

83rd Twin Cities Regional Science Fairs Awards

February 19-28, 2021

Students selected to compete at the 2021 Regeneron International Science and Engineering Fair (virtual) in May, 2021:

ISEF Finalists (Twin Cities)

T-HS- CBIO-0126	Johnny Yue, Sydney Peng	Upsurge of the Glycolytic Pathway in Cancer: A Dynamic Network Analysis of Oncogenic Mutations in Phosphofructokinase-1
T-HS- PHYS-0198	Tarun Kota	Detection and Characterization of Astronomical Dwarfs using CatWISE
T-HS- MCRO-0154	Ellen Guo	Distinctive mutation profiles of SARS-CoV-2 spike protein in different geographic regions of the United States

ISEF 1st Alternate (Twin Cities)

T-HS- PHYS-0122	Todd France, Justin Draheim	Optical Tweezers
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ISEF 2nd Alternate (Twin Cities)

T-HS- CBIO-0109	Rahul Balaji	Betting on Bioinformatics: A fight to the death for SARS-CoV-2! Decoding the effectiveness of the SARS-CoV-2 vaccines against its many variants
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ISEF 3rd Alternate (Twin Cities)

T-HS-PHYS- 0257	Cade Bunnell	Correlation between type of glove and catch performance
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ISEF Finalists (St. Paul)

S-HS-BEHA-0239	Naci Konar-Steenberg	Significant zero: the effect of personality questionnaires on identity-relevant choices
S-HS-EBED-0217	Levi Mellin, Nikolas Liepins	SPYGLASS: Eye-controlled camera glasses

ISEF 1st Alternate (St. Paul)

S-HS-EGSD-0153	Maggie Banks	"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"
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ISEF 2nd Alternate (St. Paul)

S-HS-ENEV-0138	Jack Hlavka	Treatment of Acid Mine Drainage with <i>Desulfovibrio desulfuricans</i>
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ISEF Finalists (Western)

W-HS- PHYS-0037	Austin Hunter	The impact of drafting in cross country skiing
W-HS- BMED-0246	Quentin Hughes	"An Active Role for Machine Learning in the Diagnosis of Cardiac Arrhythmias, Year 2"
W-HS- TMED-0252	Atreyus Bhavsar	The Spread of Macroscopic Droplets from a Simulated Cough with and without the Use of Masks or Barriers
W-HS- ANIM-0081	Simren Samba, Fiona Kinney	Fruit Fly Frenzy: Investigating the Development of Insecticide Resistance in <i>Drosophila Melanogaster</i>

ISEF 1st Alternate (Western)

W-HS- ENBM-0056	Kareem Eldahshoury	Prosthetic Index Finger Operated by Surface Electromyography
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ISEF 2nd Alternate (Western)

W-HS- BMED-0235	Hubert He	Analysis of Gene Expression Changes Influenced by Various Severe COVID-19-associated Single Nucleotide Polymorphisms
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ISEF 3rd Alternate (Western)

W-HS- EAEV-0083	Amrit Menon, Ivy Ferstan	"Pulling Apart Plastic: Measuring the effectiveness of wax worms, bacteria, and fungus in breaking down biodegradable plastic"
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ISEF 4th Alternate (Western)

W-HS-BMED- 0247	Vaughn Hughes	Using Artificial Intelligence and Electronic Health Records to Build a COVID-19 Testing Model
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3Mgives Sponsor Award

plaque & \$500.

W-HS-
TMED-0252

Atreyus Bhavsar

The Spread of Macroscopic Droplets from a Simulated Cough with and without the Use of Masks or Barriers

Ecolab Sponsor Award

plaque & \$500.

W-HS-
ENEV-0129

John Cardwell

Testing the Waters: Engineering an Innovative Method of Water Health Analysis Year II

DuPont Water Solutions Sponsor Award

plaque & \$100.

W-HS-
PHYS-0037

Austin Hunter

The impact of drafting in cross country skiing

Northrop Grumman Sponsor Award

plaque & \$100.

W-HS-
MATS-0064

Nick Carver

The potential application of super elastic Nitinol alloy for use in type III body armor

Office Depot Sponsor Award

plaque

W-HS-
ENEV-0129

John Cardwell

Testing the Waters: Engineering an Innovative Method of Water Health Analysis Year II

Premier Bank Sponsor Award

floret ribbon

T-MS-MCRO-
0200

Prisha Rathore

Investigation of the Antimicrobial Properties of
Natural Ingredients

City of St. Paul Youth Fund Sponsor Award

plaque

S-HS-PLNT-
0099

Eleanor Chen

"The Effects of Storage Temperature and
Exogenous Ethylene Exposure on the
Ripening Rate, Quality, and Glucose Level of
Postharvest Ripened Tomatoes (*Solanum
lycopersicum*)"

Minta'hoe Catering and Events Sponsor Award

plaque

W-MS-
CHEM-0141

Avery Cantwell

Cookie Flour Power

3M Film and Materials Science, Manufacturing Technology and Engineering

S-HS-EGSD-0153	Maggie Banks	"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"
W-HS-ENMC-0072	William Sweeney, George Richards	A.L.M.E. Assistive Lifting Machine for Elders: Engineering a solution to fall-recovery-related injuries in seniors and caregivers
W-HS-ROBO-0045	Eli Hooker Reese	Teaching Manufacturing Robots with Kinesthetic Learning from Demonstration in a Miniature Replication of the Work Environment
S-HS-ENEV-0138	Jack Hlavka	Treatment of Acid Mine Drainage with <i>Desulfovibrio desulfuricans</i>
W-HS-CHEM-0077	Benjamin Kroul, Dominic Greco	Mighty MOFs: Investigating 1-butene dimerization on UiO-66 variants to improve alpha-olefin production
W-HS-ROBO-0157	Ananyaa Arvind	Innovative Chatbot Solutions: Designing a conversational agent to promote student success during distance learning
W-MS-CHEM-0140	Lily Stel	"On your mark, get set, bake"
W-MS-CHEM-0269	Matthew Craig	Coin Cleaning
W-MS-ENEV-0209	Mercy March	Purification with Desalination
W-MS-BMED-0151	Evelyn Danz	Stop the Clot: The Effect of Anticoagulants on Thrombosis

3M Display Materials and Systems Division

W-HS-EGSD-0079	Grayson Roberts, Benjamin Rex	Growing Fuel: Enhancing Phytoplankton Growth with Ferrous Sulfate to Reduce the Cost of Biofuel
T-HS-PHYS-0198	Tarun Kota	Detection and Characterization of Astronomical Dwarfs using CatWISE
T-HS-PHYS-0125	Jacob Johnson	The Result of Common Building Materials on the Strength of a Radio Signal
W-MS-EGSD-0242	Brady Peterson	Picking metal up like nothing ; Will wire winding affect the strength of an electromagnet?
S-MS-PHYS-0133	Mason Deegan	The Most Eggcellent Science Project

3M Personal Safety Division

W-HS-EAEV-0082	Anna Geldert	Using mycoremediation as a treatment technique to reduce heavy metal concentration in model mine effluent
W-HS-BMED-0246	Quentin Hughes	"An Active Role for Machine Learning in the Diagnosis of Cardiac Arrhythmias, Year 2"
W-HS-BMED-0247	Vaughn Hughes	Using Artificial Intelligence and Electronic Health Records to Build a COVID-19 Testing Model
W-HS-BMED-0173	Rushil Khadilkar	Impact of Nutritional and Human Factors on Blood Glucose in Diabetic and non-Diabetic Subjects
T-MS-EAEV-0220	Sriram Sureshkumar	Impact of Chemicals and Pesticide residue on compost
T-MS-MCRO-0200	Prisha Rathore	Investigation of the Antimicrobial Properties of Natural Ingredients
W-MS-EAEV-0104	Shagun Shrivastava	100% Biodegradable Plastics!!! Is it true?

