



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 Suppression
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

‘Ōpe‘ape‘a in Flight: Observing Hawaiian Hoary Bat Evening Flight Patterns

USHI50

Hawaii State Science and Engineering Fair

BEECROFT, JAMES TATAUUMI (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, DHURVA (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 RAE (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, VANSI (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



+ About Society for Science

Society for Science is a champion for science, dedicated to promoting the understanding and appreciation of science and the vital role it plays in human advancement. Established in 1921, Society for Science is best known for its award-winning journalism through Science News and Science News Explores, its world-class science research competitions for students, including the Regeneron Science Talent Search, the Regeneron International Science and Engineering Fair and the Thermo Fisher Scientific Junior Innovators Challenge, and its STEM outreach programming that seeks to ensure that all students have an opportunity to pursue a career in STEM.

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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.

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