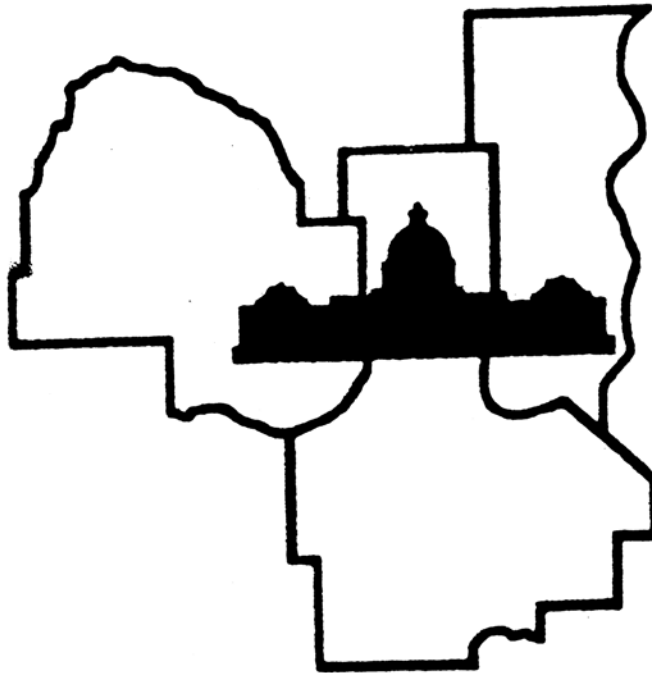


WELCOME TO THE

**72nd Annual Twin Cities Regional Science Fair
18th Annual St. Paul Science Fair
16th Annual Western Suburbs Science Fair**



2010

Science Fairs

February 12-13, 2010

**Affiliated with the International Science & Engineering Fair and the
Minnesota Academy of Science Minnesota State Science & Engineering Fair**

We're scientists ^{engineers}
inventors marketers
& business people of every kind.



We're 3M volunteers.

Tutoring, mentoring, serving, advising, building, delivering and most of all inspiring. The good works of thousands of 3M employee and retiree volunteers improve lives in our communities.

Innovative and indispensable at work and in the community.

3M Community Giving

**WELCOME TO THE 72nd ANNUAL TWIN CITIES REGIONAL SCIENCE FAIR,
THE 18th ANNUAL ST. PAUL SCIENCE FAIR,
THE 16th ANNUAL WESTERN SUBURBS SCIENCE FAIR.**

Our Host this year is the University of Minnesota.

YOUR SCIENCE FAIR BUTTON is your identification as a participant in this Science Fair.

WEAR IT AT ALL TIMES - when you are at the Fair, both Friday and Saturday.

DO NOT WEAR HEELS WHILE IN THE BUILDING - FLAT SOLES ONLY!

PLEASE PICK UP YOUR PROJECT FORMS AND KEEP them FOR A YEAR.

(They may be needed for next year's project, too.)

Make copies of your forms if you are selected to compete further.



1. The number by your name is your project number. It shows you where to set up your project.
2. When you find your place, set up your project.
3. If there is a Scientific Review Committee (SRC) violation sheet in your folder, it means that there is a problem with your paperwork. Report to the SRC table as soon as you have set up your project. You will not be allowed to compete unless you have been cleared for competition by the Scientific Review Committee.
4. After your project is completely set up, please drop off the Safety & Display card in the **IN BOX at Safety & Display** (next to SRC). Go back to your project exhibit and wait for a Safety & Display volunteer to check your exhibit so you can be cleared for competition. You must pass both SRC and Safety & Display inspections to be able to compete for awards.
5. Read through this booklet for additional information about judging times and other rules.
6. Wear your TCRSF button in a clearly visible place at all times.
7. TCRSF requires that ALL team members of team projects must be present at judging on Friday night and that all ISEF winners must be at the Saturday Awards Ceremony. Winners of sponsor's awards must be present at the Saturday Awards Ceremony to win, have their photo taken with their award at their project, and have a signed parental consent form already on file with TCRSF.

TCRSF requires that ALL TEAM members of team projects must be present at judging on Friday night and that all ISEF winners must be at the Saturday Awards Ceremony. Winners of sponsor's awards must be present at the Saturday Awards Ceremony to win, have their photo taken with their award at their project, and have a signed parental consent form already on file with TCRSF.

All ISEF winners and all persons interested in traveling with the group to ISEF MUST attend the Sunday 1:00 p.m. ISEF meeting. (This meeting is *only* for ISEF winners, ISEF alternates, their teachers/mentors/and family members.) The location and time of this meeting will be confirmed with the ISEF winners immediately following the Awards Ceremony.

SCHEDULE

Friday, February 12, 2010:

<u>Time</u>	<u>Activity</u>	<u>Location</u>
1:00 - 3:30 p.m.	Registration	Field House – No heeled Shoes
1:00 - 3:30 p.m.	Set up Projects / Clear Safety&Display Grades 6-8 must be set up by 3:30 Grades 9-12 must be set up by 3:30	Field House – No heeled Shoes
4:00-9:30 p.m.	Judging	Field House – No heeled Shoes

Saturday, February 13, 2010

8:00- 10:00a.m.	Exhibits open to the public	Field House - No heeled Shoes
9:00 - 9:30 a.m.	All Paper and Project Participants pick up envelopes containing ribbons & judging forms	Field House - No heeled Shoes

TEACHERS – Please arrange for someone to pick up papers and folders of any students not able to attend the award ceremony.

DO NOT DISMANTLE YOUR PROJECT UNTIL AFTER THE AWARD CEREMONY!

10:00 a.m. to 12:30 p.m.	Award Ceremony for projects & papers	Field House - University of Minnesota
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Winners of Special Sponsor Awards must be present at the Award Ceremony. ONLY projects with their signed Parental Media Release (generated during registration) turned in before judging starts will be eligible for awards which require a photograph. ALL team members must have signed media release forms on file for a team project to be eligible. Immediately after the awards ceremony, Sponsor Award winners must return to their projects until the official Fair Photographer takes their photo with the award & their display and then dismisses them.

All ISEF winners must be at both the Saturday Awards Ceremony AND the Sunday ISEF meeting to be eligible to be named finalist to travel to and compete in ISEF, or they will forfeit their finalist status to an alternate.

After Award Ceremony	*Brief meeting about the Minnesota State Science Fair for State Fair participants, parents and teachers.	South end of bleachers Field House
After State Briefing	*ISEF Finalists, Alternates and Advisors meet with the TCRSF, SP and WS Directors.	North end of bleachers Field House
Everyone:	PLEASE HELP OUR VOLUNTEERS TEAR DOWN TABLES & CHAIRS	
1:30 p.m.	ALL PROJECTS MUST BE REMOVED	

**Minnesota State Science & Engineering Fair,
March 26-28, 2010, Crowne Plaza Hotel, St. Paul**

**Intel International Science & Engineering Fair
San Jose, California, May 9–14, 2010**

JUDGING RULES AND SCHEDULE

1. Each student must remain with his/her project during the time scheduled for judging. If you are not at your project when a judge arrives, you may miss your chance to be judged, unless you are currently presenting your research paper in the paper competition. **ALL TEAM members of team projects must be present at judging on Friday night**
2. Students must clear both SRC (Scientific Review Committee) & S&D (Safety & Display) before judging begins to be able to compete.
3. **ONLY** judges and students presenting projects are allowed in the exhibit area during judging.
No parents, advisors, teachers, or other non-participants are to be in the exhibit area during judging times.
4. Stay at your project until the official announcement over the public address system dismisses you. Dismissal will be by grade. If you leave early you may be missing out on judging for other special awards.
5. TCRSF and the University of Minnesota do not accept responsibility for equipment/instruments brought to the Fair. **DO NOT LEAVE SUCH ITEMS OVERNIGHT OR UNATTENDED.**

	Judging Begins	Estimated Dismissal Time:
Grade 6	4:00p.m.	6:15p.m.
Grade 7	4:00p.m.	7:00p.m.
Grade 8	4:00p.m.	8:00p.m.
Grades 9-12	4:00p.m.	9:30p.m.

ALL TIMES ARE APPROXIMATE. PLEASE LISTEN FOR ANNOUNCEMENTS!

ONLY PARTICIPANTS ARE ALLOWED IN THE EXHIBIT AREA DURING JUDGING.

PROJECT LISTING

Student projects are listed by number, grade and affiliation and broken down by category within each grade level. Following this listing is an alphabetical list of all entries by grade. To find a project, or to find out where you are to set up your project, look for the color-coded signs and floor map.

GRADE	SIGN COLOR	PROJECT NUMBERS	AFFILIATION CODES
6	BLUE	6000-6999	(S) St. Paul
7	YELLOW	7000-7999	(W) Western Suburbs
8	GREEN	8000-8999	(T) Twin Cities
9-12	WHITE	1000-1999	

RESEARCH PAPERS

Awards will be handed out at the Award Ceremony on Saturday morning at 10:00 a.m. in the Field House. Students competing in the paper finals present their papers to a panel of judges in Cooke Hall between 12-5 p.m. on Friday, February 12, 2010.

TCRSF AND THE UNIVERSITY ARE NOT RESPONSIBLE FOR PAPERS, PROJECTS, AWARDS OR EQUIPMENT LEFT AT THE UNIVERSITY OF MINNESOTA FIELD HOUSE!

REMEMBER - We are guests of the University of Minnesota. Please keep your area clean and respect the property of others. Your actions reflect not only on you, but also on your school, your parents, your advisors and the Fair.

Science doesn't start in a laboratory

A child's imagination is ignited by curiosity and powered by all the wonders of the world.

At Medtronic, we devote ourselves to finding new and better ways to alleviate pain, restore health and extend the lives of people around the world. And we know that any innovation starts with imagination. That's why we support organizations and activities that will inspire the next generation of scientific innovators.



Bill Hawkins
Chairman and Chief Executive Officer

www.medtronic.com/community



UC2008015B x EN

Grade 6

Animal Sciences (AS)

6001S **Marissa Schneider**
The Effect of Nocturnal Cycles of Animal Learning

6002T **Kayley R Winkelman**
You Hairy Dog

Behavioral and Social Sciences (BE)

6003S **Evan J Anderson**
Eyewitness Memory

6004S **Esefany Garcia**
Can Food Temperature Affect its Taste, Even on Paper?

6005S **Ellie Johnson**
Music vs. Heart

6006S **Isabella Sandoval**
Music and Marketing: Kermit gets a Makeover

Cellular and Molecular Biology (CB)

6007W **Ridhima Mishra**
Extraction of DNA from Vegetables and the Electrophoresis Method

Chemistry (CH)

6008S **Ayana I Anderson**
Are sports drinks worth the cost?

6009S **Maya E Ba**
Does table salt conduct electricity as well as saltwater?

6010S **Emma Celebrezze**
Got Milk?

