TOP 300 MASTERS 2022
About Broadcom MASTERS

Broadcom MASTERS® (Math, Applied Science, Technology and Engineering for Rising Stars), a program of Society for Science, is the premier national middle school science and engineering fair competition, inspiring the next generation of scientists, engineers and innovators who will solve the grand challenges of the 21st century and beyond. We believe middle school is a critical time when young people identify their personal passion, and if they discover an interest in STEM, they can be inspired to follow their passion by taking STEM courses in high school.

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

The Top 300 MASTERS 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). Top 300 MASTERS also receive a prize package that includes an award ribbon, a Top 300 MASTERS certificate of accomplishment, a Broadcom MASTERS backpack, a Broadcom MASTERS decal, a one-year family digital subscription to Science News magazine, an Inventor’s Notebook, courtesy of The Lemelson Foundation 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 MASTERS’ designated teacher will also receive a Broadcom MASTERS tote bag, a one-year digital subscription to Science News magazine and a booklet of Science News Explores Invention and Innovation articles, courtesy of The Lemelson Foundation.

From the Top 300 MASTERS group, 30 finalists are announced on September 21. They will present their research projects and compete as teams in STEM challenges to demonstrate their 21st Century skills in critical thinking, collaboration, communication and creativity at the Broadcom MASTERS finals. Top awards include a grand prize of $25,000, stipends for STEM summer camps and more.

Broadcom Foundation and Society for Science thank the following for their support of the 2022 Broadcom MASTERS:

- Samueli Foundation
- DoD STEM
- Robert Wood Johnson Foundation
- The Lemelson Foundation
- Robert John Floe, President Floe Financial Partners
- 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 1,807 Broadcom MASTERS entrants
2022 Top 300 MASTERS

Students are listed in order by school state, fair code, last name and name of school based on information provided by each student in their entry. Students listed under the 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 2022. Visit findafair.societyforscience.org to look up Broadcom MASTERS affiliated fairs by state.

# Next to the name indicates previous selection as a Top 300 Broadcom MASTERS

ALABAMA

USAL02 Central Alabama Regional Science and Engineering Fair

LOUISA MARKERT (GRADE 8)
MRI Image Analysis Using an ImageJ-Based Algorithm To Predict New-Onset Dementia
Indian Springs School
Pelham, Alabama

ALASKA

USAK50 Alaska Science and Engineering Fair

ELLIE JOHNSON (GRADE 6)
Washing Danger Down the Drain
Home School
Ketchikan, Alaska

ARIZONA

USAZ03 Southern Arizona Research, Science and Engineering Fair

TARAN HOGAN (GRADE 6)
Stealth: They Never Saw It Coming!
Saint Cyril of Alexandria School
Tucson, Arizona

USAZ50 Arizona Science and Engineering Fair

MASON HILL (GRADE 8)
The Effect of Plant Type on Moisture Content
Arizona College Prep — Oakland
Chandler, Arizona

ANDREW REVELES (GRADE 8)
The Use of Luminol To Detect Blood in an Arson Case Where a Murder Was Involved
Saint Jerome Catholic School
Phoenix, Arizona
MONA SOPHIE SCHWICKERT (GRADE 7)
Sun Lotions and Bathing Suit Straps: The Impact Sun Lotions Have on Bathing Suit Straps’ Elasticity
Arizona Virtual Academy
Glendale, Arizona

ARKANSAS
USAR05 Central Arkansas Regional Science and Engineering Fair
VISHAK MEENACHI (GRADE 6)
Cost Effective Pesticide/Fertilizer Sprayer Attachment for Drones
LISA Academy — West
Little Rock, Arkansas

CALIFORNIA
USCA01 Orange County Science and Engineering Fair
HUSSEIN HIRANI (GRADE 8) #
AquaSafe — A Device To Prevent Drowning
Serrano Intermediate
Lake Forest, California

BRIANNA LIU (GRADE 8)
The Productivity of Composting and Its Response to Moisture Content
South Lake Middle School
Irvine, California

ASHVIK SAI NACHAM (GRADE 7)
Optimizing Removal of Nitrates From Water Using Household Waste (Eggshells)
Rancho San Joaquin Middle School
Irvine, California

ANIKA NUNES (GRADE 8)
Engineering Effective Influenza Vaccines Using Novel Interdisciplinary Approaches
Fairmont Private School — Historic Anaheim Campus
Anaheim, California

ZANE SHAIYEN (GRADE 7)
Magnetic Linear Accelerator: Effect of Number of Magnet Stages on Ejection Distance
Fairmont Private School — Historic Anaheim Campus
Anaheim, California

USCA02 Los Angeles County Science and Engineering Fair
ALEX GAVIN (GRADE 7)
Does Modified Airflow Reduce the Spread of Airborne Infections in Classrooms?
Mirman School
Los Angeles, California
MANON IWATA (GRADE 8)
*Purrfect for the Bones: Association and Effect of Living With a Cat on Women's Bone Density*
Westridge School for Girls
Pasadena, California

CALEB C. KODAMA (GRADE 8) #
*Coded Breath a Non-Invasive Diagnostic Approach: Can We Develop an AI-Powered Wireless Electronic Nose That Utilizes Machine Learning To Identify the Volatile Organic Compounds of Fungal Pneumonia in Our Breath?*
Sierra Madre Middle School
Sierra Madre, California

YUHA LIM (GRADE 8)
*Arduino Package Protector*
Rudecinda Sepulveda Dodson Middle School
Rancho Palos Verdes, California

DAISY JANE LUKE (GRADE 7)
*Prevalence of Synthetic Materials in Juvenile Environments: Polymeric Microfiber Shedding and Air Quality*
Portola Highly Gifted Magnet Middle School
Tarzana, California

JAKE MANISCALCO (GRADE 7)
*Electric Generator: An Analysis of the Voltage Created by a Spinning Magnetic Field*
American Martyrs School
Manhattan Beach, California

ERINNE PARK (GRADE 8)
*The Arduino Package Protector*
Rudecinda Sepulveda Dodson Middle School
Rancho Palos Verdes, California

GAVIN BOOTAN SARMIENTO (GRADE 8)
*Arduino Package Protector*
Rudecinda Sepulveda Dodson Middle School
Rancho Palos Verdes, California

KINNOREE RABEYA PASHA (GRADE 7) #
*Smart Irrigation Through Sensing Technology and Embedded Logic for Optimum Resource Use: A Comparative Analysis To Grow Daikon Radish in Winter Conditions*
Granite Ridge Intermediate School
Fresno, California

ACHUTH VINAY (GRADE 7)
*Do Word Recognition Software Have Racial or Gender Bias?*
Granite Ridge Intermediate School
Fresno, California
USCA05  Greater San Diego Science and Engineering Fair

ARNAV DAGAR (GRADE 8) #
Where’s Waldo — A Bayesian Approach for Localizing a LEGO Robot
Pacific Trails Middle School
San Diego, California

VIBHA YADAV GANJI (GRADE 8)
Can We Enrich the Percentage of Curcumin from Turmeric by Removing Non-Curcuminoids Using Water Extraction?
Oak Valley Middle School
San Diego, California

USCA06  Golden Gate STEM Fair

SHREYA CHANDRASEKAR (GRADE 7)
The Rise of the Idli Batter: Forays Into Fermentation
Tierra Linda Middle School
San Carlos, California

ISABEL MERRIMAN (GRADE 8)
Microplastics in Food? A Salty Surprise
Saint Brendan School
San Francisco, California

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

AVA TAN BHOWMIK (GRADE 8) #
A Novel Low-Cost Portable Apparatus To Assess Face Mask and Instrument Cover Efficacy
The Harker School
San Jose, California

MARCELLA LYNN CALFEE (GRADE 8)
The Visual Vest
Juan Cabrillo Middle School
Santa Clara, California

