

WELCOME TO THE

**79th Annual Twin Cities Regional Science Fair  
25th Annual St. Paul Science Fair  
23rd Annual Western Suburbs Science Fair**

# **Twin Cities Regional Science Fairs**



**2017**

**February 24 – 25**



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

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**WELCOME TO THE 79th ANNUAL TWIN CITIES REGIONAL SCIENCE FAIR,  
THE 25th ANNUAL ST. PAUL REGIONAL SCIENCE FAIR,  
THE 23rd ANNUAL WESTERN SUBURBS REGIONAL SCIENCE FAIR.**

Our Host this year is the University of Minnesota.

**Students: YOUR NAME BADGE is required both Friday and Saturday.**

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

All projects must have a vertically displayed abstract at their exhibit.

All projects who required a Form 1C (for work done in any site other than home, school or field) and/or Form 7 (for projects that are a continuation from a previous year) must post these vertically on the project exhibit. Save all your project forms after the fair. TCRSF will send project forms to state for those projects advancing to state, but you will still need a copy at your project exhibit during state. Alternates to state: you may be promoted to become a state presenter. Save your display and forms!

1. The number by your name is your project number. It shows you where to set up your project. When you find your place, set up your project. If you ordered electricity, find your place in "Electricity Row."
2. After your project is completely set up, self-check your display to make sure it meets all the requirements on the green Display & Safety checklist. If you need help, ask. Please drop off the Display & Safety page in the **IN BOX at Display & Safety** (next to SRC & Judges areas). You will need to correct any violations before competition.
3. **There is no food or beverage allowed anywhere in the competition area.** A closed bottle of drinking water is the only exception. (Food may be eaten in the lobby area by the concessions food, or very carefully in the bleachers. Keep the Field House clean! )
4. **Wear your TCRSF name badge in a clearly visible place at all times, both Friday and Saturday. Do NOT forget. You need your badge for the awards program!**

**TCRSF requires that ALL TEAM members of team projects must be present** at judging on Friday night and that all ISEF winners must be at the Saturday Awards Ceremony (unless cleared by the fair director and the SRC chair). Winners of **sponsor's awards must be present** at the Saturday Awards Ceremony to win, have their photo taken with their award and have a signed parental consent form already on file with TCRSF. An alternate will become the winner if the student winner is not present.

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

**Green, Red, and Blue ribbon winners are all eligible to win special awards. Some special awards are specifically for certain fields of science or other criteria that are separate from the ribbon earned.** All students: please listen carefully for your name during the awards program on Saturday. In order to shorten the awards program, the large groups of winners will be posted on a bulletin board Saturday morning in lieu of the students being all called up to the podium. The winners and alternates will receive instructions and/or a purple ribbon or a certificate in their project or paper envelope. **Alternates have an excellent chance of being advanced, so keep your boards and your paperwork ready! Many of those not advancing to state still win awards.**

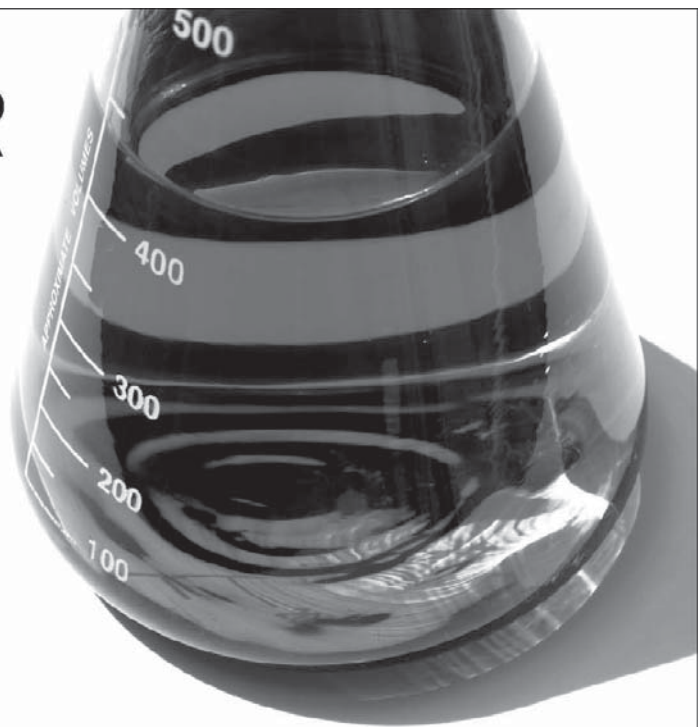


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**Orbital ATK** 

**Orbital ATK** is proud to sponsor this hands-on event that helps provide an opportunity for Twin Cities' youth to better understand the sciences and technology. By inspiring curiosity and interest today, we develop our future scientists, engineers and astronauts. Congratulations and good luck to all participants. Headquartered in Dulles, Virginia, **Orbital ATK** is a leading provider of advanced weapon and space systems with \$4.4 billion in annual sales, approximately 12,000 employees, and operations in 17 states. The company is the world's leading supplier of solid rocket motors and the nation's largest manufacturer of ammunition.

## SCHEDULE

### Friday, February 24, 2017

<u>Time</u>	<u>Activity</u>	<u>Location</u>
1:00 - 3:30 p.m.	Registration	Field House – No heeled Shoes
1:00 - 3:30 p.m.	Set up Projects / Clear Display&Safety Grades 6-8 must be set up by 3:30 Grades 9-12 must be set up by 3:30	Field House – No heeled Shoes
4:00-9:30 p.m.	Judging (grades 6,7,&8 done earlier)	Field House – No heeled Shoes

### Saturday, February 25, 2017

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

**TEACHERS:** Please arrange for someone to pick up papers, folders, & exhibits of any students not able to attend the award ceremony. Research paper ribbons are also available for pickup.

### **DO NOT DISMANTLE YOUR PROJECT UNTIL AFTER THE AWARD CEREMONY!**

10:00 a.m. to 12:20 p.m.	Award Ceremony for projects & research papers	Field House - University of Minnesota
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Winners of Special Sponsor Awards must be present at the Award Ceremony or an alternate will become the winner. ONLY projects with their signed Parental Media Release (generated during registration) may participate in the fair and be eligible for awards which require a photograph. ALL team members must have signed media release and permission forms on file for a team project to be eligible. Sponsor Award winners must have their photo taken by the official Fair Photographer with the award

All ISEF winners must be at both the Saturday Awards Ceremony AND the Sunday ISEF meeting to be eligible to be named finalist to travel to and compete in ISEF, or they will forfeit their finalist status to an alternate (unless cleared by the Fair Director and the SRC chair).

After Award Ceremony	*ISEF Finalists, Alternates and Advisors meet with the Fair Directors & SRC chair.	South end of bleachers Field House
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<b>Everyone:</b>	<b>PLEASE HELP OUR VOLUNTEERS TEAR DOWN TABLES &amp; CHAIRS</b>	Please help throw trash & leave the Field House clean.
<b>1:30 p.m.</b>	<b>ALL PROJECTS MUST BE REMOVED</b>	

**Minnesota State Science & Engineering Fair** (grades 6-12 projects, grades 6-8 papers)  
March 25-27, 2017, **Minneapolis Marriott City Center**, 30 South 7th Street, Minneapolis.

**JSHS: Junior Science & Humanities Symposium** (grades 9-12 research papers)  
March 25, 2017, **Minneapolis Marriott City Center**, 30 South 7th Street, Minneapolis.

**I-SWEEEP: International Sustainable World Energy Engineering Environment Project  
Olympiad** (grades 9-12 projects), Houston, Texas, May 3–8, 2017

**ISEF: Intel International Science & Engineering Fair** (grades 9-12 projects)  
Los Angeles, CA, May 14–19, 2017 (Twin Cities flies out May 13<sup>th</sup>)



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## JUDGING RULES AND SCHEDULE

1. Each student must remain with his/her project during the time scheduled for judging. If you are not at your project when a judge arrives, you may miss your chance to be judged.
2. Students must clear both SRC (Scientific Review Committee) & D&S (Display & Safety) before judging begins at 4:00 p.m.
3. ONLY judges and students presenting projects are allowed in the exhibit area during judging.  
**No parents, advisors, teachers, or other non-participants are to be in the exhibit area during judging times, 4:00 PM – close Friday.**
4. Stay at your project until the official announcement over the public address system dismisses your grade. If you leave early you may be missing out on judging for other special awards.
5. TCRSF and the University of Minnesota do not accept responsibility for equipment/instruments brought to the Fair. **DO NOT LEAVE SUCH ITEMS OVERNIGHT OR UNATTENDED.**

	Judging Begins	Estimated Dismissal Time (WAIT for official announcement)
Grade 6	4:00p.m.	6:30p.m.
Grade 7	4:00p.m.	7:30p.m.
Grade 8	4:00p.m.	8:00p.m.
Grades 9-12	4:00p.m.	9:30p.m.

ALL TIMES ARE APPROXIMATE. PLEASE LISTEN FOR ANNOUNCEMENTS!

### PROJECT LISTING

Student projects are listed by number, grade and affiliation and broken down by category within each grade level. Following this listing is an alphabetical list of all entries by grade. To find a project, or to find out where you are to set up your project, look for the signs. Team members must be all in either middle school or all in high school, not a mix. This year, middle school teams compete at the grade of the team leader.

GRADE	PROJECT NUMBERS	AFFILIATION CODES
6	6000-6999	(S) St. Paul Regional Science Fair
7	7000-7999	(W) Western Suburbs Regional Science Fair
8	8000-8999	(T) Twin Cities Regional Science Fair
9-12	1000-1999	<b>All 3 affiliations are collectively known as "Twin Cities Regional Science Fairs"</b>

### RESEARCH PAPERS

All research paper competitors pick up your envelope with your research paper ribbon about 9 AM Saturday before the awards program. We will also post a list of competitors & alternates advancing with their research papers, but pick up your envelopes! Grades 6-8 winners advance to state science fair with their research paper. Students who advance in both research paper & projects will be able to compete in both events at state. Grades 9-12 research paper winners advance to Junior Science & Humanities Symposium (JSHS). Additional awards for papers will be handed out at the Award Ceremony on Saturday morning at 10:00 a.m. in the Field House.

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

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

## Grade 6

### *Animal Sciences (ANIM)*

- 6001T **Dominique Deming**  
Growth Rate of Mystery Snails
- 6002S **Dane Buxman**  
Digital Distraction: Do Video Games Numb Pain?

### *Behavioral and Social Sciences (BEHA)*

- 6003W **Megan Cornell**  
Distracted Driving
- 6004W **Anna Farley**  
When A Cup Of Water Is Less Than A Cup
- 6005W **Ava Frey**  
Memory
- 6006W **Genevieve Larson**  
Motivation and Performance
- 6007W **Vivienne Larson**  
Dress and Social Interaction
- 6008S **Quinn Meaney**  
Do people collect more information when reading on paper or on an electronic device?
- 6009W **Lucas Osterbauer**  
Kids vs Parents, technology or building?
- 6010S **Wynne Riemenschneider, Francesca Satoskar Team** - Remember
- 6011T **Jack Steglich**  
Does Color Affect Taste
- 6012S **Ivan Wiedl, Caleb Robinson Team** - How Do Video Games Affect How We Focus?

### *Biochemistry (BCHM)*

- 6013W **Gianna Carr**  
Melting Chocolate
- 6014W **Madelon Pollard**  
Growing Yeast
- 6015W **Janina Temple**  
Melting Chocolate

### *Biomedical and Health Sciences (BMED)*

- 6016W **Peter Giertsen**  
How Sweet Is It?
- 6017S **Evan Guffey**  
Sleep: How much do you need?
- 6018W **Samantha Hankinson**  
Are You A Supertaster?

- 6019W **Mark Rogalski**  
Impact Accelerations In Youth Football

- 6020S **Johnesha Scott-Aaron, Paris Edwards Team** - Teeth Staining

- 6021S **Wendy Thao, Aiyana Cleveland Team** - How Does Light Affect Your Peripheral Vision?

- 6022W **Nikalette Wentland**  
Pulse Rate

### *Cellular and Molecular Biology (CELL)*

- 6023S **Harith Dameh**  
Germ Busters!
- 6024W **Ashton Hartman**  
Onion DNA Extraction
- 6025S **Muna Mohamed, Trinity Yang Team** - Organic & Non-Organic Eggs
- 6026S **Mae Ricker**  
What rots faster: organic or non-organic bananas?

### *Chemistry (CHEM)*

- 6027W **Anna Abel**  
Melting Time
- 6028S **Anya Adam**  
Lip Balm Science
- 6029W **Sam Ballot**  
Nike vs. Under Armor
- 6030W **Greta Bortscheller**  
Does adding salt to boiling water make pasta cook faster?
- 6031W **Maria Calle-alvarez**  
Dissolving Hot vs Cold
- 6032W **Nevaeh Daniels-Smith**  
The Fries Suprise
- 6033W **Brian Dwyer**  
Coke and Mentos
- 6034T **Yohanes Eshete**  
Density
- 6035S **Ezra Haskard**  
How does temperature affect kid friendly science experiments?
- 6036S **Roman Ingrassia, Ryan Hoang Team** - How long does it take for rust to appear on sheet metal while soaking in different amounts of salt?



- 6037S **Jaryce Jett**  
Bubble trouble
- 6038S **Ruby Kintopf**  
Which baking sheet type works best?
- 6039W **Jacob Krieger**  
Drinks and Mentos
- 6040S **Kathryn Kuebler**  
Does the brand of toothpaste affect the whiteness of your teeth?
- 6041S **Jonathan Lane 6th**  
Ph level
- 6042W **Gabriella Larson**  
Glow Sticks
- 6043W **Chris Loja**  
Unpopped Kernels
- 6044T **Mya Molldrem**  
Melting Madness
- 6045W **Carter Pitt**  
Duct tape
- 6046S **Dagny Prosch-Winberg, Naomi Brooks-Shirey Team** - What Makes Bath Bombs Fizz?
- 6047T **Aiyana Taibe**  
Smooth Move
- 6048W **John Vaccaro**  
Making Ice Cream With Dry Ice
- 6049S **Andrew Woodage**  
Does cooking starchy foods change their weight, volume, and density?
- 6050S **Owen Zimmerman**  
Melting and Boiling Points of Kitchen Compounds
- Earth and Environmental Sciences (EAEV)*
- 6051W **Ryan Baird**  
What Is The Best Insulation Material
- 6052W **Charlee Christy**  
Volcanoes
- 6053W **Grace Eigner**  
Global Warming
- 6054W **Kin Mamburao**  
Volcanoes !
- 6055T **Luke Petruconis**  
Who Cut the Cheese
- 6056W **Kane Sheahan**  
Volcanoes
- 6057W **Charlie Shideman**  
Tsunamis: Effect of Water Depth on Wave Velocity
- Energy: Chemical (EGCH)*
- 6058S **Gabriela Barrera**  
Traveling flame
- 6059W **Vincent Delmonico**  
Drones
- 6060T **Ulises Hernandez**  
Birthday Bash
- 6061W **David Hunt**  
Drone Batteries
- 6062W **Jack Modahl**  
Battery Life
- 6063T **Tyler Niznick**  
That's Cool
- 6064W **Erin O'Daniel**  
AA vs AAA
- 6065S **Naomi Ryan, Eva Matson Team** - Salt Water Power
- 6066W **Patrick Storms**  
Battery Test
- Energy: Physical (EGPH)*
- 6067T **Angelica Bunay**  
Making a Battery
- 6068S **Noelle Greenwalt**  
How does the heat of a tennis ball affect the height of its bounce?
- 6069S **Callen Mayer**  
Does the temperature of a hockey puck affect how far it slides?
- 6070W **Clare Miller**  
Cold Minnesota Hot Dish... Yuck!
- 6071S **Reed Morris, Lance Georgeson, Adrian Molina-Boldt Team** - The affect of temperature extremes on different minerals
- 6072S **Oran Power**  
Will rusty metal have a lower melting point than metal without rust?
- 6073S **Flannery Sheets**  
Atmospheres are awesome
- 6074S **Sami Tesfaye**  
How many dBa is produced by each string of a violin?