6011W **Olivia Chen**
Plastics and Dissolve rates

6012S **Anna M Hyatt**
Why is corn syrup in most our food?

6013T **Joe Johnson**
In What Do Crystals Grow Best, Water, Apple Juice, or Sprite?

6014S **Clara June Lee**
What type of liquid will cause a penny, a nail, a paper clip, and a sewing needle to rust faster?

6015S **Oscar J Mulvaney**
Measuring Solubility in Tap and Deionized Water

6016T **Mary Anna E Preble**
Leavenings in Banana Bread

6017T **Abrielle L Prunty**
Lowering The Freezing Point Of Water With Salt

6018W **Shana V Tran**
Bursting your Bubble

Earth and Planetary Science (EA)

6019T **Seamus H. Flynn**
Cloud Gazing Forecast: Predicting the Weather by Observing Cloud Patterns

Energy and Transportation (ET)

6020W **Jacob Koppendrayer, Wyatt Holmes Team** - Cool Cola

6021T **Ruthie E Nordquist**
Watt Causes Evaporation

Engineering: Electrical and Mechanical (EE)

6022S **Samuel A Geiger, Nick Wagner Team** - The Biefeld-Brown Effect

6023S **Lexi Hilton, Ruth McInerney Team** - Magnetic Levitation Trains

6024T **John Kostohris**
Which Terrain Is Best?

6025S **James A Kunau**
Which model bridge best resists weight

6026T **Robert S Nygaard**
Does Different Terrain Affect the Performance of Lego Mindstorm Robots?

6027S **Breanna N Simon**
How does the type of light bulb affect the amount of electricity it uses?

6028S **Tuomas P Sivula, David M White Team** - Hovercraft

6029T **Sean Tsai**
What's up electrons?

Engineering: Materials and Bioengineering (EN)

6030T **Jacob M Zwak**
Baseballs

Environmental Management (EM)

6031S **Georges Glen Mefleh**
Does Pollution in the Mississippi River increas as it goes downstream

6032S **Lydia R Rolfes**
Slippery Subjet: What gives better traction on ice sand, salt or road chemicals

Environmental Sciences (EV)

- 6033S **CeCe E Johnson, Hunter B Johnson Team** - If You Hit The Gas Will The Water Last?
- 6034T **Mickelle L Kaufer**
Solar Oven Science
- 6035T **Lucas W Nelson**
MN Salt Water on Plants
- 6036S **Aceif J Oubaha**
Does the taste of water affect its quality?
- 6037S **Daniel J Rockcastle**
Survival Science: Water
- 6038T **Max R Ylitalo**
Absorbing Oil Spills: What Works Best?

Mathematical Sciences (MA)

- 6039S **Noah S Cordes**
How does a flexagon and Why?

Medicine and Health Sciences (ME)

- 6040S **Emily A Connors, Mary McConville Team** - Are Wii Fit?
- 6041S **Gus L Johnson**
Red Bull meets X Box
- 6042S **Daniel A Martinez, Kenneth U Udoibok II Team** - The Effects of Rapid Exercise
- 6043W **Sarah E Stefanik**
Too Sweet to be Blue
- 6044T **Aisha Tahir**
Are Your Eyes Deceiving You?

Microbiology (MI)

- 6045T **Ben R Caswell**
What Hand Drying Materials Prevent the Spread of Germs?
- 6046T **Kevin P Moonen**
Handwashing and Germs

Physics and Astronomy (PH)

- 6047W **Zachary J Becka**
Sham Wow or Scam Wow
- 6048T **Grace Elizabeth Clemens**
Through The Air
- 6049T **Amelia Daddi**
Punch vs. Palm strike
- 6050T **Zoe Gale**
Big Magnets, Small Magnets

- 6051S **Johnny M Goodson, Liam B Kelly Team** - Which Cleats for my Feet
- 6052S **Daniel R. Johnson**
Golf Balls: Which are Better

- 6053W **Carolyn K Jons**
Photon Cannon of Balloon Doom

- 6054W **Alan Z. Lu**
Motor Motion!

Plant Sciences (PS)

- 6055S **Charlie L Anderson**
Water Wonders
- 6056W **Brett Burbank**
Spotlight on Plant Growth

Grade 7

Animal Sciences (AS)

- 7001T **Kasey Jane Kalthoff**
Color or Plain?
- 7002S **Anton J Konieczny**
Ant Feeding Habits
- 7003S **Lydia R Neus**
How Does Light Affect Change In Cricket Mass?
- 7004S **Rush P Pojasek**
The Reason to Care about Brine Shrimp

Behavioral and Social Sciences (BE)

- 7005T **Najma Abdillah Team** - Can Kids Tell The Difference Between Different Kinks of Soda Better Than Adults?
- 7006S **Joe Amble**
Virtual Training: Here Today For Tomorrow
- 7007S **Sarah M Bordsen Bailey**
The Brains Behind "Where's Waldo?"
- 7008W **Elizabeth A Cullen**
Which Form of Practice Helps the Most When Shooting Free Throws?
- 7009W **Rachel J Duffy**
How does music affect your memory?
- 7010T **Madalyn A Elmquist**
What Works Best for Alleviating Brain Freezes?
- 7011W **Elizabeth Erb**
Does music affect how you study?
- 7012S **Kaitlyn Ewine**
Visual Perception: a Matter of Context

- 7013S **Hennok Ghebeye, Kyle Ferguson**
Team - Can Drawing Improve Short Term Memory?
- 7014T **Luke G Heimer**
Emotions and Scores
- 7015W **Claire S Hogan**
Actions Speak Louder Than Words
- 7016T **Ellie S Honerman**
Do Mnemonics Improve Memory?
- 7017T **Emily A Kriegl**
Does Music Loudness Affect Concentration?
- 7018T **Sara J Kumerow**
Gender and the Brain
- 7019S **Awet Melake**
An Interaction of Physical and Auditory Balance
- 7020W **Erin S O'Connor**
If You Are Right or Left Handed Does That Mean You Use Your Right or Left Ear, Eye, or Leg?
- 7021S **Nenagh A O'Leary**
The Stroop Test
- 7022W **Camille I Smith**
Are Children Being Desensitized By Media Exposure?
- 7023T **Ash C Strand-Miller**
Nintendon't?
- 7024S **Micaela J Yarosh**
Does the Amount of Acid in Various Types of Apples Affect the Sugar Concentration
- Biochemistry (BI)***
- 7025T **Riley P Lokrantz**
Tanning Booths
- 7026W **Kristen L Shand**
Does Bad or Expired Yeast Affect How well Bread Rises?
- Cellular and Molecular Biology (CB)***
- 7027S **Alexis M Martin**
Speed and Method of Cryogenics
- Chemistry (CH)***
- 7028W **Nathan M Carroll**
How Does Salt Affect the Rate of Temperature Change in Water?
- 7029W **Axl A Delgadillo Bonequi**
Which cleans metal better, Coca-Cola or aspirin?
- 7030T **Griffin A Egan**
Microwave Popcorn
- 7031W **Cole M Freeman**
Which metal is most corrosion resistant?
- 7032T **Ty E Gale**
Coke Kills: The Dangers of Drinking Soda Pop
- 7033S **Brendan A Geraghty**
through the fire and flames
- 7034S **Meaghan E Gernes**
Cool Cookies
- 7035T **Jenna J Grundtner**
Light and Vitamin C
- 7036S **Zachery M Inskeep**
How Does The Shape Of An Ice Cube Affect How Fast It Melts?
- 7037W **Abigail L Knipp**
What Effect Does the Type of Solute have on the Rate of Crystallization?
- 7038S **Maddie J Lee**
Brownie Battle: Sugar vs. Splenda
- 7039W **Kalli J McCullen**
what kind of wood burns slower oak, birch, or maple
- 7040W **Theresa M Narog**
Iron
- 7041W **Mivi Chi Nguyen**
How Does Dish Soap Expand Food Coloring in Different Liquids?
- 7042W **Annalise P Podewils**
Which Stain Removers is Most Effective in Removing Various Stains?
- 7043W **Moises Sanchez Jr.**
What Balloon Will Inflate Faster, and Which Balloon Will Deflate the Fastest?
- 7044S **Lila C. Scher**
Which Orange Drink is the Least Acidic?
- 7045S **Maura O Walde**
Stain, Stain Go Away
- 7046W **Kyle J Walz**
Did you know that sugar can slow you down?
- Computer Science (CS)***
- 7047T **Anthony Y Hu**
The Effect of Camera Shutter Speed on the Brightness of a Photo

Earth and Planetary Science (EA)

7048T **Emily J Blosberg**
How Does Earth Weather Affect HF Amateur
Radio Frequency Signal Strength?

7049T **Isabella M Christensen**
Plant Growth and Wavelength

7050W **Samuel R Strandness**
How does water erode land?

7051W **Zoe A Vickerman**
Whether, Weather Forecasting Is Accurate

Energy and Transportation (ET)

7052T **Brennan A Daily**
How To Build A Simple Hydrogen Fuel Cell

7053S **Isaac Hamilton**
Bike Gear Ratios

7054W **Matthew Harkema**
A New Way of Producing Electricity

7055S **Conor Hetzel**
Parallel Versus Series Circuiting in a Solar Car

7056T **Wencel Kust**
Insulation

7057T **Madeline L Warner**
The Search for Energy Efficient Lighting

Engineering: Electrical and Mechanical (EE)

7058T **Jupiter U.G. Adams-Phipps**
Fruits, and Vegetables, and-Batteries? Oh my!

7059S **Alexander A Czapiewski**
A Bridge Strong Enough

7060S **David M. Sherman**
Are fair dice fair?

7061W **Chase Ward**
Hydroelectric Power Plant

Engineering: Materials and Bioengineering (EN)

7062S **Lucy H Franzen**
Battle of the Bridges

7063S **Mikayla M Klein**
The Sound Of Tap Shoes

7064S **Conor J Leyden**
Shocking Shoes

Environmental Management (EM)

7065S **Zack Wosika**
Aspen Tree Growth: As a product of Temperature,
Precipitation and Atmospheric CO₂ Levels

Environmental Sciences (EV)

7066T **Matthew J Danley**
Saving The Earth: One Drop At A Time

7067W **Emilie Nordhues**
What materials make the strongest recycled paper?

7068T **Colin D Salchow**
Insulation

7069W **Vivien D Schultz**
Does The Richfield School District Have The Best
Quality Drinking Water

7070T **Abby I Vakulskas**
Is Minnesota Getting Warmer?

7071W **Rachel S Woell**
Acid Rain

Mathematical Sciences (MA)

7072W **Elizabeth M Hienz**
Stategies in Twenty-One

7073W **Sarah R Pope**
Fibonacci Apples

Medicine and Health Sciences (ME)

7074W **Alex F Carpio**
Does Your Heartbeat Increase or Decrease After
Player Two Different Types of Video Games?

