

Statistics for 2025 TCRSF

TCRSF was held at the Minnesota State Fairgrounds in the Lee and Rose Warner Coliseum. Our projects were such high quality that TCRSF was able to send almost half our projects (48%) to state, held in St. Paul this year.

At TCRSF, 548 students registered for 350 projects & 133 research papers = 483 total student registrations – representing 48 schools. Our area covers the 9 metro counties of Ramsey, Hennepin, Washington, Dakota, Anoka, Chisago, Isanti, Sherburne, and Wright Counties in Minnesota.

The Minnesota State Science and Engineering Fair was held in-person in St. Paul and the tri-state North Central Regional Junior Science and Humanities Symposium was held in Sioux Falls, SD in 2025. TCRSF won 175 of the 297 awards given at state for projects – which is 59%! Our students did very well! The top prize at state is to be chosen as a finalist to compete at the International Science and Engineering Fair. State chose five projects and all five were from TCRSF. Of the state alternates named to ISEF, all 4 were also from TCRSF.

The top 10% of our middle school projects were nominated to enter the national Thermo Fisher Junior Innovators Challenge.

At ISEF (International Science and Engineering Fair – the best in the world!), TCRSF named 11 projects (11 students) to compete and 5 more of our projects were named to ISEF from state for a total of 16 TCRSF students as finalists at ISEF. ISEF was held in-person in Columbus, Ohio in mid-May. This was our best year yet with 7 ISEF Grand Awards and 6 ISEF Special Awards.

ISEF Finalists 2025:

All finalists have won Wolfram Alpha Mathematica software for finalists (world's most powerful and all-encompassing computational software), finalist medal, and certificate – and the right to compete in the world's largest and most prestigious pre-collegiate scientific competition, which included an all-expense paid trip to ISEF in Columbus, OH. All finalists also won Midjourney – a pioneering AI research lab – award Premium Year Midjourney subscription, and a Data Classroom 12 month University level student license.

Huxley Westermeier, grade 11, St. Paul Academy & Summit School, *Integrity: Generalized Artificial Image Classification With Noise Domain Localization* **won ISEF 2nd Grand Award of \$2,400, ISEF Air Force Research Laboratory on behalf of the United States Air Force, 1st award of \$750, AAI first award of \$1,500 plus an AAI Student Membership & an AAI Membership for the school library, ISEF Hewlett Packard 1st award, ISEF Midwest Microelectronics Consortium award of \$3000, and the Taiwan International Science Fair Special Award is a trip to participate in the Taiwan International Science Fair – with one adult chaperone – also has won a \$25,000 Davidson scholarship for this project.**

Tyler Clair, grade 12, Minnetonka HS, *Silver Nanoparticles From Food Waste: An Innovative Green Synthesis to Remove Synthetic Dyes for Novel Applications in Water Treatment*, **won ISEF 3rd Grand Award of \$1,200, and ISEF YM American Academy 2nd award of \$1,000**

Quinn Hughes, grade 12, Minnetonka HS, *FULL MOON: A Novel and Economical Method for Sustainable Agriculture on the Moon*, **won ISEF 4th Grand Award of \$600**

Bersy Yonas, grade 11, East Ridge HS, Woodbury, *CALM-R: Creating and Optimizing the Impact of a Multisensory Mental Wellness Space in Public Schools*; **won ISEF 3rd Grand Award of \$1,200**

Vick Tan, grade 10, EP Academy. Eden Prairie, *A Reusable Teabag for the Detection and Bioremediation of Arsenic From Drinking Water*, **won ISEF 4th Grand Award of \$600.**

Alyssa Wang, grade 10, East Ridge HS, Woodbury, *Development of edible active coating films from agro-waste for produce preservation*

