Thermo Fisher Scientific

Junior Innovators Challenge

A program of Society for Science

Thermo Fisher Scientific Junior Innovators Challenge 2026

TOP 300

Thermo Fisher Scientific Junior Innovators Challenge

The Thermo Fisher Scientific Junior Innovators Challenge (JIC), a program of Society for Science, is the premier national middle school science and engineering research competition, inspiring the next generation of scientists, engineers and innovators who will solve the world's most intractable problems. We believe middle school is a critical time when young people identify their personal passions, and if they discover an interest in Science, Technology, Engineering and Math (STEM), they can be inspired to follow those passions by pursuing STEM courses and learning experiences through high school and beyond.

As the only middle school STEM competition that leverages Society-affiliated science fairs as a critical component of the STEM talent pipeline, the Thermo Fisher JIC draws from the top 10% of 6th, 7th and 8th grade projects entered in Society-affiliated fairs around the country. After submitting the online application, the Top 300 Junior Innovators are selected by a panel of scientists, engineers and educators from around the nation.

The Top 300 Junior Innovators are honored for their work with a $125 cash prize through the Society's partnership with the U.S. Department of War as a member of the Defense STEM Education Consortium (DSEC). The Top 300 Junior Innovators also receive a prize package that includes an award ribbon, a certificate of accomplishment, a backpack, a decal and a one-year subscription to Science News Explores magazine. In recognition of the role that teachers play in the success of their students, the designated teacher of each Top 300 Junior Innovator will also receive a Thermo Fisher JIC tote bag and a one-year subscription to Science News Explores magazine.

From the Top 300 Junior Innovators, 30 finalists are announced on September 16. Finalists will present their research projects and compete as teams in STEM challenges to demonstrate their skills in critical thinking, collaboration, communication and creativity at Thermo Fisher JIC Finals Week. Top awards include a $25,000 grand prize, stipends for educational activities and more.

Thermo Fisher Scientific and Society for Science thank the following partners for their support of the 2026 Thermo Fisher JIC:

- Broadcom Foundation
- Citadel | Citadel Securities
- DoW STEM
- The Lemelson Foundation
- Science News Explores
- Smithsonian Environmental Research Center
- Society for Science-affiliated Regional and State Science and Engineering Fairs
- Families, teachers and mentors of the nearly 2,000 Thermo Fisher JIC entrants

Top 300 Junior Innovators

Students are listed in order by school state, fair code, last name and school name based on information they provided. Students listed under a regional fair may also have qualified through their state fair, but are only listed under their regional fair in this book. Students conducting research in teams must apply individually and are evaluated on their written application. The grade listed for each student is from spring 2026.

Visit **findafair.societyforscience.org** to look up Thermo Fisher Scientific JIC-affiliated fairs by state.

A # next to the name indicates previous selection as one of the Top 300 in the Society's middle school competition.

ALABAMA

USAL02 Central Alabama Regional Science and Engineering Fair

MAMIDI, DURGA SRAVANI (GRADE 8)
Birmingham, Alabama
Alabama School of Fine Arts
A Comparative Analysis of pH in Organic Ingredients and Cosmetic Products

ARIZONA

USAZ03 Southern Arizona Research, Science and Engineering Fair

CHANDRA, JAY (GRADE 8)
Yuma, Arizona
Gowan Science Academy
A Low-Cost, Accurate and Quick Diagnostic Tool Using Artificial Intelligence To Predict Heart Efficiency (Left Ventricular Ejection Fraction)

LUKOW, NIKOLA (GRADE 8)
Tucson, Arizona
BASIS Tucson North
Mars: Guarding or Watching? A 10,000-Year Orbital Study Test

USAZ50 Arizona Science and Engineering Fair

CHOUDHRY, ZOYA (GRADE 8)
Chandler, Arizona
Arizona College Prep — Erie
Effects of Acetic Acid Pretreatment on Biomass Saccharification and Bioethanol Yield

HARIHARAN, VAISHAVI (GRADE 8)
Chandler, Arizona
Arizona College Prep — Erie
A Prickly Solution to Plastic Pollution: Enhancing the Tensile Strength of a Cactus Mucilage-Based Bioplastic via Citric Acid Crosslinking

LIM, TRINN (GRADE 8)
Phoenix, Arizona
Horizon Community Learning Center
Glow Up! Examining the Power of Social Influence in Teen Skincare Marketing

YAP, JASMINE (GRADE 8)
Chandler, Arizona
Willis Junior High School
Quantifying the Impact of Environmental Temperature Conditions on Ascorbic Acid Retention Rates in *Capsicum annuum* Using Iodometric Titration

CALIFORNIA

USCA01 Orange County Science and Engineering Fair

BALANI, AARYAN (GRADE 8)
Cypress, California
Oxford Academy
EYEVA (Eye Visual Alignment): AI-Powered Wearable Strabismus Detection and Biofeedback Device

BIAN, VIOLET (GRADE 6)
Irvine, California
Turtle Rock Elementary School
Bike Safety and Surrounding Awareness Sensor

IYER, NEIL (GRADE 8)
Reno, Nevada
Davidson Academy Online
Low-Cost Detection of Structural Behavior Changes Using Smartphone Vibration Data

IYER, NIKITA (GRADE 6)
Irvine, California
Santiago Hills Elementary School
Comparative Analysis of Biodegradable Hydrogels for Soil Moisture Retention and Seedling Growth

LE, MIRANDA WANG (GRADE 8)
Irvine, California
TVT Community Day School — Upper Campus
Pest to Plastic: Upcycling Invasive Fountain Grass Into Multi-Functional Bioplastic Materials

MADIREDDY, VIRINCHI R. (GRADE 8)
Ripon, California
California Connections Academy at Ripon
Hidden Threats in Organic Fertilizers: A Study of Antibiotic Resistance in Commercial Animal-Based Fertilizers

SINHA, ANCHIT (GRADE 8)
Irvine, California
Venado Middle School
SmartCore Insert: A Modular Solution To Prevent Heat Season Grid Outages

SUN, STELLA CHANELLE (GRADE 8)
Anaheim, California
Fairmont Private School — Anaheim Hills Campus
Wiping Out the Risk: Effectiveness of Cleaning Products for Removing Peanut Allergens From Nonporous Surfaces Measured by Chromogenic Assay

VOHRA, VINAYAK (GRADE 8)
Huntington Beach, California
The Pegasus School
Testing the Efficiency and Accuracy of a Trash-Picking Robot Using Two Different Sensors

ZHAI, DANIEL (GRADE 6)
Irvine, California
Turtle Rock Elementary School
Bike Safety and Surrounding Awareness Sensor

ZHOU, ANGELA (GRADE 7)
Santa Ana, California
Orange County School of the Arts
What Personality Does AI Have? How Eight Leading Models Compare

USCA02 Los Angeles County Science and Engineering Fair

BANERJEE, AVISH (GRADE 8)
Torrance, California
Madrona Middle School
CPR Guardian: A Real-Time Digital Twin for CPR Rate and Depth Feedback

COWAN, CLEO PAX (GRADE 8)
Tarzana, California
Portola Highly Gifted Magnet Middle School
The Paradoxical Effect of High-Concentration Soil Microplastics on Tomato (*Solanum lycopersicum*) Yield: A Follow-Up Study

EUH, DIANE (GRADE 7)
Los Angeles, California
Harvard-Westlake Middle School
Machine Learning Modeling of Venus Flytrap Response Patterns Under Repeated Stimuli

FINLEY, LANA YUKIKO (GRADE 7)
North Hollywood, California
Walter Reed Middle School
Phytoremediation of Agricultural Microplastics: Clean Water, Clean Food

GOODMAN, NORAH (GRADE 7)
North Hollywood, California
The Science Academy STEM Magnet
Building a Cooler City, One Roof at a Time: Developing Cooler Roofing Solutions To Mitigate the Urban Heat Island Effect

KAPOOR, NIKITA (GRADE 8)
Rancho Palos Verdes, California
Miraleste Intermediate School
Symbiotic Power Generation: Investigating and Optimizing Microalgae-Microbial Fuel Cell for Enhanced Voltage Output

KRUM, SOPHIA (GRADE 8)
Arcadia, California
Dana Middle School
***Planaria* Regeneration as a Model To Study Hedgehog Pathway Inhibition for Basal Cell Carcinoma**

SENTHIL KUMAR, ABHINAV (GRADE 7)
North Hollywood, California
Walter Reed Middle School
The Dancing Canvas: Decoding the Repercussion of Acoustic Frequency on Granular Materials

SWIGERT, LILLY (GRADE 8)
Los Angeles, California
The Archer School for Girls
Fly Away From Addiction: Testing Dibenzazepine's Effect on Ethanol Preference in *Drosophila melanogaster*

USCA03 Fresno County Science Fair

NATHAN, SIDDHARTH (GRADE 7)
Fresno, California
Carden School of Fresno
Berry Gentle: Design and Evaluation of a Soft Robotic Gripper for Strawberry Harvesting

