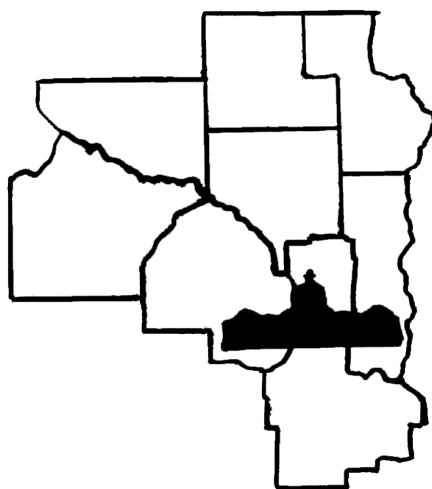


WELCOME TO THE

84th Annual Twin Cities Regional Science Fair
30th Annual St. Paul Science Fair
28th Annual Western Suburbs Science Fair

Twin Cities Regional Science Fairs



Now serving Ramsey, Hennepin, Washington, Dakota, Anoka,
Chisago, Isanti, Sherburne, and Wright Counties

Virtual Fair 2022

February 7 – 27



REGENERON
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**WELCOME TO THE 84th ANNUAL TWIN CITIES REGIONAL SCIENCE FAIR,
THE 30th ANNUAL ST. PAUL REGIONAL SCIENCE FAIR,
THE 28th ANNUAL WESTERN SUBURBS REGIONAL SCIENCE FAIR.**

2022 is our second virtual fair because we were able to be in-person at the Minnesota State Fairgrounds in February 2020. Our virtual fair is hosted on tcrsf.zfairs.com for both the project and the research paper competitions. This year we welcome Ramsey, Hennepin, Washington, Dakota, Anoka, Chisago, Isanti, Sherburne, and Wright Counties.

Our schedule`

Monday, February 7 – research paper judging begins and runs through February 17.

Tuesday, Feb.15 - all project materials and SRC form fixes must be done. Your presentation video URL must be entered and saved. You can test it by logging in, going to Fair tab, Showcase page, then find your project and see how it looks. Try the hotlinks! Students/teachers - make sure you have credited your photos, diagrams, charts, and graphs in your display! It is also a GREAT IDEA to upload a school or other photo with your parent's permission to put a face to the work the judges will be judging.

Tuesday Feb 16 - Thursday Feb. 18 - Display and Safety inspection of all projects. (Students are not present for virtual inspection.) Students must work with TCRSF to fix any issues. Be sure to credit any charts, graphs, images, and photos somewhere in your virtual exhibit.

Saturday, Feb. 19 - Wednesday, Feb. 23 Both scoring judges and special awards judges will be looking at student exhibits and videos and research papers if they were uploaded into the project exhibit. Students - just relax here! This all goes on without you.

Thursday, Feb. 24 - Watch your email for details. We may try to schedule a short practice round - no scores - so students and judges can test the video interface to make sure they will be able to connect.

FRIDAY, Feb. 25 - Just like for the in-person fair, judges will get to talk to students about the students' projects. Students: the judges have already reviewed your exhibit... so now is the time to interact, answer questions, ask questions, and have fun talking about your project (but not repeating the video presentation). **This is likely 4 PM CST** to done before 7:30 PM. We are trying to see if we can build a schedule so we can cut it down to only about 3 hours. **Watch your email (likely on Thursday, Feb. 24)**

Saturday Feb 26 Exhibits are Open to the Public (may require registration as an "Attendee", but is free). Log in and go to Fair tab, Showcase page.

Sunday Feb. 27 Awards program online 1 PM

NOTE: Sponsor award winners will be asked to provide a photo to TCRSF to use as a requirement to receive this award. **State Science Fair and JSHS winners will need to register for State and JSHS – or let us know if they choose to not go on in competition.**

Monday, February 28 in the evening we will certify our ISEF Finalists. ALL ISEF FINALISTS ARE REQUIRED TO ATTEND This will be of interest to students who are ISEF alternates and ISEF finalists and their parents. Those announced at the Awards program are NOT certified until during this February 28th virtual meeting. You will receive directions to the meeting. Students have a parent nearby to authorize your participation in ISEF even if you are 18.

In March, awards will be mailed to the students' home addresses from in their registration.

Our research paper competition is hosted on **tcrsf.zfairs.com**. This is open to students in grades 6-12. The high school winners (grades 9-12) advance to the North Central Regional Tri-State Symposium for Minnesota, North Dakota, and South Dakota. Winners from JSHS advance to the National JSHS (jshs.org).

Our virtual project competition is hosted on **tcrsf.zfairs.com**. It is open to students in grades 6-12. Winners from grades 6-12 advance to the virtual Minnesota State Science and Engineering Fair, will be March 20-27 (hosted on mnmas.zfairs.com). The top 10% of our middle school students will advance to the national Broadcom MASTERS competition held online. Our top high school projects will advance to become Finalists at the 2022 Regeneron ISEF (International Science and Engineering Fair). TCRSF will attend virtually in May. ISEF will have judging and awards despite being a hybrid fair – many virtual and some in person.

What about the awards?

We have two kinds of judges.

1. **Ribbon Judges:** All projects will have judges that are scoring their project according to our scoring rubric which is available on our website (Judging Criteria). This is the same rubric as is used at state science fair.
2. **Special Awards Judges:** There are special awards judges who are selecting projects based on the criteria for the award. Any project may win a special award regardless of their ribbon score, if they happen to best match the award criteria. These special awards come from 3 areas:
 - a. **Regional affiliated awards** from our affiliations with international
 - b. **Sponsor awards** which are in honor of the annual financial donations that pay for 80% of the costs of running Twin Cities Regional Science Fairs (registration fees cover only about 17% of our annual budget). ***Remember, we are an ALL-volunteer 501c3 educational nonprofit, so our sponsors are donating directly into the costs of this youth program!***
 - c. **Awards from Individuals/Groups.**

Research papers have ribbon judges, and a few papers may be judged for special awards. Special awards for research papers vary more since there are only special awards from individuals/groups (no regionally affiliated and no sponsor awards).

What do the colored ribbons mean?

Congratulations in competing at the regional science fair! Great job! Both projects and research papers entered in TCRSF receive a Twin Cities regional ribbon based on a statistical analysis of the judges' scores.

All projects and papers will earn a **green ribbon, red ribbon, or a blue ribbon**. Each student in a team will receive their own ribbon.

Green ribbon: You competed at regions! Great job!!!

Red ribbon: This is like a second place. There are multiple second places.

Blue ribbon: This is a first place. There are multiple first places and these projects and research papers are in the top portion of the fair.

Purple ribbon: This signifies Advancement! The top of the blue ribbons to move on to state science fair or research paper competition. Congratulations!

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Explanation of this year's project numbers:

The first letter indicates which affiliation your school is in.

T = Twin Cities

S = St. Paul

W = Western Suburbs

Next is your division: HS or MS

HS =grades 9-12 and

MS = grades 6-8

Next is a 4 letter abbreviation to your science category.

Last is a 3 digit number – assigned in order of registration.

Research papers start with a P, then next is the division HS or MS, then paper category, then 3 digit number.

USS Nokomis Twin Cities Star Trek Fan Club

<http://www.ussnokomis.org/>

Volunteering to make a difference.

NORTHROP GRUMMAN

Northrop Grumman is a long-time sponsor of STEM in the community and the Twin Cities Regional Science Fair. The hands-on event is inspiring to not only the students, but those from our company who participate as volunteers and judges. We feel that by inspiring curiosity and interest today, we develop our future scientists, engineers, and astronauts. Good Luck To All Our Participants – today and for the future.

Northrop Grumman's Plymouth facility has been a sponsor for 30+ years, dating back to the organizations roots as divisions of Honeywell, ATK and Orbital ATK.

Twin Cities Regional Science Fairs

Animal Sciences

	Project ID	Project Title
Sekar, Shreya	8 T-MS-ANIM-215	Turtle Tracks: Characterizing and quantifying the relationship between habitat, environmental, temporal, and climate data with turtle sightings
Blanco-Abundez, Isabella	7 T-MS-ANIM-413	A Reply From Your Dog
Carpio, Gabriel	7 T-MS-ANIM-416	What Are Cat's Favorite Food?
Hustvedt, Ron	8 W-MS-ANIM-380	How Long a leech will survive with different water additives
Mick, Ainsley	7 W-MS-ANIM-440	Saddle Pad Science

Behavioral and Social Sciences

	Project ID	Project Title
Jensen, Mary	8 S-MS-BEHA-040	How Does Music With Different Tempos Affect Our Ability To Recall Information?
Seuntjens, Amelia	8 S-MS-BEHA-067	The Effect of Screen Time on Overall Academic Performance
Bergeron, Margaret	8 S-MS-BEHA-175	Can people tell the difference between gluten-free and non-gluten-free foods?
Alexander, Giada	8 S-MS-BEHA-177	How Social Media Affects Teenagers' Mental Health
Laurey, Jane	8 S-MS-BEHA-180	How Accurate are Eyewitnesses at Identifying a Suspect?
Cronin, Kathleen	8 T-MS-BEHA-167	Memory and Personality
Nguyen, Katie	8 T-MS-BEHA-167	Memory and Personality
Leonard-Gorrill, Mason	7 T-MS-BEHA-411	Placebo Effect: Does It Work In Food
Vega, Leonardo	7 T-MS-BEHA-412	Saved by the Bell!
Braun, Ellie	7 T-MS-BEHA-414	Follow the Leader!
Acosta- Sanchez, Lalaine	7 T-MS-BEHA-417	Can You Guess Handedness Based on Handwriting?
Stern, Adē	7 W-MS-BEHA-205	How Does Art Effect/Lower Levels of Stress in People Ages 10-16?
Kollipara, Sanjana	8 W-MS-BEHA-293	Malleable Memory: Studying the role of false memory, demographics, and suggestion in witness testimony
Marsalek, Thomas	6 W-MS-BEHA-317	Brownie Bonanza
Olson, Gabriella	6 W-MS-BEHA-321	The Nonexistent Word
Johnson, Layla	8 W-MS-BEHA-379	How does mint gum impact reaction time

Biochemistry

	Project ID	Project Title
Cronin, Rebecca	6 T-MS-BCHM-168	Candy Chromatography: Skittles vs M&Ms
Gomez, Mery	7 T-MS-BCHM-420	What Would the Bacteria Rhizobium Leguminosarum do to a Plant?
Hochhalter, MaKenzie	8 W-MS-BCHM-351	Drug solubility

Biomedical and Health Sciences

	Project ID	Project Title
Thurman, Elizabeth	8 S-MS-BMED-093	Does Mineral Sunscreen Protect You More Than Daily Clothing
Logan, Callan	8 T-MS-BMED-122	Music to Their Ears: Classical Music's Effect on Cognitive Test Performance for Those with Dementia

Twin Cities Regional Science Fairs

Biomedical and Health Sciences

	Project ID	Project Title
Saidu, Joel	6 T-MS-BMED-171	What Effects Do Carbonated Drinks Have on Meat
Curry, Urijah	7 W-MS-BMED-141	Super Sugar
Salaymeh, Zakaria	7 W-MS-BMED-291	Which Beverage Causes The Most Tooth Decay To Tooth Enamel?

Biomedical Engineering

	Project ID	Project Title
Ebert, Alex	7 W-MS-ENBM-142	Getting a Grip! How Weight and Shape Affect the Time a D.I.Y. Prosthetic Hand can Hold it.

Cellular and Molecular Biology

	Project ID	Project Title
Serna, Jose	6 T-MS-CELL-170	What is the difference of Human and Animal DNA

Chemistry

	Project ID	Project Title
Hennis, Cece	8 S-MS-CHEM-178	Which Vegetable Has the Highest Level of Chlorophyll
Flores Reza, Evelyn	7 T-MS-CHEM-219	How does temperature affect a painting?
Tepoxteco Reza, Leslie	7 T-MS-CHEM-219	How does temperature affect a painting?
Hamann, Olivia	8 T-MS-CHEM-290	How Clean is Clean?
Martinez , Christopher	7 T-MS-CHEM-410	Water Temperature vs Dirty Wool
Salgado Quiroz, Crystal	7 T-MS-CHEM-415	Frozen In Time!
Mellado, Enzo	7 T-MS-CHEM-418	Honey: More or Less
Svendsen, Emery	7 T-MS-CHEM-451	Namaste Cookies
Fru-Mambo, Kylie Darlene	7 W-MS-CHEM-143	how different types of flour affect the mass of a muffin.
Lam, Edwin	7 W-MS-CHEM-150	Corrosion Explosion
Mbuba, Makena	7 W-MS-CHEM-152	Bubble Trouble: How potassium iodide affects the height, strength, and speed it takes foam to rise.
Muriithi, Milkahlyne	7 W-MS-CHEM-154	Dessert Density
Glover, Maddisen	7 W-MS-CHEM-155	Ready Set Grow!
Ahmed, Zabida	8 W-MS-CHEM-173	Rose's are Red different colors too, but how to you find the Rf value? (Color of roses vs Rf value)
Sivaraj, Indira	7 W-MS-CHEM-179	Sneaky Solutes: Can we trap them?
Arika, Hannah	8 W-MS-CHEM-239	Flaming Hot Fuel
Gregory, Katelyn	8 W-MS-CHEM-239	Flaming Hot Fuel
Cooper, Shiaflyn	7 W-MS-CHEM-242	Balloons Go Kaboom; How Vinegar Impacts a Ballons Inflation Time
Shriram, Mardhav	7 W-MS-CHEM-248	Radical Rockets
Bosch, Emilylyn	7 W-MS-CHEM-263	Fat Swap; The Effects Of Different Fats On The Temperature And Spread Of A Cookie
Olson, Cristian	6 W-MS-CHEM-322	The Secret to Creamy, Tasty Ice Cream: Stabilizers
Nelson , Mya	8 W-MS-CHEM-324	Ice, Ice, Baby
Klein , Julia	8 W-MS-CHEM-328	Baking to a new height
Asan, Sema	8 W-MS-CHEM-336	A CHANGE In Water
Flynn, Hailey	8 W-MS-CHEM-337	Skittles VS H.2.O

Twin Cities Regional Science Fairs

Chemistry

	Project ID	Project Title
Hora, Riley	8 W-MS-CHEM-340	OUR COOL EXPERIMENT
Hora, Robert	7 W-MS-CHEM-340	OUR COOL EXPERIMENT
Keckeisen, Sydney	8 W-MS-CHEM-341	Ice Cream Science
Utley, Olivia	8 W-MS-CHEM-341	Ice Cream Science
Kallunki, Ava	8 W-MS-CHEM-375	The Sweet Reward of Baking: How Flour Type Impacts the Density of a Cupcake
Ziemer, Kaitlyn	7 W-MS-CHEM-427	The Impact of Gluten Free Flours on Vanilla Cupcakes
Emmick, Cohen	7 W-MS-CHEM-437	Picking the Pepper: The Effects of Ripeness on Vitamin C in Bell Peppers
Bruin, Carsten	7 W-MS-CHEM-439	When Will It Melt

Computational Biology and Bioinformatics

	Project ID	Project Title
Singhvi, Riddhi	7 T-MS-CBIO-209	Development of Artificial Pancreas Model to Optimize Insulin Dosage

Earth and Environmental Sciences

	Project ID	Project Title
Kovats, Ellen	8 S-MS-EAEV-041	How Does the Building Material Affect Urban Heating
Hughes, Maggie	8 S-MS-EAEV-044	How does Ocean Acidification Affect Coral Bleaching?
Leither, Amelia	7 W-MS-EAEV-151	What's Poppin'? How Temperature Affects Popping Mass
Kilmartin, Nick	7 W-MS-EAEV-172	Super Solar how does different insulation type affect the internal temperature of a solar oven
Mros, Avery	7 W-MS-EAEV-252	Fertilizer Frenzy: How Fertilizer Amounts Effects Water Quality
Hoekstra, Sadie	7 W-MS-EAEV-264	Tenebrio Molitor's Metamorphosis: The Effect of Temperature on Mealworms Metamorphosis
Fahim , Adeenah	8 W-MS-EAEV-355	Effect of different water types on plant growth at different stages

Energy: Sustainable Materials and Design

	Project ID	Project Title
Greeley, Kayden	8 S-MS-EGSD-046	What Beverage Will Conduct The Most Amount of Electricity?
Sadeddin, Jadd	8 W-MS-EGSD-164	Boiling it to the top
Moheet, Ayeza	8 W-MS-EGSD-345	Manufacturing and Testing Environmentally Friendly Packaging Materials
Suh, Eric	8 W-MS-EGSD-443	Veggie Power

Engineering Mechanics

	Project ID	Project Title
matsumoto, tetsu	8 S-MS-ENMC-064	What Type of Winglet Creates the Most Lift?
Lee, Josie	8 S-MS-ENMC-066	Which Formula 1 Rear Wing Has the Lowest Level of Downforce.

