

# ISEF - International Science and Engineering Fair

San Jose, CA - May 9-14, 2010

## Finalists

### Twin Cities

- |      |                                       |          |  |
|------|---------------------------------------|----------|--|
| 1085 | Prithwis K<br>Mukhopadhyay            | Grade 11 | Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion |
| 1109 | Tiffanie F Stone                      | Grade 12 | Identification of a Super Hybrid Rice Variety Guangzhan 635/1128 Using Simple Sequence Repeat Molecular Markers                        |
| 1086 | Ashley R Santilli,<br>Emily K Bostrom | Grade 12 | The Effects of Oxygen on Smooth Muscle Cell Function: A Potential Role in Preventing Intimal Hyperplasia                               |

### Western Suburbs

- |      |                                     |          |   |
|------|-------------------------------------|----------|---|
| 1032 | Gavin G Ovsak                       | Grade 11 | Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry                   |
| 1084 | Charles D Morris                    | Grade 12 | Role of PKC $\alpha$ / $\lambda$ in carrageenan-induced inflammatory pain response                  |
| 1083 | Ava K Mokhtari,<br>Addison L Weiler | Grade 12 | Expanding a Gene-Expression Profile for Theiler's Virus as a Diagnostic Tool for Multiple Sclerosis |

### St. Paul

- |      |                     |          |   |
|------|---------------------|----------|---|
| 1072 | Martin A<br>Camacho | Grade 12 | On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets |
| 1019 | Houa Xiong          | Grade 9  | Music Therapy   |

## Alternates

### Twin Cities

#### 1st Alternate

- |      |                 |          |   |
|------|-----------------|----------|---|
| 1075 | Paimon Y Pakzad | Grade 10 | Scale Factor in Generalized Koch Snowflakes |
|------|-----------------|----------|---|

#### 2nd Alternate

- |      |                   |          |   |
|------|-------------------|----------|---|
| 1059 | Juana<br>Espinoza | Grade 10 | Wetland Health Monitoring: Hester Dendy Versus Bottle Traps |
|------|-------------------|----------|---|

#### Team Alternate

- |      |                                       |          |   |
|------|---------------------------------------|----------|---|
| 1050 | Charlie Schiappacasse,<br>Mike Rankin | Grade 12 | The Feasibility of Self-Sufficient Electrolysis Powered by Hydroelectricity |
|------|---------------------------------------|----------|---|

### Western Suburbs

**1st Alternate**

1067 Katherine M Paulsen Grade 12 Effects of microbes and sodium chloride (a micronutrient) on CO<sub>2</sub> flux into the atmosphere from decomposition of plant matter

**2nd Alternate**

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

**Team Alternate**

1070 Kristina L Tester, Kara M Lillehaug Grade 12 Effects of Cardenolide Levels in Milkweed on Monarch Butterfly (*Danaus plexippus*) Development (2009)

**Sponsors Awards**

Winners must be present at the awards ceremony & have photo taken at project with award or an alternate will receive the award

**Platinum Level-Plaque****Medtronic Sponsor Award**

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

**3M Sponsor Award**

1029 Daniel A Mokhtari Grade 12 Medicinal applications of bis(trimethylsilyl)acetylene in copper(I)-catalyzed azide-alkyne "click" chemistry

**Ecolab Sponsor Award**

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

**Gold Level-Plaque****Dow Water and Process Solutions Sponsor Award**

6036 Aceif J Oubaha Grade 6 Does the taste of water affect its quality?

**Silver Level-Plaque****Alliant Techsystems Sponsor Award**

1001 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*)

**Midway Party Rental Sponsor Award**

8052 Thomas Grade 8 A Study of The Effect of Surface Treatments on The Strength

Vlasak of Rope

### Slattery Sales Group Sponsor Award

1067 Katherine M Paulsen Grade 12 Effects of microbes and sodium chloride (a micronutrient) on CO<sub>2</sub> flux into the atmosphere from decomposition of plant matter

### Mintahoe Hospitality Group Sponsor Award

1091 Brian J Zetah Grade 10 The Effect of Different Disinfectants on the Growth of *Bacillus subtilis*

### St. Paul Youth Fund Sponsor Award

1072 Martin A Camacho Grade 12 On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets

## Bronze Level-Ribbon

### University of Minnesota Sponsor Award

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

### Office Max Sponsor Award

6035 Lucas W Nelson Grade 6 MN Salt Water on Plants

## Minnesota Academy of Science State Science and Engineering Fair

Projects selected to represent our region in competition in St. Paul, March 26-28, 2010

1001	Somer M Drummond	Grade 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> )
1004	Samantha M Reigstad-Bayless	Grade 10	Classical Conditioning of Mice Through Mazes
1005	Jeannie T Taylor	Grade 10	Effect of an Electric Field on Aquarium Fish
1006	Thatcher Banh	Grade 10	Savior Siblings For The Better Or The Worse: Psychological Perceptions Of Bioethics
1007	Annie M Beckel	Grade 10	Parental Engagement In Adolescents' Grades
1011	Kelsey Larson	Grade 10	The Effects Of Sequence On Recollection Accuracy
1012	Shyanne Lor	Grade 9	Duchenne Smile: Real... Or Not?!
1013	Heather J Milne	Grade 10	The Effect of Constant Daylight on <i>Pogonomyrmex occidentalis</i> Colony Behavior
1014	Christopher Phenicie	Grade 10	The Effects Of Trimethylxanthine On Chess Playing Ability
1015	Mark A Rugnetta	Grade 10	Brain Categorization
1017	Nathan J Schmid	Grade 10	The Short-Term Memory Capacity of High School

