

# 2024 – Final Awards – ND State Science & Engineering Fair

## Senior Division Sweepstakes Winners

The first place (Marcus J. Friskop Sweepstakes) winner received a gold state plaque, a hooded sweatshirt, a \$200 cash award from the Marcus J. Friskop Family, a \$600 cash award from the University of North Dakota School of Medicine and Health Sciences, and a 1 Year \$3000 Scholarship to the University of North Dakota and will advance to the ISEF in Los Angeles California and will exhibit his/her project.

The second place (sweepstakes runner-up) winner received a gold state plaque, a hooded sweatshirt, a \$300 cash award from the University of North Division Research and Economic Development, and a 1 Year \$2500 Scholarship to the University of North Dakota and will advance to the ISEF in Los Angeles California and will exhibit his/her project.

The third place (sweepstakes 2<sup>nd</sup> runner-up) winner received a state plaque, a hooded sweatshirt, a \$250 cash award from the University of North Dakota College of Arts and Sciences, and a 1 Year \$1500 Scholarship to the University of North Dakota and will advance to the ISEF in Los Angeles California and will exhibit his/her project.

## Senior Division – 1<sup>st</sup> Place – Sweepstakes Winner

Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

## Senior Division – 2<sup>nd</sup> Place – Sweepstakes Runner-Up

Denver Nelson, Hankinson School District , "Minimizing the Impact of a Constant Force Using Metals"

## Senior Division – 3<sup>rd</sup> Place – Sweepstakes Second Runner-Up

James Gessey, Flasher School District , "The Impact of Nicotine, Vaporizer, and CBD Oils on Planarian Regeneration and Cell Memory"

## Senior Division Place Winners

Projects that are selected as finalists received a gold plaque and a hooded sweatshirt and will advance to the ISEF in Los Angeles California in May and will exhibit their project.

Projects selected as alternates received a silver plaque and are alternates to the ISEF in Los Angeles California in May but will not exhibit their project unless a finalist from that region cannot attend.

## **Northwest Region**

- 1<sup>st</sup> Finalist: Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"  
2<sup>nd</sup> Finalist: Madison Mock, Trenton School District , "Water Conservation with Biodegradable Hydrogels"  
3<sup>rd</sup> Finalist: Jenilynn Hanson, Tioga School District , "Organic Vs. Synthetic Herbicides"  
1<sup>st</sup> Alternate: Katherine Haakenson, Tioga School District , "Concentration Effectiveness"  
2<sup>nd</sup> Alternate: Josie Fernholz, Trenton School District , "Showering Acid"  
3<sup>rd</sup> Alternate: Kaden Keller, Tioga School District , "Are You an A.I.?"

## **Northeast Region**

- 1<sup>st</sup> Finalist: Malory Kemp, Cavalier School District , "Management of Nitrogen and Phosphorus Biogeochemical Cycles through Harvest of *Chlorella vulgaris* and *Elodea canadensis*"

## **Southwest Central Region**

- 1<sup>st</sup> Finalist: Grant Hauge, Flasher School District , "Optimizing Nitrate Levels in Sudan Grass: Exploring the Impact of Fertilizer Quantity in Agricultural Practices"  
2<sup>nd</sup> Finalist: Aidyn Fisher, Scranton School District , "The Effect of Different Airfoils on Wind Turbine Energy Production"  
3<sup>rd</sup> Finalist: Paige Zenker, Flasher School District , "Effects of L-Glutamine on the Root Growth of Soybeans"  
1<sup>st</sup> Alternate: Cody Bahm, Cody Geffre, Flasher School District , "Price Efficient Body Armor Plates for Protecting Our Students"  
2<sup>nd</sup> Alternate: Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"  
3<sup>rd</sup> Alternate: Annelise Bates: Wilton School District , "Equine Leg Protection and Its Effect on the Temp of the Tendons"

## **Southeast Region**

- 1<sup>st</sup> Finalist: Elise Elliot, Hankinson School District , "How Environmental Changes Impact Sleep "  
2<sup>nd</sup> Finalist: Sara Pfeifle, Ashley School District , "I-Be-Proven Fast Dissolving"  
3<sup>rd</sup> Finalist: Amla Prochnow, Hankinson School District , "The Microbiological Assessment of Air Quality and Surface Contamination in Agricultural Work Spaces"  
1<sup>st</sup> Alternate: Olivia Koehler, Hankinson School District , "A Chemical Comparison of Drinking Water"  
2<sup>nd</sup> Alternate: Kenadi David, Hankinson School District , "Cool Beans!"  
3<sup>rd</sup> Alternate: Brayden Sutherland, Lisbon School District , "Nutrition Habits of Athletes"

## **Junior Division Sweepstakes Winners**

The first place (Sweepstakes) winner received a gold state plaque and a \$200 cash award from the ND IDeA Network of Biomedical Research Excellence. 5

The second place (Sweepstakes Runner-Up) winner received a silver plaque and a \$150 cash award from the ND IDeA Network of Biomedical Research Excellence.