3M Young Inventor Recognition

T-MS-BMED-0243	Olivia Hamann	Don't Fall Flat
S-HS-EBED-0217	Levi Mellin, Nikolas Liepins	SPYGLASS: Eye-controlled camera glasses
T-MS-BMED-0188	Lila Martin	The Effects of Fast Acting Sugars on Diabetics and Non-Diabetics
W-HS-TMED-0123	Tanishka Mhaskar	Feasibility of EEG in conjunction to evaluation after sports-related concussion
T-HS-CBIO-0109	Rahul Balaji	Betting on Bioinformatics: A fight to the death for SARS-CoV-2! Decoding the effectiveness of the SARS-CoV-2 vaccines against its many variants
T-HS-ENMC-0250	Sarah Baldauff	Water Balloon Launcher
T-MS-ENMC-0219	Olivia Farina	AmbidextriCut?
T-MS-ENMC-0171	Joshua Butler	Redesigning New Life Disc Golf Course
S-HS-ENMC-0240	William Anderson	A Comparison of Three Wing Configurations at Different Heights in Ground Effect
T-HS-ENMC-0147	Nickolas Zander	The Engineering Behind Theme Park Rides: Creating and Coding a Model Theme Park Ride
W-HS-MATS-0064	Nick Carver	The potential application of super elastic Nitinol alloy for use in type III body armor
W-HS-MATS-0061	Kendall White	Everlasting Elastics
T-HS-MATS-0148	Hamza Nure	Basketball and Noise
T-HS-MCRO-0154	Ellen Guo	Distinctive mutation profiles of SARS-CoV-2 spike protein in different geographic regions of the United States
T-HS-BMED-0131	Liyu Tenkir	Extracting Iron from Breakfast Cereal
T-HS-CHEM-0245	Maisy Scheuneman	How do different pH levels and different nail coating affect the formation of rust on nails?
T-MS-ENEV-0155	Minhphuong Le	Which Animal Manure Fire lasts the Longest?
W-HS-EGSD-0029	Trisha Samba	Easy Piezy Electricity
W-HS-MATS-0096	Rebekah Thomasson	The formation of edible packaging from food waste streams and its applications as alternative packaging to low density polyethylene and oriented polypropylene

Graduate Women in Science Projects

T-MS-PLNT-0231	Izzy Carlson	The effect of water tempature on plant growth
T-MS-PLNT-0199	Kayleigh Skjod	Sudsy Basils
S-MS-BEHA-0058	Audrey Erickson	Do Children Who Read More Have Better Vocabularies?
W-HS-EAEV-0206	Adithi Rupireddy	A Breath of Fresh Air: Characterizing changes in atmospheric carbon monoxide in the United States to mitigate climate change
T-HS-BMED-0172	Evelynn Shero	The Affect Different Forms of Sugar Have on Glucose Levels During Metabolization
W-HS-BCHM-0040	Madison Andrews	Comparison of the indole and ammonia detection methods of E. coli and creation of a streamlined testing process
W-HS-BMED-0098	Ming Ying Yeoh	A better approach to treating Alzheimer?s? Multi-drug combination therapies in a C. elegans model

Graduate Women in Science Papers

509	Kaitlin Telep	A Hamster's Preference: Which Food Will it Pick?
501	Elizabeth Levinshteyn	Testing, Testing: Developing an All-Strain-Inclusive Test for SARS-CoV2
115	Ellen Guo	Distinctive mutational profiles of SARS-CoV-2 spike protein in different geographic regions of the United States
167	Audra Johnson	The Effects of Disinfectants on Escherichia Coli Bacteria
165	Eleanor Chen	The Effects of Storage Temperature and Exogenous Ethylene Exposure on the Ripening Rate, Quality, and Glucose Level of Postharvest Ripened Tomatoes (<i>Solanum lycopersicum</i>)
141	Pilar Saavedra-Weis	The Effect of Rising Temperature on the Polystyrene Degradation Rate of the Superworm, <i>Zophobas atratus</i>

Inspiring Excellence Project

S-HS-EGSD-0153	Maggie Banks	"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"
T-MS-BMED-0243	Olivia Hamann	Don't Fall Flat
S-HS-EAEV-0127	Gavin Kimmel	Examining the Relationship Between Socioeconomic Status and Soil Macronutrient Levels
S-HS-MATS-0236	Ben Chen	Incorporation of Recycled Plastics In Road Materials

Inspiring Excellence Teacher

Susan Silberhorn-Nativity
of Our Lord School

United States Department of Agriculture Research Service

T-MS-PLNT-0130	Harper Burns	Does Salt Effect Cat Grass Growth?
T-MS-EAEV-0220	Sriram Sureshkumar	Impact of Chemicals and Pesticide residue on compost
W-MS-PLNT-0196	Hannah Grosser	"If You Plant It, They Will Come: Planting for Pollinator Diversity in Your Home Garden"
S-HS-ENEV-0138	Jack Hlavka	Treatment of Acid Mine Drainage with Desulfovibrio desulfuricans
S-HS-EAEV-0145	Isabel Medrano	The Impact of Elapsed Burn Time on Restored Prairie Plant Biodiversity and Soil Nutrient Content

Award for Science Potential

W-MS-CHEM-0140	Lily Stel	"On your mark, get set, bake"
W-MS-EGSD-0242	Brady Peterson	Picking metal up like nothing ; Will wire winding affect the strength of an electromagnet?
T-MS-EGSD-0189	Chipso Chinokoro	Citrus Battery
S-MS-BEHA-0027	Selamawit Tenaye	Videos and Heart Rate
W-HS-EGSD-0079	Grayson Roberts, Benjamin Rex	Growing Fuel: Enhancing Phytoplankton Growth with Ferrous Sulfate to Reduce the Cost of Biofuel

American Chemical Society

W-HS-CHEM-0077	Benjamin Kroul, Dominic Greco	Mighty MOFs: Investigating 1-butene dimerization on UiO-66 variants to improve alpha-olefin production
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MN Chapter of American Fisheries

W-MS-EAEV-0225	Mac Hoekstra	O2 Is For You! Why Oxygen Is Important To Fish Population
S-HS-MCRO-0117	Maya Choi	Degradation of Microplastics: The Efficacy of Various Bacteria in Breaking Down Microplastics in the Environment

US Air Force (St. Paul)

