



TOP 300 MASTERS 2020

About Broadcom MASTERS

Broadcom MASTERS® (Math, Applied Science, Technology and Engineering for Rising Stars), a program of Society for Science & the Public, is the premier 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.

Broadcom MASTERS is the only middle school STEM competition that leverages Society-affiliated science fairs as a critical component of the STEM talent pipeline. In 2020, all 6th, 7th, and 8th grade students around the country who were registered for their local or state Broadcom MASTERS affiliated fair were eligible to compete. 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, a one-year subscription to Wolfram Mathematica software, courtesy of Wolfram Research, and a special prize from Jeff Glassman, CEO of Covington Capital Management. In recognition of the role that teachers play in the success of their students, each Top 300 MASTERS' designated teacher also will receive a Broadcom MASTERS tote bag, a one-year digital subscription to *Science News* magazine, and a booklet of *Science News for Students* Invention and Innovation articles, courtesy of The Lemelson Foundation.

From the Top 300 MASTERS group, 30 finalists are selected on September 16. 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, to be held virtually in 2020. Top awards include a grand prize of \$25,000, stipends for STEM summer camps and more.

Broadcom Foundation and Society for Science & the Public thank the following for their support of the 2020 Broadcom MASTERS:

- Samueli Foundation
- DoD STEM
- Robert Wood Johnson Foundation
- The Lemelson Foundation
- Jeff Glassman, CEO
Covington Capital Management
- Robert John Floe, President
Floe Financial Partners
- Wolfram Research
- *Science News for Students*
- Smithsonian Environmental
Research Center
- Society for Science & the Public's
Affiliated Regional and State Science
and Engineering Fairs
- Parents, teachers and mentors
of the 3,476 Broadcom MASTERS
entrants

2020 Top 300 MASTERS

Students are listed in order by school state, fair code, 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. 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 2020.

Visit <https://findafair.societyforscience.org> to look up Broadcom MASTERS affiliated fairs by state.

* Top 300 MASTERS nominated by both regional and state fair.

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

ALABAMA

USAL02

Central Alabama Regional Science and Engineering Fair

SEBASTIAN PEARCE SKIDMORE (GRADE 6)

Vinegar and Soil: Soil Acidification Improves Growth in Simulated Martian Soil

The Altamont School

Birmingham, Alabama

USAL03

North Alabama Regional Science and Engineering Fair

ARIAN PHILLIPS (GRADE 7)

Rancid Tree Nuts for Biofuel Use?

Williams Middle School

Huntsville, Alabama

ARIZONA

USAZ03

Southern Arizona Research, Science and Engineering Fair

MATTHEW D. MOORE (GRADE 8)

Mitigating E.coli Populations in Contaminated Agricultural Irrigation Water: Which Purification Method is More Effective in Reducing the Number of E.coli Colonies on Sprinkler-Irrigated Romaine Leaves: Copper Exposure or UV-C Radiation?

Crane Middle School

Yuma, Arizona

ZOE ECHO NICKOLA (GRADE 7) *

Bike Sail Engineering

Homeschool

Tucson, Arizona

USAZ50

Arizona Science and Engineering Fair

PRANATI CHINTADA (GRADE 7)

Are We Safe with Herbicides?

BASIS Chandler

Chandler, Arizona

SRIKANYA BALAJI GARUDA (GRADE 7)

Are We Safe with Herbicides?

BASIS Chandler

Chandler, Arizona

DOER LEO HE (GRADE 8)*The Effect of Food Waste Type on Energy Produced*

Arizona College Prep — Oakland

Chandler, Arizona

DANIEL LIN (GRADE 8)*The Effect of Infill Type on the Specimen Weight and Tensile Strength*

Arizona College Prep — Oakland

Chandler, Arizona

JT MULVIHILL (GRADE 8) #*Designing a Football Helmet Lining and Coating for Maximum Rotational and Linear Impact Force Reduction*

Arizona College Prep — Oakland

Chandler, Arizona

SOPHIA NORIEGA (GRADE 8)*The Effect of Vegetation Density on Water Runoff Amount and Sediment Degradation*