Ethan Finch, grade 10, Stillwater Area HS, *Coding AI to Enhance Speech*

Riddhi Singhvi, grade 10, Stillwater Area HS, *Decoding Diabetes: Harnessing AI to Accurately Predict Real-Time and Future Blood Glucose Levels For Diabetes Management Using Diet, Exercise, Insulin Intake, and Heart Rate Variability*

Maren Overgaard, grade 11, St. Paul Academy & Summit School, *The Impact of Hypohydration on Concussion Severity*

Mira Jayant, grade 10, Minnetonka HS, *HOPE: A Novel Automated Device for Hemorrhage Control in Pediatric Firearm Emergencies*

Razeen Abdul-Field, grade 12, Minnetonka HS, *Evolving neural networks to exploit problem processing regularities*

Named finalists from state:

Simran Kaur, grade 11, Minnetonka HS, *New approaches to assistive technology in individuals with autism spectrum disorder and its effects*, **won ISEF 2nd Grand award of \$2,400**

Evan Morris, grade 11, St. Paul Academy & Summit School, *A Novel Approach to Enhancing Treatments for Neurodegenerative Diseases: Frequency-Dependent Optogenetics in C. elegans*, **won ISEF 2nd Grand award of \$2,400**

Juniper Setterberg, grade 12, Breck School, *Scrutinizing Sam's Split Structure: Characterizing novel methylation and cleavage pathways in borosin natural product precursor SamA1*

Deling Chen, grade 12, St. Paul Academy & Summit School, *An Artificial Intelligence-Electrocardiogram Model for Prediction of Dementia—the Atherosclerosis Risk in Communities (ARIC) study*

Lucas Granucci, grade 11, Minnetonka HS, *Cross-lingual transfer and pseudo-labeling for multilingual named entity recognition*

Students Competing at Genius Olympiad in June 2025 at RIT University, Rochester NY (66 countries and 34 states):

Alyssa Wang, grade 10, East Ridge HS, Woodbury, Development of edible active coating films from agro-waste for produce preservation, **won Gold Medal**

John Liu, grade 11, Mounds View HS, Solar-Enhanced Biomass-based Filtration System for Removing Microplastics and Heavy Metals, **won Gold Medal**

Tvisha Talwar, grade 11, Wayzata HS, Seeding Smarter: Utilizing a CNN to Assist in Optimizing the Planting of Cotton using Remote-Sensing Data and Forecasted Canopy Coverage, **won Honorable Mention**

Aarav Puri & Nyel Uffa, grade 10, Eden Prairie HS, Smoke Hunters: Engineering a low-cost, fixed-wing autonomous drone for low-altitude forest fire detection

Shagun Shirvastava, grade 9, Eden Prairie HS, In Search of Sound: Creating Solutions for Sound Localization Challenges Using BCI and ESB 32 to Aid Spatial Hearing Loss - Year 2

Milan Darji, grade 11, Minnetonka HS, Custom Enzymes to Custom Care: Ushering in the Era of Personalized Medicine Using a Novel Approach for Engineering Enzyme Specificity

Isabella Wang, grade 10, East Ridge HS, Woodbury, Hive Health: Characterizing Recapping and Hygienic Behavior in Honey Bees as a Natural Defense Mechanisms Against Varroa Mites and Viruses Using Real-Time PCR to Quantify Viral Levels, **won Silver Medal**

Agustin Orezza Robinson, grade 9, St. Paul Central HS, Mycofiltration: Using Pleurotus Ostreatus to Remove Pollutants from Residential Runoff, **won Silver Medal**

Thermo Fisher Junior Innovators Challenge Middle School National Competition Semi-finalists 2025: To be announced in mid-September 2025

In 2024, TCRSF had 4 of the top 300 MS projects in the nation: **Lilly Bilek**, grade 7, Magnuson Christian School, **Dominik Fortin**, grade 6, Hidden Oaks Middle School, **Aleksander Kokotovich**, grade 6, Hidden Oaks Middle School, and **Emaan Moheet** grade 8, Al-Amal School