### **Junior Division – 1<sup>st</sup> Place – Sweepstakes Winner**

Evelyn Chambers, Woodhaven Academy , "Cockroach Neuroscence: A Gateway to Human Communication"

### **Junior Division – 2<sup>nd</sup> Place – Sweepstakes Runner-Up**

Jocelyn Zingg, Flasher School District , "The Power of Nitrogen"

## **Junior Division Place Winners**

All first and second place winners received a gold plaque. All third, fourth, and fifth place winners received a silver plaque.

### **Northwest Region**

1<sup>st</sup> Place: Marlene Perez, WMSCC , "How can we reduce the amount of trash in the ocean?"

2<sup>nd</sup> Place: Harper Ferguson, Tioga School District , "Bale Grazed vs Non-bale Grazed Land"

3<sup>rd</sup> Place: Mason Cregar, WMSCC , "Which Paper Airplane design will fly the farthest?"

4<sup>th</sup> Place: Lane Lenzen, Tioga School District , "Best Manure Fertilizer"

5<sup>th</sup> Place: Waylon Seelye, Tioga School District , "Making Clean Electricity from Oil Wells"

### **Northeast Region**

1<sup>st</sup> Place: Caleb Wild, Schroeder Middle School , "Shell Shocked"

2<sup>nd</sup> Place: Che Yu, South Middle School , "Image recognition for home security"

3<sup>rd</sup> Place: Amaa Wijetunga, South Middle School , "The Revival of Coffee Grounds"

4<sup>th</sup> Place: Milla Fagerholt, Gianna Hall, Valley/Edinburg Middle School , "Hydrogels or Hype?"

5<sup>th</sup> Place: Espenn Johnson, Schroeder Middle School , "Wind vs. Watter"

## **Southwest Central Region**

1<sup>st</sup> Place: Aubrey Roehrich, Linton School District , "Are Fingerprints Inherited?"

2<sup>nd</sup> Place: Darron Frank, Cassy Hartman, Flasher School District , "Adaptive Mechanical Arm for Functional Accessibility for Individuals with Limited Range of Motion"

3<sup>rd</sup> Place: Grace Taplin, Shiloh Christian School District , "AI Real or Fake"

4<sup>th</sup> Place: Cody Deichert, Flasher School District , "Pull Me Right Around"

5<sup>th</sup> Place: Layla Krinke, Scranton School District , "Water pH Levels Affecting Yeast Fermentation in Bread"

## **Southeast Region**

1<sup>st</sup> Place: Ava Frolek , Lidgerwood School District , "Air For Less "

2<sup>nd</sup> Place: Karly Rivinius, Gackle-Streeter School District , "Neospora Caninum in Cattle"

3<sup>rd</sup> Place: Nolan Sutherland, Lisbon School District , "Is Plastic or Paper Money Cleaner"

4<sup>th</sup> Place: Calli Schaunaman, Ashley School District , "Plant Propagation"

5<sup>th</sup> Place: Ben Sutherland, Lisbon School District , "Are You Organized"

## **Agriculture/Soil Science**

### **Farmers Union Insurance - North Dakota**

Project Related to Agriculture

2 Winners: Senior Division: Monetary Award of \$25 And a Certificate

Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

Sonakshi Singhal, Red River High School , "The Potential of Arsenic Remediation by Geomineralization."

### **Farmers Union Insurance - North Dakota**

Project Related to Agriculture

2 Winners: Junior Division: Monetary Award of \$25 And a Certificate

Jocelyn Zingg, Flasher School District , "The Power of Nitrogen"

Karly Rivinius, Gackle-Streeter School District , "Neospora Caninum in Cattle"

### **North Dakota Farm Bureau**

Project Related to Agriculture

2 Winners: Senior Division: Monetary Award of \$25 And a Certificate

Paige Zenker, Flasher School District , "Effects of L-Glutamine on the Root Growth of Soybeans"

Abigail Ferguson, Tioga School District , "Management Effects on Soil Health"

### **North Dakota Farm Bureau**

Project Related to Agriculture

2 Winners: Junior Division: Monetary Award of \$25 And a Certificate

Calli Schaunaman, Ashley School District , "Plant Propagation"

Daphne Tredwell, WMSCC , "The Good, The Bad, and the Ugly"

## **Chemistry/Biochemistry**

### **Department of Chemistry**

Project in Chemistry

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate

Avery Stevens, Flasher School District , "The Effects of Essential Oils on Ascorbic Acid Decay in Citric Juice"

### **Department of Chemistry**

Project in Chemistry

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate

Sonakshi Singhal, Red River High School , "The Potential of Arsenic Remediation by Geomineralization."