Arizona College Prep — Oakland

Chandler, Arizona

SRUTI PEDDI (GRADE 8)*Developing an Artificial Magnetosphere Based on an Electromagnetic Field to Deflect Radiation over Mars*

BASIS Scottsdale

Scottsdale, Arizona

PRISHA SHROFF (GRADE 7)*Self-Cleaning Solar Panel*

Accelerated Middle School at Basha High School

Chandler, Arizona

ARKANSAS**USAR05****Central Arkansas Regional Science and Engineering Fair****SUHANA MUSHTAQ (GRADE 8)***Mushroom Mycelium Is a Better Alternative than Polystyrene*

LISA Academy— West

Little Rock, Arkansas

BHAVANA SRIDHARAN (GRADE 8) #*Polyphenols and Cellular Benefits: Deciphering the Biological Activity and Bioavailability of Dietary Polyphenol Supplements*

LISA Academy— West

Little Rock, Arkansas

SIDDHARTH SRIDHARAN (GRADE 6)*Analysis of the Effects of Natural and Synthetic Antacids to Relieve Heartburn Caused by Stomach Acids and Acidic Foods*

LISA Academy Chenal

Little Rock, Arkansas

CALIFORNIA

USCA01

Orange County Science and Engineering Fair

KAMRAN ANSARI (GRADE 8) #

Examining the Dose Response Relationship of Pulsed Electromagnetic Field Therapy on Wound Healing Using a Dugesia tigrina Regeneration Model

Fairmont Private School

Santa Ana, California

TYSON VANDER BURGH (GRADE 7)

The Impact of the Increased Use of Unregulated Non-Ionizing Electromagnetic Frequencies in Sleeping Environments

Samuel E. Talbert Middle School

Huntington Beach, California

RYAN HONARY (GRADE 6)

A Machine Learning-Driven IOT Sensor Network for Early Detection & Growth Prediction of Wildfires/COVID-19

The Pegasus School

Huntington Beach, California

KATHERINE HUA (GRADE 8)

Application of Object Detection and Ultrasound in a Navigator Prototype for the Visually Impaired

Jeffrey Trail Middle School

Irvine, California

NOELLE KIM (GRADE 7)

Levitate to Medicate

Fairmont Private School — Historic Anaheim Campus

Anaheim, California

KION M. MANESH (GRADE 8)

The Effect of Gaseous Ozone and Ultraviolet Radiation-C on Saccharomyces cerevisiae Yeast

Fairmont Private School — Anaheim Hills Campus

Anaheim Hills, California

KATHERINE ROBERTSON (GRADE 8) #

A Cheap and Self-Sustaining System to Predict Eutrophication

Beacon Park School

Irvine, California

STAVAN BINDESH SHAH (GRADE 7)

Vitamin B-12 Retention Before and After Cooking Exposure

Fairmont Private School — Historic Anaheim Campus

Anaheim, California

LARA NOEL TSENG (GRADE 7)

Eggshell Consumption by Birds

Serrano Intermediate

Lake Forest, California

KIANET BADAL (GRADE 8)*Is the Future Bright with the UV Light?*

Hale Charter Academy

Woodland Hills, California

CONNOR BARRETT (GRADE 8)*Do Concussion Guards Really Work?*

Saint Joseph Elementary

Long Beach, California

KABIR SINGH BINDRA (GRADE 8)*Piezoelectricity: An Efficient Way to Generate Electricity from Wind and Noise*

Chandler School

Pasadena, California

ROSS GOLDBERG (GRADE 8)*Get a Grip*

Rabbi Jacob Pressman Academy

Los Angeles, California

AMELIA HINES (GRADE 8)*Brew-tiful Biofuels: Finding the Best Method for Creating an Alternative to Firewood Using Coffee Grounds*

The Archer School for Girls

Los Angeles, California

CALEB KODAMA (GRADE 6)*Can We Harness the Mechanical Energy of Cars to Power our Cities?*