*Engineering Mechanics (ENMC)*

- 6075T **Adam Ansari**  
The Desalinator
- 6076W **Eric English**  
Do Higher Or Lower Frequencies Travel Farther?
- 6077W **Samuel Fulton**  
Bike Phone Charger
- 6078T **Matthew Kennedy**  
The Egg-Cellent Parachute
- 6079T **Liam Nelson**  
Titanic Trial
- 6080W **Leo Ogle**  
Stealth Shapes

*Environmental Engineering (ENEV)*

- 6081W **Kristen Dougherty**  
The Science Of Oil Absorption
- 6082W **Mary Kate Hewitt**  
Which Soundproofing Insulator Not To Use
- 6083W **Avery Nientimp**  
Solar Powered Water Desalination
- 6084W **Caroline Sislo**  
Alternatives to Rock Salt on Roads

*Materials Science (MATS)*

- 6085W **Sophia Boockmeier**  
Lotion Effects
- 6086W **Tyler Hewitson**  
The Ultimate Wood
- 6087W **Andre Huggar**  
Height of ferrofluid collums
- 6088S **Maren Lien, Sofia Paquin**  
**Team** - Which Type Of Paper Is Most Durable  
When Put Under Weight?
- 6089S **Bailey McManimon**  
What kind of ballet shoe is scientifically better?
- 6090W **Colleen Noonan**  
Mix and Matchsticks
- 6091S **Chi Vang**  
Which type of battery lasts the longest?

*Microbiology (MCRO)*

- 6092W **Faith McAdam**  
Can Dog Saliva Kill Germs?

*Physics and Astronomy (PHYS)*

- 6093W **Grace Arndt**  
Free Fallin'
- 6094T **Zach Behme**  
Which Substance Makes Ice Melt the Fastest?
- 6095T **Emily Coughlin, Evan Page**  
**Team** - Humidity and Electromagnets
- 6096W **Nicholas Craemer**  
Parachutes
- 6097W **Callie Ebbert**  
The Making Of An Electric Magnetic Motor
- 6098T **Ella Fix**  
Microwave Radiation
- 6099W **Thomas Klaesges**  
The Gauss Rifle Expirement
- 6100S **Zoë Lee**  
The Furture of sleds
- 6101S **Gabriel Lewis-Mosher 6th**  
Hover craft!
- 6102T **Dalaney Pavlo**  
Battle of the Bounce
- 6103T **Harsha Pillai**  
How Does the Volume of Air Affect the Speed It  
Travels
- 6104W **Ella Rushing**  
Craters and Meteorites
- 6105W **Isaac Stelzer**  
Use the Force... of Magnets
- 6106W **Luke Vitt**  
Roller Coaster Marbles: Does The Run Matter
- 6107T **Peter Voigt**  
Butter on Top?

*Plant Sciences (PLNT)*

- 6108W **Brooke Bothwell**  
Making A Healthier Strawberry
- 6109T **Victor Ekstrand**  
How Do Pollutants Affect Plants?
- 6110T **Audra Johnson**  
Fruit DNA
- 6111W **Harini Senthilkumar**  
Effect of Dandelions on bacterial growth
- 6112W **Cece Walser**  
Can plants stop soil erosion?

*Systems Software (SOFT)*

6113W **Evan Reid**  
Creating A Video Game

**Grade 7**

*Animal Sciences (ANIM)*

- 7001T **Krista Boaz, Amanda Kauls**  
**Team** - Paw Preference
- 7002T **Stephanie Jaramillo Quiroz**  
Do Leopard Geckos Prefer to Eat Crickets or Mealworms?
- 7003W **Maeve Katics**  
How Do Black Soldier Flies Effect The Decomposition Of Food?
- 7004T **Gabriela Panora**  
The Relationship Between Snails and Algae
- 7005S **Te'aonna Pledger**  
Daphnia heart rate vs Red Bull
- 7006W **Mike Schmidt**  
The Impact of Size on Male Cockroach Encounters
- 7007T **Uriel Vergara Zuniga**  
Do Dogs Prefer Blue or Yellow?
- 7008S **Sebastian Zarkower**  
Effect of Light Color Temperature on Mouse Learning Using the Lashley III Maze

*Behavioral and Social Sciences (BEHA)*

- 7009T **Taya Bartelle**  
Do Different Genders React Differently to Emotional Situations?
- 7010S **Aiden Bittner-Eddy**  
Reaction Time Improves Physical Activity
- 7011T **Elizabeth Bunnell, Audrey Tinklenberg**  
**Team** - Complimentation Experimentation
- 7012T **Brandon Carbone**  
Is Colored Ink Easier To Read Than Black Ink?
- 7013W **Grace Cebulla**  
Does Eyesight Affect How Long A Person Can Stare?
- 7014W **Arjun Chaudhary**  
Why you always lying?
- 7015T **Helen Dombrock**  
The Effect of Age and Gender on Color Hue Preferences in Photos
- 7016T **Patrick Gainor**  
Is the Pen Mightier than the Screen? Testing writing vs. typing as a memorization aid

7017S **Michael Guevara**  
A-Maze-Ing

7018S **Latrese Johnson**  
Our Perception of Time: Does it Change As We Get Older?

7019W **Ava Krocheski-Meyer**  
Bringing Up the Beat

7020T **Teresa Le-Vu**  
Bouba Kiki Effect

7021T **Isabelle Rippentrop**  
Gluten Free Cookie Challenge

7022S **Pablo Salazar Lopez**  
Flappy Gaming Scores

7023S **Adam Sewich**  
Power of Positivity

7024T **Kate Thibault**  
Type-Write-R

7025S **Sylvia Torkelson**  
Does Eyecolor Affect Personality?

7026S **Grace Wethington**  
Does chewing gum while studying improve your test score?

*Biochemistry (BCHM)*

7027S **Taylor Branson**  
Pills vs Acid

7028S **Colin Farnham**  
The Antimicrobial Properties of Garlic

7029T **Fionnuala Foley**  
The Effect of Environmental Degradation on Forensic Blood Evidence

7030T **Mary Foley**  
Does Lactase Affect the Glucose in Dairy Products?

7031S **Claire Fortier**  
The Impaired Taste Test

7032S **Annelise Purcell**  
How does the protease enzyme compare to a regular detergent when it comes to removing a protein stain

7033T **Jasper Strayer, Aaden Spencer**  
**Team** - Does Temperature Affect The Activity of Enzymes?

*Biomedical and Health Sciences (BMED)*

7034T **Claire Geis**  
Bandages

- 7035W **Libby Kamp**  
Natural Charging Station: The Impact of citrus juices on purified water
- 7036W **Wyatt Schindeldecker**  
B.Cereus The Impact of Apple Cider Vinegar on a Common Bacteria
- 7037W **Karley Schreifels**  
The impact of a chiropractic adjustment on the lowering of blood pressure
- 7038S **Allison Sowatzka**  
What Factors Affect Reaction Time?
- Biomedical Engineering (ENBM)*
- 7039S **Giancarla Maceda**  
Motion sensor aid for the vision impaired
- Cellular and Molecular Biology (CELL)*
- 7040S **Betsy Hofer**  
How does the temperature of the alcohol affect the quality of the DNA extraction
- 7041S **Abigail Rhee**  
Osmosis of a Naked Egg
- Chemistry (CHEM)*
- 7042S **Chloe Anderson**  
Could Popular Brands of Soda have an Impact on Plastic and Metal?
- 7043T **Jessica Carpio**  
Does The Type Of a Salt Affect How Much Ice Melts In One Hour?
- 7044S **Owen Finlay**  
Biodiesel
- 7045T **Bridget Foley, Sofia Garcia-Silva Team** - What The Fizz? Dissolving Time of a Sugar Cube
- 7046T **Olivia Lewis**  
Sugar Cookies Baked with Sugar Substitutes
- 7047S **Soren Sackreiter**  
A Study of How Temperature Affects Battery Capacity
- 7048T **Everett Sandbo**  
The Effects of Salt on Ice
- 7049T **Ellie Scheldberg**  
Orange-Ya Gettin' Your Vitamin C?
- Earth and Environmental Sciences (EAEV)*
- 7050S **T.J. Budd**  
Melting Ice
- 7051S **Samantha Eiken**  
What is the difference between tap water and polluted water?
- 7052T **Paige Flowers**  
Understanding Decomposition
- 7053W **Bryan Heaton**  
The Effect of CO2 Concentrations on The Growth of Lepidium Sativum
- 7054W **Evie Kemper**  
A cloud in a bottle
- 7055T **Abby Machtig**  
Growing Crystals
- 7056S **Izzie McGinley Myers**  
how does the size of a container affect the amount of water evaporated within 7 days?
- 7057W **Camden Mellema**  
The Relationship Between Location on a Lake and the Amount of Chemicals Present
- 7058T **Shalim Montes Hernandez**  
Do Gas Stations Affect the Soil Around Them?
- 7059S **Frances Ronning**  
It's Getting Hot in Here: How Different Colors Affect the Interior Temperatures of Clay Structures and Asphalt
- 7060W **Ravelle Rute**  
Plastic the Drastic Problem. The effect of Saline Solution on Biodegradable Plastic
- 7061S **Yovany Salguero, Lwe Way, Sebastian Vang Team** - The Rate of Food Station Recognition among Crows  
**Project At Electricity Wall**
- 7062S **Maddie Schearer**  
Household Herbicides
- 7063S **Cole Stroeing, Jose Urbina, Lor Thao Team** - Persistent Puddles or Microponds?  
Creating artiicial ponds to support microinvertebrate life
- 7064W **Abby Vis**  
Caution: Icy Roads Ahead
- Energy: Chemical (EGCH)*
- 7065S **Nora Cole**  
During the electrolysis of water, which electrolyte conducts electricity the best
- 7066S **William Nietz**  
Boiled potato power
- 7067T **Rikhil Seshadri**  
Low Cost Supercapacitors for Energy Storage  
**Project At Electricity Wall**

*Energy: Physical (EGPH)*

- 7068S **Keegan Bersie-Mize**  
Energy Required to Light Different Colors of LEDs
- 7069T **Joseph Bizuneh**  
Does the Color of Light Affect How a Rainbow Looks?
- 7070S **Pema Boyd-Smith**  
Solar ovens
- 7071S **Aman Gidwani**  
The Effect of Depth of Water on the Speed of a Wave Traveling through it.
- 7072S **Frankie Grass**  
Plastic Pollution, An Insulation Solution
- 7073T **Tyler Haddorff**  
Solar Voltage
- 7074S **Savanna Mays**  
Speed vs floor
- 7075S **Ana Mendoza**  
Solar Stills
- 7076S **Griffin Moore**  
Keep Calm and Stay Cool: A Study of Cool Roofing
- 7077W **Caitlin O'Rourke**  
Evaporation Station
- 7078T **Ava Weaverling**  
Look at the Flick of the Wrist
- 7079W **Maggie Wells**  
The Future Of Electricity
- 7080W **Sam Zylstra**  
The Impact of Atmospheric Reentry on Thermal Heat Shield Material

*Engineering Mechanics (ENMC)*

- 7081W **Mario Calvo**  
Light Reflection
- 7082S **Rohan Desai-Hunt**  
Bending Bridges
- 7083T **Bridget Gerber**  
Strength of Bridge Designs
- 7084T **Katelyn Hess**  
Triangle or Square... Which Bridge is Stronger?
- 7085T **Hayden Mathews**  
Pop, Pop, Pop

- 7086S **Max Rouillard-Horne**  
The Electrifying Power of Attraction
- 7087S **Samuel Skinner**  
How Does the Angle of a Wind Turbine's Blades Affect it's Efficiency?
- 7088T **Orion Tyrrell**  
Rocket, One Motor or Many
- 7089W **Jonathan Viehman**  
Hovercraft  
**Project At Electricity Wall**

*Environmental Engineering (ENEV)*

- 7090S **Eleanor Alfano**  
Organic vs Inorganic- A study to find solutions to clean up oil spills
- 7091S **Jake Anderson**  
Filtering Contaminated Water Through Coniferous Trees Xylem
- 7092W **Quentin Hughes, Vaughn Hughes Team** - Can Worms Save the Planet from Plastic?

*Materials Science (MATS)*

- 7093S **Nathan Hardy**  
Temperature and Magnetism
- 7094S **Anna O'Brien**  
Shattering Glass
- 7095W **Caroline Palmer**  
Hot Socks
- 7096S **Tianna Patterson, Isabella Hernandez Team** - Sugar on the Sugar Cookie
- 7097T **Vincent Ramirez**  
Warm Wings

*Mathematics (MATH)*

- 7098S **Carter Swinney, Tanner Fenton Team** - Pi challenge!

*Microbiology (MCRO)*

- 7099T **Elizabeth DeCrans**  
Bacteria In My Yogurt

*Physics and Astronomy (PHYS)*

- 7100W **Patience Akon**  
Absorb It!
- 7101T **Sam Albers**  
Sailboat Sailing Speeds
- 7102S **Soren Berg**  
Stairway Speed

- 7103W **Jack Boike**  
The Impact of Air Pressure on the Distance of a Soccer Ball When Kicked
- 7104T **Jayden Chow**  
Mention the Tension
- 7105T **Martin De Leon**  
What Material is Best at Sound Insulation?
- 7106W **Margaret Deering**  
Deflategate Does psi matter?
- 7107T **Sarah Harvell**  
Will it crack?
- 7108S **Robel Hayelom**  
Paper clip physics
- 7109S **Griffin Hoppe**  
Air Planes
- 7110W **Daniel Larkin**  
Wonder Wheels
- 7111W **Maya Nnaji**  
Growing Sugar Crystals At Different Temperatures

- 7112T **Zoe Olson**  
Super Static
- 7113S **Ainsley Owen, Charles Kaker**  
**Team** - Egg drop

- 7114T **Caitlyn Procko**  
The Effects Of Temperature on the Magnetivity of Neodymium
- 7115T **Braden Stock**  
More Bang for Your Bat
- 7116T **Nate Sullivan**  
Does Shot Arc Affect Shooting Percentage?
- 7117S **Peter Wenger**  
Air Pressure of soccer balls
- 7118T **Faraes Wubshet**  
Does Straw Height Affect how high a Ping Pong Ball Will Float?

*Plant Sciences (PLNT)*

- 7119W **Katherine Beekman**  
The Impact Of Mulch On Beans
- 7120T **Forrest Bowman, Troy Jackson**  
**Team** - Plant Growth
- 7121T **Kassandra Caron**  
What Type of Light Source Promotes the Fastest Rate of Photosynthesis in Green Plants?
- 7122T **Paul Castro**  
Baking Soda's Effect on a Plant

- 7123T **Matthew Cullen**  
Does Sunlight Reflected from a Mirror Affect a Plant's Growth Rate?
- 7124S **Teo Dieperink**  
No PHooling Around
- 7125S **Keira Gupta**  
Salty Grasses - A study of road salt effects on grasses
- 7126S **Joseph Hoang**  
How does the pH of water given to Pea Plants affect their growth?
- 7127W **Emily McCarthy**  
Plants Are Amaze-ing  
**Project At Electricity Wall**
- 7128T **Micheal O'Donnell**  
Does Acid Rain Affect Plant Growth?
- 7129T **Caroline Warmka**  
Does Water From Different Sources Affect Plant Growth?