### **American Chemical Society-Red River Valley Section**

Project in Field of Chemistry

1 Winner: Junior Division: \$100 Barnes and Noble Gift Card, A Periodic Table Scroll Pen, And a Certificate

Charlee Nenow, Gackle-Streeter School District , "Tooth Stain vs. Toothpaste Featuring Eggs"

### **American Chemical Society-Red River Valley Section**

Project in Field of Chemistry

1 Winner: Senior Division: \$100 Barnes and Noble Gift Card, A Periodic Table Scroll Pen, And a Certificate

Olivia Koehler, Hankinson School District , "A Chemical Comparison of Drinking Water"

### **NDSSEF Association**

Project in Biochemistry

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate

Layla Krinke, Scranton School District , "Water pH Levels Affecting Yeast Fermentation in Bread"

### **NDSSEF Association**

Project in Biochemistry

1 Winner: Senior Division: Monetary Award of \$50 And a Certificate

Payton Raan, Tioga School District , "DNA Fingerprinting: Testing Frequencies"

# Earth/Atmospheric Sciences

## **Harold Hamm School of Geology & Geological Engineering**

Project in Geology/ Geological Engineering

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate  
Amaa Wijetunga, South Middle School , "The Revival of Coffee Grounds"

## **Harold Hamm School of Geology & Geological Engineering**

Project in Geology/ Geological Engineering

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Paige Zenker, Flasher School District , "Effects of L-Glutamine on the Root Growth of Soybeans"

## **Department of Atmospheric Sciences**

Project in Atmospheric Sciences

1 Winner: Junior or Senior Division: Monetary Award of \$125 And a Certificate  
Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

## **Department of Geography**

Project in Geography

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate  
Nellie Dachtler , Schroeder Middle School , "To Salinity...And Beyond!"

## **Department of Geography**

Project in Geography

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

## **North Dakota Geological Society**

Project in Field of Geology or Earth Science

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate  
Kingslove Falade, WMSCC , "A natural sorbent which could clean up oil spills and would replace harmful remediation solutions"

## **North Dakota Geological Society**

Project in Field of Geology or Earth Science

1 Winner: Senior Division: Monetary Award of \$50 And a Certificate  
Grant Hauge, Flasher School District , "Optimizing Nitrate Levels in Sudan Grass: Exploring the Impact of Fertilizer Quantity in Agricultural Practices"

### **National Weather Service**

Project Related to Meteorology

1 Winner: Junior Division: Certificate

Nellie Dachtler , Schroeder Middle School , "To Salinity...And Beyond!"

### **National Weather Service**

Project Related to Meteorology

1 Winner: Senior Division: Certificate

Amla Prochnow, Hankinson School District , "The Microbiological Assessment of Air Quality and Surface Contamination in Agricultural Work Spaces"

### **Association For Women Geoscientists**

Project Related to Geosciences

1 Winner (Must Be A Female Exhibitor): Junior or Senior Division: Certificate

Jocelyn Rossow, Piper Schmidt, Flasher School District , "The Impact of Runoff Water from Beef Cattle Feedlots on Wheat Crop Growth"

### **National Oceanic & Atmospheric Administration**

Project Related to Improved Understanding of the Earth's Processes

1 Winner: Junior Division: Certificate And a Medallion

Nellie Dachtler , Schroeder Middle School , "To Salinity...And Beyond!"

### **NASA Earth System Science Award**

Project Related to Earth's Interconnected Systems

1 Winner: Junior or Senior Division: Certificate

Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

## **Energy/Power/Electricity**

### **Otter Tail Power Company**

Project Related to Energy or Electricity

3 Winners: Senior Division: Monetary Award of \$50 And a Certificate

Denver Nelson, Hankinson School District , "Minimizing the Impact of a Constant Force Using Metals"

Xzander Schwartz, Trenton School District , "Electromagnetic Strength"

Dwayne Declaro, Tioga School District , "Electromagnetism"

### **Otter Tail Power Company**

Project Related to Energy or Electricity

2 Winners: Junior Division: Monetary Award of \$50 And a Certificate

Emmons Casavant, Shiloh Christian School District , "Icing the Puck"

