official AF Certificate

T-BMED5326	Bersy Yonas	Optimizing stent design geometry using macro models
T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution
T-BMED5332	Lynne Hu	Tying the Knot: Maximum Force of Dehiscence in Three Surgical Knots
T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film

US Air Force (Western Suburbs)

US Air Force Sling pack, Power Bank, USB Flash Memory Drive, USB Car Charger, and Official AF Certificate

W-CELL5510	Georgia Constantin	Using iron and graphene oxide nanoparticles to induce targeted apoptosis in cancerous cells.
W-ETSD6206	Maximus Ren	A New High-Impedance-Fault Detection Method to Prevent Power-Line-Induced Wildfires
W-ROBO6805	Oliver Nelson	Recurrent Neural Networks for the Creation of a Generally Applicable 3-DOF Active Vibration Control System
W-EGSD5902	Evelyn Engebretson	Carbon neutral biofuels: the fermentation of Sargassum macroalgae using Clostridium beijerinckii to create butanol

Office of Naval Research HS School
Certificate, medal, $50 gift card (send form)

T-BMED5332	Lynne Hu	Tying the Knot: Maximum Force of Dehiscence in Three Surgical Knots
W-PLNT6709	Quinn Hughes	Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars
W-CBIO5401	Alexander Bartholomew	Analysis of machine learning techniques on electroencephalography data to detect mild traumatic brain injury in humans
W-CBIO5402	Savanna Larson	Evaluating the effects of sympatry on Lynx canadensis and Lynx rufus population dynamics in Minnesota
T-EGSD5908	Sarah Zamudio	Composting Inputs and Outputs.
W-ENBM6004	Anaya Gokarn	Looking through the PriSM for Improved Cancer Treatment: Using a Position-Specific Enrichment Ratio Matrix to Score Fibronectins Used in Protein Small Molecules (PriSMs) to Inhibit Carbonic Anhydrases

Office of Naval Research MS School
Certificate, medal

T-BMED1329	Grace Chinokoro	Trace Amounts of Sugar: How is Your Blood Pressure Affected?
S-CELL1513	Daniela Sullivan	Untangling DNA
T-BMED1331	Amy Robles	The Effects of Caffeine According to Your Age
T-BEHA1221	Laura Hansen	Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music
T-EGSD1909	Shea Bohl	The Power of Rust: A Study of Electrolytes in Iron-Air Batteries

Teacher Excellence
Trophy - Karissa Baker - St Paul Academy and Summit School

ISEF Alumni Award - Timara Underbakke
$40 and a certificate

W-EAEV1718 Batoul Taha

Measuring Tap Water Qualities In Different Cities (Fridley, Blaine, New Brighton, Brooklyn Park, Columbia Heights) From Public Facilities (Library, Clinic, Schools)

Twin Cities Meteorological Society
Weather radio or a Digital Anemometer

W-EAEV5721 Sanjana Kollipara

Meteorological Measurement Mysteries:Quantifying the variability of precipitation and snow depth based on measurement location and wind dynamics as it impacts flood prediction modeling

American Psychological Association (St. Paul)
Certificate & 1 Year Complimentary Student Membership (fill out form)

S-BEHA5222	Annie Zhang	The Effects of Natural versus Pharmaceutical Stimulants on Autism Symptoms

American Psychological Association (Twin Cities)
Certificate & 1 Year Complimentary Student Membership (fill out form)

T-BEHA5208	Neela Josephs	How does working together on a project affect the accuracy of a response?
T-BEHA5206	Parvina Yusupova	The Impact of Key Changes on Adolescent Moods: A Musical Exploration

American Psychological Association (Western Suburbs)
Certificate & 1 Year Complimentary Student Membership (fill out form)

W-BEHA5202	Noah DeMichaelis	Music and the Mind (Year Two): the Interection of Reading Readiness and Musical Proficiency
W-BEHA5201T	Abigail Endres, Vivian Kinney	Find Your Way: Design and construction of multiple T-maze to assess spatial memory

Association of Women Geoscientists (St. Paul)
Certificate

S-EAEV5714   Talia Cairns

Rhizofiltration of Nitrate and Phosphate by Elodea Canadensis Under Varying Temperatures

Association of Women Geoscientists (Twin Cities)
Certificate

T-CHEM5608   Alyssa Wang

Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film

T-EGSD5908   Sarah Zamudio

Composting Inputs and Outputs.

Association of Women Geoscientists (Western Suburbs)
Certificate

W-PLNT6707   Maria Rohlfsen

Effects of polyester fibers from fleece on the growth and chlorophyll production in hydroponically grown lettuce

W-EAEV5723   Adithi Rupireddy

Prescribed Burn Management Strategies: A Longitudinal Analysis of Decision-Making and Burn Efficacy in Pinus Resinosa Stands at the Cloquet Forestry Center

DoD STEM Leadership Prize
Certificate, $100 (split evenly if team)

T-BEHA1221   Laura Hansen   Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music

GeniusOlympiad
Certificate, international competition opportunity

W-TMED7102 Shreshth Shrivastava   AccuCellAI: A transformative tool for diagnosing and classifying hematological diseases using convolutional neural networks that demonstrates improved speed, accuracy, and transportability

T-PHYS6631T Dylan Tate, Garrett Garms   The Required Distance between the Fluxonium Qubit and the Ground Plane for Optimal T1 Times