S-HS-ENMC-
0240

William Anderson

A Comparison of Three Wing Configurations
at Different Heights in Ground Effect

US Air Force (Twin Cities)

T-HS-ENMC-
0250

Sarah Baldauff

Water Balloon Launcher

US Air Force (Western Suburbs)

W-MS-ENMC-
0223

Thomas Rewey

Gliding Through the Sky. How Stabilizers
Affect Distance

Office of Naval Research

W-HS-ROBO-0045	Eli Hooker Reese	Teaching Manufacturing Robots with Kinesthetic Learning from Demonstration in a Miniature Replication of the Work Environment
S-HS-EGSD-0153	Maggie Banks	"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"
T-HS-ENMC-0147	Nickolas Zander	The Engineering Behind Theme Park Rides: Creating and Coding a Model Theme Park Ride
W-HS-SOFT-0043	Alexander Soltau	Artificial Neural Network News Sentiment and Keyword-Based Stock Price Prediction
S-HS-EAEV-0145	Isabel Medrano	The Impact of Elapsed Burn Time on Restored Prairie Plant Biodiversity and Soil Nutrient Content
W-MS-ENMC-0150	Levi Abbring	Bridging the Gap
W-MS-CHEM-0270	Lauren Craig	Exploding Experiments
T-MS-ENEV-0155	Minhphuong Le	Which Animal Manure Fire lasts the Longest?
S-MS-ROBO-0116	Michael Nobrega	If the Use of Drones in Search and Rescue (SAR) Operations Affects the Efficiency of the Mission and the Likelihood of a Rescue
T-MS-ENMC-0214	Ella Borner	Homework Helper

Teacher Excellence

Mike Huemoeller--Burnsville High School

Brian Stock--Blessed Trinity Catholic School

ISEF Alumni Award - Timara Underbakke

W-MS-MATS-
0222

Liam Gottsch

Hooked! Fishing Line Experiment

ISEF Alumni Award - Dr. Kyrstin Ball

T-MS-TMED-
0030

Coolsjes Singhvi

D-PREDICT: An Artificial Intelligence Model
for Predicting Likelihood of Early Stage
Diabetes

ISEF Alumni Award - Kyra Zimmerman

S-MS-BMED-
0094

Maggie Kane

"Does Acetazolamide Reduce the Amount of
Electrical Activity in the Brain, as Measured by
Spike-Wave Index, During Sleep for Children
with a Specific Type of Epilepsy Called LKS"

Caffeinated Student Award

W-HS-ENBM-
0085

Lauren Benoit

The impact of green tea on bacterial
nanocellulose's biomedical properties

Joel Wagner Caring Bridge Award

W-HS-CELL-
0174

Fazila Mohamed Prem
Navaz

Mitigating Metastasis: Utilizing cancer-
associated fibroblasts to stop the spread of
cancer

American Meteorological Society (St. Paul)

S-HS-ENEV-
0138

Jack Hlavka

Treatment of Acid Mine Drainage with
Desulfovibrio desulfuricans

American Meteorological Society (Twin Cities)

T-MS-EAEV-
0210

Ruby Escobar

Sunsets and Sunrises In Twelve Days

American Meteorological Society (Western)

W-MS-EAEV-
0248

Quinn Hughes, Tyler Clair

Can Machine Learning Predict Hurricane
Damage in a Changing Climate?

W-HS-EAEV-
0206

Adithi Rupireddy

A Breath of Fresh Air: Characterizing changes
in atmospheric carbon monoxide in the United
States to mitigate climate change

American Psychological Association (St. Paul)

S-HS-BEHA-
0239

Naci Konar-Steenberg

Significant zero: the effect of personality
questionnaires on identity-relevant choices

American Psychological Association (Twin Cities)

T-HS-BEHA-
0229

Holly Restad

Harnessing Innovation in Healthcare: Solving
Disparities and Inequities in Minnesota?s
Healthcare Services Using Creative Solutions
Proposed by Medical Providers

American Psychological Association (Western)

W-HS-BEHA-
0119

Tori Thomas

Saving Lives Through Legislation: Addressing
Gaps in Coverage for Breast Cancer
Screening

ASM Materials Educational Foundation (St. Paul)

S-HS-EGSD-
0153

Maggie Banks

"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"

ASM Materials Educational Foundation (Twin Cities)

T-MS-MATS-
0202

Liam McGlynn

Wood vs Composite Hockey Sticks

ASM Materials Educational Foundation (Western)

W-HS-MATS-
0064

Nick Carver

The potential application of super elastic Nitinol alloy for use in type III body armor

Association of Women Geoscientists (St. Paul)

S-HS-EAEV-
0145

Isabel Medrano

The Impact of Elapsed Burn Time on Restored Prairie Plant Biodiversity and Soil Nutrient Content

Association of Women Geoscientists (Twin Cities)

T-MS-PLNT-
0181

Cassidy Gaston

The Great Wall of Plants: The Effect of Plants on Soil Erosion

Association of Women Geoscientists (Western)

W-HS-EAEV-
0076

Tessa Lundheim

Seasonal analysis of human impact on ammonia oxidizing archaea in soil microbial communities within a suburban area

Lemelson Early Inventor Prize (St. Paul)

S-MS-BMED-
0094

Maggie Kane

"Does Acetazolamide Reduce the Amount of Electrical Activity in the Brain, as Measured by Spike-Wave Index, During Sleep for Children with a Specific Type of Epilepsy Called LKS"

Lemelson Early Inventor Prize (Twin Cities)

T-MS-EGSD-
0161

Grant Pilgrim

Solar Powered Phone Charger

Lemelson Early Inventor Prize (Western)

W-MS-BMED-
0026

Elizabeth Levinshteyn

"Testing, Testing: Developing an All-Strain-Inclusive Test for SARS-CoV2"

Mu Alpha Theta (St. Paul)

S-HS-ENMC-
0240

William Anderson

A Comparison of Three Wing Configurations at Different Heights in Ground Effect

Mu Alpha Theta (Twin Cities)

T-HS-ENMC-
0147

Nickolas Zander

The Engineering Behind Theme Park Rides: Creating and Coding a Model Theme Park Ride

Mu Alpha Theta (Western)

W-HS-PHYS-
0037

Austin Hunter

The impact of drafting in cross country skiing

NASA Earth System Science Award (St. Paul)

S-HS-ENEV-
0138

Jack Hlavka

Treatment of Acid Mine Drainage with
Desulfovibrio desulfuricans

NASA Earth System Science Award (Twin Cities)

T-MS-PLNT-
0181

Cassidy Gaston

The Great Wall of Plants: The Effect of Plants
on Soil Erosion

NASA Earth System Science Award (Western)

W-MS-EAEV-
0248

Quinn Hughes, Tyler Clair

Can Machine Learning Predict Hurricane
Damage in a Changing Climate?

National Oceanic and Atmospheric Administration (St. Paul)

S-HS-EAEV-
0203

Pilar Saavedra-Weis

"The Effect of Rising Temperature on the
Polystyrene Degradation Rate of the
Superworm, *Zophobas atratus*"

National Oceanic and Atmospheric Administration (Twin Cities)

T-MS-EAEV-
0210

Ruby Escobar

Sunsets and Sunrises In Twelve Days

National Oceanic and Atmospheric Administration (Western)

W-MS-EAEV-
0248

Quinn Hughes, Tyler Clair

Can Machine Learning Predict Hurricane
Damage in a Changing Climate?