Twin Cities Regional Science Fairs

Engineering Mechanics

	Project ID	Project Title
Hu, Lynne	8 S-MS-ENMC-188	What Effect Does Anti-Slip Material Have On Preventing Tools From Falling?
Nash, Lincoln	8 T-MS-ENMC-447	Toothbrush Drip Catcher
Poppinga, Luke	8 T-MS-ENMC-448	Portable and Strong Bridges
Wesolowski, Molly	7 W-MS-ENMC-153	Pennies on a boat: Boat Wreck- Different Structured Tinfoil Boats and Maximum Pennies Supported
Curti, Blake	7 W-MS-ENMC-156	I Can't Hold It!
Lessard, Ian	8 W-MS-ENMC-342	Air powered vehicle
Bauer, Jack	8 W-MS-ENMC-376	Aerial Ace
Cleaveland, Beck	8 W-MS-ENMC-376	Aerial Ace

Environmental Engineering

	Project ID	Project Title
Liu, John	8 T-MS-ENEV-446	The Use of Controlled-releasing Technology to Reduce Salt Contamination in Minnesota Water
Shrivastava, Shagun	6 W-MS-ENEV-221	100% Biodegradable Plastics!!! Is it true? (Year 2)
Dogwill, Tallulah	7 W-MS-ENEV-235	Reducing Carbon Emissions By Creating a Light Fixture that Relies On Solar energy from Indoors
O'Brien, Grace	7 W-MS-ENEV-235	Reducing Carbon Emissions By Creating a Light Fixture that Relies On Solar energy from Indoors
Abdi, Liban	8 W-MS-ENEV-272	Solar-Powered Water Desalination
Vietzen, Sadie	7 W-MS-ENEV-425	Making Paper New: The Impact of Different Ratios of Paper to Plastic on Recycled Paper
Kocinski, Hannah	7 W-MS-ENEV-441	Sailing Cars

Materials Science

	Project ID	Project Title
Dobie, Kathleen	8 S-MS-MATS-068	How Hand Warmer Fillings Affect How Long They Retain Heat
Batham, Alexander	6 T-MS-MATS-169	How Does Temperature Affect Quality?
Zylstra, Katherine	7 W-MS-MATS-262	Humpty Dumpty had a Great Fall: The Effects of Packing Material on Shipping Products
Hauwiler, Kellan	7 W-MS-MATS-408	Water to vapor with different types of paper

Mathematics

	Project ID	Project Title
Song, Daniel	8 T-MS-MATH-137	Stock price movement prediction - a research based on multi-stage financial models and cross-period comparison

Microbiology

	Project ID	Project Title
McSherry, Bryn	8 S-MS-MCRO-045	What Time are the Desks and Chairs at School at their Dirtiest
Northup, Dalton	7 T-MS-MCRO-421	Does The Type Of Room Affect The Process Of Gene Editing?

Twin Cities Regional Science Fairs

Physics and Astronomy

	Project ID	Project Title
Shea, Colin	8 S-MS-PHYS-176	Which Riding Position On A Road Bike Is The Most Areodynamic
Russell, Brian	8 T-MS-PHYS-253	Pass the Salt
Kretz, Logan	6 T-MS-PHYS-270	How does temperature affect the strength of a magnet and its magnetic field
Dennis, Aidan	6 T-MS-PHYS-386	How high will it go?
Rahman, Shayam	7 W-MS-PHYS-223	Cleats Beats: How Different Shoes Impact the Distance of a Ball
Zahid, Amina	7 W-MS-PHYS-323	Hyperloop 2.0
Hoffman, Colton	7 W-MS-PHYS-338	Grinding Gears
Hough, Scarlett	8 W-MS-PHYS-374	Tea Bag Rockets
Mikrut, Kiaya	8 W-MS-PHYS-374	Tea Bag Rockets

Plant Sciences

	Project ID	Project Title
Finch, Ethan	7 T-MS-PLNT-409	How Do Daily Temperatures Affect Sap Production in Maple Trees?
Rivera, Randall	7 T-MS-PLNT-428	Does the Orientation of a Seed Affect Germination Time?
Wierschke, Corina	8 W-MS-PLNT-240	Plant Science
Havemeier, Lauren	8 W-MS-PLNT-251	Nitrogen In Plants
Ertel, Sophie	7 W-MS-PLNT-266	Food For Fertilizer: You Can Use Composted Fertilizer To Enhance Plant Growth
Danz, Evelyn	8 W-MS-PLNT-282	Growing Microgreens in Lunar Regolith
Grosser, Hannah	8 W-MS-PLNT-282	Growing Microgreens in Lunar Regolith
Heddle , Iona	8 W-MS-PLNT-282	Growing Microgreens in Lunar Regolith
Kavanaugh, Aidan	8 W-MS-PLNT-307	Phosphorescence of the Sea
Kavanaugh, Bradan	8 W-MS-PLNT-307	Phosphorescence of the Sea
Rao, Veda	8 W-MS-PLNT-312	Organic or Not?
Dederichs, Josie	7 W-MS-PLNT-424	Its Grow Time: The effect ribosomal bacteria has on plant growth rates
Beekman, Daniel	7 W-MS-PLNT-449	The Relationship Between Beans and Gas: The Effects of CO2 on Plant Growth

Robotics and Intelligent Machines

	Project ID	Project Title
Elkhateeb, Saif	7 W-MS-ROBO-287	Building an Edge and Light Detecting Robot

Translational Medical Science

	Project ID	Project Title
Darji, Milan	8 W-MS-TMED-288	There's Not An App For That! A Novel Clinical Assessment Tool To Predict Heart Failure Patient Outcomes
Gott, Hadley	6 W-MS-TMED-327	Best Mask



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applauds the creativity and hard work of the regional competitors.*

Twin Cities Regional Science Fairs

Animal Sciences

	Project ID	Project Title
Chafee, Nina	12 S-HS-ANIM-200	The Effect of Adolescent Temperature Variation on Development and Adult Performance in <i>V. cardui</i>
Rabe, Cole	12 W-HS-ANIM-120	Evaluating the effect of caffeine on <i>Caenorhabditis elegans</i> locomotion
Liu, Walker	12 W-HS-ANIM-243	The effects of bifidobacterium on gut microbiota, serotonin levels, stress, and anxiety on <i>Faxonius virilis</i> model organisms
Heins, Sydney	12 W-HS-ANIM-246	Casein protein diet effect on weight gain in Pacific Whit Shrimp

Behavioral and Social Sciences

	Project ID	Project Title
Johnson, Per	12 S-HS-BEHA-201	The Effects of Temperature on Learning Complex Tasks in Red Harvester Ants
Patel, Kishori	12 S-HS-BEHA-202	The Effect of the Amount of Beef Food Source and Exposure Time on <i>Calliphora vomitoria</i> Pupation
Burris-Brown, Spencer	12 S-HS-BEHA-250	Assessing the Influence of Personality on Active and Passive Procrastination among Adolescents
Boys, Emma	10 T-HS-BEHA-315	Gender Differences and the Stroop Effect
Moher, Braiden	10 T-HS-BEHA-316	Effects of Meditation on Memorization and Focus
Feng, Sarah	11 W-HS-BEHA-023	Finding Functionality: A Rasch Analysis of a Body Functionality Appreciation Scale
McDaniel, Sydney	11 W-HS-BEHA-023	Finding Functionality: A Rasch Analysis of a Body Functionality Appreciation Scale
Chu, Chloe	11 W-HS-BEHA-032	Learning Lizards Assessing the Impact of Human Socialization on Behaviors of <i>Varanus Acanthurus</i>
Turner, Rebekah	12 W-HS-BEHA-084	The Patient and Practitioner Perspective of Stigma Against Chronic Pain In The Medical Field
Lee, Chae	12 W-HS-BEHA-126	Effects of dopamine on <i>Drosophila</i> : a key to solve mysteries of Parkinson
Salmi, Lauren	12 W-HS-BEHA-136	Investigating the effects of nicotine on associative learning and long term memory in <i>Lymnaea stagnalis</i>
Rosenhagen, Henry	12 W-HS-BEHA-145	Behavioral response to multiple stimuli in dual headed planaria
Luo, Leon	11 W-HS-BEHA-302	Does ESG investing affect international capital flows? Evidence from statistical and machine learning methods
Qian, Ziyi (Rick)	11 W-HS-BEHA-313	Defeating Dyslexia: A robust meta-analysis of the relationship between hearing and Dyslexia to achieve early diagnosis and treatment
Mandal, Kauravya	12 W-HS-BEHA-318	Altruism: A test for Intelligence
Jama, Sudi	9 W-HS-BEHA-319	Can Different Introductory Video Speeds Cause Fluctuation to the Blood Pressure and Pulse of 14 - 15 Year Old Girls While doing a Reading Comprehension Test?

Twin Cities Regional Science Fairs

Biochemistry

	Project ID	Project Title
Peterson, Romy	11 W-HS-BCHM-033	Don't Forget About Caspase-2: Analyzing the Binding Site Specificity of a Protein Linked to Alzheimer's Disease
Friedman, Noah	12 W-HS-BCHM-261	Viability of Enzymatic, Bacterial, and Yeast mixtures on ethanol production

Biomedical and Health Sciences

	Project ID	Project Title
Abdi, Ekbal	11 T-HS-BMED-008	Measuring Calories in Snack Foods
Onsinyo, Eithne	10 T-HS-BMED-008	Measuring Calories in Snack Foods
Ramirez Aranda, Luis	10 T-HS-BMED-016	How Many Calories Are in those Snacks?
Sanchez Uribe, Juan	12 T-HS-BMED-016	How Many Calories Are in those Snacks?
Warfa, Nawal	10 T-HS-BMED-194	Comparison of Fat Between Non-Organic and Organic Foods
Balaji, Rahul	11 T-HS-BMED-299	Breaking News: There is more than one way to break the back! Characterizing and quantifying the effects of two models of the intervertebral disc for the purpose of successfully treating lower back pain
Mikkelsen, Scott	10 T-HS-BMED-306	Effect of Cooking Methods on Vitamin C Content
Nakamura, Karen	11 T-HS-BMED-369	The Electromyographic Evaluation of the Bilateral Muscle Asymmetry of the Latissimus Dorsi in Martial Arts and the Effect of Real-Time Biofeedback on Technique Improvement
Tyrrell, Orion	12 T-HS-BMED-442	Fencing vs. Beat Saber
Jaffe, Ava	11 W-HS-BMED-025	Essential Protection: Using UV-sensitive yeast to evaluate essential oils as an alternative to sunscreen
Menon, Amrit	12 W-HS-BMED-025	Essential Protection: Using UV-sensitive yeast to evaluate essential oils as an alternative to sunscreen
Adabag, Mina	11 W-HS-BMED-026	Piecing the Heart Together: Optimizing Procedures to Identify Cell Types in Murine Cardiac Tissue
Warren, Ayres	12 W-HS-BMED-026	Piecing the Heart Together: Optimizing Procedures to Identify Cell Types in Murine Cardiac Tissue
Stroh, Isabelle	11 W-HS-BMED-089	Using Artificial Intelligence to Detect and Localize Brain Tumors
marshall, caroline	12 W-HS-BMED-092	The effects of β -hydroxy- β -methylbutyrate on neuromuscular function in <i>C. Elegans</i>
Terrell, Julia	12 W-HS-BMED-123	Efficacy of bacteriophage therapy on <i>E. coli</i> caused urinary tract infections during the perinatal period
Chung, Benjamin	12 W-HS-BMED-127	Testing the effectiveness of tonabersat on calcitonin gene-related peptide levels in <i>Faxonius Virilis</i>
Chen, Ava	12 W-HS-BMED-271	A new potential antidepressant? The effects of L-tryptophan on serotonin levels, behavior, and alcohol aversion in <i>Faxonius virilis</i> model organisms
Levinshteyn, Elizabeth	9 W-HS-BMED-298	A Look Into the TINY Earth: Finding Antibiotic Producing Bacteria in Yellowstone Soil
Mansoor , Zahraa	9 W-HS-BMED-301	The Link Between Hearing Loss and Alzheimer's Disease in Elderly Patients

Twin Cities Regional Science Fairs

Biomedical and Health Sciences

	Project ID	Project Title
Mohammed, Muminah	10 W-HS-BMED-333	Hidden Hunger
Omar, Noor	10 W-HS-BMED-333	Hidden Hunger
Kouser, Khadija	9 W-HS-BMED-347	Researching the effects of Antibacterial absorbable Envelope on the rates of infection caused by pacemakers
Alexander , Ella	12 W-HS-BMED-363	DBS Discovery: A multifaceted approach to Deep Brain Stimulation with new advances in neurosurgical testing equipment and synchronization of alpha and beta bands for postural instability in Parkinsonian patients
Goud, Aayush	12 W-HS-BMED-363	DBS Discovery: A multifaceted approach to Deep Brain Stimulation with new advances in neurosurgical testing equipment and synchronization of alpha and beta bands for postural instability in Parkinsonian patients
Sridhar, Adhvaith	12 W-HS-BMED-431	Immune System Innovation: Ushering in a new era of immunology research by characterizing cell populations most impacted by normal microbial exposure for preclinical research and healthcare treatment development success
Maliseti, Nithya	12 W-HS-BMED-433	Optimizing Outcomes in Oncology using Precision Medicine: A longitudinal analysis of internal systematic review (molecular tumor conference) of Next Generation Sequencing results in improving patient outcomes
Datta, Srijani	11 W-HS-BMED-444	Sepsis Survivor: Characterizing muscle stem cells using RNA sequencing from a murine surgical model of sepsis for the purpose of preventing sepsis-associated muscle wasting

Biomedical Engineering

	Project ID	Project Title
Thomas, Zara	12 W-HS-ENBM-088	Different decellularization and demineralization methods for porcine bone tissue

Cellular and Molecular Biology

	Project ID	Project Title
Reinhard, Katherine	12 T-HS-CELL-406	The Effectiveness of Hand Sanitizer
Scharber, Stella	12 T-HS-CELL-406	The Effectiveness of Hand Sanitizer
Tverberg , Faith	12 T-HS-CELL-406	The Effectiveness of Hand Sanitizer
Anderson, William	10 W-HS-CELL-009	Using decellularized grapes to grow yeast
Wherry, Jack	12 W-HS-CELL-070	Prediction of anterior/posterior polarity in planaria through bioelectrical signals
Huang, Claire	12 W-HS-CELL-072	Creating induced pluripotent stem cells by reprogramming CD34+ cells through episomal gene insertion
Quist, Wesley	12 W-HS-CELL-112	The relationship between C-Reactive Protein presence and IL-6 Expression in regards to Cardiovascular disease.
IKRAMUDDIN, Sana	12 W-HS-CELL-125	Inhibition of Senescent Associated Phenotype Secretion using Lithocholic Acid in 3T3-L1 Preadipocyte cells

Twin Cities Regional Science Fairs

Cellular and Molecular Biology

	Project ID	Project Title
Kashyap, Eva	12 W-HS-CELL-227	Using iron and graphene oxide nanoparticles to induce targeted apoptosis in cancerous cells while simultaneously not affecting noncancerous cells.
Hoekstra, Abby	12 W-HS-CELL-230	Effects of sea cucumber glucocerebrosidase on amyloid-beta gene
Wagner, Alexandra	12 W-HS-CELL-325	INS-1 Rattus norvegicus cells and gene expression in response to Cinnamomum zeylancium

Chemistry

	Project ID	Project Title
Osmolski, Julia	10 T-HS-CHEM-269	Which Cookie Tastes Best?
Pagel, Cady	12 T-HS-CHEM-332	Gluten-Free or Gluten Debris: Prolamin and Glutelin Levels in Oat Flours
Butler, Josiah	10 W-HS-CHEM-360	Synthesizing Ethanol from Recycled Cardboard Sludge using a Cellulase Enzyme Blend and Yeast

Computational Biology and Bioinformatics

	Project ID	Project Title
Singhvi, Coolsjes	9 T-HS-CBIO-208	Modeling of Blood Glucose to Optimize Diet and Exercise for Type 2 Diabetes Management
Hariharan, Srinath	11 T-HS-CBIO-289	Tumor targeting: Utilizing spatial data science techniques to decode the enigmatic immune response with the goal of informing further efforts to develop immunotherapies for tumor treatment
Agarwal, Mohit	11 W-HS-CBIO-445	A two-part approach and implementation of early-stage skin cancer diagnosis using a novel dense convolutional neural network (CNN) architecture and affordable computing hardware
Yu, Aedin	11 W-HS-CBIO-445	A two-part approach and implementation of early-stage skin cancer diagnosis using a novel dense convolutional neural network (CNN) architecture and affordable computing hardware

Earth and Environmental Sciences

	Project ID	Project Title
Danielson, Cooper	11 S-HS-EAEV-199	The Effect of Varying Concentrations of Miracle-gro fertilizer on Composting Earthworm Ecosystems
Cooley, Linnea	11 S-HS-EAEV-232	Effect of Ethanol and Octocrylene on the Cell Growth and Chlorophyll-a Levels of Cyclotella meneghiniana
Ham, Ahreum	12 T-HS-EAEV-184	Legacy contaminants: An extensive study of historic land use and contamination in the East Phillips neighborhood of Minneapolis to prioritize future monitoring and restoration efforts
Sureshkumar, Sneha	11 T-HS-EAEV-368	The Detrimental Impacts of a Tilling Based Agricultural System.