AMAN P. CHANDRA (GRADE 8)
Smart Traffic Lights
Challenger School — Shawnee
San Jose, California
JEANELLE DAO (GRADE 7)
Controlling Doors Using Interface Technology With Steps for People With Hand Disabilities (CONDUITS)
Stratford Middle School — San Jose
San Jose, California

CARINA J. GROSS (GRADE 7) #
Device To Translate Musical Notes Into Computer Commands
Terman Middle School
Palo Alto, California

RORY HU (GRADE 6)
The Effects of Pesticides, Caffeine and Tea Polyphenols on the Visual and Olfactory Learning and Memory of the Honey Bee
The Harker School
San Jose, California

SHARVIL KULKARNI (GRADE 8)
The Visual Vest
Juan Cabrillo Middle School
Santa Clara, California

JAYDEN LIU (GRADE 7)
Studying the Multiple Variables and Their Effects on a Home-Built Aquaponics System
The Harker School
San Jose, California

ALEX JOE MATHEW (GRADE 8)
The Visual Vest
Juan Cabrillo Middle School
Santa Clara, California

SANVI MISHRA (GRADE 8)
Ring for Life Rescue
Challenger School — Strawberry Park
San Jose, California

REEVA PATEL (GRADE 8)
Novel Machine Learning-Based Smart Navigation Attachment To Aid Glaucoma Patients
Juan Cabrillo Middle School
Santa Clara, California

SOFIA SHAH (GRADE 8)
Change and Improvement of Antioxidant Levels in Different Fruits and Storage Environments
The Harker School
San Jose, California
ANSH THAKKAR (GRADE 8)  
A Raspberry Pi-Based Automatically-Maintained Hydroponic System  
Champion School  
San Jose, California  

NIDHI THANKASALA (GRADE 8)  
Novel Machine Learning-Based Smart Navigation Attachment To Aid Glaucoma Patients  
Juan Cabrillo Middle School  
Santa Clara, California  

GAURI TODUR (GRADE 8)  
Novel Machine Learning-Based Smart Navigation Attachment To Aid Glaucoma Patients  
Juan Cabrillo Middle School  
Santa Clara, California  

KALLIE WANG (GRADE 8)  
Change and Improvement of Antioxidant Levels in Different Fruits and Storage Environments  
The Harker School  
San Jose, California  

SAHANA ANAMIKA (GRADE 8)  
T3 (Tattoo Touch Technology) — A Smart and Interactive IoT-Based Removable Tattoo That Relieves Anxiety  
Juan Cabrillo Middle School  
Santa Clara, California  

SAHITHI CHERUKURI (GRADE 8)  
T3 (Tattoo Touch Technology) — A Smart and Interactive IoT-Based Removable Tattoo That Relieves Anxiety  
Juan Cabrillo Middle School  
Santa Clara, California  

MIHIKA MISRA DESHPANDE (GRADE 8)  
Identifying Factors and Beliefs Correlated With Vaccine Hesitancy Using Machine Learning  
John Horner Junior High School  
Fremont, California  

MINA FEDOR (GRADE 8)  
EEG Theta During Self-Directed Versus Passive Spatial Memory Encoding and Retrieval  
Black Pine Circle School  
Berkeley, California  

USCA09 The Synopsys Outreach Foundation Alameda County Science and Engineering Fair
SERENA SAUMIL GANDHI (GRADE 8) #
T3 (Tattoo Touch Technology) — A Smart and Interactive IoT-Based Removable Tattoo That Relieves Anxiety
Juan Cabrillo Middle School
Santa Clara, California

MICHAEL LIPENG MACRI (GRADE 7)
Bits vs. Trits: Comparing Binary and Ternary Memory
Saint Raymond School
Dublin, California

SRIJON MANDAL (GRADE 8)
Road Safety Device for Accident Prevention (RODAN)
YoungWonks
Pleasanton, California

HAMSINI VEGI (GRADE 6)
Fun Exercise Glove
Mission San Jose Elementary School
Fremont, California

KETHAN VEGUNTA (GRADE 7)
Road Safety Device for Accident Prevention (RODAN)
YoungWonks
Pleasanton, California

NANDINI VERMA (GRADE 7)
Does Listening to Music Have the Same Effect as Feeling Its Vibrations?
Thornton Junior High School
Fremont, California

MELODY WANG (GRADE 7)
Mask Filtration Phenomena
Challenger School — Ardenwood
Newark, California

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

HANNAH FAITH CHAIX (GRADE 7)
Testing Potassium Carbonate as a Fire Retardant in House Paint
Home School
Chino Hills, California

USCA16 San Mateo County Office of Education STEM Fair

COLIN J. CHU (GRADE 8) #
Early Diagnosis of Liver Cancer by Identification of miRNA Biomarkers
The Nueva School
Hillsborough, California

MATTHEW COWARD (GRADE 8)
How Can Biomimicry Lead to Improvements in Fan Blade Design?
Woodland School
Portola Valley, California
TESSA CUCHELKAR (GRADE 7)
An Investigation Into the Attributes of Sunscreen Effectiveness
Tierra Linda Middle School
San Carlos, California

AIDYN EGLINGTON (GRADE 8)
Dirty to Clean: The Effectiveness of Natural Soil Filters
Hilldale School
Daly City, California

VICTORIA HARDING BRADLEY (GRADE 8) #
Green Ears: A Study of Ultrasonic Acoustic Emissions in Response to Environmental Stressors in Plants
Nativity Catholic School
Menlo Park, California

KORYNNA LAU (GRADE 8)
Legibility in Typography
Natalie Lipman Middle School
Brisbane, California

VIOLET RAE MACAVOY (GRADE 7) #
Save Our Forests: Engineering a Cost-Effective, Environmentally Friendly Forest Fire Retardant
Crocker Middle School
Hillsborough, California

AKIRA NAKAMURA (GRADE 6)
Mathematically Modeling Planetary Orbits in Space
Burlingame Intermediate School
Burlingame, California

LIAM STEMMLE (GRADE 7)
Masked Faces
Saint Matthew’s Episcopal Day School
San Mateo, California

NEETHIKA VIJA Y (GRADE 7)
Shoe-In: Accessible Shoe Design
Synapse School
Menlo Park, California

ETHAN YAN (GRADE 7)
Can “One Look” by Machine Detect Acute Leukemia? Classic and Novel Deep Learning-Based Detection Systems for Leukemia
Burlingame Intermediate School
Burlingame, California
USCA50

California Science & Engineering Fair

ZOE J. CAPPUCCIO (GRADE 7)
Cellulase Activity in Environmental Samples To Enhance Biofuel Production: Let’s Break It Down
Jacoby Creek Elementary School
Bayside, California

SAANVI DOGRA (GRADE 8)
Structural, Sequence and Germline Comparison of SARS-CoV-2 Antibodies Across Humans and Mice
Oak Valley Middle School
San Diego, California

DISHA GUPTA (GRADE 8)
Improving Outcomes: Early Detection of Autism Using fMRI and Phenotypic Data With Convolutional Neural Networks
The Harker School
San Jose, California

LUCAS S. KATZ (GRADE 8) #
A Mini-Marine Rescue Vessel System — "The Mini-MARV"
Joaquin Moraga Intermediate School
Moraga, California

CLARA KERR (GRADE 8)
Development of a Multi-Sensor System To Prevent Child Vehicular Heatstroke
Lammersville Elementary School
Tracy, California

NANDANA MAHESKUMAR (GRADE 8)
EEVF: Energy Efficient Vertical Farming
Juan Cabrillo Middle School
Santa Clara, California

SAMAIRA MEHTA (GRADE 8)
OVision: Automatic Assessment of Ovarian Cancer Features and Mesothelin Protein Over-Expression From Histopathological Images Using Deep Learning
Stratford School — Sunnyvale Raynor Middle School
Sunnyvale, California