Ricoh Sustainable Development Award (St. Paul)

S-HS-EAEV-
0127

Gavin Kimmel

Examining the Relationship Between
Socioeconomic Status and Soil Macronutrient
Levels

Ricoh Sustainable Development Award (Twin Cities)

T-MS-EAEV-
0220

Sriram Sureshkumar

Impact of Chemicals and Pesticide residue on
compost

Ricoh Sustainable Development Award (Western)

W-HS-EAEV-
0083

Amrit Menon, Ivy Ferstan

"Pulling Apart Plastic: Measuring the
effectiveness of wax worms, bacteria, and
fungus in breaking down biodegradable
plastic"

Society for In Vitro Biology (St. Paul)

S-HS-BMED-
0118

Divya Bhargava

No Change? Impact of FDA Warning on the
Use of Opioids and Benzodiazepines and
Their Effects in Older Allogeneic
Hematopoietic Stem Cell Transplant Patients

Society for In Vitro Biology (Twin Cities)

T-HS-BMED-
0152

Elisa Guo

CD8 T cell epitope generation toward the
mutating SARS-CoV-2 spike protein in
genetically diverse human population:
Implications for disease control and
prevention

Society for In Vitro Biology (Western)

W-HS-BMED-
0235

Hubert He

Analysis of Gene Expression Changes
Influenced by Various Severe COVID-19-
associated Single Nucleotide Polymorphisms

USAID - US Agency for International Development (St. Paul)

S-HS-EAEV-0203

Pilar Saavedra-Weis

"The Effect of Rising Temperature on the Polystyrene Degradation Rate of the Superworm, *Zophobas atratus*"

USAID - US Agency for International Development (Twin Cities)

T-HS-EAEV-0132

Irshad Moalim

The effect of sunlight on the salinity of water and the impact of black and white construction paper on the amount of desalinated water.

USAID - US Agency for International Development (Western)

W-HS-EAEV-0206

Adithi Rupireddy

A Breath of Fresh Air: Characterizing changes in atmospheric carbon monoxide in the United States to mitigate climate change

US Metric Association (St. Paul)

S-HS-BMED-
0264

Maxanne Millerhaller

The In Vitro Digestion of Animal-based Meat
versus Plant-based Meat Alternatives

US Metric Association (Twin Cities)

T-HS-BMED-
0172

Evelynn Shero

The Affect Different Forms of Sugar Have on
Glucose Levels During Metabolization

US Metric Association (Western)

W-HS-PHYS-
0037

Austin Hunter

The impact of drafting in cross country skiing

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

S-HS-ENMC-
0240

William Anderson

A Comparison of Three Wing Configurations
at Different Heights in Ground Effect

Yale Science and Engineering Association Inc. (Twin Cities)

T-HS-ENMC-
0147

Nickolas Zander

The Engineering Behind Theme Park Rides:
Creating and Coding a Model Theme Park
Ride

Yale Science and Engineering Association Inc. (Western)

W-HS-ENBM-
0033

Cole Rabe

Evaluating the effectiveness of Cellulose
Acetate membranes as a replacement for
mouse skin in permeability studies

Stockholm Junior Water Prize (St. Paul)

S-HS-ENEV-0138	Jack Hlavka	Treatment of Acid Mine Drainage with <i>Desulfovibrio desulfuricans</i>
S-HS-MCRO-0117	Maya Choi	Degradation of Microplastics: The Efficacy of Various Bacteria in Breaking Down Microplastics in the Environment

Stockholm Junior Water Prize (Twin Cities)

T-HS-EAEV-0132	Irshad Moalim	The effect of sunlight on the salinity of water and the impact of black and white construction paper on the amount of desalinated water.
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Stockholm Junior Water Prize (Western)

W-HS-ENEV-0129	John Cardwell	Testing the Waters: Engineering an Innovative Method of Water Health Analysis Year II
W-HS-EGSD-0048	Grace Kaung	Comparison of energy output levels of the upper Mississippi River sediment using sediment microbial fuel cells
W-HS-EAEV-0082	Anna Geldert	Using mycoremediation as a treatment technique to reduce heavy metal concentration in model mine effluent

Middle School Research Paper Awards

Research Papers MS First Place

501 Elizabeth Levinshteyn Testing, Testing: Developing an All-Strain-Inclusive Test for SARS-CoV2

Research Papers MS Second Place

507 Natalie Hoekman Water You Filtering

Research Papers MS Third Place

503 Lily Stel On your Mark Get Set Bake

Research Papers Minnesota Academy of Science Medal

505 Sriram Sureshkumar Impact of chemicals and pesticide residue on Compost

Research Papers HS Advancing to JSHS

140	William Anderson	A Comparison of Three Wing Configurations at Different Heights in Ground Effect
119	Maggie Banks	Salt and Paper: Engineering a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage
187	Divya Bhargava	No Change? Impact of FDA Warning on the Use of Opioids and Benzodiazepines and Their Effects in Older Allogeneic Hematopoietic Stem Cell Transplant Patients
207	Atreyus Bhavsar	The Spread of Macroscopic Droplets from a Simulated Cough with and without the Use of Masks or Barriers
132	John Cardwell	Testing the Waters: Engineering an Innovative Method of Water Health Analysis, Year II
165	Eleanor Chen	The Effects of Storage Temperature and Exogenous Ethylene Exposure on the Ripening Rate, Quality, and Glucose Level of Postharvest Ripened Tomatoes (<i>Solanum lycopersicum</i>)
157	Maya Choi	Degradation of Microplastics: The Efficacy of Various Bacteria in Breaking Down Microplastics in the Environment
175	Nathan DeMichaelis	Learning in the Living Room: What Skills Contribute to Success in Distance Learning?
146	Yohanes Eshete	The Effect Pollutants have on <i>Daphnia Magna</i>
154	Ivy Ferstan, Amrit Menon	Pulling Apart Plastic: Measuring the effectiveness of wax worms, bacteria, and fungus in breaking down biodegradable plastic
189	Elisa Guo	CD8 T cell epitope generation toward the mutating SARS-CoV-2 spike protein in genetically diverse human population: Implications for disease control and prevention
115	Ellen Guo	Distinctive mutational profiles of SARS-CoV-2 spike protein in different geographic regions of the United States
160	Jack Hlavka	Treatment of Simulated Acid Mine Drainage with <i>Desulfovibrio Desulfuricans</i>
103	Vaughn Hughes	Using Artificial Intelligence and Electronic Health Records (EHR) to Design a COVID-19 Testing Model
104	Quentin Hughes	An Active Role for Machine Learning in the Diagnosis of Cardiac Arrhythmias, Year 2