			Students
1019	Houa Xiong	Grade 9	Music Therapy
1022	Elizabeth A Nelson	Grade 9	Testing the Effects of Household cleaners against E-coli
1025	Brian C Hall	Grade 10	Ocean Acidification: The Other CO2 Problem
1029	Daniel A Mokhtari	Grade 12	Medicinal applications of bis(trimethylsilyl)acetylene in copper(I)-catalyzed azide-alkyne "click" chemistry
1032	Gavin G Ovsak	Grade 11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
1033	Brita A Preus	Grade 10	Password Cracking: Effects of Length, Characters, and Other Factors
1034	Mark B Ulrich	Grade 12	The Mind Surfer
1035	Allison N Waters	Grade 10	Text Analysis: Whodunnit?
1036	Roy H Zhao	Grade 9	Computer Sudoku Solver
1038	Erin M Suel	Grade 12	Effects of Atmospheric Pollution on Plant Growth
1039	Samuel H Dahlke	Grade 9	Voltage of a Small Wind Turbine Based on Varying Blade Shape and Angle
1041	Samuel M Weiss, Alexandria C Herr	Grade 10	Quantitative Analysis of Wind and Solar Power in Minnesota
1043	Alex J Claseman	Grade 10	The Effects of Different Airfoils on a Wind Turbine
1044	Hari L Ganti	Grade 11	Optimizing an Airfoil for Inviscid Airflow
1050	Charlie Schiappacasse, Mike Rankin	Grade 12	The Feasibility of Self-Sufficient Electrolysis Powered by Hydroelectricity
1052	Nicholas J Ehlers	Grade 10	Do different roof angles change the inside temperature of a house?
1053	Mike Dell Furney III	Grade 10	Effects of Materials and Deflectors on Acoustics
1055	Elaina E Hamann	Grade 11	Mosquitoes
1056	Brandon L Onopa	Grade 12	Engineering J-aggregate thin-films for implementation in photovoltaic devices
1057	Andy S Ylitalo	Grade 9	Windows of the Future: Saving Energy Year-Round
1058	Eric M Chien	Grade 12	The Biological Control of Invasive Soybean Aphids (Aphis glycines) Through Apparent Competition
1059	Juana Espinoza	Grade 10	Wetland Health Monitoring: Hester Dendy Versus Bottle Traps
1062	Emily R Cherkassky	Grade 9	Visual Analysis of Minnesota Soil Survey Data
1065	Carissa Kloncz	Grade 10	Insulation: The Real Truth
1067	Katherine M Paulsen	Grade 12	Effects of microbes and sodium chloride (a micronutrient) on CO2 flux into the atmosphere from decomposition of plant matter
1069	Nisha L Singh	Grade 10	Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity
1070	Kristina L Tester,	Grade 12	Effects of Cardenolide Levels in Milkweed on

	Kara M Lillehaug		Monarch Butterfly ( <i>Danaus plexippus</i> ) Development (2009)
1072	Martin A Camacho	Grade 12	On the Lattice Representations and Linear Extensions of Series-Parallel and $(m+n)$ -free Posets
1075	Paimon Y Pakzad	Grade 10	Scale Factor in Generalized Koch Snowflakes
1080	Laura S Landgraf	Grade 10	The Effects of Vodka on the Reproduction Rate of <i>Drosophila Melanogaster</i>
1081	Marissa Lane	Grade 10	Protein Supplements: Mental or Physical? The Effects of Protein Supplements on Athletes' Performance
1083	Ava K Mokhtari, Addison L Weiler	Grade 12	Expanding a Gene-Expression Profile for Theiler's Virus as a Diagnostic Tool for Multiple Sclerosis
1084	Charles D Morris	Grade 12	Role of PKC $\alpha$ in carrageenan-induced inflammatory pain response
1085	Prithwis K Mukhopadhyay	Grade 11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
1086	Ashley R Santilli, Emily K Bostrom	Grade 12	The Effects of Oxygen on Smooth Muscle Cell Function: A Potential Role in Preventing Intimal Hyperplasia
1087	Shelby Ullrich	Grade 9	The Effect of Hand Snitizer on Bacteria
1089	Lisa K Persson	Grade 9	Which Hand Soap is Best at Inhibiting Bacterial Growth?
1091	Brian J Zetah	Grade 10	The Effect of Different Disinfectants on the Growth of <i>Bacillus subtilis</i>
1092	Mark R Dennis	Grade 10	The Effect of Aerodynamic Grooving on Projectiles
1095	Ryan L Mathison	Grade 9	The Soccer Kick
1096	Saurabh Mishra	Grade 10	Is Infrared or Laser More Efficient For Data And Voice Communication?
1103	Aditi Gupta	Grade 9	A Tale of Two Fertilizers: Comparing The Effect of <i>A. brasiliense</i> and Arbuscular Mycorrhizia on Non-Leguminous Plants
1104	Sarah N Kroska	Grade 9	Are they Pollutants?
1105	Hannah A Kumar	Grade 12	Effects of Chilling Stress on Glutathione Cycle in Spinach ( <i>Spinacia oleracea</i> )
1107	Thomas J Sherman, Joshua D Treimer	Grade 12	The Comparison of Weigh Wagon and Combine Yield Monitors for Evaluation of Corn Hybrid Performance
1109	Tiffanie F Stone	Grade 12	Identification of a Super Hybrid Rice Variety Guangzhan 635/1128 Using Simple Sequence Repeat Molecular Markers
7002	Anton J Konieczny	Grade 7	Ant Feeding Habits
7003	Lydia R Neus	Grade 7	How Does Light Affect Change In Cricket Mass?
7007	Sarah M Bordsen	Grade 7	The Brains Behind "Where's Waldo?"

Bailey			
7008	Elizabeth A Cullen	Grade 7	Which Form of Practice Helps the Most When Shooting Free Throws?
7012	Kaitlyn Ewine	Grade 7	Visual Perception: a Matter of Context
7017	Emily A Kriegl	Grade 7	Does Music Loudness Affect Concentration?
7018	Sara J Kumerow	Grade 7	Gender and the Brain
7019	Awet Melake	Grade 7	An Interaction of Physical and Auditory Balance
7020	Erin S O'Connor	Grade 7	If You Are Right or Left Handed Does That Mean You Use Your Right or Left Ear, Eye, or Leg?
7022	Camille I Smith	Grade 7	Are Children Being Desensitized By Media Exposure?
7024	Micaela J Yarosh	Grade 7	Does the Amount of Acid in Various Types of Apples Affect the Sugar Concentration
7028	Nathan M Carroll	Grade 7	How Does Salt Affect the Rate of Temperature Change in Water?
7032	Ty E Gale	Grade 7	Coke Kills: The Dangers of Drinking Soda Pop
7035	Jenna J Grundtner	Grade 7	Light and Vitamin C
7036	Zachery M Inskeep	Grade 7	How Does The Shape Of An Ice Cube Affect How Fast It Melts?
7040	Theresa M Narog	Grade 7	Iron
7045	Maura O Walde	Grade 7	Stain, Stain Go Away
7047	Anthony Y Hu	Grade 7	The Effect of Camera Shutter Speed on the Brightness of a Photo
7048	Emily J Blosberg	Grade 7	How Does Earth Weather Affect HF Amateur Radio Frequency Signal Strength?
7058	Jupiter U.G. Adams-Phipps	Grade 7	Fruits, and Vegetables, and-Batteries? Oh my!
7060	David M. Sherman	Grade 7	Are fair dice fair?
7063	Mikayla M Klein	Grade 7	The Sound Of Tap Shoes
7065	Zack Wosika	Grade 7	Aspen Tree Growth: As a product of Temperature, Precipitation and Atmospheric CO2 Levels
7066	Matthew J Danley	Grade 7	Saving The Earth: One Drop At A Time
7067	Emilie Nordhues	Grade 7	What materials make the strongest recycled paper?
7068	Colin D Salchow	Grade 7	Insulation
7071	Rachel S Woell	Grade 7	Acid Rain
7080	Morgan J Riddle Kimm	Grade 7	Does Your Age Affect Your Peripheral Vision?
7082	Kristyn A Waldhauser	Grade 7	Diabetes & Exercise: Which Exercise Affects Your Blood Sugar the Most?
7083	Duncan E Anderson	Grade 7	Solving the Urban Legend: Who Has the Cleanest Mouth?
7090	Ellen M Bakke	Grade 7	Color and Heat Absorption
7100	Bradley J Peterson	Grade 7	Does Size and Shape Effect a Magnet's Strength