*Systems Software (SOFT)*

- 7130T **Caroline Olson**  
Search Engine Statistics

**Grade 8**

*Animal Sciences (ANIM)*

- 8001T **Monica Dinh**  
Ratty Reaction times
- 8002S **Mira Seeba**  
Do mice prefer GMO or non-GMO Produce
- 8003S **Madeline Thompson**  
How Does Temperature Affect Amount Of Chirps For A Group Of 20 Crickets
- 8004S **Emilie Tinnes**  
The Difference in the Efficiency Between Natural Bed Bug Repellents and Chemical Bed Bug Repellents

*Behavioral and Social Sciences (BEHA)*

- 8005S **Juliet Ali-Caccamo**  
Font-tastic Fluency and Comprehension: A Comparison Between Dyslexie Font and Times New Roman Font Among Students with and without Dyslexia
- 8006S **Riley Eddins**  
How does changing the type of flour affect the outcome of pasta?

8007S **Maren Fossum-Wernick**  
Distraction and Reaction- The Effect of Texting on  
Reaction Time and Ability to Focus

8008T **Shannon Heymans**  
Frontal Lobe Development

8009S **Tori Hutchinson**  
Flexibility and Endurance

8010W **Katarina Johanns**  
Does age affect how many times it takes to  
remember something?

8011S **Savior Johnson**  
Sleep Music Dream

8012S **Ruby Kosiak**  
The Power of the Blues

8013S **Rachel Levin**  
Slowing Traffic With Art

8014T **Katie Marshall, Molly Moore**  
**Team** - Testing and Music

8015T **Maria Maurer**  
Matching Memory

8016S **Claire Olson**  
How does the ratio of thumb length to keyboard  
area affect texting speed?

8017W **Simren Samba, Nell Ganley, Abigail Covel**  
**Team** - What Is The Effect Of Font On Reading  
Comprehension?

8018S **Nora Thomey**  
Pain Through the Ages

8019T **Soliyana Woldu**  
The Tempos of Earworms

### *Biochemistry (BCHM)*

8020W **Alex Iliarski, Ishan Nadkarni**  
**Team** - Testing The Noses: Natural or Artificial  
Smells

8021S **Chindarat Thao**  
Energy! Energy! from Fruits & Vegetables

### *Biomedical and Health Sciences (BMED)*

8022S **Claire Aamodt**  
Effect of Flossing on Dental Hygiene

8023S **Hannah Hausman**  
Antibodies and Memory Cells

8024T **Rachel Meniboon**  
Probiotics and Cold Medicine

8025T **Maura Salchow**  
Technology's Hidden Bacteria

8026T **Henry Votel**  
Sunscreen-Which is Most Effective?

8027T **Robert Wessel**  
Bottled Water vs. Tap Water

8028T **Torrie Whelan**  
Stress and Blood Pressure

8029T **Ashley Wilson**  
Don't Wreck Your Teeth

### *Chemistry (CHEM)*

8030T **Omolara Aguda, Sofia Kemeny**  
**Team** - Light of Luminol

8031T **Asia Baker**  
Lowering the Freezing Point Depression of Water

8032S **Amelia Christ**  
Which Substance Will Freeze Ice Cream at the  
Lowest Temperature?

8033T **Kate Christian, Katie Magallon**  
**Team** - How Much Fat is in Your Food?

8034T **Ayan Hassan**  
Plop, Plop, Fizz, Fizz, Oh What A Relief It Is?

8035T **Megan Haugh**  
What Are You Actually Eating

8036S **Lydia Houge**  
The Quest for a Better Cookie

8037T **Karissa Kockelman**  
The Cool Blue Light of Luminol

8038S **Sophia Lancaster**  
How Does the Amount of Cornstarch in a Bath  
Bomb Affect How Long it Takes For the Bath  
Bomb to Fully Dissolve

8039T **Liam Linares**  
Capillary Action to the test

8040S **Sullivan Lucy**  
Crystallization: The Cooling Rate, Crystal Size, and  
Texture of Fudge

8041T **Abbey O'Brien**  
Acidity of Water

8042W **William Ortega**  
How Does Age Affect Reaction Time

8043T **Charles Rieser**  
Reaction or Not?

8044T **Monica Sampair**  
Salty Science

8045S **Edie Weinstein**  
How Do Different Types of Gluten-Free Flour Affect the Quality of a Cookie?

*Earth and Environmental Sciences (EAEV)*

8046S **Zaiga Chance, Lee Tuggle**  
Team - Sticky, Stinky, and Green

8047S **Aishat Daud**  
Weather Temperature

8048S **Lorraine Delonghersh**  
Monarch Monitoring

8049S **Maeli Engelmann**  
Soil Erosion to mulch or not to mulch

8050W **Ilse Fredrickson**  
Is the Water Impaired? Testing pH, Ammonia, and Nitrate levels in a Freshwater Ecosystem?

8051S **Paul Goff**  
Our Lakes In Crisis!

8052T **Elliot Heinrichs**  
Electrifying Electromagnets

8053T **Frederick Hyde**  
Electrolyte Challenge: Orange Juice vs Gatorade

8054S **Marit Isaacson**  
Going Green As You Clean

8055S **Jevon Jones, Jeremy Rivera, Steve Landaverde**  
Team - Plankton Hangouts: Surveying freshwater plankton in a temporary pond

8056T **Sarah McElmury**  
pHacts of Soil

8057T **Joseph Mensen**  
Super Absorbent Polymer

8058S **Emily Miller-Sweesy**  
Road Salt, Growth Halt?

8059S **Addie Morrisette**  
Water Plants and Their Effects on Nitrites and Phosphates

8060S **Janey Post**  
Eutrophication In Full Bloom

8061T **Brooklyn Renberg**  
Aurora Borealis

8062S **Elena Rosario, Jordanna Marshall, Ashley Tapia Martinez**  
Team - Sun-Loving Moss? Comparing Shade-Loving Moss to Varieties Found on our School Baseball Diamonds

8063S **Iren Sanchez, Marianna Xiong**  
Team - Comparing Water Quality with a Multiparameter Sonde: Vernal pond vs Local Swamp

8064S **Alice Spong**  
Could Crushed Shells Slow Down the Levels of Acidification in Our Oceans?

8065S **Kaeden Warnberg-Lemm**  
How Do Different Types of Grasses Affect Water Runoff?

8066S **Txiab Xiong, Jada Lee**  
Team - Comparing Macroinvertebrates in a variety of compost samples

8067S **Pa Houa Yang**  
Oil Spill

*Embedded Systems (EBED)*

8068T **Anthony Friedmann, Connor Lattery**  
Team - Why?- Fi

*Energy: Chemical (EGCH)*

8069T **Caden Luden**  
Mud Battery

8070S **David Tripeny**  
Saltwater Powered Car

*Energy: Physical (EGPH)*

8071T **William Dahlke**  
Seebeck on Various Metals

8072S **Ingrid Fellows**  
Counting the Blades - Optimizing Hydroelectric Generators

8073S **Guleed Hirmoge**  
The Speed of Light

8074T **Jack Martin**  
The Shining Benefits of Solar Power

8075T **Connor Niznick**  
Fore!!

8076T **Alec Sweet**  
Shoot For The Fences

8077W **Ani Tonoyan**  
Power Up! Wind Turbine Blade Design Optimization

8078T **Harrison Wallander**  
Right vs. Left

*Engineering Mechanics (ENMC)*

8079T **Maddie Anderson**  
Electric Motors



- 8080T **Joe Brennan**  
Which Truss Do You Trust?
- 8081S **Dominic Dahdah**  
Which Propellor is Best?
- 8082T **Jackson Giel**  
The Mystery of Catapults
- 8083S **Fiona Hatch**  
Which works better: Flat or dome shaped drain covers?
- 8084T **Wyatt Isakson**  
Feu Dans Le Trou
- 8085T **Milan Jostes**  
A Non-Rocket Satellite Launcher
- 8086T **Sydney Wright**  
What type of skyscraper works
- Environmental Engineering (ENEV)*
- 8087T **Sofia Fix**  
Landfill Eating Bacteria
- 8088S **Marisol Guevara**  
Making Paper
- 8089S **Dixon Hedges**  
What is the strongest paper towel?
- 8090T **Mya Scheller**  
Radiation in Iphones
- Materials Science (MATS)*
- 8091S **Adeleine Cooper Cooper**  
Force Necessary to Drive a Nail through Different Wood Types in Relation to Grain and Density
- 8092T **Nathan Gist**  
The Noodle Challenge
- Mathematics (MATH)*
- 8093T **Griffin Keeler**  
Puzzle Solved
- Microbiology (MCRO)*
- 8094S **Abby Blake**  
Do Essential Oils or Hand Sanitizers Kill mor E.Coli Bacteria?
- 8095W **Peregrin Phillips**  
Growing Algae Under Different Amounts of Light
- Physics and Astronomy (PHYS)*
- 8096S **Helene Francis, Kaija Maier Team** - Woah, That's Intense!
- 8097T **Luke Rausch**  
When Chickens Fly
- 8098T **Andrew Sadvik**  
Drumming Up Some Decibels
- 8099T **Luke Trussell, Nate Trussell Team** - Silence Is Golden: The effectiveness of soundproofing materials
- 8100T **Patrick Walsh**  
The Affects of Number of Blades on Wind Turbines  
**Project At Electricity Wall**
- Plant Sciences (PLNT)*
- 8101W **Julia Brouwer**  
Leafy Green Astronauts Year Two: How Space Radiation Impacts Seed Germination and Subsequent Plant Growth of Monocot Versus Dicot Seeds
- 8102S **Anna Gaudio**  
How Does Nitrate Affect Plant Growth?
- 8103T **Sophie Herzog**  
Growing Pains
- 8104W **Nicholas Jaeger**  
Aquaponics
- 8105S **Fae Katras**  
What is the Effect of Soil Temperature on a Plant's Nutrient Intake?
- 8106S **William Lancman**  
Leaf Me Alone
- 8107S **Noah Nauertz**  
Does Music Affect Plant Growth?
- 8108S **Ethan O'Neil**  
Fertilizer vs. No-Fertilizer
- 8109S **Tana Ososki**  
Compost and Plant Growth
- 8110S **Justine Wulff**  
Power of Hydrogen
- Robotics and Intelligent Machines (ROBO)*
- 8111W **Anika Jackson, Julian Byrne Team** - Hook, Beak, and Stub: Lego Classification Using Deep Learning  
**Project At Electricity Wall**
- Systems Software (SOFT)*
- 8112T **Lauren Lowe**  
Scanning all the options
- 8113S **Kharme Mahamed**  
Something's Blocking My WiFi?

*Translational Medical Science (TMED)*

8114S **Bridget Lee**  
The Effects of Age on Peripheral Vision

## High School

*Animal Sciences (ANIM)*

1001W **Molly Carroll**  
Grade 11 - The "Ant-ernet" and the Dietary Preferences of Atta Cephalotes Leafcutter Ants  
**Project At Electricity Wall**

1002S **Emma Hills**  
Grade 11 - Urbanization's Effects on Bird Migration

1003S **Isabella Holman**  
Grade 9 - Snakes

1004S **Abigail Karan**  
Grade 9 - What Kind of Food Attracts Small Mammals?

1005W **Mari Leland**  
Grade 11 - Ant-ibiotics and the Study of Atta Cephalotes  
**Project At Electricity Wall**

1006S **Emma Luchsinger**  
Grade 9 - Is There a Difference in Small Mammal populations Between a Hill or Flat Area?

1007S **Dinnea Riley, Dominic Vang**  
Grade 9,9 - **Team** - What is the Most Effective Type of Bug Spray for preventing Mosquitoes from landing on You?

1008S **Isaac Vu, Kevin Yang**  
Grade 9,9 - **Team** - How does the Type of Food Used as Bait Affect the Number and type of Small Mammals Caught?

1009T **Jacob Widen**  
Grade 10 - Effects of Non-Nutritive Sweeteners on the Lifespan of Drosophila melanogaster

1010S **Soua Yang, Dao Yang, Yang Xiong**  
Grade 10,10,10 - **Team** - Fish Eggs

*Behavioral and Social Sciences (BEHA)*

1011S **Iya Abdulkarim**  
Grade 11 - Applying the Novel Object Recognition Test in Zebrafish (Danio rerio)

1012T **Erin Bachmeier**  
Grade 10 - Does how you think affect how you perform?

1013T **Jaelyn Baisch**  
Grade 10 - The Correlation Between Female Finger Length and Athletic Ability

1014T **Ashley Baker**  
Grade 10 - The Mandela Effect: Are false Memories Present in Adolescences

1015T **Samuel Bardwell**  
Grade 10 - The Change of Perception with Color

1016T **Ryan Beattie**  
Grade 10 - The Effects of Music on Cognition

1017W **Elena Berman, Raunak Vijayakar**  
Grade 12,12 - **Team** - Hello, Stranger: A Big Data Approach to Online Dating

1018T **Emily Bogaard**  
Grade 10 - A Statistical Analysis of the Reaction Times of Athletes and Nonathletes

1019S **John Bongabong, Marco Sandoval**  
Grade 9,9 - **Team** - How do video games affect our aspect of time

1020S **Nyla Caffè, Kylei Zeiher**  
Grade 9,9 - **Team** - How does music affect test scores

1021T **Sebastian Cerda**  
Grade 10 - Are audible subliminal messages effective

1022S **Luke Chen**  
Grade 11 - Operant Conditioning

1023W **James Clinton, Samuel Leville**  
Grade 9,10 - **Team** - Advertising: Using Psychology to Grab Your Interest

1024T **Cassandra Cross**  
Grade 10 - The Best Age to Learn Another Language

1025T **Arianna Day**  
Grade 10 - Involvement in Music and its Effect on the Speed of Processing Information

1026T **Tatum Frey**  
Grade 10 - The Effect of Feng Shui on Productivity

1027S **Anders Hanhan**  
Grade 9 - Does Caffeine effect your Reaction Speed?

