

# ISEF - International Science and Engineering Fair

Los Angeles, CA - May 8-13, 2011

## Finalists

### Twin Cities

- |      |                    |          |  |
|------|--------------------|----------|--|
| 1062 | Redeat F<br>Abegaz | Grade 10 | Effects of Benzoyl Peroxide and Salicylic Acid on Escherichia Coli   |
| 1036 | Martin<br>Anderson | Grade 12 | Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods |
| 1035 | Andy<br>Ylitalo    | Grade 10 | Power Up! Dual Rotor Wind Turbine Design   |

### Western Suburbs

- |      |                   |          |  |
|------|-------------------|----------|--|
| 1034 | Gavin G<br>Ovsak  | Grade 12 | The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production |
| 1023 | Tom<br>Erdmann IV | Grade 12 | Synthesis and Purification of Novel Indene Derivatives for use in Organic Solar Cells                  |

### St. Paul

- |      |                 |          |  |
|------|-----------------|----------|--|
| 1089 | Alysia R Flores | Grade 12 | Engineering a Working Mode of The Casimir Effect |
|------|-----------------|----------|--|

## Alternates

### Twin Cities

#### 1st Alternate

- |      |                      |          |  |
|------|----------------------|----------|--|
| 1073 | Christina A<br>Sahli | Grade 10 | The Effect of Gender and Senescence on Preference Toward Models That Insinuate Benevolence or Abhorrence |
|------|----------------------|----------|--|

#### 2nd Alternate

- |      |                                   |          |  |
|------|-----------------------------------|----------|--|
| 1064 | Thatcher Banh, Sierra M<br>Adrian | Grade 11 | Modulation of Phagocytosis by Morphine and Hypoxia |
|------|-----------------------------------|----------|--|

### Western Suburbs

#### 1st Alternate

- |      |   |          |   |
|------|---|----------|---|
| 1097 | Aris E Prince,<br>Roshny S<br>Vijayakar | Grade 11 | Has nuclear radiation fallout in Japan and Chernobyl altered plant response to UV-B radiation? A study of Arabidopsis thaliana response to UV-B |
|------|---|----------|---|

#### 2nd Alternate

- |      |                                  |          |  |
|------|----------------------------------|----------|--|
| 1063 | Emily C Alper, Eleanor<br>M Haeg | Grade 12 | Targeting Genes in Salmonella Kentucky Associated With Food-Born Illnesses |
|------|----------------------------------|----------|--|

## 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

1034 Gavin G Ovsak Grade 12 The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production

#### 3M Sponsor Award

1023 Tom Erdmann IV Grade 12 Synthesis and Purification of Novel Indene Derivatives for use in Organic Solar Cells

#### Ecolab Sponsor Award

1095 Aditi Das Grade 9 Understanding Crown Gall Tumor Disease on Plants Through the VirB3 Protein

### Gold Level-Plaque

#### Dow Water and Process Solutions Sponsor Award

1036 Martin Anderson Grade 12 Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods

### Silver Level-Plaque

#### Alliant Techsystems Sponsor Award

1063 Emily C Alper, Eleanor M Haeg Grade 12 Targeting Genes in Salmonella Kentucky Associated With Food-Born Illnesses

#### Midway Party Rental Sponsor Award

8061 Nathaniel I Landin Grade 8 Light 2 Electricity

#### Slattery Sales Group Sponsor Award

1053 David B Fuad Grade 12 Preventing microalgae (*Chlamydomonas reinhardtii*) build-up in photobioreactors for biofuel production efficiency

#### Mintahoe Hospitality Group Sponsor Award

1076 Bo Sun Grade 12 Establishment of long-term cultures of newt cardiomyocytes for use as an in vitro model for heart regeneration

#### St. Paul Youth Fund Sponsor Award

8107 Jacob A Reynolds Grade 8 ACHOO (autosomal dominant compelling helio-ophthalmic outbursts of sneezing) syndrome: The Investigation of Sunlight, Halogen and LED Light Sources on Subjects and Their Effects on the Photic Sneezing Reflex

# Minnesota Academy of Science State Science and Engineering Fair

Projects selected to represent our region in competition March 20-22, 2011

1001	Iman Y Pakzad	Grade 9	The Effect of Water Velocity on Nearest Neighbor Distance in <i>Aphyocharax Anisitsi</i>
1002	Zachary M Reidell	Grade 9	Do Altered Light and Dark Cycles Affect the Circadian Rhythm and Metamorphosis of <i>Danaus Plexippus</i> ?
1005	Maranda L Blackwell	Grade 10	The Effectiveness of Graphic Organizers
1006	Samarth A Damania	Grade 11	Computer Analysis of Player and Team Performance in Professional Halo 3
1007	Danny D Dang	Grade 10	"Remini-Scents" The Effects of Odor on Recollection Ability
1008	Anna Elling	Grade 10	Does Experiencing Physical Warmth Affect Our Feelings About Others?
1009	Abigail K Farmer	Grade 9	Do Males or Females Embrace Delayed Gratification More?
1010	Laura Garbe	Grade 10	Is There a Correlation Between Physical and Mental Brain Hemisphere Preference?
1011	Savannah Lim	Grade 10	The Influences of Packaging Color on Teenage Female Consumers' Preferences of Bottled Bath Products
1012	Rishi Sinha	Grade 11	On the Correlations of Differences in Social Behavior between Genders on Social Networking Sites and in Real Life Studies
1013	Brianna A. Westbrooks	Grade 10	Gender Occupational Stereotypes of 5th Grade Children
1016	Alynie K Xiong	Grade 10	Is Beauty Really in the Eye of the Beholder: A Scientific Study on the General Population's Shared Perception of Beauty and Attractiveness
1018	Tyler R Young-Church	Grade 10	Music's Effects
1019	Ishmam A Ahmed	Grade 11	Regulation of Sonic hedgehog expression and activity during differentiation of human pluripotent stem cells
1020	Evan Chen	Grade 11	Functional Analysis of CD24 in Satellite Cells
1021	Naveen Jain	Grade 11	Mechanism of Tumor Suppression by CHD5
1023	Tom Erdmann IV	Grade 12	Synthesis and Purification of Novel Indene Derivatives for use in Organic Solar Cells
1028	Emily R Cherkassky	Grade 10	Machine Learning for Evidence-Based Medical Diagnosis
1029	Ganesh Raman	Grade 12	Hydrothermal Vent Communities: An investigation into the fundamental cause for extremophile diversity
1030	Nadine M Burkhead	Grade 10	Effect of division of surface area on watts produced by solar cells
1032	Jackson Egert	Grade 9	There's "Something" in My Waste Water
1033	Carissa E Klonecz, Alex J Claseman	Grade 11	Agricultural Biomass: Revamping the World's Energy Sources One Crop at a Time