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Earth and Environmental Sciences

	Project ID	Project Title
Sureshkumar, Sriram	9 T-HS-EAEV-368	The Detrimental Impacts of a Tilling Based Agricultural System.
Kaung, Grace	12 W-HS-EAEV-069	Creating chitosan hydrogels to promote phytoplankton growth and accelerate carbon sequestration
Diaz, Adelyn	12 W-HS-EAEV-080	GIS mapping of traffic pollutant concentrations against socioeconomic and health data in Hennepin County
Haraway, Nicole	12 W-HS-EAEV-082	The impacts of chemicals found in plastics having Estrogenic Activity on the synthesization of vitellogenin protein in mussels
Brandt, Maggie	12 W-HS-EAEV-119	Nitrogen and phosphorus and their impact on Acropora coral mucus layer thickness
Neset, Roxy	11 W-HS-EAEV-296	Agriculture in the Big City: Studying the effectiveness of soil treatments on weed growth
Vessels, Breanna	9 W-HS-EAEV-454	Aquatic Plant Pollutants Effect

Embedded Systems

	Project ID	Project Title
Zander, Nickolas	12 T-HS-EBED-419	Automated Sorting Device Using Sensors and Motor Control
Peterson, Alia	11 W-HS-EBED-109	Designing and building a technologically enhanced toy
Shrivastava, Shreshth	10 W-HS-EBED-238	Wi-C.A.R.E: Wifi Computer-Assisted Remote Eldercare (Year 3)

Energy: Sustainable Materials and Design

	Project ID	Project Title
Banks, Maggie	10 S-HS-EGSD-400	A Plant With Promise: Using Engineering Principles to Create an Eco-Friendly Manufacturing Process for a Biodegradable Piezoelectric Transducer
Montague, George	12 S-HS-EGSD-429	Creation of a highly-efficient wind turbine: using wind detection and direction adjustment to optimize wind energy production

Engineering Mechanics

	Project ID	Project Title
Sedo, Will	12 S-HS-ENMC-284	Optimizing Waterflow in a Simulated River Environment
Samba, Trisha	11 W-HS-ENMC-035	Water You Risking? Developing a Novel Maze to Assess the Effects of Thirst. on Risk-Taking Behavior in Mice
Sinclair, Amira	11 W-HS-ENMC-035	Water You Risking? Developing a Novel Maze to Assess the Effects of Thirst. on Risk-Taking Behavior in Mice
Walsh, Nathan	11 W-HS-ENMC-036	Everything you 'Kneed': Development of an adjustable, above-knee prosthetic capable of performing multiple activities.
Anderson, Noah	11 W-HS-ENMC-083	Development of remotely operated underwater vehicle to aid in exploration and mapping of underwater cave systems
Wurdell, Henry	12 W-HS-ENMC-090	Economical Dynamometer Development

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Engineering Mechanics

	Project ID	Project Title
Lukitsch, Gavin	12 W-HS-ENMC-110	Developing an autonomous lawnmower for private homes
Saidi, Billal	10 W-HS-ENMC-256	Engineering a Cost-Effective Ventilator
Nelson, Valerie	10 W-HS-ENMC-308	Effects of Chamber Shape on Movement of Accordion Soft Actuators and Implementation in Artificial Hands

Environmental Engineering

	Project ID	Project Title
Cordova Gonzalez, Gabriel	10 T-HS-ENEV-013	Keeping Your Cool
Tran, Anna	12 T-HS-ENEV-148	The Effect of Windmills Efficiency of Solar Panels
Guo, Ellen	10 T-HS-ENEV-404	Novel Cellulose Carbon Fiber Based Biofilm for Airborne VOC Filtration
Fung, Kyla	12 W-HS-ENEV-096	Sustainable Bioplastics: Seaweed and Hemp-based Alternatives to Fossil Fuel-based Plastics
Emerson, Ivars	11 W-HS-ENEV-132	A collapsible reusable cooler for eco-friendly sustainable shipping of cold medications

Materials Science

	Project ID	Project Title
Chen, Benjamin	11 S-HS-MATS-203	Recycled Plastic for Resilient Infrastructure
Griffin, Ava	11 T-HS-MATS-407	What Materials Can Hinder a WiFi Signal?
Metzig, August	11 T-HS-MATS-407	What Materials Can Hinder a WiFi Signal?
Peterson, Sarah	11 W-HS-MATS-037	Knots or Not? Using electricity to study DNA entanglements in nanochannels
White, Kendall	11 W-HS-MATS-037	Knots or Not? Using electricity to study DNA entanglements in nanochannels
Andrews, Madison	12 W-HS-MATS-071	Safe Food: Analyzing the function of a portable incubator for E. coli powered by electrothermal films
Carver, Nick	12 W-HS-MATS-077	The potential application of Nitinol's shape memory properties for use in internal muscle repair
Geppert, Jared	9 W-HS-MATS-455	3D Printing Layer Angles

Mathematics

	Project ID	Project Title
Wang, April	11 W-HS-MATH-117	Predicting COVID-19 Cases Through High-Dimensional Data Analysis
Hultgren, John	11 W-HS-MATH-224	New applications of Topological Data Analysis
Chen, Eric	11 W-HS-MATH-259	Classification of Bone Surface Modifications with Graph-Based Semi-Supervised Learning

Microbiology

	Project ID	Project Title
Davidson, Sigrid	11 T-HS-MCRO-139	Effect of Salinity Instabilities on Halobacterium Versus Escherichia coli

Twin Cities Regional Science Fairs

Microbiology

	Project ID	Project Title
Schlehuber, Caroline	12 T-HS-MCRO-335	New Research, Old Medicine: Exploring Antibacterial Properties of Plants and Fungi Used in Indigenous Medicine
Michaelsson, Calais	11 W-HS-MCRO-079	Re-sensitization of E. Coli to tetracycline using plant-derived efflux pump inhibitors
Chen, Ethan	11 W-HS-MCRO-098	Examination of various essential oils on Candida albicans model organism growth as an indicator of anti-dandruff properties on Malassezia
Jaffe, Jackson	12 W-HS-MCRO-115	Effects of far-UVC radiation (wavelength 222nm) on pathogens and mammalian cells
Edwards, Lucas	12 W-HS-MCRO-124	The impact of flavonoids on P. fluorescens
Goergen, Quinn	12 W-HS-MCRO-135	Finding Growth of Mycelia and Decomposition of Pesticides in Soil
Sorensen, Scott	12 W-HS-MCRO-212	Manipulating Dissolved Gas Content in Computer Simulations of Acoustic Cavitation
Thomes, Carter	12 W-HS-MCRO-231	The Extent of Creatine's Antimicrobial Properties
Eldahshoury, Yousef	12 W-HS-MCRO-245	Cyanobacteria Aid In Plant Growth In Martian Soil
Khadilkar, Rushil	10 W-HS-MCRO-281	Impact of Critical Parameters on Rhizopus Stolonifer Growth: Implications to Food Shelf Longevity and Economics
Pulavarthi, Sriya	12 W-HS-MCRO-310	The role of AChE inhibitors and its effects on AChE and beta-amyloid in Alzheimer's disease using Acetylcholinesterase from Electrophorus electricus on Caenorhabditis elegans
Sibinski, Taydem	9 W-HS-MCRO-405	Clean and Pristine: How Antibacterial are Different Hand Cleaners?
Germann, Ada	9 W-HS-MCRO-452	Does Natural Mean Better?

Physics and Astronomy

	Project ID	Project Title
Hess, Quinn	10 T-HS-PHYS-056	The Force Produced by Different Treads and Rubber on a Running Shoe
Wrobel, Keira	9 W-HS-PHYS-403	Science and Sound: Violin Pitch vs Room Temperature

Plant Sciences

	Project ID	Project Title
Trinh, Katriana	11 W-HS-PLNT-085	Effects of silica Nanoparticles to mitigate abiotic stress
Maveus, Maxwell	12 W-HS-PLNT-091	Sporophytic abortion rates under desiccation stress and the potential of sporophytic autonomy in the mosses Leucobryum glaucum and Bryum caespitium
Clair, Tyler	9 W-HS-PLNT-101	Using Monte Carlo Simulation to Optimize Vitamin C Production in Brassica oleracea using Abiotic Plant Stress
Hughes, Quinn	9 W-HS-PLNT-101	Using Monte Carlo Simulation to Optimize Vitamin C Production in Brassica oleracea using Abiotic Plant Stress
Rajasekaran, Abirami	12 W-HS-PLNT-276	Forage Frenzy: A multifactor analysis of manure application on forage nutritive value through sequential fiber methods

Twin Cities Regional Science Fairs

Plant Sciences

	Project ID	Project Title
Senthilkumar, Harini	11 W-HS-PLNT-276	Forage Frenzy: A multifactor analysis of manure application on forage nutritive value through sequential fiber methods

Robotics and Intelligent Machines

	Project ID	Project Title
Mellin, Ruth	12 S-HS-ROBO-010	One-way ASL translation: 3D printed robotic hand with integrated speech recognition
Moore, Alexander	12 S-HS-ROBO-010	One-way ASL translation: 3D printed robotic hand with integrated speech recognition
Green, Tristan	12 W-HS-ROBO-078	The use of machine learning to identify leukemia cells in patients
Morton, Merlin	11 W-HS-ROBO-095	Using Machine Learning to Improve the Accuracy of GPS by Reducing the Impact of Multipath and Other Sources of Error
Armstrong II, Kevin	10 W-HS-ROBO-118	Robotics for Efficient Household Planting
Volkov, Ross	12 W-HS-ROBO-130	Diagnosing Parkinson's disease with machine learning voice analysis
Rajashankar, Krish Inba	11 W-HS-ROBO-229	Medical device recall prediction using MAUDE reports
Mathur, Meiling	11 W-HS-ROBO-241	Replicating Human Personas With Computers
Pitt, Diego	12 W-HS-ROBO-244	Creating a humanmemetic haptic feedback controlled telepresence robotic drone
Arora, Stavya	11 W-HS-ROBO-277	Overcoming Opioids: Analyzing, characterizing, and quantifying the sentiment of Reddit posts' tone and language prior to a relapse to allow for early intervention
Wang, Daniel	11 W-HS-ROBO-361	Nimble Navigation: Designing and developing an interactive chatbot with natural language processing to assist visually-impaired users to maneuver in outdoor settings with assurance
XU, PETER	11 W-HS-ROBO-361	Nimble Navigation: Designing and developing an interactive chatbot with natural language processing to assist visually-impaired users to maneuver in outdoor settings with assurance

Systems Software

	Project ID	Project Title
Konar-Steenberg, Naci	12 S-HS-SOFT-065	The Raft Game: An Experiment in Player-Centric Quasi-Random Terrain Generation
Krishna, Akshay	11 W-HS-SOFT-029	Does Apple Really Watch Your Sleep? Modifying an algorithm to improve prediction of sleep stages from Apple Watch data
Pal, Amrita	12 W-HS-SOFT-042	Pollution and Prejudice: Building a computer-based algorithm to assess pollution exposure levels by Asian American subgroup

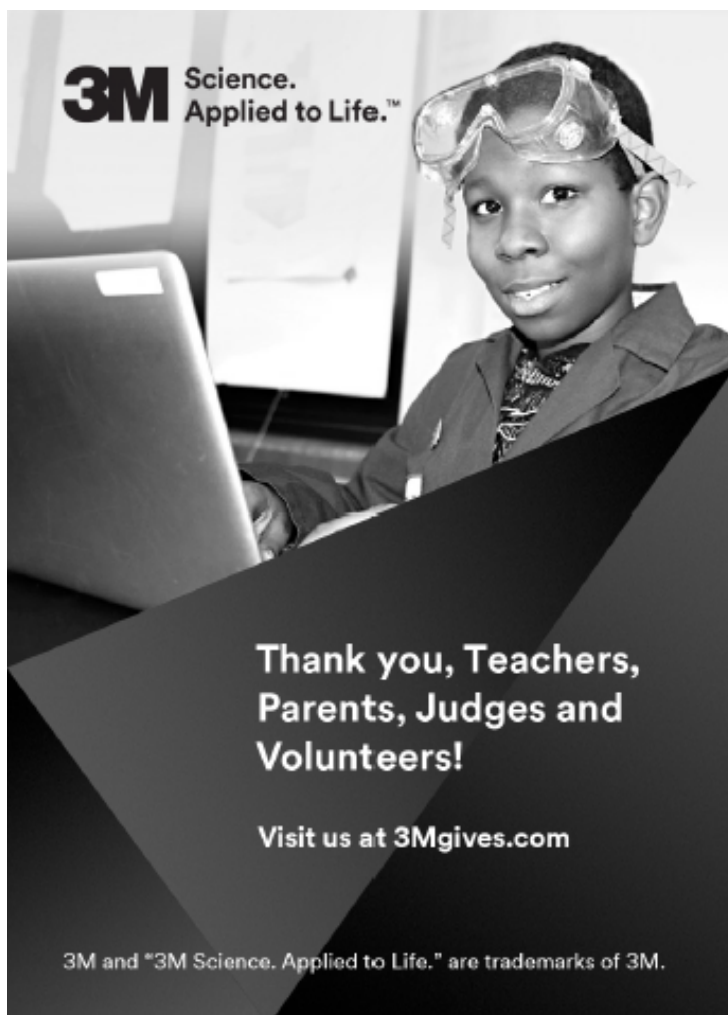
Twin Cities Regional Science Fairs

Systems Software

	Project ID	Project Title
Cherian, Michael	11 W-HS-SOFT-087	Analyzing how the absence of a central authority affects financial applications within the Polkadot ecosystem and constructing a protocol to distinguish polarizing biases when compared to traditional centralized systems.
Said, Mahmoud	12 W-HS-SOFT-225	Controlling a computer cursor with basic webcam input
Somia, Saloni	11 W-HS-SOFT-247	Increasing Access to Epinephrine Injectors during Allergic Reactions through a Location Tracking Mobile Application.
Miskiw, Kiefer	12 W-HS-SOFT-304	Realtime 3D Collaboration
Radichel, Christina	12 W-HS-SOFT-331	Look, Listen, Link: Distinguishing a Difference Between Audio and Audio-Visual Stimulation in fMRI Data

Translational Medical Science

	Project ID	Project Title
Wiese, Gabriella	12 W-HS-TMED-129	Measuring c-fos expression in <i>F. virilis</i> from exposure to an inflammatory soup





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Water Solutions

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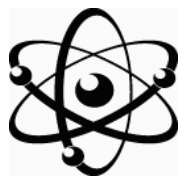
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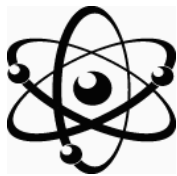
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Twin Cities Regional Science Fairs