Sierra Madre Middle School

Sierra Madre, California

UNA MCLAIN (GRADE 8)*Public Drinking Water: Comparing Lead Exposure Through Water, School Rating and Performance, Home Values, Family Income, Demographics, and Age of Homes and Parks*

Portola Highly Gifted Magnet Middle School

Tarzana, California

SHRUTHI SATHYA NARAYANAN (GRADE 8)*Mission to Mars*

Portola Highly Gifted Magnet Middle School

Tarzana, California

ZIALEA Y. NUNES (GRADE 6)*Effect of Expiration Dates on Hyaluronic Acid Gel Filler Sterility and Dissolution*

Sierra Madre Middle School

Sierra Madre, California

JULIAN OLSCHWANG (GRADE 8)

Talk to the Hand

Rabbi Jacob Pressman Academy

Los Angeles, California

USCA03

FRESNO COUNTY SCIENCE FAIR

PAULINE VICTORIA ALLASAS ESTRADA (GRADE 7) #

Real-Time Detection of Drought Stress in Plants Using a Custom-Built

Infrared Sensing Rover

Granite Ridge Intermediate

Fresno, California

SAM HEINRICHS (GRADE 8)

Does Limiting Direct Sunlight with Different Types of Shade Materials Make an Air Conditioner Work More Efficiently?

Fairmont Elementary

Sanger, California

ROMA KUNDU (GRADE 7)

Treatment of Acne: Effectiveness of Over the Counter Medication and Products

Granite Ridge Intermediate

Fresno, California

ALANA REYES (GRADE 8)

Efficiency and Maximum Electric Potential Difference of Quinone Electrodes in Aqueous Sustainable Flow Batteries

Carden School of Fresno

Fresno, California

ENA WANG (GRADE 6)

The Effect of Homemade Green Tea Leaf Fertilizer on the Health and Biomass Yield in Kale Plant (A Two-Season Trial)

Valley Oak Elementary

Fresno, California

USCA04

Sacramento Regional Science and Engineering Fair

DIVYA BINDHU MATTA (GRADE 8)

A Study on Preventing Non-biodegradable Microfibers and Microplastics from Entering our Natural Environment Through Washing Machine Effluent

Bethany Elementary School

Mountain House, California

LUCAS KATZ (GRADE 6)

A Spherical Omnidirectional Motor for Electric Vehicles

Joaquin Moraga Intermediate School

Moraga, California

JORDAN PRAWIRA (GRADE 8) #

Spira mirabilis 2: Optimizing the Performance of Logarithmic Spiral Wind Turbine
Altamont Elementary School
Mountain House, California

USCA05

Greater San Diego Science and Engineering Fair

ARJUN CHATHA (GRADE 8)

Fall Detection: Using Artificial Intelligence to Help the Elderly
The Rhoades School
Encinitas, California

DANIEL HOTZ (GRADE 8)

Think Before You Drink: Testing Effective Electrolyte Solutions
Mount Helix Academy
La Mesa, California

JENNINE SAM MANALO (GRADE 8)

Generating Energy From Sewage Water Flow
Saint Rita's Catholic School
San Diego, California

TEJAS RAVI (GRADE 7)

The Effects of Various Wavelengths on Rod Activity
The Rhoades School
Encinitas, California

BHADRA RUPESH (GRADE 8)

Evaluating Single Nucleotide Polymorphisms in the Correlation of Phenotypes to Type 2 Diabetes
The Rhoades School
Encinitas, California

AGASTYA SRIDHARAN (GRADE 8) #

Quantifying the Impact of Search-Order Bias on Voting Preferences Using a Simulated Web Environment
Thurgood Marshall Middle School
San Diego, California

KYLE P. TIANSHI (GRADE 8) #

Raspberry Pi Powered Microscopic Particle Detector Using Laser Microscopy and Image Processing
The Cambridge School
San Diego, California

USCA07

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

ANISH SRIRAM BHETHANABOTLA (GRADE 7)

AI EYE: Navigation Aid for the Visually Impaired
Joaquin Miller Middle School
San Jose, California