TIWANA, MEERA KAUR (GRADE 6)
Fresno, California
Carden School of Fresno
Engineering a Biodegradable pH Sensitive Color-Changing Sponge

USCA05 Greater San Diego Science and Engineering Fair

BOJJA, ISHAN REDDY (GRADE 7)
San Diego, California
Oak Valley Middle School
Early Detection of Superficial Spreading Melanoma With Machine Learning

GREEN, JOIE (GRADE 8)
La Jolla, California
Muirlands Middle School
Soon I Will Be Invisible: Directing Energy With Topological Metamaterials

HENDRIX, ELISE KE AULI'I (GRADE 8)
Encinitas, California
The Rhoades School
Determining Optimal Moisture Content of Sand Arena Footing for Equine Jumping

TALEPPADY, AADARSH RAO (GRADE 7)
San Diego, California
Oak Valley Middle School
Early Detection of Superficial Spreading Melanoma With Machine Learning

XU, ANDREW (GRADE 8) #
La Jolla, California
The Bishop's School
A Braille Embosser for Independent Use by Low-Vision People

ZAGURSKY, NICOLE (GRADE 8)
San Diego, California
Soille San Diego Hebrew Day School
Washing Away Our Oceans: How Household Laundry Fuels Microplastic Pollution

USCA07 Synopsys Silicon Valley Science and Technology Championship presented by the Santa Clara Valley Science and Engineering Fair Association

BURKI, ANKITH (GRADE 7)
San Jose, California
BASIS Independent Silicon Valley
Investigating the Effect of Low-Frequency Sound in Enhancing the Efficiency of Water Generation in Thermoelectric Atmospheric Water Generators

GUDIHAL, AASHRAYA (GRADE 7)
Palo Alto, California
Challenger School
Quantum Thermal Interference: Characterization of Thermal Light Interference in Multi-Slit Systems

KRISHNAPURAM, PRANAV (GRADE 8)
Cupertino, California
Tessellations — The Beneventi School
Redundancy Degree and Reconstructibility in κ-Exact-Perfect Numbers

PARTANI, VIVANN (GRADE 8)
Milpitas, California
Stratford Middle School
Electromyographic Prosthetic Hand Prototype

ROMANOFF, ISAAC JINSUNG (GRADE 8)
Palo Alto, California
Gideon Hausner Jewish Day School
Fridge Firefly

SONG, EVERETT (GRADE 8)
San Jose, California
Stratford Preparatory School San Jose — Blackford
AI-Powered Computer Vision for Real-Time Quality Monitoring in Safety-Critical Assembly

SRIDHARA, SHAAN (GRADE 8)
San Jose, California
Bret Harte Middle School
FluoroBrush: A Smart Toothbrush With AI-Based Plaque Detection and Real-Time Brushing Guidance

VENKATAKRISHNAN, SHRINIDHI (GRADE 7)
San Jose, California
Challenger School — Strawberry Park
Natural Filtration Agents in Action: The Impact of Seaweed and Fruit Peels on Water Quality

VEREMEY, ALEXANDRA (GRADE 6)
Ojai, California
Laurel Springs School
RF Electromagnetic Optimization of a Cylindrical Slot Antenna for Robust Real-Time Emergency LoRa Communication and Disaster Response

YAN, RAEWEN (GRADE 8)
Palo Alto, California
Challenger School
Design and Implementation of a PID-Controlled Small-Scale Electric Torrefaction System for Biomass Processing

USCA08 Contra Costa County Science and Engineering Fair

KOCHAR, ARNAV (GRADE 8)
San Ramon, California
Gale Ranch Middle School
MaternalGuard AI: Protecting Every Precious Heartbeat

RAJVANSH, KASHVIERA KAUR (GRADE 7)
San Ramon, California
Gale Ranch Middle School
The Living Air Lab

USCA09 HITACHI Science and Engineering Fair, Alameda County

BATRA, KAAVYA (GRADE 7)
Fremont, California
John Horner Junior High School
Smart Child in Car Alarm System

BATRA, SVANA (GRADE 7)
Fremont, California
John Horner Junior High School
Smart Child in Car Alarm System

GHOSH, ARRWIN (GRADE 8)
Albany, California
Albany Middle School
Everyday Consumer Chemicals and Immune Aging: PFAS and Phthalates in US Adults

JAKKULA, HARSHINI (GRADE 8)
Dublin, California
Fallon Middle School
The Effect of Arbuscular Mycorrhizal Fungi on Microplastic-Induced Stress in Mycorrhizal and Non-Mycorrhizal Plant Species

KAUR, JASMEHAR (GRADE 8)
Fremont, California
Centerville Junior High School
IonReHydrant: Eco-Friendly Ion Exchange Filter To Treat Home Hydroponic Wastewater

NEMANI, PRATHIK (GRADE 7)
Fremont, California
Thornton Junior High School
IonReHydrant: Eco-Friendly Ion Exchange Filter To Treat Home Hydroponic Wastewater

SONI, NEYSA (GRADE 6)
Fremont, California
Stratford School — Fremont Osgood Campus
Eco-Friendly, Economical Sustainable and Solar-Powered Air Purifier

SRIVATS, RISHAB (GRADE 8) #
Fremont, California
John Horner Junior High School
Gait Guard: Smart Insole for Real-Time Gait Correction

VENKATESH, ADARSH (GRADE 8)
Dublin, California
Fallon Middle School
Tremor-Tamer: Real-Time Counter Vibration Supression for Parkinsonian Tremors

USCA11 Santa Cruz County Science and Engineering Fair

HUNTER-PINSKY, LINDEN (GRADE 7)
Santa Cruz, California
Gateway Middle School
Investigating the Relationship of Sea Urchins (*Echinoidea*) to Giant Kelp (*Macrocystis pyrifera*) Bed Recovery

USCA13 San Bernardino, Inyo, Mono (SIM) Science and Engineering Fair

GARG, SHREYAS (GRADE 8) #
Chino Hills, California
Canyon Hills Junior High School
Electrostatic Cyclone: The Ultimate Indoor Pollution and Duster Buster

LEE, SOPHIA (GRADE 6)
Chino Hills, California
Eagle Canyon Elementary School
Decomposing Booster

LEE, STEPHANIE (GRADE 8) #
Chino Hills, California
Canyon Hills Junior High School
Finding the Hidden Treasure Behind Green Waste

NASWA, PARTHVI (GRADE 8)
Chino Hills, California
Canyon Hills Junior High School
Rebuilding Pyrogenic Soils: Evaluating Stress Impacts and Bioremediation Viability for Ecosystem Recovery

SINGH, SURVEEN (GRADE 7)
Etiwanda, California
Etiwanda Intermediate School
Taming the Tremors: Evaluating Seismic Protection Systems in Tall and Short Buildings

USCA15 Riverside County Science and Engineering Fair

GROVER, HENRY (GRADE 8) #
Riverside, California
Riverside STEM Academy
Sprayable Hydrogels for Preventing the Rekindling of Wildfires

GROVER, JACK (GRADE 8)
Riverside, California
Riverside STEM Academy
Sprayable Hydrogels for Preventing the Rekindling of Wildfires

USCA16 Kern County Regional Science Fair

GOLDBERG, ALEKHA (GRADE 7) #
Pine Mountain Club, California
Peak to Peak Mountain Charter School
Blue-reka! Investigating Methylene Blue as a Neuroprotectant for Traumatic Brain Injury Using a Novel *In Vivo Drosophila* Model

KIM, BENSON (GRADE 6)
Bakersfield, California
Ronald Reagan Elementary School
Cooling Bakersfield: Time-To-Burn Regressions and Passive Mitigation of Urban Heat Islands

NARWAL, SAANVI (GRADE 7)
Bakersfield, California
Earl Warren Junior High School
Hydrogel Enhanced Soil: A Strategy for Agricultural Water Conservation

USCA50 California Science & Engineering Fair

BYUN, HAYDEN HAYUL (GRADE 7)
San Diego, California
Pacific Trails Middle School
How Laundering Affects UV Blockage in T-Shirts

DASARI, SHREYAN (GRADE 6)
Carmichael, California
Winston Churchill Middle School
A Novel Neural Network Framework for Increasing mRNA Stability via Sequence Optimization

GUNDUBOGULA, NIRVI (GRADE 7)
Newark, California
Challenger School — Ardenwood
Electrostatic Energy Harvesting

KANUNGO, PIHUL (GRADE 6)
Merced, California
Luther Burbank Elementary School
Testing UV Shields: A Quantitative Study of Skin Protection

STERNSON, OLYMPIA (GRADE 8)
Encinitas, California
The Rhoades School
The Role of Language Specificity in Sparking Controversy on Social Media

USCA78 Irvine Unified School District Fair

ALAM, ZAIN (GRADE 7)
Irvine, California
Jeffrey Trail Middle School
Engineering Seeds for a Food-Secure World: Optimizing Alginate-Based Seed Coatings To Improve Germination in Saline Soils

GU, HARRISON (GRADE 7)
Irvine, California
Rancho San Joaquin Middle School
VisionShield

KWON, RENE (GRADE 8) #
Irvine, California
Sierra Vista Middle School
Breaking the Phalanx: Using AHL/EPS Biomarkers To Modulate *Pseudomonas fluorescens* Biofilm Formation With Quorum Sensing Inhibitor Pathways by Natural and Synthetic Inhibitors Under Sublethal Kanamycin Stress

MANDAVIYA, DIA (GRADE 6)
Irvine, California
Santiago Hills Elementary School
Is Winning a Claw Machine Luck, Skill or Science? A 120-Trial Study Using Lego Technic Robotics

PRICE, OLIVIA (GRADE 7)
Irvine, California
Rancho San Joaquin Middle School
At the Root of the Problem: Digging Ourselves Into Trouble After Wildfires?