7075S **Anna K Fryxell**
Cereal Nutrition

7076T **Jayne Elise Gruenhagen**
Sugar VS. Sugar Subtitutes

7077T **Zahara s Kathawalla**
Swimming strokes heartrate and oxygen

7078W **Brandon L Mundahl**
How does the type of music affect your heart rate?

7079W **Katarina H Podewils**
Which Beverage Produces the Most Tooth Decay

7080S **Morgan J Riddle Kimm**
Does Your Age Affect Your Peripheral Vision?

7081T **Kelley Jo Trimble**
Cure it Fast!

7082T **Kristyn A Waldhauser**
Diabetes & Exercise: Which Exercise Affects Your
Blood Sugar the Most?

Microbiology (MI)

- 7083S **Duncan E Anderson**
Solving the Urban Legend: Who Has the Cleanest Mouth?
- 7084T **Isaac G Frans, Logan S Kline Team** - Bugs Out-Smarting Drugs
- 7085W **Katerina M. Friedman**
Where are Germs?
- 7086W **Eleanor R Goblirsch**
Bacteria in Schools
- 7087W **Connor M Knapp**
Pool Vs. Lake
- 7088T **Miranda K. Smith**
Micro-organisms: What household cleaner works the best to Eliminate Micro-organisms?
- 7089S **Samantha Yang**
Investigating Which different storage types spoils apple in the shortest amount of time

Physics and Astronomy (PH)

- 7090W **Ellen M Bakke**
Color and Heat Absorption
- 7091S **Rebecca A Bergmann**
Meteor Madness
- 7092T **Joel Blanchard, Mark Blanchard Team** - Basketball Court Friction
- 7093S **Emily A Devaney**
Sound Barriers
- 7094W **Thomas P Fitzgerald**
How does pressure affect the volume of a gas at constant temperature?
- 7095T **Tanon Hanzal**
Get in the Loop
- 7096S **Victoria Meza-Ortiz**
Sugar: Fertilizer or Plant Toxin?
- 7097S **Alice Louise Michell**
Which part of your foot, toe or side has more accuracy and force when kicking a soccer ball?
- 7098W **Emily K Ness**
What Surface is the Best for Thawing Meat?
- 7099S **Grant c Palas**
Trebuchet - How does mass affect distance thrown
- 7100T **Bradley J Peterson**
Does Size and Shape Effect a Magnet's Strength
- 7101W **Matthew Reed**
Rocket Board

- 7102T **Laura C Sunday**
Seatbelts: Will You Be Safe or Sorry?
- 7103T **Gina M Spoden**
Do Artificial Bulbs Let You See the Light?
- 7104W **Margaret A Vergara**
Can food be cooked by calling cell phones?
- 7105W **Maria Vogel**
Sound Waves
- 7106W **Alexander M. Warner**
Does the Temperature of a Baseball Affect How Far You Hit It?
- 7107S **Joseph B Wenger**
Newton in Action
- 7108W **Spencer D Wyrick**
Do Objects with less textures slide down a ramp easier?

Plant Sciences (PS)

- 7109W **Autumn L. Boxum**
Apple Mummification
- 7110W **Kara Mae G Caron**
Does Seed Spacing of Various Soybean Hybrids Affect the Yield?
- 7111W **Diana N Clemente**
Does the Angle of Light Affect the Growth of grass?
- 7112W **Carolyn A Klaesges**
Water and Plants
- 7113T **Benjamin M Larson**
Are you Attracted?
- 7114T **Colin J Moriarty**
Do Different Colored Lights Affect Plant Growth
- 7115T **Sasha K Oines**
How Do Different Liquids Affect Plant Life?
- 7116W **Nathaniel R. Podewils**
What Type of Water Makes Marigolds Grow Tallest?
- 7117W **Olivia M Salinas**
Does Soapy Water Affect the Growth Rate of Lima Beans?
- 7118W **Ava C Schroedl**
Fertilizers Poop or Goop

Grade 8

Animal Sciences (AS)

- 8001S **Maria E Engstrom**
Pavlov's Theory: Rats Vs. Dogs
- 8002T **Abby M Piechowski**
Does Dog Saliva Kill Bacteria
- 8003T **Zachary M Reidell**
How Do Light and Dark Cycles Affect Ant Tunneling Behavior?
- 8004T **Josh W Vievering**
What is the Best Cat Food Based on Taste, Nutrition, and Price?

Behavioral and Social Sciences (BE)

- 8005S **Katie M Conners, Mary M Pickett Team** - Improving America's Test Scores Using BAVX
- 8006W **Erin M Gorman**
The Stroop Effect
- 8007T **Sarah A Hansen**
Impact of Gender Identity on Career Choice
- 8008S **Della R Kurzer-Zlotnick**
Face-to-Face with the truth about stereotypes
- 8009T **Andrew S McCabe**
The Stroop Effect
- 8010S **Jeremy Pierce**
The Effect of Tempo and Key on Subconscious Emotional Valence
- 8011W **Venessa M Scott, Kassandra Galvan-Pizana Team** - How Do Different Book Genres Affect a Student's Reading Rate?
- 8012W **Marta L Seitz**
Does Music Affect Memory
- 8013S **Katherine A Slifer**
Do Different Kinds of Music Affect the Way People Perform on Tests?
- 8014S **Stryker C Thompson**
Reward And Revenge
- 8015T **Travis J Urness**
Warping the Stroop Effect
- 8016W **Claire M Walker, Emily M Quandt Team** - Reading Comprehension

Biochemistry (BI)

- 8017S **Rawley d Crow**
What drink is worse for your teeth?

- 8018S **Elizabeth Abigail Zalanga**
Does Mold Grow Faster in Warmer or Colder Areas

Cellular and Molecular Biology (CB)

- 8019S **Madeline R Nicol**
The Effects of Temperature and PH on Boiological Enzymes in Animal Cells

Chemistry (CH)

- 8020S **Ariana E Conroy**
Bubbles
- 8021T **Brienne Francis**
Baking Soda vs. Baking Powder Whats the Difference?
- 8022T **Gabbie N Grau**
Digital Versus Film Photography
- 8023S **Mason A Krelitz**
Snack Smack Down!
- 8024T **Miriam Grace Nordquist**
I'm Melting I'm Melting!
- 8025W **Maria C Pfister**
Ice Cream
- 8026S **Ella G Vasquez**
Soda Secrets

Computer Science (CS)

- 8027S **Henry W Johnson**
Can Young People Tell the Difference Between High Quality and Low Quality Sound Better than Older People?
- 8028S **William D Kieser**
Memory Power

Earth and Planetary Science (EA)

- 8029S **Alyssa E Kolb**
Crystal Growth
- 8030S **Whitney C Manning**
Crystals
- 8031W **Benjamin T Suek**
Accuracy, Are Meterologists Always Correct?

Energy and Transportation (ET)

- 8032S **Tiana K Bellamy**
Wind Turbines
- 8033T **Roman E Faller**
Aerodynamics of cars

8034T **Luis J Guzman**
How Will Winglets Affect the Output of a Wind Turbine?

8035T **Claire Honerman**
LEDs vs Incandescents: How much money are you actually saving?

8036T **Andy R Munkelwitz**
Window film

8037S **Lydia M Newman-Heggie**
Propellers and Propulsion

8038T **Patty A O'Brien**
The Speed of Light

8039W **Apurv H Shekhar**
Can wind Turbines Operate in Marginal Wind Speeds? A Venturi Approach

8040T **Malcolm D Smith**
Nuclear Science - Should it be in the US Energy future?

Engineering: Electrical and Mechanical (EE)

8041T **Michael D Allen, Daniel S Fairbanks Team** - Hydroelectricity

8042T **Alex C Barrette**
Now you see me Now you don't

8043S **Joe D Herbeck**
Bridge Break Through/The effects of stress on different types of bridges

8044T **Gunnar M Nelson**
Shocking Solutions: Conductivity levels of different liquids

8045S **Sam O Quiney**
What's a Theremin?

Engineering: Materials and Bioengineering (EN)

8046T **Ben A Betzold**
Lake iron fertilization a possible geoengineering solution

8047S **Arthur T E Dobbs**
What's more cost efficient, Gasoline or Hydrogen

8048S **Viola K Holman**
How Stent Design Geometry Affects Quality of Performance

8049W **Alexander W Richards**
Box Girder vs. Suspension

8050T **Gretta C Steigauf**
Can You Buy Game?

8051T **Victoria E Stusek**
It's Getting Hot in Here: Testing the Insulation Power of Different Windows

8052T **Thomas Vlasak**
A Study of The Effect of Surface Treatments on The Strength of Rope

8053T **Christine M Walz**
Hot vs Cold Bounce

Environmental Sciences (EV)

8054S **William Bauer**
Kill the Watts Not the Planet: A Study in Home Electronics Conservation

8055T **Julia E Bina**
Does Location Affect the Cleanliness of River Water

8056T **Jake P Bischel**
Are green roofs really cool?

8057S **Connor J Burke**
Population Pollution pH The Minnesota River

8058T **Katelyn Deutsch**
How Do Heavy Metals Affect Corals?

8059T **Michael J Fratto**
Water Desalination

8060S **Caroline N Lucas**
The Meltdown

8061T **Iman Y Pakzad**
Artemia as a Natural Indicator of Dissolved Oxygen Levels

8062S **Brooke R R Rogers**
Let the Sun Shine In: Which glass pane scheme will achieve optimum solar efficiency?

8063T **Connor G Salchow**
Storm Water Runoff: Affects on Aquatic Life

8064T **Joseph W Schaefer**
Polluted Ponds

8065T **Deena J Star**
Composting

8066T **Rebecca J Sward**
Ocean Wave Energy

8067W **Katherine T Wratkowski**
Mr. Clean vs Mr. Green: The Effect of Household Cleaners on Plants

Mathematical Sciences (MA)

8068T **Audrey L Parker**
Just How Steep Is That Hill

Medicine and Health Sciences (ME)

- 8069S **Daniel L Baden**
Did Yu See That?
- 8070S **Calista S Dunbar**
Dance Dance Coordination!
- 8071T **Jenna R Evenson, Bailey E Shanley**
Team - Peripheral Vision
- 8072T **Jonathan M Hjelmgren, John A Blanda**
Team - The Effects of Music on Pulse Rate
- 8073T **Heather M Huna**
Fountain of Youth? The Effects of Resveratrol on
Lifespan in Drosophila melanogaster
- 8074S **Ismail J Khadar**
Thumbs Up!
- 8075S **Meishan B Roen**
Which Are Denser, Girls or Women?
- 8076S **Chloe M Sekhran**
Just Dance; You'll Burn Calories
- 8077T **Heather J Stone**
Is Cinnamon Zeylenicum a Sugar Replacer?
- 8078W **Marleny E Thompson**
HPV spread the word, not the disease
- 8079T **Blake E Timm**
Arthritis

Microbiology (MI)

- 8080T **Makayla L. Brummer**
Meat Bacteria
- 8081W **Rachel Chiodo**
Pooch Smooch
- 8082T **Isabelle D.H. Falk, Meg M Adams**
Team - Where are germs most common in the
household?
- 8083S **Martha Mulugeta**
What types of bacteria are grown in the immediate
environment and what does it take for them to be
stopped?
- 8084S **Rachel C Oberst**
Deadly Veggies What is the most effective way to
kill E. coli on fruits and vegetables?
- 8085S **Megan E Ostenby**
Who Ya Gonna Call? Breath Busters!
- 8086S **Dane E Ostlie-Olson**
Dirty Water to Drinking Water

- 8087S **Magaret M Stover**
Are You At a Greater Risk Of Harboring
Staphylococcus aureus if You Have a Nose Stud?