Ava Frolek , Lidgerwood School District , "Air For Less "

## **Xcel Energy**

Project Related to Energy or Electricity

3 Winners: Junior Division: Monetary Award of \$25 And a Certificate

Lila Sateren, Schroeder Middle School , "Hot Box"

Jaxson Cowan, WMSCC , "Magnetic Field Machine"

Waylon Seelye, Tioga School District , "Making Clean Electricity from Oil Wells"

## **Xcel Energy**

Project Related to Energy or Electricity

3 Winners: Senior Division: Monetary Award of \$25 And a Certificate

Aidyn Fisher, Scranton School District , "The Effect of Different Airfoils on Wind Turbine Energy Production"

Molly Hauk, Trenton School District , "How to Make a battery"

Caydence Cayko, Trenton School District , "Seeing Sound"

## **Enerplus**

Project Related to Energy

1 Winner: Junior Division: Monetary Award of \$500, A Water Bottle, A Back Pack And a Certificate

Espenn Johnson, Schroeder Middle School , "Wind vs. Watter"

## **Enerplus**

Project Related to Energy

1 Winner: Senior Division: Monetary Award of \$500, A Water Bottle, A Back Pack And a Certificate

Aidyn Fisher, Scranton School District , "The Effect of Different Airfoils on Wind Turbine Energy Production"

# **Engineering**

## **Department of Petroleum Engineering**

Project in Engineering

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate

Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

## **College of Engineering and Mines**

Project in Engineering

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate

Waylon Seelye, Tioga School District , "Making Clean Electricity from Oil Wells"

## **College of Engineering and Mines**

Project in Engineering

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate

Caydin Hughes, Trenton School District , "Natural or Chemical Refrigerants"

## **College of Engineering and Mines**

Project in Engineering (Female Winner)

1 Winner: Senior Division: Monetary Award of \$125 And a \$500 Engineering Scholarship And a Certificate

Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"



### **Biomedical Engineering Program**

Project in Biomedical Engineering

1 Winner: Junior Division: Monetary Award of \$100 And a Certificate  
Ava Frolek , Lidgerwood School District , "Air For Less "

### **Biomedical Engineering Program**

Project in Biomedical Engineering

1 Winner: Senior Division: Monetary Award of \$150 And a Certificate  
Madison Mock, Trenton School District , "Water Conservation with Biodegradeable Hydrogels"

### **Society of Automotive Engineers**

Project in Mobility Engineering

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate  
Mason Cregar, WMSCC , "Which Paper Airplane design will fly the farthest?"

### **Society of Automotive Engineers**

Project in Mobility Engineering

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Xzander Schwartz, Trenton School District , "Electromagnetic Strength"

### **NPS Metals a Division of Owen Industries**

Project Related to Manufacturing

1 Winner: Junior Division: Monetary Award of \$200 And a Certificate  
Jeremiah Walsh, Tioga School District , "Shaking Things Up"

### **NPS Metals a Division of Owen Industries**

Project Related to Manufacturing

1 Winner: Senior Division: Monetary Award of \$300 And a Certificate  
Denver Nelson, Hankinson School District , "Minimizing the Impact of a Constant Force Using Metals"

## **Engineering (Chemical)**

### **Department of Chemical Engineering**

Project in Chemical Engineering

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Jackson Lang, Kidder County School District , "The Gluiest of The Glues"

### **Department of Chemical Engineering**

Project in Chemical Engineering

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate  
Cody Bahm, Cody Geffre, Flasher School District , "Price Efficient Body Armor Plates for Protecting Our Students"

## Engineering (Civil)

### **Department of Civil Engineering**

Project in Civil Engineering

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate  
Amaa Wijetunga, South Middle School , "The Revival of Coffee Grounds"

### **Department of Civil Engineering**

Project in Civil Engineering

1 Winner: Senior Division: Monetary Award of \$50 And a Certificate  
Malory Kemp, Cavalier School District , "Management of Nitrogen and Phosphorus Biogeochemical Cycles through Harvest of Chlorella vulgaris and Elodea canadensis"

## Engineering (Electrical)

### **Dr. Richard Schultz Award - Department of Electrical Engineering**

Project in Electrical Engineering

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate  
Jacobi Holmen, Tioga School District , "How to Make a Light Bulb"

### **Dr. Richard Schultz Award - Department of Electrical Engineering**

Project in Electrical Engineering

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

## Engineering (Mechanical)

### **Department of Mechanical Engineering**

Project in Mechanical Engineering

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Cody Deichert, Flasher School District , "Pull Me Right Around"

