

## Statistics for 2014 TCRSF

**At TCRSF, 556 students registered for projects & 216 for papers = 772 student registrations (640 unique students)**

TCRSF projects, 171 students presented 139 HS projects,  
385 students presented 356 middle school projects,  
556 total students presented 495 total projects

TCRSF papers: 38 middle school students competed with 38 middle school papers (no team papers) and  
178 high school students competed with 163 high school papers (15 team papers).  
216 total students competed with 201 total research papers (total of 15 team papers).

Competing at state from TCRSF: (projects, not students; team project counts as one)

6<sup>th</sup> grade: 17/ 93 projects = 18.3% of 6<sup>th</sup> grade projects from TCRSF to state

7<sup>th</sup> grade: 16/ 145 projects = 11.0% of 7<sup>th</sup> grade projects from TCRSF to state

8<sup>th</sup> grade: 17/ 118 projects = 14.4% of 8<sup>th</sup> grade projects from TCRSF to state

Middle school: 50/356 projects = 14.0% of middle school projects from TCRSF to state

High School: 66/139 projects = 47.5% of high school projects from TCRSF to state

Total of 116 / 495 total projects = 23.4% sent to state overall

Competing at state middle school papers: 11/38 (only grades 6-8) = 28.9% of those able to advance and

Competing at Tri-State JSHS for high school papers: 35/163 papers = 21.5% of all HS papers to advance

Our TCRSF students competed extremely well at the Minnesota State Science and Engineering Fair. TCRSF students earned many, many awards at state, including both the best 6<sup>th</sup> grade research paper in the entire state and the best 8<sup>th</sup> grade research paper in the entire state!

**47 students middle school students advanced from TCRSF** (top 10% of each affiliation) and **8 TCRSF students** advanced from the state science fair to compete in the **National Broadcom MASTERS** (grades 6-8) competition. In the past, TCRSF has had a national Broadcom MASTERS winner in both 2011 & 2012 and a national winner student in the 3M Discovery Challenge in the fall of 2012 based on her 2012 project. This year, we had **4 students** earn **national semifinalist** status in Broadcom MASTERS (4 of the top 300 in the nation):

Emilia Frances Topp-Johnson (grade 8), Friends School of Minnesota in St. Paul, with her project entitled:  
"Behind the Kernels: A Study of Five Fungal Endophytes and their Use in Biocontrol against the Common Maize Pathogen, *Ustilago maydis*"

Karthik Papisetty (grade 7), Wayzata Central Middle School in Plymouth with his project entitled:  
"Natural Hazard Risk Model for Different Countries in the World"

Brittney Madyson Kuntz (grade 7) Calvin Christian School in Edina with her project entitled:  
"Differences in Chloride Concentration Levels in an Urban Stream by Season and Site"

Avni Jain (grade 7), Central Middle School, Eden Prairie with her project entitled  
"Allergen Alert! An Innovation to Assist People with Finding Safe Food Choices"

At the Tri-state (MN, ND, & SD) North Central Regional Jr. Science & Humanities Symposium (JSHS, research paper competition), TCRSF students earned 6 out of 10 tri-state achievement awards and **2 high school research papers advanced to National JSHS: (TCRSF took 1<sup>st</sup> & 4<sup>th</sup> place at Tri-state competition to advance to nationals!) At National JSHS, one of our students took 1<sup>st</sup> place in chemistry winning a \$12,000 scholarship** in addition to other awards won:

Carolyn Jons (grade 10), Eden Prairie High School with her paper entitled:  
"Improved Efficiency of Steam Generation Using Carbon Nanoparticles."

**At International Science & Engineering Fair (ISEF), TCRSF sent 8 projects – 7 individual and 1 team of 2 students to compete** (3 from Twin Cities, 3 from Western Suburbs, & 2 from St Paul) - plus we named 8 alternate projects (1 individual & 1 teams of 2 projects) – All 8 ISEF finalists competed at ISEF in Los Angeles, CA and 7 alternates attended ISEF. From state science fair, Twin Cities had **2 more individual finalists** (out of the 4 projects named to ISEF from state). **That means TCRSF took half of the top spots to ISEF from state! A total of 9 individual projects and one team project competed at international (ISEF) from one of our TCRSF affiliations or from the state affiliation.**

TCRSF named **4 projects** to compete at ISWEEEP (**International Sustainable World Energy Engineering Environment Project Olympiad**) held in Houston, TX – and **additional projects** from TCRSF applied and were accepted into the competition on their own.

\*\*\*International competition awards won by our students are listed on page 2 of this document.\*\*\*

## **At ISEF (International Science and Engineering Fair – the best in the world!):**

First Grand Award of \$3,000 in Chemistry

CH014 - Improved Efficiency of Steam Generation Using Carbon Nanoparticles

Carolyn Kay Jons, 16, Eden Prairie High School, Eden Prairie, Minnesota

Third Grand Award of \$1,000 in Engineering

EE026 - VoltX 2.0: A Rescue Robot that Can Locate and Extract Victims

Jason Jerome Sylvestre, 17, Benilde-St. Margaret's, St. Louis Park, Minnesota

Third Grand Award of \$1,000 in Biochemistry

BI054 - Understanding the Mechanism behind Nanoparticle Enhanced Oral Absorption of Chemotherapeutic

Drugs Priyanka R. Narayan, 18, Wayzata High School, Plymouth, Minnesota

## **At ISWEEEP (International Sustainable World Energy Engineering Environment Project Olympiad)**

Silver medal in Environment **and** Special Award Texas Tech. University, Department of Plant and Soil Science

\$1000 Scholarship Award

Elisa Villafana, grade 12, Breck School, project entitled:

Save the honeybees: Stop using neonicotinoids: Effects of the pesticide thiamethoxam on vigor, growth and development of soybean (Glycine max) crops

Silver medal in Environment

Easton McChesney and Wolfgang Ofstedal, grade 11, Breck School, team project entitled:

Protecting Streams, Lakes, and Rivers: Engineering a Breakthrough Filter to Remove Dissolved Phosphates from Stormwater Runoff

Bronze medal in Energy

Max Ylitalo, grade 10, Stillwater Area High School, project entitled:

Garbage Reduction to Energy Production: Converting Waste Paper to Cellulosic Ethanol

Honorable Mention in Energy

Jackson Egert, grade 12, Maple Grove Senior High School, project entitled:

Passive Reclamation of Unexploited Energy

## **National Junior Science and Humanities Symposium**

1<sup>st</sup> Place in Chemistry - \$12,000 scholarship

Carolyn Jons, grade 10, Eden Prairie High School, with her paper & symposium presentation:

Improved Efficiency of Seawater Steam Generation Using Carbon Nanoparticles