1034	Gavin G Ovsak	Grade 12	The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production
1035	Andy Ylitalo	Grade 10	Power Up! Dual Rotor Wind Turbine Design
1036	Martin Anderson	Grade 12	Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods
1037	John M Culliton Jr.	Grade 12	Engineering Engine Maps to Determine Peak Efficiency of a Hydraulic Hybrid Off-Road Utility Vehicle
1038	Hari Ganti	Grade 12	Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow
1042	Matthew C Hackner	Grade 12	Improving efficiency of organic solar cells through fluorescence quenching of poly-3-hexylthiophene
1044	Duligur Ibeling	Grade 11	Shape-memory Liquid-crystalline Polymers with Cholesterol Mesogen
1046	Addison L Weiler	Grade 12	Improving Efficiency of Organic Solar Cells Using Lead Phthalocyanine
1048	Juana M Espinoza, Michelle J LaGarde	Grade 11	Wetland Health Evaluation: Replacing Bottle Traps With Hester Dendy Traps, Year Two
1049	Brandon Banh	Grade 10	The Effects of a Solar Cell's Angle Compared to the Amount of Electricity Generated
1050	Tim Bergeland	Grade 9	The Effect of Vermicompost Diet on Casting pH and NPK
1053	David B Fuad	Grade 12	Preventing microalgae ( <i>Chlamydomonas reinhardtii</i> ) build-up in photoboreactors for biofuel production efficiency
1056	Olivia J Newman	Grade 10	Effects of Sulfuric Acid Solution on Red Wrigler Worms in Different Soils
1057	Lisa K Persson	Grade 10	Home energy efficiency improvement with targeted venting
1059	Miranda N Smith	Grade 9	The Neutralization of Acid Rain
1061	Paimon Y Pakzad	Grade 11	Characterization Of Benign Nevi And Malignant Melanoma Using Signature Curves
1062	Redeat F Abegaz	Grade 10	Effects of Benzoyl Peroxide and Salicylic Acid on <i>Escherichia Coli</i>
1063	Emily C Alper, Eleanor M Haeg	Grade 12	Targeting Genes in <i>Salmonella</i> Kentucky Associated With Food-Born Illnesses
1064	Thatcher Banh, Sierra M Adrian	Grade 11	Modulation of Phagocytosis by Morphine and Hypoxia
1065	Anushua Bhattacharya	Grade 11	Silver Nanoparticles Affect Cell Messenger Delivery
1067	James M Chen	Grade 11	Non-invasive Imaging of Oxygen Metabolism in Diseased Brain
1069	Heather M Huna	Grade 9	Spice it Up! The Effects of Turmeric on Planarian Regeneration
1070	Caleb Kumar	Grade 10	Designing a Java Program to Diagnose Bladder Cancer

1072	Michael L Portu	Grade 12	Loading Forces Experienced by Heart during High School Athletic Impacts
1073	Christina A Sahli	Grade 10	The Effect of Gender and Senescence on Preference Toward Models That Insinuate Benevolence or Abhorrence
1076	Bo Sun	Grade 12	Establishment of long-term cultures of newt cardiomyocytes for use as an in vitro model for heart regeneration
1077	Lawrence Wang	Grade 12	The Role of Bile Acids in Cryopreservation Injury of Kidney
1079	Sid Gopinath, Sachin Rao	Grade 10	Determining the Relative Effectiveness of Water Purification Techniques Used in Developing Nations
1082	Rebecca M Southern, Cara K Kowalchuk	Grade 12	Investigating the use of Pseudomonas putida Fu1 to clean up toxic furan agricultural byproducts
1087	Jacob Derechin	Grade 12	Does Adding Streamers To A Wing Increase The Lift Force?
1089	Alysia R Flores	Grade 12	Engineering a Working Mode of The Casimir Effect
1093	Alexander Spencer	Grade 11	An Exploration of Magnetism in Thin Film Strained LaCoO3
1095	Aditi Das	Grade 9	Understanding Crown Gall Tumor Disease on Plants Through the VirB3 Protein
1097	Aris E Prince, Roshny S Vijayakar	Grade 11	Has nuclear radiation fallout in Japan and Chernobyl altered plant response to UV-B radiation? A study of Arabidopsis thaliana response to UV-B
1099	Amy M Wen	Grade 12	Effect of Compost Amendments on Sandy Soil for Sustainability: Vegetative Health and Water-Holding Capacity
7004	Laurel M Neufeld	Grade 7	flytube: Male Fruit Flies and Their Preferences
7005	Katy I Baker	Grade 7	The effect of ages of individuals on influence when shown biased information
7015	Ellie T Thorsgaard	Grade 7	Eating Modeling
7020	Ryan R. Crotty	Grade 7	Stain, Stain Go Away
7028	Tyler S Radtke	Grade 7	Which Orange Juice Has the Most Vitamin C?
7029	Sam R Rocheford	Grade 7	What's in your cooking oil?
7044	Michael W Hughes	Grade 7	Heating Metals
7047	Carolyn K Jons	Grade 7	The Effect of Soap Bubble Size on the Insulative Abilities of Foams
7049	Kobe I Peters Ehrlich	Grade 7	Solar Power
7051	Emma C Faust	Grade 7	Does Battery Storage Temperature Affect Performance?
7053	Geordie S Roscoe, Fernando A Arias	Grade 7	Motor Strength
7056	Louis W Glewwe	Grade 7	Sand/ Cement Ratio: Does it Affect a Brick's Strength?
7060	Sarah Verdoorn	Grade 7	Stick It