LAASYA PANDRAVADA (GRADE 8)
EEVF: Energy Efficient Vertical Farming
Juan Cabrillo Middle School
Santa Clara, California

RIYA RAKESH (GRADE 7)
Mud to Electricity: Creating, Comparing and Finding Ways To Improve a Microbial Fuel Cell
Merryhill School
Milpitas, California
HARIPRIYA RAMAKRISHNAN (GRADE 7)
Syringe Chromatography
Challenger School — Shawnee
San Jose, California

RAYA SAI (GRADE 7)
Mud to Electricity: Creating, Comparing and Finding Ways To Improve a Microbial Fuel Cell
Merryhill School
Milpitas, California

KAITLYN SHARRER (GRADE 8)
Bendable Bones
Fruitvale Junior High
Bakersfield, California

TANVI SIVAKUMAR (GRADE 8)
Improving Outcomes: Early Detection of Autism Using fMRI and Phenotypic Data With Convolutional Neural Networks
The Harker School
San Jose, California

JONATHAN ALEXANDER SZETO (GRADE 8)
A Cost-Effective Method Using Ash To Improve the Efficacy of Oil Spill Bioremediation With Bacillus subtilis
The Harker School
San Jose, California

KAYLEY XU (GRADE 7)
Using Machine Learning Algorithms To Predict Water Potability
The Bishop's School
La Jolla, California

SARA YOSHIDA (GRADE 8)
EEVF: Energy Efficient Vertical Farming
Juan Cabrillo Middle School
Santa Clara, California

AUDREY HUANG (GRADE 8)
Identifying Asian Hate on Twitter With Machine Learning
Lakeside Middle School
Irvine, California

MARISSA HUANG (GRADE 8)
Identifying Asian Hate on Twitter With Machine Learning
Lakeside Middle School
Irvine, California

SASHA LICHTMAN (GRADE 6)
Do Different Genres of Music Affect the Amount of Food My Tortoise Consumes
Bonita Canyon Elementary School
Irvine, California
<table>
<thead>
<tr>
<th>State</th>
<th>Region/Event</th>
<th>Participants</th>
<th>Projects/Inquiries</th>
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<tr>
<td>Colorado</td>
<td>San Luis Valley Regional Science Fair, Inc.</td>
<td>Abhijith Sivapraakash (Grade 6)</td>
<td>Which Material Stops Water From Getting to Coastal Cities Best?</td>
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<td>Deerfield Elementary School</td>
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<td>Irvine, California</td>
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<td>San Juan Basin Regional Science Fair</td>
<td>Parker Clayton Mitchell (Grade 6)</td>
<td>Spin That Wheel II</td>
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<td>Sargent Junior High School</td>
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<td>Monte Vista, Colorado</td>
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<td>Corden Pharma Colorado Regional Science Fair</td>
<td>Cuihn Archer (Grade 6)</td>
<td>Automatic Water</td>
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<td>Mancos Middle School</td>
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<td>Denver Regional Science and Engineering Fair</td>
<td>Amanda Roth (Grade 6)</td>
<td>Does Jumping Higher Result in a Dog Landing With More Force? An Investigation</td>
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<td>Lakhmi Thanikasalam (Grade 7)</td>
<td>Capillary Action — Investigation and Empirical Modeling</td>
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<td>Denver Regional Science and Engineering Fair</td>
<td>Ernest Kolesnikov (Grade 7)</td>
<td>How Different Substrates Affect Bioplastics</td>
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<td>Fox Ridge Middle School</td>
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<td>Toshiro Nagafuji (Grade 7)</td>
<td>Finding the Best Bio-Based Material for Bioplastics</td>
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<td>The Logan School for Creative Learning</td>
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<td>Mathangi Sanjay Kurup (Grade 7)</td>
<td>Phytoremediation of Lead Contaminated Soil Using Brassica juncea</td>
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<td>Challenge Middle School</td>
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CONNECTICUT

USCT50 Connecticut Science & Engineering Fair

SYDNEY CLAIRE BORST (GRADE 8)
Model System Design for Technology-Assisted Insulin Regulation
Westside Middle School Academy
Danbury, Connecticut

CALEB QUINBY (GRADE 7)
Separating Solids and Liquids Going Down the Sink
Chiaravalle Academy at the Enfield Montessori School
Enfield, Connecticut

SIA REDDY (GRADE 8)
Pellet-"O"-Trap: Capturing Plastic Pellets Through a Multi-Filter System and Analyzing Their Progression Using Binary Image Processing
Talcott Mountain Academy
Avon, Connecticut

SANDHYA SUDARSHANANAM (GRADE 8)
Design and Testing of an Integrated 360 Degree Pi Camera System for Deep Well Rescue Mission
Westside Middle School Academy
Danbury, Connecticut

SAM WU (GRADE 8)
The RightSwitch: An Automatic Light Switch Sterilization Device
Talcott Mountain Academy
Avon, Connecticut

FLORIDA

USFL09 Broward Regional Science & Engineering Fair

YASH BHATT (GRADE 7)
Utilizing Ferrofluid for the Removal of Tannins, Microplastics and Heavy Metals from $H_2O$
Falcon Cove Middle School
Weston, Florida

MAXIMUS CALLIS (GRADE 7)
The Effects of Different Carbon Fiber Composite Sandwich Cores on the Young’s Modulus and Specific Modulus of the Composite Sandwich Beam When It Is Tested Using a Three-Point Beam Test
American Heritage School
Plantation, Florida

ANAGHA IYER (GRADE 8)
The Synergistic Effects of Ametryn, Atrazine, Imidacloprid, Spinosad and Neem Oil on the Development of Danio rerio Embryos
American Heritage School
Plantation, Florida
USFL10  Northeast Florida Regional Science and Engineering Fair

MARCO ALEXANDER CHUA (GRADE 7) #
Wave Force Dissipation: Testing the Effectiveness of Geometric Shapes in Wave Breaking
Saint Paul’s Catholic School — Riverside
Jacksonville, Florida

USFL13  Brevard South Science and Engineering Fair

ESHAN VIPUIL (GRADE 7)
Building a Simplistic Cost-Effective Pill Counter To Improve Patient Compliance
West Shore Junior/Senior High School
Melbourne, Florida

USFL14  Brevard Intracoastal Regional Science and Engineering Fair

GRiffin KIRBY (GRADE 7)
Salty? Lettuce Find Out
Edgewood Junior/Senior High School
Merritt Island, Florida

SHARANYA NATARAJAN (GRADE 8) #
Suppress that Algae: Mitigating the Effects of Harmful Algal Blooms Through Preemptive Detection and Suppression (Year 3)
Edgewood Junior/Senior High School
Merritt Island, Florida

LUKE RODGERS (GRADE 8)
How Does Altitude Affect the Apogee and Speed of Rocket Launches?
DeLaura Middle School
Satellite Beach, Florida

JACOB THOMPSON (GRADE 7)
Oh Barnacles
Herbert C. Hoover Middle School
Indialantic, Florida

USFL16  Big Springs Regional Science Fair

ABIGAIL DENISE LACAYO (GRADE 7)
Enzyme Excellency: Researching the Effectiveness of Pancreatic Enzyme Replacement Therapy
Wildwood Middle High School
Wildwood, Florida

MICHAEL RIBAY (GRADE 7)
Rolling Rovers: A Feasibility Study of Fused Deposition Modeled Wheels
Howard Middle School
Ocala, Florida
AANVI MATHUR (GRADE 7)
The Effectiveness of Naturally-Available Plant-Based Extracts as Compared to Antimicrobial Mouthwashes Against Microorganisms That Cause Dental Caries
Orlando Science Middle School
Orlando, Florida

WILLIAM DAVIS (GRADE 6)
Wind Tunnel Measurements: How Rocket Nose Cone Shape Affects Drag Force
Fruit Cove Middle School
Saint Johns, Florida