S-EAEV5714   Talia Cairns   Rhizofiltration of Nitrate and Phosphate by Elodea Canadensis Under Varying Temperatures

S-ROBO6816   Finn Cairns   ViABL: Visual Assistant for the Blind with VLMs

T-BMED5326   Bersy Yonas   Optimizing stent design geometry using macro models

W-EAEV5723   Adithi Rupireddy   Prescribed Burn Management Strategies: A Longitudinal Analysis of Decision-Making and Burn Efficacy in Pinus Resinosa Stands at the Cloquet Forestry Center

W-EAEV5721 Sanjana Kollipara   Meteorological Measurement Mysteries:Quantifying the variability of precipitation and snow depth based on measurement location and wind dynamics as it impacts flood prediction modeling

Lemelson Early Inventor Prize (St. Paul)
$100 (shared equally if team)

S-MATS2404   Nolan Rosenberger   Testing 3D Printing Infill Patterns for Strength, Deformation and Printing Time.

Lemelson Early Inventor Prize (Twin Cities)
$100 (shared equally if team)

T-EGSD1909   Shea Bohl   The Power of Rust: A Study of Electrolytes in Iron-Air Batteries

Lemelson Early Inventor Prize (Western Suburbs)
$100 (shared equally if team)

W-ENEV2110 Emaan Moheet   Developing and Testing Permeable Pavement Material to Prevent Urban Flooding

NASA Earth System Science Award (St. Paul)
Certificate & Invitation to Webinar

S-EAEV1711   Jake Olson   How Does Air Quality Differ in Urban and Rural Areas

NASA Earth System Science Award (Twin Cities)
Certificate & Invitation to Webinar

T-EAEV5705   Olivia Hamann   I Didn't Start the Fire

NASA Earth System Science Award (Western Suburbs)
Certificate & Invitation to Webinar

W-EAEV5721 Sanjana Kollipara   Meteorological Measurement Mysteries:Quantifying the variability of precipitation and snow depth based on measurement location and wind dynamics as it impacts flood prediction modeling

W-EAEV5708 Jos Buffington   Paleoenvironmental and paleoceanographic changes across Ocean Anoxic Event 2 indicated by a southwest Minnesota core section

National Oceanic and Atmospheric Administration
NOAA Taking the Pulse of the Planet (St. Paul)
Certificate and Letter

S-EAEV5729   Alexander Winnett   Assessing the Influence of Green Space Directly
                                     Surround Lakes on Water Quality

National Oceanic and Atmospheric Administration
NOAA Taking the Pulse of the Planet (Twin Cities)
Certificate and Letter

T-ENEV6107   John Liu   The Use of Sustained Releasing Technology to
                                     Reduce Deicing Salt Pollution

T-ENEV6115   Gabriel Cordova   Sky Light

National Oceanic and Atmospheric Administration
NOAA Taking the Pulse of the Planet (Western Suburbs)
Certificate and Letter

W-ENEV6104 Ellison Stroh   A potential dike for the Savannah, Georgia region to
                                     mitigate storm surge

W-EAEV5708 Jos Buffington   Paleoenvironmental and paleoceanographic
                                     changes across Ocean Anoxic Event 2 indicated by
                                     a southwest Minnesota core section

Regeneron Biomedical Science Award
Certificate and $375 (if you send in the info)

S-BCHM5106 Annika Lillegard   The Effect of Trans-Resveratrol on the Longevity of Caenorhabditis Elegans

Regeneron Biomedical Science Award
Certificate and $375 (if you send in the info)

T-BMED5332 Lynne Hu   Tying the Knot: Maximum Force of Dehiscence in Three Surgical Knots

Regeneron Biomedical Science Award
Certificate and $375 (if you send in the info)

W-BMED5307 Kyra Martin   The effect of ubiquitination deubiquitinases on breast cancer metastasis

Ricoh Sustainable Development Award (St. Paul)
Certificate and letter

S-MATS6409   Rohan Kharbanda   The Effects of Varying Sizes of Polylactic Acid as a Supplement for Concrete Aggregate on the Maximum Stress and Young's Modulus of Concrete

Ricoh Sustainable Development Award (Twin Cities)
Certificate and letter

T-CHEM5608 Alyssa Wang   Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film

Ricoh Sustainable Development Award (Western Suburbs)
Certificate and letter

W-PLNT6710 Finn Emerson   Killing Buckthorn While They Sleep: a Method to Identify and Clear Rhamnus Cathartica During Winter

W-PLNT6714 Selena Qiao   Turf Trouble: Does the DEET in bug repellent really kill grass?

Society for In Vitro Biology (St. Paul)
Certificate and Membership in SIVB

S-BMED5315 Cerena Karmaliani   The Absorbency of Home-Compounded
                                     Transdermal Pain Medication in Comparison to
                                     Industrially Manufactured Voltaren Gel

Society for In Vitro Biology (Twin Cities)
Certificate and Membership in SIVB

T-MCRO6512 Lillie Hanto   Which method of cleaning golf balls is most
                                     effective?
T-MCRO6511 Ella O'Hanlon   Sunscreen Showdown

Society for In Vitro Biology (Western Suburbs)
Certificate and Membership in SIVB

W-CELL5504 Becker Curry   Identification of bisphenol A and bisphenol S
                                     endocrine effects through analyzation of the crayfish
                                     vitellogenin gene
W-BMED5323 Sophia Parmele   The clinical relevance of oleosin in peanut allergy
                                     testing

USAID - US Agency for International Development (St. Paul)
Certificate, Letter, and webinar with USAID's Chief Scientist

S-ENEV6106   Milan Mishra   Usage of a Convolutional Neural Network in Drone-Based Algae Bloom Monitoring

USAID - US Agency for International Development (Twin Cities)
Certificate, Letter, and webinar with USAID's Chief Scientist

T-PLNT6719   Sriram Sureshkumar   The effectiveness of biochar as an amendment on MGS-1 Mars Global Stimulant and its impact on the growth of Raphanus Sativus.