PUTLUR, GEETA (GRADE 7)
Irvine, California
Sierra Vista Middle School
The Myco-Filter: Enhancing Phytoremediation With Fungi and Machine Learning

ZHAO, ZIXIN (GRADE 7)
Irvine, California
Rancho San Joaquin Middle School
Investigating Banana Plant Fibers as Natural Antibacterial Biomaterials and Scaffolds for Cell Adhesion

USCA80 San Mateo County Office of Education STEM Fair

BLOOM, LYRA (GRADE 8)
Redwood City, California
Sandpiper Elementary School
BinBuddy: AI Trash-Sorting Robot for Kids

PARK, ANDREW (GRADE 8)
Redwood City, California
Sandpiper Elementary School
Interactive 3D Sound Antenna for Real-Time Sound Localization and Visualization

ROYCHOWDHURY, AYAN (GRADE 7)
Atherton, California
Sacred Heart Schools
How Much Hidden Degradation Is There Behind Your Favorite Drinks?

TSENG, JAY (GRADE 7)
Redwood City, California
Stanford Online High School
Real-Time Pothole Detection, Mapping and Driver Warning Using AI Computer Vision and Smartphone Accelerometer Data

WANG, BOWEN (GRADE 7) #
San Carlos, California
Central Middle School
Aftershock Oracle: Machine Learning-Based Aftershock Risk Forecasting for Earthquake Safety

COLORADO

USCO10 Denver Regional Science and Engineering Fair

RAO, ANIRUDH (GRADE 8)
Highlands Ranch, Colorado
STEM School and Academy
Mirai 未来: A Sustainable Alternative for Electrochemical Batteries Using Specially-Treated Nanomaterials and Water

FLORIDA

USFL04 Tomoka Region Science and Engineering Fair

CÁCERES, DANTE (GRADE 7)
Ormond Beach, Florida
Homeschool
Forest Shield: Fire Resistance Study Comparing Four Natural Fire Retardant Materials

HILLEY, JAYU HAZEL (GRADE 7)
Port Orange, Florida
Silver Sands Middle School
Beyond Faraday: Analyzing Mass Loss and Gain in Copper Electroplating — A Comparison of Real-World Data and Theoretical Predictions

USFL08 Alachua Region Science and Engineering Fair

PYAE, AUNG (GRADE 8)
Gainesville, Florida
Fort Clarke Middle School
Celestial Geometry: A Mathematical Approach to Modeling Patterns and Periodic Variations in Lunar Orbital Distance

USFL09 Broward Regional Science & Engineering Fair

ASSELTA, SCARLETT (GRADE 8)
Plantation, Florida
American Heritage School
A Biodegradable DNA-Triggered Capsule and Wearable Patch for Early Sepsis Detection

WAKEFIELD, MAXIMILIAN ANDRE (GRADE 8)
Fort Lauderdale, Florida
Pine Crest School — Fort Lauderdale Campus
Novel Dementia Screening and Monitoring Tool Using Passive Speech Recordings

USFL13 Brevard South Regional STEM Fair

FORSMAN, LILY ANN (GRADE 7)
Indialantic, Florida
Holy Name of Jesus Catholic School
The Drag Dilemma: The Impact of Shape and Texture on the Drag Force of a Rocket Nose Cone

USFL15 South Florida Science and Engineering Fair

AFKHAMI SEARCY, ELIZABETH ALLENIA (GRADE 7) #
Miami, Florida
Southwood Middle School
Some Like It Hot: Miami's Urban Heat Islands Aid the Spread of Their Most Prolific Invasive Lizards

DURHAM, LUCA (GRADE 7)
Miami, Florida
Maritime and Science Technology Academy
Concrete Reinvented: Reinforcing Porous Concrete With Fibers

SCHURER, KATARINA (GRADE 8)
Coral Gables, Florida
George Washington Carver Middle School
Teaching AI Chemistry From Names

USFL16 Big Springs Regional Science Fair

CHETTY, JAIDEN (GRADE 6)
Ocala, Florida
Howard Middle School
The Great Insulation Showdown

USFL17 Dr. Nelson Ying-Orange County Science Exposition

CHALLA, SIDDHARTH SURYA (GRADE 8)
Orlando, Florida
Orlando Science School Middle/High Charter
Smart Smoke Detection System

ROSHID, ZIHAN IBRAHIM (GRADE 7)
Orlando, Florida
Ibn Seena Academy
Evaluating the Effects of Hull Shape Design on Submarine Hydrodynamics Using Turtle Biomimicry

SONAWANE, ANAY (GRADE 8)
Orlando, Florida
Orlando Science School Middle/High Charter
Navigaid 2.0

USFL21 Saint Johns County STEM Fair

JIMENEZ, NICOLAS (GRADE 8)
Saint Augustine, Florida
Pine Island Academy
SLEEVi: Spatial and Light Enhanced Environmental Vibration Interface

USFL23 Seminole County Regional Science, Mathematics & Engineering Fair

ADHIKARI, ISHAAN (GRADE 7)
Sanford, Florida
Sanford Middle School
How Can Mathematical Modeling Be Used To Reduce Emergency Response Times?

CHAUHAN, MAANYA (GRADE 8)
Sanford, Florida
Sanford Middle School
Nature Caretaker: Using AI To Help With Early Plant Disease Detection and Identification

XIA, YIFAN (GRADE 8)
Sanford, Florida
Sanford Middle School
Hollow Gold-Nickel Nanoparticles: A Cheaper and More Powerful Alternative to Conventional Solid-Gold Nanoparticles

USFL28 Brevard Mainland Regional STEM Fair

LAUER, JACE (GRADE 8) #
West Melbourne, Florida
Homeschool
Analyzing Mathematical Patterns in Resistor Networks

MITSAKOS, MARISSA (GRADE 8)
Cocoa, Florida
Space Coast Junior/Senior High School
Eco-Friendly Bioremediation Techniques for Absorption of Excess Phosphate Nutrients in the Indian River Lagoon, Towards Preventing Harmful Algal Blooms: A Comparative Analysis

USFL29 Palm Beach Regional Science and Engineering Fair

DIAZ-PADUA, DAVID (GRADE 8)
Boca Raton, Florida
Pine Crest School — Boca Raton Campus
Effects of Probiotic Supplementation on Neural-Driven Behaviors in *Planaria*

HALL, MAX (GRADE 8)
Boca Raton, Florida
Pine Crest School — Boca Raton Campus
Enhancing Driver Decision-Making at Yellow Lights by Using Only GPS Data

KARPELES, LARISSA (GRADE 7)
Delray Beach, Florida
American Heritage School Boca Delray
Measuring Ascorbic Acid in Synthetic Urine Using 2,6-Dichloroindophenol Sodium Salt Hydrate

MAHESH, RHEA (GRADE 8)
Boca Raton, Florida
Pine Crest School — Boca Raton Campus
Investigating the Efficacy of Dietary Interventions With Cellulose Fiber and Ascorbic Acid Supplementation To Mitigate Microplastic-Induced Heart Rate Variability and Oxidative Stress in *Daphnia magna*

NGUYEN, CHRYSANA (GRADE 8)
Boca Raton, Florida
Don Estridge High Tech Middle School
Stored Sunshine: Improving Solar-Powered Aquaponics With Battery Storage

USFL30 Pasco Regional Science and Engineering Showcase

VARMA, AARTI (GRADE 8)
Wesley Chapel, Florida
Thomas E. Weightman Middle School
Operation Neutralization: Investigating How the Conditions of Ascorbic Acid Dilution Affect Seawater's Parameters so a Chemical and Biochemical Analysis Can Be Done To Aid Desalination Efficiency

USFL50 State Science and Engineering Fair of Florida - Ying Scholars

FRANK, BAILEY QUINN (GRADE 8)
Fort Lauderdale, Florida
Pine Crest School — Fort Lauderdale Campus
Designing an eDNA Sampler To Provide Health Surveillance Through the Detection and Identification of Bacterial Pathogens in Rural Communities

JITARI, DANIEL (GRADE 8) #
Davie, Florida
Indian Ridge Middle School
A Dual-Channel Elastocaloric Cooling System Using Nitinol Wire