SIMON CHUNG (GRADE 8)
Wildfire Analytics: What Conditions Lead to the Most Damaging Wildfires?
Sanford Middle School
Sanford, Florida

JOHN LEE (GRADE 8)
Governing Factors for Improving Electrochemical Hydrogen Production and a New MoS₂ Electrode Development
Jackson Heights Middle School
Oviedo, Florida

MOITRI SANTRA (GRADE 8) #
Innovative Engineering Tools for Controlling Harmful Algal Bloom (HAB): Year 3
Jackson Heights Middle School
Oviedo, Florida

LANDON WILLIAM HUBER (GRADE 6)
Forged in Fire: Strength and Hardness of Metal
Christ Classical Academy
Tallahassee, Florida

TANISHKA BALAJI AGLAVE (GRADE 7) #
A Novel Nanotechnology-Based Approach for the Control of the Pestalotiopsis Disease Outbreak in Florida Strawberries
Williams Middle Magnet School
Tampa, Florida

ALEXANDER MONTGOMERY (GRADE 8)
The Impact of Different Environmental Conditions on Galvanic Corrosion at Launchpad Structures
Andrew Jackson Middle School
Titusville, Florida
USFL29  |  Palm Beach Regional Science and Engineering Fair

TANVI REDDY DESAI (GRADE 8)
Quantitative Image Analysis of Ocean Acidification Effects on Argopecten irradians Shell Integrity
A.D. Henderson University Lab School
Boca Raton, Florida

AISHWARYA DESHPANDE (GRADE 8)
Effect of the Enzyme Amylase on the Digestion of Carbohydrates
Loggers’ Run Community Middle School
Boca Raton, Florida

GABRIEL HOSEIN MIKATI (GRADE 6)
Thermoelectricity — The FREE Hidden Energy In Our Roadways
The Weiss School
Palm Beach Gardens, Florida

KASEY MOORE (GRADE 7)
The Effect of Uncaria tomentosa (Cat’s Claw) in Learning and Memory in Lymnaea stagnalis (The Great Pond Snail)
American Heritage School
Delray Beach, Florida

SHIV PILLAI (GRADE 6)
Which Mechanism of Throttling a Solid Fuel Is More Effective?
American Heritage School
Delray Beach, Florida

ALEXANDER LUONG SINN (GRADE 8)
Does a Sports Drink Contain More Electrolytes Than Milk?
Bak Middle School of the Arts
West Palm Beach, Florida

USFL30  |  Pasco Regional Science and Engineering Showcase

JAKE MATTHEW JOHNSON (GRADE 8)
Spherification
Paul R. Smith Middle School
Holiday, Florida

USFL32  |  Sarasota County STEM Fair

AADI NISHANT BHENSDADIA (GRADE 7)
A Home-Based, Non-Invasive Device To Detect Hyperkalemia
Pine View School for the Gifted
Osprey, Florida

USFL50  |  State Science and Engineering Fair of Florida — Ying Scholars

KURUKULASURIYA NISHINI FERNANDO (GRADE 8) #
A Comprehensive Analysis: An Indication of the Impact of Microplastics on Plants and Soil in Terrestrial Ecosystems and Bacterial Degradation of Microplastics
Paul Laurence Dunbar Middle School
Fort Myers, Florida
NINA GOYAL (GRADE 7) #
Effects of Double-Stranded RNA Treatment on Sunflowers (Helianthus annuus: Asteraceae)
Hidden Oaks Middle School
Palm City, Florida

MASON HUFFMAN (GRADE 8) #
Cooling With Acoustics
Trafalgar Middle School
Cape Coral, Florida

ABHITH KUMAR KASALA (GRADE 8)
Global Plastic Pollution — The Depolymerization of Various Plastic Polymers and Finding the Most Effective Chemical for Plastic Recycling (Year 2)
Abraham Lincoln Middle School
Gainesville, Florida

DARREN LAU (GRADE 8)
Color Recognition in Machine Learning
Academy at the Lakes
Land O’ Lakes, Florida

NOAH LEIGHTON (GRADE 7)
Can High-Pressure Gas Generate Enough Thrust To Propel an Object, Therefore Making It an Alternative to Gasoline-Powered Engines?
Glades Middle School
Miramar, Florida

MONISH SARAVANA KUMAR DIVYA SUNDARI (GRADE 8)
Year 2: OCTOPAS — Developing an Automated Novel Approach To Clean Up Oil Spills
Orlando Science Middle School
Orlando, Florida

AARON ZACHARIA (GRADE 7)
Mission Go Dark
Julia Landon College Preparatory and Leadership Development School
Jacksonville, Florida

GEORGIA

USGA11

Gwinnett Regional Fair

PRAPTI BHAMARE (GRADE 6)
The Deactivator
Richard Hull Middle School
Duluth, Georgia

JACOB TAN NGUYEN (GRADE 8)
Application of Thermoplastics To 3D Print Pediatric Prosthesis Foot
Five Forks Middle School
Lawrenceville, Georgia
NYAMBURA SALLINEN (GRADE 7)  
*IdentitiCan: The App That Detects Lung Cancer*  
Lanier Middle School  
Sugar Hill, Georgia  

KESHVEE SEKHDA (GRADE 7)  
*IdentitiCan: The App That Detects Lung Cancer*  
Lanier Middle School  
Sugar Hill, Georgia  

**USGA13**  
Fulton County Regional Science & Engineering Fair  

OM GUIN (GRADE 7)  
*Improving Indoor Air Quality for Healthy Lungs*  
Fulton Science Middle School  
Alpharetta, Georgia  

**USGA50**  
Georgia State Science and Engineering Fair  

MASON BELOW (GRADE 8)  
*If We Can’t Beat It, Feed It!*  
Ridgeview Charter Middle School  
Sandy Springs, Georgia  

MAXWELL CLEVELAND (GRADE 8)  
*If We Can’t Beat It, Feed It!*  
Ridgeview Charter Middle School  
Sandy Springs, Georgia  

AKSHADHA MEHTA (GRADE 6)  
*Maskrete: A Viable Approach to Pandemic Pollution of Face Masks*  
Dodgen Middle School  
Marietta, Georgia  

PRANAV SAMBHU (GRADE 8)  
*Work OnPoint*  
Fulton Science Middle School  
Alpharetta, Georgia  

**GUAM**  

**TEGU01**  
Guam Island–Wide Science Fair  

JIEQIN LYDIA YANG (GRADE 8)  
*The Effect of Image Stacking on Astrophotography of the Orion Nebula, Horse Head, and Belt Stars*  
Harvest Christian Academy  
Barrigada, Guam
HAWAI'I

USHI03  Maui County Regional Science and Engineering Fair

JAMES JISUNG ANCHETA (GRADE 7)
*Racing Asteroids—Calculating the Speed of (13125) Tobolsk*
Iao Intermediate School
Wailuku, Hawaii

USHI08  Honolulu District Science & Engineering Fair

CHLOE LIU (GRADE 8)
*The Effects of Increased Atmospheric CO₂ on Medicinal Plants*
Kaimuki Middle School
Honolulu, Hawaii

BRIELLE ROLA (GRADE 8)
*The Effects of Increased Atmospheric CO₂ on Medicinal Plants*
Kaimuki Middle School
Honolulu, Hawaii

MIO SUTHERLAND (GRADE 8)
*The Effects of Increased Atmospheric CO₂ on Medicinal Plants*
Kaimuki Middle School
Honolulu, Hawaii

ILLINOIS

USIL02  STEM Science and Engineering Research Challenge

JOHN GLYNN (GRADE 8)
*Bridge Demolition*
Saint Norbert School
Hardin, Illinois

USIL51  Illinois Junior Academy of Science State Expo

ZOYA CHOWDHURY (GRADE 8)
*Understanding the Role of Myosin II in Cell Division*
Giant City School
Carbondale, Illinois