Physics and Astronomy (PH)

- 8088W **Fiona K Daley**
Waterproof
- 8089S **Margaret M Johnson**
The Effects of Temperature on Rocket Engine
Performance
- 8090W **Molly C Knapp**
Egg-cellent!
- 8091S **Stephen M Maxam**
Can The Frequency Of Sound Waves Be Measured
With The Use Of A Flame Tube?
- 8092S **Alex Mongin**
The Effect of Color on the Clarity of a Photograph
- 8093T **Austin t Otto**
Truss Bridges
- 8094W **Connor M Plunkett**
Paper Airplane Aerodynamics
- 8095T **Lincoln D Rother**
Pulp Friction
- 8096T **Benjamin E Weil**
How does Gravity Affect Small Objects?

Plant Sciences (PS)

- 8097S **Jessica J Anderson**
Rad Radishes
- 8098W **Gena R Berendt**
Flower Power
- 8099W **Alyssa R Bollensen**
Pine Needle Preservation
- 8100T **Kayla C Chuhel**
Fresh...Fresher....Freshest.....
- 8101T **Megan E Donnelly**
Allelopathy Garlic vs. Broccoli
- 8102T **Megan Edmunds**
Apple Rotting
- 8103S **Ariana L Iepson**
The Great Plant Maze
- 8104T **Amber A Klein**
Alkalinity V.S. Acidity
- 8105T **Zach R. Krueger, Derek A. Stalcar**
Team - The Effect of Sugar and Caffeine on Plants

- 8106S **Emma M Marshall**
Do Different Brands of Popcorn Leave You a Different Percent of Duds?
- 8107W **Taylor V O'Borski**
The Power of Plants
- 8108S **Brielle C Sowards**
Bean Growth
- 8109W **Erika Elise Swant**
Smoky Plants

High School

Animal Sciences (AS)

- 1001W **Somer M Drummond**
Grade 12 - Using reverse vaccinology to identify gene candidates to use in a vaccine to prevent Escherichia coli-induced post-weaning diarrhea in swine (*Sus domestica*)
- 1002T **Danielle Gunder**
Grade 12 - Can Beethoven Make it Happen?
- 1003T **Michael D Pickett-Leonard**
Grade 12 - PRRSV in Mexican Farms
- 1004T **Samantha M Reigstad-Bayless**
Grade 10 - Classical Conditioning of Mice Through Mazes
- 1005T **Jeannie T Taylor**
Grade 10 - Effect of an Electric Field on Aquarium Fish

Behavioral and Social Sciences (BE)

- 1006T **Thatcher Banh**
Grade 10 - Savior Siblings For The Better Or The Worse: Psychological Perceptions Of Bioethics
- 1007T **Annie M Beckel**
Grade 10 - Parental Engagement In Adolescents' Grades
- 1008T **Darryn Freeman**
Grade 10 - Do Videogames Affect Memory?
- 1009W **Kelly M Gu**
Grade 9 - The relationship between the amount of sleep and school performance in high school students
- 1010T **Ellen E Johnson**
Grade 10 - Developed Intonation
- 1011T **Kelsey Larson**
Grade 10 - The Effects Of Sequence On Recollection Accuracy
- 1012S **Shyanne Lor**
Grade 9 - Duchenne Smile: Real... Or Not?!

- 1013T **Heather J Milne**
Grade 10 - The Effect of Constant Daylight on Pogonomyrmex Occidentalis Colony Behavior
- 1014T **Christopher Phenicie**
Grade 10 - The Effects Of Trimethylxanthine On Chess Playing Ability
- 1015T **Mark A Rugnetta**
Grade 10 - Brain Categorization
- 1016T **Nadirah J Salam**
Grade 11 - Improving Native American Test Outcomes
- 1017T **Nathan J Schmid**
Grade 10 - The Short-Term Memory Capacity of High School Students
- 1018S **Steven Vang**
Grade 9 - Cola Challenge
- 1019S **Houa Xiong**
Grade 9 - Music Therapy
- 1020S **Soumaly Yang**
Grade 9 - How to Attract

Cellular and Molecular Biology (CB)

- 1021W **Leah M Chase**
Grade 9 - The effects of salts when measuring the efficiency of bacterial transformation
- 1022W **Elizabeth A Nelson**
Grade 9 - Testing the Effects of Household cleaners against E-coli

Chemistry (CH)

- 1023S **Brianna Black**
Grade 9 - Lead Testing
- 1024S **Marisol Castillo, Viviana Baltazar, Cassie Moua**
Grade 9,9,9 - **Team** - Crystal Formation
- 1025T **Brian C Hall**
Grade 10 - Ocean Acidification: The Other CO₂ Problem
- 1026W **Madeline M Johnson**
Grade 9 - The Affects of Coverings on Fresh Fruits
- 1027T **John P Lindemann**
Grade 10 - A Study on the Shelf Life of Carbonated Beverages
- 1028S **Gael K. Missoh, Sahal Dirie, Minh Phung**
Grade 9,9,9 - **Team** - Viscous Honey
- 1029W **Daniel A Mokhtari**
Grade 12 - Medicinal applications of bis(trimethylsilyl)acetylene in copper(I)-catalyzed azide-alkyne "click" chemistry

1030S **Honey Vang**
Grade 9 - A Splash of Colors

Computer Science (CS)

1031W **Arun L Chadda**
Grade 9 - Does RAM make a difference?

1032W **Gavin G Ovsak**
Grade 11 - Efficiency Study of a Head Controlled
Computer Interface Using Embedded Circuitry

1033T **Brita A Preus**
Grade 10 - Password Cracking: Effects of Length,
Characters, and Other Factors

1034W **Mark B Ulrich**
Grade 12 - The Mind Surfer

1035T **Allison N Waters**
Grade 10 - Text Analysis: Whodunnit?

1036W **Roy H Zhao**
Grade 9 - Computer Sudoku Solver

Earth and Planetary Science (EA)

1037W **Melissa R Stefanik**
Grade 9 - Moon Phases in Comparison to Tides

1038T **Erin M Suel**
Grade 12 - Effects of Atmospheric Pollution on
Plant Growth

Energy and Transportation (ET)

1039T **Samuel H Dahlke**
Grade 9 - Voltage of a Small Wind Turbine Based
on Varying Blade Shape and Angle

1040S **Jeanne C. Thao, Linda K. Vang, Maichee H.
Xiong**
Grade 9,9,9 - **Team** - Bottle Rockets

1041T **Samuel M Weiss, Alexandria C Herr**
Grade 10,9 - **Team** - Quantitative Analysis of Wind
and Solar Power in Minnesota

Engineering: Electrical and Mechanical (EE)

1042T **Chris B Behnke**
Grade 10 - Optimizing Efficiency in Lift Rotors for
Commercial And Recreational Vehicles

1043T **Alex J Claseman**
Grade 10 - The Effects of Different Airfoils on a
Wind Turbine

1044W **Hari L Ganti**
Grade 11 - Optimizing an Airfoil for Inviscid
Airflow

1045T **Henry D Grittner**
Grade 10 - Effects of Variables on Catapult
Strength and Accuracy

1046W **Ashley M Hamer**
Grade 9 - The Bullet/Shell With the Best Shot
Pattern

1047T **Jordyn Hardt**
Grade 10 - Effect of the Number of Mirror Tiles in
a Solar Array on the Heat at the Focal Point

1048T **Michelle J LaGarde**
Grade 10 - Windmill Propeller Torque: Year Two

1049T **Tad D Neeser**
Grade 10 - Resistance in Electrical Wires as a
Function of Temperature

1050T **Charlie Schiappacasse, Mike Rankin**
Grade 12,12 - **Team** - The Feasibility of Self-
Sufficient Electrolysis Powered by Hydroelectricity

1051T **Lucas Thoresen, Paul Storvick**
Grade 12,11 - **Team** - WIFI++

Engineering: Materials and Bioengineering (EN)

1052T **Nicholas J Ehlers**
Grade 10 - Do different roof angles change the
inside temperature of a house?

1053T **Mike Dell Furney III**
Grade 10 - Effects of Materials and Deflectors on
Acoustics

1054W **Sidharth D Gopinath**
Grade 9 - Floating Cities

1055W **Elaina E Hamann**
Grade 11 - Mosquitoes

1056W **Brandon L Onopa**
Grade 12 - Engineering J-aggregate thin-films for
implementation in photovoltaic devices

1057T **Andy S Ylitalo**
Grade 9 - Windows of the Future: Saving Energy
Year-Round

Environmental Management (EM)

1058W **Eric M Chien**
Grade 12 - The Biological Control of Invasive
Soybean Aphids (Aphis glycines) Through
Apparent Competition

1059T **Juana Espinoza**
Grade 10 - Wetland Health Monitoring: Hester
Dendy Versus Bottle Traps

1060W **Sachin D Rao**
Grade 9 - Water Filter

Environmental Sciences (EV)