206	Austin Hunter	Determining the impact of drafting formation on the aerodynamic drag experienced by a group of cross country skiers
136	James Johnson	The Effect of Temperature on the Distance Golf Balls Travel
167	Audra Johnson	The Effects of Disinfectants on Escherichia Coli Bacteria
204	Jacob Johnson	The Result of Common Building Materials on the Strength of a Radio Signal
114	Julia Karls	Mighty Muscles: Examining Teratoma-derived Muscle Stem Cells and the Behavioral Tendencies of These Powerful Cells
159	Gavin Kimmel	Examining the Relationship Between Socioeconomic Status and Soil Macronutrient Levels
195	Naci Konar-Steenberg	Significant zero: the effect of personality questionnaires on identity-relevant choices
205	Tarun Kota	Detection and Characterization of Astronomical dwarfs using CatWISE
130	Benjamin Kroul, Dominic Greco	Mighty MOFs: Investigating 1-butene dimerization on UiO-66 variants to improve alpha-olefin production
153	Isabel Medrano	Determining the impact of burn management on plant biodiversity and soil nutrient content in restored prairies
139	Levi Mellin, Nikolas Liepins	SPYGLASS: Eye-controlled camera glasses
163	Maxanne Millerhaller	The In Vitro Digestion of Animal-based Meat versus Plant-based Meat Alternatives
116	Fazila Mohamed Prem Navaz	Mitigating Metastasis: Utilizing cancer-associated fibroblasts to stop the spread of cancer
170	George Montague	The effect of UVC exposure on germination rate, time until germination and growth rate in radishes (<i>Raphanus sativus</i>)
194	Karen Nakamura	Martial arts technique assessment using voluntary muscle contraction and relaxation cycle by surface electromyography (EMG)
174	Caroline Pirtle, Sahana Mangipudi	Optimizing Residential Schedules for Increased Clinic and Patient Continuity
183	Abirami Rajasekaran, Harini Senthilkumar	Predicting compensatory exercise behaviors from anxiety symptomatology in patients with eating disorders: secondary analysis of a publicly available dataset
156	Benjamin Rex, Grayson Roberts	Effectively and Efficiently Growing Phytoplankton for Creating Biofuels
131	George Richards, William Sweeney	A.L.M.E. Assistive Lifting Machine for Elders: Engineering a solution to fall-recovery-related injuries in seniors and caregivers

141	Pilar Saavedra-Weis	The Effect of Rising Temperature on the Polystyrene Degradation Rate of the Superworm, <i>Zophobas atratus</i>
162	Simren Samba, Fiona Kinney	Fruit Fly Frenzy: Investigating the Development of Insecticide Resistance in <i>Drosophila Melanogaster</i>
152	Will Sedo	Exploring the Physiology of <i>D. Geminata</i>
111	Evelynn Shero	The Affect Different Forms of Sugar Have on Glucose Levels During Metabolization
192	Tori Thomas	Saving Lives Through Legislation: Addressing Gaps in Coverage for Breast Cancer Screening
161	Isabel Toghradjian	Optimizing photoperiod to improve drought resistance in <i>Arabidopsis thaliana</i>
155	Ayres Warren, Christina Radichel	The Effects of Varied Fertilizer Treatments on Radishes
148	Ella White	Preventative methods for san diego erosion
102	Johnny Yue, Sydney Peng	Upsurge of the Glycolytic Pathway in Cancer: A Dynamic Network Analysis of Oncogenic Mutations in Phosphofructokinase-1
184	Lorien Zhao	Change, Opportunity, Vision, Innovation, and Decision-making (COVID): Business and Personal Strategies for Surviving a Global Pandemic

High School Research Paper Awards

Research Papers HS First Place

175 Nathan DeMichaelis Learning in the Living Room: What Skills Contribute to Success in Distance Learning?

Research Papers HS Second Place

130 Benjamin Kroul,
Dominic Greco Mighty MOFs: Investigating 1-butene dimerization on UiO-66 variants to improve alpha-olefin production

Research Papers HS Third Place

189 Elisa Guo CD8 T cell epitope generation toward the mutating SARS-CoV-2 spike protein in genetically diverse human population: Implications for disease control and prevention

Broadcom MASTERS (St. Paul)

S-MS-BEHA-0058	Audrey Erickson	Do Children Who Read More Have Better Vocabularies?
S-MS-BEHA-0059	Noelle Akins	How Does Age Affect Your Memory?
S-MS-ENEV-0093	Will Cunningham	Can Using Magnets as a Growth Stimulant Overcome Poor Plant Growing Conditions?
S-MS-BMED-0094	Maggie Kane	"Does Acetazolamide Reduce the Amount of Electrical Activity in the Brain, as Measured by Spike-Wave Index, During Sleep for Children with a Specific Type of Epilepsy Called LKS"

Broadcom MASTERS (Twin Cities)

T-MS-EAEV-0220	Sriram Sureshkumar	Impact of Chemicals and Pesticide residue on compost
T-MS-MATS-0202	Liam McGlynn	Wood vs Composite Hockey Sticks
T-MS-BEHA-0177	Elias DeCrans	Perception vs Reality
T-MS-ANIM-0175	Ian Fuls	What Type of Seed Do Local Birds Prefer?
T-MS-PLNT-0199	Kayleigh Skjod	Sudsy Basils
T-MS-ANIM-0191	Kaitlin Telep	A Hamster's Preference: Which Food Will it Pick?
T-MS-TMED-0030	Coolsjes Singhvi	D-PREDICT: An Artificial Intelligence Model for Predicting Likelihood of Early Stage Diabetes
T-MS-PHYS-0207	John (Jack) Larson	Hydro Flask Versus Yeti - Which One Stays Hotter or Colder?

Broadcom MASTERS (Western)

W-MS-BEHA-0105	Sanjana Kollipara	Inside the Mind: Studying the Effect of Daily Tasks on Short Term Memory
W-MS-ENMC-0150	Levi Abbring	Bridging the Gap
W-MS-CHEM-0140	Lily Stel	"On your mark, get set, bake"
W-MS-EAEV-0248	Quinn Hughes, Tyler Clair	Can Machine Learning Predict Hurricane Damage in a Changing Climate?
W-MS-EGSD-0242	Brady Peterson	Picking metal up like nothing ; Will wire winding affect the strength of an electromagnet?
W-MS-ENMC-0223	Thomas Rewey	Gliding Through the Sky. How Stabilizers Affect Distance
W-MS-PLNT-0196	Hannah Grosser	"If You Plant It, They Will Come: Planting for Pollinator Diversity in Your Home Garden"