NEEV PATEL (GRADE 8)
*Modification to the Hardy-Weinberg Equilibrium With Exclusionary Conditions*
Barrington Middle School — Prairie Campus
Barrington, Illinois

AMRITHA PRAVEEN (GRADE 7)
*Early Risk Assessment of Autism Spectrum Disorder Using Machine Learning*
Aptakisic Junior High School
Buffalo Grove, Illinois
INDIANA

USIN22  Hoosier Science and Engineering Fair Region 3

MIRA NUTHAKKI (GRADE 8)
Potential microRNA Biomarker Panel for Predicting Evolution of Pancreatitis to Pancreatic Ductal Adenocarcinoma
Creekside Middle School
Carmel, Indiana

USIN26  Hoosier Science and Engineering Fair Region 7

BHARATH ANAND (GRADE 8)
Can Nurture Emulate Nature? Evaluating the Impact of Design Choices on the Brain-Similarity of Artificial Neural Networks
West Lafayette Junior/Senior High School
West Lafayette, Indiana

IOWA

USIA02  Western Iowa Science and Engineering Fair

SHAILY NIRAV PANDYA (GRADE 7)
No Berries Left Behind! — Extending Strawberry Shelf Life
VIBE Academy
Sioux City, Iowa

USIA50  State Science and Technology Fair of Iowa

MARLAYNA GRACE COCKSHOOT (GRADE 8)
Tonal Properties Among Different Types of Woods in Guitars
North Scott Junior High School
Eldridge, Iowa

CAEL ANDREW MESS (GRADE 8)
How Do Differences in Woods Making Up an Electric Guitar’s Body Affect the Tone?
North Scott Junior High School
Eldridge, Iowa

VALERIE SAVANNA RAHE (GRADE 8)
Impacts of Fertilizer Type and Concentration on Soil Organisms
Beckman Catholic School
Dyersville, Iowa

KENTUCKY

USKY02  Louisville Regional Science and Engineering Fair

ANNIKA CHADHA (GRADE 7)
Building an Air Flow Sensor To Monitor Room Air Replacement or Safety Against COVID and Other Diseases
Noe Middle School
Louisville, Kentucky
<table>
<thead>
<tr>
<th>USKY03</th>
<th>Dupont Manual High School Regional Fair</th>
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<tbody>
<tr>
<td>PRIYAM KUMARAN (GRADE 7)</td>
<td>Garlic Nanoparticles Inhibit COVID-19 Induced Cytokine Storm in Macrophage Cells</td>
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<td>Meyzeek Middle School</td>
<td>Louisville, Kentucky</td>
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<th>USKY50</th>
<th>Kentucky Science and Engineering Fair</th>
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<tr>
<td>AKHILA REDDY NALLADIMMA (GRADE 7)</td>
<td>Growing Plants in Unstable and Martian Environments</td>
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<td>Meyzeek Middle School</td>
<td>Louisville, Kentucky</td>
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<td>ABIGAIL HOU QI (GRADE 7)</td>
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<td>Glasgow Middle School</td>
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| USLA02 | Bossier Parish Community College Louisiana Region I Science and Engineering Fair |
| MAYA JULIA TRUTSCHL (GRADE 8) | Microcontroller-Driven Remote HVAC Monitoring System for a Greener Planet |
| Caddo Parish Middle Magnet School | Shreveport, Louisiana |

<table>
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<th>MARYLAND</th>
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<tbody>
<tr>
<td>USMD02</td>
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<tr>
<td>EMMA ABIGAIL SIMMONS (GRADE 7)</td>
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<tr>
<td>Mother Seton School</td>
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</tbody>
</table>
SARAH CHARLOTTE SIMMONS (GRADE 7)
*Portable Bronchodilator Delivery System for Equine Inflammatory Respiratory Diseases*
Mother Seton School
Emmitsburg, Maryland

SOPHIE Q. HUANG (GRADE 8)
*LED Colors and Optical Infiltration of Air-Gapped Computers*
Takoma Park Middle School
Silver Spring, Maryland

ARJUN SAMAVEDAM (GRADE 8)
*Energy Efficient and Environment-Friendly Street Light Control System*
Robert Frost Middle School
Rockville, Maryland

AHIL THENDRAL (GRADE 7)
*Grid Iron Battery*
Robert Frost Middle School
Rockville, Maryland

ELIANA WANG (GRADE 8)
*LED Colors and Optical Infiltration of Air-Gapped Computers*
Takoma Park Middle School
Silver Spring, Maryland

DAPHNE WEN (GRADE 8)
*LED Colors and Optical Infiltration of Air-Gapped Computers*
Takoma Park Middle School
Silver Spring, Maryland

AVA M. CHADWICK (GRADE 8)
*Hitting Harder: Composite vs. Aluminum*
Father Andrew White, SJ School
Leonardtown, Maryland

ARLO JOHN LOTILLA PANGILINAN (GRADE 8)
*Mushroom Invasion*
Saint Columba School
Oxon Hill, Maryland

DANIEL LAWNER (GRADE 8)
*Parachute Deployment*
The New Century School
Baltimore, Maryland
MASSACHUSETTS

USMA02 Massachusetts Region IV Science Fair

RAJARSHI MANDAL (GRADE 6)
Analysis of Drinking Water Quality in Selected MA Towns and Development of Machine Learning Models on Drinking Water Datasets
William Diamond Middle School
Lexington, Massachusetts

RAYYAN AHMED SIDDIQ (GRADE 7)
Reducing Energy Consumption and Global Greenhouse Effect in Refrigeration
The Islamic Academy for Peace
Methuen, Massachusetts

USMA03 Massachusetts Region III Science Fair

ERIC NIE (GRADE 8)
Self-Driving Security Robot With Face Recognition
North Attleborough Middle School
North Attleborough, Massachusetts

USMA05 Massachusetts Region II State Science Fair

NICHELLE THINAGAR (GRADE 7)
Origami Safety Barrier — Designing and Testing a Safety Barrier for Short-Term Road Construction Sites That Is Easy To Set Up, Store and Transport
Oak Middle School
Shrewsbury, Massachusetts

ANWITA SUHRID WADEKAR (GRADE 6)
Beauty or the Beast: Understanding the Durability of Nail Polishes
Saint Bernadette School
Northborough, Massachusetts

USMA06 Massachusetts Region VI Science Fair

YUXUAN ZHANG (GRADE 8)
Lichens as Bioindicators of Air Quality
Boston Latin School
Boston, Massachusetts

USMA50 Massachusetts State Science & Engineering Fair

MATTHEW WANG (GRADE 7)
Scalable Early Wildfire Detection and Alert System With IoT
Andover West Middle School
Andover, Massachusetts
MICHIGAN
USMI02  Science and Engineering Fair of Metropolitan Detroit

JUDY ELIANA BAI (GRADE 8) #
Predicting Candidate Biomarkers for COVID-19 Associated With Leukemia in Children
Clague Middle School
Ann Arbor, Michigan

ALYSON DAI (GRADE 8)
Biodegradable Polyhydroxyalkanoates (PHA): A Solution To Reduce Microplastics Pollution
Detroit Country Day School
Beverly Hills, Michigan

SAHAS RAVOOR (GRADE 8)
The Best Storm and Sewer System!
Larson Middle School
Troy, Michigan

TAYLOR VERDELL (GRADE 8)
Does Solar Activity Create Space Weather That Can Impact Earth?
Thirkell Elementary-Middle School
Detroit, Michigan

MINNESOTA
USMN02  Northeast Minnesota Regional Science Fair

ETHAN LAVAN (GRADE 8)
Effects of the Pandemic/Food Supply Chain, City Population and Time on Minnesota Urban Chicken Keeping
Cloquet Middle School
Cloquet, Minnesota

USMN04  Twin Cities Regional Science Fair

JOHN LIU (GRADE 8)
The Use of Controlled-Releasing Technology To Reduce Salt Contamination in U.S. Water
Chippewa Middle School
Saint Paul, Minnesota