Student Participants by Last Name - S, T, W are projects, P is research paper

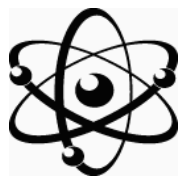
	Project ID	Category
Abdi, Ekbal	T-HS-BMED-008	Biomedical and Health Sciences
Abdi, Liban	P-MS-ENGT-314	Paper: Engineering and Technology
Abdi, Liban	W-MS-ENEV-272	Environmental Engineering
Acosta- Sanchez, Lalaine	T-MS-BEHA-417	Behavioral and Social Sciences
Adabag, Mina	P-HS-BIOM-021	Paper: Biomedical Sciences; Cell / Molecular Biology
Adabag, Mina	W-HS-BMED-026	Biomedical and Health Sciences
Agarwal, Mohit	W-HS-CBIO-445	Computational Biology and Bioinformatics
Ahmed, Zabida	W-MS-CHEM-173	Chemistry
Alexander , Ella	P-HS-MHBE-362	Paper: Medicine & Health / Behavioral Sciences
Alexander , Ella	W-HS-BMED-363	Biomedical and Health Sciences
Alexander, Giada	S-MS-BEHA-177	Behavioral and Social Sciences
Alt, Owen	P-HS-BIOM-048	Paper: Biomedical Sciences; Cell / Molecular Biology
Anderson, Noah	W-HS-ENMC-083	Engineering Mechanics
Anderson, William	W-HS-CELL-009	Cellular and Molecular Biology
Andrews, Madison	W-HS-MATS-071	Materials Science
Arika, Hannah	W-MS-CHEM-239	Chemistry
Armstrong II, Kevin	W-HS-ROBO-118	Robotics and Intelligent Machines
Arora, Stavva	P-HS-MCCE-278	Paper: Math and Computer Science, Computer Engineering
Arora, Stavva	W-HS-ROBO-277	Robotics and Intelligent Machines
Asan, Sema	W-MS-CHEM-336	Chemistry
Bai, Andrew	P-HS-ENVI-401	Paper: Environmental Science
Bai, Annie	P-HS-ENVI-401	Paper: Environmental Science
Balaji, Rahul	P-HS-LIFE-365	Paper: Life Sciences
Balaji, Rahul	T-HS-BMED-299	Biomedical and Health Sciences
Banerjea, Arul	P-HS-MHBE-396	Paper: Medicine & Health / Behavioral Sciences
Banks, Maggie	P-HS-ENVI-399	Paper: Environmental Science
Banks, Maggie	S-HS-EGSD-400	Energy: Sustainable Materials and Design
Batham, Alexander	P-MS-PCMS-358	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Batham, Alexander	T-MS-MATS-169	Materials Science
Bauer, Jack	W-MS-ENMC-376	Engineering Mechanics
Beekman, Daniel	W-MS-PLNT-449	Plant Sciences
Bergeron, Margaret	S-MS-BEHA-175	Behavioral and Social Sciences
Biggs, Victoria	P-HS-ENVI-075	Paper: Environmental Science
Blanco-Abundez, Isabella	T-MS-ANIM-413	Animal Sciences
Bosch, Emilyn	W-MS-CHEM-263	Chemistry
Boys, Emma	P-HS-MHBE-074	Paper: Medicine & Health / Behavioral Sciences
Boys, Emma	T-HS-BEHA-315	Behavioral and Social Sciences
Boyum, Collin	P-HS-PPAI-233	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Brandt, Maggie	W-HS-EAEV-119	Earth and Environmental Sciences
Braun, Ellie	T-MS-BEHA-414	Behavioral and Social Sciences
Breyen, Catherine	P-HS-ENVI-388	Paper: Environmental Science
Brinkmann, Emma	P-HS-PCMS-190	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Brown, Na'ila	P-HS-ENGT-226	Paper: Engineering and Technology
Bruin, Carsten	W-MS-CHEM-439	Chemistry
Burris-Brown, Spencer	P-HS-MHBE-249	Paper: Medicine & Health / Behavioral Sciences
Burris-Brown, Spencer	S-HS-BEHA-250	Behavioral and Social Sciences
Butler, Josiah	W-HS-CHEM-360	Chemistry
Carpio, Gabriel	P-MS-LIFE-423	Paper: Life Sciences



Twin Cities Regional Science Fairs

Student Participants by Last Name - S, T, W are projects, P is research paper

	Project ID	Category
Carpio, Gabriel	T-MS-ANIM-416	Animal Sciences
Carver, Nick	W-HS-MATS-077	Materials Science
Chafee, Nina	P-HS-LIFE-159	Paper: Life Sciences
Chafee, Nina	S-HS-ANIM-200	Animal Sciences
Chen, Ava	P-HS-BIOM-311	Paper: Biomedical Sciences; Cell / Molecular Biology
Chen, Ava	W-HS-BMED-271	Biomedical and Health Sciences
Chen, Benjamin	P-HS-PCMS-204	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Chen, Benjamin	S-HS-MATS-203	Materials Science
Chen, Eric	W-HS-MATH-259	Mathematics
Chen, Ethan	W-HS-MCRO-098	Microbiology
Cherian, Michael	W-HS-SOFT-087	Systems Software
Chow, Carissa	P-HS-PCMS-051	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Chu, Chloe	P-HS-MHBE-030	Paper: Medicine & Health / Behavioral Sciences
Chu, Chloe	W-HS-BEHA-032	Behavioral and Social Sciences
Chung, Benjamin	W-HS-BMED-127	Biomedical and Health Sciences
Clair, Tyler	P-HS-LIFE-100	Paper: Life Sciences
Clair, Tyler	W-HS-PLNT-101	Plant Sciences
Cleaveland, Beck	W-MS-ENMC-376	Engineering Mechanics
Colin, Dora	P-HS-MHBE-237	Paper: Medicine & Health / Behavioral Sciences
Cooley, Linnea	P-HS-ENVI-255	Paper: Environmental Science
Cooley, Linnea	S-HS-EAEV-232	Earth and Environmental Sciences
Cooper, Shiaflyn	W-MS-CHEM-242	Chemistry
Cordova Gonzalez, Gabriel	T-HS-ENEV-013	Environmental Engineering
Cronin, Andrew	P-HS-MHBE-134	Paper: Medicine & Health / Behavioral Sciences
Cronin, Kathleen	T-MS-BEHA-167	Behavioral and Social Sciences
Cronin, Rebecca	T-MS-BCHM-168	Biochemistry
Curry, Urijah	W-MS-BMED-141	Biomedical and Health Sciences
Curti, Blake	W-MS-ENMC-156	Engineering Mechanics
Danielson, Cooper	P-HS-LIFE-158	Paper: Life Sciences
Danielson, Cooper	S-HS-EAEV-199	Earth and Environmental Sciences
Danz, Evelyn	W-MS-PLNT-282	Plant Sciences
Darji, Milan	W-MS-TMED-288	Translational Medical Science
Datta, Srijani	P-HS-MHBE-371	Paper: Medicine & Health / Behavioral Sciences
Datta, Srijani	W-HS-BMED-444	Biomedical and Health Sciences
Davidson, Sigrid	P-HS-LIFE-436	Paper: Life Sciences
Davidson, Sigrid	T-HS-MCRO-139	Microbiology
Dawson, Coretta	P-HS-PCMS-211	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Dederichs, Josie	W-MS-PLNT-424	Plant Sciences
Delgado, Yahira	P-HS-PCMS-128	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Dennis, Aidan	T-MS-PHYS-386	Physics and Astronomy
Diaz, Adelyn	P-HS-BIOM-081	Paper: Biomedical Sciences; Cell / Molecular Biology
Diaz, Adelyn	W-HS-EAEV-080	Earth and Environmental Sciences
Dobie, Kathleen	S-MS-MATS-068	Materials Science
Dogwill, Tallulah	W-MS-ENEV-235	Environmental Engineering
Domek, Krista	P-HS-MHBE-146	Paper: Medicine & Health / Behavioral Sciences
Duong, Katie	P-HS-ENVI-014	Paper: Environmental Science
Ebert, Alex	W-MS-ENBM-142	Biomedical Engineering
Edwards, Lucas	W-HS-MCRO-124	Microbiology



Twin Cities Regional Science Fairs

Student Participants by Last Name - S, T, W are projects, P is research paper

	Project ID	Category
Eldahshoury, Yousef	W-HS-MCRO-245	Microbiology
Elkhateeb, Saif	P-MS-MCCE-286	Paper: Math and Computer Science, Computer Engineering
Elkhateeb, Saif	W-MS-ROBO-287	Robotics and Intelligent Machines
Elmoge, Amira	P-HS-LIFE-182	Paper: Life Sciences
Emerson, Ivars	P-HS-ENVI-350	Paper: Environmental Science
Emerson, Ivars	W-HS-ENEV-132	Environmental Engineering
Emmick, Cohen	W-MS-CHEM-437	Chemistry
Ertel, Sophie	P-MS-LIFE-453	Paper: Life Sciences
Ertel, Sophie	W-MS-PLNT-266	Plant Sciences
Eshete, Yordanos	P-HS-LIFE-192	Paper: Life Sciences
Fahim , Adeenah	P-MS-ENVI-346	Paper: Environmental Science
Fahim , Adeenah	W-MS-EAEV-355	Earth and Environmental Sciences
Feng, Sarah	P-HS-MHBE-027	Paper: Medicine & Health / Behavioral Sciences
Feng, Sarah	W-HS-BEHA-023	Behavioral and Social Sciences
Finch, Ethan	P-MS-LIFE-260	Paper: Life Sciences
Finch, Ethan	T-MS-PLNT-409	Plant Sciences
Flores Reza, Evelyn	T-MS-CHEM-219	Chemistry
Flynn, Hailey	W-MS-CHEM-337	Chemistry
Friedman, Noah	W-HS-BCHM-261	Biochemistry
Fru-Mambo, Kylie Darlene	W-MS-CHEM-143	Chemistry
Fung, Kyla	P-HS-ENVI-097	Paper: Environmental Science
Fung, Kyla	W-HS-ENEV-096	Environmental Engineering
Gannon, Anna	P-HS-PPAI-049	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Gannon, Daniel	P-HS-PPAI-076	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Gannon, Olivia	P-HS-MHBE-161	Paper: Medicine & Health / Behavioral Sciences
Geppert, Jared	P-HS-PCMS-352	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Geppert, Jared	W-HS-MATS-455	Materials Science
Germann, Ada	W-HS-MCRO-452	Microbiology
Germann, Ada	P-HS-BIOM-393	Paper: Biomedical Sciences; Cell / Molecular Biology
Glover, Maddisen	W-MS-CHEM-155	Chemistry
Goergen, Quinn	W-HS-MCRO-135	Microbiology
Gomez, Mery	T-MS-BCHM-420	Biochemistry
Gott, Hadley	W-MS-TMED-327	Translational Medical Science
Goud, Aayush	P-HS-MHBE-362	Paper: Medicine & Health / Behavioral Sciences
Goud, Aayush	W-HS-BMED-363	Biomedical and Health Sciences
Greeley, Kayden	S-MS-EGSD-046	Energy: Sustainable Materials and Design
Green, Tristan	W-HS-ROBO-078	Robotics and Intelligent Machines
Gregory, Katelyn	W-MS-CHEM-239	Chemistry
Griffin, Ava	P-HS-ENGT-382	Paper: Engineering and Technology
Griffin, Ava	T-HS-MATS-407	Materials Science
Grosser, Hannah	W-MS-PLNT-282	Plant Sciences
Guo, Ellen	P-HS-ENVI-397	Paper: Environmental Science
Guo, Ellen	T-HS-ENEV-404	Environmental Engineering
Ham, Ahreum	P-HS-ENVI-185	Paper: Environmental Science
Ham, Ahreum	T-HS-EAEV-184	Earth and Environmental Sciences
Hamann, Olivia	T-MS-CHEM-290	Chemistry
Haraway, Nicole	W-HS-EAEV-082	Earth and Environmental Sciences
Hariharan, Srinath	P-HS-MCCE-285	Paper: Math and Computer Science, Computer Engineering



Twin Cities Regional Science Fairs

Student Participants by Last Name - S, T, W are projects, P is research paper

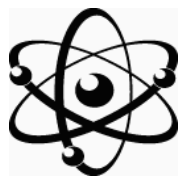
	Project ID	Category
Hariharan, Srinath	T-HS-CBIO-289	Computational Biology and Bioinformatics
Hauwiller, Kellan	W-MS-MATS-408	Materials Science
Havemeier, Lauren	W-MS-PLNT-251	Plant Sciences
Heddle, Iona	W-MS-PLNT-282	Plant Sciences
Heins, Sydney	W-HS-ANIM-246	Animal Sciences
Hennis, Cece	S-MS-CHEM-178	Chemistry
Hess, Quinn	P-HS-PPAI-052	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Hess, Quinn	T-HS-PHYS-056	Physics and Astronomy
Hoang, Linh Dan	P-HS-LIFE-020	Paper: Life Sciences
Hochhalter, MaKenzie	W-MS-BCHM-351	Biochemistry
Hoekstra, Abby	W-HS-CELL-230	Cellular and Molecular Biology
Hoekstra, Sadie	W-MS-EAEV-264	Earth and Environmental Sciences
Hoffman, Colton	W-MS-PHYS-338	Physics and Astronomy
Hora, Riley	W-MS-CHEM-340	Chemistry
Hora, Robert	W-MS-CHEM-340	Chemistry
Hough, Scarlett	W-MS-PHYS-374	Physics and Astronomy
Hounton, Elodie	P-HS-MHBE-210	Paper: Medicine & Health / Behavioral Sciences
Hu, Lynne	S-MS-ENMC-188	Engineering Mechanics
Huang, Claire	W-HS-CELL-072	Cellular and Molecular Biology
Hughes, Maggie	S-MS-EAEV-044	Earth and Environmental Sciences
Hughes, Quinn	P-HS-LIFE-100	Paper: Life Sciences
Hughes, Quinn	W-HS-PLNT-101	Plant Sciences
Hultgren, John	W-HS-MATH-224	Mathematics
Hussein, Suhaib	P-HS-ENVI-055	Paper: Environmental Science
Hustvedt, Ron	W-MS-ANIM-380	Animal Sciences
IKRAMUDDIN, Sana	W-HS-CELL-125	Cellular and Molecular Biology
Jacobson, Victoria	P-HS-PCMS-174	Paper: Chemistry, including Physical Chemistry, Materials Science, Alternatives
Jaffe, Ava	P-HS-MHBE-024	Paper: Medicine & Health / Behavioral Sciences
Jaffe, Ava	W-HS-BMED-025	Biomedical and Health Sciences
Jaffe, Jackson	W-HS-MCRO-115	Microbiology
Jama, Sudi	P-HS-MHBE-320	Paper: Medicine & Health / Behavioral Sciences
Jama, Sudi	W-HS-BEHA-319	Behavioral and Social Sciences
Jensen, Mary	S-MS-BEHA-040	Behavioral and Social Sciences
Johnson, Gracie	P-HS-BIOM-183	Paper: Biomedical Sciences; Cell / Molecular Biology
Johnson, Layla	W-MS-BEHA-379	Behavioral and Social Sciences
Johnson, Per	P-HS-LIFE-162	Paper: Life Sciences
Johnson, Per	S-HS-BEHA-201	Behavioral and Social Sciences
Josephs, Aidan	P-HS-PCMS-217	Paper: Chemistry, including Physical Chemistry, Materials Science, Alternatives
Kallunki, Ava	W-MS-CHEM-375	Chemistry
Kashyap, Eva	W-HS-CELL-227	Cellular and Molecular Biology
Kaufman, Naia	P-HS-MHBE-279	Paper: Medicine & Health / Behavioral Sciences
Kaung, Grace	W-HS-EAEV-069	Earth and Environmental Sciences
Kavanaugh, Aidan	W-MS-PLNT-307	Plant Sciences
Kavanaugh, Bradan	W-MS-PLNT-307	Plant Sciences
Keckeisen, Sydney	W-MS-CHEM-341	Chemistry
Khadiikar, Rushil	P-HS-BIOM-280	Paper: Biomedical Sciences; Cell / Molecular Biology
Khadiikar, Rushil	W-HS-MCRO-281	Microbiology
Kilmartin, Nick	W-MS-EAEV-172	Earth and Environmental Sciences