GAUTAM BHOOMA (GRADE 8)

ForesAlght: Machine Learning-Powered Assistant for the Visually Impaired

The Harker School

San Jose, California

ZACHARY GLANTZ-NGUYEN BLUE (GRADE 8)

The Rotating Wind Turbine

The Harker School

San Jose, California

KAREN GLENN (GRADE 8)

Helmet: On

Gideon Hausner Jewish Day School

Palo Alto, California

AADIT GOLWALA (GRADE 8)

What is the Effect of the Amount of Plasticizer on the Weight-Bearing Capacity of a Potato Starch-Based Bioplastic?

Stratford School – Sunnyvale Raynor Middle School

Sunnyvale, California

YASH GOLWALA (GRADE 6)

What is the Effect of the Type of Bioplastic on its Thermal Conductive Capabilities?

Stratford School – Sunnyvale Raynor Middle School

Sunnyvale, California

RAMIT RAJAN GOYAL (GRADE 8)

ForesAlght: Machine Learning-Powered Assistant for the Visually Impaired

The Harker School

San Jose, California

ELISA GROTHE (GRADE 7)

Eliminating Sargassum sp. from the Surface of the Ocean

Homeschool

Campbell, California

TANISHA GUPTA (GRADE 8)

A War on Invasives: A Machine Learning Software to Detect Invasive Plants

Stratford School – Sunnyvale Raynor Middle School

Sunnyvale, California

VEDANT V. JANAPATY (GRADE 8) #

Saving California – Predicting the Likelihood of Large Fires

Using Land Conditions

Stratford Middle School – San Jose

San Jose, California

DIYA KADADI (GRADE 8) #

Investigating an Aquatic Quandary: A Novel Solution to Microplastic Pollution in Oceans and Freshwater Bodies

Cupertino Middle School

Sunnyvale, California

BHARGAVA KANAKAPURA (GRADE 8)

Prototype Car Child Safety System to Detect if a Child is Left Alone in the Car
Stratford School — Sunnyvale Raynor Middle School
Sunnyvale, California

ARIN ASHISH KATHAPURKAR (GRADE 7)

Sign Language Glove
Merryhill School
Milpitas, California

JORDAN LABIO (GRADE 8)

The Passively Rotating Wind Turbine
The Harker School
San Jose, California

ELLA SELINA LAN (GRADE 8)

Developing a Universal Method to Detect Circadian State from Gene Expression Through Machine Learning
The Harker School
San Jose, California

HUBERT LAU (GRADE 6)

Effect of Plants and Mud on Generating Electricity in a Microbial Fuel Cell System
The Harker School
San Jose, California

SERENA LAU (GRADE 6)

Effect of Plants and Mud on Generating Electricity in a Microbial Fuel Cell System
The Harker School
San Jose, California

HEIDI LU (GRADE 8)

Developing a Universal Method to Detect Circadian State from Gene Expression Through Machine Learning
The Harker School
San Jose, California

ANIKA MAJI (GRADE 8)

Effects of Everyday Electromagnetic Frequencies on Gut Bacteria
The Harker School
San Jose, California

HARSHA MANAMALA (GRADE 7)

Sign Language Glove
Merryhill School
Milpitas, California

ISHANA MANIKANDAN (GRADE 6)

Prevent Oxidative Stress, Keep Free Radicals Away: Determine the Antioxidant Levels of Produce Using Chemiluminescence
Challenger School — Strawberry Park
San Jose, California

ANIKA MANTRIPRAGADA (GRADE 8)

Effects of Everyday Electromagnetic Frequencies (EMF) on Gut Bacteria

The Harker School

San Jose, California

AZIZA MOHAMMED (GRADE 8)

Non-invasive Detection of Glucose in Aqueous Solutions and Beyond

Granada Islamic School

Santa Clara, California

ANIKA PALLAPOTHU (GRADE 7)

Predict Using AI: Diagnosing of Diabetic Eye Diseases Using Convolutional Neural Networks for Computer Vision

The Harker School

San Jose, California

BRENNAN REN (GRADE 6)

