Twin Cities Regional Science Fairs Awards

March 1 - 2, 2019

Students selected to compete at International Science and Engineering Fair in Phoenix, Arizona in May, 2019 are:

ISEF Finalist (Twin Cities)

1173T	Haley Jostes	Combating Undernutrition in Developing Countries with a Compact Aeroponics System Utilizing Contaminated Water
1154T	Manashree Padiyath	Thyme and Thyme again! Investigation of synergistic antimicrobial activity of Thymus vulgaris Essential Oil in combination with 'superfood' Essential Oils
1138T	Osman Warfa	The Stability of an Aircraft Wing with Varied Winglets

ISEF 1st Alternate (Twin Cities)

1038T	Michael Finch	The Effects of Oxygen Deprivation and Carbon Dioxide Retention on Athletic Performance

ISEF 2nd Alternate (Twin Cities)

1192T	Milan Jostes	Developing FourS 1.0 - A Java Software Utilizing Quick Response Code and Smartphone Technology to Reduce the Number of School Shootings

ISEF 3rd Alternate (Twin Cities)

1144T	Nancy Wang	Disaster Resistant House X

Students selected to compete at International Science and Engineering Fair in Phoenix, Arizona in May, 2019 are:

ISEF Finalist (Western)

1127W	Kerui Yang	Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
1184W	Parthiv Krishna	Robust Autonomous Micro Aerial Vehicle (MAV) Navigation with Onboard, Environment-Agnostic, Multi-Sensor SLAM
1042W	Rachel Gunderson, Boatemaa Agyeman-Mensah	Healing a Broken Heart: Examining the Role of Polycomb Group Protein Asxl2 in Regulating Cardiomyocyte Proliferation

ISEF 1st Alternate (Western)

1182W	Jai Chadha	Low-Cost Concealed Weapon Detection for School Environments Using Acoustic Signatures

ISEF 2nd Alternate (Western)

1172W	Quentin Hughes	How Can the Earth Feed 10 Billion People? Development of an Energy-Efficient Method for Significantly Increasing Vertical Farm Output without Sacrificing Nutrition

ISEF 3rd Alternate (Western)

1065W	Lana Trautman, Samuel Putnam	Precision Peptides: Exploring the role of TAT-functionalized nanoparticles in stem-cell based targeted cancer treatment

Students selected to compete at International Science and Engineering Fair in Phoenix, Arizona in May, 2019 are:

ISEF Finalist (St. Paul)

1068S   Ethan Dincer   Determination of Mutant JUP Localization in an iPSC Model of ARVC: Implications for Diagnosis and Pathogenesis

1186S   Melissa Nie   Applying Thermopile Array Sensors and Machine Learning to Detect Falls of Older Adults

ISEF 1st Alternate (St. Paul)

1096S   Margaret Hlavka   Early Growth of Tallgrass Under Variable Precipitation and Species Evenness Scenarios

ISEF 2nd Alternate (St. Paul)

1099S   Gabriel Konar-Steenberg   Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output

3M Sponsor Award

1086S   Qeng Xiong   Protein Prenylation: Farnesyl Diphosphate Analog and
                                      its Usage in Disease Research

Northrup Grumman Sponsor Award

1184W   Parthiv Krishna   Robust Autonomous Micro Aerial Vehicle (MAV)
                                      Navigation with Onboard, Environment-Agnostic, Multi-
                                      Sensor SLAM

Dow DuPont Water and Process Solutions Sponsor Award

1127W   Kerui Yang   Harvesting the Blue Wave Energy by Circular
                                      Electromagnetic Generator

Ecolab Sponsor Award

1172W   Quentin Hughes   How Can the Earth Feed 10 Billion People?
                                      Development of an Energy-Efficient Method for
                                      Significantly Increasing Vertical Farm Output without
                                      Sacrificing Nutrition

Premier Bank Sponsor Award

8054T   Olivia Munro   Does the length of a PIN matter

Office Depot Sponsor Award

7009T   Yordanos Eshete   Does Reading Affect Heart Rate?

City of St. Paul Youth Fund Sponsor Award

7072S   Elise Dunne   How Does the Type of Traffic Contol Affect the Amount
                                      of Drivers That Stop for a Pedestrian

Minta'hoe Catering and Events Sponsor Award

8026T   Isobelle Parker   Bacteria

Graduate Women in Science Projects

6014W   Rita Maloney   Electrolysis of Water
7040T   Katherine Kuffel   The Crackdown on Hand Moisturizer
8057S   Katherine Kozak   Is it expensive to treat acne?
1158S   Izabella Usitalo   Zap Away Zit: Which OTC Acne Medicine Works Best?
1118T   Ava Shovein   Environmental Conditions on the Effects of Algae Oil Stored
1035S   Madeleine Breton   The Effects of Painkiller Exposure on Zebrafish Embryonic Development
1107S   Betsy Romans   The Effect of Silver Nanoparticles on Aquatic Vegetation

Graduate Women in Science Papers

513   Lydia Simon   How does nitrogen fertilizer affect plant growth?
502   Carissa Chow   How Effective Is Your Medicine?
508   Andrea Rathjen   The Future of Water Filtration
173   Abirami Rajasekaran   Chopsticks, A Colossal Catastrophe
223   Ruby Pozorski   Fueling the Future
306   Kerui Yang   Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
297   Nitya Thakkar   The health benefits of cruciferous vegetables as an antioxidant: sulforaphane improves oxidative stress response in Caenorhabditis elegans via SKN-1

3M Film and Materials Resource Division

1065W   Lana Trautman, Samuel Putnam   Precision Peptides: Exploring the role of TAT-functionalized nanoparticles in stem-cell based targeted cancer treatment
1144T   Nancy Wang   Disaster Resistant House X
7040T   Katherine Kuffel   The Crackdown on Hand Moisturizer
7028T   Shauna McCrory   How An Artificial Pancreas Model Responds To High Glucose Levels
8015S   Lydia Westerlund   How does the type of candy affect test scores

3M Display Materials Systems Division

1112W   James Clinton, Nathan Rockafellow   Field Yield Revealed: Creating a radar-based system for pre-harvest potato yield mapping

7031T	Maggie Banks	A Multi-Faceted Solution: How Decanting Frequency Affects Growth of Single Crystals
7071T	Joshua Trussell	Any Way the Wind Blows
7085W	Eli DeKam	When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies
7072S	Elise Dunne	How Does the Type of Traffic Contol Affect the Amount of Drivers That Stop for a Pedestrian