GEORGIA

USGA11 Gwinnett Regional Fair

BABWANI, AYAAN (GRADE 7)
Lilburn, Georgia
Trickum Middle School
Patient Zero: Novel Computational Framework for Personalized Parkinson's Therapy Optimization

USGA50 Georgia State Science and Engineering Fair

JAIN, SAMVAR (GRADE 8)
Alpharetta, Georgia
DeSana Middle School
Analysis of Epoch Variability in CNNs for Skin Cancer Detection

MADDU, SAMHITHA KIRAN (GRADE 8)
Atlanta, Georgia
The Globe Academy
Plasticizers in Pads: A Study of Phthalate Content

NIX, RYAN (GRADE 8)
Columbus, Georgia
Richards Middle School
Harvesting Sound: Testing Piezoelectric Energy Generation Through Simulated Tissue

SHARMA, ADVAY (GRADE 8)
Alpharetta, Georgia
DeSana Middle School
Analysis of Epoch Variability in CNNs for Skin Cancer Detection

SUNDAR, ADHIP (GRADE 8)
Alpharetta, Georgia
DeSana Middle School
Analysis of Epoch Variability in CNNs for Skin Cancer Detection

GUAM

TEGU01 Guam Island-Wide Science Fair

YAN, DERRICK (GRADE 8)
Upper Tumon, Guam
Saint John's School
Mechanical Properties of Recycled-Glass Concrete for Erosion Control Structures

HAWAII

USHI05 Hawaii District Science and Engineering Fair

TAO, JOANNA (GRADE 8) #
Hilo, Hawaii
Waiakea Intermediate School
Investigating the Effects of a Native Hawaiian Herb on Alleviating the Detrimental Effects of Volcanic Ash

WISSMAN, MADILYN (GRADE 8)
Hilo, Hawaii
Hilo Intermediate School
ʻŌpeʻapeʻa in Flight: Observing Hawaiian Hoary Bat Evening Flight Patterns

USHI50 Hawaii State Science and Engineering Fair

BEECROFT, JAMES TATSUUMI (GRADE 8)
Aiea, Hawaii
Our Savior Lutheran School
Seed Darts: Engineering Low-Cost Paper and 3D-Printed Seed Darts for Controlled Aerial and Drone-Assisted Reforestation Using Native Plants in Hawai'i

YAMAMOTO, REILLY ICHIRO KAULANA (GRADE 8)
Aiea, Hawaii
Our Savior Lutheran School
Seed Darts: Engineering Low-Cost Paper and 3D-Printed Seed Darts for Controlled Aerial and Drone-Assisted Reforestation Using Native Plants in Hawai'i

ILLINOIS

USIL02 STEM Science and Engineering Research Challenge

BAGHMANLI, BAHTIAR (GRADE 8)
Waterloo, Illinois
Waterloo Junior High School
Which Origami Design Is the Best for Efficient Portable Solar Panels

USIL04 Illinois Junior Academy of Science Region X Science Fair

GARG, VEER (GRADE 8)
Springfield, Illinois
Benjamin Franklin Middle School
PneumoniaScan: Convolutional Neural Network To Improve Pneumonia Detection in Resource Limited Setting

USIL05 Illinois Junior Academy of Science North Suburban Region 6 Science and Engineering Fair

PRAKASH, VARNA (GRADE 8)
Buffalo Grove, Illinois
Twin Groves Middle School
Biochar Alginate Fertilizer: A Sustainable Approach To Mitigate Agricultural Nitrogen Emissions

VIMAL RAJ, RENEE CATHERINE (GRADE 8)
Buffalo Grove, Illinois
Twin Groves Middle School
Chitosan-Induced Flocculation for Microplastic Removal To Produce Purified Sea Salt

USIL50 Illinois Junior Academy of Science State Exposition

GEIGER, NANAMI TAMURA (GRADE 8)
Evanston, Illinois
Pope John XXIII School
Using Ocean Alkalinity Enhancement (OAE) to Reverse Coral Reef Decline With Eggshells

LIU, MACY (GRADE 8)
Palatine, Illinois
Quest Academy
Effect of Neodymium's Temperature on Eddy Currents: Aluminum vs. Copper

PATEL, PARV (GRADE 8)
Quincy, Illinois
Quincy Junior High School
The Effect of Soccer Shoe Impact Material on Ball Velocity, Spin Rate and Trajectory

PUNJALA, SHRIKARI (GRADE 7)
Palatine, Illinois
Quest Academy
How Do Calcium Carbonate Crystals Affect Bacterial Growth?

VIRLA, OSCAR (GRADE 7)
Frankfort, Illinois
Summit Hill Junior High School
Propelling With Ions

INDIANA

USIN25 Hoosier Science and Engineering Fair Region 6

AKGUL, NILUFER (GRADE 8)
Terre Haute, Indiana
Honey Creek Middle School
Mapping Emergency Services: Distribution and Income Analysis in Greater Indianapolis

USIN50 Hoosier Science and Engineering Fair

FEI, MELODY (GRADE 8)
West Lafayette, Indiana
West Lafayette Junior/Senior High School
Flood Vulnerability Mapping Using Sentinel-1 SAR and GIS

KENTUCKY

USKY02 Louisville Regional Science and Engineering Fair

KNOCKWAFEL, LINCOLN (GRADE 6)
Louisville, Kentucky
Saint Francis of Assisi Catholic School
Rusting Alaska: Salt's Impact on Iron Oxidation and Precipitation

WILLIAMS, MILES (GRADE 8)
Louisville, Kentucky
Saint Francis of Assisi Catholic School
Exploring the Effects of Phototherapy on Stem Cells and Signaling

USKY05 Central Kentucky Regional Science and Engineering Fair

ISLAM, SARAH NUR (GRADE 6)
Lexington, Kentucky
Winburn Middle School
Headache Halt: A Behavioral Forecasting Approach to Predicting and Preventing Headaches

TIBREWAL, AARAV KUMAR (GRADE 8) #
Lexington, Kentucky
Beaumont Middle School
Analyzing the Efficiency of Root-Finding Algorithms on Multi-Application Polynomials

USKY50 Kentucky Science and Engineering Fair

MOHAMMED, HASNAIN (GRADE 6)
Louisville, Kentucky
Nur Islamic School of Louisville
Cancer Cell Growth and Natural Inhibitors

LOUISIANA

USLA01 Louisiana Region VII-Science and Engineering Fair

PARK, NATHAN (GRADE 8)
Baton Rouge, Louisiana
Sherwood Middle Academic Magnet School
The Effect of Geometric Configuration on Maximum Holding Weight of Adhesive Tape

VIJAIKRISHNAH, VANATHI (GRADE 8)
Baton Rouge, Louisiana
Glasgow Middle School
Powdered Banana Peel Coagulation

USLA05 Louisiana Region V Science and Engineering Fair

BASRA, ARMAAN SINGH (GRADE 7)
Lake Charles, Louisiana
Bishop Noland Episcopal Day School
Microscan AI: A Portable AI-Based Microplastic Detection System

MARYLAND

USMD02 Frederick County Science and Engineering Fair

P., JONATHAN DANIEL (GRADE 7)
Ijamsville, Maryland
Urbana Middle School
The Telomere Clock: How Stress Accelerates Cellular Aging

MASSACHUSETTS

USMA02 Massachusetts Region IV Science Fair

OHARA, KOJI (GRADE 8) #
Acton, Massachusetts
R.J. Grey Junior High School
A Smart Chessboard: Detecting Individual Chess Pieces Using Copper Tape and Resistance Material

RIAZ, MOHAMMAD IBRAHIM (GRADE 7)
Methuen, Massachusetts
The Islamic Academy for Peace
Removing Microplastics From Water Using Chitosan-Coated Magnetic Nanoparticles

SHAKIR, ZAYNAB (GRADE 7)
Methuen, Massachusetts
The Islamic Academy for Peace
Design and Evaluation of a Low-Cost Electrostatic and Bio-Enhanced Air Filtration System

SIDDIQ, ROUDHA FATHIMA (GRADE 6)
Methuen, Massachusetts
The Islamic Academy for Peace
Cool Pavers: Turning Down the Heat in Our Cities: Which Porous Material is Most Effective at Reducing Heat Absorption and Increasing Cooling Rates in Concrete Pavers To Help Mitigate the Urban Heat Island Effect?

SOONG, ZACHARY (GRADE 8)
Arlington, Massachusetts
Lesley Ellis School
The Natural Solution for Noise Pollution

ZAHEER, MARYAM (GRADE 6)
Methuen, Massachusetts
The Islamic Academy for Peace
Cool Pavers: Turning Down the Heat in Our Cities: Which Porous Material is Most Effective at Reducing Heat Absorption and Increasing Cooling Rates in Concrete Pavers To Help Mitigate the Urban Heat Island Effect?

