Thermo Fisher Scientific

Junior Innovators Challenge

A program of Society for Science

Thermo Fisher Scientific Junior Innovators Challenge 2023

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 Defense 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, a one-year subscription to Science News Explores magazine and a one-year subscription to Wolfram|Alpha Notebook Edition, courtesy of Wolfram Research. In recognition of the role that teachers play in the success of their students, each Top 300 Junior Innovator's designated teacher 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 20. They will present their research projects and compete as teams in STEM challenges to demonstrate their skills in critical thinking, collaboration, communication and creativity at the Thermo Fisher JIC Finals Week. Top awards include a $25,000 grand prize, stipends for STEM summer camps and more.

Thermo Fisher Scientific and Society for Science thank the following partners for their support of the 2023 Thermo Fisher JIC:

- Broadcom Foundation
- DoD STEM
- Robert Wood Johnson Foundation
- The Lemelson Foundation
- TIES
- Wolfram Research
- Science News Explores
- Smithsonian Environmental Research Center
- Society for Science's Affiliated Regional and State Science and Engineering Fairs
- Parents, teachers and mentors of the 1,828 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 team projects were eligible, but each student entered individually and was judged based on the submitted written entry. The grade listed for each student is from spring 2023.

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

USAL50 Alabama Science and Engineering Fair

GOLLAPALLI, AMELIA (GRADE 8)
Muscle Shoals, Alabama
Muscle Shoals Middle School
Capturing Solar Photons Using Natural Fruit Dye in a Dye-Sensitized Solar Cell

JEONG, AYOUNG (GRADE 7)
Auburn, Alabama
East Samford School
An Effective, Non-Wasteful Sprinkler

PRABHAKAR, NIKITA (GRADE 7)
Madison, Alabama
Discovery Middle School
A Non-Invasive Integrated Sensor for Monitoring Menorrhagia

WANG-HE, MINLU KATHERINE (GRADE 7)
Auburn, Alabama
East Samford School
An Effective, Non-Wasteful Sprinkler

ARIZONA

USAZ02 SSVEC's Youth Engineering and Science Fair

WHETTEN, J.D. (GRADE 8)
Willcox, Arizona
Willcox Middle School
Corntastic Inventions

USAZ50 Arizona Science and Engineering Fair

DALY, SARAH (GRADE 8)
Chandler, Arizona
Santan Junior High School
The Effect of the Age of *Rhizophora mangles* on the CO_2 Levels in an Enclosed Structure

NAIR, TARA (GRADE 8)
Chandler, Arizona
Arizona College Prep — Oakland
The Impact of Different Chess Openings on the Results of the Game for Intermediate Players

SCHWICKERT, MIKOLAS (GRADE 8) #
Glendale, Arizona
Arizona Virtual Academy
Aerosol Whip Cream Nozzles: Engineering and Optimization of Nozzles for Least Overspray

SCHWICKERT, MONA SOPHIE (GRADE 8) #
Glendale, Arizona
Arizona Virtual Academy
Agar Oil Emulsion Soap Packaging: Water Repellency of Novel Agar Biodegradable Packaging Material

ARKANSAS

USAR01 Ouachita Mountains Regional Science and Engineering Fair

VALDIVIA, ANNA (GRADE 8)
Hot Springs, Arkansas
Lakeside Junior High School
Antibiotic Resistance Is Everywhere: Even on Your Vegetables

CALIFORNIA

USCA01 Orange County Science and Engineering Fair

CHARLU, SAILEE (GRADE 8)
Santa Ana, California
Orange County School of the Arts
The Persuasive Power of Humor

DINH, IVY (GRADE 8)
Westminster, California
Warner Middle School
The Effects of Commonly Polluted Items on Concrete Bricks

GANDHI, MAYA (GRADE 8)
Anaheim, California
Fairmont Private School — Anaheim Hills Campus
Optimizing Plant Microbial Fuel Cell Energy Output: The Effect of Anodic Substance and Configuration

HUYNH, DONNA KIM (GRADE 8)
Westminster, California
Warner Middle School
The Effects of Exogenous Melatonin on the Germination and Growth of Bamboo

LAM, KAYLA JING (GRADE 7)
Tustin, California
Pioneer Middle School
Which Recyclable Home Products Make the Best Natural Fertilizer for Plant Growth?

LEE, ESTHER (GRADE 8)
Westminster, California
Warner Middle School
The Effects of Commonly Polluted Items on Concrete Bricks

LUNDE, ELIJAH KEITH (GRADE 8)
Santa Ana, California
Fairmont Private School — North Tustin
It's All About Offense

NGUYEN, MARYAN (GRADE 8)
Westminster, California
Warner Middle School
The Effects of Exogenous Melatonin on the Germination and Growth of Bamboo

OROZCO, YAZMIN (GRADE 8)
Westminster, California
Warner Middle School
The Effects of Commonly Polluted Items on Concrete Bricks

WUPPALAPATI, MEGHANA (GRADE 6)
Irvine, California
Deerfield Elementary School
Battle of the Best: Testing the Antibacterial Properties of Extracts from *Azadirachta indica* (Neem) vs. *Piper betel* (Betel) Against *E. coli*

USCA02 Los Angeles County Science and Engineering Fair

BADALYAN, NAIRA (GRADE 8)
North Hollywood, California
The Science Academy STEM Magnet
3D Greater Than 2D: Nonplanar Solar Panels To Increase Surface Area and Efficiency

CARTWRIGHT, BEAU ANJALI (GRADE 8)
Los Angeles, California
The Archer School for Girls
Round-Up All the Mussels: The Effects of Glyphosate-Based Roundup in Varying Concentrations on the Gonads Mass and Cellular Structure of Freshwater Mussels

HUANG, CHARLES (GRADE 8)
Los Angeles, California
Portola Highly Gifted Magnet Middle School
The Relativistic Kinematics of Muon Decay: A Measurement of Muon Lifetime and Speed

MARTINEZ PARK, MADELEINE (GRADE 7)
Tarzana, California
Portola Highly Gifted Magnet Middle School
Can *Noctiluca scintillans* Be Used To Make an Affordable, Eco-Friendly, Non-Electric Lamp?

ROWE, JORDAN (GRADE 7)
North Hollywood, California
The Science Academy STEM Magnet
Degrading Plastic: How Does the Enzyme Proteinase K Affect the Biodegradation of Plastic?

TULLOCH, ELLA ROSE (GRADE 8)
Los Angeles, California
The Archer School for Girls
Battling With Broccoli: The Effects of Sulforaphane on Oxidative Stress in *C. elegans*

USCA03 Fresno County Science Fair

GUPTA, ARNAV (GRADE 7)
Fresno, California
Granite Ridge Intermediate School
Fenu-Green: A Novel Eco-Friendly Bioherbicide Developed Using an Improved Custom-Built Sonicator

PASHA, KINNOREE RABEYA (GRADE 8) #
Fresno, California
Granite Ridge Intermediate School
Analyze the Effects of Soil Management Practice on Water Holding Capacity of Soil To Reduce Water Application and Increase Crop Yield Using Precision Agriculture Technology

VINAY, ACHUTH (GRADE 8) #
Fresno, California
Granite Ridge Intermediate School
Development of a Novel Automatic Speech Recognition (ASR) Program To Reduce Racial and Gender Bias

USCA04 Sacramento Regional Science and Engineering Fair

LU, CANDACE (GRADE 7)
Folsom, California
Sutter Middle School
Development of Home-Built Portable and Sustainable Microbial Fuel Cell System From Living Plants

USCA05 Greater San Diego Science and Engineering Fair

ABDULAZIZ, OMAR (GRADE 7)
San Diego, California
Bright Horizon Academy
Investigating the Effects of Gender Stereotyping in Children's Development and Psychology

CAPALDI, CHARLOTTE (GRADE 7)
Encinitas, California
The Rhoades School
Investigating the Effectiveness of a UVC Wand on Bacteria Mortality