3M Inventor Recognition

1136T	Nathan Trussell	Effect of Chord Length on Propeller Efficiency
1137T	Orion Tyrrell	RF Radio Propagation Using a Nontraditional Magnetic Loop Antenna
1086S	Qeng Xiong	Protein Prenylation: Farnesyl Diphosphate Analog and its Usage in Disease Research
8022T	Jocelyn McBride	Improved Stereotatic Positioning Method for Radiation Therapy
6027T	Emma Conley	Over The Rainbow
8033S	Kevin Torstenson	How does the ratio between resin and hardener in an epoxy mixture affect the adhesion between two wood blocks?
1182W	Jai Chadha	Low-Cost Concealed Weapon Detection for School Environments Using Acoustic Signatures
1127W	Kerui Yang	Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
7056W	Adithi Rupireddy	Plant growth in an enriched carbon environment: Success of Trigonella foenum-graecum and Cicer arietinum under elevated CO_2
7049T	Derek Stock	Rate of an Oscillating Reaction
1163W	Belinda Neset	Up, Up and Away! A Comparison of Dosimeter and Geiger Counter Readings in the Upper Atmosphere
1065W	Lana Trautman, Samuel Putnam	Precision Peptides: Exploring the role of TAT-functionalized nanoparticles in stem-cell based targeted cancer treatment
1144T	Nancy Wang	Disaster Resistant House X
7040T	Katherine Kuffel	The Crackdown on Hand Moisturizer
7028T	Shauna McCrory	How An Artificial Pancreas Model Responds To High Glucose Levels
8015S	Lydia Westerlund	How does the type of candy affect test scores
1112W	James Clinton, Nathan Rockafellow	Field Yield Revealed: Creating a radar-based system for pre-harvest potato yield mapping
7031T	Maggie Banks	A Multi-Faceted Solution: How Decanting Frequency Affects Growth of Single Crystals
7071T	Joshua Trussell	Any Way the Wind Blows
7085W	Eli DeKam	When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies
7072S	Elise Dunne	How Does the Type of Traffic Contol Affect the Amount of Drivers That Stop for a Pedestrian

1031W	Meili Gong	Waste Not, Want Not: Engineering Water Stable Bioplastics from Chicken Feather

3M Commercial Solutions Division

1127W	Kerui Yang	Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
7056W	Adithi Rupireddy	Plant growth in an enriched carbon environment: Success of Trigonella foenum-graecum and Cicer arietinum under elevated CO_2
7049T	Derek Stock	Rate of an Oscillating Reaction
1163W	Belinda Neset	Up, Up and Away! A Comparison of Dosimeter and Geiger Counter Readings in the Upper Atmosphere

Inspiring Excellence Project

1138T	Osman Warfa	The Stability of an Aircraft Wing with Varied Winglets
1001W	Theo Coval	Horseshoe Crab Sanctuary (Year 2)
1014S	Andrea Cruz	The Limitations of The Placebo Effect.
7100T	Luis Alvarez	Does Different Color Light Affect the Speed of a Robot

Inspiring Excellence Teacher

Princesa Hansen

Leonardo's Largely Irrational Math Prize HS

1148W	Justin Carter	Creating a Predictive Model for the 2019 Men's NCAA Tournament
1150W	Neil Khadilkar	Monte Carlo Analysis of Therapeutic Food Programs for Malnourished Children
1161T	Zachary Carlson	Effect of Bicycle Gear Ratio on Power Generation

Leonardo's Largely Irrational Math Prize MS

8054T	Olivia Munro	Does the length of a PIN matter
8047T	Sneha Sureshkumar	How does the placement of supporting beams affect how much weight is held?
8027S	Pariz Battee	What 3 types of milk affect the distance when soap is added?

MN American Society of Microbiology

6040T	Lillie Hanto	Is it Safe To Know Your Shade?
7020S	Garrett Seppanen	The pasteurization of milk and the FDA
8018S	Madeline Johnson	Which Age Group Washes Their Hands the Best?
1158S	Izabella Usitalo	Zap Away Zit: Which OTC Acne Medicine Works Best?
1043T	Sophia Herzog	Point of Yeast Resistance
1154T	Manashree Padiyath	Thyme and Thyme again! Investigation of synergistic antimicrobial activity of Thymus vulgaris Essential Oil in combination with 'superfood' Essential Oils
1045W	Doreen Liu	The Effect of Temperature and Pressure on Sterilization of Medical Equipment

United States Department of Agriculture Research

6022T	Grace Agort	Erosion
7093W	Andrew Beekman	EW Big Ears, Does Row Orientation Affect Corn Yield
8039W	Harini Senthilkumar	Assessing Effectiveness of Biopolymers to Reduce Soil Erosion by Water
1099S	Gabriel Konar-Steenberg	Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output
1106S	Samantha Ries	Associations Between Garlic Mustard (Alliaria petiolata) and Above-Ground Soil Fungi in a Minnesota Oak Woodland

Award for Science Potential

6032T	LaRaya Zuniga-Corr	Solar Oven
6036T	Braidon Dukart	Hockey Pucks Bounce?/What is the Best Temperature to Limit How Much a Hockey Puck Bounces
6044T	Renna Zirbel	An Eggsillent-Experiment
7004S	Alice Wagner Hemstad	How does prey type affect the phantom midges feeding efficiency?
7006T	Joseph Botros	Speed of Age: Which is Faster?
7019S	Asia Mohamed	How does the different sweetener affect how high the cupcake rises
7057S	Maddy Schilling	The effect of magnesium chloride (sidewalk salt) on freshwater amphipods
7074T	Neil Mendez	They All Fell Down
8023S	Rahmanimo Yusuf	Collecting dew for water consumption
8064T	Sam Murray	The Effects of Temperature and pH on the Germination Rate of Seeds

American Chemical Society

1031W Meili Gong   Waste Not, Want Not: Engineering Water Stable
                                     Bioplastics from Chicken Feather

MN Chapter of American Fisheries

7060W Julianna Velgersdyk   Heart of the Matter: The Effect of pH on Daphnia
                                     Heartrate
1107S Betsy Romans   The Effect of Silver Nanoparticles on Aquatic Vegetation

US Air Force (St. Paul)

8044S Max Mills   How Does The Roughness of A Wind Turbines Blade
                                     Effect Efficnency
8049S Abby Altman   Wind at work
1129S Richard Chang   The Safety and Reliability of Hobby-Grade Quadcopters
1190S Mani Chadaga, Akshay   Creating and Training a LightGBM Machine Learning
       Nambudiripad, Alexander   Model to Predict Malware Susceptibility Based on the
       Hydrie   System Properties of a Windows Device