T-EGSD5908   Sarah Zamudio   Composting Inputs and Outputs.

USAID - US Agency for International Development (Western Suburbs)
Certificate, Letter,and webinar with USAID's Chief Scientist

W-ENEV6101   Tyler Clair   Food waste-based biocoagulants: a novel approach to sustainably remove polystyrene microplastics for future alternatives in water treatment

W-EAEV5717   Ladan Hassan   Bioplastics' Degradability and Strength Relative to Plastic Bags Through the Use of Alternative Starch Sources.

US Metric Association (St. Paul)
Certificate + 1 Year of Membership

S-BEHA5222   Annie Zhang   The Effects of Natural versus Pharmaceutical
                                    Stimulants on Autism Symptoms

US Metric Association (Twin Cities)
Certificate + 1 Year of Membership

T-PHYS6618   Grant Pilgrim   Optical Tweezers Exploration
T-BCHM1107   Jai Nair   Comparative analysis of calcium content in plant
                                    based foods for dietary recommendations

US Metric Association (Western Suburbs)
Certificate + 1 Year of Membership

W-PLNT6714   Selena Qiao   Turf Trouble: Does the DEET in bug repellent really
                                    kill grass?
W-EAEV5716   Adeenah Vohra   Effect of the combination of different growth lights,
                                    their intensity on the dry weight, wet weight, and
                                    root mass of different plants

Yale Science and Engineering Association Inc. (St. Paul)
Certificate

S-ROBO6816 Finn Cairns   ViABL: Visual Assistant for the Blind with VLMs

Yale Science and Engineering Association Inc. (Twin Cities)
Certificate

T-CBIO5407   Coolsjes Singhvi   FutureSight: Machine Learning for Precision
                                          Diabetic Retinopathy Prediction

Yale Science and Engineering Association Inc. (Western Suburbs)
Certificate

W-ROBO6812 Razeen Abdul-Field   Evolving neural networks to exploit both problem
                                          and problem processing regularities: HyperNEAT
                                          plus a fixed chemical substrate

Stockholm Junior Water Prize (St. Paul)
Certificate, opportunity for further competition

S-ENEV6106   Milan Mishra   Usage of a Convolutional Neural Network in Drone-Based Algae Bloom Monitoring

Stockholm Junior Water Prize (Twin Cities)
Certificate, opportunity for further competition

T-CHEM5605 Samuel Morgan   A Study Into Water Desalination
T-ENEV6107   John Liu   The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution
T-MCRO6508 Jennifer Saidu   Effect of Mouthwash on E. coli
T-MCRO6509 Fatima Said   Effect of Soap on Bacteria
T-MCRO6510 Jordan Flores   Antibiotic Resistance
T-MCRO6512 Lillie Hanto   Which method of cleaning golf balls is most effective?

Stockholm Junior Water Prize (Western Suburbs)
Certificate, opportunity for further competition

W-EAEV5706 Jack Petrin   Effects of road deicing salts on select heavy metal mobility in Minnesota soils
W-EAEV5708 Jos Buffington   Paleoenvironmental and paleoceanographic changes across Ocean Anoxic Event 2 indicated by a southwest Minnesota core section
W-EAEV5720 Salman Farah   BPA Estrogen Presence in Tap Water and Its Potential Effects on Human Health
W-MCRO6501 Isaac Jasper   Genetic Modification as a Method of Biofilm Inhibition in Proteus Mirabilis
W-MCRO6502 Erika Daniels   Yogurt and acne: Investigating the impact of S. salivarius on the phylotype diversity of C. acnes
W-MCRO6522 Zabida Ahmed   You Are What You Eat: Tetracycline in Food

Research Papers MS First Place
Trophy and purple ribbon

PMS-MEDH433   Saee More   The Fight Against Cardiovascular Disease

Research Papers MS Second Place

Trophy and purple ribbon

PMS-ENVI409 Jack Gao   The Impact of Electric Vehicle Adoption and Electrification

Research Papers MS Third Place
Trophy and purple ribbon

PMS-LIFE202 Laura Hansen   Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music

Research Papers HS First Place
Trophy and purple ribbon

PHS-PCMS211   Alyssa Wang   Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film

Research Papers HS Second Place
Trophy and purple ribbon

PHS-LIFE222   Quinn Hughes   Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars

Research Papers HS Third Place
Trophy and purple ribbon

PHS-LIFE017T   Abigail Endres, Vivian Kinney   Find Your Way: Design and construction of a multiple T-maze to assess spatial memory

Thermo Fisher Jr Innovators' Challenge (St. Paul)

S-CHEM1606	Faye Nation	How Do Different Yeast Strains Impact on the Flavor and Aroma of Distillers Fermented Beer?
S-MATS2405	Mary-Grace Dobie	How Playground Material and Surfacing Affect Safety
S-ENEV2116	Jack Gao	The Impact of Electric Vehicle Adoption and Electrification
S-EAEV1710	Keagan Corcoran	How Do Microplastic Levels in the Ocean Impact the Penguin Population?