1028T **Najma Hassan**  
Grade 10 - Effects of cell phones upon reaction time

1029T **Siham Hassan**  
Grade 10 - The Effects of cellphones on Reaction Time

1030T **Caleb Hubbard**  
Grade 10 - Depriving the Stroop Effect

- 1031T **Mikayla Hughes**  
Grade 10 - The Effect of Musical Experience on Problem Solving Abilities
- 1032T **Lauren Jensen**  
Grade 10 - Blind Choices
- 1033T **Rachel Kelly**  
Grade 10 - The Effect of Positive Reinforcement on Accuracy Using Two-Step Algebraic Equations
- 1034T **Brianna Kirk**  
Grade 10 - The Effect of Mobile Phone Usage On the Amount of Phantom Vibration Syndrome Symptoms
- 1035T **Caitlyn Kloeckl**  
Grade 10 - The Effects of Distracted Driving
- 1036T **Sarah Kuplic**  
Grade 10 - Do Males or Females Talk More?
- 1037T **Zoey Lind**  
Grade 10 - Completing Tasks on the Computer versus Paper
- 1038T **Kylie Lundgren**  
Grade 10 - A Study of Subliminal Messages on High School Students
- 1039T **Nicole Matter**  
Grade 10 - The effect time has on an eyewitness memory
- 1040T **Andy Nguyen**  
Grade 10 - Earworm Effect: The effects of number of beats per minute and the type of song genres
- 1041T **Ellen Olson**  
Grade 10 - Behaviors and Frequencies
- 1042T **Amanda Peterson**  
Grade 10 - Hair Color Stereotypes
- 1043S **Claudia Rivas, Khadra Hassan, Faisa Hussien**  
Grade 9,9,9 - **Team** - How does music affect mood
- 1044T **Madeline Samz**  
Grade 10 - Battle of the Brain
- 1045T **Sarah Scalzo**  
Grade 10 - Does sight affect taste?
- 1046T **Katelyn Swanson**  
Grade 10 - Color vs. Color
- 1047T **Claire Tangney**  
Grade 10 - Correlation Between Emotional Stimulus and its Effect on Blood Pressure
- 1048T **Liam Thomas**  
Grade 10 - The Effects of Added Food Coloring on Taste Perceptions
- 1049T **Abigail Thompson**  
Grade 10 - A canine understanding of tones vs. words
- 1050T **Liliana Valverde**  
Grade 10 - Impulsive Children
- 1051T **Anna Vogelgesang**  
Grade 12 - Have children's perceptions changed with regards to career aspirations?  
**Project At Electricity Wall**
- Biochemistry (BCHM)***
- 1052S **Mason Salverda**  
Grade 9 - Creating an Artificial Stomach: Measuring pH's effect on yeast in and outside of an artificial stomach
- Biomedical and Health Sciences (BMED)***
- 1053T **Arbaz Ansar**  
Grade 10 - Is Denser Fruit Healthier, and Does It Affect the Size of the Fruit?
- 1054T **Andrew Carlson**  
Grade 10 - Does Canine Saliva Effect the Growth of E. coli Bacteria
- 1055S **Kar Chaw, Lay Htoo**  
Grade 9,9 - **Team** - How does exercise affect bicep muscle
- 1056S **Claire Davis**  
Grade 11 - The Drying Effect of Alcohol Hand Sanitizers on Skin
- 1057T **Adan Falcon**  
Grade 10 - Counting Calories with Water
- 1058T **Nathaniel Farmer**  
Grade 12 - Are You Protected? Wearable Mask Fit Monitor – Year II
- 1059T **Heidi Hulbert**  
Grade 10 - A Comparasin of the Antibacterial Effect of Manuka Honey to a Local Wildflower Honey
- 1060T **Gregory Johnson**  
Grade 11 - The Potential Antimicrobial Capabilities of Common Home Remedies
- 1061W **Brandon Lai**  
Grade 11 - Oct4 Regulation of Cardiac Progenitor Cell Specification in Heart Development  
**Project At Electricity Wall**
- 1062T **Leann Luong**  
Grade 10 - Fruit Density
- 1063T **Grace McGovern**  
Grade 10 - Comparing GMO Foods to Non GMO Foods

- 1064T **Shreya Narayan**  
Grade 12 - Antibody Drug Conjugates Targeting Cancer Stem Cells to Overcome Tumor Drug Resistance.
- 1065W **Grant Parrish, James Williams IV**  
Grade 12,12 - **Team** - Bounce Back: Activity Resilience In Traumatic Brain Injury Patients
- 1066T **Olivia Rippentrop**  
Grade 10 - An Analysis of the Antimicrobial Effects of Essential Spices on the Inhibition of *E. coli*
- 1067T **Justin Robinson**  
Grade 10 - The effect of heart rate on the ability to learn
- 1068S **Clara Schilder Manning**  
Grade 10 - Sleep Study
- 1069W **Maggie Scott, Cole Maxwell**  
Grade 12,11 - **Team** - Cancer and Tick-borne Bacteria: Identification of bartonella and borrelia as possible promoters of melanoma metastasis
- 1070T **Blake Smith**  
Grade 10 - How do Bacteria Colonies differ from Surface to Surface
- 1071W **Hyunsoo Song, Addison Gleekel**  
Grade 11,11 - **Team** - Preparing for the future: Analyzing the long-term effects of traumatic brain injury
- Biomedical Engineering (ENBM)*
- 1072W **Emma Carr, John Dempsey**  
Grade 11,12 - **Team** - Evaluating the value of Google Glass implementation in an outpatient clinical setting
- 1073W **Maya Czeneszew, Samuel Rex**  
Grade 11,12 - **Team** - Engineering a vasculature: Paving the way for successful organ regeneration
- 1074T **Jeffrey He**  
Grade 11 - Effects of Soft Drinks on the Performance of Brain Computer Interface
- 1075W **Meghana Iyer**  
Grade 12 - Bioengineering the Lung: Directed Differentiation of Human Pluripotent Stem Cells into Definitive Endoderm on a Lung Extracellular Matrix  
**Project At Electricity Wall**
- 1076S **Serena Jing**  
Grade 12 - Inexpensive Glucose Monitoring Device for Diabetics Using Capillary Action of Crosslinked Sensing Fluid Year 2  
**Project At Electricity Wall**
- 1077W **Harini Kethar**  
Grade 12 - A Genetically Engineered Treatment for Chronic Pain and Peripheral Brain Damage through Vector-Mediated Gene Therapy  
**Project At Electricity Wall**
- 1078T **Everett Kroll**  
Grade 10 - 3D Printable Transtibial Prosthetic
- Cellular and Molecular Biology (CELL)*
- 1079S **Nicolas Amann, Caleb Bowron**  
Grade 11,11 - **Team** - Photosynthesis
- 1080W **Gauri Binoy**  
Grade 12 - Exploring the relationship between the PITX3 gene and pituitary as a site for neural regeneration for treatment of neurodegenerative diseases through blastocyst complementation of knockout brains
- 1081S **Tseyone Bogale**  
Grade 10 - Viability of *Synura* silicate scales for nanoparticles  
**Project At Electricity Wall**
- 1082T **Kara Odom, Madison Schwab, Emma Fee**  
Grade 12,12,12 - **Team** - A Novel Approach to Determining the Effects of Trihalomethanes on Epithelial Cells
- 1083T **Felix Oh**  
Grade 12 - A Novel Investigation of the Effects of a Genetically Engineered Biological Drug EGFATFKDEL on Human Sarcoma Cells
- 1084W **Karthik Papisetty, Jyotirmya Kumar**  
Grade 10,12 - **Team** - Inhibiting prostate cancer: The effects of the signaling receptor, RHAMM, on prostate carcinoma growth and motility
- 1085S **Geeta Rajamani**  
Grade 12 - Controlling Noxa Protein Expression by a Novel Approach to Study its Function in Leukemic Cells: Phase II
- Chemistry (CHEM)*
- 1086S **Isabella Gillespie-Cuesta**  
Grade 12 - The effect of dish soap on methane combustion
- 1087W **Samuel Kim**  
Grade 12 - Does systematically increasing the number of uniformly-sized polyacrylamide beads in 20-mL vials correlate with the number of faces on the beads when they finish expanding in water?
- 1088S **Roberto Lara, Aminta Morales**  
Grade 10,10 - **Team** - The value of water temperature
- 1089T **Elijah Le**  
Grade 10 - The Electrolysis slide

- 1090T **Ibtisaam Mahamed**  
Grade 10 - Freezing Point Depression of Salt and Sugar Solutions
- 1091S **Ba Blut Moo, Lah May Htoo, Abdifatah Hassan**  
Grade 9,9,9 - **Team** - Silt
- 1092S **Hetta Williams**  
Grade 12 - Vitamin K Crystallography
- 1093W **Kerui Yang**  
Grade 9 - Effects of pH on Polyvinyl Alcohol Behavior in Aqueous Solutions  
**Project At Electricity Wall**
- Computational Biology and Bioinformatics (CBIO)*
- 1094T **Chelsea Lai**  
Grade 11 - Tooth Trauma and Protection  
**Project At Electricity Wall**
- 1095W **Archana Murali**  
Grade 12 - Window to the brain: Using retinal biomarkers to predict progression of Alzheimer's and Parkinson's disease
- Earth and Environmental Sciences (EAEV)*
- 1096T **Ryan Allgood**  
Grade 10 - Glaciers vs. The World
- 1097S **Alice Andrastek, Emma McGrew, Grace Aerts**  
Grade 11,11,11 - **Team** - Seed Germination
- 1098S **Nick Berg, Akira Callahan, James Paquet**  
Grade 12,12,11 - **Team** - Terra-forming Mars; one microorganism at a time.
- 1099S **Matthew Bluhm**  
Grade 12 - Meteor Impact
- 1100S **Leonce Campbell**  
Grade 9 - How Do The Surrounding Trees Affect the water's pH?
- 1101T **Alyse Dees**  
Grade 10 - The Effects of Different Terrains on Wind Power Produced in a Wind Turbine
- 1102T **Sundus Farah**  
Grade 10 - Effects of pH Levels On Acid Concentration In Self-Contained Lakes With Rivers
- 1103T **Michael Finch**  
Grade 9 - To Flush or Not To Flush
- 1104T **Griffin Gutwa, Oluwaseyi Aguda Jr.**  
Grade 12,12 - **Team** - Going Green As You Clean
- 1105T **Ian Harpell**  
Grade 10 - How Soil Acidity Affects Plant Growth
- 1106T **Emma Harrold**  
Grade 10 - How Does the Blade Pitch of a Wind Turbine Affect Power Output?
- 1107T **Hanna Holmstrom**  
Grade 10 - A Comparison of Alternative Protein Sources and their Impact on the Environment
- 1108T **Yingyan Huang**  
Grade 12 - Effects the Ratio Between Road Salt and Beet Juice Has on the Speed of Ice Melting
- 1109S **Diane Huang**  
Grade 12 - Evaluating Roof Runoff Contaminants by Age
- 1110T **Zachary Huseby**  
Grade 10 - The Effect of Air Pollutants on the Philodendron Plant
- 1111S **Jack Indritz**  
Grade 12 - Leachate Metals and Organic Compounds in Roof Runoff by Shingle Age
- 1112T **Haley Jostes**  
Grade 10 - Using Natural Filtration to Improve the Water Quality of Klawitter Pond
- 1113T **Emily Lang**  
Grade 10 - House of Mold
- 1114T **Anh Le**  
Grade 10 - Digging Deeper: High vs. Low Infiltration in Soils
- 1115T **Claire McDavid**  
Grade 10 - Hard Water
- 1116S **Thel Moo, Moo Soe**  
Grade 9,9 - **Team** - How does the type of tree affect the number of worms found?
- 1117T **Joseph Mosoti, Shemarr Kilgore, Daniel Torres**  
Grade 12,12,11 - **Team** - Runoff Inspection
- 1118S **October Paw**  
Grade 9 - How do Humans Affect the Small Mammal Population in an Area?
- 1119S **Deleela Robinson, Yoselin Ahuacate Hernandez, Sadie Murphy**  
Grade 9,9,9 - **Team** - How Algae Affects the pH of Water
- 1120W **Sarah Scott, Christiana Wilke**  
Grade 9,10 - **Team** - Effect of Runoff on Water Quality
- 1121S **Nancy Solis**  
Grade 9 - How do Dead Trees Affect the pH of Soil?
- 1122T **Percy Thomas, Alex Dodd, Vincent Mwebi**  
Grade 12,12,12 - **Team** - Effect of Anthracite Combustion on Cyanobacteria Colonies

- 1123T **Maxwell Vogel**  
Grade 9 - Can a Golf Course Riparian Buffer Zone Reduce Fertilizer, Pesticide and Sediment Runoff into the Brown's Creek Watershed? (Year One - Phase I)
- 1124T **AnneMarie Wells, Zackary Sether**  
Grade 12,12 - **Team** - Variances of Effectiveness of Limonene from Organic and Non-Organic Citrus Fruits as a Natural Alternative to Acetone in Reducing Polystyrene
- 1125T **Claire Wentzlaff**  
Grade 11 - The Effects of Bacillus Bacteria on the Invasive Species Lemna minor (Duckweed)
- 1126W **Cassidy Yueh, Seyade Tadele**  
Grade 12,12 - **Team** - Flirtatious flies: The effects of indoor artificial lighting on Hermetia illucens mating in cold climates
- 1127S **Henry Zietlow**  
Grade 11 - The Effects of Ammonia on the Burrowing Habits of Plain Pocketbook Mussels
- Embedded Systems (EBED)*
- 1128W **Abhi Kamboj**  
Grade 12 - An Immersive Virtual Reality: The Effect of Haptics on Agency in a Virtual Environment  
**Project At Electricity Wall**
- 1129W **Parthiv Krishna**  
Grade 10 - Creating a Low Cost Eye Tracker to Prevent Distracted Driving  
**Project At Electricity Wall**
- 1130W **Abigail Roh, Samantha Deter**  
Grade 9,9 - **Team** - A Novel Approach to Keeping Track Valuables During an Age of Wearable Technology
- Energy: Chemical (EGCH)*
- 1131T **Davis Hey**  
Grade 10 - Bioethanol VS. Gasoline
- 1132T **Abyan Osman**  
Grade 10 - Which oil retains the most energy?
- Energy: Physical (EGPH)*
- 1133T **Marissa Baker**  
Grade 10 - UV Careful!
- 1134T **Jacob Dehkes**  
Grade 10 - The effect temperature has on the elasticity of rubber balls
- 1135T **Khalid Hassan**  
Grade 10 - What would actually happen if the voltage increased during the electrolysis?
- 1203W **John Beutz**  
Grade 11 - Inertial Electrostatic Containment D+D Fusion Device Proof of Design
- 1136T **Raymond Kwong**  
Grade 10 - Wind Power  
**Project At Electricity Wall**
- 1137T **Kiley O'Neil**  
Grade 10 - Comparison of Caloric Energy in Organic and Inorganic Food
- 1138T **Connor Van Dorpe, Braxton Kukulka**  
Grade 12,12 - **Team** - Increasing the Efficiency of a Photovoltaic System with a Calcium Chloride Hexahydrate Based Passive Cooling System
- 1139T **Yin Wang, Jianghua Lu**  
Grade 12,12 - **Team** - Electricity from Walking
- 1140S **Ramona White**  
Grade 12 - Free Fall
- Engineering Mechanics (ENMC)*
- 1141T **Chen Dai**  
Grade 12 - Captain America shield
- 1142T **Hannah Farmer**  
Grade 9 - Investigating Flow in Rotating Cylindrical Tubes
- 1143W **Siyuan Ma, Samuel Aronson**  
Grade 11,11 - **Team** - Making lifting easy, practical, and safe: Engineering an intuitive lifting control system
- 1144T **Aradhana Menon**  
Grade 10 - Skyfall: The Effect of Parachute Shapes on Drop Velocity
- 1145T **Cormac Pearce**  
Grade 10 - An Analysis of Different Materials on Radio Frequency Identification Chips
- 1146T **Samuel Scheuneman**  
Grade 10 - Hover board
- 1147T **William Trussell**  
Grade 10 - Effect of Water Flow Types and Blade Numbers on Rotations of Turbines
- 1148W **Genevieve Weiler**  
Grade 12 - Exploring the use of a hydrostatic transmission in a mid-size wind turbine
- Environmental Engineering (ENEV)*
- 1149T **Anna Cruz**  
Grade 10 - Chlorine in Municipal Drinking Water
- 1150T **Logan Eckholm**  
Grade 10 - The Energy Efficiency and Heat Retention of Alternative Insulation Materials
- 1151T **Melissa Islas-Arcega**  
Grade 10 - The Effect Of Paint LRV On Energy Consumption

1152T **Mia Katzmarek**  
Grade 10 - What's In Your Water?

1153T **Lucas Lesser**  
Grade 10 - How is Bioluminescence Affected by Patterns of Light

1154T **Manashree Padiyath**  
Grade 9 - Unleading The Way: Remediation of Lead Contaminated Water with Coriandrum Sativum (Cilantro) Biochar

1155S **Liza Strom**  
Grade 12 - # No Filter

### *Materials Science (MATS)*

1156T **Joseph Andel**  
Grade 10 - Does increasing the ratio of cornstarch to water in a mixture of the two increase the dissipation of the force of an object that comes in contact with the mixture?

1157T **Delaney Gigstad**  
Grade 10 - Picking Perfect Paints

1158T **Katie Herzog**  
Grade 10 - Which Lotion is the Best Potion?

1159T **Zachary Hjermstad**  
Grade 10 - Wealthy Wax

1160W **Avni Jain**  
Grade 10 - Solving the hip fracture crisis: Utilizing Silica Nanoparticles to synthesize a flexible, affordable, and bio-friendly Shear Thickening Fluid based innovation

1161S **Benjamin Mellin**  
Grade 11 - The Affect of Monomer Ratio on the Flexural Strength of a Block Copolymer

1162T **Sining Shen**  
Grade 12 - Super-hydrophilicity and Super-hydrophobic material comparison

1163T **Conor Thomas**  
Grade 10 - Greedy Golf Balls

1164T **Ethan Tinklenberg**  
Grade 10 - Shoes! On Race Day.