US Air Force (Twin Cities)

1136T Nathan Trussell   Effect of Chord Length on Propeller Efficiency
1134T Lauren Meyer   Reclaiming Satellites
1138T Osman Warfa   The Stability of an Aircraft Wing with Varied Winglets
1137T Orion Tyrrell   RF Radio Propagation Using a Nontraditional Magnetic
                                     Loop Antenna
7071T Joshua Trussell   Any Way the Wind Blows
6043T Luke Jolly   Airplanes vs Pennies

US Air Force (Western)

1184W Parthiv Krishna   Robust Autonomous Micro Aerial Vehicle (MAV)
                                     Navigation with Onboard, Environment-Agnostic, Multi-
                                     Sensor SLAM
1189W William Roslansky   The use of artificial feathers and various biomechanical
                                     movements in robotic ornithopters to improve efficiency
                                     and maneuverability
7073W Noah Hong   Up Up and Away, The best combination for the best
                                     rocket.
7101W Jannes Kamp   Weighted Consequences
1188W Abigail Roh, Samantha   Searching the Shadows: Using Machine Learning to
       Detor   Classify Trees in Aerial Imagery

| 8066W | Anna Mary Southern | "I am The Duke": Teaching AI to Deceive |
| 7085W | Eli DeKam | When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies |

Naval Science Award (St. Paul)

6037S	Ryan Dunlap	No Friction!
8025S	Gus Ostby	What is the most effective way of sterilizing polluted water?
1123S	Abdelrahman Mokbel A.M	Optimizing the Vibrational Energy Harvesting Efficiency of the Duffing Oscillator
1086S	Qeng Xiong	Protein Prenylation: Farnesyl Diphosphate Analog and its Usage in Disease Research

Naval Science Award (Twin Cities)

6042T	Calvin Beamer	Time Flies
7086T	Edwin Guasco	Which Type of Wood Will Hold More Weight Before it Sinks?
1131T	William Erbes	The Effect of Fluids on Hydraulics
1136T	Nathan Trussell	Effect of Chord Length on Propeller Efficiency
1154T	Manashree Padiyath	Thyme and Thyme again! Investigation of synergistic antimicrobial activity of Thymus vulgaris Essential Oil in combination with 'superfood' Essential Oils

Naval Science Award (Western)

1127W	Kerui Yang	Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
1006W	Gabriela Queiroz Miranda	Engineering Weighted 3D Printed Vests for Sea Turtles with Bubble Butt Syndrome
7060W	Julianna Velgersdyk	Heart of the Matter: The Effect of pH on Daphnia Heartrate

Teacher Excellence

Mike Huemoeller

ISEF Alumni Award - Timara Underbakke

| 7101W | Jannes Kamp | Weighted Consequences |

ISEF Alumni Award - Dr. Kyrstin Ball

6023W Quinn Hughes, Tyler Clair Microplastics in our water; a study of Minnesota lakes indicated by Dreissena polymorpha

ISEF Alumni Award - Kyra Zimmerman

6014W Rita Maloney Electrolysis of Water

Caffeinated Student Award

1127W Kerui Yang Harvesting the Blue Wave Energy by Circular Electromagnetic Generator

Joel Wagner Caring Bridge Award

1076W Kylie Spangler, Anna Janzen Continuing the Cure: Expanding the use of immunotoxins to treat more forms of cancer

American Meteorological Society (St. Paul)

1107S Betsy Romans The Effect of Silver Nanoparticles on Aquatic Vegetation
1099S Gabriel Konar-Steenberg Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output

American Meteorological Society (Twin Cities)

1102T Evalin Olson Bioremediation of Retention Ponds Using Minnesota Native Plants
1111T Nick Wong The Effect of Rural and Urban Freshwater on Cellular Respiration and Photosynthesis of Algae

American Meteorological Society (Western)

1163W Belinda Neset Up, Up and Away! A Comparison of Dosimeter and Geiger Counter Readings in the Upper Atmosphere
1001W Theo Coval Horseshoe Crab Sanctuary (Year 2)

American Psychological Association (St. Paul)

1014S   Andrea Cruz   The Limitations of The Placebo Effect.

American Psychological Association (Twin Cities)

1012T   Alexis Bunnell   Are Teens on Snapchat Crack?

American Psychological Association (Western)

1029W   Ayres Warren   Social Conformity in High School Students According to
                                              Solomon Asch

ASM Materials Educational Foundation (St. Paul)

8033S   Kevin Torstenson   How does the ratio between resin and hardener in an
                                              epoxy mixture affect the adhesion between two wood
                                              blocks?

ASM Materials Educational Foundation (Twin Cities)

1119T   Giwon Sung   Investigating the Power Performance of Electrochemical
                                              Batteries Coupled with Metal Electrodes and Electrolytes

ASM Materials Educational Foundation (Western)

1060W   Alexander Anderson,   From Screen To Silicone: 3D printing anatomically and
        Nathan Tank   mechanically accurate organ models for preoperative
                                              planning

Association of Women Geoscientists (St. Paul)

8035S   Pia Banat   How do different areas (cities, towns) in MN affect
                                              people's water quality?

Association of Women Geoscientists (Twin Cities)

1098T   Marwah Ismail, Nawal   The Ultimate Plan: Using the Sahara Desert to Create
        Mahamed   Enough Solar Energy to Power Earth

Association of Women Geoscientists (Western)

7056W Adithi Rupireddy

Plant growth in an enriched carbon environment: Success of Trigonella foenum-graecum and Cicer arietinum under elevated CO_2

Intel Excellence in Computer Science (St. Paul)

1190S Mani Chadaga, Akshay Nambudiripad, Alexander Hydrie

Creating and Training a LightGBM Machine Learning Model to Predict Malware Susceptibility Based on the System Properties of a Windows Device

Intel Excellence in Computer Science (Twin Cities)

1192T Milan Jostes

Developing FourS 1.0 - A Java Software Utilizing Quick Response Code and Smartphone Technology to Reduce the Number of School Shootings

Intel Excellence in Computer Science (Western)

1090W Dylan Vincent, Roberaa Ayana

Solving a Protein Puzzle: Countering inflammatory disease by engineering an accurate model of the C3aR protein receptor

Lemelson Early Inventor Prize

8022T Jocelyn McBride

Improved Stereotatic Positioning Method for Radiation Therapy

Lemelson Early Inventor Prize

8033S Kevin Torstenson

How does the ratio between resin and hardener in an epoxy mixture affect the adhesion between two wood blocks?