7101	Matthew Reed	Grade 7	Rocket Board
7108	Spencer D Wyrick	Grade 7	Do Objects with less textures slide down a ramp easier?
7109	Autumn L. Boxum	Grade 7	Apple Mummification
7110	Kara Mae G Caron	Grade 7	Does Seed Spacing of Various Soybean Hybrids Affect the Yield?
7114	Colin J Moriarty	Grade 7	Do Different Colored Lights Affect Plant Growth
7121	Emma O'Keefe	Grade 7	Sound Shields
7122	Lili Hagg	Grade 7	Water Wars
7123	Michael Ochs	Grade 7	Crack the Bat
7125	Rosie E Laine	Grade 7	Drought Drama
7127	Cameron Swenson	Grade 7	Fertilizer Fight
8003	Zachary M Reidell	Grade 8	How Do Light and Dark Cycles Affect Ant Tunneling Behavior?
8005	Katie M Conners, Mary M Pickett	Grade 8	Improving America's Test Scores Using BAVX
8008	Della R Kurzer- Zlotnick	Grade 8	Face-to-Face with the truth about stereotypes
8015	Travis J Urness	Grade 8	Warping the Stroop Effect
8019	Madeline R Nicol	Grade 8	The Effects of Temperature and PH on Boiological Enzymes in Animal Cells
8023	Mason A Krelitz	Grade 8	Snack Smack Down!
8028	William D Kieser	Grade 8	Memory Power
8029	Alyssa E Kolb	Grade 8	Crystal Growth
8037	Lydia M Newman- Heggie	Grade 8	Propellers and Propulsion
8039	Apurv H Shekhar	Grade 8	Can wind Turbines Operate in Marginal Wind Speeds? A Venturi Approach
8043	Joe D Herbeck	Grade 8	Bridge Break Through/The effects of stress on differents types of bridges
8044	Gunnar M Nelson	Grade 8	Shocking Solutions: Conductivity levels of different liquids
8048	Viola K Holman	Grade 8	How Stent Design Geometry Affects Quality of Performance
8050	Gretta C Steigauf	Grade 8	Can You Buy Game?
8052	Thomas Vlasak	Grade 8	A Study of The Effect of Surface Treatments on The Strength of Rope
8061	Iman Y Pakzad	Grade 8	Artemia as a Natural Indicator of Dissolved Oxygen Levels
8062	Brooke R Rogers	Grade 8	Let the Sun Shine In: Which glass pane scheme will achieve optimum solar efficiency?
8064	Joseph W Schaefer	Grade 8	Polluted Ponds
8067	Katherine T Wratkowski	Grade 8	Mr. Clean vs Mr. Green: The Effect of Household Cleaners on Plants

8068	Audrey L Parker	Grade 8	Just How Steep Is That Hill
8073	Heather M Huna	Grade 8	Fountain of Youth? The Effects of Resveratrol on Lifespan in <i>Drosophila melanogaster</i>
8077	Heather J Stone	Grade 8	Is Cinnamon <i>Zeylenicum</i> a Sugar Replacer?
8078	Marleny E Thompson	Grade 8	HPV spread the word, not the disease
8082	Isabelle D.H. Falk, Meg M Adams	Grade 8	Where are germs most common in the household?
8084	Rachel C Oberst	Grade 8	Deadly Veggies What is the most effective way to kill <i>E. coli</i> on fruits and vegetables?
8086	Dane E Ostlie-Olson	Grade 8	Dirty Water to Drinking Water
8087	Margaret M Stover	Grade 8	Are You At a Greater Risk Of Harboring <i>Staphylococcus aureus</i> if You Have a Nose Stud?
8089	Margaret M Johnson	Grade 8	The Effects of Temperature on Rocket Engine Performance
8092	Alex Mongin	Grade 8	The Effect of Color on the Clarity of a Photograph
8107	Taylor V O'Borski	Grade 8	The Power of Plants
8109	Erika Elise Swant	Grade 8	Smoky Plants
8111	Max Smith	Grade 8	I Have a Headache: Barometric Pressure and the Brain

## Top Ranking High School Papers

Grades 9-12

### 1st Place HS Research Paper Trophy

123	Somer M Drummond	Grade 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> )
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### 2nd Place HS Research Paper Trophy

120	Prithwis K Mukhopadhyay	Grade 11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
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### 3rd Place HS Research Paper Trophy

118	Martin A Camacho	Grade 12	On the Lattice Representations and Linear Extensions of Series-Parallel and $(m+n)$ -free Posets
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## High School Research Papers Selected for Competition at the Tri-State Junior Science and Humanities Symposium

North Central JSHS, March 25-26, 2010

104	Brandon L Onopa	Grade 12	Engineering J-aggregate thin-films for implementation in organic photovoltaic devices
105	Andy S Ylitalo	Grade 9	Windows of the Future: Saving Energy Year-Round