DIEP, EMILY (GRADE 7)
San Diego, California
Connect Academy @ Park Village Elementary School
Virtual Piano Teacher: A New Alternative to Music Education Using AI

LEEM, ETHAN (GRADE 8)
San Diego, California
Pacific Trails Middle School
The Most Effective Natural Anti-Bacterial Agent

LONG, LILY ANN (GRADE 8)
Encinitas, California
The Rhoades School
Exploring Academic Setting Applications of a Turing Test Derivative

PARTHASARATHY, JEYANTH NARAYAN (GRADE 7)
San Diego, California
Pacific Trails Middle School
Effects of Reverse Vertical Stabilizers on Aeroplanes

STERNSON, SAMUEL ALEXANDER (GRADE 7)
Encinitas, California
The Rhoades School
Production of Natural UV-Absorbing Sunscreens in Plant Leaves

USCA06 Golden Gate STEM Fair

BOHUSLAV, SONIA (GRADE 6)
San Francisco, California
Adda Clevenger School
Unconscious Gender Bias in the San Francisco Population

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

ADAPALA, INIKA (GRADE 7)
San Jose, California
Stratford Middle School — San Jose
Communication App for Patients With Locked-In Syndrome

ALEXIAS, RICKY REX (GRADE 7)
Santa Clara, California
Juan Cabrillo Middle School
Auto-Following Backpack Carrier To Prevent Back Strain and Injuries

CHUDGAR, SHARANYA MUNJAL (GRADE 8)
San Jose, California
Challenger School — Shawnee
Solar-Tracking Litterminator

DASWANI, SIDDHARTHA PATEL (GRADE 8)
San Jose, California
The Harker School
A Novel AI Pipeline for Predicting Next Day Wildfire Spread

GROSS, CARINA (GRADE 8) #
Palo Alto, California
Terman Middle School
AVIAN (Aerial Video Identification Automated Network): Novel Machine Learning To Monitor Bird Population by Flight Pattern

IYENGAR, SANJANA (GRADE 6)
Milpitas, California
Stratford Middle School
The Effect of Different Plant Bio-Coagulants on the Filtering of Microplastics From Contaminated Water

KOSARAJU, ANISH (GRADE 8)
San Jose, California
Harker School
A Novel Machine Learning Approach to Preventing Account Takeovers for Enhanced Cybersecurity

MYNENI, SAHARSH (GRADE 7)
Santa Clara, California
Juan Cabrillo Middle School
Auto-Following Backpack Carrier To Prevent Back Strain and Injuries

PAL, ROHAN (GRADE 7)
San Jose, California
Challenger School — Berryessa
The Effect of CBD Oil on Cancer in *Drosophila* Model

PARNELL, VENICE (GRADE 8)
San Jose, California
The Harker School
The Future of Fashion and Functionality: Transforming Produce Waste and Lignocellulosic Fibers Into Sustainable Vegan Leather

RAJAGOPALAN, MRIDULA (GRADE 7)
San Jose, California
Challenger School — Strawberry Park
Water as an Energy Source: On-Demand Energy From Hydrogen, Using Suspended Nanoparticles of Aluminum in GaAl Alloy Form for Sustained Reduction of Water Into Hydrogen

SOOD, AADIT (GRADE 7)
Santa Clara, California
Juan Cabrillo Middle School
Auto-Following Backpack Carrier To Prevent Back Strain and Injuries

SVENDSEN, ZANA NOOR KIRSTINE (GRADE 6)
San Jose, California
Stratford School — Sunnyvale Raynor Middle School
The Effect of Certain Mycelia on Spinach

TIAN, CLAIRE (GRADE 8)
San Jose, California
The Harker School
The Development of Novel Hair-Based Oil Sorbents With Physically and Chemically Modified Surfaces for Improved Oil Adsorption

VASHI, AARUSH (GRADE 7)
San Jose, California
Challenger School — Berryessa
The Effect of Gravity and Air Pressure on Plant Growth

XU, CLAIRE (GRADE 8)
San Jose, California
The Harker School
The Future of Fashion and Functionality: Transforming Produce Waste and Lignocellulosic Fibers Into Sustainable Vegan Leather

ZHANG, ELIZABETH (GRADE 8)
San Jose, California
The Harker School
The Development of Hair-Based Oil Sorbents and a Comparative Assessment of Novel Adsorbance Enhancements

USCA09 The Alameda County Science and Engineering Fair

CHAN, ETHAN (GRADE 7)
Pleasanton, California
Stratford Middle School
How Does One Determine Their Appropriate Shoe Size?

IYER, ABHINAV (GRADE 7)
Pleasanton, California
Stratford Middle School
CAML-VI (Cane for Assistance With Machine Learning for the Visually Impaired): A Robotic Walking Stick for the Visually Impaired Using AI/ML Mindstorms Technology

JAIN, NIKITA (GRADE 7)
Fremont, California
John Horner Junior High School
Floodnet: Early Flood Warning System Based on Network of Sensors

LIN, NICOLE (GRADE 8)
Newark, California
Challenger School — Ardenwood
Colon Drug Release

MACRI, MICHAEL (GRADE 8) #
Dublin, California
Saint Raymond School
Can a Neural Network Be Trained To Detect Cheating in Chess?

PRAUN-PETROVIC, NEVA (GRADE 6)
Fremont, California
Stratford Middle School
A Cheap Solution to Pollution

THOTA, IRA (GRADE 7)
Fremont, California
John Horner Junior High School
Floodnet: Early Flood Warning System Based on Network of Sensors

USCA50 California Science and Engineering Fair

AALTO, NOLAN (GRADE 8)
Clovis, California
Alta Sierra Intermediate
The Effects of *Eriodyction californicum* Extract on *Drosophila melanogaster* Reproductivity and Lifespan

BHATT, KRISHNA (GRADE 8)
San Jose, California
BASIS Independent Silicon Valley
A Novel Wearable for Active Prevention of Falls Through GRU-Based Gyroscopic Inference and Center of Mass Manipulation

BHAVSAR, ADYANT (GRADE 7)
San Jose, California
Challenger School — Strawberry Park
From Waste to Wattage: Converting Wasted Mechanical Energy Into Electricity Through Triboelectrification and Electrostatic Induction

GILL, SHANYA (GRADE 6)
San Jose, California
Stratford School — Sunnyvale Raynor Middle School
Prevention of Casualties and Property Damage Using Thermal Imaging and Software-Based Occupancy Detection

GROVER, AIDEN (GRADE 8)
Riverside, California
Riverside STEM Academy
Decreasing Pickleball Noise

HASHMI, MARYAM (GRADE 8)
Santa Clara, California
Granada Islamic School
The Effect of Bile Salts on Digestion

KRICORIAN, CHRISTOPHER (GRADE 8)
Simi Valley, California
Hillside Middle School
Do Daily Music Listeners Have Less Anxiety and Depression?