Thermo Fisher Jr Innovators' Challenge (Twin Cities)

T-BEHA1221	Laura Hansen	Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music
T-PHYS2624	Liam O'Keefe	Effects of Temperature on Hitting Home Runs
T-CHEM1602T	Divora Adhanom, Lola Currier	An osmotic method for the determination of coordination numbers of simple sugars

Thermo Fisher Jr Innovators' Challenge (Western Suburbs)

W-EGSD1914	Jared Griffiths	Shakes and Quakes
W-CHEM1615	Makenna Glaser	Lip Gloss
W-CHEM1635	Lydia Rieke	Flour Power: The Effect of Gluten Free Flour on Cupcake Rise
W-BMED1334	Bethel Senay	Blood Sugar High? Why?
W-EAEV1712	Vinetta Strelchuk	Ice Advice
W-TECA3001	Shagun Shrivastava	In Search of Sound: Creating Solutions for Sound Localization Challenges Using MicroBit Architecture to Aid Spatial Hearing Loss
W-PHYS2622	Thomas Velgersdyk	Coils and Current
W-BMED1333	Saee More	The Fight Against Cardiovascular Disease
W-ENEV2113	Taher Taha	How to generate water out of air?

State Science Fair MS

S-BEHA1215	Cecelia Leitner	How Does the Offer of Rewards Affect the Behavior and Time Efficiency of Different Age Groups of Kids?
S-BEHA1216	Helen Summers	Which Method Works Best For Memory Recall In Elementary School Students
S-BEHA1218	Maddy Miley	How Do Teaching Methods Affect Student Comprehension?
S-BEHA1219	Fiona Smith	Are Elementary, Middle, or High School teachers more likely to be Introverts?
S-CHEM1606	Faye Nation	How Do Different Yeast Strains Impact on the Flavor and Aroma of Distillers Fermented Beer?
S-CHEM1638T	Leah Moore, Chloe Szenay	How does the amount of butter affect the diameter and force it takes to break a cookie!
S-EAEV1710	Keagan Corcoran	How Do Microplastic Levels in the Ocean Impact the Penguin Population?
S-EAEV1711	Jake Olson	How Does Air Quality Differ in Urban and Rural Areas
S-EAEV1728	Ferran Peckosh	Filtering Fire
S-ENEV2116	Jack Gao	The Impact of Electric Vehicle Adoption and Electrification
S-ETSD2202	Hannah Steines	How the Shape of a Car Affects Aerodynamics
S-ETSD2203	Espen Duncan	What Car Shape is the Most Aerodynamic?
S-MATS2404	Nolan Rosenberger	Testing 3D Printing Infill Patterns for Strength, Deformation and Printing Time.
S-MATS2405	Mary-Grace Dobie	How Playground Material and Surfacing Affect Safety
S-MATS2406	Claire Young	What are the Effects of Playing Softball on Different Types of Fields
S-MATS2415	Agustin Orezzoli Robinson	Best Model Airplane Material
S-PHYS2621T	Nay Moe, Ar Cha	Water Bottle Rockets Cones
S-PLNT2722	Amari Hughes	How different color of light affects plants through photosynthesis
T-BCHM1107	Jai Nair	Comparative analysis of calcium content in plant based foods for dietary recommendations
T-BEHA1221	Laura Hansen	Music Magic: Using electroencephalography and surveys to investigate the therapeutic value of music
T-BEHA1232	Natalia Rodriguez	Tasting With Your Eyes
T-BMED1329	Grace Chinokoro	Trace Amounts of Sugar: How is Your Blood Pressure Affected?
T-BMED1330	Ruth Minke	Which Mask is More Hydrating?
T-BMED1331	Amy Robles	The Effects of Caffeine According to Your Age
T-CHEM1602T	Divora Adhanom, Lola Currier	An osmotic method for the determination of coordination numbers of simple sugars
T-CHEM1636	Eloise Telep	Some Sweet Sugar Cookies
T-EAEV1726	Noah Nguyen	Spinning Pinwheel by Steam: Energy From the Earth