1061T **Jesse Acosta**
Grade 11 - Compost Components

- 1062W **Emily R Cherkassky**
Grade 9 - Visual Analysis of Minnesota Soil Survey Data
- 1063W **Elise E Christianson**
Grade 9 - Do Native Plants Hold Back More Runoff Than Lawn Grass?
- 1064W **Marra M Clay**
Grade 9 - Is Green Really Green?
- 1065T **Carissa Klonecz**
Grade 10 - Insulation: The Real Truth
- 1066W **Allison ann Lero**
Grade 9 - Water works
- 1067W **Katherine M Paulsen**
Grade 12 - Effects of microbes and sodium chloride (a micronutrient) on CO₂ flux into the atmosphere from decomposition of plant matter
- 1068T **Lacie T Roberts**
Grade 10 - Growth Rate and Survival of *Cipangopaludina chinensis* Versus *Physa*
- 1069T **Nisha L Singh**
Grade 10 - Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity
- 1070W **Kristina L Tester, Kara M Lillehaug**
Grade 12,12 - **Team** - Effects of Cardenolide Levels in Milkweed on Monarch Butterfly (*Danaus plexippus*) Development (2009)
- 1071T **Josh M Ylinen**
Grade 10 - Absorbing Acidic Water
- Mathematical Sciences (MA)*
- 1072S **Martin A Camacho**
Grade 12 - On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets
- 1073T **Maggie M Green**
Grade 10 - The Angle of Perfection
- 1074T **Zack W Keller**
Grade 10 - The effects of properties on variations on the Koch Snowflake
- 1075T **Paimon Y Pakzad**
Grade 10 - Scale Factor in Generalized Koch Snowflakes
- Medicine and Health Sciences (ME)*
- 1076W **Sarah Benton**
Grade 9 - Is Wii "Fit?"
- 1077T **Laura E Brown**
Grade 12 - Can Shampoo be Harmful to Reproduction?
- 1078T **Micah Hill**
Grade 10 - Spicy Food = Better Eyesight ?
- 1079T **Michelle L Korthauer**
Grade 10 - Effects of Expectations on Eyesight
- 1080T **Laura S Landgraf**
Grade 10 - The Effects of Vodka on the Reproduction Rate of *Drosophila Melanogaster*
- 1081T **Marissa Lane**
Grade 10 - Protein Supplements: Mental or Physical? The Effects of Protein Supplements on Athletes' Performance
- 1082T **Anuja Modi P Modi**
Grade 10 - To mimic the body condition for dissolution of coated and uncoated aspirin tablets
- 1083W **Ava K Mokhtari, Addison L Weiler**
Grade 12,11 - **Team** - Expanding a Gene-Expression Profile for Theiler's Virus as a Diagnostic Tool for Multiple Sclerosis
- 1084W **Charles D Morris**
Grade 12 - Role of PKC/ in carrageenan-induced inflammatory pain response
- 1085T **Prithwis K Mukhopadhyay**
Grade 11 - Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
- 1086T **Ashley R Santilli, Emily K Bostrom**
Grade 12,12 - **Team** - The Effects of Oxygen on Smooth Muscle Cell Function: A Potential Role in Preventing Intimal Hyperplasia
- 1087W **Shelby Ullrich**
Grade 9 - The Effect of Hand Sanitizer on Bacteria
- 1088T **Samuel A Wehling**
Grade 10 - The sound exposure associated with playing the drums in a heavy metal band and the effect of hearing protection to decrease the damage of the decibels
- Microbiology (MI)*
- 1089W **Lisa K Persson**
Grade 9 - Which Hand Soap is Best at Inhibiting Bacterial Growth?
- 1090S **Soua Thao**
Grade 9 - Solutions and Sterilizing Bacteria
- 1091T **Brian J Zetah**
Grade 10 - The Effect of Different Disinfectants on the Growth of *Bacillus subtilis*

Physics and Astronomy (PH)

- 1092T **Mark R Dennis**
Grade 10 - The Effect of Aerodynamic Grooving on Projectiles
- 1093T **Teresa J DiGregorio**
Grade 10 - Which of the Four Stokes is the most Hydrodynamic?
- 1094T **Kevin A Janu**
Grade 10 - Pitch of a Sound
- 1095W **Ryan L Mathison**
Grade 9 - The Soccer Kick
- 1096W **Saurabh Mishra**
Grade 10 - Is Infrared or Laser More Efficient For Data And Voice Communication?
- 1097W **Katasha Pearl Nail Dasilva**
Grade 9 - The Fine Structure Constants Effect on Life's Development
- 1098S **Kim Otto**
Grade 9 - Gymnast Stability
- 1099S **Yessica Reyes**
Grade 9 - The Hunt for Micrometeorites

Plant Sciences (PS)

- 1100S **Alison Decker**
Grade 9 - Reach for the sky
- 1101W **Evan A Dickinson**
Grade 9 - The affect of magnets on plant growth
- 1102T **Jamie L Gromoff**
Grade 12 - Pinus strobus Damage and Repair
- 1103T **Aditi Gupta**
Grade 9 - A Tale of Two Fertilizers: Comparing The Effect of *A. brasiliense* and Arbuscular Mycorrhazia on Non-Leguminous Plants
- 1104T **Sarah N Kroska**
Grade 9 - Are they Pollutants?
- 1105W **Hannah A Kumar**
Grade 12 - Effects of Chilling Stress on Glutathione Cycle in Spinach (*Spinacia oleracea*)
- 1106T **Lexi L. Palmer**
Grade 12 - The Effect of Sulfuric Acid on the Growth of Brassica rapa
- 1107T **Thomas J Sherman, Joshua D Treimer**
Grade 12,12 - **Team** - The Comparison of Weigh Wagon and Combine Yield Monitors for Evaluation of Corn Hybrid Performance
- 1108T **Valerie P Smith**
Grade 10 - Cryobiology: Vaucheria Survival Rates

1109T **Tiffanie F Stone**
Grade 12 - Identification of a Super Hybrid Rice Variety Guangzhan 635/1128 Using Simple Sequence Repeat Molecular Markers

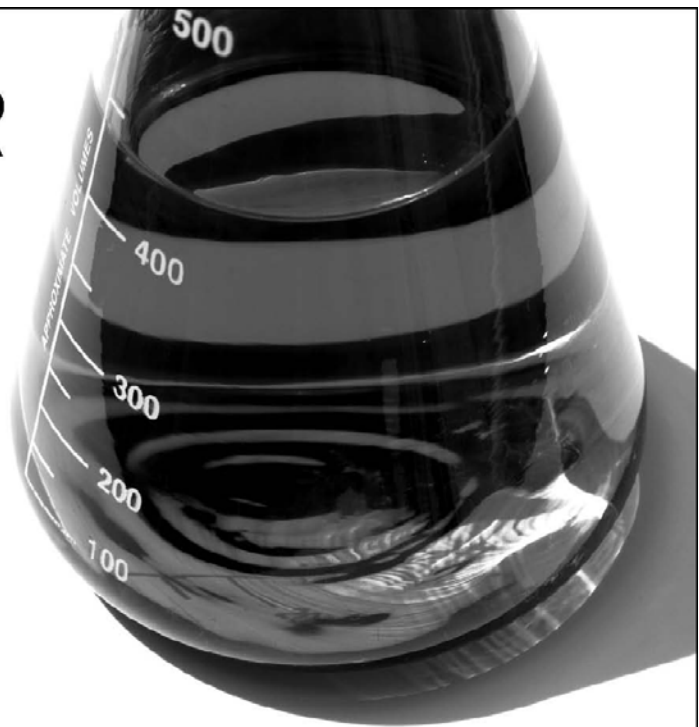
1110S **Arun Wollenberg**
Grade 9 - Nocturnal Plants

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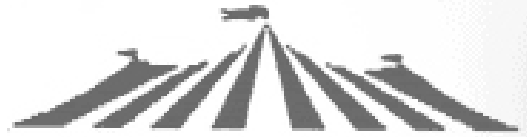
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HOSPITALITY GROUP

Grade 6

Anderson, Evan J 6003S
 Anderson, Charlie L 6055S
 Anderson, Ayana I 6008S
 Ba, Maya E 6009S
 Becka, Zachary J 6047W
 Burbank, Brett 6056W
 Caswell, Ben R 6045T
 Celebrezze, Emma 6010S
 Chen, Olivia 6011W
 Clemens, Grace Elizabeth 6048T
 Conners, Emily A 6040S
 Cordes, Noah S 6039S
 Daddi, Amelia 6049T
 Flynn, Seamus H. 6019T
 Gale, Zoe 6050T
 Garcia, Esefany 6004S
 Geiger, Samuel A 6022S
 Goodson, Johnny M 6051S
 Hilton, Lexi 6023S
 Holmes, Wyatt 6020W
 Hyatt, Anna M 6012S
 Johnson, Ellie 6005S
 Johnson, Hunter B 6033S
 Johnson, Gus L 6041S
 Johnson, Daniel R. 6052S
 Johnson, CeCe E 6033S
 Johnson, Joe 6013T
 Jons, Carolyn K 6053W
 Kaufer, Mickelle L 6034T
 Kelly, Liam B 6051S
 Koppendrayner, Jacob 6020W
 Kostohris, John 6024T
 Kunau, James A 6025S
 Lee, Clara June 6014S
 Lu, Alan Z. 6054W
 Martinez, Daniel A 6042S
 McConville, Mary 6040S
 McInerney, Ruth 6023S
 Mefleh, Georges Glen 6031S
 Mishra, Ridhima 6007W
 Moonen, Kevin P 6046T
 Mulvaney, Oscar J 6015S
 Nelson, Lucas W 6035T
 Nordquist, Ruthie E 6021T
 Nygaard, Robert S 6026T
 Oubaha, Aceif J 6036S
 Preble, Mary Anna E 6016T
 Prunty, Abrielle L 6017T
 Rockcastle, Daniel J 6037S
 Rolfes, Lydia R 6032S
 Sandoval, Isabella 6006S
 Schneider, Marissa 6001S

Simon, Breanna N 6027S
 Sivula, Tuomas P 6028S
 Stefanik, Sarah E 6043W
 Tahir, Aisha 6044T
 Tran, Shana V 6018W
 Tsai, Sean 6029T
 Udoibok II, Kenneth U 6042S
 Wagner, Nick 6022S
 White, David M 6028S
 Winkelman, Kayley R 6002T
 Ylitalo, Max R 6038T
 Zwak, Jacob M 6030T

Grade 7

Abdillah, Najma 7005T
 Adams-Phipps, Jupiter U.G. 7058T
 Amble, Joe 7006S
 Anderson, Duncan E 7083S
 Bakke, Ellen M 7090W
 Bergmann, Rebecca A 7091S
 Blanchard, Mark 7092T
 Blanchard, Joel 7092T
 Blosberg, Emily J 7048T
 Bordsen Bailey, Sarah M 7007S
 Boxum, Autumn L. 7109W
 Caron, Kara Mae G 7110W
 Carpio, Alex F 7074W
 Carroll, Nathan M 7028W
 Christensen, Isabella M 7049T
 Clemente, Diana N 7111W
 Cullen, Elizabeth A 7008W
 Czapiewski, Alexander A 7059S
 Daily, Brennan A 7052T
 Danley, Matthew J 7066T
 Delgadillo Bonequi, Axl A 7029W
 Devaney, Emily A 7093S
 Duffy, Rachel J 7009W
 Egan, Griffin A 7030T
 Elmquist, Madalyn A 7010T
 Erb, Elizabeth 7011W
 Ewine, Kaitlyn 7012S
 Ferguson, Kyle 7013S
 Fitzgerald, Thomas P 7094W
 Frans, Isaac G 7084T
 Franzen, Lucy H 7062S
 Freeman, Cole M 7031W
 Friedman, Katerina M. 7085W
 Fryxell, Anna K 7075S
 Gale, Ty E 7032T
 Geraghty, Brendan A 7033S
 Gernes, Meaghan E 7034S
 Ghebeye, Hennok 7013S
 Goblirsch, Eleanor R 7086W
 Gruenhagen, Jayne Elise 7076T