USCA78 Irvine Unified School District Fair

BURADKAR, SHARVIL (GRADE 7)
Irvine, California
Lakeside Middle School
Hot Water Nitinol Engine

KIM, AUDREY (GRADE 7)
Irvine, California
Sierra Vista Middle School
BeeHappy and BeeSion: A Raspberry Pi-Based Artificial Intelligence Live-Streaming Camera Detector and a Portable Prototype With a Mobile App for Monitoring and Alerting About the Condition of Beehives

USCA79 Santa Barbara County Science Fair

OLVERA, ELIZABETH LOUISE (GRADE 7)
Goleta, California
Santa Barbara Charter School HomeBased Partnership
Best Natural Fabric for a Reusable Menstrual Pad (Users Can Fabricate)

USCA80 San Mateo County Office of Education STEM Fair

BANSAL, SUHANI (GRADE 7)
Redwood City, California
Sandpiper Elementary School
The Shocking Truth About Smartphones and Internet Routers

CHU, CAMILLE (GRADE 8)
Hillsborough, California
The Nueva School
Identifying Novel Kinase Targets for Approved Drugs Using a Convolutional Neural Network Autoencoder

GOULD, OLIVER (GRADE 6)
San Carlos, California
Central Middle School
The GOAT: Grabber of All Trash

HOWARD, VERONICA (GRADE 8)
Redwood City, California
Stanford Online High School
Pesticide Residue on Organic vs. Conventional Produce and the Effect of Simple Washing Techniques

SCHOR, ELISABETH (GRADE 7)
Hillsborough, California
The Nueva School
SpiritSeat

SULLIVAN, TERI (GRADE 6)
San Carlos, California
Central Middle School
The GOAT: Grabber of All Trash

COLORADO

USCO04 Pikes Peak Regional Science Fair

WAN, HELEN (GRADE 8)
Colorado Springs, Colorado
Challenger Middle School
Measuring the Particulate Matter in Air With Raspberry Pi

USCO09 Corden Pharma Colorado Regional Science Fair

CHASTANG, THEO (GRADE 8)
Boulder, Colorado
Summit Middle Charter School
Using Green Roofs To Absorb Floodwaters

XUE, GRACE (GRADE 8)
Boulder, Colorado
Summit Middle Charter School
A More Sensitive Animal-Based Method To Detect Soil Contamination After a Major Wildfire

USCO10 Denver Regional Science and Engineering Fair

RAJU, VIKRAM (GRADE 8)
Aurora, Colorado
Aurora Quest K-8
Energenius CEGO (Clean Energy on the Go)

USCO50 Colorado Science and Engineering Fair

BEEBY, EMMA (GRADE 8)
Denver, Colorado
Skinner Middle School
The Effect of Stress on the Amount of Carbon Dioxide Exhaled

DANKO, CHARLIE (GRADE 8)
Longmont, Colorado
Flagstaff Academy
An Affordable Robot: Saving Lives in Dangerous Factories

MEHTA, DIYA (GRADE 8)
Longmont, Colorado
Flagstaff Academy
Environmental Effects on Sea Urchin Embryology

CONNECTICUT

USCT50 Connecticut Science and Engineering Fair

DOSHI, RHEA (GRADE 8)
Avon, Connecticut
Talcott Mountain Academy
Mitigating the Threat of Microplastics in Drinking Water: The Potential of Coconut Fiber and Activated Coconut Charcoal as Sustainable Filtration Materials

FOELL, AMELIA LYNN (GRADE 8)
Greenwich, Connecticut
Central Middle School
Reducing Food Waste With Early, Visual Detection of Bread-Mold via BODIPY-Colorimetric Card Detection of 1-Octen-3-ol

GUZMAN, MATTHEW (GRADE 8)
Danbury, Connecticut
Westside Middle School Academy
Helping the Community Deal With Finance

HADDEN, BRIDGET ISABELA (GRADE 8)
Greenwich, Connecticut
Central Middle School
Demonstrating the Persistence of Long Island Sound Polyaromatic Hydrocarbon (PAH) Contamination via Stormwater Drainage Location

MAYORGA, ALEJANDRO (GRADE 8)
Danbury, Connecticut
Westside Middle School Academy
Helping the Community With Finance

FLORIDA

USFL04 Tomoka Region Science and Engineering Fair

GUPTA, RANI VEERA (GRADE 8) #
Daytona Beach, Florida
David C. Hinson Sr. Middle School
Does Conversion of Florida Marginal Lands Into Biomass-Producing *Panicum virgatum* Change Soil Quality?

USFL07 Panhandle Regional Science and Engineering Fair

MASTROBERTI, ALESSIA (GRADE 8)
Niceville, Florida
C.W. Ruckel Middle School
Zero-Iced Friction

USFL08 Alachua Region Science and Engineering Fair

HSU, ALEXANDER (GRADE 8)
Gainesville, Florida
Abraham Lincoln Middle School
Social Media's Impact on Teenagers: FoMO, JoMO and Stress

USFL09 Broward Regional Science and Engineering Fair

HAI, SOHAIL (GRADE 7)
Plantation, Florida
American Heritage School
The Correlation of Elevated Spermine Levels and the Incidence of Pancreatic Cancer

USFL12 Polk Region Science and Engineering Fair

GINDLESBERGER, MIA (GRADE 7)
Davenport, Florida
Ridgeview Global Studies Academy
The Wait Is Killing Me!

USFL14 Brevard Intracoastal Regional Science and Engineering Fair

KIRBY, GRIFFIN (GRADE 8) #
Merritt Island, Florida
Edgewood Junior/Senior High School
A Bright Idea for Tracking Septic Wastewater Pollution

PATSAMATLA, SIDHARTH MAHESH (GRADE 8)
Merritt Island, Florida
Edgewood Junior/Senior High School
A Novel Artificial Intelligence Tool for the Detection of Cancer Towards Improved Radiotherapy via High Level Computer Vision and Image Segmentation

USFL15 South Florida Science and Engineering Fair

DENOVELLIS, MAURO (GRADE 6)
Doral, Florida
Downtown Doral Charter Upper School
Collecting Water From Air

MASCARÓ, PABLO (GRADE 6)
Doral, Florida
Downtown Doral Charter Upper School
Collecting Water From Air

TSIROS, NIKOL (GRADE 7)
Miami, Florida
Archimedean Middle Conservatory
Hydrogel Biotechnologies Stand Between a Healthy Heart and a Maglev Transplant: Controlling Pharmacokinetics/Dissolution Using Hydrogel Delivery Systems

USFL17 Dr. Nelson Ying-Orange County Science Exposition

ANSARI, ZAKARIA (GRADE 8)
Orlando, Florida
Leaders Preparatory School
Fantastic Flexicon

KARRI, KEERTHI (GRADE 7)
Orlando, Florida
Orlando Science School Middle/High Charter
The Efficiency of Different Amounts of Ayurvedic Medicine for the Nourishment of Young Lettuce Plants

MERCHANT, ABIGAIL (GRADE 7)
Orlando, Florida
Orlando Science School Middle/High Charter
The Mindful Arm

NAYAK, RAGINI (GRADE 8)
Orlando, Florida
Orlando Science School Middle/High Charter
The Effectiveness of Extracts From Natural Antibacterial Substances at Eliminating Bacteria Compared to Fluoroquinolones on *E. Coli*

PATIL, MAHIE MANGESH (GRADE 8)
Orlando, Florida
Orlando Science School Middle/High Charter
A Novel Biodegradable Sorbent for Oil Spills

USFL23 Seminole County Regional Science, Mathematics and Engineering Fair

BAI, ETHAN (GRADE 8)
Sanford, Florida
Sanford Middle School
Solutions To Avoid Objects on the Road

PRAKASH, SANJIT (GRADE 8)
Sanford, Florida
Sanford Middle School
Building a Solar-Tracking Energy Estimator: A Novel Approach to Increasing the Efficiency of Photovoltaic Panels

XU, AIDEN Z. (GRADE 7)
Sanford, Florida
Sanford Middle School
Formulation of a Fragrant and Skin-Friendly Mosquito/Insect Repellent and Its Effectiveness Validation via Custom-Designed Experiments

USFL25 Martin County Regional Science and Engineering Fair

CALHOUN, SAMUEL (GRADE 6)
Stuart, Florida
Saint Joseph Catholic School
Solar Power in the Sunshine State

USFL27 Hillsborough Regional Science Fair

PATEL, SWARA (GRADE 8)
Tampa, Florida
Carrollwood Day School
An Investigation To Determine an Ideal Substrate Ratio for a Martian *in situ* Resource Utilization System Using Cyanobacteria (Year 3)

USFL28 Brevard Mainland Regional Science and Engineering Fair

RAMSEY, AVA CAMILLE (GRADE 7)
Titusville, Florida
Andrew Jackson Middle School
Which Lubricant Is the Most Resistant to Corrosion in a Marine Environment?