Study of the Properties of Origami Structures and Their Applications

The Harker School

San Jose, California

AAHAN SHAH (GRADE 7)

Olfactory Sensory Detection Device (OSDD) – A Novel Electronic Nose for Improved Transduction and Odor Localization

Stratford Middle School

PRANEEL SHAH (GRADE 7)

Investigating the Effect of Glucose Supplementation Through Stem Injection on Sunflower Growth

John F. Kennedy Middle School

Cupertino, California

SANSKRITI SINGH (GRADE 8)

A Convolutional Neural Network Compensating for Human Fallibility When Detecting Pneumonia Through Attention

Rolling Hills Middle School

Los Gatos, California

ANANYA SRIRAM (GRADE 8)

The Correlation Between the Overpopulation of Algae and the Oceans' Iron Depletion

The Harker School

San Jose, California

SONIA SWAMY (GRADE 8) #

BioBooster – Sustainable, Cost-Effective, Super-Absorbent Biopolymers for Improving Soil Stability and Plant Growth

Challenger School – Sunnyvale

Sunnyvale, California

REBECA URDANETA (GRADE 7)

Eliminating Sargassum sp. from the Surface of the Ocean

Homeschool

Santa Clara, California

KALLIE WANG (GRADE 6)

Study of the Properties of Origami Structures and Their Applications

The Harker School

San Jose, California

CARISSA WU (GRADE 6)

Development of a Novel Traffic Simulator for Optimizing

School Road Conditions

The Harker School

San Jose, California

HENRY YAO (GRADE 8) #

From Wastewater to Clean Water: Designing a Novel, Eco-Friendly and Cost-Effective Approach to Remove Chromium from Wastewater

BASIS Independent Silicon Valley

San Jose, California

USCA08

Contra Costa County Science and Engineering Fair

MICHAEL LAN (GRADE 8)

Binaural Sound Localization with Machine Learning

Joaquin Moraga Intermediate School

Moraga, California

HARSHA PILLARISSETTI (GRADE 8) #

Reducing Indoor Levels of Particulate Matter Using Alternate, Low-Cost Approaches

Windemere Ranch Middle School

San Ramon, California

USCA09

Synopsys Alameda County Science & Engineering Fair

ANIKA BHAT (GRADE 6)

Trash to Treasure: Generation of Electricity from Household Waste Using Microbial Fuel Cell (MFC)

Stratford Middle School

Fremont, California

OORJITH KOMARRAJU (GRADE 8)

Acoustic Choreography in a Microscopic World

John Horner Junior High School

Fremont, California

FAYE LIN (GRADE 8)

In Situ Observation of Sea Urchin Behavior Using a Self-Built Underwater Camera System

William Hopkins Junior High School

Fremont, California

AAVINEET KAUR PAHWA (GRADE 7)

The Revolutionary Eco-Friendly Laundry on Wheels

G. M. Walters Middle School

Fremont, California

KRISH BHUPENDRA PATEL (GRADE 8)

EyeSense: A Headset That Navigates the Blind

Thornton Jr. High School

Fremont, California

NAMAN VERMA (GRADE 8)

EyeSense: A Headset That Navigates the Blind

Thornton Jr. High School

Fremont, California

HENG YANG (GRADE 8)

Detection and Control of a Power Usage Program Using Deep Learning and Ecological Graphene-Based Double Layer Capacitors

Thornton Jr. High School

Fremont, California

USCA11

Santa Cruz County Science and Engineering Fair

JUNAID SHAFI (GRADE 8)

Rain and Trail Erosion

Pacific Collegiate School

Santa Cruz, California

USCA15

Riverside County Science and Engineering Fair

ESTHELA AYALA-VARGAS (GRADE 8)

HYDROCARS 2K20

Bobby G. Duke Middle School

Coachella, California

HEIDI BISHOP (GRADE 8)

Just Right: Keeping Mail Order Prescriptions the Proper Temperature

Elsinore Middle School

Lake Elsinore, California

DAYANARA CEJA (GRADE 8)