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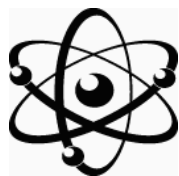
	Project ID	Category
King, Ashley	P-HS-PPAI-063	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Klavins, Ben	P-HS-PCMS-191	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Klein , Julia	W-MS-CHEM-328	Chemistry
Kneisl, AJ	P-HS-LIFE-131	Paper: Life Sciences
Kocinski, Hannah	P-MS-ENGT-438	Paper: Engineering and Technology
Kocinski, Hannah	W-MS-ENEV-441	Environmental Engineering
Kollipara, Sanjana	P-MS-MHBE-292	Paper: Medicine & Health / Behavioral Sciences
Kollipara, Sanjana	W-MS-BEHA-293	Behavioral and Social Sciences
Konar-Steenberg, Naci	S-HS-SOFT-065	Systems Software
Kouser, Khadija	W-HS-BMED-347	Biomedical and Health Sciences
Kovats, Ellen	S-MS-EAEV-041	Earth and Environmental Sciences
Kretz, Logan	T-MS-PHYS-270	Physics and Astronomy
Krishna, Akshay	P-HS-MCCE-028	Paper: Math and Computer Science, Computer Engineering
Krishna, Akshay	W-HS-SOFT-029	Systems Software
Krueger, Wesley	P-HS-BIOM-147	Paper: Biomedical Sciences; Cell / Molecular Biology
Lam, Edwin	W-MS-CHEM-150	Chemistry
Lange, Isabel	P-HS-MHBE-234	Paper: Medicine & Health / Behavioral Sciences
Laurey, Jane	S-MS-BEHA-180	Behavioral and Social Sciences
Le, Emma	P-HS-MHBE-196	Paper: Medicine & Health / Behavioral Sciences
Le, Gabriel	P-HS-PPAI-218	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Lee, Chae	W-HS-BEHA-126	Behavioral and Social Sciences
Lee, Josie	S-MS-ENMC-066	Engineering Mechanics
Leipnitz, Noah	P-HS-ENVI-157	Paper: Environmental Science
Leither, Amelia	W-MS-EAEV-151	Earth and Environmental Sciences
Leonard-Gorrill, Mason	T-MS-BEHA-411	Behavioral and Social Sciences
Lessard, Ian	W-MS-ENMC-342	Engineering Mechanics
Levinshteyn, Elizabeth	P-HS-BIOM-297	Paper: Biomedical Sciences; Cell / Molecular Biology
Levinshteyn, Elizabeth	W-HS-BMED-298	Biomedical and Health Sciences
Liu, John	P-MS-ENVI-434	Paper: Environmental Science
Liu, John	T-MS-ENEV-446	Environmental Engineering
Liu, Walker	W-HS-ANIM-243	Animal Sciences
Logan, Callan	T-MS-BMED-122	Biomedical and Health Sciences
Lukitsch, Gavin	W-HS-ENMC-110	Engineering Mechanics
Luo, Leon	P-HS-MCCE-300	Paper: Math and Computer Science, Computer Engineering
Luo, Leon	W-HS-BEHA-302	Behavioral and Social Sciences
Mahamed, Suhayb	P-HS-PPAI-061	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Malisetti, Nithya	P-HS-MHBE-432	Paper: Medicine & Health / Behavioral Sciences
Malisetti, Nithya	W-HS-BMED-433	Biomedical and Health Sciences
Mandal, Kauravya	W-HS-BEHA-318	Behavioral and Social Sciences
Mansoor , Zahraa	W-HS-BMED-301	Biomedical and Health Sciences
Marsalek, Thomas	W-MS-BEHA-317	Behavioral and Social Sciences
marshall, caroline	W-HS-BMED-092	Biomedical and Health Sciences
Martinez , Christopher	T-MS-CHEM-410	Chemistry
Mathur, Meiling	W-HS-ROBO-241	Robotics and Intelligent Machines
matsumoto, tetsu	S-MS-ENMC-064	Engineering Mechanics
Maveus, Maxwell	W-HS-PLNT-091	Plant Sciences
Mbuba, Makena	W-MS-CHEM-152	Chemistry
McDaniel, Sydney	P-HS-MHBE-027	Paper: Medicine & Health / Behavioral Sciences



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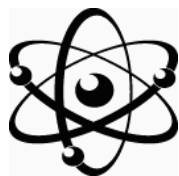
	Project ID	Category
McDaniel, Sydney	W-HS-BEHA-023	Behavioral and Social Sciences
McKeen, Ayla	P-HS-ENVI-015	Paper: Environmental Science
McSherry, Bryn	S-MS-MCRO-045	Microbiology
Mellado, Enzo	T-MS-CHEM-418	Chemistry
Mellin, Ruth	P-HS-ENGT-011	Paper: Engineering and Technology
Mellin, Ruth	S-HS-ROBO-010	Robotics and Intelligent Machines
Menon, Amrit	P-HS-MHBE-024	Paper: Medicine & Health / Behavioral Sciences
Menon, Amrit	W-HS-BMED-025	Biomedical and Health Sciences
Metzig, August	P-HS-ENGT-382	Paper: Engineering and Technology
Metzig, August	T-HS-MATS-407	Materials Science
Meyers, Sophie	P-HS-PPAI-377	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Michaelsson, Calais	W-HS-MCRO-079	Microbiology
Mick, Ainsley	W-MS-ANIM-440	Animal Sciences
Mikkelsen, Jordan	P-HS-PPAI-303	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Mikkelsen, Scott	P-HS-MHBE-305	Paper: Medicine & Health / Behavioral Sciences
Mikkelsen, Scott	T-HS-BMED-306	Biomedical and Health Sciences
Mikrut, Kiaya	W-MS-PHYS-374	Physics and Astronomy
Miskiw, Kiefer	W-HS-SOFT-304	Systems Software
Mohammed, Muminah	W-HS-BMED-333	Biomedical and Health Sciences
Mohamud, Ilyas	P-HS-PPAI-222	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Moheet, Ayeza	P-MS-PCMS-398	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Moheet, Ayeza	W-MS-EGSD-345	Energy: Sustainable Materials and Design
Moher, Braiden	P-HS-MHBE-189	Paper: Medicine & Health / Behavioral Sciences
Moher, Braiden	T-HS-BEHA-316	Behavioral and Social Sciences
Montague, George	S-HS-EGSD-429	Energy: Sustainable Materials and Design
Montecillo, Natalia	P-HS-LIFE-258	Paper: Life Sciences
Moore, Alexander	P-HS-ENGT-011	Paper: Engineering and Technology
Moore, Alexander	S-HS-ROBO-010	Robotics and Intelligent Machines
Morgan, Andrew	P-HS-ENVI-163	Paper: Environmental Science
Morton, Merlin	W-HS-ROBO-095	Robotics and Intelligent Machines
Mros, Avery	W-MS-EAEV-252	Earth and Environmental Sciences
Muriithi, Milkahlyne	W-MS-CHEM-154	Chemistry
Mussa, Hedaya	P-HS-MHBE-357	Paper: Medicine & Health / Behavioral Sciences
Nakamura, Karen	P-HS-MHBE-370	Paper: Medicine & Health / Behavioral Sciences
Nakamura, Karen	T-HS-BMED-369	Biomedical and Health Sciences
Nash, Lincoln	T-MS-ENMC-447	Engineering Mechanics
Nelson , Mya	W-MS-CHEM-324	Chemistry
Nelson, Valerie	W-HS-ENMC-308	Engineering Mechanics
Neset, Roxy	P-HS-ENVI-295	Paper: Environmental Science
Neset, Roxy	W-HS-EAEV-296	Earth and Environmental Sciences
Nguyen, Katie	T-MS-BEHA-167	Behavioral and Social Sciences
Northup, Dalton	T-MS-MCRO-421	Microbiology
Norton, Alisondra	P-HS-BIOM-060	Paper: Biomedical Sciences; Cell / Molecular Biology
O'Brien, Grace	W-MS-ENEV-235	Environmental Engineering
Olsen, Madeline	P-HS-BIOM-166	Paper: Biomedical Sciences; Cell / Molecular Biology
Olson, Cristian	W-MS-CHEM-322	Chemistry
Olson, Gabriella	W-MS-BEHA-321	Behavioral and Social Sciences
Omar, Noor	W-HS-BMED-333	Biomedical and Health Sciences



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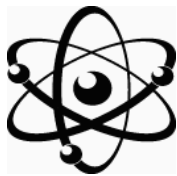
	Project ID	Category
Onsinyo, Eithne	T-HS-BMED-008	Biomedical and Health Sciences
Osmolski, Julia	P-HS-PCMS-133	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Osmolski, Julia	T-HS-CHEM-269	Chemistry
Pagel, Cady	P-HS-PCMS-344	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Pagel, Cady	T-HS-CHEM-332	Chemistry
Pal, Amrita	P-HS-MCCE-043	Paper: Math and Computer Science, Computer Engineering
Pal, Amrita	W-HS-SOFT-042	Systems Software
Park, Ina	P-HS-MHBE-144	Paper: Medicine & Health / Behavioral Sciences
Passe, Ella	P-HS-BIOM-334	Paper: Biomedical Sciences; Cell / Molecular Biology
Patel, Kishori	P-HS-LIFE-160	Paper: Life Sciences
Patel, Kishori	S-HS-BEHA-202	Behavioral and Social Sciences
Peterson, Alia	W-HS-EBED-109	Embedded Systems
Peterson, Romy	P-HS-BIOM-031	Paper: Biomedical Sciences; Cell / Molecular Biology
Peterson, Romy	W-HS-BCHM-033	Biochemistry
Peterson, Sarah	P-HS-PCMS-038	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Peterson, Sarah	W-HS-MATS-037	Materials Science
Pitt, Diego	W-HS-ROBO-244	Robotics and Intelligent Machines
Poppinga, Luke	T-MS-ENMC-448	Engineering Mechanics
Pulavarthi, Sriya	W-HS-MCRO-310	Microbiology
Qian, Ziyi (Rick)	P-HS-MHBE-359	Paper: Medicine & Health / Behavioral Sciences
Qian, Ziyi (Rick)	W-HS-BEHA-313	Behavioral and Social Sciences
Quist, Wesley	W-HS-CELL-112	Cellular and Molecular Biology
Rabe, Cole	P-HS-BIOM-121	Paper: Biomedical Sciences; Cell / Molecular Biology
Rabe, Cole	W-HS-ANIM-120	Animal Sciences
Radichel, Christina	W-HS-SOFT-331	Systems Software
Rahman, Shayan	W-MS-PHYS-223	Physics and Astronomy
Rajasekaran, Abirami	P-HS-LIFE-274	Paper: Life Sciences
Rajasekaran, Abirami	W-HS-PLNT-276	Plant Sciences
Rajashankar, Krish Inba	W-HS-ROBO-229	Robotics and Intelligent Machines
Ramirez Aranda, Luis	T-HS-BMED-016	Biomedical and Health Sciences
Rao, Veda	W-MS-PLNT-312	Plant Sciences
Reinhard, Katherine	P-HS-BIOM-309	Paper: Biomedical Sciences; Cell / Molecular Biology
Reinhard, Katherine	T-HS-CELL-406	Cellular and Molecular Biology
Rivera, Randall	T-MS-PLNT-428	Plant Sciences
Roland, Mickey	P-HS-MHBE-058	Paper: Medicine & Health / Behavioral Sciences
Rood, Hannah	P-HS-MHBE-116	Paper: Medicine & Health / Behavioral Sciences
Rosenhagen, Henry	W-HS-BEHA-145	Behavioral and Social Sciences
Russell, Brian	T-MS-PHYS-253	Physics and Astronomy
Sadeddin, Jadd	W-MS-EGSD-164	Energy: Sustainable Materials and Design
Said, Mahmoud	W-HS-SOFT-225	Systems Software
Saidi, Billal	P-HS-ENGT-254	Paper: Engineering and Technology
Saidi, Billal	W-HS-ENMC-256	Engineering Mechanics
Saidu, Joel	T-MS-BMED-171	Biomedical and Health Sciences
Salaymeh, Zakaria	W-MS-BMED-291	Biomedical and Health Sciences
Salgado Quiroz, Crystal	P-MS-PCMS-422	Paper: Chemistry, including Physical Chemistry, Materials Science, Alterna
Salgado Quiroz, Crystal	T-MS-CHEM-415	Chemistry
Salmi, Lauren	W-HS-BEHA-136	Behavioral and Social Sciences
Samba, Trisha	P-HS-ENGT-039	Paper: Engineering and Technology



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	Project ID	Category
Samba, Trisha	W-HS-ENMC-035	Engineering Mechanics
Sanchez Uribe, Juan	T-HS-BMED-016	Biomedical and Health Sciences
Santos, Joseph	P-HS-PPAI-214	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Scharber, Stella	P-HS-BIOM-309	Paper: Biomedical Sciences; Cell / Molecular Biology
Scharber, Stella	T-HS-CELL-406	Cellular and Molecular Biology
Schlehuber, Caroline	P-HS-LIFE-366	Paper: Life Sciences
Schlehuber, Caroline	T-HS-MCRO-335	Microbiology
Schulte, Kale	P-HS-BIOM-216	Paper: Biomedical Sciences; Cell / Molecular Biology
Sedo, Will	P-HS-ENGT-283	Paper: Engineering and Technology
Sedo, Will	S-HS-ENMC-284	Engineering Mechanics
Sekar, Shreya	P-MS-ENVI-435	Paper: Environmental Science
Sekar, Shreya	T-MS-ANIM-215	Animal Sciences
Senthilkumar, Harini	P-HS-LIFE-274	Paper: Life Sciences
Senthilkumar, Harini	W-HS-PLNT-276	Plant Sciences
Serna, Jose	T-MS-CELL-170	Cellular and Molecular Biology
Seuntjens, Amelia	S-MS-BEHA-067	Behavioral and Social Sciences
Shea, Colin	S-MS-PHYS-176	Physics and Astronomy
Shriram, Mardhav	W-MS-CHEM-248	Chemistry
Shrivastava, Shagun	P-MS-ENVI-381	Paper: Environmental Science
Shrivastava, Shagun	W-MS-ENEV-221	Environmental Engineering
Shrivastava, Shreshth	P-HS-MCCE-220	Paper: Math and Computer Science, Computer Engineering
Shrivastava, Shreshth	W-HS-EBED-238	Embedded Systems
Sibinski, Taydem	W-HS-MCRO-405	Microbiology
Sinclair, Amira	P-HS-ENGT-039	Paper: Engineering and Technology
Sinclair, Amira	W-HS-ENMC-035	Engineering Mechanics
Singhvi, Coolsjes	P-HS-MHBE-207	Paper: Medicine & Health / Behavioral Sciences
Singhvi, Coolsjes	T-HS-CBIO-208	Computational Biology and Bioinformatics
Singhvi, Riddhi	T-MS-CBIO-209	Computational Biology and Bioinformatics
Sivara, Indira	W-MS-CHEM-179	Chemistry
Slattery, Jack	P-HS-MHBE-326	Paper: Medicine & Health / Behavioral Sciences
Somia, Saloni	W-HS-SOFT-247	Systems Software
Song, Daniel	P-MS-MCCE-138	Paper: Math and Computer Science, Computer Engineering
Song, Daniel	T-MS-MATH-137	Mathematics
Sorensen, Scott	W-HS-MCRO-212	Microbiology
Sridhar, Adhvaith	P-HS-BIOM-430	Paper: Biomedical Sciences; Cell / Molecular Biology
Sridhar, Adhvaith	W-HS-BMED-431	Biomedical and Health Sciences
Stambaugh, Haylie	P-HS-PPAI-197	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Steinhouse, Noah	P-HS-PPAI-073	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Stern, Adē	W-MS-BEHA-205	Behavioral and Social Sciences
Stroh, Isabelle	W-HS-BMED-089	Biomedical and Health Sciences
Suh, Eric	W-MS-EGSD-443	Energy: Sustainable Materials and Design
Sureshkumar, Sneha	P-HS-ENVI-372	Paper: Environmental Science
Sureshkumar, Sneha	T-HS-EAEV-368	Earth and Environmental Sciences
Sureshkumar, Sriram	P-HS-ENVI-372	Paper: Environmental Science
Sureshkumar, Sriram	T-HS-EAEV-368	Earth and Environmental Sciences
Svendsen, Emery	T-MS-CHEM-451	Chemistry
Sweet, Erica	P-HS-ENVI-054	Paper: Environmental Science
Syed, Eeshal	P-MS-MHBE-356	Paper: Medicine & Health / Behavioral Sciences