State Science Fair MS

S-MS-BCHM-0090	James Summers	Does Adding Different Kinds of Yeasts to a Wort Affect the Overall Gravity of the Solution
S-MS-BEHA-0027	Selamawit Tenaye	Videos and Heart Rate
S-MS-BEHA-0057	Leah Neil	Can you tell if someone is lying based on how their body language changes?
S-MS-BEHA-0058	Audrey Erickson	Do Children Who Read More Have Better Vocabularies?
S-MS-BEHA-0059	Noelle Akins	How Does Age Affect Your Memory?
S-MS-BEHA-0113	Ben OShaughnessy	How Does Cell Phone Usage Affect Reaction Time?
S-MS-BEHA-0114	Jane Stangler	"If Someone Smiles At You, Will You Smile Back?"
S-MS-BEHA-0134	Quinn Walsh, Samantha Palm	Smell vs. Taste
S-MS-BEHA-0137	Morgan Johnson	Maple Syrup Candy
S-MS-BMED-0060	Ian Johnson	What Types of Masks Are The Safest to Wear
S-MS-BMED-0094	Maggie Kane	"Does Acetazolamide Reduce the Amount of Electrical Activity in the Brain, as Measured by Spike-Wave Index, During Sleep for Children with a Specific Type of Epilepsy Called LKS"
S-MS-ENEV-0093	Will Cunningham	Can Using Magnets as a Growth Stimulant Overcome Poor Plant Growing Conditions?
S-MS-MATS-0092	Bud Brondum	Grip the Greatness? Do Football Gloves really help you catch better then bare hands?
S-MS-MATS-0115	Will Guion	"Which fishing line holds the most weight; testing braid, mono, and fluorocarbon lines."
S-MS-PHYS-0133	Mason Deegan	The Most Eggcellent Science Project
S-MS-ROBO-0116	Michael Nobrega	If the Use of Drones in Search and Rescue (SAR) Operations Affects the Efficiency of the Mission and the Likelihood of a Rescue
T-MS-ANIM-0158	Henry Ahern	Coke Vs. Pepsi
T-MS-ANIM-0175	Ian Fuls	What Type of Seed Do Local Birds Prefer?
T-MS-ANIM-0191	Kaitlin Telep	A Hamster's Preference: Which Food Will it Pick?
T-MS-ANIM-0192	Joseph Doeblner	Do Dogs have a Color Preference?
T-MS-ANIM-0211	Shreya Sekar	Reptile Recovery: How local actions can protect endangered species
T-MS-BEHA-0177	Elias DeCrans	Perception vs Reality

T-MS-BEHA-0178	Kacia Caron	"Ready, Set, Go; Does Age Affect Reaction Time?"
T-MS-BEHA-0180	Nathan Nguyen	Were You Lied To?
T-MS-BEHA-0184	Eleanora Kucko	Does Your Zodiac Sign Predict Your Personality Type?
T-MS-BEHA-0186	Ashley Vega	How Does Music Affect Your Mood?
T-MS-BEHA-0187	Kayla Miller	How Does Color Affect Your Memory?
T-MS-BMED-0188	Lila Martin	The Effects of Fast Acting Sugars on Diabetics and Non-Diabetics
T-MS-BMED-0243	Olivia Hamann	Don't Fall Flat
T-MS-CHEM-0169	Summer Nelson	Slime: A Scientifically Tangled Mess
T-MS-CHEM-0179	Giselle Guasco Paucar	Does Temperature Affect a Volcano's Eruption?
T-MS-CHEM-0249	Isaac Wening	Dissolving Sugar Cubes
T-MS-CHEM-0254	Alex Sum	Sunscreen Panic
T-MS-EAEV-0220	Sriram Sureshkumar	Impact of Chemicals and Pesticide residue on compost
T-MS-EAEV-0230	Joseph Willaert	Natural Solutions for Dust Reduction
T-MS-EAEV-0237	Liam Murphy	Is it nice to add spice to ice?
T-MS-EGSD-0161	Grant Pilgrim	Solar Powered Phone Charger
T-MS-EGSD-0189	Chipo Chinokoro	Citrus Battery
T-MS-EGSD-0201	Edwin Portillo	Does the Temperature of a Battery Affect How Long It Lasts?
T-MS-ENEV-0155	Minhphuong Le	Which Animal Manure Fire lasts the Longest?
T-MS-ENEV-0238	Lillie Wagner	Recycled Material Floating Bio-Habitat
T-MS-ENMC-0218	Audryn Hegewald	Rice Pack Holder
T-MS-ENMC-0219	Olivia Farina	AmbidextriCut?
T-MS-MATS-0202	Liam McGlynn	Wood vs Composite Hockey Sticks
T-MS-MCRO-0193	Kari Chimbo	The Effect of Homemade Wipes Vs. Clorox Wlipes
T-MS-PHYS-0190	William Mattson	Temperature Magnets and Perpetual Motion Machines
T-MS-PHYS-0207	John (Jack) Larson	Hydro Flask Versus Yeti - Which One Stays Hotter or Colder?

T-MS-PLNT-0130	Harper Burns	Does Salt Effect Cat Grass Growth?
T-MS-PLNT-0159	Jack Kirchberg	Which Color of Light Makes Plants Grow the Tallest
T-MS-PLNT-0166	Conor McCarthy	Which Liquid Helps Radish Seeds Grow Best?
T-MS-PLNT-0181	Cassidy Gaston	The Great Wall of Plants: The Effect of Plants on Soil Erosion
T-MS-PLNT-0185	Elizabeth Foley	pH and Plants!
T-MS-PLNT-0199	Kayleigh Skjod	Sudsy Basils
T-MS-PLNT-0213	Marco De Leon	The Effects of Music on Plants
T-MS-PLNT-0224	Victor Estrada	Does Saliva Affect the Growth Rate of A Bean Seed?
T-MS-PLNT-0231	Izzy Carlson	The effect of water tempature on plant growth
T-MS-SOFT-0062	Riddhi Singhvi	ICU Car Sentry: An Intelligent Car Safety System
T-MS-TMED-0030	Coolsjes Singhvi	D-PREDICT: An Artificial Intelligence Model for Predicting Likelihood of Early Stage Diabetes
W-MS-BEHA-0105	Sanjana Kollipara	Inside the Mind: Studying the Effect of Daily Tasks on Short Term Memory
W-MS-BEHA-0142	Anelli Hagen	Do Different Oder's Move Your Motor
W-MS-BEHA-0143	Kelsey Nelson	Optical Illusions: Are You Just Bad at Seeing Them or are Other Ages and Genders Just Better
W-MS-BMED-0026	Elizabeth Levinshteyn	"Testing, Testing: Developing an All-Strain-Inclusive Test for SARS-CoV2"
W-MS-BMED-0151	Evelyn Danz	Stop the Clot: The Effect of Anticoagulants on Thrombosis
W-MS-BMED-0215	Iona Heddle	Kids vs. Screens
W-MS-BMED-0232	Carter Miedema	Do masks affect your oxygen levels and heart rate?
W-MS-CHEM-0140	Lily Stel	"On your mark, get set, bake"
W-MS-CHEM-0141	Avery Cantwell	Cookie Flour Power
W-MS-CHEM-0269	Matthew Craig	Coin Cleaning
W-MS-CHEM-0270	Lauren Craig	Exploding Experiments
W-MS-EAEV-0104	Shagun Shrivastava	100% Biodegradable Plastics!!! Is it true?
W-MS-EAEV-0225	Mac Hoekstra	O2 Is For You! Why Oxygen Is Important To Fish Population