HYDROCARS 2K20

Bobby G. Duke Middle School

Coachella, California

NICHOLAS DANIEL GOMEZ (GRADE 7)

Harvesting Electricity from Sound

El Cerrito Middle School

Corona, California

ISHAN REDDY GONEHAL (GRADE 7)

Molecular Control of Stem Cell Regulation: Analysis of Arabidopsis Mutants

Riverside STEM Academy

Riverside, California

USCA16

San Mateo County Office of Education STEM Fair

COLIN J. CHU (GRADE 6)

How Does an Antlion Sandtrap Pit Capture Its Prey?

The Nueva School

Hillsborough, California

SINA SEAN KASSAYAN (GRADE 8) #

Biometric Authentication in a Heartbeat: An Artificial Intelligence Deep Learning-Based Heart Sound Authentication System

La Entrada Middle School

Menlo Park, California

AIDAN LAND (GRADE 8) #

Twist and Turn: Improving Wind Turbine Efficiency in Variable Wind Conditions

Tierra Linda Middle School

San Carlos, California

CHARLOTTE BREE MACAVOY (GRADE 8)

New Anisotropic Ink Sheets Power a Tailpipe Thermoelectric Energy Generator

Crocker Middle School

Hillsborough, California

ALINA TAM (GRADE 8)

Keep It Cool

Burlingame Intermediate School

Burlingame, California

COLORADO

USCO04

Pikes Peak Regional Science Fair

TATUM DUVALL (GRADE 6)

A Study on the Prevalence of Salmonella in the Saliva of Vizsla Dogs

Thomas MacLaren School

Colorado Springs, Colorado

COLETTA MARIE HOMICK-MONTIEL (GRADE 8)

Controlled Multi-Modal Neurostimulation Produces Precessional Synergetic Power; to Help Manage Stress from COVID-19 and More

Homeschool

Colorado Springs, Colorado

EZRA JONATHAN VOTH (GRADE 8)

Measuring Water Flow Through Specific Placements of Rocks on Varying Inclinations to Reduce Soil Attrition

The Classical Academy

Colorado Springs, Colorado

USCO09

Corden Pharma Colorado Regional Science Fair

MARGARET MADELEINE ARTHUR (GRADE 8) *

Creating More Efficient Neural Networks Used to Find Exoplanets Using SVD and Compression Techniques

Summit Middle Charter School

Boulder, Colorado

KYLIE BERG (GRADE 8)

Using Liquid Chromatography-Mass Spectrometry to Measure the Effect of Storage Temperature and Time on the Concentration of Bisphenol A in Water

Summit Middle Charter School

Boulder, Colorado

SIDDHARTH REDDY NAREDDY (GRADE 8)

Utilizing Surfactants for Microplastic Removal

Peak to Peak Charter School

Lafayette, Colorado

CHLOE SEBEK (GRADE 7)

Don't Cry Over Spoiled Milk! The Antibacterial Effect of Turmeric on Milk Spoilage

Sacred Heart of Jesus School

Boulder, Colorado

USCO10

Denver Regional Science and Engineering Fair

ADITI AVINASH (GRADE 8)

Identification of a New Drug to Defeat DIPG, the Most Aggressive Brain Tumor in Children

SkyView Academy

Highlands Ranch, Colorado

LOUIS NEWEL CALKIN (GRADE 7)

Oil-phylic, Hyrdo-phobic (OPHP) Sponges Improve Effectiveness of Oil-Grit-Separator-Units (OGSU "Storm Drains")

Skinner Middle School

Denver, Colorado

RITHVIK IJJU (GRADE 8) *

Neuroplasticity: Enabling Stroke Patients to Repair Motor Skills by Imitating Motion Between Hands

Challenge Middle School

Aurora, Colorado

USCO50

Colorado Science and Engineering Fair

ANJANA RADHA (GRADE 8)

Coffee: An Amylase Activator or Inhibitor

Peak to Peak Charter School

Lafayette, Colorado

CONNECTICUT

USCT50

Connecticut Science & Engineering Fair

SNIGTHA MOHANRAJ (GRADE 7)

Effectiveness of the Organic Polymers for Removing Microplastic in an Aqueous Solution

Engineering and Science University Inter-district Magnet School
Hampden, Connecticut

FLORIDA

USFL02

Manatee STEM Competition

LOLA MARINA BUCK-TAYLOR (GRADE 8)

Will Using Nutritional Supplement Resveratrol Increase Poultry Growth as Compared to Control?