USFL29 Palm Beach Regional Science and Engineering Fair

CANNON, AMELIE BLEU (GRADE 8)
West Palm Beach, Florida
Bak Middle School of the Arts
Repurposing Florida Seaweed as Fertilizer

CEBOLLERO, JULIAN JAMES (GRADE 6)
West Palm Beach, Florida
The Weiss School
Tardigrade Tolerance to Extreme Temperatures

GUPTA, ANYA (GRADE 7)
Boca Raton, Florida
A.D. Henderson University Lab School
E-Waste Pollution of Aquatic Environments: The Effect of Copper Pollution on Mortality Rates in *Daphnia magna*

KIESLING, DYLAN (GRADE 7)
Palm Beach Gardens, Florida
The Weiss School
Interactive Virtual Reality Program To Improve the Fractured STEM Pipeline

LIBERZON, MISHA (GRADE 7)
North Palm Beach, Florida
The Benjamin School
Data-Driven Sports Psychology: A Path From Mental Training to Athlete's Performance

LIU, BEN (GRADE 7)
Boca Raton, Florida
A.D. Henderson University Lab School
Ground Basalt Application to Agricultural Land as a Strategy for CO_2 Sequestration

O'SULLIVAN, CAITLIN JOSEPHINE (GRADE 7)
Boca Raton, Florida
A.D. Henderson University Lab School
Join the Shark Side: Digital Image Analysis of Shark Denticles To Determine the Effects of Denticle Density and Size on Speed

USFL30 Pasco Regional Science and Engineering Showcase

FOOTE, GABRIEL VERGOS (GRADE 6)
Port Richey, Florida
Dayspring Academy Middle School
Smart Sprinkling

MIRVILLE, JOSIAH (GRADE 8)
Land O' Lakes, Florida
Charles S. Rushe Middle School
Polystyrene Power Up

RAJASEKAR, VANDANA (GRADE 8)
Odessa, Florida
Starkey Ranch K-8 School
Operation Cellphone Radiation

USFL32 Sarasota County STEM Fair

SURESH, RUGAN (GRADE 7)
Nokomis, Florida
Pine View School for the Gifted
Algae — The New Purifier

USFL50 State Science and Engineering Fair of Florida — Ying Scholars

BHENSDADIA, AADI (GRADE 8) #
Osprey, Florida
Pine View School for the Gifted
Utilizing 3D Additive Manufacturing To Develop a Biocompatible, Customizable and Durable Mechanical Aortic Valve

BOLTON, ARIANA S. (GRADE 7)
Vero Beach, Florida
Storm Grove Middle School
An A-Salt on Our Oceans: The Effects of Salinity on Rate of Thermal Expansion

CALLIS, MAXIMUS CORBIN (GRADE 8) #
Plantation, Florida
American Heritage School
The Effects of Material Type on Energy Absorption When Testing 3000 Series Aluminum, Quasi-Isotropic Carbon Fiber and Self-Reinforced Polypropylene Thermoplastic Using a Custom Impact Testing Machine

CHUA, MARCO ALEXANDER (GRADE 8) #
Jacksonville, Florida
Saint Paul's Catholic School-Riverside
Wave Force Dissipation: Year Two

DABEES, SARAH (GRADE 8)
Naples, Florida
North Naples Middle School
Harnessing Waste Energy Using Thermoelectric Generators

MAITRA, ADHIP S. (GRADE 8)
Oviedo, Florida
Jackson Heights Middle School
The Use of Deep Learning To Aid in the Early Detection and Monitoring of Ptosis in the Eye as a Possible Indicator of Other Serious Diseases and Disorders

RAJESH, ASWATH (GRADE 8)
Satellite Beach, Florida
DeLaura Middle School
Ecofriendly Polymeric Material: Paving the Way for Circular Bio-Economy

ROBINSON, CYLER PEYTON (GRADE 8)
Fort White, Florida
Fort White High School
How Can the Dissolved Oxygen Concentration Be Increased in a Hydroponic Solution?

SHAMUS, ALEXA G. (GRADE 8)
Pembroke Pines, Florida
Pembroke Pines Charter Middle School — West Campus
The Influence of Sneaker Type on 8th and 9th Graders' Gait

TOSI, DOMINIC ALBERT (GRADE 8)
Indialantic, Florida
Herbert C. Hoover Middle School
Using a Modified Protégé Technique That Aims To Improve Students' Reading Comprehension

GEORGIA

USGA09 Griffin RESA Regional Science Fair

LYTHGOE, LUDOVIC LEVI (GRADE 8)
Fayetteville, Georgia
Whitewater Middle School
The Wave Craze: Measuring Radio Frequency Emissions From Cell Phones During Everyday Use

USGA11 Gwinnett Regional Fair

FERGUSON MARTINEZ, JULIANA (GRADE 8)
Buford, Georgia
Twin Rivers Middle School
Energy Efficient Home

KUMAR, RISHABH (GRADE 8)
Sugar Hill, Georgia
North Gwinnett Middle School
Mind-Controlled Prosthetic With the Sense of Touch

NEWTON, KYLEE NICHOLE (GRADE 8)
Buford, Georgia
Twin Rivers Middle School
Efficient Homes

PATEL, RIYA (GRADE 7)
Suwanee, Georgia
North Gwinnett Middle School
Niraqua

SALLINEN, NYAMBURA (GRADE 8) #
Sugar Hill, Georgia
Lanier Middle School
IdentiCan: The App That Detects Breast, Lung and Skin Cancer

SEKHDA, KESHVEE (GRADE 8) #
Sugar Hill, Georgia
North Gwinnett Middle School
IdentiCan: The App That Detects Breast, Lung and Skin Cancer

USGA14 Cobb/Paulding Regional Science Fair

MEHTA, AKSHADHA (GRADE 7) #
Marietta, Georgia
Dodgen Middle School
FAP-BRIX: A Practical Solution To Lessen Plastic Pollution

USGA50 Georgia State Science and Engineering Fair

GUIN, OM (GRADE 8) #
Alpharetta, Georgia
Fulton Science Middle School
Smart Stethoscope for Diagnosing Lung Diseases

SINGH, SAHIL (GRADE 6)
Alpharetta, Georgia
Fulton Science Middle School
SMART System: Smart Monitoring Automatic Robotic Tiller System

HAWAII

USHI05 Hawaii District Science and Engineering Fair

ARAGAKI, COLE (GRADE 7)
Hilo, Hawaii
Waiakea Intermediate School
Lunar Eclipse Photometry To Determine Transparency of Earth's Atmosphere on November 8, 2022

SHEHATA, NOOR MAKOTO (GRADE 8)
Hilo, Hawaii
Hilo Intermediate School
The Impact of Temperature on the Developmental Rate of *Bactrocera cucubitae*

USHI08 Honolulu District Science and Engineering Fair

HALL, SUMMER (GRADE 8)
Honolulu, Hawaii
Kaimuki Middle School
Phytoremediation of Water Contaminants Using Aquatic Moss

USHI50 Hawaii State Science and Engineering Fair

LING, NOAH (GRADE 8)
Kailua, Hawaii
Kailua Intermediate School
Geometry in the Beehive

ILLINOIS

USIL01 Chicago Public Schools Student Science Fair

JASSAL, SRISHTI KAUR (GRADE 7)
Chicago, Illinois
Skinner North Classical School
Reading Online vs. On Paper

ZOLDAN, GWENIVEVE ANH (GRADE 7)
Chicago, Illinois
Skinner North Classical School
Reading Online vs. On Paper

USIL51 IJAS State Expo

GUERRA, AVA (GRADE 8)
Collinsville, Illinois
Good Shepherd Lutheran School
Stability of Six Natural Red Food Colors From Fruits and Vegetables

HYLAND SZWARC, HUGH ANTHONY (GRADE 8)
Naperville, Illinois
Covenant Classical School
Just Eat It: Investigating the Efficacy of Communication Modalities in Reducing Food Waste