### **Department of Mechanical Engineering**

Project in Mechanical Engineering

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate  
Aidyn Fisher, Scranton School District , "The Effect of Different Airfoils on Wind Turbine Energy Production"

## Environmental Science

### **Ricoh Corporation**

Project Related to Environmentally Friendly Businesses

1 Winner: Senior Division: Certificate

Aidyn Fisher, Scranton School District , "The Effect of Different Airfoils on Wind Turbine Energy Production"

### **NDSSEF Association**

Project Related to Environmental Remediation

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate

Waylon Seelye, Tioga School District , "Making Clean Electricity from Oil Wells"

### **NDSSEF Association**

Project Related to Environmental Remediation

2 Winners: Senior Division: Monetary Award of \$50 And a Certificate

Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

Malory Kemp, Cavalier School District , "Management of Nitrogen and Phosphorus Biogeochemical Cycles through Harvest of Chlorella vulgaris and Elodea canadensis"

### **College of Engineering and Mines**

Project in Energy/Environmental Science

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate

Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

## Human Nutrition/Food Science

### **Hot Cakes Café & Lodging**

Project That Has Emphasis on Food Quality or Food Safety

1 Winner: Junior Division: Monetary Award of \$25 And a Certificate

Aubrey Ratliff, Maybelline Altamirano, Valley/Edinburg Middle School , "Save the Strawberries!"

### **Hot Cakes Café & Lodging**

Project That Has Emphasis on Food Quality or Food Safety

1 Winner: Senior Division: Monetary Award of \$25 And a Certificate

Brooke Homola, Gackle-Streeter School District , "Which Energy Drink is Worst for Your Teeth?"

### **NDSSEF Association**

Project Related to Human Nutrition or Food Science

2 Winners: Junior Division: Monetary Award of \$25 And a Certificate

Layla Krinke, Scranton School District , "Water pH Levels Affecting Yeast Fermentation in Bread"

Acalia Olson, Scranton School District , "To Drink or Not to Drink"

### **NDSSEF Association**

Project Related to Human Nutrition or Food Science

2 Winners: Senior Division: Monetary Award of \$25 And a Certificate

Brayden Sutherland, Lisbon School District , "Nutrition Habits of Athletes"

Arianna Bevre, Hankinson School District , "Comparing Peoples Ability To Distribute Serving Sizes"

## ISEF Alumni

### ISEF Alumni

Project as Determined by ISEF Judges

1 Winner: Junior or Senior Division: Monetary Award of \$200 And a Certificate

Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

### ISEF Alumni

Project as Determined by ISEF Judges

1 Winner: Junior or Senior Division: Monetary Award of \$100 And a Certificate

Denver Nelson, Hankinson School District , "Minimizing the Impact of a Constant Force Using Metals"

## Life Sciences (animal & plant)

### Department of Biomedical Sciences

Project in Area of Life Sciences (Molecular Biology Emphasis)

2 Winners: Junior Division: Monetary Award of \$75 And a Certificate

Aubrey Roehrich, Linton School District , "Are Fingerprints Inherited?"

Nellie Dachtler , Schroeder Middle School , "To Salinity...And Beyond!"

### Department of Biomedical Sciences

Project in Area of Life Sciences (Molecular Biology Emphasis)

2 Winners: Senior Division: Monetary Award of \$75 And a Certificate

Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

Sara Pfeifle, Ashley School District , "I-Be-Proven Fast Dissolving"

### Department of Biology

Project in Biology

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neurosciences: A Gateway to Human Communication"

### Department of Biology

Project in Biology

1 Winner: Senior Division: Monetary Award of \$125 And a \$500 Biology Scholarship And a Certificate

Abigail Ferguson, Tioga School District , "Management Effects on Soil Health"

### **North Dakota Veterinary Medical Association**

Project Related to Veterinary Medicine

1 Winner: Senior Division: Monetary Award of \$300 And a Certificate  
Gentry Schmidt, Flasher School District , "Calorie Count"

### **North Dakota Veterinary Medical Association**

Project Related to Veterinary Medicine

1 Winner: Senior Division: Monetary Award of \$225 And a Certificate  
Annelise Bates, Wilton School District , "Equine Leg Protection and Its Effect on the Temp of the Tendons"

### **North Dakota Veterinary Medical Association**

Project Related to Veterinary Medicine

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Emily Meier, Grant County School District , "Happy Herd"

### **Auxiliary to the North Dakota Veterinary Medical Association**

Project Related to Veterinary Medicine

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate  
Karly Rivinius, Gackle-Streeter School District , "Neospora Caninum in Cattle"

### **Society for In Vitro Biology**

Project in the Area of Tissue Culture

1 Winner: 11th Grader Division: Certificate  
James Gessey, Flasher School District , "The Impact of Nicotine, Vaporizer, and CBD Oils on Planarian Regeneration and Cell Memory"

### **NDSSEF Association**

Project in Botany

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate  
Milla Fagerholt, Gianna Hall, Valley/Edinburg Middle School , "Hydrogels or Hype?"