107	Robert J Warmka	Grade 10	Permeability Test of Sandbag Filler Materials
108	Hari L Ganti	Grade 11	Optimizing an Airfoil for Inviscid Airflow
110	Eric M Chien	Grade 12	The Biological Control of Invasive Soybean Aphids (Aphis glycines) Through Apparent Competition
112	Kristina L Tester, Kara M Lillehaug	Grade 12	Effects of Cardenolide Levels in Milkweed on Monarch Butterfly ( <i>Danaus plexippus</i> ) Development (2009)
113	Hannah A Kumar	Grade 12	Effects of Chilling Stress on Glutathione Cycle in Spinach ( <i>Spinacia oleracea</i> )
114	Aditi Gupta	Grade 9	A Tale of Two Fertilizers: Comparing The Effect of <i>A. brasiliense</i> and Arbuscular Mycorrhizia on Non-Leguminous Plants
115	Gavin G Ovsak	Grade 11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
117	Paimon Y Pakzad	Grade 10	Scale Factor in Generalized Koch Snowflakes
118	Martin A Camacho	Grade 12	On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets
120	Prithwis K Mukhopadhyay	Grade 11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
122	Nicole D Lee	Grade 12	The Effect of Fear on Threat Perception
123	Somer M Drummond	Grade 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> )
127	Laura S Landgraf	Grade 10	The Effects of Vodka on the Reproduction Rate of <i>Drosophila Melanogaster</i>
128	Annie M Beckel	Grade 10	Parental Engagement on Adolescents' Grades
129	Brian J Zetah	Grade 10	The Effect of Different Disinfectants on the Growth of <i>Bacillus subtilis</i>
133	Matthew T Crocker	Grade 12	Bicycle Gear Ratio Efficiency
134	Timothy W Youtz	Grade 12	swimsuits and drag
135	Matthew Borchart	Grade 10	Colder Copper
136	Alex D Odom	Grade 10	Investigating The Flutter Effect: Sweet Spots and Dead Zones
138	Erin Sheffels	Grade 12	Geometry-based Coordinate System Transformation

## Top Ranking Middle School Papers

Grades 6-8

### 1st Place MS Research Paper Trophy

518	Lydia M Newman- Heggie	Grade 8	The Physics of Propellers: Experiments with Size and Pitch of Propellers
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### 2nd Place MS Research Paper Trophy

510	Zachary M	Grade 8	How Does Anti-Virus Software Affect Computer Start Up
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Reidell

Times?

### 3rd Place MS Research Paper Trophy

513 Heather M Huna Grade 8 Fountain of Youth? The Effects of Resveratrol on Lifespan in *Drosophila melanogaster*

## Middle School Research Papers Selected for Competition at the Minnesota State Science & Engineering Fair

Symposium style presentation of research papers grades 7-8 - St. Paul, March 26-28, 2010

501 Viola K Holman Grade 8 How Stent Design Geometry Affects Quality of Performance

505 Rebecca J Sward Grade 8 Ocean Wave Energy Converters

508 Brooke R Rogers Grade 8 Let the Sun Shine In: Which glass pane scheme will achieve optimum solar efficiency?

510 Zachary M Reidell Grade 8 How Does Anti-Virus Software Affect Computer Start Up Times?

513 Heather M Huna Grade 8 Fountain of Youth? The Effects of Resveratrol on Lifespan in *Drosophila melanogaster*

515 Camille I Smith Grade 7 Desensitization by Media Exposure and Its Effect on Children

516 Apurv H Shekhar Grade 8 Can wind Turbines Operate in Marginal Wind Speeds? A Venturi Approach

518 Lydia M Newman-Heggie Grade 8 The Physics of Propellers: Experiments with Size and Pitch of Propellers

## Top Ranking Team Projects

### Grade 6 Top Scoring Team

6033 CeCe E Johnson, Hunter B Johnson Grade 6 If You Hit The Gas Will The Water Last?

### Grade 8 Top Scoring Team

8005 Katie M Connors, Mary M Pickett Grade 8 Improving America's Test Scores Using BAVX

8082 Isabelle D.H. Falk, Meg M Adams Grade 8 Where are germs most common in the household?

### High School Top Scoring Team

1041 Samuel M Weiss, Alexandria C Herr Grade 10 Quantitative Analysis of Wind and Solar Power in Minnesota

## Project Medalist

## 6th Grade Project Medalist

6053	Carolyn K Jons	Grade 6	Photon Cannon of Balloon Doom
6002	Kayley R Winkelman	Grade 6	You Hairy Dog
6013	Joe Johnson	Grade 6	In What Do Crystals Grow Best, Water, Apple Juice, or Sprite?
6017	Abrielle L Prunty	Grade 6	Lowering The Freezing Point Of Water With Salt
6007	Ridhima Mishra	Grade 6	Extraction of DNA from Vegetables and the Electrophoresis Method
6033	CeCe E Johnson, Hunter B Johnson	Grade 6	If You Hit The Gas Will The Water Last?
6015	Oscar J Mulvaney	Grade 6	Measuring Solubility in Tap and Deionized Water
6038	Max R Ylitalo	Grade 6	Absorbing Oil Spills: What Works Best?
6057	Anya Magnuson	Grade 6	Danger: Oil Clean Up in Progress
6036	Aceif J Oubaha	Grade 6	Does the taste of water affect its quality?
6054	Alan Z. Lu	Grade 6	Motor Motion!

## Project Medalist Grade 7-12

1109	Tiffanie F Stone	Grade 12	Identification of a Super Hybrid Rice Variety Guangzhan 635/1128 Using Simple Sequence Repeat Molecular Markers
8062	Brooke R Rogers	Grade 8	Let the Sun Shine In: Which glass pane scheme will achieve optimum solar efficiency?
1029	Daniel A Mokhtari	Grade 12	Medicinal applications of bis(trimethylsilyl)acetylene in copper(I)-catalyzed azide-alkyne "click" chemistry
8109	Erika Elise Swant	Grade 8	Smoky Plants
1032	Gavin G Ovsak	Grade 11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
1057	Andy S Ylitalo	Grade 9	Windows of the Future: Saving Energy Year-Round
8029	Alyssa E Kolb	Grade 8	Crystal Growth
1034	Mark B Ulrich	Grade 12	The Mind Surfer
7101	Matthew Reed	Grade 7	Rocket Board
8048	Viola K Holman	Grade 8	How Stent Design Geometry Affects Quality of Performance

## 3M Renewable Energy Award

plaque and \$125.

## High School - 3M Renewable Energy

- 1057 Andy S Ylitalo Grade 9 Windows of the Future: Saving Energy Year-Round  
 1043 Alex J Claseman Grade 10 The Effects of Different Airfoils on a Wind Turbine

## Middle School - 3M Renewable Energy

- 8062 Brooke R Grade 8 Let the Sun Shine In: Which glass pane scheme will achieve  
 Rogers optimum solar efficiency?  
 8039 Apurv H Grade 8 Can wind Turbines Operate in Marginal Wind Speeds? A  
 Shekhar Venturi Approach

## Almost Perfect Teacher Award

Sonja Dunlap, Murray Junior HS, St. Paul

## American Council of Engineering Companies of Minnesota (ACEC)

### Overall Grand Award

calculator

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

### Grand Award

- 1043 Alex J Claseman Grade 10 The Effects of Different Airfoils on a Wind  
 Turbine  
 8043 Joe D Herbeck Grade 8 Bridge Break Through/The effects of stress on  
 differents types of bridges  
 7055 Conor Hetzel Grade 7 Parallel Versus Series Circuiting in a Solar Car  
 6022 Samuel A Geiger, Nick Grade 6 The Biefeld-Brown Effect  
 Wagner