7063	Katherine B. Hughes Ms	Grade 7	The Effect of Oils on Elodea
7064	Roman D Kouznetsov, Jack T Oster	Grade 7	Investigation of Effectiveness of Household Materials as Oil Absorbents and Dispersants
7070	Ridhima Mishra	Grade 7	pH Power: A Yummy Eco - Friendly Alternative to Batteries
7074	Gregory R Sercombe	Grade 7	The Rate of Degradation of SunChips Bags
7077	William B Anderson	Grade 7	Chaos Triangles: Are You More Random Than a Computer?
7078	Madison R Huna, Annabelle Hearne	Grade 7	Pitter Patter Goes My Heart: The Effect of Caffeine on Heart Rate in Daphnia magna
7080	Maddie McConkey, Clare Lothenbach	Grade 7	Crazy Carrots
7082	Aisha Tahir	Grade 7	Does age affect heart rate recovery time?
7086	Avery Q Larsson	Grade 7	How Does Packaging Affect Meat Spoilage?
7092	Kayley R Winkelman, Abrielle Prunty	Grade 7	Ugh! Whose Mouth Did That Come From?
7098	Meara H Cline	Grade 7	Throwing Straight with Added Weight: A study of how Weight
7099	Frances G. Fuller	Grade 7	An Investigation of the effects of Newton's Laws in terms of the human body in motion
7103	Daniel Kiely	Grade 7	Eddy Current Braking
7117	Haley LaValle	Grade 7	Stop the Rot
7120	Morrison A Robblee	Grade 7	Growing Organic and Non-Organic Potatoes
7122	Audrey M Sheehy	Grade 7	Hydroponics vs. Ionized Hydroponics
7125	Jack T Warmka	Grade 7	Do different types of ice melt affect plant growth?
8002	Kasey J Kalthoff	Grade 8	Clean Me!
8004	Mary C Polak	Grade 8	Does dog saliva kill bacteria?
8007	Duncan E Anderson	Grade 8	Sterotyping and its Diverse Effects
8009	Emily J Blosberg	Grade 8	Remember That?
8017	Anna K Fryxell	Grade 8	Mirror Tracing and Math
8021	Paul Ihlenfeldt	Grade 8	Disfluency In Education: How Font Affects Memory
8027	Zach Smith, Malik Bowen, Isaiah Bigger	Grade 8	The Effects of Shooting Position on the Trajectory of a Basketball
8028	Camille I Smith	Grade 8	Does Sensory Deprivation Affect Retention of Content?
8029	Abby M Vidmar	Grade 8	Multitasking Minds: Not As Effective As We Think
8032	Maddie Caruso	Grade 8	Save My Fruit!
8038	Nathan M Carroll	Grade 8	The Energy Outputs of Biofuels and Fossil Fuel
8053	Wencel T Kust	Grade 8	Gearng

8058	Hannah K Weissman	Grade 8	How the Number of Fan Blades and the Shape of the Fan Blade Affect the Energy Produced.
8059	Branick D Weix	Grade 8	What is the best angle for a belly fairing on a semi-truck to reduce drag?
8061	Nathaniel I Landin	Grade 8	Light 2 Electricity
8064	Maria K Neuzil	Grade 8	To Catch a Thief: The Effectiveness of Different Lengths of Wire for a Small, Battery-Operated Burglar Alarm
8074	Micaela J Yarosh	Grade 8	The Sound of Music
8080	Jenna J Grundtner	Grade 8	C02 and Plant Growth
8082	Matthew R Michalski Jr	Grade 8	The Effect of Biomanipulation in Stormwater Ponds
8087	Colin D Salchow	Grade 8	Insulation testing
8091	Jupiter U.G. Adams-Phipps	Grade 8	Enhancing CSF
8101	Mikayla M Klein	Grade 8	Dancing on the Brain
8108	Morgan J Riddle Kimm	Grade 8	Does Age Affect Retinal Glare Recovery?
8119	Ellen M Bakke	Grade 8	How Does Solar Panel Angle Affect Electricity Production?
8122	Carolyn A Klaesges	Grade 8	Parachute
8133	Kelly J Reger	Grade 8	The Soil of the Future: Hydroponics, Aeroponics, or Soil?

## **The Broadcom MASTERS (Math, Applied Science, Technology and Engineering for Rising Stars), Society for Science & the Public**

Top grade 6-8 students nominated to compete nationally online where they will explain their science project and demonstrate their use of STEM principles - science, technology, engineering and math - in the development and presentation of their project.

### **Twin Cities**

7078	Madison R Huna, Annabelle Hearne	Grade 7	Pitter Patter Goes My Heart: The Effect of Caffeine on Heart Rate in Daphnia magna
6004	Mamie Thrall	Grade 6	Which Natural Pesticide is Safest for Honeybees?
7028	Tyler S Radtke	Grade 7	Which Orange Juice Has the Most Vitamin C?
8080	Jenna J Grundtner	Grade 8	C02 and Plant Growth
6045	Jacob T Edwards	Grade 6	Does changing a baseball bat's core material affect the distance of a hit ball?
7125	Jack T Warmka	Grade 7	Do different types of ice melt affect plant growth?
7004	Laurel M Neufeld	Grade 7	flytube: Male Fruit Flies and Their Preferences
8053	Wencel T Kust	Grade 8	Gearng
7070	Ridhima Mishra	Grade 7	pH Power: A Yummy Eco - Friendly Alternative to Batteries
7063	Katherine B. Hughes Ms	Grade 7	The Effect of Oils on Elodea

8061 Nathaniel I Landin Grade 8 Light 2 Electricity  
 8002 Kasey J Kalthoff Grade 8 Clean Me!

## Western Suburbs

8133 Kelly J Reger Grade 8 The Soil of the Future: Hydroponics, Aeroponics, or Soil?  
 7047 Carolyn K Jons Grade 7 The Effect of Soap Bubble Size on the Insulative Abilities of Foams  
 6011 Carson Knoer Grade 6 Do Different Cooking Methods Affect The Amount Of Vitamin C In Vegetables  
 7122 Audrey M Sheehy Grade 7 Hydroponics vs. Ionized Hydroponics  
 7080 Maddie McConkey, Clare Grade 7 Crazy Carrots  
 Lothenbach  
 7053 Geordie S Roscoe, Grade 7 Motor Strength  
 Fernando A Arias  
 7060 Sarah Verdoorn Grade 7 Stick It  
 7103 Daniel Kiely Grade 7 Eddy Current Braking

## St. Paul

6020 Ezekial DR Pauls Grade 6 Parabolic Solar Energy  
 8074 Micaela J Yarosh Grade 8 The Sound of Music  
 6055 Brian R Whelan Grade 6 How Safe Are Hockey Helmets?  
 8082 Matthew R Michalski Grade 8 The Effect of Biomanipulation in Stormwater Ponds  
 Jr  
 8021 Paul Ihlenfeldt Grade 8 Disfluency In Education: How Font Affects Memory  
 7086 Avery Q Larsson Grade 7 How Does Packaging Affect Meat Spoilage?  
 7015 Ellie T Thorsgaard Grade 7 Eating Modeling  
 8059 Branick D Weix Grade 8 What is the best angle for a belly fairing on a semi-truck to reduce drag?  
 8101 Mikayla M Klein Grade 8 Dancing on the Brain  
 6037 Shannon M Grade 6 I Didn't See That Coming!  
 Ostenby  
 7098 Meara H Cline Grade 7 Throwing Straight with Added Weight: A study of how Weight  
 6034 Mackenzie F Zenk Grade 6 Go With The Flow  
 6008 Molly E. Johnson Grade 6 The Effect of Temperature on Yeast Production

## Top Ranking High School Papers

Grades 9-12

### 1st Place HS Research Paper Trophy

175 Caleb Kumar Grade 10 Designing a Java Program to Diagnose Bladder Cancer

### 2nd Place HS Research Paper Trophy

137 Aditi Grade 9 Understanding Crown Gall Tumor Disease on Plants Through the VirB3



Das

Protein

**3rd Place HS Research Paper Trophy (tie)**

174 Prithwis K Mukhopadhyay Grade 12 Distinct Cellular Signaling Mechanism of Carrageenan-Induced Premalignant Transformation of Mammary Epithelial Cells