Grundtner, Jenna J 7035T
 Hamilton, Isaac 7053S
 Hanzal, Tanon 7095T
 Harkema, Matthew 7054W
 Heimer, Luke G 7014T
 Hetzel, Conor 7055S
 Hienz, Elizabeth M 7072W
 Hogan, Claire S 7015W
 Honerman, Ellie S 7016T
 Hu, Anthony Y 7047T
 Inskeep, Zachery M 7036S
 Kalthoff, Kasey Jane 7001T
 Kathawalla, Zahara s 7077T
 Klaesges, Carolyn A 7112W
 Klein, Mikayla M 7063S
 Kline, Logan S 7084T
 Knapp, Connor M 7087W
 Knipp, Abigail L 7037W
 Konieczny, Anton J 7002S
 Kriegl, Emily A 7017T
 Kumerow, Sara J 7018T
 Kust, Wencel 7056T
 Larson, Benjamin M 7113T
 Lee, Maddie J 7038S
 Leyden, Conor J 7064S
 Lokrantz, Riley P 7025T
 Martin, Alexis M 7027S
 McCullen, Kalli J 7039W
 Melake, Awet 7019S
 Meza-Ortiz, Victoria 7096S
 Michell, Alice Louise 7097S
 Moriarty, Colin J 7114T
 Mundahl, Brandon L 7078W
 Narog, Theresa M 7040W
 Ness, Emily K 7098W
 Neus, Lydia R 7003S
 Nguyen, Mivi Chi 7041W
 Nordhues, Emilie 7067W
 O'Connor, Erin S 7020W
 Oines, Sasha K 7115T
 O'Leary, Nenagh A 7021S
 Palas, Grant c 7099S
 Peterson, Bradley J 7100T
 Podewils, Nathaniel R. 7116W
 Podewils, Katarina H 7079W
 Podewils, Annalise P 7042W
 Pojasek, Rush P 7004S
 Pope, Sarah R 7073W
 Reed, Matthew 7101W
 Riddle Kimm, Morgan J 7080S
 Salchow, Colin D 7068T
 Salinas, Olivia M 7117W
 Sanchez Jr., Moises 7043W
 Scher, Lila C. 7044S
 Schroedl, Ava C 7118W

Schultz, Vivien D	7069W	Edmunds, Megan	8102T	Quiney, Sam O	8045S
Shand, Kristen L	7026W	Engstrom, Maria E	8001S	Reidell, Zachary M	8003T
Sheikh, Hodan	7005T	Evenson, Jenna R	8071T	Richards, Alexander W	8049W
Sherman, David M.	7060S	Fairbanks, Daniel S	8041T	Roen, Meishan B	8075S
Smith, Camille I	7022W	Falk, Isabelle D.H.	8082T	Rogers, Brooke R R	8062S
Smith, Miranda K.	7088T	Faller, Roman E	8033T	Rother, Lincoln D	8095T
Sonday, Laura C	7102T	Francis, Brienne	8021T	Salchow, Connor G	8063T
Spoden, Gina M	7103T	Fratto, Michael J	8059T	Schaefer, Joseph W	8064T
Strand-Miller, Ash C	7023T	Galvan-Pizana, Kassandra	8011W	Scott, Venessa M	8011W
Strandness, Samuel R	7050W	Gorman, Erin M	8006W	Seitz, Marta L	8012W
Trimble, Kelley Jo	7081T	Grau, Gabbie N	8022T	Sekhran, Chloe M	8076S
Vakulskas, Abby I	7070T	Guzman, Luis J	8034T	Shanley, Bailey E	8071T
Vergara, Margaret A	7104W	Hansen, Sarah A	8007T	Shekhar, Apurv H	8039W
Vickerman, Zoe A	7051W	Herbeck, Joe D	8043S	Slifer, Katherine A	8013S
Vogel, Maria	7105W	Hjelmgren, Jonathan M	8072T	Smith, Malcolm D	8040T
Walde, Maura O	7045S	Holman, Viola K	8048S	Sowards, Brielle C	8108S
Waldhauser, Kristyn A	7082T	Honerman, Claire	8035T	Stalcar, Derek A.	8105T
Walz, Kyle J	7046W	Huna, Heather M	8073T	Star, Deena J	8065T
Ward, Chase	7061W	Iepson, Ariana L	8103S	Steigauf, Gretta C	8050T
Warner, Alexander M.	7106W	Johnson, Henry W	8027S	Stone, Heather J	8077T
Warner, Madeline L	7057T	Johnson, Margaret M	8089S	Stover, Magaret M	8087S
Wenger, Joseph B	7107S	Khadar, Ismail J	8074S	Stusek, Victoria E	8051T
Woell, Rachel S	7071W	Kieser, William D	8028S	Suek, Benjamin T	8031W
Wosika, Zack	7065S	Klein, Amber A	8104T	Swant, Erika Elise	8109W
Wyrick, Spencer D	7108W	Knapp, Molly C	8090W	Sward, Rebecca J	8066T
Yang, Samantha	7089S	Kolb, Alyssa E	8029S	Thompson, Marleny E	8078W
Yarosh, Micaela J	7024S	Krelitz, Mason A	8023S	Thompson, Stryker C	8014S

Grade 8

Adams, Meg M	8082T	Krueger, Zach R.	8105T	Timm, Blake E	8079T
Allen, Michael D	8041T	Kurzer-Zlotnick, Della R	8008S	Urness, Travis J	8015T
Anderson, Jessica J	8097S	Lucas, Caroline N	8060S	Vasquez, Ella G	8026S
Baden, Daniel L	8069S	Manning, Whitney C	8030S	Vievering, Josh W	8004T
Barrette, Alex C	8042T	Marshall, Emma M	8106S	Vlasak, Thomas	8052T
Bauer, William	8054S	Maxam, Stephen M	8091S	Walker, Claire M	8016W
Bellamy, Tiana K	8032S	McCabe, Andrew S	8009T	Walz, Christine M	8053T
Berendt, Gena R	8098W	Mongin, Alex	8092S	Weil, Benjamin E	8096T
Betzold, Ben A	8046T	Mulugeta, Martha	8083S	Wratkowski, Katherine T	8067W
Bina, Julia E	8055T	Munkelwitz, Andy R	8036T	Zalanga, Elizabeth Abigail	8018S
Bischel, Jake P	8056T	Nelson, Gunnar M	8044T		
Blanda, John A	8072T	Newman-Heggie, Lydia M	8037S		
Bollensen, Alyssa R	8099W	Nicol, Madeline R	8019S		
Brummer, Makayla L.	8080T	Nordquist, Miriam Grace	8024T		
Burke, Connor J	8057S	Oberst, Rachel C	8084S		
Chiodo, Rachel	8081W	O'Borski, Taylor V	8107W		
Chuhel, Kayla C	8100T	O'Brien, Patty A	8038T		
Connors, Katie M	8005S	Ostenby, Megan E	8085S		
Conroy, Ariana E	8020S	Ostlie-Olson, Dane E	8086S		
Crow, Rawley d	8017S	Otto, Austin t	8093T		
Daley, Fiona K	8088W	Pakzad, Iman Y	8061T		
Deutsch, Katelyn	8058T	Parker, Audrey L	8068T		
Dobbs, Arthur T E	8047S	Pfister, Maria C	8025W		
Donnelly, Megan E	8101T	Pickett, Mary M	8005S		
Dunbar, Calista S	8070S	Piechowski, Abby M	8002T		
		Pierce, Jeremy	8010S		
		Plunkett, Connor M	8094W		
		Quandt, Emily M	8016W		

High School

Baltazar, Viviana	1024S
Benton, Sarah	1076W
Black, Brianna	1023S
Castillo, Marisol	1024S
Chadda, Arun L	1031W
Chase, Leah M	1021W
Cherkassky, Emily R	1062W
Christianson, Elise E	1063W
Clay, Marra M	1064W
Dahlke, Samuel H	1039T
Decker, Alison	1100S
Dickinson, Evan A	1101W
Dirie, Sahal	1028S
Gopinath, Sidharth D	1054W
Gu, Kelly M	1009W

Gupta, Aditi	1103T	Milne, Heather J	1013T
Hamer, Ashley M	1046W	Mishra, Saurabh	1096W
Herr, Alexandria C	1041T	Modi, Anuja Modi P	1082T
Johnson, Madeline M	1026W	Neeser, Tad D	1049T
Kroska, Sarah N	1104T	Pakzad, Paimon Y	1075T
Lero, Allison ann	1066W	Phenicie, Christopher	1014T
Lor, Shyanne	1012S	Preus, Brita A	1033T
Mathison, Ryan L	1095W	Reigstad-Bayless, Samantha M	1004T
Missoh, Gael K.	1028S	Roberts, Lacie T	1068T
Moua, Cassie	1024S	Rugnetta, Mark A	1015T
Nail Dasilva, Katasha Pearl	1097W	Schmid, Nathan J	1017T
Nelson, Elizabeth A	1022W	Singh, Nisha L	1069T
Otto, Kim	1098S	Smith, Valerie P	1108T
Persson, Lisa K	1089W	Taylor, Jeannie T	1005T
Phung, Minh	1028S	Waters, Allison N	1035T
Rao, Sachin D	1060W	Wehling, Samuel A	1088T
Reyes, Yessica	1099S	Weiss, Samuel M	1041T
Stefanik, Melissa R	1037W	Ylinen, Josh M	1071T
Thao, Soua	1090S	Zetah, Brian J	1091T
Thao, Jeanne C.	1040S	Acosta, Jesse	1061T
Ullrich, Shelby	1087W	Ganti, Hari L	1044W
Vang, Honey	1030S	Hamann, Elaina E	1055W
Vang, Steven	1018S	Mukhopadhyay, Prithwis K	1085T
Vang, Linda K.	1040S	Ovsak, Gavin G	1032W
Wollenberg, Arun	1110S	Salam, Nadirah J	1016T
Xiong, Houa	1019S	Storvick, Paul	1051T
Xiong, Maichee H.	1040S	Weiler, Addison L	1083W
Yang, Soumaly	1020S	Bostrom, Emily K	1086T
Ylitalo, Andy S	1057T	Brown, Laura E	1077T
Zhao, Roy H	1036W	Camacho, Martin A	1072S
Banh, Thatcher	1006T	Chien, Eric M	1058W
Beckel, Annie M	1007T	Drummond, Somer M	1001W
Behnke, Chris B	1042T	Gromoff, Jamie L	1102T
Claseman, Alex J	1043T	Gunder, Danielle	1002T
Dennis, Mark R	1092T	Kumar, Hannah A	1105W
DiGregorio, Teresa J	1093T	Lillehaug, Kara M	1070W
Ehlers, Nicholas J	1052T	Mokhtari, Daniel A	1029W
Espinoza, Juana	1059T	Mokhtari, Ava K	1083W
Freeman, Darryn	1008T	Morris, Charles D	1084W
Furney III, Mike Dell	1053T	Onopa, Brandon L	1056W
Green, Maggie M	1073T	Palmer, Lexi L.	1106T
Grittner, Henry D	1045T	Paulsen, Katherine M	1067W
Hall, Brian C	1025T	Pickett-Leonard, Michael D	1003T
Hardt, Jordyn	1047T	Rankin, Mike	1050T
Hill, Micah	1078T	Santilli, Ashley R	1086T
Janu, Kevin A	1094T	Schiappacasse, Charlie	1050T
Johnson, Ellen E	1010T	Sherman, Thomas J	1107T
Keller, Zack W	1074T	Stone, Tiffanie F	1109T
Kloncz, Carissa	1065T	Suel, Erin M	1038T
Korthauer, Michelle L	1079T	Tester, Kristina L	1070W
LaGarde, Michelle J	1048T	Thoresen, Lucas	1051T
Landgraf, Laura S	1080T	Treimer, Joshua D	1107T
Lane, Marissa	1081T	Ulrich, Mark B	1034W
Larson, Kelsey	1011T		
Lindemann, John P	1027T		