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	Project ID	Category
Teigen, Landon	P-HS-LIFE-165	Paper: Life Sciences
Tepoxteco Reza, Leslie	T-MS-CHEM-219	Chemistry
Terrell, Julia	W-HS-BMED-123	Biomedical and Health Sciences
Theng, Kira	P-HS-MHBE-057	Paper: Medicine & Health / Behavioral Sciences
Thomas, Zara	W-HS-ENBM-088	Biomedical Engineering
Thomes, Carter	W-HS-MCRO-231	Microbiology
Thurman, Elizabeth	S-MS-BMED-093	Biomedical and Health Sciences
Tilbury, Emalee	P-HS-PCMS-053	Paper: Chemistry, including Physical Chemistry, Materials Science, Altern
Tomas, Anna	P-HS-BIOM-140	Paper: Biomedical Sciences; Cell / Molecular Biology
Tran, Andy	P-HS-MHBE-181	Paper: Medicine & Health / Behavioral Sciences
Tran, Anna	T-HS-ENEV-148	Environmental Engineering
Trinh, Katriana	W-HS-PLNT-085	Plant Sciences
Trussell, Joshua	P-HS-ENGT-050	Paper: Engineering and Technology
Trussell, Matt	P-HS-PPAI-149	Paper: Physical sciences, including Physics, Astronomy, Internet of Things
Trussell, Tim	P-HS-PCMS-047	Paper: Chemistry, including Physical Chemistry, Materials Science, Altern
Turner, Rebekah	W-HS-BEHA-084	Behavioral and Social Sciences
Tverberg , Faith	P-HS-BIOM-309	Paper: Biomedical Sciences; Cell / Molecular Biology
Tverberg , Faith	T-HS-CELL-406	Cellular and Molecular Biology
Tyrrell, Orion	T-HS-BMED-442	Biomedical and Health Sciences
Utley, Olivia	W-MS-CHEM-341	Chemistry
Vega, Leonardo	T-MS-BEHA-412	Behavioral and Social Sciences
Vessels, Breanna	P-HS-ENVI-348	Paper: Environmental Science
Vessels, Breanna	W-HS-EAEV-454	Earth and Environmental Sciences
Vietzen, Sadie	W-MS-ENEV-425	Environmental Engineering
Volkov, Ross	W-HS-ROBO-130	Robotics and Intelligent Machines
Wagner, Alexandra	W-HS-CELL-325	Cellular and Molecular Biology
Walsh, Nathan	P-HS-ENGT-034	Paper: Engineering and Technology
Walsh, Nathan	W-HS-ENMC-036	Engineering Mechanics
Wang, April	W-HS-MATH-117	Mathematics
Wang, Daniel	P-HS-MCCE-367	Paper: Math and Computer Science, Computer Engineering
Wang, Daniel	W-HS-ROBO-361	Robotics and Intelligent Machines
Warfa, Nawal	P-HS-MHBE-195	Paper: Medicine & Health / Behavioral Sciences
Warfa, Nawal	T-HS-BMED-194	Biomedical and Health Sciences
Warren, Addison	P-HS-ENVI-062	Paper: Environmental Science
Warren, Ayres	P-HS-BIOM-021	Paper: Biomedical Sciences; Cell / Molecular Biology
Warren, Ayres	W-HS-BMED-026	Biomedical and Health Sciences
Wesolowski, Molly	W-MS-ENMC-153	Engineering Mechanics
Westerlund, Joshua	P-HS-MHBE-187	Paper: Medicine & Health / Behavioral Sciences
Wherry, Jack	P-HS-MCCE-267	Paper: Math and Computer Science, Computer Engineering
Wherry, Jack	W-HS-CELL-070	Cellular and Molecular Biology
White, Kendall	P-HS-PCMS-038	Paper: Chemistry, including Physical Chemistry, Materials Science, Altern
White, Kendall	W-HS-MATS-037	Materials Science
Wierschke, Corina	W-MS-PLNT-240	Plant Sciences
Wiese, Gabriella	W-HS-TMED-129	Translational Medical Science
Wrobel, Keira	W-HS-PHYS-403	Physics and Astronomy
Wurdell, Henry	W-HS-ENMC-090	Engineering Mechanics
XU, PETER	P-HS-MCCE-367	Paper: Math and Computer Science, Computer Engineering
XU, PETER	W-HS-ROBO-361	Robotics and Intelligent Machines



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	Project ID	Category
Yu, Aedin	W-HS-CBIO-445	Computational Biology and Bioinformatics
Zahid, Amina	W-MS-PHYS-323	Physics and Astronomy
Zander, Nickolas	T-HS-EBED-419	Embedded Systems
Zewdu, Fainet	P-HS-BIOM-228	Paper: Biomedical Sciences; Cell / Molecular Biology
Ziemer, Kaitlyn	W-MS-CHEM-427	Chemistry
Zierden , Katelyn	P-HS-MHBE-099	Paper: Medicine & Health / Behavioral Sciences
Zylstra, Katherine	W-MS-MATS-262	Materials Science



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Twin Cities Regional Science Fairs

Paper: Chemistry, including Physical Chemistry, Materials Science, Alternative Fuels, Geochemistry

	Project ID	Project Title
Batham, Alexander	6 P-MS-PCMS-358	How Does Temperature Affect Quality?
Moheet, Ayeza	8 P-MS-PCMS-398	Manufacturing and Testing Environmentally Friendly Packaging Materials
Salgado Quiroz, Crystal	7 P-MS-PCMS-422	Frozen In Time!

Paper: Engineering and Technology

	Project ID	Project Title
Abdi, Liban	8 P-MS-ENGT-314	Solar-Powered Water Desalination
Kocinski, Hannah	7 P-MS-ENGT-438	Sailing Cars

Paper: Environmental Science

	Project ID	Project Title
Fahim , Adeenah	8 P-MS-ENVI-346	Effect of different water types on plant growth at different stages
Shrivastava, Shagun	6 P-MS-ENVI-381	100% Biodegradable Plastics!!! Is it true? (Year 2)
Liu, John	8 P-MS-ENVI-434	The Use of Controlled-releasing Technology to Reduce Salt Contamination in Minnesota Water
Sekar, Shreya	8 P-MS-ENVI-435	Turtle Tracks: Characterizing and quantifying the relationship between habitat, environmental, temporal, and climate data with turtle sightings

Paper: Life Sciences

	Project ID	Project Title
Finch, Ethan	7 P-MS-LIFE-260	How Do Daily Temperatures Affect Sap Production in Maple Trees?
Carpio, Gabriel	7 P-MS-LIFE-423	What Are Cat's Favorite Food?
Ertel, Sophie	7 P-MS-LIFE-453	Food For Fertilizer

Paper: Math and Computer Science, Computer Engineering

	Project ID	Project Title
Song, Daniel	8 P-MS-MCCE-138	Stock price movement prediction - a research based on multi-stage financial models and cross-period comparison
Elkhateeb, Saif	7 P-MS-MCCE-286	Building an Edge and Light Detecting Robot

Paper: Medicine & Health / Behavioral Sciences

	Project ID	Project Title
Kollipara, Sanjana	8 P-MS-MHBE-292	Malleable Memory: Studying the role of false memory, demographics, and suggestion in witness testimony
Syed, Eeshal	7 P-MS-MHBE-356	Mold Busters: Are Food Additives Keeping Bread Good Longer?

Twin Cities Regional Science Fairs

Paper: Biomedical Sciences; Cell / Molecular Biology

	Project ID	Project Title
Adabag, Mina	11 P-HS-BIOM-021	Piecing the Heart Together: Optimizing Procedures to Identify Cell Types in Murine Cardiac Tissue
Warren, Ayres	12 P-HS-BIOM-021	Piecing the Heart Together: Optimizing Procedures to Identify Cell Types in Murine Cardiac Tissue
Peterson, Romy	11 P-HS-BIOM-031	Don't Forget About Caspase-2: Analyzing the Binding Site Specificity of a Protein Linked to Alzheimer's Disease
Alt, Owen	10 P-HS-BIOM-048	The Effect of Different Types of Bread on Mold Growth
Norton, Alisondra	10 P-HS-BIOM-060	The Rate of Mold Growth on Varying Sponges and Dish Rags
Diaz, Adelyn	12 P-HS-BIOM-081	Serotonin levels in <i>Procambarus clarkii</i> (Red Swamp Crayfish) and <i>Faxonius virilis</i> (Northern Crayfish) exposed to high ambient temperatures
Rabe, Cole	12 P-HS-BIOM-121	Evaluating the effectiveness of Cellulose Acetate membranes in permeability studies
Tomas, Anna	10 P-HS-BIOM-140	The Effectiveness of Antibacterial Cleansers
Krueger, Wesley	10 P-HS-BIOM-147	The Antibacterial Affects of Garlic Juice on <i>Bacillus Subtilis</i>
Olsen, Madeline	10 P-HS-BIOM-166	The Effects of Different Mouthwashes on Bacteria
Johnson, Gracie	10 P-HS-BIOM-183	The Effects of Mouthwash on Bacteria
Schulte, Kale	10 P-HS-BIOM-216	Differences on Brix Percentage in Bananas in the Refrigerator, Versus Not in the Refrigerator.
Zewdu, Fainet	10 P-HS-BIOM-228	Effects of Toothpaste on the Whitening of Teeth
Khadilkar, Rushil	10 P-HS-BIOM-280	Impact of Critical Parameters on <i>Rhizopus Stolonifer</i> Growth: Implications to Food Shelf Longevity and Economics
Levinshiteyn, Elizabeth	9 P-HS-BIOM-297	A Look Into the TINY Earth: Finding Antibiotic Producing Bacteria in Yellowstone Soil
Reinhard, Katherine	12 P-HS-BIOM-309	The Effectiveness of Hand Sanitizer
Scharber, Stella	12 P-HS-BIOM-309	The Effectiveness of Hand Sanitizer
Tverberg , Faith	12 P-HS-BIOM-309	The Effectiveness of Hand Sanitizer
Chen, Ava	12 P-HS-BIOM-311	The effects of <i>Lactobacillus rhamnosus</i> as an alternative to antidepressants on <i>Caenorhabditis elegans</i> model organisms
Passe, Ella	11 P-HS-BIOM-334	How Fluoride Impacts the Efficacy of Mouthwash on <i>Streptococcus Salivarius</i> Bacterial Colonies
Germann, Ada	9 P-HS-BIOM-393	Does Natural Mean Better?
Sridhar, Adhvaith	12 P-HS-BIOM-430	Immune System Innovation: Ushering in a new era of immunology research by characterizing cell populations most impacted by normal microbial exposure for preclinical research and healthcare treatment development success

Paper: Chemistry, including Physical Chemistry, Materials Science, Alternative Fuels, Geochemistry

	Project ID	Project Title
Peterson, Sarah	11 P-HS-PCMS-038	Knots or Not? Using electricity to study DNA entanglements in nanochannels
White, Kendall	11 P-HS-PCMS-038	Knots or Not? Using electricity to study DNA entanglements in nanochannels

Twin Cities Regional Science Fairs

Paper: Chemistry, including Physical Chemistry, Materials Science, Alternative Fuels, Geochemistry

	Project ID	Project Title
Trussell, Tim	10 P-HS-PCMS-047	How Does The Concentration Of Luminol Affect Its Brightness?
Chow, Carissa	10 P-HS-PCMS-051	Rust, Rust, and Away: The Effects of pH on Rusting
Tilbury, Emalee	10 P-HS-PCMS-053	The Effects of Chlorinated Pool Water on Hair
Delgado, Yahira	10 P-HS-PCMS-128	Fat Extraction Using Acetone - Do Actual Fat Amounts Compare to Nutritional Labels? - Yahira Delgado
Osmolski, Julia	10 P-HS-PCMS-133	Which Cookies Tastes Best?
Jacobson, Victoria	10 P-HS-PCMS-174	The Effectiveness of Stain Removal at Different Temperatures of Water
Brinkmann, Emma	10 P-HS-PCMS-190	Correlation Between Performance of Waterproof Mascara and Price
Klavins, Ben	10 P-HS-PCMS-191	Flammability of Fabrics
Chen, Benjamin	11 P-HS-PCMS-204	Recycled Plastics for Resilient Infrastructure
Dawson, Coretta	10 P-HS-PCMS-211	The Effects of Hair Type On Chlorine Damaged Ends
Josephs, Aidan	10 P-HS-PCMS-217	The Concentration of Vitamin C in Different Types of Orange Juice.
Pagel, Cady	12 P-HS-PCMS-344	Gluten-Free or Gluten Debris: Prolamin and Glutelin Levels in Oat Flours
Geppert, Jared	9 P-HS-PCMS-352	3D Printing and Material Testing

Paper: Engineering and Technology

	Project ID	Project Title
Mellin, Ruth	12 P-HS-ENGT-011	One-way ASL translation: 3D printed robotic hand with integrated speech recognition
Moore, Alexander	12 P-HS-ENGT-011	One-way ASL translation: 3D printed robotic hand with integrated speech recognition
Walsh, Nathan	11 P-HS-ENGT-034	Everything you 'Kneed': Development of an adjustable, above-knee prosthetic capable of performing multiple activities.
Samba, Trisha	11 P-HS-ENGT-039	Water You Risking? Developing a Novel Maze to Assess the Effects of Thirst on Risk-Taking Behavior in Mice
Sinclair, Amira	11 P-HS-ENGT-039	Water You Risking? Developing a Novel Maze to Assess the Effects of Thirst on Risk-Taking Behavior in Mice
Trussell, Joshua	10 P-HS-ENGT-050	The Effect of the Type of Tsunami Seawall on the Amount of Flooding
Brown, Na'ila	10 P-HS-ENGT-226	The Effect of Different Materials on WiFi Signals
Saidi, Billal	10 P-HS-ENGT-254	Engineering a Cost-Effective Ventilator
Sedo, Will	12 P-HS-ENGT-283	Optimizing Waterflow in a Simulated River Environment
Griffin, Ava	11 P-HS-ENGT-382	what materials can hinder a Wi-Fi signal
Metzig, August	11 P-HS-ENGT-382	what materials can hinder a Wi-Fi signal

Paper: Environmental Science

	Project ID	Project Title
Duong, Katie	10 P-HS-ENVI-014	The Effect of Fertilizer on Triop Growth
McKeen, Ayla	10 P-HS-ENVI-015	The Effect of Light Colors on Cherry Belle Radishes
Sweet, Erica	10 P-HS-ENVI-054	How did climate change affect the trees?

Twin Cities Regional Science Fairs

Paper: Environmental Science

	Project ID	Project Title
Hussein, Suhaib	10 P-HS-ENVI-055	The Filtration of Lake Water
Warren, Addison	10 P-HS-ENVI-062	Efficiency of Generic Road Ice Melt in Comparison to Dog Safe Ice Melt
Biggs, Victoria	10 P-HS-ENVI-075	Type of Filter Media's Effect on Nitrates in Artificial Aquatic Systems
Fung, Kyla	12 P-HS-ENVI-097	Sustainable Bioplastics: Seaweed and Hemp-based Alternatives to Fossil Fuel-based Plastics
Leipnitz, Noah	10 P-HS-ENVI-157	Effects of Burned Soil on Plant Growth
Morgan, Andrew	10 P-HS-ENVI-163	The Effect of Detergents on the Growth of Aquatic Flora
Ham, Ahreum	12 P-HS-ENVI-185	Legacy contaminants: An extensive study of historic land use and contamination in the East Phillips neighborhood of Minneapolis to prioritize future monitoring and restoration efforts
Cooley, Linnea	11 P-HS-ENVI-255	Effect of Ethanol and Octocrylene on the Cell Growth and Chlorophyll-a Levels of <i>Cyclotella meneghiniana</i>
Neset, Roxy	11 P-HS-ENVI-295	Agriculture in the Big City: Studying the effectiveness of soil treatments on weed growth
Vessels, Breanna	9 P-HS-ENVI-348	Aquatic Plant Pollutants Effect
Emerson, Ivars	11 P-HS-ENVI-350	A COLLAPSIBLE REUSABLE COOLER FOR ECO-FRIENDLY SHIPPING OF COLD MEDICATIONS
Sureshkumar, Sneha	11 P-HS-ENVI-372	The Detrimental Impacts of a Tilling Based Agricultural System.
Sureshkumar, Sriram	9 P-HS-ENVI-372	The Detrimental Impacts of a Tilling Based Agricultural System.
Breyen, Catherine	11 P-HS-ENVI-388	The Effect of Plastic in Water on the Height and Growth Rate of Brassica rapa (Wisconsin Fast Plants) Throughout a Fourteen Day Life Cycle
Guo, Ellen	10 P-HS-ENVI-397	Novel Cellulose Carbon Fiber Based Biofilm for Airborne VOC Filtration
Banks, Maggie	10 P-HS-ENVI-399	A Plant With Promise: Using Engineering Principles to Create an Eco-Friendly Manufacturing Process for a Biodegradable Piezoelectric Transducer
Bai, Andrew	11 P-HS-ENVI-401	The extreme cold in the context of a warmer planet and a cooler solar cycle
Bai, Annie	10 P-HS-ENVI-401	The extreme cold in the context of a warmer planet and a cooler solar cycle

Paper: Life Sciences

	Project ID	Project Title
Hoang, Linh Dan	10 P-HS-LIFE-020	What type of sunscreen is more effective in blocking UV light?
Clair, Tyler	9 P-HS-LIFE-100	Using Monte Carlo Simulation to Optimize Vitamin C Production in Brassica oleracea using Abiotic Plant Stress
Hughes, Quinn	9 P-HS-LIFE-100	Using Monte Carlo Simulation to Optimize Vitamin C Production in Brassica oleracea using Abiotic Plant Stress
Kneisl, AJ	10 P-HS-LIFE-131	The Growth Difference Between Hydroponic Mediums