Lemelson Early Inventor Prize

7085W Eli DeKam

When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies

Mu Alpha Theta (St. Paul)

1099S   Gabriel Konar-Steenberg   Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output

Mu Alpha Theta (Twin Cities)

1162T   Conrad Gayner, Daniel Block, Caleb Loomis   Sugar Rocket Efficiency

Mu Alpha Theta (Western)

1150W   Neil Khadilkar   Monte Carlo Analysis of Therapeutic Food Programs for Malnourished Children

NASA Earth System Science Award (St. Paul)

1107S   Betsy Romans   The Effect of Silver Nanoparticles on Aquatic Vegetation

NASA Earth System Science Award (Twin Cities)

1102T   Evalin Olson   Bioremediation of Retention Ponds Using Minnesota Native Plants

NASA Earth System Science Award (Western)

1031W   Meili Gong   Waste Not, Want Not: Engineering Water Stable Bioplastics from Chicken Feather

National Oceanic and Atmospheric Administration (St. Paul)

1099S   Gabriel Konar-Steenberg   Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output

National Oceanic and Atmospheric Administration (Twin Cities)

1144T   Nancy Wang   Disaster Resistant House X

National Oceanic and Atmospheric Administration (Western)

1127W   Kerui Yang   Harvesting the Blue Wave Energy by Circular
                                           Electromagnetic Generator

Ricoh Sustainable Development Award (St. Paul)

8025S   Gus Ostby   What is the most effective way of sterilizing polluted
                                           water?

Ricoh Sustainable Development Award (Twin Cities)

1098T   Marwah Ismail, Nawal   The Ultimate Plan: Using the Sahara Desert to Create
        Mahamed   Enough Solar Energy to Power Earth

Ricoh Sustainable Development Award (Western)

6023W   Quinn Hughes, Tyler Clair   Microplastics in our water; a study of Minnesota lakes
                                           indicated by Dreissena polymorpha

Society for In Vitro Biology (St. Paul)

1035S   Madeleine Breton   The Effects of Painkiller Exposure on Zebrafish
                                           Embryonic Development

Society for In Vitro Biology (Twin Cities)

1154T   Manashree Padiyath   Thyme and Thyme again! Investigation of synergistic
                                           antimicrobial activity of Thymus vulgaris Essential Oil in
                                           combination with 'superfood' Essential Oils

Society for In Vitro Biology (Western)

1052W Ava Raffel, Mary O'Grady   Facing off with FSHD: Designing a cell line to model facioscapulohomeral muscular dystrophy

US Metric Association (St. Paul)

1123S Abdelrahman Mokbel A.M   Optimizing the Vibrational Energy Harvesting Efficiency of the Duffing Oscillator

US Metric Association (Twin Cities)

1161T Zachary Carlson   Effect of Bicycle Gear Ratio on Power Generation

US Metric Association (Western)

1127W Kerui Yang   Harvesting the Blue Wave Energy by Circular Electromagnetic Generator

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

1129S Richard Chang   The Safety and Reliability of Hobby-Grade Quadcopters

Yale Science and Engineering Association Inc. (Twin Cities)

1134T Lauren Meyer   Reclaiming Satellites

Yale Science and Engineering Association Inc. (Western)

1127W Kerui Yang   Harvesting the Blue Wave Energy by Circular Electromagnetic Generator

Stockholm Junior Water Prize (St. Paul)

1166S Sameer Bijwadia   The Effect of Rising Sea Levels on the Growth of Florida Everglades Plants

1107S Betsy Romans   The Effect of Silver Nanoparticles on Aquatic Vegetation

1035S   Madeleine Breton   The Effects of Painkiller Exposure on Zebrafish
                                        Embryonic Development

Stockholm Junior Water Prize (Twin Cities)

1173T   Haley Jostes   Combating Undernutrition in Developing Countries with
                                        a Compact Aeroponics System Utilizing Contaminated
                                        Water
1111T   Nick Wong   The Effect of Rural and Urban Freshwater on Cellular
                                        Respiration and Photosynthesis of Algae
1102T   Evalin Olson   Bioremediation of Retention Ponds Using Minnesota
                                        Native Plants

Stockholm Junior Water Prize (Western)

1141W   Ilana Levine   Enrichment cultures of environmental aquatic sediment
                                        samples to identify microbial metabolism of and
                                        resistance to Perfluorooctanoic acid

Research Papers MS Third Place

510   Harini Senthilkumar   Assessing Effectiveness of Biopolymers to Reduce Soil
                                        Erosion by Water

Research Papers MS Second Place

509   Vaughn Hughes, Arjav   Impact of Long-Term Ocean Acidification on
        Krishna   Phytoplankton and its Potential Effects on Earth's
                                        Ecosystem

Research Papers MS First Place

511   Quinn Hughes, Tyler Clair   Microplastics in our water; a study of Minnesota lakes
                                        indicated by Dreissena polymorpha

Research Papers HS Advancing to JSHS

301	Shane Andersen	Ear Training and its relation to Gender
170	Alexander Anderson, Nathan Tank	From Screen To Silicone: 3D printing anatomically and mechanically accurate organ models for preoperative planning
247	Elizabeth Berman, Thomas Peterson	Analyzing Autistic Traits: a machine learning approach to classifying ASD symptom risk in 18-month-old infants
182	Sameer Bijwadia	The Effect of Rising Sea Levels on the Growth of Florida Everglades Plants
281	Montserrat Blanco Lopez	The cellular effect on concentration
119	George Cai	Drug Discovery for Treating Heart Disease: Validating Compound Screening for Ryanodine Receptor 2
165	Richard Chang	The Reliability and Safety of Hobby-Grade Quadcopters
166	James Clinton, Nathan Rockafellow	Field Yield Revealed: Creating a radar-based system for pre-harvest potato yield mapping
206	Madeleine Danzberger	Regolith Plant Growth
111	Ethan Dincer	Determination of Mutant JUP Localization in an iPSC Model of ARVC: Implications for Diagnosis and Pathogenesis
198	Elizabeth Druvenga	Impacts of Compost on Seed Germination
303	Michael Finch	The Effects of Oxygen Deprivation and Carbon Dioxide Retention on Athletic Performance
116	Rachel Gunderson, Boatemaa Agyeman-Mensah	Healing a Broken Heart: Examining the Role of Polycomb Group Protein Asxl2 in Regulating Cardiomyocyte Proliferation
319	Suad Hassan	Kinetic Energy and Tennis Rackets
180	Margaret Hlavka	Early Growth of Tallgrass Under Variable Precipitation and Species Evenness Scenarios
231	Quentin Hughes	How Can the Earth Feed 10 Billion People? Development of an Energy-Efficient Method for Significantly Increasing Vertical Farm Output without Sacrificing Nutrition
238	Byron Jia, Julian Moyer	Sculptors of the Oak Savanna: Reevaluating the Red-headed Woodpecker Population
244	Milan Jostes	Developing FourS 1.0 - A Java Software Utilizing Quick Response Code and Smartphone Technology to Reduce the Number of School Shootings
241	Haley Jostes	Combating Undernutrition in Developing Countries with a Compact Aeroponics System Utilizing Contaminated Water
208	Sofia Kemeny	Relationship Between Soil Porosity and the Absorption of Pesticides
237	Brennan Keogh	A Novel Approach to Utilizing Invasive Species: Eurasian Water Milfoil as a Substitute for Conventional Chemical Fertilizer
243	Neil Khadilkar	Monte Carlo Analysis of Therapeutic Food Programs for Malnourished Children
290	Kara Klavins	Tooth Appearance and Enhancement