### **NDSSEF Association**

Project in Botany

1 Winner: Senior Division: Monetary Award of \$50 And a Certificate  
Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

## Mathematics/Computer Science

### Department of Mathematics

Project in Mathematics

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Keira Simonson, Sweet Briar School District , "Tiling with Spidrons"

### Department of Mathematics

Project in Mathematics

1 Winner: Senior Division: Monetary Award of \$125 And a \$500 Mathematics Scholarship And a Certificate  
Dwayne Declaro, Tioga School District , "Electromagnetism"

### School of Electrical Engineering & Computer Science

Project in Computer Science

1 Winner: Junior Division: Monetary Award of \$100 And a Certificate  
Che Yu, South Middle School , "Image recognition for home security"

### School of Electrical Engineering & Computer Science

Project in Computer Science

1 Winner: Senior Division: Monetary Award of \$100 And a Certificate  
Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

### The Title Team

Project Related to Computer Science (Emphasis in Artificial Intelligence)

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate  
Evelyn Chambers, Woodhaven Academy , "Cockroach Neruoscience: A Gateway to Human Communication"

### The Title Team

Project Related to Computer Science (Emphasis in Artificial Intelligence)

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

## Medicine/Health

### ND IDeA Network of Biomedical Research Excellence

Project in Medical or Health Sciences

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Addilyn Risky, Schroeder Middle School , "Lettuce Grow"

### ND IDeA Network of Biomedical Research Excellence

Project in Medical or Health Sciences

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate  
Brayden Sutherland, Lisbon School District , "Nutrition Habits of Athletes"

### **School of Medicine & Health Sciences**

Project in Medical or Health Sciences

1 Winner: Senior Division: Monetary Award of \$300 And a Certificate

James Gessey, Flasher School District , "The Impact of Nicotine, Vaporizer, and CBD Oils on Planarian Regeneration and Cell Memory"

### **School of Medicine & Health Sciences**

Project in Medical or Health Sciences

1 Winner: Senior Division: Monetary Award of \$150 And a Certificate

Elyse Tufte, Kidder County School District , "R U Real??"

### **School of Medicine & Health Sciences**

Project in Medical or Health Sciences

1 Winner: Junior Division: Monetary Award of \$300 And a Certificate

Jory Bonogofsky, Flasher School District , "Blood Clotting to the Rescue"

### **Department of Biomedical Sciences**

Project in Pharmacology/Immunology

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate

Sophie Sundheim, East Fairview School District , "Dirty Germies!"

### **Department of Biomedical Sciences**

Project in Pharmacology/Immunology

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate

Alivia Geffre, Daci Wells, Flasher School District , "Determining the Superior Antimicrobial Agent: Essential Oils, Antibiotics, and Plant Extracts in Eradicating E. coli Infections"

### **North Dakota Academy of Family Physicians**

Project Related to Medicine

1 Winner: Senior Division: Monetary Award of \$50 And a Certificate

Annelise Bates, Wilton School District , "Equine Leg Protection and Its Effect on the Temp of the Tendons"

### **American Society for Clinical Laboratory Science - North Dakota**

Project Related to Laboratory Medicine

3 Winners: Senior Division: Monetary Award of \$50 And a Certificate

Olivia Koehler, Hankinson School District , "A Chemical Comparison of Drinking Water"

Chaskee Schmidt, Skye Weinberger, Flasher School District , "Testing Natural Ingredients, Essential Oils, and Antibiotics on E. coli"

James Gessey, Flasher School District , "The Impact of Nicotine, Vaporizer, and CBD Oils on Planarian Regeneration and Cell Memory"

### **American Society for Clinical Laboratory Science - North Dakota**

Project Related to Laboratory Medicine

3 Winners: Junior Division: Monetary Award of \$50 And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neurosciences: A Gateway to Human Communication"

Karly Rivinius, Gackle-Streeter Public School District , "Neospora Caninum in Cattle"

Aubrey Roehrich, Linton School District , "Are Fingerprints Inherited?"