1165W **Yutong Xu**  
Grade 12 - Investigating the Effects of Cancer-Associated Extracellular Matrix on Healthy Keratinocytes

### *Mathematics (MATH)*

1166T **Joe Hesse-Withbroe**  
Grade 11 - Effect of Card Counting on Earnings in Blackjack

1167T **Emma Martin**  
Grade 10 - Font and Multiplication

### *Microbiology (MCRO)*

1168T **Grace Campbell**  
Grade 10 - The Combined Effects of Cefuroxime Axetil and Ultraviolet Radiation Against Bacillus subtilis

1169W **Isabella Jennings, Melinda Samaratunga**  
Grade 12,11 - **Team** - Classification of IMP--1  $\beta$ --Lactamase Inhibition and Inhibition Mechanisms to Combat Antibiotic Resistance

1170T **Sarah Johnson**  
Grade 10 - The Effects of Disinfectants on E coli Bacteria

1171T **Alex Li, Rebecca Li**  
Grade 11,10 - **Team** - Investigating a Green Approach for Biosynthesis of 5-Aminolevulinic Acid Using Biomass

1172T **Dyllan Mathew**  
Grade 10 - A Bacteria's Favorite Temperature

1173T **Megan Olson**  
Grade 10 - The Effects of Bleach and Vinegar on Bread Mold

1174T **Joe Schatz**  
Grade 9 - Can Mold Grow on Surfaces Coated with Antibacterial Products

1175T **Matthew Stewart**  
Grade 10 - How do disinfectant affect amount of bacteria

1176S **Enrique Vazquez**  
Grade 11 - What a Cheesy Science fair project

1177T **Michael Ysaguirre**  
Grade 10 - Does different genres of music effect the growth of bacteria

### *Physics and Astronomy (PHYS)*

1178T **Abigail Banks- Hehenberger**  
Grade 10 - Spectroscopic Analysis of Lightbulbs

1179T **Zachary Benson**  
Grade 9 - Noise Pollution

1180W **Jiaheng He, Sung Wan Huh**  
Grade 12,12 - **Team** - From Takeout Box to Organic Laser: Transforming the Industry by Engineering a Transparent, Flexible Laser

1181S **Eh Htoo, Eh Tha Paw, Chri Moo**  
Grade 10,10,9 - **Team** - Tennis ball experiment

1182T **Hayden Johnson**  
Grade 10 - Effect of Temperature on Conductivity of an Aqueous Solution with Varying Amounts of Electrolyte

- 1183T **Isaac Nelson**  
Grade 10 - Did You Hear That?
- 1184T **Riley Stagg**  
Grade 10 - Batter Up
- 1185S **Salvador Vega**  
Grade 12 - Sounds Intense! How string tension affects pitch
- 1186S **Bu Wah, Eh Wah, Naw Paw**  
Grade 10,10,10 - **Team** - How does the weight of the paper airplane affect its ability to fly
- 1187T **Clifford Yeboah**  
Grade 10 - The temperature of a magnet(s) and its affect on the spin of a direct current motor.

*Plant Sciences (PLNT)*

- 1188S **Mohamud Abdi, Sufian Garnett, Abdulahi Mohamed**  
Grade 10,10,10 - **Team** - How does temperature affect seed germination?
- 1189T **Michael Ambrose**  
Grade 10 - How Does Different Lighting Affect the Rate of Photosynthesis
- 1190S **Moo Baw, Klu Sher, Kpay Htoo**  
Grade 9,10,10 - **Team** - The effects of acid rain
- 1191T **Amber Chamberland**  
Grade 10 - Flower Power
- 1192W **Rajiv Dharnipragada**  
Grade 12 - Insect Immune Response to Fungal Pathogen Year Two  
**Project At Electricity Wall**
- 1193T **Abby Harrold**  
Grade 10 - The Carbon Dioxide Conundrum
- 1194S **Mari Knudson**  
Grade 12 - Improved phytoremediation of copper through the use of plant growth promoting rhizobacteria in Brassica juncea
- 1195T **Taylor Lee**  
Grade 9 - Growing Apple Seeds
- 1196T **Sophia Middag**  
Grade 10 - The Composting Complex
- 1197T **Jessica Nguyen**  
Grade 10 - Correlation Between Plant Density and Plant Growth
- 1198S **William Pribula**  
Grade 12 - Sleepy Seedlings
- 1199S **Veronica Sannes, Rachel Khodursky**  
Grade 11,11 - **Team** - Water the Effects of pH on bean Sprouts?

- 1200T **Heidi Stewart**  
Grade 10 - Home Grown
- 1201S **Emilia Topp-Johnson**  
Grade 11 - Terraformation and Cultivation: Investigating Strategies to Establish Martian Agriculture

*Translational Medical Science (TMED)*

- 1202T **Osman Abdullahi**  
Grade 10 - Effect of disinfectants on hand bacteria
- (EGPH) 1203W **John Beutz** Inertial Electrostatic Containment D+D  
Grade 11 - Fusion Device Proof of Design



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**Grade 6**

Abel, Anna 6027W  
Adam, Anya 6028S  
Ansari, Adam 6075T  
Arndt, Grace 6093W  
Baird, Ryan 6051W  
Ballot, Sam 6029W  
Barrera, Gabriela 6058S  
Behme, Zach 6094T  
Boockmeier, Sophia 6085W  
Bortscheller, Greta 6030W  
Bothwell, Brooke 6108W  
Brooks-Shirey, Naomi 6046S  
Bunay, Angelica 6067T  
Buxman, Dane 6002S  
Calle-alvarez, Maria 6031W  
Carr, Gianna 6013W  
Christy, Charlee 6052W  
Cleveland, Aiyana 6021S  
Cornell, Megan 6003W  
Coughlin, Emily 6095T  
Craemer, Nicholas 6096W  
Dameh, Harith 6023S  
Daniels-Smith, Nevaeh 6032W  
Delmonico, Vincent 6059W  
Deming, Dominique 6001T  
Dougherty, Kristen 6081W  
Dwyer, Brian 6033W  
Ebbert, Callie 6097W  
Edwards, Paris 6020S  
Eigner, Grace 6053W  
Ekstrand, Victor 6109T  
English, Eric 6076W  
Eshete, Yohanes 6034T  
Farley, Anna 6004W  
Fenton, Tanner 7098S  
Fix, Ella 6098T  
Frey, Ava 6005W  
Fulton, Samuel 6077W  
Georgeson, Lance 6071S  
Giertsen, Peter 6016W  
Greenwalt, Noelle 6068S  
Guffey, Evan 6017S  
Hankinson, Samantha 6018W  
Hartman, Ashton 6024W  
Haskard, Ezra 6035S  
Hernandez, Ulises 6060T  
Hewitson, Tyler 6086W  
Hewitt, Mary Kate 6082W  
Hoang, Ryan 6036S  
Huggar, Andre 6087W  
Hughes, Vaughn 7092W  
Hunt, David 6061W

Ingrassia, Roman 6036S  
Jett, Jaryce 6037S  
Johnson, Audra 6110T  
Kennedy, Matthew 6078T  
Kintopf, Ruby 6038S  
Klaesges, Thomas 6099W  
Krieger, Jacob 6039W  
Kuebler, Kathryn 6040S  
Lane 6th, Jonathan 6041S  
Larson, Vivienne 6007W  
Larson, Gabriella 6042W  
Larson, Genevieve 6006W  
Lee, Zoë 6100S  
Lewis-Mosher 6th, Gabriel 6101S  
Lien, Maren 6088S  
Loja, Chris 6043W  
Mamburao, Kin 6054W  
Matson, Eva 6065S  
Mayer, Callen 6069S  
McAdam, Faith 6092W  
McManimon, Bailey 6089S  
Meaney, Quinn 6008S  
Miller, Clare 6070W  
Modahl, Jack 6062W  
Mohamed, Muna 6025S  
Molina-Boldt, Adrian 6071S  
Molldrem, Mya 6044T  
Morris, Reed 6071S  
Nelson, Liam 6079T  
Nientimp, Avery 6083W  
Niznick, Tyler 6063T  
Noonan, Colleen 6090W  
O'Daniel, Erin 6064W  
Ogle, Leo 6080W  
Osterbauer, Lucas 6009W  
Page, Evan 6095T  
Paquin, Sofia 6088S  
Pavlo, Dalaney 6102T  
Petruconis, Luke 6055T  
Pillai, Harsha 6103T  
Pitt, Carter 6045W  
Pollard, Madelon 6014W  
Power, Oran 6072S  
Prosch-Winberg, Dagny 6046S  
Reid, Evan 6113W  
Ricker, Mae 6026S  
Riemenschneider, Wynne 6010S  
Robinson, Caleb 6012S  
Rogalski, Mark 6019W  
Rushing, Ella 6104W  
Ryan, Naomi 6065S  
Satoskar, Francesca 6010S  
Scott-Aaron, Johnesha 6020S  
Senthilkumar, Harini 6111W  
Sheahan, Kane 6056W

Sheets, Flannery 6073S  
Shideman, Charlie 6057W  
Sislo, Caroline 6084W  
Steglich, Jack 6011T  
Stelzer, Isaac 6105W  
Storms, Patrick 6066W  
Taipe, Aiyana 6047T  
Temple, Janina 6015W  
Tesfaye, Sami 6074S  
Thao, Wendy 6021S  
Vaccaro, John 6048W  
Vang, Chi 6091S  
Vitt, Luke 6106W  
Voigt, Peter 6107T  
Walser, Cece 6112W  
Wentland, Nikalette 6022W  
Wiedl, Ivan 6012S  
Woodage, Andrew 6049S  
Yang, Trinity 6025S  
Zimmerman, Owen 6050S

**Grade 7**

Akon, Patience 7100W  
Albers, Sam 7101T  
Alfano, Eleanor 7090S  
Anderson, Jake 7091S  
Anderson, Chloe 7042S  
Bartelle, Taya 7009T  
Beekman, Katherine 7119W  
Berg, Soren 7102S  
Bersie-Mize, Keegan 7068S  
Bittner-Eddy, Aiden 7010S  
Bizuneh, Joseph 7069T  
Boaz, Krista 7001T  
Boike, Jack 7103W  
Bowman, Forrest 7120T  
Boyd-Smith, Pema 7070S  
Branson, Taylor 7027S  
Budd, T.J. 7050S  
Bunnell, Elizabeth 7011T  
Calvo, Mario 7081W  
Carbone, Brandon 7012T  
Caron, Cassandra 7121T  
Carpio, Jessica 7043T  
Castro, Paul 7122T  
Cebulla, Grace 7013W  
Chaudhary, Arjun 7014W  
Chow, Jayden 7104T  
Cole, Nora 7065S  
Cullen, Matthew 7123T  
De Leon, Martin 7105T  
DeCrans, Elizabeth 7099T  
Deering, Margaret 7106W  
Desai-Hunt, Rohan 7082S

Dieperink, Teo	7124S	O'Rourke, Caitlin	7077W	<b>Grade 8</b>	
Dombrock, Helen	7015T	Olson, Caroline	7130T		
Eiken, Samantha	7051S	Olson, Zoe	7112T	Aamodt, Claire	8022S
Farnham, Colin	7028S	Owen, Ainsley	7113S	Aguda, Omolara	8030T
Finlay, Owen	7044S	Palmer, Caroline	7095W	Ali-Caccamo, Juliet	8005S
Flowers, Paige	7052T	Panora, Gabriela	7004T	Anderson, Maddie	8079T
Foley, Bridget	7045T	Patterson, Tianna	7096S	Baker, Asia	8031T
Foley, Fionnuala	7029T	Pledger, Te'aonna	7005S	Blake, Abby	8094S
Foley, Mary	7030T	Procko, Caitlyn	7114T	Brennan, Joe	8080T
Fortier, Claire	7031S	Purcell, Annelise	7032S	Brouwer, Julia	8101W
Gainor, Patrick	7016T	Ramirez, Vincent	7097T	Byrne, Julian	8111W
Garcia-Silva, Sofia	7045T	Rhee, Abigail	7041S	Chance, Zaiga	8046S
Geis, Claire	7034T	Rippentrop, Isabelle	7021T	Christ, Amelia	8032S
Gerber, Bridget	7083T	Ronning, Frances	7059S	Christian, Kate	8033T
Gidwani, Aman	7071S	Rouillard-Horne, Max	7086S	Cooper, Adeleine Cooper	8091S
Grass, Frankie	7072S	Rute, Ravelle	7060W	Covel, Abigail	8017W
Guevara, Michael	7017S	Sackreiter, Soren	7047S	Dahdah, Dominic	8081S
Gupta, Keira	7125S	Salazar Lopez, Pablo	7022S	Dahlke, William	8071T
Haddorff, Tyler	7073T	Salguero, Yovany	7061S	Daud, Aishat	8047S
Hardy, Nathan	7093S	Sandbo, Everett	7048T	Delonghersh, Lorraine	8048S
Harvell, Sarah	7107T	Schearer, Maddie	7062S	Dinh, Monica	8001T
Hayelom, Robel	7108S	Scheldberg, Ellie	7049T	Eddins, Riley	8006S
Heaton, Bryan	7053W	Schindeldecker, Wyatt	7036W	Engelmann, Maeli	8049S
Hernandez, Isabella	7096S	Schmidt, Mike	7006W	Fellows, Ingrid	8072S
Hess, Katelyn	7084T	Schreifels, Karley	7037W	Fix, Sofia	8087T
Hoang, Joseph	7126S	Seshadri, Rikhil	7067T	Fossum-Wernick, Maren	8007S
Hofer, Betsy	7040S	Sewich, Adam	7023S	Francis, Helene	8096S
Hoppe, Griffin	7109S	Skinner, Samuel	7087S	Fredrickson, Ilse	8050W
Hughes, Quentin	7092W	Sowatzka, Allison	7038S	Friedmann, Anthony	8068T
Jackson, Troy	7120T	Spencer, Aaden	7033T	Ganley, Nell	8017W
Jaramillo Quiroz, Stephanie	7002T	Stock, Braden	7115T	Gaudio, Anna	8102S
Johnson, Latrese	7018S	Strayer, Jasper	7033T	Giel, Jackson	8082T
Kaker, Charles	7113S	Stroeing, Cole	7063S	Gist, Nathan	8092T
Kamp, Libby	7035W	Sullivan, Nate	7116T	Goff, Paul	8051S
Katics, Maeve	7003W	Swinney, Carter	7098S	Guevara, Marisol	8088S
Kauls, Amanda	7001T	Thao, Lor	7063S	Hassan, Ayan	8034T
Kemper, Evie	7054W	Thibault, Kate	7024T	Hatch, Fiona	8083S
Krocheski-Meyer, Ava	7019W	Tinklenberg, Audrey	7011T	Haugh, Megan	8035T
Larkin, Daniel	7110W	Torkelson, Sylvia	7025S	Hausman, Hannah	8023S
Le-Vu, Teresa	7020T	Tyrrell, Orion	7088T	Hedges, Dixon	8089S
Lewis, Olivia	7046T	Urbina, Jose	7063S	Heinrichs, Elliot	8052T
Maceda, Giancarla	7039S	Vang, Sebastian	7061S	Herzog, Sophie	8103T
Machtig, Abby	7055T	Vergara Zuniga, Uriel	7007T	Heymans, Shannon	8008T
Mathews, Hayden	7085T	Viehman, Jonathan	7089W	Hirmoge, Guleed	8073S
Mays, Savanna	7074S	Vis, Abby	7064W	Houge, Lydia	8036S
McCarthy, Emily	7127W	Warmka, Caroline	7129T	Hutchinson, Tori	8009S
McGinley Myers, Izzie	7056S	Way, Lwe	7061S	Hyde, Frederick	8053T
Mellema, Camden	7057W	Weaverling, Ava	7078T	Iliarski, Alex	8020W
Mendoza, Ana	7075S	Wells, Maggie	7079W	Isaacson, Marit	8054S
Montes Hernandez, Shalim	7058T	Wenger, Peter	7117S	Isakson, Wyatt	8084T
Moore, Griffin	7076S	Wethington, Grace	7026S	Jackson, Anika	8111W
Nietz, William	7066S	Wubshet, Faraes	7118T	Jaeger, Nicholas	8104W
Nnaji, Maya	7111W	Zarkower, Sebastian	7008S	Johanns, Katarina	8010W
O'Brien, Anna	7094S	Zylstra, Sam	7080W	Johnson, Savior	8011S
O'Donnell, Micheal	7128T			Jones, Jevon	8055S