Research Papers HS Third Place

168   Parthiv Krishna   Development of Autonomous Unmanned Aerial Systems for Semi-Dense Point Cloud Generation in Disaster Scenarios

Research Papers HS Second Place

240   Manashree Padiyath   Thyme and Thyme again: Investigation of synergistic antimicrobial activity of Thymus vulgaris Essential Oil in combination with 'superfood' Essential Oils

Research Papers HS First Place

247   Elizabeth Berman, Thomas Peterson   Analyzing Autistic Traits: a machine learning approach to classifying ASD symptom risk in 18-month-old infants

Broadcom MASTERS (St. Paul)

8029S	Maggie Fuller	How does the type of fat affect the density of a shortened cake
7004S	Alice Wagner Hemstad	How does prey type affect the phantom midges feeding efficiency?
8006S	Greta Cunningham	What is the Effect of Introversion and Extraversion on Family Dynamics and how does it Behave as a Genetic Trait?
8055S	Caitlyn Coyle	How Does the Type of Topical Antiseptic Agent Affect the Amount of Bacteria Growth
8057S	Katherine Kozak	Is it expensive to treat acne?
8008S	Bernadette Latham	How is the Application of Gender Stereotypes Affected by Age?
8056S	Gajan Dileepan	How does the washing of a vegetable affect the amount of bacteria grown?
7072S	Elise Dunne	How Does the Type of Traffic Contol Affect the Amount of Drivers That Stop for a Pedestrian

Broadcom MASTERS (Twin Cities)

7031T	Maggie Banks	A Multi-Faceted Solution: How Decanting Frequency Affects Growth of Single Crystals
7007T	Alaina DeCrans	Does Age Affect How Someone Deals With Peer Pressure?
7040T	Katherine Kuffel	The Crackdown on Hand Moisturizer
6045T	Samantha Bergh	Let It Grow
7082T	Maison Roudabush	Wood Sealants: Which repels household chemicals the best?
7034T	Carissa Chow	How Effective Is Your Medicine?
7029T	Gustavo Albino	Which Kind of Salt Melts Ice the Fastest?
7009T	Yordanos Eshete	Does Reading Affect Heart Rate?
7028T	Shauna McCrory	How An Artificial Pancreas Model Responds To High Glucose Levels
7071T	Joshua Trussell	Any Way the Wind Blows
8045T	Arjun Acharya	Thermoelectrics
7037T	Luke Foley	What Drink Is Best For Sports?

Broadcom MASTERS (Western)

7022W	Jaclyn Brouwer	Making Gluten Great Again: The Impact of Gluten Digestive Enzymes on Gliadin Solubility
6023W	Quinn Hughes, Tyler Clair	Microplastics in our water; a study of Minnesota lakes indicated by Dreissena polymorpha
7056W	Adithi Rupireddy	Plant growth in an enriched carbon environment: Success of Trigonella foenum-graecum and Cicer arietinum under elevated CO_2
7085W	Eli DeKam	When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies

State Science Fair MS

6003	Ruhi Kurdikar, Rahael Achett, Indra Khariwala	Comparative analysis of bacterial load on classroom desks with Clorox intervention
6004	Joseph Ong	Organic vs. Non-organic
6006	Noah Spencer	How Bright Is Your Light
6014	Rita Maloney	Electrolysis of Water
6016	Peter Mendez	Soda Explosion
6023	Quinn Hughes, Tyler Clair	Microplastics in our water; a study of Minnesota lakes indicated by Dreissena polymorpha
6029	Peter Genis	Catapult Kick-Off
6032	LaRaya Zuniga-Corr	Solar Oven
6034	Annika Clift	Blocking Blue Light
6035	Sam Crawford	Super Soaker Upper
6036	Braidon Dukart	Hockey Pucks Bounce?/What is the Best Temperature to Limit How Much a Hockey Puck Bounces
6044	Renna Zirbel	An Eggsillent-Experiment
6045	Samantha Bergh	Let It Grow
6049	Isaac Robertson	How does caffeine affect bean plant growth?
6050	Sriram Sureshkumar	Race towards Artificial Intelligence
7004	Alice Wagner Hemstad	How does prey type affect the phantom midges feeding efficiency?
7007	Alaina DeCrans	Does Age Affect How Someone Deals With Peer Pressure?
7009	Yordanos Eshete	Does Reading Affect Heart Rate?
7011	Anna Lovat	How Does Age Affect Memory?
7012	Theresa Nguyen	The Uncanny Valley
7015	Rosa Segura Caudana	Three Study Methods: Which is Best?
7016	Audrey Snowbeck, Lily St Dennis	Starburst Science
7022	Jaclyn Brouwer	Making Gluten Great Again: The Impact of Gluten Digestive Enzymes on Gliadin Solubility
7024	Morgan Harrison	I Can't Breathe
7026	Taylor Miedema	Do Kids Count The Amount? The Effect of Calorie Listings on Middle Schoolers Food Choices
7028	Shauna McCrory	How An Artificial Pancreas Model Responds To High Glucose Levels
7029	Gustavo Albino	Which Kind of Salt Melts Ice the Fastest?
7031	Maggie Banks	A Multi-Faceted Solution: How Decanting Frequency Affects Growth of Single Crystals
7034	Carissa Chow	How Effective Is Your Medicine?
7036	Clare Danz	Skin Savior: The Affect of Skin Moisturizer on Skin Conditions
7037	Luke Foley	What Drink Is Best For Sports?
7040	Katherine Kuffel	The Crackdown on Hand Moisturizer
7049	Derek Stock	Rate of an Oscillating Reaction