**3rd Place HS Research Paper Trophy (tie)**

154 Sarah Davidson Grade 10 Differences in Responses to Frustration by Gender

**High School Research Papers Selected for Competition at the Tri-State Junior Science and Humanities Symposium**

North Central JSHS, March 19-20, 2011

105	Martin Anderson	Grade 12	Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods
106	Gavin G Ovsak	Grade 12	The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production
110	David B Fuad	Grade 12	Preventing microalgae ( <i>Chlamydomonas reinhardtii</i> ) build-up in photobioreactors for biofuel production efficiency
123	Megan Ruan	Grade 10	Study of algae biomass growth in concentrated wastewater aided by exogenous CO <sub>2</sub>
127	Iman Y Pakzad	Grade 9	The Effect of Water Velocity on Nearest Neighbor Distance in <i>Aphyocharax Anisitsi</i>
128	Aris E Prince, Roshny S Vijayakar	Grade 11	Has nuclear radiation fallout in Japan and the Chernobyl area altered plant response to UV-B radiation? A study of <i>Arabidopsis thaliana</i> response to UV-B
132	Rebecca M Southern, Cara K Kowalchuk	Grade 12	Investigating the use of <i>Pseudomonas putida</i> Fu1 to clean up toxic furan agricultural byproducts
133	Evan Chen	Grade 11	Functional Analysis of CD24 in Satellite Cells
136	Naveen Jain	Grade 11	Mechanism of Tumor Suppression by CHD5
137	Aditi Das	Grade 9	Understanding Crown Gall Tumor Disease on Plants Through the VirB3 Protein
138	Paimon Y Pakzad	Grade 11	Characterization Of Benign Nevi And Malignant Melanoma Using Signature Curves
147	Bo Sun	Grade 12	Establishment of long-term cultures of newt cardiomyocytes for use as an in vitro model for heart regeneration
149	Savannah Lim	Grade 10	The Influences of Packaging Color on Teenage Female Consumers' Preferences of Bottled Bath Products
151	Alynie K Xiong	Grade 10	Is Beauty Really in the Eye of the Beholder: A Scientific Study on the General Population's Shared Perception of Beauty and Attractiveness

154	Sarah Davidson	Grade 10	Differences in Responses to Frustration by Gender
155	Anushua Bhattacharya	Grade 11	Silver Nanoparticles Affect Cell Messenger Delivery
157	Anna Elling	Grade 10	Does Experiencing Physical Warmth Affect Our Feelings About Others?
159	Josiah R Parotti- Walter	Grade 10	Effects of Test Anxiety on Test Scores
164	James M Chen	Grade 11	Non-invasive Imaging of Oxygen Metabolism in Diseased Brain
167	Samarth A Damania	Grade 11	Computer Analysis of Player and Team Performance in Professional Halo 3
169	Heather M Huna	Grade 9	Spice it Up! The Effects of Turmeric on Planarian Regeneration
171	Hannah Borowsky	Grade 12	Adolescent Smokers' Perceived Risk of Cigarette Use
174	Prithwis K Mukhopadhyay	Grade 12	Distinct Cellular Signaling Mechanism of Carrageenan-Induced Premalignant Transformation of Mammary Epithelial Cells
175	Caleb Kumar	Grade 10	Designing a Java Program to Diagnose Bladder Cancer
179	Quyen T Nguyen	Grade 10	Effects of Time Pressure as a Stressor on Academic Accuracy
181	Britta L Riggs	Grade 10	Mouthwash Versus Bacteria; Does Mouthwash Really Kill Bacteria?
183	Emily M Wollmuth	Grade 10	The Effects of Mozart's Music on Mathematics Test Scores in Sixth Grade Students
184	Lawrence Wang	Grade 12	The Role of Bile Acids in Cryopreservation Injury of Kidney
186	Jacob M Karr	Grade 10	Filaments: They changed the world
188	Jien Nee Tai	Grade 11	The Effect of Golf Ball Compression On Its Carry and Roll Distances: A case study of the Bridgestone Tour B330 Series
190	Austin A Gromatzky	Grade 12	Using Force Analysis and Linearization to Determine the Coefficient of Drag of an Automobile
191	Brett E Szalapski	Grade 12	Experimental Determination of the Point of Optimal Impact on a Baseball Bat
193	Zayn Tajamal	Grade 11	Electrolyte Comparison: Sports Drinks, Pop, and Water.
204	Jonathan Z Liu	Grade 12	Design and Analysis of a Tunable Superlens

## Top Ranking Middle School Papers

Grades 6-8

### 1st Place MS Research Paper Trophy

502	Carolyn K Jons	Grade 7	The Effect of Soap Bubble Size on the Insulative Abilities of Foams
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### 2nd Place MS Research Paper Trophy

524	Maxine I Lightfoot	Grade 7	the affect of age on perception of time
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### 3rd Place MS Research Paper Trophy

530	Madison R Huna, Annabelle Hearne	Grade 7	Pitter Patter Goes My Heart: The Effect of Caffeine on Heart Rate in Daphnia magna
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## Middle School Research Papers Selected for Competition at the Minnesota State Science & Engineering Fair

Symposium style presentation of research papers grades 7-8 - March 20-22, 2011

501	Micaela J Yarosh	Grade 8	The Sound of Music
502	Carolyn K Jons	Grade 7	The Effect of Soap Bubble Size on the Insulative Abilities of Foams
504	Gregory R Sercombe	Grade 7	The Rate of Degradation of SunChips Bags
512	Kelly J Reger	Grade 8	The Soil of the Future: Hydroponics, Aeroponics, or Soil?
517	Emily J Blosberg	Grade 8	Remember That?
522	Camille I Smith	Grade 8	Sensory Deprivation and Learning: A Study of the Effects of Reduced Stimuli in the Classroom
524	Maxine I Lightfoot	Grade 7	the affect of age on perception of time
530	Madison R Huna, Annabelle Hearne	Grade 7	Pitter Patter Goes My Heart: The Effect of Caffeine on Heart Rate in Daphnia magna
533	Sam R Rocheford	Grade 7	Saturated Fats in Cooking Oils
538	Siddharth Sridher	Grade 7	Can hot water freeze faster than cold water?