TWIN CITIES REGIONAL SCIENCE FAIR "ISEF" ALUMNI

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

1973	Timara Kulzer Underbakke Harding High School, St. Paul	1989	Todd Capistrant Minnesota Zoo School
1974	Craig Johnson Harding High School, St. Paul	1990	Cynthia Schaumburger Harding High School, St. Paul
1975	Dennis Scanlon Harding High School, St. Paul	1990	Ryan Egeland Wayzata High School, Wayzata
1976	Mark Foertsch Grace High School, Fridley	1991	Ryan Egeland Wayzata High School, Wayzata
1976	Linda Ann MacDonald Mounds View High School, Arden Hills	1991	Jonathon Kubik Sibley High School, West St. Paul
1977	Steve Rabatin Benilde-St. Margaret, St. Louis Park	1992	Heidi Konkler Wayzata High School, Wayzata
1977	Charles Clevenger Westonka High School, Mound	1992	Ryan Egeland Wayzata High School, Wayzata
1978	Mitchell Voehl	1993	Ryan Egeland Wayzata High School, Wayzata
1978	Charles Clevenger Westonka High School, Mound	1993	Andrew Grande St. Thomas Academy, Mendota Heights
1979	Jeffrey Rabatin Benilde-St. Margaret, St. Louis Park	1993	Kelly Lohman Harding High School, St. Paul
1979	Joseph Rabatin Benilde-St. Margaret, St. Louis Park	1993	Jens Strand St. Paul Academy, St. Paul
1980	Jeffrey Rabatin Benilde-St. Margaret, St. Louis Park	1994	John Hassett Burnsville High School, Burnsville
1980	Joseph Rabatin Benilde-St. Margaret, St. Louis Park	1994	Ana Navarro Minnetonka High School, Minnetonka
1981	Jeffrey Rabatin Benilde-St. Margaret, St. Louis Park	1994	Victoria Miller St. Agnes High School, St. Paul
1981	Joseph Rabatin Benilde-St. Margaret, St. Louis Park	1994	Julia Goetzke Harding High School, St. Paul
1982	Micheal Rabatin Benilde-St. Margaret, St. Louis Park	1995	John Hassett Burnsville High School, Burnsville
1982	Brian Hallberg Harding High School, St. Paul	1995	Adam Tatarynowicz Burnsville High School, Burnsville
1983	Thinh Hoang Tran Westonka High School, Mound	1995	Victoria R. Miller St. Agnes High School, St. Paul
1983	UNKNOWN	1995	Marcus Rollins St. Paul Open School, St. Paul
1984	Susan Kain Edina High School, Edina	1995	Anna Navarro Minnetonka High School, Minnetonka
1984	Steve Herrman Mahtomedi High School, Mahtomedi	1995	Samuel Rush Minnetonka High School, Minnetonka
1985	Brenda Zenk Sibley High School, West St. Paul	1996	Laurie Louis Parker Roseville High School, Roseville
1985	Steve Herrman Mahtomedi High School, Mahtomedi	1996	David Loy Bowe Burnsville Senior High School, Burnsville
1986	Brenda Zenk Sibley High School, West St. Paul	1996	Michael Scott Lohman Expo III High School, St. Paul
1986	Steve Herrman Mahtomedi High School, Mahtomedi	1996	Victoria Reynolds Miller St. Agnes High School, St. Paul
1987	Brenda Zenk Sibley High School, West St. Paul	1996	Anna Navarro Minnetonka High School, Minnetonka
1987	Ann Bailey Mahtomedi High School, Mahtomedi	1996	Michelle Lee Monnens Minnetonka High School, Minnetonka
1988	Sara Greenslit Mounds View High School, Arden Hills	1996	James Justin Wilson Minnetonka High School, Minnetonka-Team
1988	Ann Marie Gentes Westonka High School, Mound	1996	Michael Gary Grotenhuis Minnetonka High School, Minnetonka-Team
1989	Ann Marie Gentes Westonka High School, Mound		

1997	Nguyen Trung Burnsville Senior High School, Burnsville	2000	Emily Letourneau Central High School, St. Paul-Team
1997	Samuel Rush Minnetonka High School, Minnetonka	2000	Anna Bishop Como Park, St. Paul-Team
1997	Anna Navarro Minnetonka High School, Minnetonka	2001	Megan Bailey Breck School, Minneapolis
1997	Victoria Reynolds Miller St. Agnes High School, St. Paul	2001	Kathryn Gieselmann Burnsville High School, Burnsville
1997	Michael Scott Lohman Expo III High School, St. Paul	2001	A. Ben Suri Harding High School, St. Paul
1997	Travis Smith Burnsville Senior High School, Burnsville	2001	Li Mei Wayzata High School, Wayzata
1997	James Justin Wilson Minnetonka High School, Minnetonka-Team	2001	Laura Egerdal Burnsville High School, Burnsville
1997	Justin Rainey Minnetonka High School, Minnetonka-Team	2001	Anna Bishop Como High School, St. Paul-Team
1998	Dean Harvey Burnsville Senior High School-Team	2001	Emily Letourneau Central High School, St. Paul-Team
1998	Dan Harakh Burnsville Senior High School-Team	2002	Jacob Fitzpatrick Burnsville High School, Burnsville
1998	Bryce Gillespie Breck School, Minneapolis	2002	Kaonhou Her Johnson High School, St. Paul-Team
1998	Preeya Kshetry Breck School, Minneapolis	2002	PaCha Yang Johnson High School, St. Paul-Team
1998	Phally Seak Burnsville Senior High School	2002	Stephen Morris Breck School, Minneapolis
1998	Raj Pai Burnsville Senior High School	2002	Arun Saini Burnsville High School, Burnsville
1998	Michael Scott Lohman Expo III High School, St. Paul	2002	A. Noel Suri Harding High School, St. Paul
1998	A. Ben Suri Harding High School, St. Paul	2003	Jessica Swartz ISD 287
1999	Michael Scott Lohman Expo III High School, St. Paul	2003	Ning Zhou ISD 287
1999	Alison Boutin Burnsville High School, Burnsville	2003	PaCha Yang Johnson High School, St. Paul
1999	Jennica Slattery Minnehaha Academy, Minneapolis	2003	A. Noel Suri Harding High School, St. Paul
1999	Chrissy Jones Minnetonka High School, Minnetonka-Team	2003	Brendan Doms Breck School, Minneapolis
1999	Elizabeth Larkin Breck School, Minneapolis	2003	Javier Cabrera-Perez Breck School, Minneapolis
1999	Melissa Borken Minnetonka High School, Minnetonka	2004	Adam Yock Breck School, Minneapolis
1999	Alli Kellogg Minnetonka High School, Minnetonka-Team	2004	William Mitchell Breck School, Minneapolis
2000	Mark Galatowitsch Highland High School, St. Paul	2004	Noel Suri Harding High School, St. Paul
2000	Jennica Slattery Minnehaha Academy, Minneapolis	2004	Adam Hahn Robbinsdale Armstrong HS, Robbinsdale
2000	Chrissy Jones Minnetonka High School, Minnetonka	2004	Akash Kumar Wayzata High School, Wayzata
2000	Michael Chansky Burnsville High School, Burnsville	2004	Laura Heeter Breck School, Minneapolis - Team
2000	A. Ben Suri Harding High School, St. Paul	2004	Kristina Naranjo-Rivera Breck School, Minneapolis – Team

- | | | | |
|------|---|------|--|
| 2005 | Kyrstin Underbakke
Maranatha Christian Academy,
Brooklyn Park | 2008 | Prithwis Mukhopadhyay
Lake Junior High, Woodbury |
| 2005 | Janet Li
Wayzata High School, Plymouth | 2008 | Michael Cherkassky
Edina High School, Edina |
| 2005 | Heidi Chun
St. Paul Academy, St. Paul | 2008 | Madeline Taft-Ferguson
Breck School, Minneapolis |
| 2005 | Zachary Howland
Burnsville High School, Burnsville | 2008 | Kyra Underbakke
Maranatha Christian Academy,
Brooklyn Park |
| 2005 | Eric Halverson
Como Park Senior High, St. Paul | 2008 | Aly Xiong
Johnson High School, St. Paul |
| 2005 | Kahli Her
Johnson High School, St. Paul | 2008 | Iola Edwards
Johnson High School, St. Paul |
| 2006 | Jenna Johnson
Burnsville High School, Burnsville | 2008 | Stephen Trusheim
Breck School, Minneapolis - Team |
| 2006 | Andrea Jensen
Burnsville High School, Burnsville | 2008 | Daniel Mohktari
Breck School, Minneapolis – Team |
| 2006 | Daniel Zeng
St. Paul Academy & Summit School | 2009 | Prithwis Mukhopadhyay
Woodbury High School, Woodbury |
| 2006 | Matthew Weiss
Breck School, Minneapolis | 2009 | Tiffanie Stone
AFSA High School, Vadnais Heights |
| 2006 | Katherine Schaeffer
Breck School, Minneapolis | 2009 | Michael Fuad
Breck School, Minneapolis |
| 2007 | Ummul Kathawalla
Blake High School | 2009 | Michael Fuad
Breck School, Minneapolis |
| 2007 | Daniel Zeng
St. Paul Academy & Summit School | 2009 | Stephen Trusheim
Breck School, Minneapolis |
| 2007 | Kyra Underbakke
Maranatha Christian Academy,
Brooklyn Park | 2009 | Chee Xiong
Como Park Senior High, St. Paul |
| 2007 | Brandon Lew
Breck School, Minneapolis | 2009 | Martin Camacho
Central High School, St. Paul |
| 2007 | John Earl
Harding High School, St. Paul | 2009 | Sahar Hakim-Hashemi
Breck School, Minneapolis - Team |
| 2007 | Lucas Gabrielson
Harding High School, St. Paul | 2009 | Sierra Danforth
Breck School, Minneapolis - Team |
| 2007 | Jacob Stramer
Harding High School, St. Paul | 2009 | Nicholas NaSal
Burnsville High School, Burnsville - Team |
| | | 2009 | Joseph Lane
Burnsville High School, Burnsville - Team |