7056	Adithi Rupireddy	Plant growth in an enriched carbon environment: Success of Trigonella foenum-graecum and Cicer arietinum under elevated CO2
7057	Maddy Schilling	The effect of magnesium chloride (sidewalk salt) on freshwater amphipods
7058	Madeline Schmidt	Location, Location, Pollution: Effect of Location on Air Particulates
7059	Matthew Trussell	Oil Vs Worms
7060	Julianna Velgersdyk	Heart of the Matter: The Effect of pH on Daphnia Heartrate
7069	Shreshth Shrivastava	Charge phone during power outage
7071	Joshua Trussell	Any Way the Wind Blows
7072	Elise Dunne	How Does the Type of Traffic Contol Affect the Amount of Drivers That Stop for a Pedestrian
7073	Noah Hong	Up Up and Away, The best combination for the best rocket.
7077	Liam Clift	What is the best combination for an Electromagnet?
7079	Jaaron Konkel	Go With the Flow, How Size Affects the Flow of Granular Materials
7082	Maison Roudabush	Wood Sealants: Which repels household chemicals the best?
7085	Eli DeKam	When Monkeys Fly, How Launch Angle Impacts the Distance That an Object Flies
7090	Timothy Trussell	Shakin It Up
7091	Wesley Willett	Falling Bottles
7093	Andrew Beekman	EW Big Ears, Does Row Orientation Affect Corn Yield
7095	Luke Honerman	Which Type of Water Works Best for Hydroponics?
7097	Joshua Marin Torres	Do Different Colors of Light Affect the Rate of Plant Growth?
7099	Julia Osmolski, Madison Spears	Weeds Be Gone
7103	Braden Vis	The WiFi Is Down, Again!!Determining the Materials that Block WiFi.
8002	Matthew McConville	Stop The Buzz From Driving You Batty
8005	Nick Collins	How Does Being Telling Students That They Will Be Graded Affect Their Performance, Stress Level, Mood, and Effort
8006	Greta Cunningham	What is the Effect of Introversion and Extraversion on Family Dynamics and how does it Behave as a Genetic Trait?
8008	Bernadette Latham	How is the Application of Gender Stereotypes Affected by Age?
8011	Kaya Solheid	How does peer pressure affect how teens answer a simple question?
8012	Ned Summers	Cute or Creepy
8020	Romy Peterson, Amira Sinclair	How do the different materials of reusable water bottles effect the growth rate of Bacillus megaterium?
8024	Violet Eicher	How does the Temperature of Isopropyl Alcohol Affect the Amount of DNA Isolated from a Strawberry?

8029	Maggie Fuller	How does the type of fat affect the density of a shortened cake
8033	Kevin Torstenson	How does the ratio between resin and hardener in an epoxy mixture affect the adhesion between two wood blocks?
8037	Vaughn Hughes, Arjav Krishna	Impact of Long-Term Ocean Acidification on Phytoplankton and its Potential Effects on Earth's Ecosystem
8038	Gabriel Michalski	How fish affect a storm water pond
8039	Harini Senthilkumar	Assessing Effectiveness of Biopolymers to Reduce Soil Erosion by Water
8045	Arjun Acharya	Thermoelectrics
8047	Sneha Sureshkumar	How does the placement of supporting beams affect how much weight is held?
8049	Abby Altman	Wind at work
8052	Collett Akins	The Effect of Food and Common Household Cleaning Products on Sealed and Unsealed Marble
8055	Caitlyn Coyle	How Does the Type of Topical Antiseptic Agent Affect the Amount of Bacteria Growth
8056	Gajan Dileepan	How does the washing of a vegetable affect the amount of bacteria grown?
8057	Katherine Kozak	Is it expensive to treat acne?
8058	Hadley Ninow	How do different disinfectants impact the growth of bacteria?
8062	Alice Guion	What Soil Additives Increase the Growth of Bean Plants?
8064	Sam Murray	The Effects of Temperature and pH on the Germination Rate of Seeds

State Science Fair HS

1001	Theo Coval	Horseshoe Crab Sanctuary (Year 2)
1002	Megan Daubenberger, Abbriella O'Neil	The Effects of Vaping on the Cognitive and Olfactory Abilities of Mice
1003	Byron Jia, Julian Moyer	Sculptors of the Oak Savanna: Reevaluating the Red-headed Woodpecker Population
1004	Thomas Lane	Captive Breeding of Sahyadria denisonii Without the Use of Hormonal Treatments
1005	Catherine Pirtle, Christiana Wilke	Monkeying Around: Comparing Isotope Distributions in Baboon Tissue
1006	Gabriela Queiroz Miranda	Engineering Weighted 3D Printed Vests for Sea Turtles with Bubble Butt Syndrome
1008	Kayla Becker	An Analysis Of The Authenticity Of Genealogy Assessments
1009	Elizabeth Berman, Thomas Peterson	Analyzing Autistic Traits
1010	Treven Bolton	Analyzing The Differences Between The Effects of Esports to Traditional Sports
1011	Natalie Braga	To E-Read or Not to E-Read: The Effect of the Medium of a Passage on Memory
1012	Alexis Bunnell	Are Teens on Snapchat Crack?
1013	John Cardwell, Grayson Roberts	Video Games and Standardized Testing Scores
1014	Andrea Cruz	The Limitations of The Placebo Effect.
1016	Aeriana Hanif	How Gender Relates to Attentiveness
1022	Maribel Monjaras-Rodriguez	How Temperature Affects Nonverbal Communication
1027	Ayush Shah	Evaluating the impact of a community health fair on the underserved population of Ahmedabad, India
1029	Ayres Warren	Social Conformity in High School Students According to Solomon Asch
1031	Meili Gong	Waste Not, Want Not: Engineering Water Stable Bioplastics from Chicken Feather
1034	Thomas Atwood	The Effect of Moving from an Aerobic to Anaerobic State of Exercise on O2 Saturation of Male Adolescent Nordic Skiers, Ages 15-18
1035	Madeleine Breton	The Effects of Painkiller Exposure on Zebrafish Embryonic Development
1036	Kathryn Christian	Personal Genetic Testing Generational Differences
1038	Michael Finch	The Effects of Oxygen Deprivation and Carbon Dioxide Retention on Athletic Performance
1040	Olivia Graupmann	The Implications of the Relationship of Relaxin on Injury in Female Athletes
1041	Iesh Gujral	Sunshine Dandelion - a miracle powerhouse: The effects of dandelion antimicrobial properties on bacterial growth
1042	Rachel Gunderson, Boatemaa Agyeman-Mensah	Healing a Broken Heart: Examining the Role of Polycomb Group Protein Asxl2 in Regulating Cardiomyocyte Proliferation
1043	Sophia Herzog	Point of Yeast Resistance