USMN07  Rochester Regional Science & Engineering Fair

IVIANNA HELEN DUQUAINE (GRADE 8)
Is It Ripe Yet? Designing a Smart Circuit To Sort Produce
Lincoln K–8 Choice School
Rochester, Minnesota
**Western Suburbs Science Fair**

**GABRIELLA SOFIA OLSON (GRADE 6)**

*The Invisible Word*

Carondelet Catholic School
Minneapolis, Minnesota

**MISSISSIPPI**

**Mississippi Region V Science and Engineering Fair**

**ANYA RAI (GRADE 7)**

*Analysis of Synthetic and Degradation Pathways of Polyhydroxy Butrate in Cupravidus necator To Produce Biodegradable Plastics*

Partnership Middle School
Starkville, Mississippi

**MISSOURI**

**Greater Kansas City Science & Engineering Fair**

**MAHI KOHLI (GRADE 7)**

*Identifying Potential Alzheimer’s Biomarkers in Cerebrospinal Fluid*

California Trail Middle School
Olathe, Kansas

**Ozarks Science and Engineering Fair**

**RISHI JANAKIRAMAN (GRADE 7)**

*Bilingual Brains: The Effect of Bilingualism on the Association of Verbal Stimuli*

Central High School Scholars
Springfield, Missouri

**EMMA LEE LEWIS (GRADE 7)**

*Bilingual Brains: The Effect of Bilingualism on the Association of Verbal Stimuli*

Central High School Scholars
Springfield, Missouri

**ZAIN REHMAN (GRADE 6)**

*The Effect on the Growth of Lettuce Plants Using Various Recyclable Non-Soil Substrates*

Central High School Scholars
Springfield, Missouri

**NEBRASKA**

**Central Nebraska Science and Engineering Fair**

**COOPER A. KROEKER (GRADE 8)**

*Effects of Global Temperature Increase on Aviation*

Perkins County Schools
Grant, Nebraska
NEVADA

USNV02  Beal Bank USA Southern Nevada Regional Science & Engineering Fair

LUKA ANTHONY NGUYEN (GRADE 7) #
Which Mangroves (Mature Plants vs. Immature Propagules) Thrive Better and Are Best Suited for Aerial Reforestation?
Challenger School — Silverado
Las Vegas, Nevada

NEW JERSEY

USNJ02  Jersey City Medical Center/Barnabas Health STEM Showcase

MUJTABA RAJA (GRADE 8)
AlgaeTECH | An Affordable Solution To Sustain and Bioremediate Sewage Contamination in Low-Socioeconomic Neighborhoods in New Jersey: Extracting Green Energy (Chlorella vulgaris) From Local Freshwater Reservoirs
Academy 1 Middle School
Jersey City, New Jersey

USNJ03  Mercer Science and Engineering Fair

JILLIAN YAO (GRADE 8)
Can Ferromagnetic Nanoparticles Help Clean Ocean Spills? The Effect of Ferrofluids and Magnetic Strength on Efficiency of Separating Oil from Water
Saint Ann School
Lawrenceville, New Jersey

USNJ79  Bergen County Academy Science Challenge

MYTHREYA DHARANI (GRADE 8)
Predicting the Ecotoxicity of Chemicals to Aquatic Species Using Machine Learning Methods
Primoris Academy
Westwood, New Jersey

NEW MEXICO

USNM01  Central New Mexico Regional Science and Engineering Challenge

ELIAS COPELAND (GRADE 7)
The Effect of pH on the Corrosion of Industrial Metals
The ASK Academy
Rio Rancho, New Mexico

SEBASTIAN STOKER (GRADE 8)
Isolating Aquatic Microplastics
Albuquerque Institute of Mathematics and Science
Albuquerque, New Mexico
NEW YORK

USNY06 Central New York Science and Engineering Fair

MANYA KUKKAR (GRADE 8) #
Fighting Against COVID-19 — Interaction of Microcin J25 With SARS-CoV-2 RNA Dependent RNA Polymerase Enzyme Complex, SARS-CoV-2 Spike Protein and Human-Angiotensin Converting Enzyme Receptor-2 by Molecular Docking
Vestal Middle School
Vestal, New York

USNY07 Greater Capital Region Science and Engineering Fair, Inc.

JASON ANYI LIAN (GRADE 7)
What Is the Best Way To Optimize a Catapult?
Iroquois Middle School
Niskayuna, New York

BRIAN SUN (GRADE 7)
What Is the Best Way To Optimize a Catapult?
Van Antwerp Middle School
Niskayuna, New York

ANDREW ZHANG (GRADE 7)
What Is the Best Way To Optimize a Catapult?
Iroquois Middle School
Niskayuna, New York

USNY78 Hunter College High School Science and Engineering Fair

KAYA PARIKH (GRADE 8)
The Optical Possibilities of Gelatin
Hunter College High School
New York, New York

NORTH CAROLINA

USNC02 North Carolina Central Region III Science Fair

JAMIE CHENG (GRADE 7)
Establishing an in vitro Cellular Model of Diabetes
Mills Park Middle School
Cary, North Carolina

KEERTANA JILLELLA (GRADE 7)
HawkEYE
Heritage Middle School
Wake Forest, North Carolina

USNC50 North Carolina State Science Fair

ANKIT BISWAS (GRADE 8)
A Novel LP-Based Approach To Mitigating Launch Vehicle CO₂ Emissions
Metrolina Regional Scholars Academy
Charlotte, North Carolina
JA YDEN CHO (GRADE 6)
*Don’t Throw Away Banana Peels — Replacement for Plastic*
The Academy at Lincoln
Greensboro, North Carolina

JACOB HOOPES (GRADE 8)
*Body Part Ratios in Saturniidae: A Leonardo da Vinci-Style Approach to the Average Saturniidae*
Margaret B. Pollard Middle School
Chapel Hill, North Carolina

ANDERSON LAM (GRADE 8) #
*Exploring Aluminum Electrolyte Batteries as a Replacement for Lithium-Ion Batteries*
The Academy at Lincoln
Greensboro, North Carolina

ELIZABETH SHEN (GRADE 7)
*Flower Petal-Inspired Computer Memory Leveling via the Golden Ratio*
Davis Drive Middle School
Cary, North Carolina

ARYAMAN DIXIT SHUKLA (GRADE 8)
*Repurposed Harmful Algal Bloom (HAB) Leaf Mulch Pellets*
Hanes Magnet Middle School
Winston-Salem, North Carolina

OHIO

USOH02
*Northeastern Ohio Science and Engineering Fair*

ADONIS M. WAZNI (GRADE 8)
*The Ways a Room Influences Safety Against SARS-CoV-2*
University School
Shaker Heights, Ohio

MICHAEL JIAQI ZHU (GRADE 8)
*Biodegradable Plastics: An Experiment Conducted on Diverse Types of Biodegradable Plastics To Test Which Type Can Degrade the Quickest and Withstand the Most Tension*
Birchwood School
Cleveland, Ohio

USOH10
*University of Cincinnati Science and Engineering EXPO*

JACKSON SCOTT OWENS (GRADE 7)
*What Is the Best Antidote for Spice?*
Saint Columban School
Loveland, Ohio
USOH51  State Science Day (Ohio)

WINIFRED MAE BODIN (GRADE 8)  
*The Biological and Chemical Assessment of the Mad River Over Four Years*  
Benjamin Logan Middle School  
Bellefontaine, Ohio

JASMINE CHEN (GRADE 8)  
*Making Biodegradable Alternative to Plastic Bags*  
Birchwood School  
Cleveland, Ohio

QUINTON JOHN SMITH (GRADE 8)  
*The Effects of Fertilizer on Algal and Plant Growth*  
Ottawa Hills Junior/Senior High School  
Ottawa Hills, Ohio