## Project Medalist

### 6th Grade Project Medalist

6020	Ezekial DR Pauls	Grade 6	Parabolic Solar Energy
6004	Mamie Thrall	Grade 6	Which Natural Pesticide is Safest for Honeybees?
6055	Brian R Whelan	Grade 6	How Safe Are Hockey Helmets?
6011	Carson Knoer	Grade 6	Do Different Cooking Methods Affect The Amount Of Vitamin C In Vegetables
6045	Jacob T Edwards	Grade 6	Does changing a baseball bat's core material affect the distance of a hit ball?
6037	Shannon M Ostenby	Grade 6	I Didn't See That Coming!
6034	Mackenzie F Zenk	Grade 6	Go With The Flow
6008	Molly E. Johnson	Grade 6	The Effect of Temperature on Yeast Production
6042	Emma Davies	Grade 6	It's A Mouthful
6006	Stephanie Roberts	Grade 6	Does the Color of the Paper Affect the Score of a Math Test?
6036	Jane Kolar	Grade 6	Does Exercise Affect Vital Lung Capacity?
6043	Noah Rooze	Grade 6	Bacteria Vs Plants

## 3M Renewable Energy Award

plaque and \$100.

## High School - 3M Renewable Energy

- |      |                  |          |  |
|------|------------------|----------|--|
| 1034 | Gavin G Ovsak    | Grade 12 | The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production |
| 1046 | Addison L Weiler | Grade 12 | Improving Efficiency of Organic Solar Cells Using Lead Phthalocyanine                                  |

## Middle School - 3M Renewable Energy

- |      |                               |         |   |
|------|-------------------------------|---------|---|
| 7042 | Zarek D Drozda, Jack T McCabe | Grade 7 | Gone With the Wind  |
| 8119 | Ellen M Bakke                 | Grade 8 | How Does Solar Panel Angle Affect Electricity Production? |
| 7049 | Kobe I Peters Ehrlich         | Grade 7 | Solar Power   |

## Almost Perfect Teacher Award

Rob Rand, Cyber Village Academy, St. Paul

## Almost Perfect Teacher Award

Jodie Hardenbrook, Odyssey Charter School, Brooklyn Center

## American Chemical Society

- Certificate & cash

- |      |                |          |   |
|------|----------------|----------|---|
| 1023 | Tom Erdmann IV | Grade 12 | Synthesis and Purification of Novel Indene Derivatives for use in Organic Solar Cells |
|------|----------------|----------|---|

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

### Overall Grand Award

calculator

- |      |              |          |  |
|------|--------------|----------|--|
| 1035 | Andy Ylitalo | Grade 10 | Power Up! Dual Rotor Wind Turbine Design |
|------|--------------|----------|--|

### Honor Award

- |      |                                    |         |   |
|------|------------------------------------|---------|---|
| 6023 | Rachel Petruconis                  | Grade 6 | Ready, Set, Freeze!   |
| 6041 | Jack Will                          | Grade 6 | The Biomechanics of Lifting Measuring Low Back Stress with a Mechanical Model           |
| 7053 | Geordie S Roscoe, Fernando A Arias | Grade 7 | Motor Strength  |
| 7056 | Louis W Glewwe                     | Grade 7 | Sand/ Cement Ratio: Does it Affect a Brick's Strength?                                  |
| 8058 | Hannah K Weissman                  | Grade 8 | How the Number of Fan Blades and the Shape of the Fan Blade Affect the Energy Produced. |
| 8070 | John W Leinberger                  | Grade 8 | The Effects of Nose Cone Shape on the Altitude of a Model Rocket                        |

- 1049 Brandon Banh      Grade 10    The Effects of a Solar Cell's Angle Compared to the Amount of Electricity Generated
- 1034 Gavin G Ovsak      Grade 12    The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production

## American Meteorological Society Award

Certificates for outstanding achievements in Meteorological Science

### Twin Cities

- 8080 Jenna J Grundtner    Grade 8    CO<sub>2</sub> and Plant Growth
- 6027 Ethan A Davenport    Grade 6    North vs South: pH water Testing

### Western Suburbs

- 8050 Charlotte C Cowdery, Claudia Cerda-Escobar      Grade 8    Water Quality in Minneapolis Lakes
- 1059 Miranda N Smith      Grade 9    The Neutralization of Acid Rain

### St. Paul

- 7075 Laura J Souther    Grade 7    Rain Rain Go Away! Come Again a Cleaner Way!
- 7069 Keith B Eicher      Grade 7    How does the acidity of a plants water affect its height?

## American Psychological Association Award

Certificate

### Twin Cities

- 1073 Christina A      Grade 10    The Effect of Gender and Senescence on Preference Toward Models That Insinuate Benevolence or Abhorrence

### Western Suburbs

- 1006 Samarth A      Grade 11    Computer Analysis of Player and Team Performance in Professional Halo 3

### St. Paul

- 1017 Loelue Yang    Grade 9    Music Memory

## ASM International Materials Education Foundation Award

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

### Twin Cities

- 1045 Monica      Grade 11    Slippery When Wet? An Analysis of Coefficient of Friction Under Varied Loading Conditions

### Western Suburbs

- 1046 Addison L      Grade 12    Improving Efficiency of Organic Solar Cells Using Lead

Weiler

Phthalocyanine

**St. Paul****Association of Women Geoscientists**

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

**Twin Cities**

8086 Emily Roznowski Grade 8 Lead N' Lakes: Which Areas Around Lake Superior Contain Lead?

**Western Suburbs**

8089 Rachel S. Woell Grade 8 Acid Rain

**St. Paul**

7068 Grace M Clark Grade 7 Sedimental Journey: River Current and its Effects on Water Clarity

**Glen & Jacob Domeier Memorial Award**

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

6034 Mackenzie F Zenk Grade 6 Go With The Flow

1050 Tim Bergeland Grade 9 The Effect of Vermicompost Diet on Casting pH and NPK

**Graduate Women In Science Award**

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

**Grade 6**

6008 Molly E. Johnson Grade 6 The Effect of Temperature on Yeast Production

**Grade 7**

7080 Maddie McConkey, Clare Lothenbach Grade 7 Crazy Carrots

**Grade 8**

8101 Mikayla M Klein Grade 8 Dancing on the Brain

**Grade 9**

1059 Miranda N Smith Grade 9 The Neutralization of Acid Rain

**Grade 10**

1073 Christina A Sahli Grade 10 The Effect of Gender and Senescence on Preference Toward Models That Insinuate Benevolence or Abhorrence

**Grade 11**

1033 Carissa E Kloncz, Alex J Grade 11 Agricultural Biomass: Revamping the World's Energy  
Claseman Sources One Crop at a Time

## Grade 12

1063 Emily C Alper, Eleanor Grade 12 Targeting Genes in Salmonella Kentucky Associated  
M Haeg With Food-Born Illnesses

## Integrated Approach to Science

\$50 cash, certificate, and book

### High School

1016 Alynie K Grade 10 Is Beauty Really in the Eye of the Beholder: A Scientific Study on  
Xiong the General Population's Shared Perception of Beauty and  
Attractiveness

1060 Alexis C Grade 10 The formulation of an algorithm to decipher a Rubik's Cube via  
Bayless three explicit sequences

### Middle School

7011 Ethan Levin Grade 7 How does ethnicity and gender affect stress level in 4th and 5th  
graders?

6011 Carson Grade 6 Do Different Cooking Methods Affect The Amount Of Vitamin C In  
Knoer Vegetables

## Intel Excellence in Computer Science Award

Certificate and \$200 (check in the mail)