### **North Dakota Pharmacists Association**

Project in Field of Pharmacology

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate

Acalia Olson, Scranton School District , "To Drink or Not to Drink"

### **North Dakota Pharmacists Association**

Project in Field of Pharmacology

1 Winner: Senior Division: Monetary Award of \$100 And a Certificate

Sara Pfeifle, Ashley School District , "I-Be-Proven Fast Dissolving"

### **NDSSEF Association**

Project Related to Dentistry

2 Winners: Junior Division: Monetary Award of \$25 And a Certificate

Leah Placek, Tioga School District , "Which Mouthwash Will Kill the Most Bacteria?"

Charlee Nenow, Gackle-Streeter School District , "Tooth Stain vs. Toothpaste Featuring Eggs"

### **NDSSEF Association**

Project Related to Dentistry

2 Winners: Senior Division: Monetary Award of \$25 And a Certificate

Jade Shipley, Kidder County School District , "Purple Perfection"

Brooke Homola, Gackle-Streeter School District , "Which Energy Drink is Worst for Your Teeth?"

## **Microbiology**

### **Department of Biomedical Sciences**

Project in Microbiology/Infectious Disease

2 Winners: Junior Division: Monetary Award of \$75 And a Certificate

Sophie Sundheim, East Fairview School District , "Dirty Germies!"

Aubrey Roehrich, Linton School District , "Are Fingerprints Inherited?"

### **Department of Biomedical Sciences**

Project in Microbiology/Infectious Disease

2 Winners: Senior Division: Monetary Award of \$125 And a Certificate

Katherine Haakenson, Tioga School District , "Concentration Effectiveness"

Alivia Geffre, Daci Wells, Flasher School District , "Determining the Superior Antimicrobial Agent: Essential Oils, Antibiotics, and Plant Extracts in Eradicating E. coli Infections"

### **Department of Biomedical Sciences**

Project in Medical or Health Sciences

1 Winner: Junior Division: Monetary Award of \$125 And a Certificate

Layla Krinke, Scranton School District , "Water pH Levels Affecting Yeast Fermentation in Bread"

### **Department of Biomedical Sciences**

Project in Medical or Health Sciences

1 Winner: Senior Division: Monetary Award of \$125 And a Certificate

Amla Prochnow, Hankinson School District , "The Microbiological Assessment of Air Quality and Surface Contamination in Agricultural Work Spaces"



## Military/Air Force

### Air Force

Project That Has Applications Useful to Air Force

6 Winners: Junior or Senior Division: An Over-the-Shoulder Sling Pack, Power Bank Charger, Dog Tag USB Flash Drive, A Dual USB Car Charger, And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neurosciences: A Gateway to Human Communication"

Gavin Kratcha, Hankinson School District , "Utilizing Machine Learning to Develop Image-Based Agricultural Optimization Software"

Sara Pfeifle, Ashley School District , "I-Be-Proven Fast Dissolving"

Cody Bahm, Cody Geffre, Flasher School District , "Price Efficient Body Armor Plates for Protecting Our Students"

Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

Elise Elliot, Hankinson School District , "How Environmental Changes Impact Sleep "

## Military/Navy

### Navy

Project (All Categories Considered)

3 Winners: Senior Division: An Educational Recognition Award Valued at \$75, A Medallion, And a Certificate

Katherine Haakenson, Tioga School District , "Concentration Effectiveness"

Drew Stroh, Kidder County School District , "Real or AI?"

Amla Prochnow, Hankinson School District , "The Microbiological Assessment of Air Quality and Surface Contamination in Agricultural Work Spaces"

### Navy

Project (All Categories Considered)

3 Winners: Junior Division: Medallion And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neurosciences: A Gateway to Human Communication"

Emmons Casavant, Shiloh Christian School District , "Icing the Puck"

Che Yu, South Middle School , "Image recognition for home security"

## Military/North Dakota Army National Guard

### North Dakota Army National Guard

Project That Has Applications Useful to North Dakota Army National Guard

1 Winner: Junior Division: Backpack With Assortment of Items

Che Yu, South Middle School , "Image recognition for home security"

### North Dakota Army National Guard

Project That Has Applications Useful to North Dakota Army National Guard

1 Winner: Senior Division: Backpack With Assortment of Items

Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

## Physics/Astronomy

### Department of Physics & Astrophysics

Project in Physics & Astronomy

2 Winners: Junior Division: Monetary Award of \$125 And a Certificate

Caleb Wild, Schroeder Middle School, "Shell Shocked"

Jeremiah Walsh, Tioga School District , "Shaking Things Up"

### Department of Physics & Astrophysics

Project in Physics & Astronomy

1 Winner: Senior Division: Monetary Award of \$125 And a \$500 Physics Scholarship And a Certificate

Ava Hauck, Dickinson School District , "Remote Wildfire Detection through Spectrum Recognition"

### United States Metric Association

Project Using Metric System for Measurements

5 Winners: Junior Division: Certificate

Emmons Casavant, Shiloh Christian School District , "Icing the Puck"

Lila Sateren, Schroeder Middle School , "Hot Box"

Mason Cregar, WMSCC , "Which Paper Airplane design will fly the farthest?"