W-MS-EAEV-0248	Quinn Hughes, Tyler Clair	Can Machine Learning Predict Hurricane Damage in a Changing Climate?
W-MS-EGSD-0242	Brady Peterson	Picking metal up like nothing ; Will wire winding affect the strength of an electromagnet?
W-MS-ENEV-0209	Mercy March	Purification with Desalination
W-MS-ENMC-0150	Levi Abbring	Bridging the Gap
W-MS-ENMC-0223	Thomas Rewey	Gliding Through the Sky. How Stabilizers Affect Distance
W-MS-MATS-0144	Noah Bandstra	Feel The Pull
W-MS-MATS-0222	Liam Gottsch	Hooked! Fishing Line Experiment
W-MS-PLNT-0196	Hannah Grosser	"If You Plant It, They Will Come: Planting for Pollinator Diversity in Your Home Garden"

State Science Fair HS

S-HS-BEHA-0239	Naci Konar-Steenberg	Significant zero: the effect of personality questionnaires on identity-relevant choices
S-HS-BMED-0118	Divya Bhargava	No Change? Impact of FDA Warning on the Use of Opioids and Benzodiazepines and Their Effects in Older Allogeneic Hematopoietic Stem Cell Transplant Patients
S-HS-BMED-0264	Maxanne Millerhaller	The In Vitro Digestion of Animal-based Meat versus Plant-based Meat Alternatives
S-HS-EAEV-0127	Gavin Kimmel	Examining the Relationship Between Socioeconomic Status and Soil Macronutrient Levels
S-HS-EAEV-0145	Isabel Medrano	The Impact of Elapsed Burn Time on Restored Prairie Plant Biodiversity and Soil Nutrient Content
S-HS-EAEV-0256	Will Sedo	Identifying the Growth Window for <i>Didymosphenia geminata</i> : A Method for In-lab Growth
S-HS-EAEV-0266	Rashmi Raveendran	The Effect of Ammonium Nitrate Concentration on <i>Escherichia coli</i> Temperature Resistance
S-HS-EBED-0217	Levi Mellin, Nikolas Liepins	SPYGLASS: Eye-controlled camera glasses
S-HS-EGSD-0153	Maggie Banks	"Salt and Paper: Using Papermaking Techniques to Engineer a Plant-Based Piezoelectric Transducer with Rochelle Salt to Generate a Resilient, Eco-Friendly Source of Voltage"
S-HS-ENEV-0138	Jack Hlavka	Treatment of Acid Mine Drainage with <i>Desulfovibrio desulfuricans</i>
S-HS-ENMC-0240	William Anderson	A Comparison of Three Wing Configurations at Different Heights in Ground Effect
S-HS-MATS-0236	Ben Chen	Incorporation of Recycled Plastics In Road Materials
S-HS-MCRO-0117	Maya Choi	Degradation of Microplastics: The Efficacy of Various Bacteria in Breaking Down Microplastics in the Environment
S-HS-PLNT-0099	Eleanor Chen	"The Effects of Storage Temperature and Exogenous Ethylene Exposure on the Ripening Rate, Quality, and Glucose Level of Postharvest Ripened Tomatoes (<i>Solanum lycopersicum</i>)"
S-HS-PLNT-0233	George Montague	"The effect of UVC exposure on germination rate, time until germination and growth rate in radishes (<i>Raphanus sativus</i>)"
S-HS-PLNT-0241	Isabel Toghramadjian	Optimizing photoperiod to improve drought resistance in <i>Arabidopsis thaliana</i>
T-HS-BEHA-0146	Ahreum Ham	Pandemic Pragmatism: The impact of COVID-19 on sustainable living

T-HS-BEHA-0229	Holly Restad	Harnessing Innovation in Healthcare: Solving Disparities and Inequities in Minnesota?s Healthcare Services Using Creative Solutions Proposed by Medical Providers
T-HS-BMED-0120	Grace Affeldt	Drug Solubility of Acetaminophen
T-HS-BMED-0131	Liyu Tenkir	Extracting Iron from Breakfast Cereal
T-HS-BMED-0152	Elisa Guo	CD8 T cell epitope generation toward the mutating SARS-CoV-2 spike protein in genetically diverse human population: Implications for disease control and prevention
T-HS-BMED-0172	Evelynn Shero	The Affect Different Forms of Sugar Have on Glucose Levels During Metabolization
T-HS-CBIO-0126	Johnny Yue, Sydney Peng	Upsurge of the Glycolytic Pathway in Cancer: A Dynamic Network Analysis of Oncogenic Mutations in Phosphofructokinase-1
T-HS-ENMC-0147	Nickolas Zander	The Engineering Behind Theme Park Rides: Creating and Coding a Model Theme Park Ride
T-HS-MCRO-0154	Ellen Guo	Distinctive mutation profiles of SARS-CoV-2 spike protein in different geographic regions of the United States
T-HS-MCRO-0261	Audra Johnson	The Effects of Disinfectants on Escherichia Coli Bacteria
T-HS-PHYS-0125	Jacob Johnson	The Result of Common Building Materials on the Strength of a Radio Signal
T-HS-PHYS-0198	Tarun Kota	Detection and Characterization of Astronomical Dwarfs using CatWISE
T-HS-PHYS-0257	Cade Bunnell	Correlation between type of glove and catch performance
W-HS-ANIM-0046	Ahlaam Abdulwali	The Effects of Artificial Food Colors on the Release of Neurotransmitters within Model Organisms
W-HS-ANIM-0081	Simren Samba, Fiona Kinney	Fruit Fly Frenzy: Investigating the Development of Insecticide Resistance in Drosophila Melanogaster
W-HS-BCHM-0040	Madison Andrews	Comparison of the indole and ammonia detection methods of E. coli and creation of a streamlined testing process
W-HS-BCHM-0051	Anna Bricker	Effects of N-3 series fatty acids on the quantity and quality of pleopodal eggs and juveniles in freshwater crayfish
W-HS-BEHA-0031	Camille Witherspoon, Elin Wellmann, Corinne Moran	Facts vs Anecdotes and how they persuade
W-HS-BEHA-0047	Lena Pak	Mixed people in violation of race: can mixed people debunk the race myth?
W-HS-BEHA-0071	Nathan DeMichaelis	Learning in the Living Room: What Skills Contribute to Success in Distance Learning?