### Honor Award

- 1048 Michelle J LaGarde Grade 10 Windmill Propeller Torque: Year Two  
 1039 Samuel H Dahlke Grade 9 Voltage of a Small Wind Turbine Based on Varying  
 Blade Shape and Angle  
 8066 Rebecca J Sward Grade 8 Ocean Wave Energy  
 8034 Luis J Guzman Grade 8 How Will Winglets Affect the Output of a Wind  
 Turbine?  
 7057 Madeline L Warner Grade 7 The Search for Energy Efficient Lighting  
 7101 Matthew Reed Grade 7 Rocket Board  
 6025 James A Kunau Grade 6 Which model bridge best resists weight  
 6023 Lexi Hilton, Ruth Grade 6 Magnetic Levitation Trains  
 McInerney

## American Meteorological Society Award

## Certificates for outstanding achievements in Meteorological Science

### Twin Cities

- 7048 Emily J Blosberg Grade 7 How Does Earth Weather Affect HF Amateur Radio Frequency Signal Strength?
- 7070 Abby I Vakulskas Grade 7 Is Minnesota Getting Warmer?

### Western Suburbs

- 7051 Zoe A Vickerman Grade 7 Whether, Weather Forecasting Is Accurate
- 8031 Benjamin T Suek Grade 8 Accuracy, Are Meteorologists Always Correct?

### St. Paul

- 7065 Zack Wosika Grade 7 Aspen Tree Growth: As a product of Temperature, Precipitation and Atmospheric CO<sub>2</sub> Levels

## American Psychological Association Award

Certificate

### Twin Cities

- 1013 Heather J Milne Grade 10 The Effect of Constant Daylight on Pogonomyrmex Occidentalis Colony Behavior

### St. Paul

- 1012 Shyanne Lor Grade 9 Duchenne Smile: Real... Or Not?!

## ASM International Materials Education Foundation Award

Certificate & medallion (In the mail) recognizing the best materials engineering project

### Western Suburbs

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

## Association of Women Geoscientists

Certificate to female whose project exemplifies high standards of innovativeness and scientific excellence in geosciences

### Twin Cities

- 8058 Katelyn Deutsch Grade 8 How Do Heavy Metals Affect Corals?

### Western Suburbs

- 1062 Emily R Cherkassky Grade 9 Visual Analysis of Minnesota Soil Survey Data

### St. Paul

8089 Margaret M Johnson Grade 8 The Effects of Temperature on Rocket Engine Performance

## East Side Science Club Alumni Award

Medals are presented to outstanding youths that demonstrate innovation and creativeness in project development

1033	Brita A Preus	Grade 10	Password Cracking: Effects of Length, Characters, and Other Factors
1016	Nadirah J Salam	Grade 11	Improving Native American Test Outcomes
1015	Mark A Rugnetta	Grade 10	Brain Categorization
8110	Jack Piram	Grade 8	Concussions and the M 11 Hockey Helmet
8074	Ismail J Khadar	Grade 8	Thumbs Up!
8056	Jake P Bischel	Grade 8	Are green roofs really cool?
7128	Seamus Dickson	Grade 7	Birds in Distress
8010	Jeremy Pierce	Grade 8	The Effect of Tempo and Key on Subconscious Emotional Valence
7063	Mikayla M Klein	Grade 7	The Sound Of Tap Shoes
7027	Alexis M Martin	Grade 7	Speed and Method of Cryogenics
6031	Georges Glen Mefleh	Grade 6	Does Pollution in the Mississippi River increas as it goes downstream
6056	Brett Burbank	Grade 6	Spotlight on Plant Growth

## Glen Domeier Memorial Award

In memory of Glen Domeier, \$50, Compass and use book to project that best demonstrates excellence in environmental science

1059	Juana Espinoza	Grade 10	Wetland Health Monitoring: Hester Dendy Versus Bottle Traps
7061	Chase Ward	Grade 7	Hydroelectric Power Plant

## Graduate Women In Science Award

University of Minnesota Graduate Women in Science: Certificate and \$25 (in the mail)

### Grade 6

6002 Kayley R Winkelman Grade 6 You Hairy Dog

### Grade 7

7024 Micaela J Yarosh Grade 7 Does the Amount of Acid in Various Types of Apples Affect the Sugar Concentration

### Grade 8

8088 Fiona K Daley Grade 8 Waterproof

### Grade 9

1026 Madeline M Johnson Grade 9 The Affects of Coverings on Fresh Fruits

### Grade 10

1005 Jeannie T Taylor Grade 10 Effect of an Electric Field on Aquarium Fish

### Grade 11

1016 Nadirah J Salam Grade 11 Improving Native American Test Outcomes

### Grade 12

1077 Laura E Brown Grade 12 Can Shampoo be Harmful to Reproduction?

## Intel Excellence in Computer Science Award

Certificate and \$200 (check in the mail)

### Twin Cities

1035 Allison N Waters Grade 10 Text Analysis: Whodunnit?

### Western Suburbs

1034 Mark B Ulrich Grade 12 The Mind Surfer

### St. Paul

1072 Martin A Camacho Grade 12 On the Lattice Representations and Linear Extensions of Series-Parallel and  $(m+n)$ -free Posets

## ISEF Alumni Awards

Former ISEF Finalists recognizing up-and-coming young scientists

### Sponsor: Michael Lohman, Jr

One hour in Flight Simulator

8007 Sarah A Hansen Grade 8 Impact of Gender Identity on Career Choice

### Sponsor: Kyrstin Underbakke

Certificate & \$20 cash & science medal keychain

8087 Margaret M Stover Grade 8 Are You At a Greater Risk Of Harboring Staphylococcus aureus if You Have a Nose Stud?

### Sponsor: Kyra Underbakke

Certificate & MP3 player

6053 Carolyn K Jons Grade 6 Photon Cannon of Balloon Doom

### Sponsor: Timara Underbakke

Certificate & \$20 cash & science medal keychain

8034 Luis J Guzman Grade 8 How Will Winglets Affect the Output of a Wind Turbine?

## Caffeinated Student Award Sponsor: Kyra Underbakke

Two \$10 Starbucks gift cards

1050	Charlie Schiappacasse, Mike Rankin	Grade 12	The Feasibility of Self-Sufficient Electrolysis Powered by Hydroelectricity
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## ISWEEEP

Outstanding Projects to Participate in International Sustainable World (Energy, Engineering, & Environment) Project Olympiad; Houston, TX, April 14-19, 2010

### Projects Named to Compete at ISWEEEP

These projects bypass the prequalification round of ISWEEEP.