USMA05 Massachusetts Region II State Science Fair

CHANG, JASON (GRADE 7) #
Worcester, Massachusetts
Worcester Academy
HelioSphere: A Buckyball-Inspired Fresnel Lens Concentrator for Enhanced Photovoltaic Performance

SANDEEP, GRAHITHA (GRADE 8)
Shrewsbury, Massachusetts
Oak Middle School
Optimizing Biodegradable Composite Films for Sustainable Food Packaging

USMA50 Massachusetts State Science & Engineering Fair

PATEL, CHITTESH (GRADE 8)
Franklin, Massachusetts
Benjamin Franklin Classical Charter Public School
A Novel Alternative to Conventional Antibiotics: Selective Capture of Harmful Gut Bacteria Using a Mucin-Based Formula While Preserving Beneficial Microbiota

SHAH, AAGAM SAMARTH (GRADE 8)
Franklin, Massachusetts
Benjamin Franklin Classical Charter Public School
A Novel Alternative to Conventional Antibiotics: Selective Capture of Harmful Gut Bacteria Using a Mucin-Based Formula While Preserving Beneficial Microbiota

MICHIGAN

USMI02 Science and Engineering Fair of Metropolitan Detroit

KATHULA, SOHAM (GRADE 7)
Ann Arbor, Michigan
Greenhills School
Optical Spectroscopy for Non-Invasive Blood Glucose Measurement

PANDIT, SANAT (GRADE 6)
Ann Arbor, Michigan
Greenhills School
Project Soteria: A Low-Cost Fire Mitigating UAV Implemented Through Stereovision, Sonar and Path Planning Algorithms

ZEIDAN, JEFFREY (GRADE 7)
Ann Arbor, Michigan
Greenhills School
Non-Invasive Optical Glucose Monitoring System

MINNESOTA

USMN09 Saint Paul Science Fair

GAO, KATE (GRADE 8)
Saint Paul, Minnesota
Saint Paul Academy and Summit School
Wipe if Off — A Solution to Enable L5 Self-Driving

USMN10 Western Suburbs Science Fair

LIN, OLIVIA (GRADE 6)
Minnetonka, Minnesota
Minnetonka Middle School
Making Water Soft: Mathematically Modeling the Progression of a Softening System and Investigating the Potential Microplastic Contamination of Water Softeners

USMN50 Minnesota Academy of Science State Science & Engineering Fair

GARRY, ISABELLA (GRADE 7)
Eden Prairie, Minnesota
Central Middle School
A Novel Method for Microplastic Removal From Simulated Gastric Fluid Using Plant Mucilage Flocculants

LIN, AUTUMN (GRADE 8)
Golden Valley, Minnesota
Breck School
More Than Just Skin Health: How Do Chemical and Mineral Sunscreens Affect Photosynthesis in Freshwater Plants?

ZHOU, OLIVIA (GRADE 8)
Minnetonka, Minnesota
Minnetonka Middle School
Make Ocean Clean Again — With the Help of Ferrofluids and Sound Waves

MISSOURI

USMO03 Missouri Southern Regional Science Fair

ALLPHIN, ANSLEE (GRADE 6)
Neosho, Missouri
Neosho Middle School
An *In Vivo* Bioassay of GLP-1(C) Pharmaceuticals in Freshwater Systems Using *Daphnia magna* as a Bioindicator

USMO04 Greater Kansas City Science & Engineering Fair

SCHWEITZER, ELEANOR (GRADE 6)
Liberty, Missouri
Liberty Middle School
The Effect of Non-Eco and Eco-Friendly Laundry Detergent on Skin Moisture Retention

WAQAR, IZZA (GRADE 8)
Kansas City, Missouri
Islamic School of Greater Kansas City
Effects of Particle Size on Aggregation in a Model of the Bouncing Barrier

MONTANA

USMT50 Montana Science Fair

ROST, RYE LYNN (GRADE 7) #
Baker, Montana
Baker Junior High School
***Musa acuminata* and *Musa paradisiaca* Mashup: Developing Higher Resistant Starch Bioplastics**

NEBRASKA

USNE02 Greater Nebraska Science and Engineering Fair

PALSAMY, NITHTHIL (GRADE 7)
Elkhorn, Nebraska
Elkhorn Valley View Middle School
When Water Runs Low: How Drought Stress Alters Growth and Stomatal Behavior in Radish Seedlings

NEW HAMPSHIRE

USNH50 New Hampshire Science & Engineering Expo

MADASAMY, KAUSHIK (GRADE 6)
Portsmouth, New Hampshire
Portsmouth Middle School
Mindless to Mindful: Stop Mindless Scrolling Through Neurofeedback and Coherence Training

NEW JERSEY

USNJ02 Hudson County STEM Showcase

SHAIKH, HAAZIM MOHAMMED (GRADE 8)
Jersey City, New Jersey
Infinity Institute
Energy Under Your Feet: Piezoelectric Responses on Different Floors

USNJ79 Bergen SciChallenge

AGARWAL, ASHVIKA (GRADE 7)
Florham Park, New Jersey
Ridgedale Middle School
TerraRelease: A Biodegradable, Moisture-Responsive Fertilizer Diffusion System

BHOJAWALA, NATHAN S. (GRADE 7)
Englewood, New Jersey
The Elisabeth Morrow School
Quantifying Environmental Injustice: A Multivariable Machine Learning Approach to Predicting Asthma Risk in New Jersey Census Tracts

GANDHI, SARTAJ SINGH (GRADE 7)
Monroe Township, New Jersey
Monroe Township Middle School
Meat Freshness Monitor

GUPTA, DEVANSH (GRADE 8)
Toms River, New Jersey
Toms River Intermediate North
Measuring the Effects of Light, Watering and Leaf Health on Plant Electrical Signals — Low-Cost Sensors for Monitoring Plant Electrical Activity and Assessing Plant Health

IIGAYA, SEIJI (GRADE 8)
Tenafly, New Jersey
Tenafly Middle School
Modeling Violin Expression: Timbral Dynamics at the Instability Boundary

NEW MEXICO

USNM01 Central New Mexico Regional Science and Engineering Challenge

BARRANTES, ZOHEB (GRADE 7)
Albuquerque, New Mexico
Albuquerque Academy
Simulating Climate Change: The Impact of Diurnal Warming on King Oyster Mushroom Growth

PARUCHURI, SAHANA (GRADE 8)
Albuquerque, New Mexico
Albuquerque Academy
Beyond Accuracy: Brain Tumor AI — A Confidence-Calibrated Multi-Stage CNN for MRI Tumor Detection, Subtype Classification and Glioma Grading

PRASANKUMAR, ASHVITA (GRADE 8)
Albuquerque, New Mexico
Desert Willow Family School
A Change of Heart: Predictive Modeling of Heart Disease Risk

USNM05 Northeastern New Mexico Regional Science and Engineering Fair

WODRICH, NOAH (GRADE 7)
Taos, New Mexico
Taos Academy Charter School
Super Solar Cells

NEW YORK

USNY02 Long Island Science and Engineering Fair

ARUN, ADITRI (GRADE 8)
Hauppauge, New York
Hauppauge Middle School
Orange Is the New Green

BUTOV, ETHAN (GRADE 8)
Levittown, New York
Jonas E. Salk Middle School
BioShield: Building Wildfire Resilience Through Intelligent Nature-Inspired Defense

HEITEFUSS, HANNA RYAN (GRADE 8)
Lido Beach, New York
Long Beach Middle School
Investigating Saltwater Intrusion on the Development and Growth of *Vigna radiata* and Heart Modulation of *Daphnia magna*

SYVERTSEN, EMILIA (GRADE 7)
Uniondale, New York
Bro. Joseph C. Fox Latin School
GL-PAW1: Variant Analysis on the Canine Population

USNY05 Regeneron-Westchester Science and Engineering Fair

SANO, IKOI (GRADE 8)
Scarsdale, New York
Scarsdale Middle School
Protecting Children's Vision: Designing 7-MX Derivatives for Myopia

USNY06 Central New York Science and Engineering Fair

LAVELLE, CONOR (GRADE 8)
Syracuse, New York
Manlius Pebble Hill School
Trusst or Busst? Which Bridge Truss Design Has the Highest Strength to Weight Efficiency Ratio?