1045	Doreen Liu	The Effect of Temperature and Pressure on Sterilization of Medical Equipment
1047	Emma McCann	The Impact of Antibiotics on Harmful Bacteria vs. Healthy Bacteria
1051	Jack Peterson, Emre Adabag	Defeating Diastolic Dysfunction: Analyzing the correlation between serum magnesium and diastolic dysfunction
1052	Ava Raffel, Mary O'Grady	Facing off with FSHD: Designing a cell line to model facioscapulohomeral muscular dystrophy
1053	Simren Samba, Nell Ganley	Can Natural Medicine Prevent the Growth of E. Coli?
1056	Breelyn Stelle, Alison Sundem	Examination of the role of N-linked glycans on the ability of immunoglobulin E to bind to Fce-R1
1057	Nitya Thakkar	Sulforaphane improves oxidative stress response in Caenorhabditis elegans via SKN-1
1058	Mayuresh Vernekar	Analyzing the effectiveness of viral vectors in gene modification: Cell-specificity of GFAP-promoted DREADDs and Cre proteins using Adeno-associated viruses
1059	Kelby Wittenberg	Differentiation of mES C7 A2-GFP cells into keratinocytes for skin regeneration
1060	Alexander Anderson, Nathan Tank	From Screen To Silicone: 3D printing anatomically and mechanically accurate organ models for preoperative planning
1063	Saketh Kollipara, Aniketh Naidu	Improving Prostate Cancer Treatment: Optimizing Targeted Drug Delivery Using Nanoparticles
1064	Anindita Rajamani	Wearable Sensor System and Machine Learning Algorithms for Fall Detection
1065	Lana Trautman, Samuel Putnam	Precision Peptides: Exploring the role of TAT-functionalized nanoparticles in stem-cell based targeted cancer treatment
1067	George Cai	Drug Discovery for Treating Heart Disease: Validating Compound Screening for Ryanodine Receptor 2
1068	Ethan Dincer	Determination of Mutant JUP Localization in an iPSC Model of ARVC: Implications for Diagnosis and Pathogenesis
1071	Thijs Larson	Spectrophotometer Light Absorbance Measurements of Vibrio fischeri Growth in Culture vs. NaCl Salinity Levels, Indicating Bioremediation of Octane as a Nutrient Source
1076	Kylie Spangler, Anna Janzen	Continuing the Cure: Expanding the use of immunotoxins to treat more forms of cancer
1077	Caroline Dickhausen	Drug Dissolution Testing
1079	Sandra "Maggie" Irwin, Elizabeth "Betsy" McGinley	Which Orange Juice Has The Most Vitamin C?
1081	Henry O'Brien	The Battle of the Brands
1082	Benjamin Reinhard, Nate Griffin	More Efficient Electrolysis
1083	Tia Rian	Styrofoam Degrading Citrus
1084	Francesca Scherer	Diffusion of Cannabinoid Oil (CBD) into epidermal/dermal layers of skin

1085	Lucas Trussell	The Effects of Carbon Filters on Different Contaminants
1086	Qeng Xiong	Protein Prenylation: Farnesyl Diphosphate Analog and its Usage in Disease Research
1087	Frank Isaacson	Simulating the Spread of a Disease through a Realistic Mock Population
1090	Dylan Vincent, Roberaa Ayana	Solving a Protein Puzzle: Countering inflammatory disease by engineering an accurate model of the C3aR protein receptor
1092	Grace Campbell, Tatum Frey	An Environmentally Friendly Approach to Ice Management
1096	Margaret Hlavka	Early Growth of Tallgrass Under Variable Precipitation and Species Evenness Scenarios
1098	Marwah Ismail, Nawal Mahamed	The Ultimate Plan: Using the Sahara Desert to Create Enough Solar Energy to Power Earth
1099	Gabriel Konar-Steenberg	Analyzing Predicted Temperature and Diurnal Temperature Range Trends Using Regional Climate Model Output
1102	Evalin Olson	Bioremediation of Retention Ponds Using Minnesota Native Plants
1103	Sirui Qi	Influence of the losing of the soil under the different kinds of irrigation
1104	Darlene Radichel, Louise Kim	Give Me The Dirt: Determining the effect of urban garden soil amendments on soil microbes and plant growth
1106	Samantha Ries	Associations Between Garlic Mustard (Alliaria petiolata) and Above-Ground Soil Fungi in a Minnesota Oak Woodland
1107	Betsy Romans	The Effect of Silver Nanoparticles on Aquatic Vegetation
1111	Nick Wong	The Effect of Rural and Urban Freshwater on Cellular Respiration and Photosynthesis of Algae
1112	James Clinton, Nathan Rockafellow	Field Yield Revealed: Creating a radar-based system for pre-harvest potato yield mapping
1113	Nickolas Zander	Critter Distracter
1114	Connor Gruenes	Energy Efficiency of Wood
1118	Ava Shovein	Environmental Conditions on the Effects of Algae Oil Stored
1119	Giwon Sung	Investigating the Power Performance of Electrochemical Batteries Coupled with Metal Electrodes and Electrolytes
1121	Jack Holmstrom	A comparison of Environmentally Friendly Isolation Materials
1123	Abdelrahman Mokbel A.M	Optimizing the Vibrational Energy Harvesting Efficiency of the Duffing Oscillator
1127	Kerui Yang	Harvesting the Blue Wave Energy by Circular Electromagnetic Generator
1129	Richard Chang	The Safety and Reliability of Hobby-Grade Quadcopters
1130	Samuel Elting-Ballard	Bracket to Hold Laser Sensors for a Robot
1131	William Erbes	The Effect of Fluids on Hydraulics
1132	Samuel Leville, Spencer Yueh	Stretching the Spine: Engineering an apparatus to determine the properties of the facet capsular ligament
1133	Sahana Mangipudi	Hallolights: The Key to Pedestrian Safety