### Twin Cities

1036 Martin Grade 12 Specific Impulse of Traditional Black Powder Rocket Engines in  
Anderson the Pyrotechnics Industry: Engineering an Improved Static Test  
Apparatus / Utilizing it to Analyze Performance and Quality of  
Traditional Versus Modern Manufacturing Methods

### Western Suburbs

1070 Caleb Kumar Grade 10 Designing a Java Program to Diagnose Bladder Cancer

### St. Paul

1089 Alysia R Flores Grade 12 Engineering a Working Mode of The Casimir Effect

## ISEF Alumni Awards

Former ISEF Finalists recognizing up-and-coming young scientists

### Sponsor: Michael Lohman, Jr

One hour in Flight Simulator

7120 Morrison A Robblee Grade 7 Growing Organic and Non-Organic Potatoes

### Sponsor: Kyrstin Underbakke

**Certificate & Vivitar First Microscope kit**

8107 Jacob A Reynolds Grade 8 ACHOO (autosomal dominant compelling helio-ophthalmic outbursts of sneezing) syndrome: The Investigation of Sunlight, Halogen and LED Light Sources on Subjects and Their Effects on the Photic Sneezing Reflex

**Sponsor: Kyra Underbakke****Certificate & Vivitar First Microscope kit**

8028 Camille I Smith Grade 8 Does Sensory Deprivation Affect Retention of Content?

**Sponsor: Timara Underbakke****Certificate & \$20 cash**

8074 Micaela J Yarosh Grade 8 The Sound of Music

6004 Mamie Thrall Grade 6 Which Natural Pesticide is Safest for Honeybees?

**Sponsor: Timara Underbakke****Certificate & Vivitar First Microscope kit**

7090 Minna H Thrall Grade 7 Which Honey Has the Least Bacteria: Store-bought or Local?

7088 Timothy A Riethmeier Grade 7 How To Disinfect Contaminated Water

**Caffeinated Student Award Sponsor: Kyra Underbakke****Starbucks gift card**

1023 Tom Erdmann IV Grade 12 Synthesis and Purification of Novel Indene Derivatives for use in Organic Solar Cells

**ISWEEEP**

Outstanding Projects to Participate in International Sustainable World (Energy, Engineering, & Environment) Project Olympiad; Houston, TX, May 4-9, 2011

**ISWEEEP Finalists, May 4-8, 2011 in Houston, TX**

These projects bypass the prequalification round of ISWEEEP. 2011 Airfare paid for student by TCRSF

1042 Matthew C Hackner Grade 12 Improving efficiency of organic solar cells through fluorescence quenching of poly-3-hexylthiophene

1038 Hari Ganti Grade 12 Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow

1049 Brandon Banh Grade 10 The Effects of a Solar Cell's Angle Compared to the Amount of Electricity Generated

1053 David B Fuad Grade 12 Preventing microalgae (*Chlamydomonas reinhardtii*) build-up in photoboreactors for biofuel production efficiency

**Recommended to Compete at ISWEEEP**

These projects are recommended to apply to compete at ISWEEEP.

1057 Lisa K Persson Grade 10 Home energy efficiency improvement with targeted venting



- 1037 John M Culliton Jr. Grade 12 Engineering Engine Maps to Determine Peak Efficiency of a Hydraulic Hybrid Off-Road Utility Vehicle
- 1030 Nadine M Burkhead Grade 10 Effect of division of surface area on watts produced by solar cells
- 1044 Duligur Ibeling Grade 11 Shape-memory Liquid-crystalline Polymers with Cholesterol Mesogen

## Joel Wagner Caring Bridge Award

Trophy & \$50 to the best cancer research project

- 1021 Naveen Jain Grade 11 Mechanism of Tumor Suppression by CHD5

## Killeen Memorial Award

Trophy to the student who best shows inspiration for their project

- 7085 Joseph Harvey Grade 7 Garlic and Bacteria

## Minnesota Agriculture in the Classroom

Certificate & \$75 check in the mail

### Project Senior High

- 1099 Amy M Wen Grade 12 Effect of Compost Amendments on Sandy Soil for Sustainability: Vegetative Health and Water-Holding Capacity

### Project Junior High

- 7116 Jacob Koppendrayar Grade 7 Weed War: the impact of winter rye on weeds

### Paper Senior High

- 116 Carissa E Kloncz, Alex J Claseman Grade 11 Agricultural Biomass: Revamping the World's Energy Sources One Crop at a Time

### Paper Junior High

- 511 Max Ylitalo Grade 7 The effects of storage time and storage conditions on bacteria levels in pasteurized milk

## Minnesota Astronomical Society

- certificate & prize packet

- 6020 Ezekial DR Pauls Grade 6 Parabolic Solar Energy
- 6048 Michael J Munson Grade 6 Color Light Penetration
- 7095 Mikaela J Amundson Grade 7 Does the speed of light differ when measured through different amounts of sugar in gelatin?
- 7099 Frances G. Fuller Grade 7 An Investigation of the effects of Newton's Laws in terms of the human body in motion
- 7110 Jordan D Thompson Grade 7 Magnetometer

1089 Alysia R Flores Grade 12 Engineering a Working Mode of The Casimir Effect

## Minnesota Chapter of American Fisheries Society

### Senior High

- Certificate & Fishing equipment

1001 Iman Y Grade 9 The Effect of Water Velocity on Nearest Neighbor Distance in  
Pakzad Aphyocharax Anisitsi

### Senior High

- Book

1029 Ganesh Grade 12 Hydrothermal Vent Communities: An investigation into the  
Raman fundamental cause for extremophile diversity

### Junior High

- Certificate & Fishing equipment

8082 Matthew R Michalski Jr Grade 8 The Effect of Biomanipulation in Stormwater Ponds

### Junior High

- Book

8005 Liam E Spencer Grade 8 Does Tank Size affect Fish Growth

## Minnesota Space Frontier Society Award

- certificate & prize packet

6047 James A Grade 6 Airplanes  
Klaesges

6053 Amelia R Grade 6 Gravity and Newton's Second Law of Motion  
Walker

7106 Maitreya A Grade 7 The Perfect Wing  
Mujumdar,  
Jonathan Luk

8053 Wencel T Kust Grade 8 Gearng

8070 John W Grade 8 The Effects of Nose Cone Shape on the Altitude of a Model  
Leinberger Rocket

8122 Carolyn A Grade 8 Parachute  
Klaesges

8123 Michael Ochs Grade 8 Shear Power

1031 Cole M Dunlap, Grade 9 Solar Power  
Jeffrey Bissoy-  
Mattis

1036 Martin Grade 12 Specific Impulse of Traditional Black Powder Rocket Engines  
Anderson in the Pyrotechnics Industry: Engineering an Improved Static  
Test Apparatus / Utilizing it to Analyze Performance and  
Quality of Traditional Versus Modern Manufacturing  
Methods

- 1038 Hari Ganti Grade 12 Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow
- 1087 Jacob Derechin Grade 12 Does Adding Streamers To A Wing Increase The Lift Force?
- 1029 Ganesh Raman Grade 12 Hydrothermal Vent Communities: An investigation into the fundamental cause for extremophile diversity

## Mu Alpha Theta Award

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

### Twin Cities

- 1035 Andy Ylitalo Grade 10 Power Up! Dual Rotor Wind Turbine Design

### Western Suburbs

- 1038 Hari Ganti Grade 12 Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow

### St. Paul

- 1085 Walter A Aguilar Grade 9 How Fast Can You Flow?