OREGON

USOR04  Beaverton-Hillsboro Science Expo

CHANITHU SEVHAS BODHIPAKSHA (GRADE 7)  
*Carbon Dioxide Direct Air Capture Machine*  
Whitford Middle School  
Beaverton, Oregon

AASHI DIXIT (GRADE 8)  
*Hookean Model for Differentiating Cancerous From Normal Cells*  
Stoller Middle School  
Portland, Oregon

USOR06  CREST-Jane Goodall Science Symposium

NIYATI BHASKAR (GRADE 7)  
*Grass-Fed Bioplastics*  
Meridian Creek Middle School  
Wilsonville, Oregon

USOR50  Northwest Science Expo

MAX JEWETT (GRADE 8)  
*Ideal Particle Size of Calcium Hydroxide for Effective, Efficient Ocean Alkalinity Enhancement*  
Whitford Middle School  
Beaverton, Oregon

SKYE HOYLN KNOX (GRADE 7)  
*Laboratory Testing of Chemical Cloud Seeding*  
Pacific Crest Midle School  
Bend, Oregon

NITYA ANKIT SHAH (GRADE 6)  
*Autonomous Vehicles Hand Gesture Detection and Signaling*  
Stoller Middle School  
Portland, Oregon
ELIZABETH SHEN (GRADE 7)
*Rapid Oil Disposal Through Lightweight Absorption and Solidification*
Stoller Middle School
Portland, Oregon

**PENNSYLVANIA**

**USPA01**

**SHAUNAK DALAL (GRADE 8)**
*Effect Upon Closure Dynamics of the Application of Weak Acids to the Pulvinus of the Venus Fly Trap*
Hershey Middle School
Hershey, Pennsylvania

**ARMAN KAZI (GRADE 7)**
*Application of Sustainable Energy-Powered Drone for Surveillance and Rescue Operations During Disasters*
Hershey Middle School
Hershey, Pennsylvania

**ANGEL MARY MATHEWS (GRADE 7)**
*The Effect of pH on Juice Balls*
Mountain View Middle School
Mechanicsburg, Pennsylvania

**USPA03**

**ROWAN DUSHEN CHETTY (GRADE 8) #**
*Designing and Characterizing Biodegradable Starch Films*
Tredyffrin-Easttown Middle School
Berwyn, Pennsylvania

**KATHERINE GILCHRIST (GRADE 8) #**
*Dress For Success: Which Fabrics Twirl Best?*
Orefield Middle School
Orefield, Pennsylvania

**SOPHIE HANNAH KALISH-SCHUR (GRADE 7)**
*Baking in the Name of Science*
Julia Reynolds Masterman Laboratory and Demonstration School
Philadelphia, Pennsylvania

**AHJUNG KIM (GRADE 8)**
*Effective Space Radiation Shielding*
Newtown Middle School
Newtown, Pennsylvania

**VEDANT MALIK (GRADE 8)**
*ChaperDetect: Detecting Misfolded Proteins That Escape Chaperones Causing Degenerative Disease Using AI-Based Deep Learning*
Springhouse Middle School
Allentown, Pennsylvania
KAILEIGH MORRIS (GRADE 6)
Food Science Plastic vs. Bioplastics
Saint Dorothy’s School
Drexel Hill, Pennsylvania

ATHARV RAJESH (GRADE 6)
Bioplastics Made from Food Waste
Marsh Creek Sixth Grade Center
Downingtown, Pennsylvania

ETHAN BENJAMIN SHLOSSBERG (GRADE 8)
Quail Egg Patterns: Unique to a Quail?
Holicong Middle School
Doylestown, Pennsylvania

CALEB SIGELMAN (GRADE 7)
Despair Is Infectious: An Analysis of How a Community’s Conditions Affect Resistance to Vaccination
Main Line Classical Academy
Bryn Mawr, Pennsylvania

KAI UNWIN-WISNOSKY (GRADE 8) #
Are Four Scaled-Down Savonius Vertical-Axis Wind Turbines More Efficient Than a Single-Scaled Wind Turbine of the Same Type?
University Scholars, Pennsylvania Leadership Charter School
West Chester, Pennsylvania

Pittsburgh Regional Science & Engineering Fair

THOMAS ALDOUS (GRADE 8)
Remote Rescue Robot: Robotic Hand Controlled by Human Motion
Colfax K–8
Pittsburgh, Pennsylvania

SHUCHIR JAIN (GRADE 8)
Effects of Music on Sleep Stages
Marshall Middle School
Wexford, Pennsylvania

SRITEJ SAI PADMANABHAN (GRADE 8)
Can Video Analysis of Hand Tremors Aid in Telehealth?
Marshall Middle School
Wexford, Pennsylvania

JAMES XIAO (GRADE 8)
The Role of Gut Bacterial Metabolome in Colorectal Cancer (CRC)
Marshall Middle School
Wexford, Pennsylvania
PUERTO RICO

TEPR12 Puerto Rico Metropolitan Science Fair

SIONA ADITI PRAMODA (GRADE 8)
A-La-Carte Cyber Safety: Learning From Teachers and Videos,
Going to Parents and Friends When in Trouble
Baldwin School of Puerto Rico
Bayamón, Puerto Rico

ÁLVARO DANIEL VILLAFUERTE (GRADE 7)
Design and Development of an Accurate Temperature Monitoring Station
Powered by Solar Energy
Colegio San Ignacio de Loyola
San Juan, Puerto Rico

TEXAS

USTX01 Beal Bank Dallas Regional Science and Engineering Fair

DHROOV BHARATIA (GRADE 8)
QuakeWake: AI to the Rescue
Wilson Middle School
Plano, Texas

E L L I E LI-ENG CHONG (GRADE 7)
In Vivo, Non-Invasive Method of Measuring Choroidal Thickness, a Potentially
Critical Factor in Determining Blood Flow and Blindness
Highland Park Middle School
Dallas, Texas

KAITLYN ZHU FAN (GRADE 8)
AI Detective: A Machine Learning Approach To Diagnose and Categorize
Alzheimer’s Disease
Rice Middle School
Plano, Texas

ARYA GURUMUKHI (GRADE 8)
Supercapacitors — Improving Upon the Lithium-Ion Battery Technology
Douglas W. Otto Middle School
Plano, Texas

ISABELLE HOU (GRADE 8)
iSkin: A Computer Vision and Neural Network-Based Diagnosis
for Skin Cancer Using Pigmented Lesions
Schimelpfenig Middle School
Plano, Texas

SANJAY JAISHANKAR (GRADE 6)
Hydraulic Submarine With Sonar
Imagine International Academy of North Texas
McKinney, Texas
GAUTAM MANIKANDAN (GRADE 6)
_Hydraulic Submarine With Sonar_
Imagine International Academy of North Texas
McKinney, Texas

ANA SPIRIDE (GRADE 7)
_drEYEve: A Novel Gaze-Controlled Movement System_
Rice Middle School
Plano, Texas

NIKILA SWAMINATHAN (GRADE 8)
_Genomic Analysis of SARS-CoV-2 S Protein_
Ereckson Middle School
Allen, Texas

JESSICA ZHANG (GRADE 7)
_Is Biodegradable Plastic Actually Better for the Environment?_
Rice Middle School
Plano, Texas

USTX03 **Fort Worth Regional Science and Engineering Fair**

DANIEL THOMAS (GRADE 8)
_A Novel Dosing Pump To Prevent Clogs and Organic Overgrowth in AC Condensate Lines_
Colleyville Middle School
Colleyville, Texas

USTX05 **Science Engineering Fair of Houston**

ADDISON BINFORD (GRADE 8)
_How Sweet It Is! Tea Tester_
Peet Junior High School
Conroe, Texas

SHRI CHADA (GRADE 7)
_Understanding Public Perceptions During the Pandemic Using Sentiment Analysis on COVID-19 Related Tweets_
Home School
Cypress, Texas