T-EGSD1901	Lilly Bilek	Factors affecting anode performance in an alga I metal II carbon I ferric chloride circuit
T-EGSD1909	Shea Bohl	The Power of Rust: A Study of Electrolytes in Iron-Air Batteries
T-ENEV2109	Norah Bergerson	Glitter, a Million Pieces of Litter: Quantifying microplastics in laundry effluents released from textiles during washing
T-PHYS2624	Liam O'Keefe	Effects of Temperature on Hitting Home Runs
T-PHYS2625	Grace Braun	More Bounce For Your Basketball
T-PHYS2626	William Boerboom	Does the Hardness of Skateboard Wheels Affect the Skateboard's Speed?
W-ANIM1008	Adlai Jeevanathan	Spectrum of Feathers: Analyzing Bird Behavior and Color
W-BCHM1104T	Touathar Ly, Abdurahman Hassen	How Does Meat Shrink
W-BEHA1235	Claire Carlson	How Does Lyrical, non Lyrical, or No Background Music Affect Memory When Learning New Content?
W-BMED1317	Lucy Johnson	Furry Friends Decrease Stress
W-BMED1318	Maren Fahlin	Dry Skin? Time to Moisturize!
W-BMED1322	Baylee Martinez ortiz	How Does The Hand Cleaning Method Impact The Amount Of Bacteria
W-BMED1325	Mena Severt	Does our Echinacea tincture effectively kill bacteria compared to over-the-counter antibacterial medication?
W-BMED1333	Saee More	The Fight Against Cardiovascular Disease
W-BMED1337	Lily Dow	Lungs At Work
W-CHEM1611T	Gianna Kimaiga, Natalie Mwaga	Bath Bomb Fizz Time
W-CHEM1612	Lola Dixon	Science behind the laundry fairy
W-CHEM1613	Samuel Edson	Destroying Science: Building Materials and Deterioration
W-CHEM1614	Audrey Strehler	Brillant Bath Bombs
W-CHEM1615	Makenna Glaser	Lip Gloss
W-CHEM1617T	Adebola Ogunsina, Gavrila Boakye-danquah	How High Will it RIse?
W-CHEM1618	Isha Secka	Across A Cookie
W-CHEM1620	Kallie Heath	Jiggly Jell-O
W-CHEM1621	Amerey Lee	Ice Breaker
W-CHEM1622	Andrew Johnson	Density of Bread by Amount of Flour
W-CHEM1623	Leah Benoit	Influence of Veganism on the Qualities of Traditional Dairy Products: Type of Plant-Based Milk and Density of a Pudding Dessert
W-CHEM1625	Samantha Morales	Balloon Power!
W-CHEM1626T	Candice Kararu, Amelia Schwarze	Muff Everest
W-CHEM1628T	Hayden Smith, Braysen Holmes	Soap Boat
W-CHEM1635	Lydia Rieke	Flour Power: The Effect of Gluten Free Flour on Cupcake Rise

W-CHEM1640	Lila Foster	Where'd All the Bubbles Go?
W-CHEM1643	Olivia Zhou	Growing Marshmallows
W-EAEV1712	Vinetta Strelchuk	Ice Advice
W-EAEV1718	Batoul Taha	Measuring Tap Water Qualities In Different Cities (Fridley, Blaine, New Brighton, Brooklyn Park, Columbia Heights) From Public Facilities (Library, Clinic, Schools)
W-EGSD1911	Sebastian DeLeo	Different Angles of Polarizing Light
W-EGSD1912	Sandor Pratt	Sour Power!
W-EGSD1914	Jared Griffiths	Shakes and Quakes
W-ENEV2110	Emaan Moheet	Developing and Testing Permeable Pavement Material to Prevent Urban Flooding
W-ENEV2113	Taher Taha	How to generate water out of air?
W-ENEV2114T	Hamza Salem, Luqman Ibrahim, Zakariya Shikder	Building a miniature Greenhouse
W-ETSD2207	Sam Kessler	Windy Day how does Windspeed impact Drag and Lift?
W-ETSD2210	Logan Ford	Molecular Motion in Magnets
W-ETSD2211	Zabir Dagal	Can a 3D Printed Water Filter Match the Filtration Quality of a Commercial Water Filter
W-ETSD2215	Edward Ginter	Pickle Ball--Which Brand is the Best?
W-MATS2407	Grace Hunt	Powder Prints
W-MATS2411	Javier Pampusch	That's So Cheesy Different types of cheese and their melting time in seconds.
W-MATS2414	Easton Graber	The purpose of the experiment that I created was to determine…
W-MATS2416	Cora Finck	Our Sun In Color
W-MCRO2518	Fahtima Komara	Strawberry militaries
W-MCRO2521T	Kimaya Shah, Kinaari Shah, Vivienne Kane	The 5 Second Rule
W-PHYS2607	Kenzie Hackenmueller	Falling Fast
W-PHYS2610	William Voigt	Soar With Paper Planes
W-PHYS2612	Breckon Sand	Confliction of Friction
W-PHYS2613	Jackson Busch	The golf tee
W-PHYS2614	Austin Karst	Cruising for time mass and speed
W-PHYS2619	Logan Hovanetz	Weight A Second
W-PHYS2622	Thomas Velgersdyk	Coils and Current
W-PLNT2708	Addison Duppong	How Does Light Affect a Plant
W-PLNT2715	Josephine Nnadi	How do different light sources impact the growth of a plant?
W-PLNT2717	Amelia Dyrstad	Microplastics Affect On Plant Growth
W-PLNT2718	Lalistu Nejo	Can we grow more vegetable indoors under grow lights or in natural light?
W-PLNT2721	Isaiah Kron	CofFEe, Iron (Fe), or FErtilizer. Which -FE- will it be?
W-PLNT2724	Siri Westberg	Everlasting Lettuce
W-PLNT2729	Faith Mick	Digging Deep to get to the Root of the Issue: The Effect of Fertilizers on Plant Root Growth

W-ROBO2815T	Landyn Perlick, Kale Cufaude	Robot Vs. Maze
W-TECA3001	Shagun Shrivastava	In Search of Sound: Creating Solutions for Sound Localization Challenges Using MicroBit Architecture to Aid Spatial Hearing Loss