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2010 Research Papers

Name	Grade	Title
Sarah J Anderson	6	Cheerios vs. the FDA: The Science Behind the Box
Ridhima Mishra	6	Extraction of Deoxyribonucleic Acid from Vegetables and the Electrophoresis Method
Jenna J Grundtner	7	Vitamin C
Camille I Smith	7	Desensitization by Media Exposure and Its Effect on Children
Sydney I Steinmaus	7	Face Masks
Abby I Vakulskas	7	Global Warming
Viola K Holman	8	How Stent Design Geometry Affects Quality of Performance
Heather M Huna	8	Fountain of Youth? The Effects of Resveratrol on Lifespan in <i>Drosophila melanogaster</i>
Dan A Katzman	8	How Acupuncture Works: Eastern VS. Western
Willa T Murphy	8	To Be or Not To Be Biodegradable
Lydia M Newman-Heggie	8	The Physics of Propellers: Experiments with Size and Pitch of Propellers
Zachary M Reidell	8	How Does Anti-Virus Software Affect Computer Start Up Times?
Anna V Roe	8	Waste to Energy Burners an Alternative to Landfills
Brooke R Rogers	8	The Controversy Over Solar Energy: Solar vs. Fossils
Connor G Salchow	8	Storm Water Runoff: Affects on Aquatic Life
Apurv H Shekhar	8	Can wind Turbines Operate in Marginal Wind Speeds? A Venturi Approach
Deena J Star	8	The Affects of Different Amounts of Nitrogen on Compost
Rebecca J Sward	8	Ocean Wave Energy Converters
Emily R Cherkassky	9	Visual Analysis of Minnesota Soil Survey Data
Aditi Gupta	9	A Tale of Two Fertilizers: Comparing The Effect of <i>A. brasiliense</i> and Arbuscular Mycorrhizia on Non-Leguminous Plants
Andy S Ylitalo	9	Windows of the Future: Saving Energy Year-Round
Annie M Beckel	10	Parental Engagement on Adolescents' Grades
Ian T Blahnik	10	How Does Texting Affect Reaction Time While Driving?
Matthew Borchart	10	Colder Copper
Kerbi R Cavanor	10	Do Clorox Wipes Have An Effect On How Much Bacteria Is Collected On The Inside Of A Bathroom Doorknob?
Mike Dell Furney III	10	Effects of Materials and Deflectors on Acoustics
Jordyn Hardt	10	Effect of the Number of Mirror Tiles in a Solar Array on the Heat at the Focal Point
Kevin A Janu	10	Pitch of Sound
Zack W Keller	10	Analysis of Koch Snowflake Fractal and its Variations
Laura S Landgraf	10	The Effects of Vodka on the Reproduction Rate of <i>Drosophila Melanogaster</i>
Marissa Lane	10	Protein Supplements: Mental or Physical? The Effects of Protein Supplements on Athletes' Physical Performance
Saurabh Mishra	10	Relationship between Light Intensity and Distance
Kyle T Mogan	10	Efficiency, Corrosion Potential, and Economy of Different De-icing Substances
Tad D Neeser	10	Resistance in Electrical Wires as a Function of Temperature
Alex D Odom	10	Investigating The Flutter Effect: Sweet Spots and Dead Zones
Paimon Y Pakzad	10	Scale Factor in Generalized Koch Snowflakes

Samantha M Reigstad-Bayless	10	Classical Conditioning of Mice through Mazes
Emily J Russell	10	Evaluation of Carbon Dioxide Capture by Algae Bioreactor
Nathan J Schmid	10	The Short-Term Memory Capacity of High School Students
Robert J Warmka	10	Permeability Test of Sandbag Filler Materials
Allison N Waters	10	Text Analysis: Whodunnit?
Samuel A Wehling	10	The Decibel Levels Associated With Playing Drums in a Heavy Metal Band and the Effects of Hearing Protection Used to Decrease the Damage Due to Noise
Brian J Zetah	10	The Effect of Different Disinfectants on the Growth of <i>Bacillus subtilis</i>
Hari L Ganti	11	Optimizing an Airfoil for Inviscid Airflow
Prithwis K Mukhopadhyay	11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
Gavin G Ovsak	11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
Martin A Camacho	12	On the Lattice Representations and Linear Extensions of Series-Parallel and $(m+n)$ -free Posets
Eric M Chien	12	The Biological Control of Invasive Soybean Aphids (<i>Aphis glycines</i>) Through Apparent Competition
Matthew T Crocker	12	Bicycle Gear Ratio Efficiency
Somer M Drummond	12	Using reverse vaccinology to identify gene candidates to use in a vaccine to prevent <i>Escherichia coli</i> -induced post-weaning diarrhea in swine (<i>Sus domestica</i>)
Hannah A Kumar	12	Effects of Chilling Stress on Glutathione Cycle in Spinach (<i>Spinacia oleracea</i>)
Nicole D Lee	12	The Effect of Fear on Threat Perception
Brandon L Onopa	12	Engineering J-aggregate thin-films for implementation in organic photovoltaic devices
Erin Sheffels	12	Geometry-based Coordinate System Transformation
Kristina L Tester, Kara M Lillehaug	12,12	Effects of Cardenolide Levels in Milkweed on Monarch Butterfly (<i>Danaus plexippus</i>) Development (2009)
Timothy W Youtz	12	swimsuits and drag

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 Renewable Energy Award
Almost Perfect Teacher Award
American Psychological Association
American Council of Engineering Companies
American Meteorological Society
American Psychology Association
ASM Materials Education International Foundation
Association of Women Geoscientists
East Side Science Club Alumni
Glen Domeier Memorial
Graduate Women in Science
I SWEEP
Intel Excellence in Computer Science
International Science & Engineering Fair (ISEF)
ISEF Alumni Award – Mike Lohman, Jr. (1996, 1997, 1998, 1999)
ISEF Alumni Awards – Kyra Underbakke (2007, 2008)
ISEF Alumni Awards – Kyrstin Underbakke (2005)
ISEF Alumni Awards – Timara Underbakke (1973)
Joel Wagner Caring Bridge Award
Killeen Memorial Award
Minnesota Academy of Science Inquiry award
Medallists (6th grade)
Minnesota Agriculture in the Classroom
Minnesota Astronomical Society
Minnesota Chapter of American Fisheries Society
Minnesota Space Frontier Society
Mu Alpha Theta Mathematics
National Society of Professional Engineers
NOAA National Oceanic and Atmospheric Administration
North Central Tri-state Junior Science & Humanities Symposium Research Papers

Radio City
Research Paper trophies
Ricoh Sustainable Development Award
SciGirls – Twin Cities Public Television Schools trophies
Society for In Vitro Biology
Sponsor: 3M Foundation
Sponsor: Alliant Techsystems
Sponsor: Dow Chemical
Sponsor: Ecolab
Sponsor: General EC Rawlings
Sponsor: Medtronic
Sponsor: Midway Party Rental
Sponsor: Mintáhoe Hospitality Services
Sponsor: Slattery Sales
Sponsor: St. Paul Youth Fund
Sponsor: University of Minnesota
State Science Fair – Research Papers
State Science Fair - Projects
Stockholm Junior Water Prize
TCRSF Award for Excellence
Team Awards
University of Minnesota Institute of Technology Award
US Air Force
US Army
US Department of Health and Human Services
US Metric Association
US Navy/Marine
USDA Forest Service
USDA Research Service
West Metro Medical Society Alliance
Yale Science and Engineering Association

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Chairman and Chief Executive Officer

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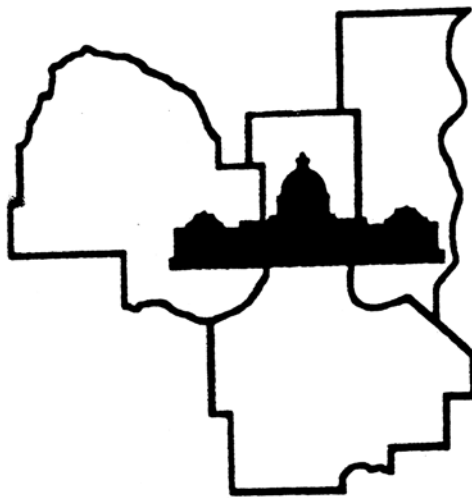
UC2008015B x EN

Project presentation hosted by the University of Minnesota

Research paper program hosted by the University of Minnesota

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

Special thanks to the University of Minnesota US Military ROTC for their assistance in setting up, judging, and tear down.



2009-2010 Twin Cities Regional Science Fair Committee

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Public Relations: Michael Lohman, Sr & Terry Slattery
Website & Databases: David Underbakke & Timara Underbakke
Data Processing: David Underbakke

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Lois Fruen
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Timara Underbakke
Dr Jyothsna Rayadurg
Dr. Gary Kwong
Art Payne
Michael Lohman, Sr.
David Underbakke
Tim Ford

2010 TCRSF Project Errata List

6057T	Anya Magnuson	Grade: 6	Danger: Oil Clean Up in Progress	Environmental Sciences (EV)
7119T	Quin Brudney	Grade: 7	Mind Over Matter	Behavioral and Social Sciences (BE)
7129S	Connor Norby	Grade: 7	Stop the Pop	Chemistry (CH)
7120T	Tim Kemp	Grade: 7	Where there is smoke, there is supper	Energy and Transportation (ET)
7121T	Emma O'Keefe	Grade: 7	Sound Shields	Engineering: Electrical and Mechanical (EE)
7122S	Lili Hagg	Grade: 7	Water Wars	Environmental Sciences (EV)
7123T	Michael Ochs	Grade: 7	Crack the Bat	Environmental Sciences (EV)
7124S	Amira E Warren	Grade: 7	Activated Charcoal Filtration	Environmental Sciences (EV)
7126W	Samuel Joseph Fleming	Grade: 7	Outdoing other plants	Environmental Sciences (EV)
7128S	Seamus Dickson	Grade: 7	Birds in Distress	Environmental Sciences (EV)
7125S	Rosie E Laine	Grade: 7	Drought Drama	Plant Sciences (PS)
7127S	Cameron Swenson	Grade: 7	Fertilizer Fight	Plant Sciences (PS)
8110T	Jack Piram	Grade: 8	Concussions and the M 11 Hockey Helmet	Medicine and Health Sciences (ME)
8111T	Max Smith	Grade: 8	I Have a Headache: Barometric Pressure and the Brain	Medicine and Health Sciences (ME)
8112T	Sophia Warwick	Grade: 8	Bathroom Bacteria	Microbiology (MI)



**Office Max congratulates the students on competing
in the Twin Cities Regional Science Fair**

<http://www.officemaxsolutions.com/education/>

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