1044	Hari L Ganti	Grade 11	Optimizing an Airfoil for Inviscid Airflow
1057	Andy S Ylitalo	Grade 9	Windows of the Future: Saving Energy Year-Round
1056	Brandon L Onopa	Grade 12	Engineering J-aggregate thin-films for implementation in photovoltaic devices
1058	Eric M Chien	Grade 12	The Biological Control of Invasive Soybean Aphids (Aphis glycines) Through Apparent Competition
1067	Katherine M Paulsen	Grade 12	Effects of microbes and sodium chloride (a micronutrient) on CO <sub>2</sub> flux into the atmosphere from decomposition of plant matter
1065	Carissa Kloncz	Grade 10	Insulation: The Real Truth

### Projects Recommended to Compete at ISWEEEP

These projects are recommended to apply to compete at ISWEEEP.

1043	Alex J Claseman	Grade 10	The Effects of Different Airfoils on a Wind Turbine
1055	Elaina E Hamann	Grade 11	Mosquitoes
1059	Juana Espinoza	Grade 10	Wetland Health Monitoring: Hester Dendy Versus Bottle Traps
1053	Mike Dell Furney III	Grade 10	Effects of Materials and Deflectors on Acoustics

## Joel Wagner Caring Bridge Award

Trophy & \$50 to the best cancer research project

1085	Prithwis K Mukhopadhyay	Grade 11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
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## Killeen Memorial Award

Trophy to the student who best shows inspiration for their project

7086	Eleanor R Goblirsch	Grade 7	Bacteria in Schools
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## Minnesota Academy of Science Research Inquiry Award

Student: Certificate, MP3 player, Brain Teaser, & 1 Year Membership to Minnesota Academy of Science; Mentor: Certificate, Teacher Kit, MAS Coffee Cup, & 1 Year Membership Minnesota Academy of Science

### Senior High

1055 Elaina E Hamann Grade 11 Mosquitoes

### Junior High

7113 Benjamin M Larson Grade 7 Are you Attracted?

## Minnesota Agriculture in the Classroom

Certificate & \$75 check in the mail

### Project Senior High

1001 Somer M Grade 12 Using reverse vaccinology to identify gene candidates to  
Drummond use in a vaccine to prevent Escherichia coli-induced post-weaning diarrhea in swine (*Sus domestica*)

### Project Junior High

7125 Rosie E Laine Grade 7 Drought Drama  
7110 Kara Mae G Grade 7 Does Seed Spacing of Various Soybean Hybrids Affect  
Caron the Yield?

### Paper Senior High

110 Eric M Grade 12 The Biological Control of Invasive Soybean Aphids (*Aphis*  
Chien *glycines*) Through Apparent Competition  
113 Hannah A Grade 12 Effects of Chilling Stress on Glutathione Cycle in Spinach  
Kumar (*Spinacia oleracea*)

## Minnesota Astronomical Society

- certificate & prize packet

6053 Carolyn K Jons Grade 6 Photon Cannon of Balloon Doom  
7091 Rebecca A Bergmann Grade 7 Meteor Madness  
8038 Patty A O'Brien Grade 8 The Speed of Light  
8096 Benjamin E Weil Grade 8 How does Gravity Affect Small Objects?  
1037 Melissa R Stefanik Grade 9 Moon Phases in Comparison to Tides

## Minnesota Chapter of American Fisheries Society

### Senior High

- Certificate & Fishing equipment

1005 Jeannie T Taylor Grade 10 Effect of an Electric Field on Aquarium Fish

### Senior High

- Book

1069 Nisha L Singh Grade 10 Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity

### Junior High

- Certificate & Fishing equipment

8058 Katelyn Deutsch Grade 8 How Do Heavy Metals Affect Corals?

### Junior High

- Book

8063 Connor G Salchow Grade 8 Storm Water Runoff: Affects on Aquatic Life

### Minnesota Space Frontier Society Award

- certificate & prize packet

7101 Matthew Reed Grade 7 Rocket Board

8034 Luis J Guzman Grade 8 How Will Winglets Affect the Output of a Wind Turbine?

8037 Lydia M Newman-Heggie Grade 8 Propellers and Propulsion

8089 Margaret M Johnson Grade 8 The Effects of Temperature on Rocket Engine Performance

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

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

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

8032 Tiana K Bellamy Grade 8 Wind Turbines

### Mu Alpha Theta Award

- Certificate for the project demonstrating the most challenging, original, thorough, and creative investigation of a problem involving mathematics

### Twin Cities

1073 Maggie M Green Grade 10 The Angle of Perfection

### Western Suburbs

1034 Mark B Ulrich Grade 12 The Mind Surfer

### St. Paul

1072 Martin A Camacho Grade 12 On the Lattice Representations and Linear Extensions of Series-Parallel and  $(m+n)$ -free Posets

## National Society of Professional Engineers

- Certificate & lapel pin & chance for \$1000 (national) to the most outstanding engineering project

### Twin Cities

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

### Western Suburbs

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

### St. Paul

8089 Margaret M Johnson Grade 8 The Effects of Temperature on Rocket Engine Performance

## National Oceanic and Atmospheric Administration (NOAA) "Taking the Pulse of the Planet"

- Certificate & medallion

### Twin Cities

8061 Iman Y Pakzad Grade 8 Artemia as a Natural Indicator of Dissolved Oxygen Levels

1025 Brian C Hall Grade 10 Ocean Acidification: The Other CO2 Problem

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

1069 Nisha L Singh Grade 10 Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity

### Western Suburbs

1067 Katherine M Paulsen Grade 12 Effects of microbes and sodium chloride (a micronutrient) on CO2 flux into the atmosphere from decomposition of plant matter

1062 Emily R Cherkassky Grade 9 Visual Analysis of Minnesota Soil Survey Data

### St. Paul

7065 Zack Wosika Grade 7 Aspen Tree Growth: As a product of Temperature, Precipitation and Atmospheric CO2 Levels

8057 Connor J Burke Grade 8 Population Pollution pH The Minnesota River

**Outstanding Volunteerism Award (Nokomis Club) - 2010  
for their plaque and many, many, many thanks for their  
hard work!**

## Public Television SciGirls Award--Outstanding Science Communication; Excellent Science Achievement

- telescope

6053 Carolyn K Jons Grade 6 Photon Cannon of Balloon Doom

## Radio City Award

- Awarded to Best Amateur Radio project

7048 Emily J Blosberg Grade 7 How Does Earth Weather Affect HF Amateur Radio Frequency Signal Strength?

7091 Rebecca A Bergmann Grade 7 Meteor Madness

## Ricoh Sustainable Development Award

- Certificate to the project whose principles & technical innovations offer the greatest potential for increasing our ability to grow environmentally friendly & socially responsible businesses