W-HS-BEHA-0086	Peyton Crest	Investigating the effect of the severity of activity based anorexia in <i>Drosophila melanogaster</i> on the gut microbiome
W-HS-BEHA-0102	Harini Senthilkumar, Abirami Rajasekaran	Predicting compensatory exercise behaviors from anxiety symptomatology in patients with eating disorders: secondary analysis of a publicly available dataset
W-HS-BEHA-0119	Tori Thomas	Saving Lives Through Legislation: Addressing Gaps in Coverage for Breast Cancer Screening
W-HS-BEHA-0160	Lily Nothom	Defeating the Divide: Creating sustainable partnerships in global healthcare between academic institutions and the communities they serve
W-HS-BEHA-0205	Greta Goldade	More than Just a Runner's High: Single-bout exercise and its lasting effects on cognition in the brain
W-HS-BEHA-0234	Ramira Ambrose	Women and Women of Color in College Coaching: A Quantitative Report on Head Coach Composition and Turnover for NCAA Division I Soccer.
W-HS-BMED-0098	Ming Ying Yeoh	A better approach to treating Alzheimer's? Multi-drug combination therapies in a <i>C. elegans</i> model
W-HS-BMED-0173	Rushil Khadilkar	Impact of Nutritional and Human Factors on Blood Glucose in Diabetic and non-Diabetic Subjects
W-HS-BMED-0235	Hubert He	Analysis of Gene Expression Changes Influenced by Various Severe COVID-19-associated Single Nucleotide Polymorphisms
W-HS-BMED-0246	Quentin Hughes	"An Active Role for Machine Learning in the Diagnosis of Cardiac Arrhythmias, Year 2"
W-HS-BMED-0247	Vaughn Hughes	Using Artificial Intelligence and Electronic Health Records to Build a COVID-19 Testing Model
W-HS-CELL-0084	Adelyn Diaz	Examination of serotonin levels in crayfish exposed to high ambient temperatures
W-HS-CELL-0174	Fazila Mohamed Prem Navaz	Mitigating Metastasis: Utilizing cancer-associated fibroblasts to stop the spread of cancer
W-HS-CHEM-0077	Benjamin Kroul, Dominic Greco	Mighty MOFs: Investigating 1-butene dimerization on UiO-66 variants to improve alpha-olefin production
W-HS-EAEV-0082	Anna Geldert	Using mycoremediation as a treatment technique to reduce heavy metal concentration in model mine effluent
W-HS-EAEV-0083	Amrit Menon, Ivy Ferstan	"Pulling Apart Plastic: Measuring the effectiveness of wax worms, bacteria, and fungus in breaking down biodegradable plastic"
W-HS-EBED-0052	Grace Roemig	Improved Wearable Device for Drowning Detection System

W-HS-EBED-0054	Zachary Levy	Development of an affordable ultrasonic array for recording and analysis
W-HS-EGSD-0029	Trisha Samba	Easy Piezy Electricity
W-HS-EGSD-0034	Kyla Fung	Pathway to a Sustainable Future: Economic and technical feasibility of hydrothermal carbonization (HTC) processing plants
W-HS-EGSD-0048	Grace Kaung	Comparison of energy output levels of the upper Mississippi River sediment using sediment microbial fuel cells
W-HS-EGSD-0079	Grayson Roberts, Benjamin Rex	Growing Fuel: Enhancing Phytoplankton Growth with Ferrous Sulfate to Reduce the Cost of Biofuel
W-HS-ENBM-0085	Lauren Benoit	The impact of green tea on bacterial nanocellulose's biomedical properties
W-HS-ENEV-0129	John Cardwell	Testing the Waters: Engineering an Innovative Method of Water Health Analysis Year II
W-HS-ENMC-0072	William Sweeney, George Richards	A.L.M.E. Assistive Lifting Machine for Elders: Engineering a solution to fall-recovery-related injuries in seniors and caregivers
W-HS-MATS-0061	Kendall White	Everlasting Elastics
W-HS-MATS-0064	Nick Carver	The potential application of super elastic Nitinol alloy for use in type III body armor
W-HS-MATS-0096	Rebekah Thomasson	The formation of edible packaging from food waste streams and its applications as alternative packaging to low density polyethylene and oriented polypropylene
W-HS-MCRO-0065	Ella Albrecht	Assessing the anti-quorum sensing activity of essential oils on Escherichia coli K-12 samples
W-HS-MCRO-0068	Ava Chen	"Analyzing the effects of Lactobacillus Rhamnosus as an alternative to antidepressants on Caenorhabditis elegans model organisms by determining its impact on locomotion, lifespan and pharyngeal pumping rates"
W-HS-MCRO-0069	Berit Cummings	Degradation of PET-based plastic pollution using Ideonella sakaiensis
W-HS-MCRO-0075	Alison Crandell	Effects of methoxsalen and UV radiation on subcutaneous P. destructans infections through the use of S. cerevisiae and G. mellonella as models
W-HS-MCRO-0251	Isabelle Murillo	Small But Mighty: The Power of Silver Nanoparticles
W-HS-PHYS-0037	Austin Hunter	The impact of drafting in cross country skiing
W-HS-PHYS-0197	Zhaomeng Chen	Investigating the Relationship Between Young's Modulus and Temperature Using Inline Digital Holography
W-HS-PLNT-0036	Isabella Escalante	The Elucidation of a Novel Laccase-Producing Fungal Strain with an Alkaline pH

W-HS-PLNT-0070	Maya Silver	Applied natural selection: the effect of sethoxydim on lipid production in algae
W-HS-PLNT-0074	Ayres Warren, Christina Radichel	You Are My Soil-Mate: The Effects of Fertilizer Composition on Radish Plant Growth
W-HS-ROBO-0039	Julian Byrne	Training Machine Learning Models to Determine Archery Scores
W-HS-ROBO-0045	Eli Hooker Reese	Teaching Manufacturing Robots with Kinesthetic Learning from Demonstration in a Miniature Replication of the Work Environment
W-HS-ROBO-0063	Kevin Armstrong	Robotic Arm Plants for Climate Change
W-HS-ROBO-0157	Ananyaa Arvind	Innovative Chatbot Solutions: Designing a conversational agent to promote student success during distance learning
W-HS-ROBO-0195	Steven Wang	Examination of Natural Language Processing for Courtroom Semantic Analysis
W-HS-SOFT-0043	Alexander Soltau	Artificial Neural Network News Sentiment and Keyword-Based Stock Price Prediction
W-HS-SOFT-0050	Kiefer Miskiw	Rapid development of 3D worlds
W-HS-SOFT-0053	Jack Wherry	Improving the efficiency of sanitizer-guided fuzzing through libFuzzer-style in-process mechanisms
W-HS-SOFT-0073	Caroline Pirtle, Sahana Mangipudi	A Schedule a Day Keeps the Doctor Okay: An algorithmic and user-friendly approach
W-HS-SOFT-0103	Shreshth Shrivastava	WI-CARE: Wifi Computer-Assisted Remote Eldercare (Year 2)
W-HS-TMED-0252	Atreyus Bhavsar	The Spread of Macroscopic Droplets from a Simulated Cough with and without the Use of Masks or Barriers

Schools Participating in 2021

Armstrong High School
Avail Academy (Blaine)
Avail Academy (Edina)
Blaine High School
Blake School - Northrop Campus
Blessed Trinity Catholic School
Breck School
Burnsville High School
Century Middle School (Lakeville)
Craig Academy
Eagle Ridge Middle School
East Ridge High School
Eastview Senior High
Eden Prairie High School
Highland Park Middle School
Humboldt Junior High
Lighthouse Secondary
Mahtomedi Middle School
Math and Science Academy
Minnehaha Academy North Campus

Minnetonka High School
Minnetonka Middle School West
Mounds Park Academy
Mounds View High School
Nativity of Our Lord
New Life Academy
Nicollet Middle School
Orono Senior High
Prairie View Elementary School
Robbinsdale Armstrong Senior High
St. Helena Catholic School
St. Paul Academy Summit School
Stillwater Area High School
Stillwater Middle School
Transfiguration Catholic School
Valley Middle School of STEM
Wayzata High School
Wayzata West Middle School
Woodbury High School

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