## National Society of Professional Engineers

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

### Twin Cities

- 1036 Martin Anderson Grade 12 Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods

### Western Suburbs

- 1038 Hari Ganti Grade 12 Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow

### St. Paul

- 8074 Micaela J Yarosh Grade 8 The Sound of Music

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

- Certificate & medallion

### Twin Cities

- 1048 Juana M Espinoza, Michelle J LaGarde Grade 11 Wetland Health Evaluation: Replacing Bottle Traps With Hester Dendy Traps, Year Two

### Western Suburbs

7076 JJ Wahlquist Grade 7 Acid Rain, the Silent Killer

## St. Paul

8090 Katie I Wollmering Grade 8 The Effect Of Still Design On The Collection Of Purified Drinking Water

## Outstanding Volunteerism Award (Nokomis Club) - 2011 for their plaque and many, many, many thanks for their hard work!

## Promotion of Justice & Peace Award Sponsored by Justice & Peace Studies at the University of St. Thomas

- certificate & \$100 to project that addresses a social or environmental problem, provides better understanding of problem, proposes a solution, & considers sustainability & ethical questions

1079 Sid Gopinath, Sachin Rao Grade 10 Determining the Relative Effectiveness of Water Purification Techniques Used in Developing Nations

## Radio City Award

- Awarded to Best Amateur Radio project

1039 Tristan S. Kusner Grade 9 The effects of filament voltage and antenna length on radio performance

## 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

1048 Juana M Espinoza, Michelle J LaGarde Grade 11 Wetland Health Evaluation: Replacing Bottle Traps With Hester Dendy Traps, Year Two

## Western Suburbs

1099 Amy M Wen Grade 12 Effect of Compost Amendments on Sandy Soil for Sustainability: Vegetative Health and Water-Holding Capacity

## St. Paul

8082 Matthew R Michalski Jr Grade 8 The Effect of Biomanipulation in Stormwater Ponds

## 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

## Western Suburbs

1020 Evan Chen Grade 11 Functional Analysis of CD24 in Satellite Cells

## Stockholm Junior Water Prize (SJWP)

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

### Twin Cities

- |      |   |          |   |
|------|---|----------|---|
| 1048 | Juana M Espinoza,<br>Michelle J LaGarde | Grade 11 | Wetland Health Evaluation: Replacing Bottle Traps With Hester Dendy Traps, Year Two |
| 1055 | Cheyenne Mason-Brousseau                | Grade 10 | Twin Cities Meltwater: Cyanide  |
| 1084 | Antonio Trinh                           | Grade 10 | An Analysis of Bacteria, PH, and Chlorine in the Schools Water Supplies             |

### Western Suburbs

- |      |                             |          |   |
|------|-----------------------------|----------|---|
| 1079 | Sid Gopinath,<br>Sachin Rao | Grade 10 | Determining the Relative Effectiveness of Water Purification Techniques Used in Developing Nations          |
| 1099 | Amy M Wen                   | Grade 12 | Effect of Compost Amendments on Sandy Soil for Sustainability: Vegetative Health and Water-Holding Capacity |
| 1059 | Miranda N Smith             | Grade 9  | The Neutralization of Acid Rain   |

## Students Achieving Volunteering Excellence (SAVE)

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

### Grade 6

- |      |            |         |   |
|------|------------|---------|---|
| 6036 | Jane Kolar | Grade 6 | Does Exercise Affect Vital Lung Capacity? |
|------|------------|---------|---|

### Grade 7

- |      |               |         |  |
|------|---------------|---------|--|
| 7098 | Meara H Cline | Grade 7 | Throwing Straight with Added Weight: A study of how Weight |
|------|---------------|---------|--|

### Grade 8

- |      |                  |         |                              |
|------|------------------|---------|------------------------------|
| 8124 | Tessa A Portuese | Grade 8 | Tennis Balls vs. Temperature |
|------|------------------|---------|------------------------------|

### High School

- |      |                                      |          |   |
|------|--------------------------------------|----------|---|
| 1033 | Carissa E Kloncz, Alex J<br>Claseman | Grade 11 | Agricultural Biomass: Revamping the World's Energy Sources One Crop at a Time |
|------|--------------------------------------|----------|---|

## Twin Cities Regional Science Fair Award

- Science Kit for an Excellent Project

- |      |                          |         |   |
|------|--------------------------|---------|---|
| 6017 | Abby Bollensen           | Grade 6 | Color and Temperature                                     |
| 8097 | Maureen T. Hughes<br>Ms. | Grade 8 | The Effectiveness of SPF Levels                           |
| 8128 | Tou Xiong                | Grade 8 | How does type of ball affect storage of potential energy? |
| 8031 | Lujain A Al-Khawi        | Grade 8 | Vitamin C Concentration in Bell Peppers                   |
| 7041 | Anna L DeVries           | Grade 7 | Wind Wonders  |
| 6004 | Mamie Thrall             | Grade 6 | Which Natural Pesticide is Safest for Honeybees?          |

7065	Marcos Luna	Grade 7	Heat Conservation
6006	Stephanie Roberts	Grade 6	Does the Color of the Paper Affect the Score of a Math Test?
8074	Micaela J Yarosh	Grade 8	The Sound of Music
8123	Michael Ochs	Grade 8	Shear Power
7075	Laura J Souther	Grade 7	Rain Rain Go Away! Come Again a Cleaner Way!
6055	Brian R Whelan	Grade 6	How Safe Are Hockey Helmets?
6035	Austin M Murr	Grade 6	Top Flight

## United States Air Force Awards

- Certificate, computer backpack, charging stand, & flash jotter bundle

### Twin Cities

8061	Nathaniel I Landin	Grade 8	Light 2 Electricity
8062	Emily J Miotke	Grade 8	Heat or Light; Which Affects the Enhancement of a Solar Panel?
8070	John W Leinberger	Grade 8	The Effects of Nose Cone Shape on the Altitude of a Model Rocket
8077	Isabella M Christensen	Grade 8	How Does Compost Create Heat