USNY78 Hunter College High School Science and Engineering Fair

MENDELOW, PHOEBE (GRADE 8)
New York, New York
Hunter College High School
Microfibers in Domestic Laundering and Solutions To Reduce

NORTH CAROLINA

USNC01 Charlotte-Mecklenburg Regional Science Fair

ABRAHAM, JOVAN (GRADE 6)
Charlotte, North Carolina
Community House Middle School
Tilt or Torque: Real Time Stabilization of a Two-Wheeled Robot Using Proportional Control

ANANDKUMAR, TIMOTHY (GRADE 8)
Matthews, North Carolina
Socrates Academy
Evaluating Estuarine Waters as Alternative Freshwater Resources Using Data Science: A Multivariate Analysis Using USGS Data, Field Sampling and Statistical Modeling

USNC50 North Carolina State Science Fair

DHINAKARAN, RHISHI (GRADE 8)
Raleigh, North Carolina
Fred J. Carnage Middle School
LichenLens: Using Lichens as Bioindicators of Air Quality and Geomorphology

JHA, TRISHA (GRADE 8)
Cary, North Carolina
Mills Park Middle School
A Novel Approach to Stent Design and Drug Release Treating Restenosis

KARTHIK KAMU, AASHRITHA (GRADE 7)
Cary, North Carolina
Cary Academy
***StressTrack*: A Low-Cost Enzyme-Driven Electrical Switch for Stress Biomarker Detection**

ROY, KAUTIK (GRADE 8)
Raleigh, North Carolina
Fred J. Carnage Middle School
LichenLens: Using Lichens as Bioindicators of Air Quality and Geomorphology

SHAH, SWARA (GRADE 7)
Cary, North Carolina
Mills Park Middle School
***In Silico* Molecular Docking Analysis of Blue Zone Phytochemicals and Western Compounds as Potential Activators of the Mitochondrial SIRT3 To Improve Human Longevity**

OHIO

USOH02 Northeastern Ohio Science and Engineering Fair

DEVARAJAN, AADHI (GRADE 8)
Cleveland, Ohio
Birchwood School
SkinNet: Enhancing Early Detection of Skin Cancers via ConvNextV2 and Metadata Fusion

JAYANT, DHRITI (GRADE 7)
Columbia Station, Ohio
Columbia Middle School
Protecting Probiotics: How Buffer Foods Affect Curd Probiotics During Digestion

USOH10 University of Cincinnati Science and Engineering EXPO

SENTHIL, DIYA (GRADE 8)
Cincinnati, Ohio
Walnut Hills High School
Optimizing the Timing of Quercetin Treatment To Protect *Saccharomyces cerevisiae* From Sodium Nitrite-Induced Oxidative and Nitrosative Stress

USOH51 State Science Day (Ohio)

ARCOT, DHRUVA (GRADE 8)
Dublin, Ohio
Willard Grizzell Middle School
Investigating Biochemical and Hematological Markers in Taste Dysfunction

MOY, CASEY (GRADE 8) #
Cincinnati, Ohio
Cincinnati Classical Academy
Protection or Peril? Investigating Sunscreen's Potential Impact on Skin Cells

OKLAHOMA

USOK03 Central Oklahoma Regional Science and Engineering Fair

KIDANGATHAZHE, ANTHONY PHILIP (GRADE 7)
Stillwater, Oklahoma
Stillwater Middle School
Understanding ADHD in U.S. Children: Role of Behavior, Family and Community Environments in Mitigating Comorbidities

USOK50 Oklahoma State Science and Engineering Fair

WARD, LOCKLYN RAYE (GRADE 8)
Grove, Oklahoma
Grove Middle School
A Study of Open Field Plants, Native and Non-Native, and Their Antimicrobial Properties Against *Escherichia coli* and *Staphylococcus epidermidis*

OREGON

USOR04 Beaverton-Hillsboro STEM Expo

CHEN, WILSON (GRADE 8)
Beaverton, Oregon
Meadow Park Middle School
An AI-Powered Real-Time Web Detoxifier for Safe but Unrestricted Browsing

SINGARAJU, LASYA (GRADE 8)
Portland, Oregon
Stoller Middle School
Nature's Cleanse: Turning Kitchen Scraps Into a Safer and Healthier Water Supply

USOR50 Northwest Science Expo

ASWAL, PRISHA (GRADE 7)
Beaverton, Oregon
Willamette Valley Academy
Mushrooms vs. Microplastics: Using Fungi To Accelerate PLA Breakdown in Oregon Soil Environment via *Pleurotus ostreatus* Enzymatic Catalysis

DOKANIA, ISHAAN (GRADE 6)
Beaverton, Oregon
Willamette Valley Academy
Eye in the Sky: From Pixels to Predictions for Lithium and Beyond

KURUVERI, VIVASVAN (GRADE 6)
Portland, Oregon
Stoller Middle School
Spectroscopic Ripeness Detection Using Photoresistor-Based Circuit

LEE, SHANRAN (GRADE 8)
Portland, Oregon
Stoller Middle School
A Cost-Effective Method and System for Detecting Nanoplastics

LIU, ALBERT (GRADE 7) #
Beaverton, Oregon
Willamette Valley Academy
Power for Decades Without Recharging-PNP Cell: A Photon-Based Nuclear Prototype Battery With Optional Radiation Detection

MANIPATRUNI, VIHAAN (GRADE 6)
Beaverton, Oregon
Willamette Valley Academy
Cartkids: Convenience, Not Just Cost, Drives Ultra-Processed Food Exposure in U.S. Children's Grocery — Computational Montecarlo and Knapsack Study of Grocery Carts

NASARPURI, TVISHA (GRADE 8)
Beaverton, Oregon
Willamette Valley Academy
Mushrooms vs. Microplastics: Using Fungi To Accelerate PLA Breakdown in Oregon Soil Environment via *Pleurotus ostreatus* Enzymatic Catalysis

PENNSYLVANIA

USPA01 Capital Area Science and Engineering Fair

MOGILINEEDI, SAI SRI VALLI (GRADE 8)
Mechanicsburg, Pennsylvania
Mountain View Middle School
A Novel Controlled Release System for GERD Drugs Using Immobilization Techniques

USPA03 Delaware Valley Science Fairs

BASU, RAJIKA (GRADE 8) #
Berwyn, Pennsylvania
Tredyffrin-Easttown Middle School
THEA: Tree Health Evaluation Assistant — A Multisensor Device for Assessing Physiological Stress in Trees

BHATIA, KASHVI (GRADE 7)
Allentown, Pennsylvania
Springhouse Middle School
ResistRadar: A Multi-Faceted Clinical Decision Support Platform for Combating Antimicrobial Resistance in India

BHAVSAR, KRISHIV (GRADE 8)
Moorestown, New Jersey
William Allen Middle School
An Innovative Approach To Reduce the Fertilizer Usage in Tomato Plants Utilizing Novel Endomycorrhizal Species

CHAUDHRY, AMAAYA FATIMA (GRADE 7)
Bethlehem, Pennsylvania
Moravian Academy Middle School
Angles, Accuracy and Aces (Using Math To Predict Tennis Serve Accuracy)

HASSAN, AIZA (GRADE 8)
Morganville, New Jersey
Marlboro Memorial Middle School
Nature's Solution to Microplastics: Eco-Friendly Removal of Micro- and Nanoplastics Using Plant and Fungi-Derived Biopolymers

KOVUR, SHREYAAN (GRADE 8)
Exton, Pennsylvania
Lionville Middle School
Smart Vision

NEAS, JULIANNA (GRADE 8)
Orefield, Pennsylvania
Orefield Middle School
Thermal Cooling Conditions and Their Impact on Bismuth Crystal Growth

PARTHASARATHY, PRISHA (GRADE 7)
West Chester, Pennsylvania
University Scholars, Pennsylvania Leadership Charter School
Data Driven Study of Temperate Arthropod Activity: Linking Habitat Microclimates to Ground Level Conditions (an Innovative Approach to Strengthening Vector-Borne Disease Prevention)

PATI, PARINITHA (GRADE 8)
Morganville, New Jersey
Marlboro Memorial Middle School
Nature's Solution to Microplastics: Eco-Friendly Removal of Micro- and Nanoplastics Using Plant and Fungi-Derived Biopolymers

SUDHAKAR, THARUN (GRADE 8)
Exton, Pennsylvania
Lionville Middle School
Smart Vision

VELPULA, JASWANTH (GRADE 8)
Exton, Pennsylvania
Lionville Middle School
Smart Vision

USPA04 Pittsburgh Regional Science & Engineering Fair

ALDOUS, HENRY (GRADE 8)
Pittsburgh, Pennsylvania
Colfax K-8
Using a Hertzsprung-Russell Diagram To Determine the Age of the Messier 34 Star Cluster

CHETHAN, DHRUV (GRADE 7)
Pittsburgh, Pennsylvania
Ingomar Middle School
Environmental Effects on Red Eye Color Gene Expressivity in *Drosophila melanogaster*

KAPOOR, SHREYAN (GRADE 7)
Pittsburgh, Pennsylvania
Ingomar Middle School
Environmental Effects on Red Eye Color Gene Expressivity in *Drosophila melanogaster*

PRASAD, DWAI (GRADE 8)
Wexford, Pennsylvania
Marshall Middle School
Experimental Analysis of Different Rocket Nozzle Geometries Affecting Thrust Performance in Propulsion System

SINGHAL, AARAV (GRADE 7)
Pittsburgh, Pennsylvania
Ingomar Middle School
Environmental Effects on Red Eye Color Gene Expressivity in *Drosophila melanogaster*

PUERTO RICO

TEPR01 Puerto Rico Math Fair

CALDERÓN GUTIÉRREZ, SAÚL E. (GRADE 8)
San Juan, Puerto Rico
Escuela Especializada en Matemáticas, Ciencias y Tecnología
Modular Arithmetic and the Pigeonhole Principle in the Study of Collisions in a Simplified Hash Model