State Science Fair HS

S-ANIM5004	Lam Le	The Solitary Bees' Diet: An Exploration of Megachile Campanulae
S-ANIM5007	Samantha Gilats	Exploring Potential Effects of Theobromine on Girardia tigrina Regeneration
S-BCHM5106	Annika Lillegard	The Effect of Trans-Resveratrol on the Longevity of Caenorhabditis Elegans
S-BEHA5222	Annie Zhang	The Effects of Natural versus Pharmaceutical Stimulants on Autism Symptoms
S-BEHA5226	Oliver Chan	Examining the Impact of Positive Affirmations on the Confidence Perception and Academic Performance of High School Students
S-BMED5315	Cerena Karmaliani	The Absorbency of Home-Compounded Transdermal Pain Medication in Comparison to Industrially Manufactured Voltaren Gel
S-CBIO5405	Deling Chen	A Novel Electrocardiogram-Based Model for Prediction of Dementia—the Atherosclerosis Risk in Communities (ARIC) study
S-EAEV5714	Talia Cairns	Rhizofiltration of Nitrate and Phosphate by Elodea Canadensis Under Varying Temperatures
S-EAEV5715	David Schumacher	Bioremediation of Nickel with Chlorella Vulgaris and Chlorella Pyrenoidosa
S-EBED5802T	Rishi Bhargava, Humza Murad	Project WASP: Autonomous Self Watering Planter using Atmospheric Water
S-EGSD5906	Jacob Colton	Effect of Annealing Time on Electrodeposited Zinc Samples for Use in Dye Sensitized Solar Cells
S-ENEV6106	Milan Mishra	Usage of a Convolutional Neural Network in Drone-Based Algae Bloom Monitoring
S-ENEV6111	McKinley Garner	The Effectiveness of Aspergillus niger as a Remedy to Microplastic-Contaminated Soil
S-MATS6409	Rohan Kharbanda	The Effects of Varying Sizes of Polylactic Acid as a Supplement for Concrete Aggregate on the Maximum Stress and Young's Modulus of Concrete
S-MATS6413	Humza Jameel	Investigating The Effects of Rubber Aggregate as a Substitute for Natural Aggregate on the Strength of Concrete
S-ROBO6808T	Adam Ebert, Andy Wells	PENGUIN: A Novel Robotics Platform Assisting HealthCare Workload
S-ROBO6816	Finn Cairns	ViABL: Visual Assistant for the Blind with VLMs
S-SOFT6902T	Oliver Thompson, Finn Miller-Fimpel	Fisher-MN: Using a Mobile Application to Increase Accessibility to Minnesota's Lakes While Mapping Invasive Species and Diseases Among Fish Populations
S-SOFT6904	Bora Mandic	SignalGrab: A Machine Learning Approach to Helping Color Blind Drivers
S-SOFT6905	Huxley Westemeier	Project Calliope

T-ANIM5005	Isabella Wang	Staying Alive: Mitigating the challenge of overwintering bees in Minnesota's harsh climate; a study of beehive wraps, their insulative properties, ability to modulate thermal extremes, and preserve bee populations
T-BEHA5209	Vanlyda Bun	Do people believe others with authority more than their own memory?
T-BEHA5220	Feven Tesfaye	Is Ignorance really Bliss?
T-BMED5324	Riddhi Singhvi	Beyond Scans: Predicting Alzheimer's through MRI-Graphology Fusion
T-BMED5326	Bersy Yonas	Optimizing stent design geometry using macro models
T-CHEM5608	Alyssa Wang	Development of Novel Biodegradable Bioplastics Using Mango Peels Intended for Packaging Film
T-EAEV5705	Olivia Hamann	I Didn't Start the Fire
T-EGSD5908	Sarah Zamudio	Composting Inputs and Outputs.
T-ENEV6107	John Liu	The Use of Sustained Releasing Technology to Reduce Deicing Salt Pollution
T-ETSD6214	Justin Ma	Design and Implementation of A Public Water Area Swimming Safety Monitoring System Based on UAV
T-MCRO6511	Ella O'Hanlon	Sunscreen Showdown
T-PHYS6631T	Dylan Tate, Garrett Garms	The Required Distance between the Fluxonium Qubit and the Ground Plane for Optimal T1 Times
T-PLNT6711	Ilsa Lemke	Is a Blanket Good or Bad?
T-PLNT6719	Sriram Sureshkumar	The effectiveness of biochar as an amendment on MGS-1 Mars Global Stimulant and its impact on the growth of Raphanus Sativus.
T-ROBO6806	Efrata Eshete	Accuracy of Artificial Intelligence Detection
T-ROBO6813	Emily Zhou	The Tom and Jerry Algorithm for Nonholonomic robots: Optimized and adaptive path planning and dynamic obstacle avoidance based on A* and mathematical predator and prey insights for real-life simulations
T-ROBO6814	Ethan Finch	Evaluating the Efficiency of Different Machine Learning Models in Locating the /s/ Phoneme
T-SOFT6907	Lakshika Nanda Kumar Reddy	Exploring Acetylcholinesterase Inhibitors through QSAR, Molecular Docking, and Structural Analysis
W-ANIM5001	Elin Wellmann	The Microplastic Butterfly Effect: Effects of dietary microplastic on survival and fitness of Cabbage White butterflies (Pieris rapae).
W-BCHM5101	Lindsey Koch	Effect of artificial food dyes on levels of serotonin and dopamine in C. elegans
W-BEHA5201T	Abigail Endres, Vivian Kinney	Find Your Way: Design and construction of multiple T-maze to assess spatial memory
W-BEHA5202	Noah DeMichaelis	Music and the Mind (Year Two): the Interection of Reading Readiness and Musical Proficiency
W-BEHA5204	Alexander Augustine	Comparing speed chess with and without increment
W-BEHA5212T	Veda Rao, Abigail Getnick	Food Frenzy: An Investigation on Lunch Popularity and Early Arrival to Lunch