### Western Suburbs

6047	James A Klaesges	Grade 6	Airplanes
8054	Theresa M Narog	Grade 8	Wind Turbine Efficiency
8056	Chase R Ward	Grade 8	Algae Biofuel
8122	Carolyn A Klaesges	Grade 8	Parachute

### St. Paul

6019	Isaac Etan Morales	Grade 6	At what speed does a 2003 chevy monty carlo get the better gas mileage
6020	Ezekial DR Pauls	Grade 6	Parabolic Solar Energy
7045	Evan P Hulick	Grade 7	How the type of renewable energy affects how much electricity it makes
7099	Frances G. Fuller	Grade 7	An Investigation of the effects of Newton's Laws in terms of the human body in motion

## United States Army Awards

### Best Project

- Certificate, bronze medallion, messenger bag

### Twin Cities

1030	Nadine M Burkhead	Grade 10	Effect of division of surface area on watts produced by solar cells
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**Western Suburbs**

1082 Rebecca M Southern, Grade 12 Investigating the use of *Pseudomonas putida* Fu1 to  
Cara K Kowalchuk clean up toxic furan agricultural byproducts

**St. Paul**

1031 Cole M Dunlap, Jeffrey Bissoy-Mattis Grade 9 Solar Power

**Meritous Project**

- Certificate & messenger bag OR polo shirt

**Twin Cities**

1033 Carissa E Kloncz, Alex J Grade 11 Agricultural Biomass: Revamping the World's Energy  
Claseman Sources One Crop at a Time

1049 Brandon Banh Grade 10 The Effects of a Solar Cell's Angle Compared to the  
Amount of Electricity Generated

1081 Alexis C Kraft Grade 10 Effects of Ultraviolet Light on Bacteria in Water

1054 Isak P Hawkinson Grade 10 Quality of Water and Snow concerning Phosphate,  
Dissolved Oxygen, and Hardness

**Western Suburbs**

1034 Gavin G Ovsak Grade 12 The Creation and Testing of a Fully Submersible Geared  
Water Turbine for Alternative Energy Production

1032 Jackson Egert Grade 9 There's "Something" in My Waste Water

1063 Emily C Alper, Grade 12 Targeting Genes in Salmonella Kentucky Associated With  
Eleanor M Haeg Food-Born Illnesses

1053 David B Fuad Grade 12 Preventing microalgae (*Chlamydomonas reinhardtii*)  
build-up in photoboreactors for biofuel production  
efficiency

**St. Paul**

1085 Walter A Grade 9 How Fast Can You Flow?  
Aguilar

8102 Sarah K Grade 8 The effect of the types of cooked burger patties on the amount of  
Link mold that will grow within three weeks.

1089 Alysia R Grade 12 Engineering a Working Mode of The Casimir Effect  
Flores

8065 Benjamin Grade 8 Propellers  
Pauls

**Commended Award**

- Certificate

**Twin Cities**

1055 Cheyenne Mason- Grade 10 Twin Cities Meltwater: Cyanide  
Brousseau

1035 Andy Ylitalo Grade 10 Power Up! Dual Rotor Wind Turbine Design

1084 Antonio Trinh Grade 10 An Analysis of Bacteria, PH, and Chlorine in the  
Schools Water Supplies

1062 Redeat F Abegaz      Grade 10      Effects of Benzoyl Peroxide and Salicylic Acid on Escherichia Coli

### Western Suburbs

1040 Abhishek Nayar      Grade 9      Scan.Save

1038 Hari Ganti      Grade 12      Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow

### St. Paul

## United States Department of Agricultural Research Award

- Certificate & books

### Twin Cities

7125 Jack T Warmka      Grade 7      Do different types of ice melt affect plant growth?

### Western Suburbs

1082 Rebecca M Southern, Grade 12      Investigating the use of Pseudomonas putida Fu1 to clean up toxic furan agricultural byproducts  
Cara K Kowalchyk

1097 Aris E Prince, Grade 11      Has nuclear radiation fallout in Japan and Chernobyl altered plant response to UV-B radiation? A study of Arabidopsis thaliana response to UV-B  
Roshny S Vijayakar

8133 Kelly J Reger      Grade 8      The Soil of the Future: Hydroponics, Aeroponics, or Soil?

### St. Paul

## United States Metric Association

- Certificate

### Twin Cities

1036 Martin Anderson      Grade 12      Specific Impulse of Traditional Black Powder Rocket Engines in the Pyrotechnics Industry: Engineering an Improved Static Test Apparatus / Utilizing it to Analyze Performance and Quality of Traditional Versus Modern Manufacturing Methods

### Western Suburbs

1042 Matthew C Hackner      Grade 12      Improving efficiency of organic solar cells through fluorescence quenching of poly-3-hexylthiophene

## United States Navy and Marine Corps

### High School Division

certificate & \$50 check (in the mail)

### Twin Cities



1035 Andy Ylitalo Grade 10 Power Up! Dual Rotor Wind Turbine Design

### Western Suburbs

1034 Gavin G Ovsak Grade 12 The Creation and Testing of a Fully Submersible Geared Water Turbine for Alternative Energy Production

1038 Hari Ganti Grade 12 Flying in the Future: Phase Two of Optimizing an Airfoil for Inviscid Airflow

### Junior High Division

certificate

#### Twin Cities

8053 Wencel T Kust Grade 8 Gearng

8055 Brian Rooker Grade 8 Magnetic Levitation

#### Western Suburbs

7047 Carolyn K Jons Grade 7 The Effect of Soap Bubble Size on the Insulative Abilities of Foams

7057 Matthew R Kruse Grade 7 What Type of Thermal Insulation is most Effective

7084 Colin R Glass Grade 7 Water Purification Methods

#### St. Paul

8065 Benjamin Pauls Grade 8 Propellers

8008 Gabriel James Blackburn Grade 8 lie to me

### University of Minnesota College of Science & Engineering

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

1060 Alexis C Bayless Grade 10 The formulation of an algorithm to decipher a Rubik's Cube via three explicit sequences

1049 Brandon Banh Grade 10 The Effects of a Solar Cell's Angle Compared to the Amount of Electricity Generated

1055 Cheyenne Mason-Brousseau Grade 10 Twin Cities Meltwater: Cyanide

1026 Jaclyn R Hinz Grade 10 Homemade Photography

### Yale Science and Engineering Association, Inc.

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

#### Twin Cities

1045 Monica Latapi Grade 11 Slippery When Wet? An Analysis of Coefficient of Friction Under Varied Loading Conditions

#### Western Suburbs

1044 Duligur Ibeling Grade 11 Shape-memory Liquid-crystalline Polymers with Cholesterol Mesogen

1093 Alexander  
Spencer

Grade 11 An Exploration of Magnetism in Thin Film Strained LaCoO<sub>3</sub>