## Twin Cities

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

## Western Suburbs

1096 Saurabh Mishra Grade 10 Is Infrared or Laser More Efficient For Data And Voice Communication?

## St. Paul

8062 Brooke R Rogers Grade 8 Let the Sun Shine In: Which glass pane scheme will achieve optimum solar efficiency?

## Society for In Vitro Biology

- Certificate to the most outstanding 11th grade student in the area of plant or animal in vitro biology or tissue culture

## Twin Cities

1085 Prithwis K Mukhopadhyay Grade 11 Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion

## Western Suburbs

1083 Ava K Mokhtari, Addison L Weiler Grade 12 Expanding a Gene-Expression Profile for Theiler's Virus as a Diagnostic Tool for Multiple Sclerosis

## Stockholm Junior Water Prize (SJWP)

- Certificate & eligible to enter the state SJWP competition by submitting their research paper

## Twin Cities

- 1069 Nisha L Singh Grade 10 Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity
- 1059 Juana Espinoza Grade 10 Wetland Health Monitoring: Hester Dendy Versus Bottle Traps
- 1025 Brian C Hall Grade 10 Ocean Acidification: The Other CO2 Problem

## Western Suburbs

- 1063 Elise E Christianson Grade 9 Do Native Plants Hold Back More Runoff Than Lawn Grass?
- 1066 Allison ann Lero Grade 9 Water works
- 1060 Sachin D Rao Grade 9 Water Filter

## St. Paul

- 1090 Soua Thao Grade 9 Solutions and Sterilizing Bacteria
- 1019 Houa Xiong Grade 9 Music Therapy
- 1012 Shyanne Lor Grade 9 Duchenne Smile: Real... Or Not?!

## Students Achieving Volunteering Excellence (SAVE)

- Certificate & \$25 cash to students whose display best communicated their experiment

### Grade 6

- 6014 Clara June Lee Grade 6 What type of liquid will cause a penny, a nail, a paper clip, and a sewing needle to rust faster?

### Grade 7

- 7063 Mikayla M Klein Grade 7 The Sound Of Tap Shoes

### Grade 8

- 8012 Marta L Seitz Grade 8 Does Music Affect Memory
- 8016 Claire M Walker, Emily M Quandt Grade 8 Reading Comprehension

## Twin Cities Regional Science Fair Award

- Must be present to win

- 6032 Lydia R Rolfes Grade 6 Slippery Subject: What gives better traction on ice sand, salt or road chemicals
- 6038 Max R Ylitalo Grade 6 Absorbing Oil Spills: What Works Best?
- 6044 Aisha Tahir Grade 6 Are Your Eyes Deceiving You?
- 6045 Ben R Caswell Grade 6 What Hand Drying Materials Prevent the Spread of Germs?
- 6054 Alan Z. Lu Grade 6 Motor Motion!
- 7003 Lydia R Neus Grade 7 How Does Light Affect Change In Cricket Mass?

7022	Camille I Smith	Grade 7	Are Children Being Desensitized By Media Exposure?
7024	Micaela J Yarosh	Grade 7	Does the Amount of Acid in Various Types of Apples Affect the Sugar Concentration
7038	Maddie J Lee	Grade 7	Brownie Battle: Sugar vs. Splenda
7047	Anthony Y Hu	Grade 7	The Effect of Camera Shutter Speed on the Brightness of a Photo
7123	Michael Ochs	Grade 7	Crack the Bat
7073	Sarah R Pope	Grade 7	Fibonacci Apples
7091	Rebecca A Bergmann	Grade 7	Meteor Madness
8003	Zachary M Reidell	Grade 8	How Do Light and Dark Cycles Affect Ant Tunneling Behavior?
8052	Thomas Vlasak	Grade 8	A Study of The Effect of Surface Treatments on The Strength of Rope
8061	Iman Y Pakzad	Grade 8	Artemia as a Natural Indicator of Dissolved Oxygen Levels
1012	Shyanne Lor	Grade 9	Duchenne Smile: Real... Or Not?!
1027	John P Lindemann	Grade 10	A Study on the Shelf Life of Carbonated Beverages
1036	Roy H Zhao	Grade 9	Computer Sudoku Solver
1038	Erin M Suel	Grade 12	Effects of Atmospheric Pollution on Plant Growth
1043	Alex J Claseman	Grade 10	The Effects of Different Airfoils on a Wind Turbine
1053	Mike Dell Furney III	Grade 10	Effects of Materials and Deflectors on Acoustics
1057	Andy S Ylitalo	Grade 9	Windows of the Future: Saving Energy Year-Round
1069	Nisha L Singh	Grade 10	Water Quality in Dakota Country Wetlands in Correlation with the Index of Biotic Integrity
1073	Maggie M Green	Grade 10	The Angle of Perfection
1082	Anuja Modi P Modi	Grade 10	To mimic the body condition for dissolution of coated and uncoated aspirin tablets
1093	Teresa J DiGregorio	Grade 10	Which of the Four Stokes is the most Hydrodynamic?
1103	Aditi Gupta	Grade 9	A Tale of Two Fertilizers: Comparing The Effect of A. brasiliense and Arbuscular Mycorrhazia on Non-Leguminous Plants
1035	Allison N Waters	Grade 10	Text Analysis: Whodunnit?

## United States Air Force Awards

- Certificate, computer backpack, & MP3 player

## Twin Cities

1073	Maggie M Green	Grade 10	The Angle of Perfection
1043	Alex J Claseman	Grade 10	The Effects of Different Airfoils on a Wind Turbine
1039	Samuel H Dahlke	Grade 9	Voltage of a Small Wind Turbine Based on Varying Blade Shape and Angle
1045	Henry D Grittner	Grade 10	Effects of Variables on Catapult Strength and Accuracy

## Western Suburbs

1032	Gavin G Ovsak	Grade 11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
1044	Hari L Ganti	Grade 11	Optimizing an Airfoil for Inviscid Airflow
1036	Roy H Zhao	Grade 9	Computer Sudoku Solver
1046	Ashley M Hamer	Grade 9	The Bullet/Shell With the Best Shot Pattern

## St. Paul

1072	Martin A Camacho	Grade 12	On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets
1090	Soua Thao	Grade 9	Solutions and Sterilizing Bacteria
1012	Shyanne Lor	Grade 9	Duchenne Smile: Real... Or Not?!