1134	Lauren Meyer	Reclaiming Satellites
1135	Raymond Richter	Microcontrollers with photovoltaic energy sources
1136	Nathan Trussell	Effect of Chord Length on Propeller Efficiency
1137	Orion Tyrrell	RF Radio Propagation Using a Nontraditional Magnetic Loop Antenna
1138	Osman Warfa	The Stability of an Aircraft Wing with Varied Winglets
1139	Samuel Harris	Increasing the Efficiency of Solar Panels
1140	Fiona Kinney, Abby Samuel	Finding a eco-friendly plastic
1141	Ilana Levine	Enrichment cultures of environmental aquatic sediment samples to identify microbial metabolism of and resistance to Perfluorooctanoic acid
1144	Nancy Wang	Disaster Resistant House X
1148	Justin Carter	Creating a Predictive Model for the 2019 Men's NCAA Tournament
1150	Neil Khadilkar	Monte Carlo Analysis of Therapeutic Food Programs for Malnourished Children
1151	Cole Forsmark	Optimizing the pathway from Mevalonate to Anhydro Mevalonolactone using siderophore homologs, to create sustainable plastics.
1154	Manashree Padiyath	Thyme and Thyme again! Investigation of synergistic antimicrobial activity of Thymus vulgaris Essential Oil in combination with 'superfood' Essential Oils
1155	Hser K Paw, Kpree Paw	What type of cheese decomposes the fastest?
1157	Ethan Taddy	Caffeine as a Quorum Sensing Inhibitor
1160	Andrew Bunnell	PSI affects distance and accuracy for a football kicking
1162	Conrad Gayner, Daniel Block, Caleb Loomis	Sugar Rocket Efficiency
1163	Belinda Neset	Up, Up and Away! A Comparison of Dosimeter and Geiger Counter Readings in the Upper Atmosphere
1164	Chloe Smith	Analysis and Imaging of Micrometeorites
1166	Sameer Bijwadia	The Effect of Rising Sea Levels on the Growth of Florida Everglades Plants
1167	Olivia Caldwell	Evaluating Sugar Content in Fruits
1169	Anthony Chen	The Effects of EMFs on Seedling Germination and Photosynthesis
1170	Madeleine Danzberger	Martian Regolith Plant Growth
1172	Quentin Hughes	How Can the Earth Feed 10 Billion People? Development of an Energy-Efficient Method for Significantly Increasing Vertical Farm Output without Sacrificing Nutrition
1173	Haley Jostes	Combating Undernutrition in Developing Countries with a Compact Aeroponics System Utilizing Contaminated Water
1174	Brennan Keogh	A Novel Approach to Utilizing an Invasive Species: Eurasian Water Milfoil as a Substitute for Conventional Chemical Fertilizer
1176	Nahomi Nakazono Luque, Juliana Perez-Garcia, Geberelwa Animut	Drought stress in Arabidopsis thaliana

1177	Elena Pearce	Cleansing In Fencing
1178	Nathan Sobotka	The Effects of Plastic Pollutants on the Growth of Wisconsin Fast Plants
1181	Lia Wallace, Stephanie Hulander	The Key to Happeaness
1182	Jai Chadha	Low-Cost Concealed Weapon Detection for School Environments Using Acoustic Signatures
1183	Linghang Kong, Ethan Miandrisoa	Making the Teamwork Dream Work
1184	Parthiv Krishna	Robust Autonomous Micro Aerial Vehicle (MAV) Navigation with Onboard, Environment-Agnostic, Multi-Sensor SLAM
1185	Joshua Levy	Identification of Mutations in Non-Small Cell Lung Cancer Tumors Using CT Scan Image Analysis
1186	Melissa Nie	Applying Thermopile Array Sensors and Machine Learning to Detect Falls of Older Adults
1188	Abigail Roh, Samantha Detor	Searching the Shadows: Using Machine Learning to Classify Trees in Aerial Imagery
1189	William Roslansky	The use of artificial feathers and various biomechanical movements in robotic ornithopters to improve efficiency and maneuverability
1190	Mani Chadaga, Akshay Nambudiripad, Alexander Hydrie	Creating and Training a LightGBM Machine Learning Model to Predict Malware Susceptibility Based on the System Properties of a Windows Device
1191	Charlie Horn, Lauren Hagen	Creating a Program to Teach Improvisational Skills on a Bass Guitar Using Augmented Reality Systems
1192	Milan Jostes	Developing FourS 1.0 - A Java Software Utilizing Quick Response Code and Smartphone Technology to Reduce the Number of School Shootings
1193	Ruicheng Li	ResPay via QR

Middle School Medals

6049S	Isaac Robertson	How does caffeine affect bean plant growth?
6020S	Chance Thor Saykao	Growing Alum Crystals
6037S	Ryan Dunlap	No Friction!
6030T	Blake Haase	Demolition Day
6044T	Renna Zirbel	An Eggsillent-Experiment
6050T	Sriram Sureshkumar	Race towards Artificial Intelligence
6041W	Wilson Schaefer	Bacteria In Water Fountains
7032S	Zach Bollman	Alchemy for Real: electroplating
7094S	Keira Deiman	The Lively Ivy
7051S	Anders Ahlberg	Carbonic acid
7095T	Luke Honerman	Which Type of Water Works Best for Hydroponics?
7099T	Julia Osmolski, Madison Spears	Weeds Be Gone
7077T	Liam Clift	What is the best combination for an Electromagnet?
7073W	Noah Hong	Up Up and Away, The best combination for the best rocket.
7101W	Jannes Kamp	Weighted Consequences
7054W	Gerrit Hedman	Temperature and Herbicide Vs. Milkweed and Monarchs the effect of Temperature on Milkweed
8033S	Kevin Torstenson	How does the ratio between resin and hardener in an epoxy mixture affect the adhesion between two wood blocks?
8009S	Katarina Scholtz	Video games vs sports: which one improves reaction time?
8012S	Ned Summers	Cute or Creepy
8047T	Sneha Sureshkumar	How does the placement of supporting beams affect how much weight is held?
8053T	Rachel Zillig	To Tie or Knot to Tie
8022T	Jocelyn McBride	Improved Stereotatic Positioning Method for Radiation Therapy
8021W	Trisha Samba, Luke Rowen	Music In My Blood
8066W	Anna Mary Southern	"I am The Duke": Teaching AI to Deceive
8065W	Adarsh Nayar	No plant will die in my home again