ID	Name	Title
W-BEHA5213	Yuchen Shi	The effects of music on one's attention and relaxation levels while doing a task.
W-BEHA5224	Henry Sabo	An Analysis of the Relationship Between IQ and Academic Performance at Breck School
W-BEHA5227	Ameya Bhaskar	Beyond Numbers: Investigating the Relationship Between Socioeconomic Status and Big 5 Personality Traits Through Metadata Analysis
W-BEHA5237	Henry Miller	Examination of EEG-derived interhemispheric data in predicting emotional and attentive responses to film
W-BMED5301T	Samantha Dvorak, Matthew Manacek	Catching the Culprit: Western blot analysis of the relationship between Alzheimer's related proteins Aß*56 and ?Tau303 in APP transgenic mice
W-BMED5306	Sameer Bhatia	Cell Culture Analysis of Nail Curing Lamp Radiation on A549 Cell Line
W-BMED5307	Kyra Martin	The effect of ubiquitination deubiquitinases on breast cancer metastasis
W-BMED5310	Corinne Moran	Deciphering DUX4 (Year II): Is transient expression of the DUX4 gene sufficient to cause muscular dystrophy?
W-BMED5311	Arjav Krishna	Analyzing the Correlation Between Aerobic and Anaerobic Capabilities in High School Aged Individuals
W-BMED5313	Brayden Diethelm	Examination of effects of gamma-secretase inhibitors and methylthioninium chloride in Caenorhabditis elegans modeling of human Alzheimer's disease
W-BMED5316	Anna McKinney	Cardiovascular Recovery and Strength Variation Coupled With Phases of the Menstrual Cycle
W-BMED5319	Kathy Quito	From Pixels to Proteins: Utilizing Deep Learning to Denoise Images for Enhanced Accuracy in Fluorescence Microscopy and Protein-Protein Interaction Studies
W-BMED5328	Snigdha Tungtur	Manipulating Fibroblast Function: Reprogramming fibroblasts into vasculature using a lineage mapping genetic mouse model with Col1a2Cre–R26 Tdtomato progeny
W-CBIO5401	Alexander Bartholomew	Analysis of machine learning techniques on electroencephalography data to detect mild traumatic brain injury in humans
W-CBIO5402	Savanna Larson	Evaluating the effects of sympatry on Lynx canadensis and Lynx rufus population dynamics in Minnesota
W-CBIO5403	Milan Darji	Developing Scaffold Proteins for Functional Proteins Using RFDiffusion, an Artificial Intelligence Denoising Diffusion Probabilistic Model
W-CELL5502	Jasmine Goldsmith	Scurvy to stage IV cancer: the efficacy of intravenous vitamin C therapy in combination with paclitaxel and cispaltin treatment on non-small cell lung cancer strain A549

W-CELL5504	Becker Curry	Identification of bisphenol A and bisphenol S endocrine effects through analyzation of the crayfish vitellogenin gene
W-CELL5505	William Zhong	Circadian rhythm correlated gene expression due to phr1 gene removal in Halobacterium salinarum NRC-1
W-CELL5507	Tyseer Nabi	The effect of gut micro bacteria on the SNCA gene and release of alpha-synuclein and dopamine
W-CELL5508	Keegan Feeley	Examination of cytokine levels in the peripheral blood mononuclear cells of people with Ankylosing Spondylitis
W-CELL5510	Georgia Constantin	Using iron and graphene oxide nanoparticles to induce targeted apoptosis in cancerous cells.
W-CHEM5607T	Ruby Wold, Grace Duffy, Sohana Morioka	The Effects of Sodium Polyacrylate on Absorption in Paper
W-EAEV5701	Owen Barhoover	The Effect of Silicate Minerals on Soil Sequestration
W-EAEV5702	Molly O'Neill	The Exploration of Bio-sealants to Assist the Longevity of Degradable Pineapple Fabric
W-EAEV5707	Abigail Bendt	The impact of atmospheric carbon dioxide on crop yield and fruit quality in Fragaria x ananassa
W-EAEV5708	Jos Buffington	Paleoenvironmental and paleoceanographic changes across Ocean Anoxic Event 2 indicated by a southwest Minnesota core section
W-EAEV5721	Sanjana Kollipara	Meteorological Measurement Mysteries:Quantifying the variability of precipitation and snow depth based on measurement location and wind dynamics as it impacts flood prediction modeling
W-EAEV5723	Adithi Rupireddy	Prescribed Burn Management Strategies: A Longitudinal Analysis of Decision-Making and Burn Efficacy in Pinus Resinosa Stands at the Cloquet Forestry Center
W-EGSD5902	Evelyn Engebretson	Carbon neutral biofuels: the fermentation of Sargassum macroalgae using Clostridium beijerinckii to create butanol
W-EGSD5910	Yash Dagade	SkyWindFarm Harnessing High Altitude Wind Power in a Scalable Manner
W-ENBM6001T	Charlotte Vasicek, Michael Setterberg	Refining the Ring: Engineering Nanobodies for a Faster Path to CSAN Cancer Immunotherapy
W-ENBM6002	Anna Iordanoglou	Problematic Packaging: Optimizing a method for dissolving alginate sheaths from cell fibers for 3D bioprinting
W-ENBM6003	Melissa Nelson	Creation of a left-handed prosthetic for playing violin
W-ENBM6004	Anaya Gokarn	Looking through the PriSM for Improved Cancer Treatment: Using a Position-Specific Enrichment Ratio Matrix to Score Fibronectins Used in Protein Small Molecules (PriSMs) to Inhibit Carbonic Anhydrases
W-ENBM6009	Fernanda Arreola-Lucio	Effects of Impregnation of Zeolite, Methacrylic Anhydride, and Fibrinogen Coagulation Agents to Gelatin Microneedle Adhesive (Gel MNA) Hemostatic for Axial Body Frame Usage