TEPR05 Humacao Regional Science Fair

RIVERA, JANSIEL ARMANDO (GRADE 8)
Patillas, Puerto Rico
Escuela María Dávila Semidey
***Sargassum*: From Marine Intruder to Ecologic Resource**

RIVERA HERNÁNDEZ, ADRIANNA SOFÍA (GRADE 8)
Juncos, Puerto Rico
Escuela S.U. Clara Maldonado de Aramburu
Development of an Environmental Forensic Chemical Fingerprint System With Interactive Visualization To Assess Coastal Water Quality in Eastern Puerto Rico

TEPR06 Ponce Regional Science Fair

FELICIANO-RIVERA, WILEIDY ENID (GRADE 7)
Peñuelas, Puerto Rico
Escuela Intermedia Rafael Irizarry Rivera
Evaluation of the Effect of EcoMusa: Bioplastic Mulch Based on *Musa paradisiaca* for Weed Control (Phase II)

TENNESSEE

USTN06 Middle Tennessee Science and Engineering Fair

NACHNANI, ANISHA (GRADE 6)
Nashville, Tennessee
University School Nashville — Edgehill Campus
Plastic Beneath the Surface: Quantifying the Impact of Soil Microplastics on Early Plant Development

TEXAS

USTX01 Beal Bank Dallas Regional Science and Engineering Fair

BHATTACHARYA, SONIKA (GRADE 8)
Frisco, Texas
Pioneer Heritage Middle School
Neuro-AI Method To Identify the Goldilocks Window for Optimal Emotional Regulation

CHONG, TIMOTHY (GRADE 7)
Dallas, Texas
Saint Mark's School of Texas
Pencil and Paper: Developing a Novel Low-Cost, Sensitive and Rapid Graphite-Based Paper Biosensor To Detect D-Lactate, a Possible Early Marker of Pathogen-Contaminated Water

GUDIPATI, ISHAN (GRADE 7)
Prosper, Texas
Reynolds Middle School
***In Silico* Simulation of Neuronal Pentraxin-2 (NPTX2) Protein and Aptamer Interactions for Detecting Cognitive Decline in Alzheimer's Disease**

KALAKONDA, VIHAAN (GRADE 8)
Coppell, Texas
Coppell Middle School
ASCEND: An AI-Driven Sensor for Cancer-Associated Electrochemistry With Normalized Drift-Correction

KHANNA, SALONI (GRADE 8)
Frisco, Texas
Pioneer Heritage Middle School
Microbial Fuel Cell Technology for Concurrent Bioenergy Generation and Wastewater Purification

LEGA, MARK YANNICK (GRADE 7)
Dallas, Texas
Homeschool
Modeling Professional and Youth Sports With Markov Chains: Expected Value of Decisions

LIEN, MEGAN (GRADE 7)
Murphy, Texas
Murphy Middle School
Redesigning the Casing of the Epinephrine Auto-Injector To Increase Accessibility

LIM, ETHAN (GRADE 8)
Plano, Texas
Pat and Catherine Fowler Middle School
Quadratic Superiority: Analyzing the Asymptotic Convergence of Simpson's Rule

MAHESH, ANYA (GRADE 8)
Plano, Texas
Pat and Catherine Fowler Middle School
Identifying and Validating Gene Expression Biomarkers for Autism Spectrum Disorder Using a Multi-Modal Computational Approach

PAWAR, ADVAITA (GRADE 7)
Irving, Texas
Uplift North Hills Preparatory
PhytoSense: An Automated, Low-Cost IoT Ecosystem for Remote Monitoring and Controlled Environment Agriculture in Sustainable Urban Cultivation Using the ESP32 Microcontroller

PHAM, TYLER HOANG (GRADE 8)
Coppell, Texas
Coppell Middle School
ASCEND: An AI-Driven Sensor for Cancer-Associated Electrochemistry With Normalized Drift-Correction

RAJADEEPAN, NILAA (GRADE 6)
Plano, Texas
Pat and Catherine Fowler Middle School
AI-Assisted Traffic Alert System (SignBuddy) — Using GPS and AI Vision To Detect Speed Limits Real-Time and Warn Drivers When Speeding

SEELAM, VISHWAK SAI REDDY (GRADE 7)
Coppell, Texas
Coppell Middle School
ASCEND: An AI-Driven Sensor for Cancer-Associated Electrochemistry With Normalized Drift-Correction

SHEIK, SHAZNEEN (GRADE 8)
Frisco, Texas
Pioneer Heritage Middle School
Neuro-AI Method To Identify the Goldilocks Window for Optimal Emotional Regulation

USTX03 Fort Worth Regional Science and Engineering Fair

BITENC, CHARLIE (GRADE 8)
Kennedale, Texas
Kennedale Junior High School
An Engineering Study on How Impeller Design Impacts the Power Output in a Small-Scale Hydroelectric System

YOUSUF, SHAYAAN (GRADE 8)
Mansfield, Texas
Jerry Knight STEM Academy
The Power of the Magnetic Pulse: A Novel Mathematical Formula for Stabilizing Ferrofluids in Targeted Drug Delivery for Cancer Therapy

USTX04 Rio Grande Valley Regional Science and Engineering Fair

KAVAS, AHMET IHSAN (GRADE 8)
McAllen, Texas
Homer J. Morris Middle School
Spin the Stats: From 2D to 3D Galton Board

MONTELONGO, NATHAN GAEL (GRADE 7)
La Joya, Texas
Lorenzo De Zavala Middle School
Shellfish Contributions to Ecosystem and Human Health: Evaluating Chitosan's Natural Ability To Remove Microplastics

USTX05 Science Engineering Fair of Houston

AHSAN, MYREEN (GRADE 8) #
Friendswood, Texas
Friendswood Junior High
Millions to Molecules: Dual Mechanism Small-Molecule Discovery via HTVS and Machine Learning-Guided Molecular Dynamics for Frontotemporal Dementia

GUPTA, ANSH (GRADE 8)
The Woodlands, Texas
McCullough Junior High School
Twisting Braids With Group Theory: Cryptography Future Beyond Primes

GUPTA, REYANSH (GRADE 8)
Tomball, Texas
Willow Wood Junior High School
Implementing a Hybrid CNN-Transformer Model for ASL Fingerspelling Translation

JANCO, ALYSSA JULIA (GRADE 8)
Houston, Texas
The Emery/Weiner School
The Effects of Glycerin Concentration on the Decomposition of Starch-Based Biodegradable Bioplastics

JASWAL, GANEEV K. (GRADE 7)
Sugar Land, Texas
Fort Settlement Middle School
HydroSentinel: A Distributed IoT Safety Net for Aging Public Water Systems Using Multi-Modal Sensors for Pipeline Leak, Contamination Detection and Pump Health Monitoring

LI, HANNAH CHEN (GRADE 7)
Katy, Texas
James and Sharon Tays Junior High School
Can a Plant Eat Plastic? Assessing the Efficiency of *Nepenthes* Digestive Fluid in Decomposing Synthetic Polymers

OUEINI, AMIRA (GRADE 8)
Friendswood, Texas
Westbrook Intermediate School
Effect of Near-Infrared Light on the Heart Rate of *Daphnia magna* Under Sugar Stress

SISY, ADEL (GRADE 8) #
Pearland, Texas
Homeschool
Delta Protein Atlas: A Novel Atlas for Disease to Protein Sequence to Structure to Mutation Function

THOTA, AARVI (GRADE 7)
Sugar Land, Texas
Sartartia Middle School
Wearable Biometrics–Integrated Model for Early Detection of Nighttime Arrhythmia Risk

YADAV, SHUBHAM (GRADE 7)
The Woodlands, Texas
Knox Junior High School
Mitigating Electronic Nose Cross-Sensitivity for Non-Invasive Lung Cancer Screening: A Volatile Organic Compound Classification Approach via Dynamic UV-Thermal Modulation

USTX11 Alamo Regional Science and Engineering Fair

RAO, NISHKA (GRADE 7) #
San Antonio, Texas
BASIS San Antonio Shavano Campus
Artificial Intelligence Meets Immunotherapy: Designing Smarter Cancer-Fighting Immune Cells

TRIPATHI, ADYA (GRADE 8) #
San Antonio, Texas
Jose M. Lopez Middle School
Stabilizing Soil To Reduce Structural Foundation Movement by Using Novel, Non-Toxic Sustainable Additives: Year 3

USTX13 Greater Austin Regional Science and Engineering Fair

AMIRISETTY, SRIVIBHAV (GRADE 7)
Leander, Texas
Leander Middle School
Diagnosing Alzheimer's Disease Using Explainable Machine Learning Models Trained on EEG Data

FANG, JIA-LU (GRADE 8)
Pflugerville, Texas
Pflugerville Middle School
Nature's Bandages: Natural Antimicrobial Wound Dressings