JONES, ROCCO EDWARD (GRADE 7)
Joliet, Illinois
Washington Junior High School
Salt Bridge Over Electrified Waters: How Electricity Changes pH

PRAVEEN, AMRITHA (GRADE 8) #
Buffalo Grove, Illinois
Aptakisic Junior High School
Improving Mental Health Using Artificial Intelligence-Powered Music Therapy

SHARMA, ISHANT (GRADE 8)
Naperville, Illinois
Clifford Crone Middle School
The Use of Biomass, Gravel and Sand To Reduce Turbidity in a Water Sample

VAZE, ATHARVA (GRADE 8)
Naperville, Illinois
Clifford Crone Middle School
The Use of Biomass, Gravel and Sand To Reduce Turbidity in a Water Sample

INDIANA

USIN25 Hoosier Science and Engineering Fair Region 6

XU, SOPHIE YALI (GRADE 7)
Bloomington, Indiana
Jackson Creek Middle School
The Price of Looking Different: A Study of Unique Product Design

KENTUCKY

USKY02 Louisville Regional Science and Engineering Fair

KIDWELL, MAYLIN (GRADE 7)
Louisville, Kentucky
Noe Middle School
Precision Through Randomness: A Physical Demonstration of Using Noise To Improve Measurements

USKY03 duPont Manual High School Regional Fair

O'TOOLE, BRYAN LI (GRADE 8)
Louisville, Kentucky
Meyzeek Middle School
Hyper-Local UV Radiation Data Collection and Analysis for Skin Protection

SUTARIA, AJAY MAULIN (GRADE 8)
Louisville, Kentucky
Meyzeek Middle School
Hyper-Local UV Radiation Data Collection and Analysis for Skin Protection

USKY05 Central Kentucky Regional Science and Engineering Fair

SIVAKUMAR, SAHANA P. (GRADE 7)
Lexington, Kentucky
Beaumont Middle School
Color of Light vs. Amount of Current Generated in a Solar Cell

LOUISIANA

USLA01 Louisiana Region VII-Science and Engineering Fair

DEY, KUNAAL J. (GRADE 8)
Baton Rouge, Louisiana
Glasgow Middle School
An Earthquake or the Dryer? Analysis of Raspberry Shake Data

SHAH, SHREY (GRADE 8)
Geismar, Louisiana
Dutchtown Middle School
Is Ferrofluid Technology a Game Changer When It Comes to the Removal of Microplastics?

USLA02 Bossier Parish Community College Louisiana Region I Science and Engineering Fair

TRUTSCHL, ANYA (GRADE 6)
Shreveport, Louisiana
Caddo Parish Middle Magnet School
CAFeY: Computer-Aided Fermentation of Yogurt

USLA50 Louisiana Science and Engineering Fair

ALCOCK, ANNA CATHERINE (GRADE 6)
Lake Charles, Louisiana
Saint Margaret Catholic School
Dome vs. Dome

QI, ABIGAIL HOU (GRADE 8) #
Baton Rouge, Louisiana
Glasgow Middle School
Identifying the Most Potent Strains of *Bdellovibrio* and Like Organisms from the Gulf of Mexico for Control of *Vibrio* Infection in Aquaculture

MARYLAND

USMD01 Anne Arundel County Regional Science and Engineering Expo

CUNNINGHAM, BEN (GRADE 8)
Gambrills, Maryland
Crofton Middle School
Wind Turbines: Optimal Design

CUNNINGHAM, SCOTT (GRADE 8)
Gambrills, Maryland
Crofton Middle School
Wind Turbines: Optimal Design

USMD02 Frederick County Science and Engineering Fair

KASHYAP, ANKITA (GRADE 6)
Frederick, Maryland
Urbana Middle School
Power in Every Step

USMD03 ScienceMontgomery

DE, SHRIYADITA (GRADE 8) #
Takoma Park, Maryland
Takoma Park Middle School
SLIEVE: Sign Language Interpreter Enabling Verbal Expression

KHURANA, SHIVEN (GRADE 6)
Rockville, Maryland
Parkland Magnet Middle School
Computational Analysis for Prediction and Prevention of Wildfire Spread (U.S. Wildfires: Linear Regression Analysis To Predict Relationship Between Environmental Factors and Spread of Wildfires Using RStudio)

MASSACHUSSETS

USMA01 Massachusetts Region V Science Fair

COISMAN, JOHAN (GRADE 6)
Weston, Massachussets
Weston Middle School
Chilling Out With Marine Cloud Brightening — Artificial Cloud Creation To Cool the Planet

USMA05 Massachusetts Region II State Science Fair

VORA, ARUSHI (GRADE 8)
Westborough, Massachussets
Sarah W. Gibbons Middle School
The Effect of Different Cleaning Agents and Their Properties on Luminol Chemiluminescence When Combined With Various Surface Materials

USMA06 Massachusetts Region VI Science Fair

CHEN, OLIVIA (GRADE 8)
Boston, Massachussets
Boston Latin School
Bioluminescence of a Glowing Algae

USMA50 Massachusetts State Science and Engineering Fair

CRONIN, STEPHEN (GRADE 7)
Norwood, Massachussets
Saint Catherine of Siena Catholic School
Glacier Geoengineering

GHOSH, SUHRIT (GRADE 8)
Shrewsbury, Massachussets
Oak Middle School
Which Makes You Feel Safer in a Car: Automatic or Manual Braking?

PIRATLA, SRIVIBHU (GRADE 7)
Marlborough, Massachussets
Advanced Math and Science Academy Charter School
Rain or Shine

WADEKAR, ANWITA (GRADE 7) #
Northborough, Massachussets
Saint Bernadette School
Breakfast for Plants: Fertilizers From Table to Farm

MICHIGAN

USMI02 Science and Engineering Fair of Metropolitan Detroit

CHENG, YIFEI (GRADE 7)
Plymouth, Michigan
Plymouth Scholars Charter Academy
Measuring Voltage Threshold for Different Color LEDs

USMI03 Flint Regional Science and Engineering Fair

RAMAKRISHNAN, DIYA R. (GRADE 8)
Saginaw, Michigan
Saginaw Arts and Sciences Academy
What Is the Best Way To Conduct a Wireless Transfer of Power?

MINNESOTA

USMN04 Twin Cities Regional Science Fair

FINCH, ETHAN (GRADE 8)
Stillwater, Minnesota
Stillwater Middle School
Analyzing the Influence of Weather on the Sap Production of Maple Trees To Create a Sap Volume Prediction Algorithm

USMN07 Rochester Regional Science and Engineering Fair

DINGLI, SARAH (GRADE 8)
Rochester, Minnesota
Dakota Middle School
Cooperation Among Middle School Students

USMN10 Western Suburbs Science Fair

GRIFFITHS, JAMES DANIEL (GRADE 6)
Minnetonka, Minnesota
Minnetonka Middle School
The Conductivity of Common Household Drinks: An Analysis of the Correlation Between Vitamin and Mineral Composition and Electrolyte Concentration in Beverages

MISSOURI

USMO01 Southeast Missouri Regional Science Fair

VAN DE VEN, ASHTYN MICHELLE (GRADE 8)
Leopold, Missouri
Leopold R-3
How Fast Can You Read?

USMO04 Greater Kansas City Science and Engineering Fair

BRIGHT, EMMA (GRADE 7)
Liberty, Missouri
Liberty Middle School
Novel Identification Bandage for *Staphylococcus aureus*

KERR, HANNAH (GRADE 8)
Overland Park, Kansas
Indian Woods Middle School
Solar Panel Energy Production: Single-Axis Tracker vs. Fixed Panel

MOGENAHALLI, DHRUV (GRADE 8)
Overland Park, Kansas
Oxford Middle School
Wind Power Charger: Is the Answer Really Blowing in the Wind?