Holman, Isabella	1003S	Lu, Jianghua	1139T	Samz, Madeline	1044T
Holmstrom, Hanna	1107T	Luchsinger, Emma	1006S	Sandoval, Marco	1019S
Htoo, Eh	1181S	Lundgren, Kylie	1038T	Sannes, Veronica	1199S
Htoo, Lay	1055S	Luong, Leann	1062T	Scalzo, Sarah	1045T
Htoo, Kpay	1190S	Ma, Siyuan	1143W	Schatz, Joe	1174T
Htoo, Lah May	1091S	Mahamed, Ibtisaam	1090T	Scheuneman, Samuel	1146T
Huang, Diane	1109S	Martin, Emma	1167T	Schilder Manning, Clara	1068S
Huang, Yingyan	1108T	Mathew, Dyllan	1172T	Schwab, Madison	1082T
Hubbard, Caleb	1030T	Matter , Nicole	1039T	Scott, Sarah	1120W
Hughes, Mikayla	1031T	Maxwell, Cole	1069W	Scott, Maggie	1069W
Huh, Sung Wan	1180W	McDavid, Claire	1115T	Sether, Zackary	1124T
Hulbert, Heidi	1059T	McGovern, Grace	1063T	Shen, Sining	1162T
Huseby, Zachary	1110T	McGrew, Emma	1097S	Sher, Klu	1190S
Hussen, Faisa	1043S	Mellin, Benjamin	1161S	Smith, Blake	1070T
Indritz, Jack	1111S	Menon, Aradhana	1144T	Soe, Moo	1116S
Islas-Arcega, Melissa	1151T	Middag, Sophia	1196T	Solis, Nancy	1121S
Iyer, Meghana	1075W	Mohamed, Abdulahi	1188S	Song, Hyunsoo	1071W
Jain, Avni	1160W	Moo, Ba Blut	1091S	Stagg, Riley	1184T
Jennings, Isabella	1169W	Moo, Chri	1181S	Stewart, Heidi	1200T
Jensen, Lauren	1032T	Moo, Thel	1116S	Stewart, Matthew	1175T
Jing, Serena	1076S	Morales, Aminta	1088S	Strom, Liza	1155S
Johnson, Hayden	1182T	Mosoti, Joseph	1117T	Swanson, Katelyn	1046T
Johnson, Sarah	1170T	Murali, Archana	1095W	Tadele, Seyade	1126W
Johnson, Gregory	1060T	Murphy, Sadie	1119S	Tangney, Claire	1047T
Jostes, Haley	1112T	Mwebi, Vincent	1122T	Thomas, Liam	1048T
Kamboj, Abhi	1128W	Narayan, Shreya	1064T	Thomas, Percy	1122T
Karan, Abigail	1004S	Nelson, Isaac	1183T	Thomas, Conor	1163T
Katzmarek, Mia	1152T	Nguyen, Andy	1040T	Thompson, Abigail	1049T
Kelly, Rachel	1033T	Nguyen, Jessica	1197T	Tinklenberg, Ethan	1164T
Kethar, Harini	1077W	O'Neil, Kiley	1137T	Topp-Johnson, Emilia	1201S
Khodursky, Rachel	1199S	Odom, Kara	1082T	Torres, Daniel	1117T
Kilgore, Shemarr	1117T	Oh, Felix	1083T	Trussell, William	1147T
Kim, Samuel	1087W	Olson, Ellen	1041T	Valverde, Liliana	1050T
Kirk , Brianna	1034T	Olson, Megan	1173T	Van Dorpe, Connor	1138T
Kloeckl, Caitlyn	1035T	Osman, Abyan	1132T	Vang, Dominic	1007S
Knudson, Mari	1194S	Padiyath, Manashree	1154T	Vazquez, Enrique	1176S
Krishna, Parthiv	1129W	Papisetty, Karthik	1084W	Vega, Salvador	1185S
Kroll, Everett	1078T	Paquet, James	1098S	Vijayakar, Raunak	1017W
Kukulka, Braxton	1138T	Parrish, Grant	1065W	Vogel, Maxwell	1123T
Kumar, Jyotirmya	1084W	Paw, October	1118S	Vogelgesang, Anna	1051T
Kuplic, Sarah	1036T	Paw, Naw	1186S	Vu, Isaac	1008S
Kwong, Raymond	1136T	Paw, Eh Tha	1181S	Wah, Bu	1186S
Lai, Chelsea	1094T	Pearce, Cormac	1145T	Wah, Eh	1186S
Lai, Brandon	1061W	Peterson, Amanda	1042T	Wang, Yin	1139T
Lang, Emily	1113T	Pribula, William	1198S	Weiler, Genevieve	1148W
Lara, Roberto	1088S	Rajamani, Geeta	1085S	Wells, AnneMarie	1124T
Le, Elijah	1089T	Rex, Samuel	1073W	Wentzlaff, Claire	1125T
Le, Anh	1114T	Riley, Dinnea	1007S	White, Ramona	1140S
Lee, Taylor	1195T	Rippentrop, Olivia	1066T	Widen, Jacob	1009T
Leland, Mari	1005W	Rivas, Claudia	1043S	Wilke, Christiana	1120W
Lesser, Lucas	1153T	Robinson, Deleela	1119S	Williams IV, James	1065W
Leville, Samuel	1023W	Robinson, Justin	1067T	Williams, Hetta	1092S
Li, Alex	1171T	Roh, Abigail	1130W	Xiong, Yang	1010S
Li, Rebecca	1171T	Salverda, Mason	1052S	Xu, Yutong	1165W
Lind , Zoey	1037T	Samaratunga, Melinda	1169W	Yang, Soua	1010S

Yang, Dao	1010S
Yang, Kevin	1008S
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Yeboah, Clifford	1187T
Ysaguirre, Michael	1177T
Yueh, Cassidy	1126W
Zeiber, Kylei	1020S
Zietlow, Henry	1127S



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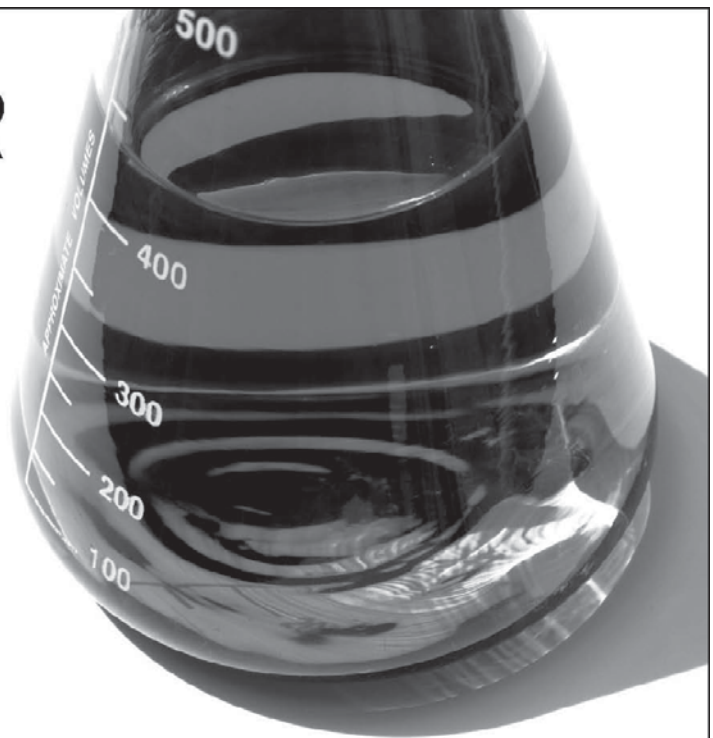
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## 2017 Research Papers

Name	Grade	Title
Zach Behme	6	Which Substance Makes Ice Melt the Fastest?
Harith Bilal Dameh	6	Germ Busters!
Yohanes Eshete	6	Density
Logan McCarl	6	What solute makes light made by chemiluminescence last the longest?
Rachel Poppleton	6	What Type of Plant Helps Lettuce Grow the Tallest?
Harini Senthilkumar	6	Effect of Dandelions on bacterial growth
Eleanor Alfano	7	Organic vs Inorganic- A Study To Clean Up Oil Spills
Katherine Diane Beekman	7	The Impact of Mulch on Phaseolus Vulgaris
Pema Susanne Kriti Boyd-Smith	7	Who will win this super solar oven contest? Rocks, cardboard, or shirts? A study of solar ovens
Rohan Desai-Hunt	7	Bending Bridges
Teo Dieperink	7	Acid Rain
Helen Dombrock	7	The Effect of Age and Gender on Color Hue Preferences in Photos
Frankie Maza Grass	7	Plastic Pollution, An Insulation Sulation
Keira Marie Gupta	7	Salty Grasses - A study of road salt effects on grasses
Bryan Michael Heaton	7	The Effect of CO2 Concentrations on the Growth of Lepidium Sativum
Quentin Xander Hughes, Vaughn Harrison Hughes	7,6	Can Worms Save the Planet from Plastic?
Greta Kneisl, Helen Hoang	7,7	Sound Insulation
Teresa Le-Vu	7	Bouba Kiki Effect
Camden Scott Mellema	7	The Relationship Between Location on a Lake and the Amount of Chemicals Present
Ana Lucille Mendoza	7	Solar Stills Making Water for a Thirsty World
Griffin Henry Moore	7	Keep Calm and Stay Cool: A Study of Cool Roofing
Tianna Rene-Ann Patterson, Isabella Teresa Hernandez	7,7	Sugar on the Sugar Cookie
Frances Ronning	7	It's Getting Hot in Here: How Different Colors Affect the Interior Temperatures of Clay Structures and Asphalt
Wyatt O. Schindeldecker	7	B. Cereus The Impact of Apple Cider Vinegar on a Common Bacteria
Braden Stock	7	More Bang for Your Bat
Abby Grace Vis	7	Substitutes For Salt To Melt Ice On The Roads
Sam James Zylstra	7	The Impact of Atomospheric Reentry on Thermal Heat Shield Material
Juliet Hana Ali-Caccamo	8	Font-tastic Fluency and Comprehension: A Comparison Between Dyslexic Font and Times New Roman Font Among Students with and without Dyslexia
Julia Anne Brouwer	8	Leafy Green Astronauts Year Two: How Space Radiation Impacts Seed Germination and Subsequent Plant Growth of Monocot Versus Dicot Seeds
Zaiga Rae Chance, Lee Elizabeth Tuggle	8,8	A Study on Eutrophication and Elodia Canadensis in Como Lake Water
Lorraine Delonghersh	8	Monarch Monitoring
Maren Emilia Fossum- Wernick	8	Distraction and Reaction- The Effect of Texting on Reaction Time and Ability to Focus
Ilse Katherine, Grace Fredrickson	8	Is The Water Impaired? Testing For ph, Ammonia, and Nitrate in a Freshwater Ecosystem,
Paul Joseph Goff	8	Our Lakes In Crisis

## 2017 Research Papers (continued)

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Wyatt Isakson	8	Feu Dans Le Trou
Milan Jostes	8	A Non-Rocket Satellite Launcher
Karissa Elizabeth Kockelman	8	The Cool Blue Light of Luminol
Brooke LaMott	8	UV lights and the growth of plants
Rachel Anne Levin	8	Slowing Traffic With Art
Emily Alexis Miller-Sweesy	8	Road Salt, Growth Halt?
Addie Morrisette	8	Water Plants and Their Effects on Nitrites and Phosphates
Luke Andrew Rausch	8	What Parachutes Can Fly and Egg the Best
Andrew Joesph Sadvik	8	Drumming Up Some Decibels
Blair Danielle Tanski	8	Melting Crayons
Luke Trussell, Nate Trussell	8,8	Silence Is Golden: The effectiveness of soundproofing materials
James Reese Clinton, Samuel Christopher Leville	9,10	Advertising: Using Psychology to Grab Your Interest
Hannah Elisabeth Lynn Farmer	9	Investigating Flow in Rotating Cylindrical Tubes
Michael Finch	9	To Flush or Not To Flush
Taylor Alexis Walters Lee	9	Growing Organic Apple Trees
Manashree Padiyath	9	Unleading The Way: Remediation of Lead Contaminated Water with Coriandrum Sativum (Cilantro) Biochar
Abigail Roh, Samantha Detor	9,9	A Novel Approach to Keeping Track of Valuables During an Age of Wearable Technology
Joe Schatz	9	Can Mold Grow on Surfaces Coated with Antibacterial Products
Maxwell Joseph Vogel	9	Can a Golf Course Riparian Buffer Zone Reduce Fertilizer, Pesticide and Sediment Runoff into the Brown's Creek Watershed? (Year One - Phase I)
Kerui Yang	9	Effects of pH on Polyvinyl Alcohol Behavior in Aqueous Solutions
Osman Ahmed Abdullahi	10	Effect of disinfectants on hand bacteria
Ryan Starke Allgood	10	Glaciers vs. The World
Michael Rajeevan Ambrose	10	How Does Different Lighting Affect the Rate of Photosynthesis
Joseph Michael Andel	10	Does increasing the ratio of cornstarch to water in a mixture of the two increase the dissipation of the force of an object that comes in contact with the mixture?
Arbaz Azber Ansar	10	Is Denser Fruit Healthier, and Does It Affect the Size of the Fruit?
Erin Bachmeier	10	The effect perception of difficulty has on task performance
Jaelyn Baisch	10	The Correlation Between Female Finger Length and Athletic Ability
Ashley Christina Baker	10	The Mandela Effect: Are False Memories Prominent in Adolescences
Marissa Marie Baker	10	UV Careful!
Samuel James Bardwell	10	The Change of Perception with Color
Alicia Nicole Bauer	10	The Effect of Media on the Human Memory
Ryan Beattie	10	The Effects of Music on Cognition
Matthew Benjamin Berg	10	Running to the Beat
Emily Rae Bogaard	10	A Statistical Analysis of the Reaction Times of Athletes and Nonathletes
Tseyone Bogale	10	Impact of temperature towards keeping a consistent growth rate for silica scales to see if they are suitable for being utilized as nanoparticles
Griffin Arthur Boos	10	Note taking on paper vs. Computers
Megan Ann Bormann	10	Organic Fruits or Genetically Modified Fruits: What's the Sweeter Deal?