W-ENEV6101	Tyler Clair	Food waste-based biocoagulants: a novel approach to sustainably remove polystyrene microplastics for future alternatives in water treatment
W-ENEV6104	Ellison Stroh	A potential dike for the Savannah, Georgia region to mitigate storm surge
W-ENEV6105	Sabrina Pietrafitta	Excess nutrient removal in estuaries - dead zone prevention
W-ETSD6201	Caleb Li	Optimizing School Traffic During Morning Drop Off
W-ETSD6206	Maximus Ren	A New High-Impedance-Fault Detection Method to Prevent Power-Line-Induced Wildfires
W-MATS6401	Lillian Kowal	Using food waste to cost-effectively produce the bioplastic P(3HB) with C. necator
W-MATS6402	Lara Granucci	Characterization of starch-based films based on mechanical and compostability testing
W-MATS6408	Vick Tan	A Revolutionary Material for Medical and Environmental Applications, Scalable Synthetic Mucins
W-MCRO6501	Isaac Jasper	Genetic Modification as a Method of Biofilm Inhibition in Proteus Mirabilis
W-MCRO6503	Noah Khemakhem	The effect of heavy metals on the expression of antioxidant enzymes in Caenorhabditis elegans
W-MCRO6504	Mars Moberg	An investigation of bacteriophage function using E. coli k-12 as a model host organism
W-MCRO6505	Leander Harrold	Examination of ethylene producing activity in bacteria Pseudomonas putida
W-MCRO6506	Isabella Tobin	Degrading plastic with fungi: The effect of pretreating polyester polyurethane on the rate of biodegradation by Pestalotiopsis microspora
W-MCRO6515	Campbell DeLuca	The effects of Glyphosate on the neurological, behavioral and reproductive behaviors of aquatic organisms
W-MCRO6517	Henry Good	Effects of orchid mycorrhizal inoculation in MN Torgy hard red spring wheat
W-PLNT6702	Emily Bodeau	Variability in capsaicinoid content of commercially available Kashmiri peppers
W-PLNT6703	Julian Lunzer	Effects of Plastic Mulch Liners on the Micro and Nano Plastic Content of Minnesota Midget Melons.
W-PLNT6704	Anna-Sofia Pedersen	The impact of varying electroporation voltages on cell viability and growth in model brown alga Ectocarpus sp. protoplasts
W-PLNT6709	Quinn Hughes	Mars or Bust! A Method to Build a Martian Regolith-Based Substrate for Sustainable Agriculture on Mars
W-PLNT6710	Finn Emerson	Killing Buckthorn While They Sleep: a Method to Identify and Clear Rhamnus Cathartica During Winter
W-PLNT6714	Selena Qiao	Turf Trouble: Does the DEET in bug repellent really kill grass?
W-ROBO6801T	Noah Getnick, Evan Johnstone	Collision-Free Commutes: Designing a Blind Spot Detection System for Cyclists Using an Ultrasonic Sensor and Computer Vision

W-ROBO6804	Jaden Cai	Situational recognition and ensemble learning in the stock market
W-ROBO6810	Neel Kashyap	Reccurant Neural Networks and Sentiment Analysis To Predict Stock Movement
W-ROBO6811	Anthony Pu	Neuroevolution of spiking neural networks using HyperNEAT
W-SOFT6903	Sarah Gedi	Manage your diabetes better with Glucate
W-TMED7101	Amanda Webster	Effect of cholesterol concentration in liposomes on transfection efficiency of mRNA in model blood brain barrier cells
W-TMED7102	Shreshth Shrivastava	AccuCellAI: A transformative tool for diagnosing and classifying hematological diseases using convolutional neural networks that demonstrates improved speed, accuracy, and transportability

Schools Participating in 2024

Al-Amal School
Avail Academy (Blaine)
Avail Academy (Edina)
Blaine High School – Center for Engineering, Mathematics, and Science
Blessed Trinity Catholic School
Breck School
Burnsville High School
Carondelet Catholic School
Concordia Academy--Roseville
DaVinci Academy of Arts & Science
East Ridge High School
Eden Prairie Central Middle School
Eden Prairie High School
Edina High School
Highland Park High School
International School of Minnesota
Lake Middle School
Lake Nokomis Community-Keewaydin Campus
Lakeville North High
Magnuson Christian School
Mahtomedi Senior High
Maple Grove Senior High School

Math and Science Academy
Minnehaha Academy North Campus
Minnetonka East Middle School
Minnetonka High School
Minnetonka Middle School West
Mounds View High School
Murray Middle School
Nativity of Our Lord
New Life Academy
PT Homeschool
Rosemount High School
Salk Middle School
Scandia Elementary IB World School
St. Croix Preparatory Academy
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