USMO08 Ozarks Science and Engineering Fair

BENEDICK, CHASE LOUIS (GRADE 7)
Camdenton, Missouri
Camdenton Middle School
Clingy Cleats

MONTANA

USMT04 Great Falls College MSU Regional Science and Engineering Fair

ANDERSON, BAILEY SKEIE (GRADE 8)
Simms, Montana
Simms Middle School
Equine Engineering: Improving Circulation for Faster Healing

NEVADA

USNV02 Beal Bank USA Southern Nevada Regional Science and Engineering Fair

VANDERLIND, BROOKE (GRADE 8)
Las Vegas, Nevada
Saint Elizabeth Ann Seton Catholic School
Safety Solar Cell

NEW JERSEY

USNJ02 Jersey City Medical Center/Barnabas Health STEM Showcase

MEHANDRU, AVI (GRADE 6)
Jersey City, New Jersey
Hudson Montessori School
Algal Biofuels: Going Green With Green Algae

USNJ79 Bergen County Academy Science Challenge

GUNAWAN, KEZIA OLIVIA (GRADE 8)
Westwood, New Jersey
Westwood Regional Middle School
Ultra-Sensitive Magnetic Trap Tiltmeter for Volcano Monitoring

LAU, BENJAMIN (GRADE 7)
Englewood Cliffs, New Jersey
Englewood Cliffs Upper School
Designing a Pedal-Powered Magnetic Induction Stove

NEW MEXICO

USNM01 Central New Mexico Regional Science and Engineering Challenge

PEARL, KONIK EMERSON (GRADE 7)
Albuquerque, New Mexico
Albuquerque Institute of Mathematics and Science
What Shape of a Magnetic Levitation Train Is the Most Aerodynamic and Therefore the Most Energy Efficient?

SANKARAN, SOWMYA (GRADE 8)
Albuquerque, New Mexico
Albuquerque Academy
BeeppLLM: A Benchmark for Evaluating Python Programming Skills of LLMs

USNM50 New Mexico Science and Engineering Fair

MADRID LARRANAGA, MARISA (GRADE 8)
Albuquerque, New Mexico
Jefferson Middle School
Reducing Plant Waste: The Plant Papermaking Process

PLOHR, TATE D. (GRADE 8)
Los Alamos, New Mexico
Los Alamos Middle School
The Stability of Solar Flares

NEW YORK

USNY02 Long Island Science and Engineering Fair

KARANAM, SAMVATH (GRADE 8)
Hauppauge, New York
Hauppauge Middle School
Better Bio-Batteries

SATHISH KUMAR, MIHIR (GRADE 6)
Hauppauge, New York
Hauppauge Middle School
Clean, Green, Energy Machine

USNY09 Terra Rochester Finger Lakes Science and Engineering Fair

DAS, SHIVEN (GRADE 8)
Bridgewater, New Jersey
Bridgewater-Raritan Middle School
Investigating the Anti-Cancer Potential of a Novel Copper-Based Pyrazine-Thiazole Compound

USNY78 Hunter College High School Science and Engineering Fair

FENTON, ZORA ELISABETH LAKE (GRADE 8)
New York, New York
Hunter College High School
Mascara Madness

SANO, MOMO INOUE (GRADE 8)
New York, New York
Hunter College High School
Mascara Madness

SHIVAM, RIA (GRADE 8)
New York, New York
Hunter College High School
How Can Potassium Aluminum Sulfate Affect the Cleanliness of Water?

TURNER-WALKOWITZ, LUCY (GRADE 8)
New York, New York
Hunter College High School
Using Aerogel as a Method To Clean Oil Spills

USNY79 Tri County Science and Technology Fair

GUPTA, ARJUN (GRADE 6)
Scarsdale, New York
Greenville School
Identification of Electrical Conductivity of Different Fluids: In Pursuit of the Ideal Sports Drink

ROY, AANIKA (GRADE 8)
Pelham, New York
Pelham Middle School
Beets of the Heart: The Effect of Beetroot on the Heart Rate of *Daphnia magna*

NORTH CAROLINA

USNC01 Charlotte-Mecklenburg Regional Science Fair

BANERJEE, ANISH (GRADE 7)
Mooresville, North Carolina
The Brawley School
Can Magnetic Force Reduce Heavy Metal Pollution in Water?

SUNDARAM, ISHAN SRIRAM (GRADE 6)
Charlotte, North Carolina
Randolph Middle School
Exploring Ways To Improve PrEP Uptake and Equity for AIDS/HIV Control in the U.S.

USNC50 North Carolina State Science Fair

CHENG, JAMIE (GRADE 8) #
Cary, North Carolina
Mills Park Middle School
GumShield: An *in situ* Forming Hydrogel Spray To Treat Gum Disease

HOIMES, ANDREAS (GRADE 8)
Cary, North Carolina
Mills Park Middle School
Human vs. AI Art: Can You Tell Who's the Real Master?

KRISHNA, AADIT PREETI (GRADE 7)
Matthews, North Carolina
Weddington Middle School
Hu-RiFy: Crisp Cool Air in Hot Humid Places

PG, SRINIDHA SARO (GRADE 8)
Winston-Salem, North Carolina
Hanes Magnet Middle School
Forbidden Forever PFOAs: A Cause for Heart Diseases

OHIO

USOH10 University of Cincinnati Science and Engineering EXPO

CHHABRA, MOLLY (GRADE 8)
Mason, Ohio
Mason Middle School
SoundSense: AI-Driven Meta-Materials for Sustainable Sound Blocking and Safeguarding Children's Health

CHHABRA, VEDANT (GRADE 8)
Mason, Ohio
Mason Middle School
SoundSense: AI-Driven Meta-Materials for Sustainable Sound Blocking and Safeguarding Children's Health

SZCZEPANSKI, DANIEL M. (GRADE 7)
Loveland, Ohio
Saint Columban School
Insulation: Which One Is Best? Which Insulating Material Is Best at Slowing Heat Loss in a Dual Metal Can, Closed System?

ZIEROLF, CHARLES THOMAS (GRADE 8)
Loveland, Ohio
Saint Columban School
Can a Nerf Dart Stop an Asteroid?

USOH51 State Science Day (Ohio)

LOTHROP, JOSHUA MILES (GRADE 6)
Worthington, Ohio
Worthingway Middle School
Written Showdown: Artificial Intelligence vs. 6th Grader! Can Teachers Tell the Difference?

OKLAHOMA

USOK02 Bartlesville District Science Fair

LAI, JONATHAN (GRADE 7)
Bartlesville, Oklahoma
Central Middle School
Fantastic Plastics: Creating Sustainable Plastic From Milk Proteins

USOK03 Central Oklahoma Regional Science and Engineering Fair

GOSSEN, SOPHIE (GRADE 6)
Edmond, Oklahoma
Homeschool
I Saw the Light

OREGON

USOR04 Beaverton-Hillsboro Science Expo

GROTBECK, ANNALINA (GRADE 8)
Beaverton, Oregon
Whitford Middle School
Using RStudio To Code an Interactive Virtual Reality Model of an Exosome Imaged With dSTORM

HADDEN, CADEN (GRADE 7)
Beaverton, Oregon
Whitford Middle School
Lichen as Bioindicators of Air Pollution in Different Environments Within Western Oregon

MUOTO, TOBE (GRADE 7)
Portland, Oregon
Stoller Middle School
Creating a Carbon Footprint Calculator for Google Searches

SHAH, NIMAY ANKIT (GRADE 7)
Portland, Oregon
Stoller Middle School
LawnBot: A Smart Lawn-Watering Robot

USOR50 Northwest Science Expo

AKERVALL, ODESSA (GRADE 6)
Wilsonville, Oregon
Inza R. Wood Middle School
Ready or Not, Here AI Comes! Response to ChatGPT: A Data Science Research Project