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Name	Grade	Title
Joseph James Brunner	10	The Correlation Between Concussions and Their Symptoms in High School Sports
Grace Ann Campbell	10	The Combined Effects of Cefuroxime Axetil and Ultraviolet Radiation Against <i>Bacillus subtilis</i>
Andrew James Carlson	10	Does Canine Saliva Effect the Growth of <i>E. coli</i> Bacteria
Sebastian Cerda	10	Are Audible Subliminal messages effective
Amber Rae Chamberland	10	Correlation between longevity of cut flowers and the substances it is submerged in
Cassandra Rae Cross	10	The Best Age To Learn Another Language
Anna Jessica Cruz	10	Chlorine in Municipal Drinking Water
Arianna Lee Day	10	Involvement in Music and its Effect on the Speed of Processing Information
Alyse Marie Dees	10	The Effects of Different Terrains on Wind Power Produced in a Wind Turbine
Jacob Reynold Dehkes	10	The effect temperature has on the elasticity of rubber balls
Matthew Douglas Dickhausen	10	Stability of Structures During Earthquakes
Jordan Paul Discher	10	Lead in Public Water Systems
Logan James Eckholm	10	The Energy Efficiency and Heat Retention of Alternative Insulation Materials
Ryan Joseph Engle	10	The Correlation Between Race and Trustworthiness
Adan Falcon	10	Calorie Count Affect on Temperature Change in Water
Sundus M Farah	10	Effects of pH Levels On Acid Concentration
Joseph Michael Fee	10	The Application of the Birthday Paradox to Real World
Tatum Kailee Frey	10	Effect of Feng Shui on Productivity
Josue Garcia	10	Can Peppermints Improve Reaction Times?
Delaney Elise Gigstad	10	Which type of paint Flat, Eggshell, or Oil-Based Enamel, will best prevent pine wood from experiencing water damage?
Alexander Gorton	10	The Peltier-Seebeck Effect at Low Temperature Gradients
Adam Bernard Haag	10	Effects of Glyphosate on <i>Brassica rapa</i>
Ian Andre Harpell	10	How Soil Acidity Affects Plant Growth
Emma Logan Harrold	10	How Does the Blade Angle of a Wind Turbine Affect the Power Output
Abby Marie Harrold	10	The Carbon Dioxide Conundrum
Khalid Qassim Hassan KQH	10	What would actually happen if the voltage increased during the electrolysis?
Najma Farhan Hassan	10	Effects of cell phones upon reaction time
Siham Mohamed Hassan	10	The Effects of Cellphones on Reaction Time
Katie Beth Herzog	10	Which Lotion is the Best Potion?
Davis Andrew Hey	10	Bioethanol VS. Gasoline
Zachary Loren Hjermstad	10	Snowboard Wax: Does Greater Cost Really Equal Greater Proformance
Hanna Kate Holmstrom	10	A Comparison of Alternative Protein Sources and their Impact on the Environment
Joshua Holtzleiter	10	Memorization and Color Correlation
Caleb John Hubbard	10	Depriving the Stroop Effect
Dylan Hughes	10	Time Trials: The Battle Between Men and Women Reaction Times
Mikayla Grace Hughes	10	The Effects of Musical Experience on Problem Solving Abilities
Heidi Marie Hulbert	10	A Comparasin of the Antibacterial Effect of Manuka Honey to a Local Wildflower Honey

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Name	Grade	Title
Zachary Andrew Huseby	10	The Effect of Air Pollutants on the Philodendron Plant
Louis Osadolor Ikponmwosa	10	The Correlation Of Perceiving Between Genders
Melissa Islas-Arcega	10	The Effect Of Paint LRV On Energy Consumption
Avni Jain	10	Solving the hip fracture crisis: Utilizing Silica Nanoparticles to synthesize a flexible, affordable, and bio-friendly Shear Thickening Fluid based innovation
Lauren Ana Jensen	10	Blind Choices
Hayden Richard Johnson	10	Effect of Temperature on Conductivity of an Aqueous Solution with Varying Amounts of Electrolyte
Sarah Marie Johnson	10	The Effects of Disinfectants on E coli Bacteria
Haley Jostes	10	Using Natural Filtration to Improve the Water Quality of Klawitter Pond
Mia Elizabeth Katzmarek	10	What's In Your Water
Rachel Louise Kelly	10	The Effects of Positive Reinforcement on Accuracy Using Two-Step Algebraic Equations
Brianna Nicole Kirk	10	The Effect of Mobile Phone Usage On the Amount of Phantom Vibration Syndrome Symptoms
Josh Lee Klavins	10	Skyscraper shapes and wind forces
Caitlyn Ann Kloeckl	10	The Effects of Distracted Driving
Laura Elizabeth Kotz	10	The Correlation Between Foot -Strike Position and Injury
Sarah Grace Kuplic	10	Do Males or Females Talk More?
Raymond Lap Kwong	10	Wind Power
Emily Dawn Lang	10	The Correlation Between Different Siding Materials and the Amount of Mold Growth
Elijah James Le	10	The electrolysis slide
Anh Dat Tram Le	10	Digging Deeper: Is There a Significant Difference Between Soils with High Infiltration vs. Low Infiltration?
Lucas Lawrence Lesser	10	How is Bioluminescence Affected by Patterns of Light
Tiana Lien	10	Susceptibility to Influenza and the Effect of SNPS
Logan Christopher Lillehaug	10	The Effects of Auditory and Visual Learning on Retention Rate
Zoey Olivia Lind	10	Completing Tasks on the Computer versus Paper
Vladimir Daniel Lind	10	How Shapes Interact with Weight in a Frame
Kylie Dale Lundgren	10	A Study of Subliminal Messages on High School Students
Leann Luong	10	Fruit Density
Ibtisaam Ebdulgadir Mahamed	10	Freezing Point Depression of Salt and Sugar Solutions
Gargi Mansingh	10	The Validity of Fingerprints
Katie AnnMarie Marko	10	Silver or Copper?
Emma Rose Martin	10	Math and Multiplication
Dyllan Dennis Mathew	10	A Bacteria's Favorite Temperature
Nicole Jean Matter	10	What effect does time have on an eyewitness's memory
Claire Renee McDavid	10	Hard Water
Grace Elizabeth McGovern	10	Comparing GMO foods to Non GMO foods
Cheyne Grace McKinney	10	The Correlation between Hearing, Age, and Music
Aradhana Menon	10	Skyfall: The Effect of Parachute Shapes on Drop Velocity
Sophia Grace Middag	10	The Composting Complex
Ian Jeffery Miner	10	How does white noise affect memory
Michael Riley Mingo	10	Fresh Bread or Not Fresh Bread, That is the question
Jamal Shamsadir Mohamud	10	Auditory Vs Visual Memory

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Erin Judith Murray	10	The Effect of Women's Self Esteem on Their Relationships
Isaac Richard Nelson	10	Did You Hear That?
Jessica Irene Nguyen	10	Correlation Between Plant Density and Plant Height
Lisa Truc Anh Nguyen	10	Effects of Various Juices on the Human Kidney
Leita Nha Nguyen	10	Effect of Age On Ability to Hear Higher Frequencies
Andy K Nguyen	10	Earworm Effect: The effects of number of beats per minute and the type of song genres
Alex Marie Nilsson	10	How different genders perceive sound
Kiley O'Neil	10	Comparison of Caloric Energy in Organic and Inorganic Food
Megan Elise Olson	10	The Effects of Bleach and Vinegar on Bread Mold
Ellen Nadiene Olson	10	Behaviors and Frequencies
Abyan Liban Osman	10	Which oil retains the most energy?
Patrick Joseph Otto	10	The Googolplex Theory
Karthik Papisetty, Jyotirmya Kumar	10,12	Inhibiting prostate cancer: The effects of the signaling receptor, RHAMM, on prostate carcinoma growth and motility
Dalton Leonard Passon	10	Carbon Dioxide's Affect on the World Around You
Cormac Mahony Pearce	10	An Analysis of Different Materials on Radio Frequency Identification Chips
Amanda Kristine Peterson	10	Hair Color Sterotype
Samuel West Phillips	10	Strength of Wood
Jackson Oliver Reichert	10	What Effect Does Phototropism Have On The Length Of Plant Stems?
Olivia Jane Rippentrop	10	An Analysis of the Antimicrobial Effects of Essential Spices on the Inhibition of E. coli
Justin Taylor Robinson	10	The effect of heart rate on the ability to learn
Madeline Grace Samz	10	Battle of the Brain
Sarah Anne Scalzo	10	Affect of sight on taste
Samuel Gary Scheuneman	10	Hoverboard Studies
Natasha Schonewill	10	Kids 'n' Learning
Chris Matthew Slep	10	The Correlation between Personality and Zodiac Sign
Blake Abbott Smith	10	How do Bacteria Colonies differ from Surface to Surface
Kira Nicole Sosinske	10	Does Air in a Soccer Ball Affect Distance Traveled?
Katie Grace Spaude	10	The Effects of Creating Phantom Limbs on Non-Amputees
Riley Kevin Stagg	10	Batter Up
Eleanore Genivieve Steinhouse	10	Effects of Soil Type on Water Runoff
Matthew David Stewart	10	How do disinfectants affect amount of bacteria
Heidi Jane Stewart	10	Home Grown: The Effect Organic Fertilizers Have on a Flowering Plant
Katelyn Swanson	10	Correlation Between The Color of Iris and How a Person Perceives a Color
Claire Amelia Tangney	10	Correlation Between Emotional Stimulus and its Effect on Blood Pressure
Liam James Thomas	10	The Effects of Added Food Coloring on Taste Perceptions
Conor Michael Thomas	10	Greedy Golf Balls
Abigail Rose Thompson	10	A Canine Understanding of tones vs words
Ethan Paul Tinklenberg	10	How do different types of running shoes affect the friction created with the ground?
Megan Marie Tomas	10	Audio Pareidolia: The Human Brain and Pattern Making With Differing Familiarities

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William Patrick Trussell	10	Effect of Water Flow Types and Blade Numbers on Rotation of Turbines
Terra Nicole Tvedt	10	A Study on the Effect of Wireless Electricity Coil Size on Range and Load
Liliana Valverde	10	How Does Impulsivity Affect Impulsivity Affect Young Children and How Does It Differ In Gender?
Matthew Jerome Voigt	10	Liquefaction
Grace Ilana Wenzinger	10	Organic and Inorganic Material Absorbing Oil
Jacob Magnus Widen	10	Effects of Non-Nutritive Sweeteners on the Lifespan of Drosophila melanogaster
Clifford Obiri Yeboah	10	The temperature of a magnet and its spin effect on the spin of a direct current motor
Luna W Yemane	10	A Correlation Between Hand-Eye Coordination and Free Throw Percentage
Michael Tran Ysaguirre	10	Does different music genres effect bacteria growth
Iya Abdulkarim	11	Applying the Novel Object Recognition Test In Danio rerio: An Observational Study
Emma Claire Carr, John Dempsey	11,12	Google Glass: Employing Technology to Improve Outpatient Medical Care
Molly C Carroll	11	The "Ant-ernet" and the Dietary Preferences of Atta Cephalotes Leafcutter Ants
Luke Chen	11	Operant Conditioning
Maya Waleria Czeneszew , Samuel John Rex	11,12	Engineering a vasculature: Paving the way for successful organ regeneration
Claire Nicole Bailey Davis	11	The Drying Effect of Alcohol Hand Sanitizers on Skin
Jeffrey He	11	Effects of Soft Drinks on the Performance of Brain Computer Interface
Joe Hesse-Withbroe	11	Effect of Card Counting on Earnings in Blackjack
Emma Kiersten Hills	11	Urbanization's Effects on Bird Migration
Brandon Lai	11	Oct4 Regulation of Cardiac Progenitor Cell Specification in Heart Development
Chelsea Lai	11	Tooth Trauma and Protection
Mari Leland	11	Ant-ibiotics and the Study of Atta Cephalotes
Alex Li, Rebecca Li	11,10	Investigating a Green Approach for Biosynthesis of 5-Aminolevulinic Acid Using Engineered Escherichia coli and Wheat Straw
Siyuan Ma, Samuel Aronson	11,11	Making lifting easy, practical, and safe: Engineering an intuitive lifting control system
Benjamin Haskel Mellin	11	The Synthesis, Characterization, and Flexural Strength Assessment of a Block Copolymer
Hyunsoo Song, Addison Gleekel	11,11	Preparing for the future: Analyzing the long-term effects of traumatic brain injury
Emilia Frances Topp-Johnson	11	Terraformation and Cultivation: Investigating Strategies to Establish Martian Agriculture
Henry Zietlow	11	The Effects of Ammonia on the Burrowing Habits of Plain Pocketbook Mussels
Elena Berman, Raunak Vijayakar	12,12	Hello, Stranger: A Big Data Approach to Online Dating
Smita Bhoopatiraju	12	Phonological and Semantic Features in Four- and Six-Year-Olds' Foreign Word Learning

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Chen Dai	12	Captain America
Nathaniel Rudolph Farmer	12	Are You Protected? Wearable Mask Fit Monitor – Year II
Jiaheng He, Sung Wan Huh	12,12	From Takeout Box to Organic Laser: Transforming the Industry by Engineering a Transparent, Flexible Laser
Diane Huang	12	Evaluating Roof Runoff Contaminants by Age in St. Paul, Minnesota
Yingyan Huang	12	Effects the Ratio Between Road Salt and Beet Juice Has on the Speed of Ice Melting
Jack Philip Indritz	12	Leachate Metals and Organic Compounds in Roof Runoff by Shingle Age
Meghana Iyer	12	Bioengineering the Lung: Directed Differentiation of Human Pluripotent Stem Cells into Definitive Endoderm on a Lung Extracellular Matrix
Isabella Jennings, Melinda Samaratunga	12,11	Classification of IMP--1 $\beta$ --Lactamase Inhibition and Inhibition Mechanisms to Combat Antibiotic Resistance
Abhi Kamboj	12	An Immersive Virtual Reality: The Effect of Haptics on Agency in a Virtual Environment
Harini Kethar	12	A Genetically Engineered Treatment for Chronic Pain and Peripheral Brain Damage through Vector-Mediated Gene Therapy
Mari Michelle Knudson	12	Improved phytoremediation of copper through the use of plant growth promoting rhizobacteria in Brassica juncea
Archana B Murali	12	Window to the brain: Using retinal biomarkers to predict progression of Alzheimer's and Parkinson's disease
Shreya Virinchipuram Narayan	12	An Invesitgation of Receptor Clustering in Anaphylactic Reactions with a Proposal for Densensitizing Mast Cell Receptors
Felix Oh	12	A Novel Investigation of the Effects of a Genetically Engineered Biological Drug EGFATFKDEL on Human Sarcoma Cells
Grant Parker Parrish, James J. Edwards Williams IV	12,12	Bounce Back: Activity Resilience In Traumatic Brain Injury Patients
Geeta Rajamani	12	Controlling Noxa Protein Expression by a Novel Approach to Study its Function in Leukemic Cells
Maggie Scott, Cole Maxwell	12,11	Cancer and Tick-borne Bacteria: Identification of bartonella and borrelia as possible promoters of melanoma metastasis
Sining Shen	12	Super-hydrophilicity and Super-hydrophobic material comparison
Liza Strom	12	The Global Water Crisis; Filtration Methods that Save Lives
Yin Wang, Jianghua Lu	12,12	Electricity from walking
Genevieve Catherine Yu-ann Weiler	12	Exploring the use of a hydrostatic transmission in a mid-size wind turbine
Yutong Xu	12	Investigating the Effects of Cancer-Associated Extracellular Matrix on Healthy Keratinocytes
Cassidy Yueh, Seyade Tadele	12,12	Flirtatious flies: The effects of indoor artificial lighting on Hermetia illucens mating in cold climates

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

**TWIN CITIES REGIONAL SCIENCE FAIR “ISEF” ALUMNI**  
*Students Chosen to Represent the Twin Cities Fairs at International Science & Engineering Fair*