KEAN EBERT (GRADE 7)
_Art Bots in Action, Effect of Body Height on Stability_
Home School
Friendswood, Texas

SHAIVI MOPARTHI (GRADE 7)
_PinkRibbon — A Novel Method for Breast Cancer Detection Using Machine Learning and Convolutional Neural Networks_
Kinkaid School
Houston, Texas
SANJAN SINGH SARANG (GRADE 8)
*Testing the Impact of Food Ingredients, Consumer Products and Their Packaging on the Human Endocrine System*
McCullough Junior High School
The Woodlands, Texas

TAVISHI SINHA (GRADE 8)
*ALGI₂: Finding A Sustainable Carbon Sequestration Solution Through Growing Algae on Hydroponic Surfaces*
Quail Valley Middle School
Missouri City, Texas

AMAN RAJALAXMI WAIRKAR (GRADE 7)
*Comparing the Effectiveness of Chamomile and Passionflower Herbal Tea in Inducing Sleep*
League City Intermediate
League City, Texas

USTX11
**Alamo Regional Science and Engineering Fair**

ARIANA CHAUDHARY (GRADE 8)
*The Effects of Pulsating Electromagnetic Fields on Cuprizone and Ethanol-Treated Dugesia tigrina*
Keystone School
San Antonio, Texas

FRANK EUGENE LUCCI (GRADE 8)
*MediWing — An Efficient, Inexpensive, Adaptable, Long-Range Medical Package Delivery Plane*
BASIS San Antonio—Shavano Campus
Castle Hills, Texas

USTX13
**Austin Energy Regional Science Festival**

avery alexandra robinette (grade 8)
*Exploring the Relationship Between Solar Radiation and Wind Energy Generation*
Long-View Micro School
Austin, Texas

USTX15
**Coastal Bend Regional Science Fair**

SOAHAM KUMAR (GRADE 6)
*Engineering Eco-Friendly and Wind-Resistant Structural Insulated Panels (SIPs) for Hurricane Proof Home*
Santa Gertrudis School
Kingsville, Texas
USTX50 Texas Science and Engineering Fair

ADITI VIJAYA VENKATARAMAN (GRADE 8) #
The Effect of Ethnic Proximity on the Ability To Differentiate Between Real and Computer-Generated Faces
McCullough Junior High School
The Woodlands, Texas

UTAH

USUT04 Central Utah STEM Fair

TATE BAUM (GRADE 6)
Throwing a Curve Like Kershaw
Edgemont Elementary
Provo, Utah

ETHAN ALEXANDER BURGIN (GRADE 8)
Detoxification of Brine Shrimp From the Great Salt Lake
Centennial Middle School
Provo, Utah

MADISON CHECKETTS (GRADE 6)
The Eco-Hero
Hidden Hollow Elementary
Eagle Mountain, Utah

DARIUS BRUCE CLINE (GRADE 8)
Hidden Secrets of Silk
Mountain Ridge Junior High School
Highland, Utah

ALEX PETER GUTHRIE (GRADE 7)
Engineering Mortar Mixtures To Incorporate Waste Plastic
Centennial Middle School
Provo, Utah

BRIAN STONE (GRADE 8)
Detoxification of Brine Shrimp From the Great Salt Lake
Centennial Middle School
Provo, Utah

USUT05 University of Utah Science and Engineering Fair

LANA CHAN (GRADE 7)
Martian Bricks
Challenger School — Salt Lake
Salt Lake City, Utah

AADI MISHRA (GRADE 7)
A Novel Method To Efficiently Predict Drug-Consumption Risk Using Boosted Decision Trees
The Waterford School
Sandy, Utah
EVIE THOMSEN (GRADE 7)
Solution to Pollution: The Effect of Substrate pH on the Ability of Mycelium To Degrade Polyethylene Terephthalate Plastic
Challenger School
Sandy, Utah

SENYA WALKER (GRADE 8)
Impacts of Salinity on the Diameter of an Oil Spill
Union Middle School
Sandy, Utah

ALBERT XU (GRADE 6)
Water Purification With Different Sized Carbon Particles
Challenger School
Sandy, Utah

SHREYA GARG (GRADE 7)
Growth of Retinal Pigment Epithelial Cells When Subject to Antioxidants
Mount Logan Middle School
Logan, Utah

EVAN YIFAN HUANG (GRADE 8)
Is Snow Really Safe To Eat?
Thomas Edison Charter School
North Logan, Utah

MACY HUISH (GRADE 8)
Thermal Impacts on Battery Chemistry
Thomas Edison Charter School
North Logan, Utah

KYUNGSUP HWANG (GRADE 8)
The Allelopathic Effect of Juglans nigra on the Growth of the Invasive Pueraria montana var. lobata
Gunston Middle School
Arlington, Virginia

ALICIA FU (GRADE 7)
Solutions for Food Browning
Sutherland Middle School
Charlottesville, Virginia
USVA05 Central Virginia Regional Science Fair

OLIVIA DELLA PENNA (GRADE 6)
Plastic Made From Milk? An Investigation Into the Usability of Milk-Plastic Spoons Versus Petroleum-Based Plastic Spoons
Forest Middle School
Forest, Virginia

AVERY RYAN PYZIK (GRADE 6)
Plastic! Made From Milk?
Forest Middle School
Forest, Virginia

USVA09 Tidewater Science and Engineering Fair

GALVIN FITZGERALD (GRADE 8)
Linear Magnetic Accelerators
Our Lady of Mount Carmel School
Newport News, Virginia

SOPHIA ALI RIZVI (GRADE 7)
What’s Using My Bandwidth? The Effect of Remote Work and At-Home Entertainment Apps on the Network Bandwidth
Grafton Middle School
Yorktown, Virginia

ELEANOR ROSSI (GRADE 8)
The Science Behind the Perfect Cappuccino
James Blair Middle School
Williamsburg, Virginia

USVA78 Fairfax County Elementary and Middle School Science and Engineering Fair

BABIHA BAKSHI (GRADE 8)
COVID Vision
Nysmith School for the Gifted and Talented
Herndon, Virginia

WYATT STEEL (GRADE 6)
Carbon Captured! Can Basalt Eclipse Limestone as the Standard in Vegetable Farming?
Nysmith School for the Gifted and Talented
Herndon, Virginia

KRIESH TIVARE (GRADE 8)
No More Power Lines! The Future of Power Transmission
Cooper Middle School
McLean, Virginia
WASHINGTON

USWA02  Discovery Regional Science and Engineering Fair

ZAIN SHARIFF (GRADE 7) #
Identification of Microwave-Related Changes in Tissue Using an Ultrasound Scan
Narrows View Intermediate School
University Place, Washington

USWA50  Washington State Science and Engineering Fair

AASHRITA RAJESWARI BHAMIDIMARRI (GRADE 8)
Addressing a 'Root' Cause — One 'Drop' at a Time
Enterprise Middle School
West Richland, Washington

NORA JOSEPHINE BOLINGER (GRADE 7)
Cell Deterioration in Spider Plant Roots
Liberty Bell High School
Winthrop, Washington

PRAYRONA CHOUDHURY (GRADE 7)
AquaRover: A Vehicle for Surveying and Mapping of Aquatic Environments
Leona Marshall Libby Middle School
West Richland, Washington

SUPRIYA NAIR (GRADE 8)
Neurofencing: Study of Brain, Heart and Muscle Neuron Action Potentials To Improve Performance of Young Fencers
Stanford Online High School
Redwood City, California

ANJANA VAIDYARAMAN (GRADE 8)
A Foldable Reflectarray Antenna on an Origami Waterbomb Crease Pattern
Odle Middle School
Bellevue, Washington

ANI VAN MORE (GRADE 8)
Reducing Food Waste by Making Biochar
Jane Addams Middle School
Seattle, Washington
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