BAN, ALYA (GRADE 7)
Beaverton, Oregon
International School of Beaverton
The One and Only Confusing, Bizarre and Mind-Boggling Benford's Law

CARR HEUER, TAYLOR (GRADE 7)
West Linn, Oregon
Rosemont Ridge Middle School
Search and Find Rover (SAF)

MATRISCIANO, SOFIA (GRADE 8)
Bend, Oregon
Bend Science Station
Olivine Rocks! An Exploration of the Effects of Olivine on CO_2

MITTAL, ANUSHI (GRADE 6)
Portland, Oregon
Willamette Valley Academy
Using Machine Learning Approaches for Early Detection for Heart Disease

PHILIP, HANNAH (GRADE 8)
Beaverton, Oregon
Meadow Park Middle School
Skin Cancer Detection Using a Neural Network

RANA, ESHAAN (GRADE 7)
West Linn, Oregon
Rosemont Ridge Middle School
Search and Find Rover (SAF)

SHEN, ELIZABETH (GRADE 8) #
Portland, Oregon
Stoller Middle School
Diffusion-Only Water Transport and How To Modulate Its Speed

SHIRTCLIFF, LUKE ALBERT BARINAGA (GRADE 8)
Bend, Oregon
Bend Science Station
An Exploration of Light Exposure on the Growth Rate of the Acellular Slime Mold *Physarum polycephalum*

WELTER, ETHAN KAI (GRADE 8)
Beaverton, Oregon
Whitford Middle School
Designing and Building a Co+TiO_2 PEM Fuel Cell

PENNSYLVANIA

USPA01 Capital Area Science and Engineering Fair

KAZI, ARMAN (GRADE 8) #
Hershey, Pennsylvania
Hershey Middle School
Creating Brain Computer Interface for Neuromuscular Disease Patients To Communicate

PAUL, AINESH (GRADE 8)
Hershey, Pennsylvania
Hershey Middle School
Exploring the Relationship Between Early Life Experience and Aggression

USPA03 Delaware Valley Science Fairs

BANERJEE, ADWIK (GRADE 7)
Allentown, Pennsylvania
Springhouse Middle School
Soapy Slope: Acute Toxicity of *Daphnia magna* to Common Detergents

DUNN IV, JOSEPH E. (GRADE 7)
Coatesville, Pennsylvania
Pope John Paul II Regional Catholic Elementary School
Preventing Explosions and Fires With Automated, Smart Gas Detection and Shut-Off Systems

EVANS, JEREMY MICHAEL (GRADE 8)
Harleysville, Pennsylvania
Indian Valley Middle School
Effect of UV-Irradiation on Seed Germination and Growth

GAGRANI, OM VAIBHAV (GRADE 6)
Malvern, Pennsylvania
Great Valley Middle School
Ray of Light (Video Game for Visually Impaired and Sighted Players)

HERRLINGER, MAYA (GRADE 8)
Harleysville, Pennsylvania
Indian Valley Middle School
What Would You Do: Your Classmate Is Cheating!

IYENGAR, TYLER (GRADE 7)
Lower Macungie, Pennsylvania
Lower Macungie Middle School
Snap Decisions: Crayfish Substrate Preferences in Streams vs. Ponds

JALANI, AYUSH (GRADE 7)
Allentown, Pennsylvania
Springhouse Middle School
Harnessing Electricity From Microbes: A Step Towards a Cleaner Future

LIND, DILLON (GRADE 7)
Newtown, Pennsylvania
Newtown Middle School
Paper "Apeel"

PRESSLER, WILLOW (GRADE 7)
Roosevelt, Pennsylvania
Homeschool
Powered by the Sun

SURESH, AADITRI (GRADE 7)
Allentown, Pennsylvania
Springhouse Middle School
A Model for Sustainable Life Support in Martian Environment

USPA04 Pittsburgh Regional Science and Engineering Fair

KRISHNAMURTHY, RISHABH (GRADE 6)
Pittsburgh, Pennsylvania
Dorseyville Middle School
Modeling the Detection of Pathogens in Sewage Sheds

PIMENOV, ALBERT (GRADE 8)
Harmony, Pennsylvania
Ryan Gloyer Middle School
Flexible Aluminum-Air Batteries

USPA05 Reading and Berks Science and Engineering Fair

KERSCHNER, KAITLYN (GRADE 8)
Shillington, Pennsylvania
Governor Mifflin Middle School
Pest-Oh: Changing Perceptions on Edible Bugs as a Sustainable Food Source

PUERTO RICO

TEPR12 Puerto Rico Metropolitan Science Fair

MALDONADO FONSECA, ESTELA MÍA (GRADE 7)
Guaynabo, Puerto Rico
Colegio Rosa-Bell
Identification of Toxic Heavy Metals in Popular Chocolate Brands and Potential Health Risks

VILLAFUERTE, ALVARO DANIEL (GRADE 8) #
San Juan, Puerto Rico
Colegio San Ignacio de Loyola
Wearable IOT Heat Index Detector With Web-Based Monitoring and Alert System Integrated With a Body Thermometer for Heat-Related Illness

SOUTH CAROLINA

USSC04 USC Central South Carolina Region II Science and Engineering Fair

BROWN, AIRA MARIE (GRADE 8)
Irmo, South Carolina
Dutch Fork Middle School
Plastic Made for the Environment

TENNESSEE

USTN04 Southern Appalachian Science and Engineering Fair

MOOR, KRISTEN (GRADE 7)
Knoxville, Tennessee
Christian Academy of Knoxville
AI Recycling Assistant

USTN06 Middle Tennessee Science and Engineering Fair

HUNEYCUTT, NATALIE (GRADE 7)
Nashville, Tennessee
Homeschool
Cows vs. Cricket: Assessing the Impact of Container Size on Cricket *(Acheta domesticus)* Growth

TEXAS

USTX01 Beal Bank Dallas Regional Science and Engineering Fair

CHATRATHI, PRANAVI (GRADE 7)
Frisco, Texas
Pioneer Heritage Middle School
Side-Impact Car Crash: An External Airbag To Reduce Injury Severity Through Reduction in *B. pillar* Intrusion

CHONG, ELLIE (GRADE 8) #
Dallas, Texas
Highland Park Middle School
Development of a Portable Solar-Powered Cost-Efficient Sterilization Unit for Use in Developing Countries

MATTERN, BECKETT (GRADE 7)
Plano, Texas
Haggard Middle School
The Best Shot in Tennis

PAUL, SHRUTI (GRADE 7)
Plano, Texas
Schimelpfenig Middle School
Flow 'n Grow: A Novel Automated Plant-Watering System

SAADIQ, AIKA (GRADE 8)
Plano, Texas
Wilson Middle School
I Can't Hear: Soundwave Cancellation by Soundproofing Materials in Rooms

SPIRIDE, ANA (GRADE 8) #
Plano, Texas
Rice Middle School
Palm Reading: A Novel Computer Vision Approach to Translating Sign Language

VOHRA, CHARVI (GRADE 8)
Coppell, Texas
Coppell Middle School North
Sonus-Energy: The Piezoelectric Noise to Electricity Converter

WANSAPURA, HIRUNI (GRADE 7)
Plano, Texas
Robinson Middle School
Bio Breeze: Using Snake Plant Fibers as a Biodegradable Air Filtration Material

WEI, HAO (GRADE 8)
Coppell, Texas
Coppell Middle School North
Sonus-Energy: The Piezoelectric Noise to Electricity Converter

YAQOOB, RAYYAN (GRADE 7)
Plano, Texas
Good Tree Academy
The Effect of Targeting Multiple Neural Pathways Using Nutraceuticals on the Cognition of *Drosophila melanogaster*: A Novel Multi-Target Approach Using Curcumin, Magnesium and Coenzyme Q10

ZHANG, JESSICA (GRADE 8) #
Plano, Texas
Rice Middle School
Analyzing Super Absorbent Polymer (SAP)-to-Soil-Mass Ratios on Plant Properties To Increase Sorghum Yields

