



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

USCA03

Fresno County Science Fair

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

VIDHA 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

USCA09**The Synopsys Outreach Foundation Alameda County Science
and Engineering Fair****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

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 VIJAY (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

ZOË 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

USCA78

Irvine Unified School District Fair

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

ABHIJITH SIVAPRAKASH (GRADE 6)

Which Material Stops Water From Getting to Coastal Cities Best?

Deerfield Elementary School

Irvine, California

COLORADO

USCO01

San Luis Valley Regional Science Fair, Inc.

PARKER CLAYTON MITCHELL (GRADE 6)

Spin That Wheel II

Sargent Junior High School

Monte Vista, Colorado

USCO02

San Juan Basin Regional Science Fair

CUINN ARCHER (GRADE 6)

Automatic Water

Mancos Middle School

Mancos, Colorado

USCO09

Corden Pharma Colorado Regional Science Fair

AMANDA ROTH (GRADE 6)

Does Jumping Higher Result in a Dog Landing With More Force? An Investigation Into Understanding and Preventing Injuries in Performance Dogs

Flagstaff Academy

Longmont, Colorado

LAKSHMI THANIKASALAM (GRADE 7)

Capillary Action — Investigation and Empirical Modeling

Flagstaff Academy

Longmont, Colorado

USCO10

Denver Regional Science and Engineering Fair

ERNEST KOLESNIKOV (GRADE 7)

How Different Substrates Affect Bioplastics

Fox Ridge Middle School

Aurora, Colorado

TOSHIRO NAGAFUJI (GRADE 7)

Finding the Best Bio-Based Material for Bioplastics

The Logan School for Creative Learning

Denver, Colorado

USCO50

Colorado Science and Engineering Fair

MATHANGI SANJAY KURUP (GRADE 7)

Phytoremediation of Lead Contaminated Soil Using Brassica juncea

Challenge Middle School

Aurora, Colorado

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 SUDARSANAM (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 H₂O

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 VIPUL (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
Indianapolis, 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

USFL17

Dr. Nelson Ying — Orange County Science Exposition

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

USFL21

Saint Johns County STEM Fair

WILLIAM DAVIS (GRADE 6)

Wind Tunnel Measurements: How Rocket Nose Cone Shape Affects Drag Force

Fruit Cove Middle School

Saint Johns, Florida

USFL23

Seminole County Regional Science, Mathematics & Engineering Fair

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

USFL26

Capital Regional Science and Engineering Fair

LANDON WILLIAM HUBER (GRADE 6)

Forged in Fire: Strength and Hardness of Metal

Christ Classical Academy

Tallahassee, Florida

USFL27

Hillsborough Regional Science Fair

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

USFL28

Brevard Mainland Regional Science and Engineering Fair

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)

IdentiCan: The App That Detects Lung Cancer

Lanier Middle School

Sugar Hill, Georgia

KESHVEE SEKHDA (GRADE 7)

IdentiCan: 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

HAWAII

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

USKY03

Dupont Manual High School Regional Fair

PRIYAM KUMARAN (GRADE 7)

Garlic Nanoparticles Inhibit COVID-19 Induced Cytokine Storm in Macrophage Cells

Meyzeek Middle School

Louisville, Kentucky

AKHILA REDDY NALLADIMMA (GRADE 7)

Growing Plants in Unstable and Martian Environments

Meyzeek Middle School

Louisville, Kentucky

USKY50

Kentucky Science and Engineering Fair

VALLABH RAMESH (GRADE 8)

Best Eco-Friendly Application for Concrete Substrates

Meyzeek Middle School

Louisville, Kentucky

ARYAN SHAH (GRADE 7)

How Can DNA Be Used as a Genetic Tool for Diagnosis and Treatment of Disease?

Meyzeek Middle School

Louisville, Kentucky

LOUISIANA

USLA01

Louisiana Region VII — Science and Engineering Fair

ABIGAIL HOU QI (GRADE 7)

How Do the Populations of Vibrio Respond to Bdellovibrio and Like Organisms?

Glasgow Middle School

Baton Rouge, Louisiana

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

MARYLAND

USMD02

Frederick County Science and Engineering Fair

EMMA ABIGAIL SIMMONS (GRADE 7)

Portable Bronchodilator Delivery System for Equine Inflammatory Respiratory Diseases

Mother Seton School

Emmitsburg, Maryland

SARAH CHARLOTTE SIMMONS (GRADE 7)

Portable Bronchodilator Delivery System for Equine Inflammatory Respiratory Diseases
Mother Seton School
Emmitsburg, Maryland

USMD03

ScienceMontgomery

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

USMD05

Prince George's Area Science Fair

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

USMD07

Morgan State University Science-Mathematics-Engineering Fair

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

USMN10

Western Suburbs Science Fair

GABRIELLA SOFIA OLSON (GRADE 6)

The Invisible Word

Carondelet Catholic School

Minneapolis, Minnesota

MISSISSIPPI

USMS06

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

USMO04

Greater Kansas City Science & Engineering Fair

MAHI KOHLI (GRADE 7)

Identifying Potential Alzheimer's Biomarkers in Cerebrospinal Fluid

California Trail Middle School

Olathe, Kansas

USMO08

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

USNE01

Central Nebraska Science and Engineering Fair

COOPER 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

JAYDEN 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 HOLYN KNOX (GRADE 7)

Laboratory Testing of Chemical Cloud Seeding

Pacific Crest Middle 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

Capital Area Science and Engineering Fair

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

Delaware Valley Science Fairs

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

USPA04

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

ELLIE 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)

ALG₂: 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

USUT07

Harold W. & Helen M. Ritchey Science and Engineering Fair of 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 HUI SH (GRADE 8)

Thermal Impacts on Battery Chemistry

Thomas Edison Charter School

North Logan, Utah

VIRGINIA

USVA01

Northern Virginia Science and Engineering Fair

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

USVA02

Virginia Piedmont Regional Science Fair

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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