HIRSAVE, ARYA (GRADE 8) #
Austin, Texas
Canyon Vista Middle School
Greening the Red Planet: New Strategies To Enhance Seed Germination and Plant Growth in Mars Regolith Simulant

PALAMARTHY, SHREYA (GRADE 7)
Austin, Texas
Long-View Micro School
Predicting Food Spoilage To Prevent Wastage With Edge-ML on Multi-Sensor Microbial Gas Signals

PALAMARTHY, SIDDHANT (GRADE 7)
Austin, Texas
Long-View Micro School
Real-Time Detection of Syncope Through Edge-ML and Abnormality Assessment Based on Multi-Sensor Fusion of Motion and Physiological Signals

PATRA, ANAHITA (GRADE 8)
Leander, Texas
Homeschool
PCM Power: Storing Heat Smarter

SHEELA, ANISH (GRADE 8)
Cedar Park, Texas
BASIS Cedar Park
Graph-Theoretic Identification of Topological Bottlenecks in *Saccharomyces cerevisiae* Under Oxidative Stress

TRAN, JACK EVAN (GRADE 8)
Pflugerville, Texas
Pflugerville Middle School
Nature's Bandages: Natural Antimicrobial Wound Dressings

TRIVEDI, VANSH (GRADE 7)
Austin, Texas
Pearson Ranch Middle School
Piezoelectric Bio-Slime: Optimizing Lysine Concentration for a Self-Powered Chronic Wound Healing Platform

UTAH

USUT04 Central Utah STEM Fair

HUNTINGTON, BOSTON (GRADE 6)
Provo, Utah
Lakeview Elementary
Claws and Effect: An Engineering Experiment

KAUSHIK, ROSHAN (GRADE 8)
Lehi, Utah
Challenger School — Traverse Mountain
Advanced Deep Learning Neural Network Solution for Papilledema Detection Using DenseNet121 in Python

USUT05 University of Utah Science and Engineering Fair

CHANDAN, SAI H. (GRADE 8)
Draper, Utah
American Preparatory Academy
From Space Landers to Earthquake-Proof Bridges: Tensegrity as Nature's Shock Absorber

DING, OLIVIA YIMENG (GRADE 8)
Salt Lake City, Utah
West High School
Can Exercise Sharpen the Adolescent Mind?

GU, ELLIANNA (GRADE 8) #
Salt Lake City, Utah
Wasatch Junior High
Bot-tling up Emotions: How AI Chatbots Interpret and Respond to Emotionally Challenging Scenarios

JURYNEC, MARA (GRADE 7) #
Salt Lake City, Utah
Churchill Junior High
Brick by Brick: The Influence of Substrate Composition on the Structural Integrity of Mycelium Bricks

ODERDA, ELLIOTT (GRADE 7)
Salt Lake City, Utah
Churchill Junior High
Brick by Brick: The Influence of Substrate Composition on the Structural Integrity of Mycelium Bricks

TURPIN, WINSTON GREGORY (GRADE 8)
Farmington, Utah
Challenger School — Farmington
Reactivation of Aluminas for the Removal of *t*-Butylcatechol From Isoprene

USUT07 Harold W. & Helen M. Ritchey Science and Engineering Fair of Utah

VARELA, CLARA (GRADE 6)
North Logan, Utah
Thomas Edison Charter School
Frost Formation and Isoperimetric Tiling

ZHAN, MELODY (GRADE 7)
North Logan, Utah
Thomas Edison Charter School
Reimagining Herbicides: Homemade Organic Acids as More Sustainable, Affordable and Low-Toxicity Alternatives

VIRGINIA

USVA01 Northern Virginia Science and Engineering Fair

MAHAPATRA, ARHAN (GRADE 8)
Arlington, Virginia
Swanson Middle School
The Effect of Bacterial Environment on Peptide Antibiotic Gene Clusters: A Comparison of Oral and Fermented Food Bacteria

SAPERSTEIN, LAURA (GRADE 8)
Arlington, Virginia
Swanson Middle School
The Effect of Polymer Concentration on Hydrogel Viscosity

ZELENOVIC, ALEC (GRADE 7)
Arlington, Virginia
Gunston Middle School
A Multivariable Math Model for Predicting Win Probability in 12U Travel Baseball

USVA06 Prince William-Manassas Regional Science and Engineering Fair

SABHARWAL, GURANSH (GRADE 8)
Bristow, Virginia
Marsteller Middle School
Skyrover AI — Preventing Ground Collisions at Airports

WAGNER, THOMAS (GRADE 7)
Manassas, Virginia
Parkside Middle School
The Effect of Wing Shape on Air Flow: Laminar Versus Turbulent Flow

USVA09 Tidewater Science and Engineering Fair

LI, CHELSEA (GRADE 8) #
Virginia Beach, Virginia
Old Donation School
Design of a Hands-Free Page-Turning System for Pianists Using an Arduino Nano With Gesture Recognition

ROSSI, ISABEL (GRADE 8) #
Williamsburg, Virginia
James Blair Middle School
Listening in the Right Places: Game Theory and Optimization for Earthquake Sensor Placement

SINGH, HIYA (GRADE 8)
Yorktown, Virginia
Yorktown Middle School
Aether: An Adaptive Dual-Timescale Air Purification System for Acute and Chronic Pollution Using Optical Spike Detection and IoT Monitoring

USVA13 Metro Richmond Science and Engineering Fair

D'SOUZA, RYLAN CARL (GRADE 7)
Henrico, Virginia
George H. Moody Middle School
Evaluating the Effect of Spectral Lighting Variation on AI-Based Fruit Ripeness Classification Performance

SUDHIREDDY, SRIHAAS REDDY (GRADE 7)
Henrico, Virginia
George H. Moody Middle School
Comparative Performance Analysis of Investment Strategies Using Controlled Historical Backtesting

WASHINGTON

USWA01 Mid-Columbia Regional Science and Engineering Fair

KULKARNI, ANVI (GRADE 8)
West Richland, Washington
Enterprise Middle School
Smart Irrigation: How Often Should You Water Your Plants?

SANTHOSH, SUHAVI (GRADE 6)
West Richland, Washington
Leona Marshall Libby Middle School
HelpingHand: A Smart Glove Prototype Turning Signs to Sounds

USWA50 **Washington State Science and Engineering Fair**

EDWIN, JOANNA L. (GRADE 8)
Bellevue, Washington
Odle Middle School
The Impact of DRD2 Genetic Variants on Schizophrenia Medication: An *In Silico* Analysis of Drug Affinity

KAMALANATH, MEERA (GRADE 6)
Redmond, Washington
Rose Hill Middle School
Chemotaxis in *Physarum polycephalum* as a Cellular Model for Cancer and Immunity

KARTHIK, DIYA (GRADE 8)
Redmond, Washington
Evergreen Middle School
B7-H3 ImmunoPredict: AI Powered Prediction of B7-H3 in Diffuse Midline Glioma and Medulloblastoma

RAO JOHN, ARYEN (GRADE 8)
Kirkland, Washington
Eastside Preparatory School
LIPID SHIELD: Computational and Ethnopharmacological Screening of Antioxidant Phytochemicals From Ayurvedic and Pacific Northwest Medicinal Plants for Inhibiting Lipid Peroxidation

ROEHMHOLDT, SOREN (GRADE 6)
Poulsbo, Washington
Silverwood School
Does the Temperature of a Tennis Ball Affect How High It Bounces?

SENGUPTA, ARYADIT (GRADE 7)
Redmond, Washington
Willows Preparatory School
FoodSense: Food Spoilage Detection and Mitigation Using Multimodal Gas and Visual Sensors Integrated With a Raspberry Pi and Machine Learning

SUN-ZHUANG, ANDREW (GRADE 7)
Shoreline, Washington
The Evergreen School
VisionStrike: Portable AI-Powered Baseball Pitching Machine

VAN HOOSE, VIOLET MICHELENA (GRADE 8)
Seattle, Washington
Jane Addams Middle School
How Can Mycofiltration Be Used To Prevent Landfill Leachate From Entering Ground Water?

XUE, OLIVIA (GRADE 7) #
Bellevue, Washington
Odle Middle School
BreatheYourWay — A Music-Integrated Respiratory Training Device for Neurodivergent Youth

WEST VIRGINIA

USWV50 **West Virginia State Science and Engineering Fair**

NAWAI, KIANOOSH (GRADE 8)
Charleston, West Virginia
West Virginia Virtual Academy
Design, Optimization and Evaluation of a Low-Cost, Compact Bionic Hand for Functional Restoration and Accessibility

SOCIETY FOR SCIENCE

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About Thermo Fisher Scientific

Thermo Fisher Scientific was built to serve society, with a Mission to enable our customers to make the world healthier, cleaner and safer. We understand the important role we play in improving lives worldwide as we help our customers diagnose disease, develop new treatments, protect our planet and keep communities safe.

As a global life sciences leader, we are committed to cultivating generations of Science, Technology, Engineering and Math (STEM) professionals that fuel innovation and solve the world's most complex problems.

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