USTX02 Sun Country Science Fair

FIERRO, CHLOE SVETLANA (GRADE 6)
El Paso, Texas
Homeschool
Therma-Q: Analyzing the Thermal Performance of a *Quercus suber* Insulation

USTX03 Fort Worth Regional Science and Engineering Fair

JILANI, SHOAYB AHMED (GRADE 8)
Euless, Texas
Harmony Science Academy — Euless
How Sounds Affect Memory Retention

USTX05 Science Engineering Fair of Houston

BALA, SANVI (GRADE 7)
The Woodlands, Texas
McCullough Junior High School
GastroGuard: Accurate and Efficient Detection of Gastrointestinal Abnormalities via Machine Learning Analysis of Video Capsule Endoscopy Images

CHAKRABORTY, ANIKET (GRADE 8)
Spring, Texas
Knox Junior High School
Analyzing Materials Using Infrared and Optical Spectroscopy

CHAUDHARY, ISHAAN (GRADE 7)
Sugar Land, Texas
Fort Settlement Middle School
Reinventing the Medicine Container

DEAN, RAEEF (GRADE 8)
League City, Texas
League City Intermediate
Artificial Intelligence for School Safety and Efficiency

KALE, SANA (GRADE 7)
The Woodlands, Texas
Creekside Park Junior High School
Analyzing the Effects of Gender and APO-E Genes on Alzheimer's Disease

NORING, NICHOLAS (GRADE 8)
The Woodlands, Texas
McCullough Junior High School
How Do Distance, Direction and Frequency Impact Sound Localization in Hearing Aid Wearers vs. Non-Hearing Aid Wearers?

PARGHI, KARISHMA (GRADE 7)
Spring, Texas
Knox Junior High School
The Impact of Black, Loose-Leaf Caffeinated Tea Grounds as a Fertilizer Additive on the Height of *Phaseolus aureus*

PATEL, MAAN MAMTA-SANJAY (GRADE 7)
The Woodlands, Texas
McCullough Junior High School
Nature's Super Shapes: How Voronoi Tessellations Affect Structural Strength

SHAW, NEEV (GRADE 7)
Pearland, Texas
Davidson Academy Online
A Comprehensive, Cost-Effective, Customizable Device To Help People With ALS (PALS) Communicate

SHAW, NEIL (GRADE 7)
Pearland, Texas
Davidson Academy Online
A Comprehensive, Cost-Effective, Customizable Device To Help People With ALS (PALS) Communicate

SHETTY, NIA (GRADE 8)
Sugar Land, Texas
The Honor Roll School
Gold Nanoshells and Focal Laser Therapy: A Novel Approach to Solid Tumor Treatment

SINGHAL, RIYA (GRADE 6)
Cypress, Texas
Oakcrest Intermediate School
Using Spherification for Safe and Controlled Delivery of Iron Drops

USTX13 Austin Energy Regional Science Festival

KARIM-ALI, AARIZ (GRADE 8)
Austin, Texas
Austin Peace Academy
Soil Fever — A Scientific Analysis of the Effects of Polypropylene, Biodegradable Plastic and Bisphenol A on Plants

PATEL, VRAJ ANKUR (GRADE 8)
Austin, Texas
Pearson Ranch Middle School
Cheap Water Filter

TIPPIMATH, ABHAY (GRADE 8)
Austin, Texas
Pearson Ranch Middle School
The Impacts of Microwave Cooking Relative to Conventional Methods on Protein

USTX15 Coastal Bend Regional Science Fair

KUMAR, SOAHAM (GRADE 7) #
Kingsville, Texas
Santa Gertrudis School
A Novel, Viable and Sustainable Solution to CO_2 Pollution

UTAH

USUT01 North Davis Area Science and Engineering Fair

STEVENSON, MOSES EITEL (GRADE 7)
Centerville, Utah
Centerville Junior High School
Phone Dynamo

USUT04 Central Utah STEM Fair

RICHARDSON, JOSHUA (GRADE 7)
Lindon, Utah
Karl G. Maeser Preparatory Academy
Nanotized Soil Amendments To Solve Global Fertilizer Crisis

RICHARDSON, LEVI ORION (GRADE 7)
Lindon, Utah
Karl G. Maeser Preparatory Academy
Nanotized Soil Amendments To Solve Global Fertilizer Crisis

SHETTY, TANISH (GRADE 7)
Lindon, Utah
Karl G. Maeser Preparatory Academy
Levitation With Sound

USUT05 University of Utah Science and Engineering Fair

GANDEE, RIVER JAMES (GRADE 7)
Salt Lake City, Utah
Challenger School — Salt Lake
Effect of Thermal Conductivity of Fabrics on the Preservation of Temperature Within a Fabric-Insulated Pouch in a Cold Ambient Environment

KUBERAN, AADITYA N. (GRADE 6)
Salt Lake City, Utah
Challenger School — Salt Lake
Stop the Clot!

MOHNANI, LAVANYA (GRADE 8)
Sandy, Utah
Challenger School
Utilizing Organosilanes for Microplastic Removal Through Agglomeration-Fixation

OTIS-PASTERNAK, AURELIA (GRADE 8)
Millcreek, Utah
Churchill Junior High School
The Power of Placebo: Adults vs. Kids

SRIDHAR, ADITYA (GRADE 7)
Sandy, Utah
Challenger School
A Path to a Carbon-Neutral World

WRIGHT, THOMPSON (GRADE 6)
Millcreek, Utah
Wasatch Junior High School
The Music Cube: Revising the Piano Book Stand

ZHANG, SOPHIA YUXIN (GRADE 7)
Salt Lake City, Utah
Rowland Hall Middle School
Silence Please: The Effect of Porosity of Acoustic Materials on Sound Reduction

VIRGINIA

USVA01 Northern Virginia Science and Engineering Fair

BECKNER, COLIN (GRADE 8)
Arlington, Virginia
Swanson Middle School
Need a Lift? The Effect of a Wingtip Style on a Wing's Percent Change in Weight When Run Through a Wind Tunnel

BURKS, THOMAS JACKSON (GRADE 8)
Alexandria, Virginia
George Washington Middle School
Monte Carlo Model of Wind-Assisted Container Ships

USVA02 Virginia Piedmont Regional Science Fair

BRUSCIA, ELIZABETH (GRADE 6)
Charlottesville, Virginia
Charlottesville Catholic School
Under Pressure, Improving Equine Health and Injury Prevention

USVA09 Tidewater Science and Engineering Fair

ASHBY, JAMIE KYLE (GRADE 8)
Newport News, Virginia
Booker T. Washington Middle School
Skin in the Game: Diagnosing Skin Conditions and Bug Bites on a Cell Phone Using Machine Learning

USVA10 Blue Ridge Highlands Regional Science Fair

STROM, ISAAC (GRADE 8)
Blacksburg, Virginia
Homeschool
Bro, Does Weight Even Matter?

WASHINGTON

USWA02 Discovery Regional Science and Engineering Fair

SHARIFF, ZAIN (GRADE 8) #
University Place, Washington
Curtis Junior High School
Microwave-Related Tissue Changes Using Ultrasound: Processing Images Into Spectral Colors

USWA50 Washington State Science and Engineering Fair

BADRISH, ADVAIT (GRADE 7)
Redmond, Washington
Redmond Middle School
HeartNN: A High-Accuracy Neural Network for Cardiac Auscultation

CHOUDHURY, PRAYRONA (GRADE 8) #
West Richland, Washington
Leona Marshall Libby Middle School
AquaTranslate — Identifying the Causes of Aquatic Problems Through Sensor Data-Driven Intelligent Web Searches

WOJTOWICZ, PETER (GRADE 7)
Seattle, Washington
Jane Addams Middle School
Wi-Fi Soil Moisture Sensor: An Affordable Approach to Efficient Agriculture

SOCIETY FOR SCIENCE

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