Brooklyn Hepper, Flasher School District , "Beam End Reactions: Comparing Theoretical with Experimental Values"

Darron Frank, Cassy Hartman, Flasher School District , "Adaptive Mechanical Arm for Functional Accessibility for Individuals with Limited Range of Motion"

## Social/Behavioral Sciences

### Department of Psychology

Project in Psychology or Behavioral Science

2 Winners: Junior Division: Monetary Award of \$125 And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neruoscience: A Gateway to Human Communication"

Tracy Moch, Kidder County School District , "Colors of The Brainbow"

### Department of Psychology

Project in Psychology or Behavioral Science

2 winners: Senior Division: Monetary Award of \$125 And a Certificate

Drew Stroh, Kidder County School District , "Real or AI?"

Aubrey Isakson, Kidder County School District , "Pen vs. Pixel"

### **Virginia George Inheritance Fund**

Project in Social or Behavioral Science

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate

Arianna Bevre, Hankinson School District , "Comparing Peoples Ability To Distribute Serving Sizes"

### **Virginia George Inheritance Fund**

Project in Social or Behavioral Science

1 Winner: Junior Division: Monetary Award of \$50 And a Certificate

Aubrey Roehrich, Linton School District , "Are Fingerprints Inherited?"

### **American Psychological Association**

Project Related to Psychology

1 Winner: Junior or Senior Division: Certificate

Brayden Sutherland, Lisbon School District , "Nutrition Habits of Athletes"

## **Sweepstakes**

### **Yale Science And Engineering Association**

Project in Areas of Computer Science

1 Winner: Senior Division: Medallion And a Certificate

Denver Nelson, Hankinson School District , "Minimizing the Impact of a Constant Force Using Metals"

### **Community Innovation Award**

Project Related to Community

1 Winner: Junior or Senior Division: Monetary Award of \$500 And a Certificate

Evelyn Chambers, Woodhaven Academy , "Cockroach Neruoscience: A Gateway to Human Communication"

### **Regeneron Biomedical Science Award**

Project Related to Biomedical Science and Research

1 Winner: Senior Division: Monetary Award of \$375 And a Certificate

James Gessey, Flasher School District , "The Impact of Nicotine, Vaporizer, and CBD Oils on Planarian Regeneration and Cell Memory"

### **United States Agency for International Development**

Project in Science and Technology That Can Advance Our Ability to Meet Current and Future Development Challenges

1 Winner: Senior Division: Certificate

Karlee Hoyt, Trenton School District , "Frequency Effects on Marine Systems"

# Water Quality

## **American Water Works Association**

Project Related to Drinking Water Quality

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Chad Casperson, WMSCC , "Lifestraw"

## **American Water Works Association**

Project Related to Drinking Water Quality

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate  
Sonakshi Singhal, Red River High School , "The Potential of Arsenic Remediation by Geomineralization."

## **North Dakota Water Environment Association**

Project Related to Water Quality

1 Winner: Senior Division: Monetary Award of \$75 And a Certificate  
Malory Kemp, Cavalier School District , "Management of Nitrogen and Phosphorus Biogeochemical Cycles through Harvest of Chlorella vulgaris and Elodea canadensis"

## **North Dakota Water Environment Association**

Project Related to Water Quality

1 Winner: Junior Division: Monetary Award of \$75 And a Certificate  
Addilyn Risky, Schroeder Middle School , "Lettuce Grow"

## **North Dakota Rural Water Systems Association**

Project Related to Water Quality

1 Winner: Senior Division: Monetary Award of \$100 And a Certificate  
Olivia Koehler, Hankinson School District , "A Chemical Comparison of Drinking Water"

## **Water Environment Federation**

Project Related to Water Quality or Water Conditions

1 Winner: Junior or Senior Division: Certificate  
Jason Weinberger, Flasher School District , "Nutrient Runoff Dynamics: Investigating Phosphate and Nitrogen Effects on Daphnia and Water Quality"