1996	Laurie Louis Parker Roseville High School, Roseville	1999	Alison Boutin Burnsville High School, Burnsville
1996	David Loy Bowe Burnsville Senior High School, Burnsville	1999	Jennica Slattery Minnehaha Academy, Minneapolis
1996	Michael Scott Lohman Expo III High School, St. Paul	1999	Chrissy Jones Minnetonka High School, Minnetonka-Team
1996	Victoria Reynolds Miller St. Agnes High School, St. Paul	1999	Elizabeth Larkin Breck School, Minneapolis
1996	Anna Navarro Minnetonka High School, Minnetonka	1999	Melissa Borke Minnetonka High School, Minnetonka
1996	Michelle Lee Monnens Minnetonka High School, Minnetonka	1999	Alli Kellogg Minnetonka High School, Minnetonka-Team
1996	James Justin Wilson Minnetonka High School, Minnetonka-Team	2000	Mark Galatowitsch Highland High School, St. Paul
1996	Michael Gary Grotenhuis Minnetonka High School, Minnetonka-Team	2000	Jennica Slattery Minnehaha Academy, Minneapolis
1997	Nguyen Trung Burnsville Senior High School, Burnsville	2000	Chrissy Jones Minnetonka High School, Minnetonka
1997	Samuel Rush Minnetonka High School, Minnetonka	2000	Michael Chansky Burnsville High School, Burnsville
1997	Anna Navarro Minnetonka High School, Minnetonka	2000	A. Ben Suri Harding High School, St. Paul
1997	Victoria Reynolds Miller St. Agnes High School, St. Paul	2000	Emily Letourneau Central High School, St. Paul-Team
1997	Michael Scott Lohman Expo III High School, St. Paul	2000	Anna Bishop Como Park, St. Paul-Team
1997	Travis Smith Burnsville Senior High School, Burnsville	2001	Megan Bailey Breck School, Minneapolis
1997	James Justin Wilson Minnetonka High School, Minnetonka-Team	2001	Kathryn Gieselman Burnsville High School, Burnsville
1997	Justin Rainey Minnetonka High School, Minnetonka-Team	2001	A. Ben Suri Harding High School, St. Paul
1998	Dean Harvey Burnsville Senior High School-Team	2001	Li Mei Wayzata High School, Wayzata
1998	Dan Harakh Burnsville Senior High School-Team	2001	Laura Egerdal Burnsville High School, Burnsville
1998	Bryce Gillespie Breck School, Minneapolis	2001	Anna Bishop Como High School, St. Paul-Team
1998	Preeya Kshetry Breck School, Minneapolis	2001	Emily Letourneau Central High School, St. Paul-Team
1998	Phally Seak Burnsville Senior High School	2002	Jacob Fitzpatrick Burnsville High School, Burnsville
1998	Raj Pai Burnsville Senior High School	2002	Kaonhou Her Johnson High School, St. Paul-Team
1998	Michael Scott Lohman Expo III High School, St. Paul	2002	PaCha Yang Johnson High School, St. Paul-Team
1998	A. Ben Suri Harding High School, St. Paul	2002	Stephen Morris Breck School, Minneapolis
1999	Michael Scott Lohman Expo III High School, St. Paul	2002	Arun Saini Burnsville High School, Burnsville

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2002	A. Noel Suri Harding High School, St. Paul	2007	Ummul Kathawalla Blake High School
2003	Jessica Swatz ISD 287	2007	Daniel Zeng St. Paul Academy & Summit School
2003	Ning Zhou ISD 287	2007	Kyra Underbakke Maranatha Christian Academy, Brooklyn Park
2003	PaCha Yang Johnson High School, St. Paul	2007	Brandon Lew Breck School
2003	A. Noel Suri Harding High School, St. Paul	2007	John Earl Harding High School, St. Paul - Team
2003	Brendan Doms Breck School, Minneapolis	2007	Lucas Gabrielson Harding High School, St. Paul - Team
2003	Javier Cabrera-Perez Breck School, Minneapolis	2007	Jacob Stramer Harding High School, St. Paul - Team
2004	Adam Yock Breck School, Minneapolis	2008	Prithwis Mukhopadhyay Lake Junior High, Woodbury
2004	William Mitchell Breck School, Minneapolis	2008	Michael Cherkassky Edina High School, Edina
2004	Noel Suri Harding High School, St. Paul	2008	Madeline Taft-Ferguson Breck School, Minneapolis
2004	Adam Hahn Robbinsdale Armstrong High School, Robbinsdale	2008	Kyra Underbakke Maranatha Christian Academy, Brooklyn Park
2004	Akash Kumar Wayzata High School, Wayzata	2008	Aly Xiong Johnson High School, St. Paul
2004	Laura Heeter Breck School, Minneapolis - Team	2008	Iola Edwards Johnson High School, St. Paul
2004	Kristina Naranjo-Rivera Breck School, Minneapolis - Team	2008	Stephen Trusheim Breck School, Minneapolis - Team
2005	Kyrstin Underbakke Maranatha Christian Academy, Brooklyn Park	2008	Daniel Mohktari Breck School, Minneapolis - Team
2005	Janet Li Wayzata High School, Plymouth	2009	Prithwis Mukhopadhyay Woodbury Sr High School, Woodbury
2005	Heidi Chun St. Paul Academy, St. Paul	2009	Tiffanie Stone AFSA High School, Vadnais Heights
2005	Zachary Howland Burnsville High School, Burnsville	2009	Michael Fuad Breck School, Minneapolis
2005	Eric Halverson Como Park Senior High, St. Paul	2009	Stephen Trusheim Breck School, Minneapolis
2005	Kahli Her Johnson High School, St. Paul	2009	Chee Xiong Como Park Senior High, St. Paul
2006	Jenna Johnson Burnsville High School, Burnsville	2009	Martin Camacho Central Senior High School, St. Paul
2006	Andrea Jensen Burnsville High School, Burnsville	2009	Sahar Hakim-Hashemi Breck School, Minneapolis - Team
2006	Daniel Zeng St. Paul Academy & Summit School	2009	Sierra Danforth Breck School, Minneapolis - Team
2006	Matthew Weiss Breck School, Minneapolis	2009	Nicholas NaSal Burnsville High School, Burnsville - Team
2006	Katherine Schaeffer Breck School, Minneapolis	2009	Joseph Lane Burnsville High School, Burnsville - Team



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2010	Prithwis Mukhopadhyay Woodbury Sr High School, Woodbury	2013	Andrew Ylitalo Stillwater Area High School, Stillwater
2010	Tiffanie Stone AFSA High School, Vadnais Heights	2013	Aditi Das Roseville Area High School, Roseville
2010	Martin Camacho Central Senior High School, St. Paul	2013	Connor Duffy Mounds View High School, Arden Hills
2010	Houa Xiong Johnson High School, St. Paul	2013	Graham Gabrielson Harding High School, St. Paul
2010	Gavin Ovsak Eden Prairie Senior High School - Eden Prairie	2013	Mai Moua Harding High School, St. Paul
2010	Charles Morris Breck School, Minneapolis	2013	Carolyn Jons Eden Prairie Senior High School - Eden Prairie
2010	Ava Mokhtari Breck School, Minneapolis - Team	2013	Jessica Ryvlin Breck School, Minneapolis
2010	Addison Weiler Breck School, Minneapolis - Team	2013	Apurv Hirsh Shekhar Blake High School - Northrop campus
2010	Ashley Santilli Burnsville High School, Burnsville - Team	2014	Carolyn Jons Eden Prairie Senior High School - Eden Prairie
2010	Emily Bostrom Burnsville High School, Burnsville - Team	2014	Jason Sylvestre Benilde-St. Margaret's, St. Louis Park
2011	Alysia Flores Johnson High School, St. Paul	2014	Jacob W Levy Breck School, Minneapolis - Team
2011	Andrew Ylitalo Stillwater Area High School, Stillwater	2014	Sofie M Kim Breck School, Minneapolis - Team
2011	Martin Anderson Burnsville High School, Burnsville	2014	Aditi Das Roseville Area Senior High, Roseville
2011	Redeat Abegaz Burnsville High School, Burnsville	2014	Heather J Stone Mounds View High School, Arden Hills
2011	Gavin Ovsak Eden Prairie Senior High School - Eden Prairie	2014	Amrita Mohanty Woodbury Sr High School, Woodbury
2011	(Ernst) Tom Erdmann Breck School, Minneapolis	2014	Nicolina Mao Harding High School, St. Paul
2012	Andrew Ylitalo Stillwater Area High School, Stillwater	2014	Rosemary O Olatunbosun Harding High School, St. Paul
2012	Keshav Mangalick Mounds View High School	2015	Amrita Mohanty Woodbury Sr High School, Woodbury
2012	Margaret Green Burnsville High School, Burnsville - Team	2015	Maxwell Ylitalo Stillwater Area High School, Stillwater
2012	Laura Landgraf Burnsville High School, Burnsville - Team	2015	Aadarsh Padiyath Woodbury Sr High School, Woodbury
2012	Caleb Kumar Breck School, Minneapolis	2015	Carolyn Jons Eden Prairie Senior High School - Eden Prairie
2012	Taylor McCanna Breck School, Minneapolis	2015	Arush Jain Eden Prairie Senior High School - Eden Prairie
2012	Alejandro Fenn Breck School, Minneapolis - Team	2015	Emilia Topp-Johnson St Paul Academy and Summit School, St. Paul
2012	William Engel Breck School, Minneapolis - Team	2015	Serena Jing Central Senior High School, St. Paul
2012	Thomas Vennemann Johnson High School, St. Paul		

**TWIN CITIES REGIONAL SCIENCE FAIR "ISEF" ALUMNI**  
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- 2016 Maxwell Ylitalo  
Stillwater Area High School, Stillwater
- 2016 Nathaniel R Farmer  
Stillwater Area High School, Stillwater
- 2016 Claire E Wentzlaff  
Burnsville High School, Burnsville
- 2016 Prashant Godishala  
Breck School, Minneapolis - Team
- 2016 Brennan Clark  
Breck School, Minneapolis - Team
- 2016 Avni Jain  
Eden Prairie Senior High School - Eden Prairie
- 2016 Jessica Weng  
Wayzata High School, Plymouth
- 2016 Emilia Topp-Johnson  
St Paul Academy and Summit School, St. Paul
- 2016 Serena Jing  
Central Senior High School, St. Paul



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A black and white photograph of a young woman in a white lab coat and safety goggles, holding a large, irregular rock specimen. The background shows a laboratory setting with shelves and equipment. The 3M logo and slogan "Science. Applied to Life.™" are in the top left corner. A dark diagonal banner in the bottom right contains the text "Congratulations, Twin Cities Regional Science Fair Participants!" and "Visit us at 3Mgives.com". At the bottom, a small line of text reads "3M and '3M Science. Applied to Life.' are trademarks of 3M."

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**We thank Film Tec for their sponsorship of this event!**

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## Twin Cities Regional Science Fair Awards

(This list is an expected list of awards to be given from this fair but does not constitute a guarantee that the award will be given this year.)

*3M FMSCO Award*  
*3M Young Inventor Award*  
*American Chemical Society*  
*American Meteorological Society*  
*American Psychological Association*  
*ASM Materials Education Foundation*  
*Association of Women Geoscientists*  
*ASU Walton Sustainability Solutions Initiatives*  
*Bright Future Award - Carolyn Jons*  
*Broadcom MASTERS (Math, Applied Science, Technology, and Engineering for Rising Stars)*  
*Caffeinated Student Award – Kyra Zimmerman*  
*East Side Science Club Alumni Excellence Award*  
*Glen & Jacob Domeier Memorial Graduate Women in Science*  
*Intel Excellence in Computer Science*  
*International Science & Engineering Fair (ISEF)*  
*ISEF Alumni Award – Mike Lohman, Jr. (1996, 1997, 1998, 1999)*  
*ISEF Alumni Awards – Kyra Zimmerman (2007, 2008)*  
*ISEF Alumni Awards – Dr. Kyrstin Ball (2005)*  
*ISEF Alumni Awards – Timara Underbakke (1973)*  
*I SWEEEP*  
*Joel Wagner Caring Bridge Award*  
*Junior Science & Humanities Symposium*  
*Killeen Memorial Award*  
*Minnesota Agriculture in the Classroom*  
*Minnesota Astronomical Society*  
*Minnesota Chapter of American Fisheries Society*  
*Minnesota Horticulture Society*  
*Minnesota Space Frontier Society*

*Minnesota State Science & Engineering Fair*  
*Mu Alpha Theta Mathematics*  
*NASA EARTH System Science Award*  
*NOAA National Oceanic and Atmospheric Administration*  
*North Central Tri-state Junior Science & Humanities Symposium Research Papers*  
*Penny Lohman Memorial Award*  
*Radio City*  
*Research Paper trophies*  
*Ricoh Sustainable Development Award*  
*Schools trophies*  
*Society for In Vitro Biology*  
*Sponsor: 3M Foundation*  
*Sponsor: Broadway Party & Tent Rental*  
*Sponsor: Dow Chemical*  
*Sponsor: Ecolab*  
*Sponsor: Isthmus Engineering & Manufacturing*  
*Sponsor: Mintáhoe Hospitality Services*  
*Sponsor: Orbital ATK*  
*Sponsor: Premier Bank*  
*Sponsor: Slattery Sales*  
*Sponsor: St. Paul Youth Fund*  
*Sponsor: University of Minnesota*  
*Stockholm Junior Water Prize*  
*Teacher Excellence Award*  
*USDA-ARS Ag in the Classroom*  
*US Air Force*  
*US Army*  
*US Department of Health and Human Services*  
*US Marine Corps Science Excellence*  
*US Metric Association*  
*US Navy/Marine Office of Naval Research*  
*USDA Research Service*  
*Yale Science and Engineering Association*

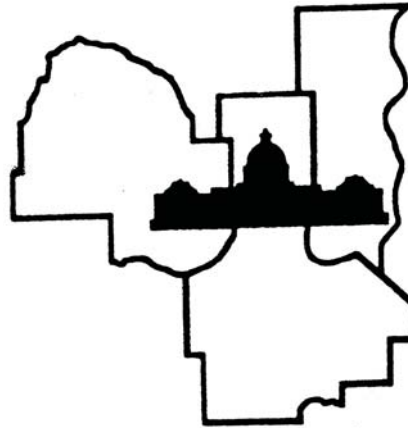


**Project presentation hosted by the University of Minnesota**

**Research paper program hosted on our website at [www.tcrsf.org](http://www.tcrsf.org)**

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

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



**2016-2017 Twin Cities Regional Science Fair Committee**

<b>Science Fair Director:</b>	Timara Underbakke	<b>Committee At Large:</b>	<b>Scientific Review:</b>
<b>SRC Chair:</b>	Karin Ostrand	Nancy Day	Karin Ostrand, Chair
<b>Facilities:</b>	Michael Lohman, Sr.	Jess Day	Dr. Denise Beusen
<b>Public Relations:</b>	Michael Lohman, Sr.	Dr. Denise Beusen	Dr. Kyrstin Ball
<b>Funding</b>	Michael Lohman, Sr.	Phill Goldmann	Dr. Douglas Erbeck
<b>Treasurer:</b>	Dr. Gary Kwong	Lynne Tauer	Timara Underbakke
<b>Special Awards Chair:</b>	Nancy Day	Gary Ostrand	Dr. Jennifer Hugstad-Vaa
<b>Judging Coordinator:</b>	David & Timara Underbakke	Dr. Caroline Ylitalo	Dr. Caroline Ylitalo
<b>Website &amp; Databases:</b>	David & Timara Underbakke	Dr. Douglas Erbeck	Dr. Gary Kwong
<b>Data Processing:</b>	David Underbakke	Faye Erbeck	Dr. Steven Jons
<b>Display &amp; Safety:</b>	Anu Jain	Amy Stone	Karilyn Jons
<b>IT Department:</b>	Jess Day & David Underbakke	Martin Stone	Michael Lohman, Sr.
<b>Board of Directors:</b>	Timara Underbakke	Karilyn Jons	David Underbakke
	Michael Lohman, Sr.	Dr. Steven Jons	Amy Stone
	Karin Ostrand	Dr. Jennifer Hugstad-Vaa	Tiffanie Stone
	Dr. Gary Kwong	Sonja Dunlap	
	David Underbakke	Princesa VanBurenHansen	We have additional
	Nancy Day	Dr. Kyrstin Ball	volunteer openings for
	Amy Stone	Kyra Zimmerman	those interested.
	Dr. Steven Jons	Arthur C. Johnson	
		Michael Lohman, Jr	
		Jacinda Lohman	
		Anu Jain	
		Kristine Barton	