Twin Cities Regional Science Fairs

Paper: Life Sciences

	Project ID	Project Title
Danielson, Cooper	11 P-HS-LIFE-158	The Effect of Varying Concentrations of Miracle-gro fertilizer on Composting Earthworm Ecosystems
Chafee, Nina	12 P-HS-LIFE-159	The Effect of Adolescent Temperature Variation on Development and Adult Performance in <i>V. cardui</i>
Patel, Kishori	12 P-HS-LIFE-160	The Effect of the Amount of Beef Food Source and Exposure Time on <i>Calliphora vomitoria</i> Pupation
Johnson, Per	12 P-HS-LIFE-162	The Effects of Temperature on Learning Complex Tasks in Red Harvester Ants
Teigen, Landon	10 P-HS-LIFE-165	The Effect Mirrors Have on Radish Growth Rates
Elmoge, Amira	10 P-HS-LIFE-182	THE EFFECT OF DIFFERENT TYPES OF MUSIC ON A PERSON'S PRODUCTIVITY
Eshete, Yordanos	10 P-HS-LIFE-192	Homemade vs. Store-Bought Bread Concerning Mold
Montecillo, Natalia	10 P-HS-LIFE-258	Effectiveness of homemade methods used to keep flowers fresh on a chrysanthemum's longevity.
Rajasekaran, Abirami	12 P-HS-LIFE-274	Forage Frenzy: A multifactor analysis of manure application on forage nutritive value through sequential fiber methods
Senthilkumar, Harini	11 P-HS-LIFE-274	Forage Frenzy: A multifactor analysis of manure application on forage nutritive value through sequential fiber methods
Balaji, Rahul	11 P-HS-LIFE-365	Breaking News: There is more than one way to break the back! Characterizing and quantifying the effects of two models of the intervertebral disc for the purpose of successfully treating lower back pain
Schlehuber, Caroline	12 P-HS-LIFE-366	New Research, Old Medicine: Exploring Antibacterial Properties of Plants and Fungi Used in Indigenous Medicine
Davidson, Sigrid	11 P-HS-LIFE-436	Effect of Salinity Instabilities on <i>Halobacterium</i> Versus <i>Escherichia coli</i>

Paper: Math and Computer Science, Computer Engineering

	Project ID	Project Title
Krishna, Akshay	11 P-HS-MCCE-028	Does Apple Really Watch Your Sleep? Modifying an algorithm to improve prediction of sleep stages from Apple Watch data
Pal, Amrita	12 P-HS-MCCE-043	Pollution and Prejudice: Building a computer-based algorithm to assess pollution exposure levels by Asian American subgroup
Shrivastava, Shreshth	10 P-HS-MCCE-220	Wi-C.A.R.E: Wifi Computer-Assisted Remote Eldercare (Year 3)
Wherry, Jack	12 P-HS-MCCE-267	Designing more efficient software to find software security vulnerabilities using sanitizer-guided in-process fuzzing
Arora, Stavva	11 P-HS-MCCE-278	Overcoming Opioids: Analyzing, characterizing, and quantifying the sentiment of Reddit posts' tone and language prior to a relapse to allow for early intervention

Twin Cities Regional Science Fairs

Paper: Math and Computer Science, Computer Engineering

	Project ID	Project Title
Hariharan, Srinath	11 P-HS-MCCE-285	Tumor targeting: Utilizing spatial data science techniques to decode the enigmatic immune response with the goal of informing further efforts to develop immunotherapies for tumor treatment
Luo, Leon	11 P-HS-MCCE-300	Does ESG investing affect international capital flows? Evidence from statistical and machine learning methods
Wang, Daniel	11 P-HS-MCCE-367	Nimble Navigation: Designing and developing an interactive chatbot with natural language processing to assist visually-impaired users to maneuver in outdoor settings with assurance
XU, PETER	11 P-HS-MCCE-367	Nimble Navigation: Designing and developing an interactive chatbot with natural language processing to assist visually-impaired users to maneuver in outdoor settings with assurance

Paper: Medicine & Health / Behavioral Sciences

	Project ID	Project Title
Jaffe, Ava	11 P-HS-MHBE-024	Essential Protection: Using UV-sensitive yeast to evaluate essential oils as an alternative to sunscreen
Menon, Amrit	12 P-HS-MHBE-024	Essential Protection: Using UV-sensitive yeast to evaluate essential oils as an alternative to sunscreen
Feng, Sarah	11 P-HS-MHBE-027	Finding Functionality: A Rasch Analysis of a Body Functionality Appreciation Scale
McDaniel, Sydney	11 P-HS-MHBE-027	Finding Functionality: A Rasch Analysis of a Body Functionality Appreciation Scale
Chu, Chloe	11 P-HS-MHBE-030	Learning Lizards Assessing the Impact of Human Socialization on Behaviors of Varanus Acanthurus
Theng, Kira	10 P-HS-MHBE-057	The Effects of Color on Memory Retention
Roland, Mickey	10 P-HS-MHBE-058	The Effects of Stereotyping on Names
Boys, Emma	10 P-HS-MHBE-074	Gender Differences in The Stroop Effect
Zierden , Katelyn	10 P-HS-MHBE-099	the Rate of Solubility between Tablet Capsule and gummy vitamins.
Rood, Hannah	10 P-HS-MHBE-116	The Effect Of Soap On Bacteria
Cronin, Andrew	10 P-HS-MHBE-134	Correlation Between Time Spent on Social Media and a Person's Level of Anxiety
Park, Ina	10 P-HS-MHBE-144	The Pitch Accuracy: Musicians vs Non-Musicians
Domek, Krista	10 P-HS-MHBE-146	Effectiveness of Auditorial Memory and Visual Memory
Gannon, Olivia	10 P-HS-MHBE-161	Visual versus Auditory Memory
Tran, Andy	10 P-HS-MHBE-181	What Is The Most Common Stress Source for Teens?
Westerlund, Joshua	10 P-HS-MHBE-187	The Effect of Light on Bacteria
Moher, Braiden	10 P-HS-MHBE-189	Effects of Meditation on Memorization and Focus
Warfa, Nawal	10 P-HS-MHBE-195	Comparison of Fat Between Non-Organic and Organic Foods
Le, Emma	10 P-HS-MHBE-196	The Difference of One's VO2 Max Based on Gender, Age, and Amount of Exercise

Twin Cities Regional Science Fairs

Paper: Medicine & Health / Behavioral Sciences

	Project ID	Project Title
Singhvi, Coolsjes	9 P-HS-MHBE-207	Modeling of Blood Glucose to Optimize Diet and Exercise for Type 2 Diabetes Management
Hounton, Elodie	10 P-HS-MHBE-210	Hand Soap and Hand Sanitizer: Which One Stops More Germs?
Lange, Isabel	10 P-HS-MHBE-234	The Effect of Toothpaste on Stained Teeth
Colin, Dora	10 P-HS-MHBE-237	Effect of Frustration on Males vs. Females
Burris-Brown, Spencer	12 P-HS-MHBE-249	Assessing the Influence of Personality on Active and Passive Procrastination among Adolescents
Kaufman, Naia	10 P-HS-MHBE-279	The Effect of Invertase in Glucose in The Human Body During Digestion
Mikkelsen, Scott	10 P-HS-MHBE-305	Effect of Cooking Methods on Vitamin C Content
Jama, Sudi	9 P-HS-MHBE-320	Can Different Introductory Video Speeds Cause Fluctuation to the Blood Pressure and Pulse of 14 - 15 Year Old Girls While doing a Reading Comprehension Test?
Slattery, Jack	10 P-HS-MHBE-326	Cooked vs Raw Food: Which Has More Calories
Mussa, Hedaya	10 P-HS-MHBE-357	Class III α -tubulin Expression vs. Taxane Resistance
Qian, Ziyi (Rick)	11 P-HS-MHBE-359	Defeating Dyslexia: A robust meta-analysis of the relationship between hearing and dyslexia to achieve early diagnosis and treatment
Alexander , Ella	12 P-HS-MHBE-362	DBS Discovery: A multifaceted approach to Deep Brain Stimulation with new advances in neurosurgical testing equipment and synchronization of alpha and beta bands for postural instability in Parkinsonian patients
Goud, Aayush	12 P-HS-MHBE-362	DBS Discovery: A multifaceted approach to Deep Brain Stimulation with new advances in neurosurgical testing equipment and synchronization of alpha and beta bands for postural instability in Parkinsonian patients
Nakamura, Karen	11 P-HS-MHBE-370	The Electromyographic Evaluation of the Bilateral Muscle Asymmetry of the Latissimus Dorsi in Martial Arts and the Effect of Real-Time Biofeedback on Technique Improvement
Datta, Srijani	11 P-HS-MHBE-371	Sepsis Survivor: Characterizing muscle stem cells using RNA sequencing from a murine surgical model of sepsis for the purpose of preventing sepsis-associated muscle wasting
Banerjea, Arul	11 P-HS-MHBE-396	The Effect of Epileptic Activity on Brain Activity Related to Receiving Positive or Negative Feedback
Maliseti, Nithya	12 P-HS-MHBE-432	Optimizing Outcomes in Oncology using Precision Medicine: A longitudinal analysis of internal systematic review (molecular tumor conference) of Next Generation Sequencing results in improving patient outcomes

Paper: Physical sciences, including Physics, Astronomy, Internet of Things

	Project ID	Project Title
Gannon, Anna	10 P-HS-PPAI-049	Flammability of Fabrics

Twin Cities Regional Science Fairs

Paper: Physical sciences, including Physics, Astronomy, Internet of Things

	Project ID	Project Title
Hess, Quinn	10 P-HS-PPAI-052	The Force Produced by Different Treads and Rubber on a Running Shoe
Mahamed, Suhayb	10 P-HS-PPAI-061	The effect of air resistance on different car types
King, Ashley	10 P-HS-PPAI-063	Ashley Kings Science Fair Project
Steinhouse, Noah	10 P-HS-PPAI-073	Temperatures effect on the bounce of a tennis ball.
Gannon, Daniel	10 P-HS-PPAI-076	Wood Breaking Strength
Trussell, Matt	10 P-HS-PPAI-149	The Effects of Concrete Texture on Heat Absorption and Emission
Stambaugh, Haylie	10 P-HS-PPAI-197	Blade Type and Energy Produced
Santos, Joseph	10 P-HS-PPAI-214	Glue Strength Test
Le, Gabriel	10 P-HS-PPAI-218	How Masks Affect Air Flow
Mohamud, Ilyas	10 P-HS-PPAI-222	The Effects of Material Barriers and Its Impact on How Sound is Heard.
Boyum, Collin	10 P-HS-PPAI-233	The Refraction of Lasers Through Colored Gelatin
Mikkelsen, Jordan	10 P-HS-PPAI-303	The Effect of Light Pollution on the Visibility of Stars
Meyers, Sophie	10 P-HS-PPAI-377	Effect of Blades on Windmills



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TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI

Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair

1973 Timara Kulzer Underbakke
Harding High School, St. Paul

1974 Craig Johnson
Harding High School, St. Paul

1975 Dennis Scanlon
Harding High School, St. Paul

1976 Mark Foertsch
Grace High School, Fridley

1976 Linda Ann MacDonald
Mounds View High School, Arden Hills

1977 Steve Rabatin
Benilde-St. Margaret, St. Louis Park

1977 Charles Clevenger
Westonka High School, Mound

1978 Mitchell Voechl

1978 Charles Clevenger
Westonka High School, Mound

1979 Jeffrey Rabatin
Benilde-St. Margaret, St. Louis Park

1979 Joseph Rabatin
Benilde-St. Margaret, St. Louis Park

1980 Jeffrey Rabatin
Benilde-St. Margaret, St. Louis Park

1980 Joseph Rabatin
Benilde-St. Margaret, St. Louis Park

1981 Jeffrey Rabatin
Benilde-St. Margaret, St. Louis Park

1981 Joseph Rabatin
Benilde-St. Margaret, St. Louis Park

1982 Micheal Rabatin
Benilde-St. Margaret, St. Louis Park

1982 Brian Hallberg
Harding High School, St. Paul

1983 Tinh Hoang Tran
Westonka High School, Mound

1983 UNKNOWN

1984 Susan Kain
Edina High School, Edina

1984 Steve Herrman
Mahtomedi High School, Mahtomedi

1985 Brenda Zenk
Sibley High School, West St. Paul

1985 Steve Herrman
Mahtomedi High School, Mahtomedi

1986 Brenda Zenk
Sibley High School, West St. Paul

1986 Steve Herrman
Mahtomedi High School, Mahtomedi

1987 Brenda Zenk
Sibley High School, West St. Paul

1987 Ann Bailey
Mahtomedi High School, Mahtomedi

1988 Sara Greenslit
Mounds View High School, Arden Hills

1988 Ann Marie Gentes
Westonka High School, Mound

1989 Ann Marie Gentes
Westonka High School, Mound

1989 Todd Capistrant
Minnesota Zoo School

1990 Cynthia Schaumburger
Harding High School, St. Paul

1990 Ryan Egeland
Wayzata High School, Wayzata

1991 Ryan Egeland
Wayzata High School, Wayzata

1991 Jonathon Kubik
Sibley High School, West St. Paul

1992 Heidi Konkler
Wayzata High School, Wayzata

1992 Ryan Egeland
Wayzata High School, Wayzata

1993 Ryan Egeland
Wayzata High School, Wayzata

1993 Andrew Grande
St. Thomas Academy, Mendota Heights

1993 Kelley Lohman
Harding High School, St. Paul

1993 Jens Strand
St. Paul Academy, St. Paul

1994 John Hassett
Burnsville High School, Burnsville

1994 Ana Navarro
Minnetonka High School, Minnetonka

1994 Victoria Miller
St. Agnes High School, St. Paul

1994 Julia Goetzke
Harding High School, St. Paul

1995 John Hassett
Burnsville High School, Burnsville

1995 Adam Tatarynowicz
Burnsville High School, Burnsville

1995 Victoria R. Miller
St. Agnes High School, St. Paul

1995 Marcus Rollins
St. Paul Open School, St. Paul

TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI

Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair

1995 Anna Navarro
Minnetonka High School, Minnetonka

1995 Samuel Rush
Minnetonka High School, Minnetonka

1996 Laurie Louis Parker
Roseville High School, Roseville

1996 David Loy Bowe
Burnsville Senior High School, Burnsville

1996 Michael Scott Lohman
Expo III High School, St. Paul

1996 Victoria Reynolds Miller
St. Agnes High School, St. Paul

1996 Anna Navarro
Minnetonka High School, Minnetonka

1996 Michelle Lee Monnens
Minnetonka High School, Minnetonka

1996 James Justin Wilson
Minnetonka High School, Minnetonka-Team

1996 Michael Gary Grotenhuis
Minnetonka High School, Minnetonka-Team

1997 Nguyen Trung
Burnsville Senior High School, Burnsville

1997 Samuel Rush
Minnetonka High School, Minnetonka

1997 Anna Navarro
Minnetonka High School, Minnetonka

1997 Victoria Reynolds Miller
St. Agnes High School, St. Paul

1997 Michael Scott Lohman
Expo III High School, St. Paul

1997 Travis Smith
Burnsville Senior High School, Burnsville

1997 James Justin Wilson
Minnetonka High School, Minnetonka-Team

1997 Justin Rainey
Minnetonka High School, Minnetonka-Team

1998 Dean Harvey
Burnsville Senior High School-Team

1998 Dan Harakh
Burnsville Senior High School-Team

1998 Bryce Gillespie
Breck School, Minneapolis

1998 Preeya Kshetry
Breck School, Minneapolis

1998 Phally Seak
Burnsville Senior High School

1998 Raj Pai
Burnsville Senior High School

1998 Michael Scott Lohman
Expo III High School, St. Paul

1998 A. Ben Suri
Harding High School, St. Paul

1999 Michael Scott Lohman
Expo III High School, St. Paul

1999 Alison Boutin
Burnsville High School, Burnsville

1999 Jennica Slattery
Minnehaha Academy, Minneapolis

1999 Chrissy Jones
Minnetonka High School, Minnetonka-Team

1999 Elizabeth Larkin
Breck School, Minneapolis

1999 Melissa Borken
Minnetonka High School, Minnetonka

1999 Alli Kellogg
Minnetonka High School, Minnetonka-Team

2000 Mark Galatowitsch
Highland High School, St. Paul

2000 Jennica Slattery
Minnehaha Academy, Minneapolis

2000 Chrissy Jones
Minnetonka High School, Minnetonka

2000 Michael Chansky
Burnsville High School, Burnsville

2000 A. Ben Suri
Harding High School, St. Paul

2000 Emily Letourneau
Central High School, St. Paul-Team

2000 Anna Bishop
Como Park, St. Paul-Team

2001 Megan Bailey
Breck School, Minneapolis

2001 Kathryn Gieselman
Burnsville High School, Burnsville

2001 A. Ben Suri
Harding High School, St. Paul

2001 Li Mei
Wayzata High School, Wayzata

2001 Laura Egerdal
Burnsville High School, Burnsville

2001 Anna Bishop
Como High School, St. Paul-Team

2001 Emily Letourneau
Central High School, St. Paul-Team

2002 Jacob Fitzpatrick
Burnsville High School, Burnsville

TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI
Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair

2002 Kaonhou Her
Johnson High School, St. Paul-Team
2002 PaCha Yang
Johnson High School, St. Paul-Team
2002 Stephen Morris
Breck School, Minneapolis
2002 Arun Saini
Burnsville High School, Burnsville
2002 A. Noel Suri
Harding High School, St. Paul
2003 Jessica Swatz
ISD 287
2003 Ning Zhou
ISD 287
2003 PaCha Yang
Johnson High School, St. Paul
2003 A. Noel Suri
Harding High School, St. Paul
2003 Brendan Doms
Breck School, Minneapolis
2003 Javier Cabrera-Perez
Breck School, Minneapolis
2004 Adam Yock
Breck School, Minneapolis
2004 William Mitchell
Breck School, Minneapolis
2004 Noel Suri
Harding High School, St. Paul
2004 Adam Hahn
Robbinsdale Armstrong High School, Robbinsdale
2004 Akash Kumar
Wayzata High School, Wayzata
2004 Laura Heeter
Breck School, Minneapolis - Team
2004 Kristina Naranjo-Rivera
Breck School, Minneapolis - Team
2005 Kyrstin Underbakke
Maranatha Christian Academy, Brooklyn Park
2005 Janet Li
Wayzata High School, Plymouth
2005 Heidi Chun
St. Paul Academy, St. Paul
2005 Zachary Howland
Burnsville High School, Burnsville
2005 Eric Halverson
Como Park Senior High, St. Paul
2005 Kahli Her
Johnson High School, St. Paul

2006 Jenna Johnson
Burnsville High School, Burnsville
2006 Andrea Jensen
Burnsville High School, Burnsville
2006 Daniel Zeng
St. Paul Academy & Summit School
2006 Matthew Weiss
Breck School, Minneapolis
2006 Katherine Schaeffer
Breck School, Minneapolis
2007 Ummul Kathawalla
Blake High School, Minneapolis
2007 Daniel Zeng
St. Paul Academy & Summit School
2007 Kyra Underbakke
Maranatha Christian Academy, Brooklyn Park
2007 Brandon Lew
Breck School, Minneapolis
2007 John Earl
Harding High School, St. Paul - Team
2007 Lucas Gabrielson
Harding High School, St. Paul - Team
2007 Jacob Stramer
Harding High School, St. Paul - Team
2008 Prithwis Mukhopadhyay
Lake Junior High, Woodbury
2008 Michael Cherkassky
Edina High School, Edina
2008 Madeline Taft-Ferguson
Breck School, Minneapolis
2008 Kyra Underbakke
Maranatha Christian Academy, Brooklyn Park
2008 Aly Xiong
Johnson High School, St. Paul
2008 Iola Edwards
Johnson High School, St. Paul
2008 Stephen Trusheim
Breck School, Minneapolis - Team
2008 Daniel Mohktari
Breck School, Minneapolis - Team
2009 Prithwis Mukhopadhyay
Woodbury Sr High School, Woodbury
2009 Tiffanie Stone
AFSA High School, Vadnais Heights
2009 Michael Fuad
Breck School, Minneapolis
2009 Stephen Trusheim
Breck School, Minneapolis

TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI

Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair

2009 Chee Xiong
Como Park Senior High, St. Paul
2009 Martin Camacho
Central Senior High School, St. Paul
2009 Sahar Hakim-Hashemi
Breck School, Minneapolis - Team
2009 Sierra Danforth
Breck School, Minneapolis - Team
2009 Nicholas NaSal
Burnsville High School, Burnsville - Team
2009 Joseph Lane
Burnsville High School, Burnsville - Team
2010 Prithwis Mukhopadhyay
Woodbury Sr High School, Woodbury
2010 Tiffanie Stone
AFSA High School, Vadnais Heights
2010 Martin Camacho
Central Senior High School, St. Paul
2010 Houa Xiong
Johnson High School, St. Paul
2010 Gavin Ovsak
Eden Prairie Senior High School, Eden Prairie
2010 Charles Morris
Breck School, Minneapolis
2010 Ava Mokhtari
Breck School, Minneapolis - Team
2010 Addison Weiler
Breck School, Minneapolis - Team
2010 Ashley Santilli
Burnsville High School, Burnsville - Team
2010 Emily Bostrom
Burnsville High School, Burnsville - Team
2011 Alysia Flores
Johnson High School, St. Paul
2011 Andrew Ylitalo
Stillwater Area High School, Stillwater
2011 Martin Anderson
Burnsville High School, Burnsville
2011 Redeat Abegaz
Burnsville High School, Burnsville
2011 Gavin Ovsak
Eden Prairie Senior High School, Eden Prairie
2011 (Ernst) Tom Erdmann
Breck School, Minneapolis
2012 Andrew Ylitalo
Stillwater Area High School, Stillwater
2012 Keshav Mangalick
Mounds View High School

2012 Margaret Green
Burnsville High School, Burnsville - Team
2012 Laura Landgraf
Burnsville High School, Burnsville - Team
2012 Caleb Kumar
Breck School, Minneapolis
2012 Taylor McCanna
Breck School, Minneapolis
2012 Alejandro Fenn
Breck School, Minneapolis - Team
2012 William Engel
Breck School, Minneapolis - Team
2012 Thomas Vennemann
Johnson High School, St. Paul
2013 Andrew Ylitalo
Stillwater Area High School, Stillwater
2013 Aditi Das
Roseville Area High School, Roseville
2013 Connor Duffy
Mounds View High School, Arden Hills
2013 Graham Gabrielson
Harding High School, St. Paul
2013 Mai Moua
Harding High School, St. Paul
2013 Carolyn Jons
Eden Prairie Senior High School - Eden Prairie
2013 Jessica Ryvlin
Breck School, Minneapolis
2013 Apurv Hirsh Shekhar
Blake High School - Northrop campus
2014 Carolyn Jons
Eden Prairie Senior High School - Eden Prairie
2014 Jason Sylvestre
Benilde-St. Margaret's, St. Louis Park
2014 Jacob W Levy
Breck School, Minneapolis - Team
2014 Sofie M Kim
Breck School, Minneapolis - Team
2014 Aditi Das
Roseville Area Senior High, Roseville
2014 Heather J Stone
Mounds View High School, Arden Hills
2014 Amrita Mohanty
Woodbury Sr High School, Woodbury
2014 Nicolina Mao
Harding High School, St. Paul
2014 Rosemary O Olatunbosun
Harding High School, St. Paul

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2015 Amrita Mohanty
Woodbury Sr High School, Woodbury
2015 Maxwell Ylitalo
Stillwater Area High School, Stillwater
2015 Aadarsh Padiyath
Woodbury Sr High School, Woodbury
2015 Carolyn Jons
Eden Prairie Senior High School - Eden Prairie
2015 Arush Jain
Eden Prairie Senior High School - Eden Prairie
2015 Emilia Topp-Johnson
St Paul Academy and Summit School, St. Paul
2015 Serena Jing
Central Senior High School, St. Paul
2016 Maxwell Ylitalo
Stillwater Area High School, Stillwater
2016 Nathaniel R Farmer
Stillwater Area High School, Stillwater
2016 Claire E Wentzlaff
Burnsville High School, Burnsville
2016 Prashant Godishala
Breck School, Minneapolis - Team
2016 Brennan Clark
Breck School, Minneapolis - Team
2016 Avni Jain
Eden Prairie Senior High School - Eden Prairie
2016 Jessica Weng
Wayzata High School, Plymouth
2016 Emilia Topp-Johnson
St Paul Academy and Summit School, St. Paul
2016 Serena Jing
Central Senior High School, St. Paul
2017 Alex Li
Mounds View High School, Arden Hills - Team
2017 Rebecca Li
Mounds View High School, Arden Hills - Team
2017 Everett Kroll
Stillwater Area High School, Stillwater
2017 Claire E Wentzlaff
Burnsville High School, Burnsville
2017 Archana Murali
Breck School, Minneapolis
2017 Gauri Binoy
Wayzata High School, Plymouth
2017 Meghana Iyer
Edina High School, Edina
2017 Serena Jing
Central Senior High School, St. Paul

2017 Geeta Rajamani
Highland Park Senior High, St. Paul
2018 Everett Kroll
Stillwater Area High School, Stillwater
2018 Manashree Padiyath
Woodbury Sr High School, Woodbury
2018 Justin Duffy
Mounds View High School, Arden Hills
2018 Flannery Enneking-Norton
St.Paul Academy and Summit School, St. Paul
2018 Michael Hall
St.Paul Academy & Summit School, St.Paul-Team
2018 Daniel Ellis
St.Paul Academy & Summit School, St.Paul-Team
2018 Cole Maxwell
Breck School, Minneapolis
2018 Siyuan Ma
Breck School, Minneapolis - Team
2018 Alexander Anderson
Breck School, Minneapolis - Team
2018 Leonardo Clarke
Minnetonka Senior High School, Minnetonka
2019 Manashree Padiyath
Woodbury Sr High School, Woodbury
2019 Haley Jostes
Stillwater Area High School, Stillwater
2019 Osman Warfa
Burnsville High School, Burnsville
2019 Melissa Nie
St.Paul Academy and Summit School, St. Paul
2019 Ethan Dincer
St.Paul Academy and Summit School, St. Paul
2019 Parthiv Krishna
Minnetonka Senior High School, Minnetonka
2019 Kerui Yang
Edina Senior High School, Edina
2019 Rachel Gunderson
Breck School, Minneapolis - Team
2019 Boatemaa Agyeman-Mensah
Breck School, Minneapolis - Team
2020 Milan Jostes
Stillwater Area High School, Stillwater
2020 Bingsheng "Andrew" Guo
Mounds View High School, Arden Hills
2020 Eric Feng
Mounds View High School, Arden Hills
2020 Anindita Rajamani
Highland Park Senior High, St. Paul

TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI
Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair

2020 Mani Chadaga
Central Senior High School, St. Paul - Team
2020 Akshay Nambudiripad
Central Senior High School, St. Paul - Team
2020 Quentin "Xander" Hughes
Minnetonka Senior High School, Minnetonka
2020 William Sepesi
Minnetonka Senior High School, Minnetonka
2020 Abigail Roh
Breck School, Minneapolis - Team
2020 Samantha Detor
Breck School, Minneapolis - Team
2021 Tarun Kota
Eastview Senior High, Apple Valley
2021 Ellen Guo
Mounds View High School, Arden Hills
2021 Johnny Yue
Mounds View High School, Arden Hills - Team
2021 Sydney Peng
Mounds View High School, Arden Hills - Team
2021 Naci Konar-Steenberg
St. Paul Academy and Summit School, St. Paul
2021 Levi Mellin
St. Paul Academy & Summit School, St. Paul-Team
2021 Nikolas Liepins
St. Paul Academy & Summit School, St. Paul-Team
2021 Quentin "Xander" Hughes
Minnetonka Senior High School, Minnetonka
2021 Austin Hunter
Minnetonka Senior High School, Minnetonka
2021 Atreyus Bhavsar
Blake High School - Northrop campus
2021 Fiona Kinney
Breck School, Minneapolis - Team
2021 Simren Samba
Breck School, Minneapolis - Team

Hosting our virtual awards program - thanks to:



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Schools Participating in 2022

Al-Amal School	Lighthouse Secondary
Armstrong High School	Mahtomedi Middle School
Avail Academy (Blaine)	Mahtomedi Senior High
Avail Academy (Edina)	Maple Grove Senior High School
Blaine High School – Center for Engineering, Mathematics, and Science	Math and Science Academy
Blake School - Northrop Campus	Minnehaha Academy North Campus
Blessed Trinity Catholic School	Minnetonka East Middle School
Breck School	Minnetonka High School
Burnsville High School	Minnetonka Middle School West
Carondelet Catholic School	Mounds Park Academy
Central Middle School (Eden Prairie ISD 272)	Mounds View High School
Century Middle School (Lakeville)	Nativity of Our Lord
Chaska High School	New Life Academy
Chippewa Middle	Orono Senior High
Concordia Academy--Roseville	Prairie View Elementary School
Convent of the Visitation School	Salk Middle School
Craig Academy	Spring Lake Park High School
Eagle Ridge Middle School	St. Helena Catholic School
East Ridge High School	St. Paul Academy Summit School
Eastview Senior High	Stillwater Area High School
Eden Prairie Central Middle School	Stillwater Middle School
Eden Prairie High School	Transfiguration Catholic School
Highland Park Middle School	Wayzata High School
Lake Middle School	Wayzata West Middle School
	Woodbury High School

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We are an all-volunteer 501c3 educational nonprofit.

Twin Cities Regional Science Fair Awards

(This list is an expected list of awards to be given from this fair but does not constitute a guarantee that the award will be given this year.)

3M Film & Material Science, Manufacturing Technology and Engineering Award (Film Group)
3M Film & Material Science, Manufacturing Technology and Engineering Award (Materials Group)
3M Display Materials Systems Division Award
3M Personal Safety Division Award
3M Young Inventor Recognition Award
American Chemical Society
American Meteorological Society
American Psychological Association
ASM Materials Education Foundation
Association of Women Geoscientists
Award for Science Potential
Broadcom MASTERS (Math, Applied Science, Technology, and Engineering for Rising Stars)
Caffeinated Student Award
DoD STEM Leadership Prize
Excellence Award
Graduate Women in Science for Excellence in Research
Graduate Women in Science for Excellence in Writing
Inspiring Excellence Award
International Science & Engineering Fair (ISEF)
ISEF Alumni Awards – Kyra Zimmerman (2007, 2008)
ISEF Alumni Awards – Dr. Kyrstin Ball (2005)
ISEF Alumni Awards – Timara Underbakke (1973)
Joel Wagner Caring Bridge Award
Lemelson Early Inventor Prize
Middle School Medals
Minnesota American Society of Microbiology

Minnesota Academy of Science Middle School Research Paper Award
Minnesota Chapter of American Fisheries Society
Minnesota State Science & Engineering Fair
Mu Alpha Theta Mathematics
NASA EARTH System Science Award
National Geographic Society That's Geography! Award
NOAA National Oceanic and Atmospheric Administration
North Central Tri-state Junior Science & Humanities Symposium Research Papers
Research Paper trophies
Ricoh Sustainable Development Award
Schools trophies
Science Potential Award
Society for In Vitro Biology
Sponsor: 3Mgives
Sponsor: DuPont Water Solutions
Sponsor: Ecolab
Sponsor: Mintáhoe Hospitality Services
Sponsor: Northrop Grumman
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Sponsor: Premier Bank
Sponsor: St. Paul Youth Fund
Stockholm Junior Water Prize
TCRSF Excellence Award
Teacher Excellence Award
USDA-ARS Ag in the Classroom
US Air Force
US Metric Association
US Navy/Marine Office of Naval Research
USAID – US Agency for International Development
USDA Research Service
Yale Science and Engineering Association



Virtual project presentation hosted by tcrsf.zfairs.com

Research paper program hosted by tcrsf.zfairs.com

Thanks to all our volunteers, new & old, especially the U.S.S. Nokomis

THANK YOU TO OUR PLATINUM SPONSORS:



2020-2021 Twin Cities Regional Science Fair Committee

Director:	Timara Underbakke	Committee At Large:	Scientific Review:
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Public Relations:	Michael Lohman, Sr.	Jess Day	Dr. Denise Beusen
Development Director	Karilyn Jons	Dr. Denise Beusen	Dr. Jack Ball
Funding	Michael Lohman, Sr, Karilyn Jons, & Timara Underbakke	Dr. Gary Kwong	Dr. Douglas Erbeck
		Gary Ostrand	Timara Underbakke
Treasurer:	Dr. Gary Kwong	Dr. Caroline Ylitalo	Dr. Jennifer Hugstad-Vaa
Special Awards Chair:	Nancy Day	Dr. Douglas Erbeck	Dr. Caroline Ylitalo
Judging Coordinator:	David & Timara Underbakke	Haley Jostes	Matthew Weingartz
		Karilyn Jons	Dr. Steven Jons
Website & Databases:	David & Timara Underbakke	Dr. Steven Jons	Karilyn Jons
		Dr. Jennifer Hugstad-Vaa	David Underbakke
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Volunteer Coordinator:	Denise Jostes	Denise Jostes	David Underbakke
Educational Outreach:	Dr. Steven Jons	Devi Kyanam	Karin Ostrand
Social Media Coordinator:	position open	Chandra Papisetty	Dr. Gary Kwong
Science Clubs Outreach:	Mike Lohman, Gary Kwong & Timara Underbakke	Christine Kroll	Dr. Caroline Ylitalo
			Michael Lohman, Sr.
			Nancy Day
			Dr. Steven Jons
			Karilyn Jons

We have additional volunteer openings for those interested. We are currently looking for a Social Media Coordinator and a Logistics person. Do you have other ideas or talent to contribute?

If you have time to help, we are 100% Volunteer educational 501c3 non-profit. All donations are tax deductible & are invested in our youth!