## United States Army Awards

### Meritous Project

- Certificate & shirt

### Twin Cities

1050	Charlie Schiappacasse, Mike Rankin	Grade 12	The Feasibility of Self-Sufficient Electrolysis Powered by Hydroelectricity
1041	Samuel M Weiss, Alexandria C Herr	Grade 10	Quantitative Analysis of Wind and Solar Power in Minnesota
1059	Juana Espinoza	Grade 10	Wetland Health Monitoring: Hester Dendy Versus Bottle Traps

### Western Suburbs

1029	Daniel A Mokhtari	Grade 12	Medicinal applications of bis(trimethylsilyl)acetylene in copper(I)-catalyzed azide-alkyne "click" chemistry
1056	Brandon L Onopa	Grade 12	Engineering J-aggregate thin-films for implementation in photovoltaic devices
1032	Gavin G Ovsak	Grade 11	Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry
1034	Mark B Ulrich	Grade 12	The Mind Surfer

1055 Elaina E Hamann Grade 11 Mosquitoes

### St. Paul

1019 Houa Xiong Grade 9 Music Therapy  
 1090 Soua Thao Grade 9 Solutions and Sterilizing Bacteria  
 1072 Martin A Camacho Grade 12 On the Lattice Representations and Linear Extensions of Series-Parallel and (m+n)-free Posets

## United States Department of Agricultural Research Award

- Certificate & books

### Twin Cities

8064 Joseph W Schaefer Grade 8 Polluted Ponds

### Western Suburbs

6007 Ridhima Mishra Grade 6 Extraction of DNA from Vegetables and the Electrophoresis Method  
 1062 Emily R Cherkassky Grade 9 Visual Analysis of Minnesota Soil Survey Data  
 1067 Katherine M Paulsen Grade 12 Effects of microbes and sodium chloride (a micronutrient) on CO<sub>2</sub> flux into the atmosphere from decomposition of plant matter  
 1070 Kristina L Tester, Kara M Lillehaug Grade 12 Effects of Cardenolide Levels in Milkweed on Monarch Butterfly (*Danaus plexippus*) Development (2009)

### St. Paul

7127 Cameron Swenson Grade 7 Fertilizer Fight

## United States Department of Health and Human Services

- Certificate signed by the Surgeon General

### Twin Cities

1079 Michelle L Korthauer Grade 10 Effects of Expectations on Eyesight

### Western Suburbs

7079 Katarina H Podewils Grade 7 Which Beverage Produces the Most Tooth Decay

### St. Paul

7075 Anna K Fryxell Grade 7 Cereal Nutrition

## United States Metric Association

- Certificate



## Twin Cities

1103 Aditi Gupta Grade 9 A Tale of Two Fertilizers: Comparing The Effect of *A. brasiliense* and Arbuscular Mycorrhizia on Non-Leguminous Plants

## Western Suburbs

1070 Kristina L Tester, Kara M Lillehaug Grade 12 Effects of Cardenolide Levels in Milkweed on Monarch Butterfly (*Danaus plexippus*) Development (2009)

## United States Navy and Marine Corps

### High School Division

certificate & \$50 check (in the mail)

#### Twin Cities

1045 Henry D Grittner Grade 10 Effects of Variables on Catapult Strength and Accuracy  
 1043 Alex J Claseman Grade 10 The Effects of Different Airfoils on a Wind Turbine  
 1053 Mike Dell Furney III Grade 10 Effects of Materials and Deflectors on Acoustics

#### Western Suburbs

1034 Mark B Ulrich Grade 12 The Mind Surfer  
 1032 Gavin G Ovsak Grade 11 Efficiency Study of a Head Controlled Computer Interface Using Embedded Circuitry  
 1055 Elaina E Hamann Grade 11 Mosquitoes

### Junior High Division

certificate

#### Twin Cities

8066 Rebecca J Sward Grade 8 Ocean Wave Energy  
 8040 Malcolm D Smith Grade 8 Nuclear Science - Should it be in the US Energy future?  
 8052 Thomas Vlasak Grade 8 A Study of The Effect of Surface Treatments on The Strength of Rope  
 7048 Emily J Blosberg Grade 7 How Does Earth Weather Affect HF Amateur Radio Frequency Signal Strength?  
 6021 Ruthie E Nordquist Grade 6 Watt Causes Evaporation  
 6017 Abrielle L Prunty Grade 6 Lowering The Freezing Point Of Water With Salt

**Western Suburbs**

7061	Chase Ward	Grade 7	Hydroelectric Power Plant
6053	Carolyn K Jons	Grade 6	Photon Cannon of Balloon Doom
7028	Nathan M Carroll	Grade 7	How Does Salt Affect the Rate of Temperature Change in Water?
8039	Apurv H Shekhar	Grade 8	Can wind Turbines Operate in Marginal Wind Speeds? A Venturi Approach
8049	Alexander W Richards	Grade 8	Box Girder vs. Suspension
6054	Alan Z. Lu	Grade 6	Motor Motion!

**St. Paul**

6023	Lexi Hilton, Ruth McInerney	Grade 6	Magnetic Levitation Trains
6028	Tuomas P Sivula, David M White	Grade 6	Hovercraft

**University of Minnesota Institute of Technology College**

- Scholarship for the summer camp "Exploring Careers in Engineering and the Physical Sciences"

1078	Micah Hill	Grade 10	Spicy Food = Better Eyesight ?
1052	Nicholas J Ehlers	Grade 10	Do different roof angles change the inside temperature of a house?
1012	Shyanne Lor	Grade 9	Duchenne Smile: Real... Or Not?!
1033	Brita A Preus	Grade 10	Password Cracking: Effects of Length, Characters, and Other Factors

**West Metro Medical Society Alliance Award**

- Certificate & \$100 for health or medicine project

**Senior High**

1081	Marissa Lane	Grade 10	Protein Supplements: Mental or Physical? The Effects of Protein Supplements on Athletes' Performance
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**Junior High**

7080	Morgan J Riddle Kimm	Grade 7	Does Your Age Affect Your Peripheral Vision?
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**Yale Science and Engineering Association, Inc.**

- Certificate for an 11th grade student in computer science, engineering, physics, or chemistry

**Twin Cities**

1085	Prithwis K Mukhopadhyay	Grade 11	Food Additive or Carcinogen? Carrageenan Inhibits ASB Activity and Induces Cell Invasion Involving RhoA Activation and MMP-9 Secretion
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**Western Suburbs**

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

**St. Paul**

1072 Martin A Camacho      Grade 12      On the Lattice Representations and Linear Extensions of Series-Parallel and  $(m+n)$ -free Posets