Martha B. King Middle School
Bradenton, Florida

USFL05

Thomas Alva Edison Kiwanis Science and Engineering Fair

NISHINI FERNANDO (GRADE 6)

Plastic Puddles: How Do Microplastics Affect the Rate of Sea Ice Melting?

Paul Laurence Dunbar Middle School
Fort Myers, Florida

MICHAELA SOPHIA FISCHER (GRADE 8) *

Nature's Filter: The Effect of Stropharia rugosoannulata Mycelium on the Nitrate and Phosphate Levels in Contaminated Runoff

Canterbury School
Fort Myers, Florida

MASON HUFFMAN (GRADE 6)

Optimizing the Electrode and Electrolyte of Saltwater Battery
Crestwell School
Fort Myers, Florida

USFL07

Panhandle Regional Science and Engineering Fair

ELLAGRACE PAIGE CLINGER (GRADE 7)

The Power of Pink and the Wonder of Worms: Year 2 of an Ongoing Study

Clifford Meigs Middle School
Shalimar, Florida

MARISOL ROSE ENGUIDANOS (GRADE 8)

Is It Possible to Create a Self-Sufficient Solar-Powered Filtration System to Reduce Coral Bleaching?

Okaloosa STEMM Academy
Valparaiso, Florida

USFL09

Broward County Science Fair

SARA PEARL ADLER (GRADE 8)

Can Markovian Mathematical Analysis Be Used to Determine if William Shakespeare Independently Wrote All of His Plays? To Be or Not To Be
Pine Crest School
Fort Lauderdale, Florida

SHARON FERNANDEZ (GRADE 8)

Defining the Effects of Various Exercise Regimes with the Combination of Saturated and Unsaturated Diets for the Amelioration of Obesity on Drosophila melanogaster
American Heritage School
Plantation, Florida

ELLAHEH GOHARI (GRADE 8) #

Determinants of Cognitive Function in Middle-Aged and Older Adults: The Impact of Sleep, Health Status, Psychosocial Well-Being and Inflammation
American Heritage School
Plantation, Florida

MAHA SIDDIQUI (GRADE 7)

The Allelopathic Effect of Various Allelochemicals on Duckweed
American Heritage School
Plantation, Florida

ZOE WEISSMAN (GRADE 8)

Testing Phytochemicals for Antinociceptive Properties in Both Female and Male Drosophila melanogaster in Order to Discover a Natural Painkiller and Reduce Bias in the Drug Industry
American Heritage School
Plantation, Florida

USFL10

Northeast Florida Regional Science and Engineering Fair

ALVARO HERRERO-PAYLOS (GRADE 7)

Sherification
Saint Paul's Catholic School
Jacksonville Beach, Florida

USFL13

Brevard South Science and Engineering Fair

OWEN A. CHAVES (GRADE 8)

Testing the Effectiveness of Various Cognitive Enhancers on the Learning and Memory of the Peppermint Shrimp, Lysmata wurdemanni
Stone Magnet Middle School
Melbourne, Florida

RUSHIL SANJAY SHAH (GRADE 8)

Testing Humic Acids as an Alternative to Synthetic Chelators on the Phytoextraction of Zinc from Soil
West Shore Junior/Senior High School
Melbourne, Florida

USFL14**Brevard Intracoastal Regional Science and Engineering Fair****JIMMY EGDORF (GRADE 8)**

At What Thickness of Paper is a Triboelectric Nanogenerator Most Capable of Producing Increased Amounts of Voltage, and How Increased Surface Area Affects the Productivity of a Triboelectric Nanogenerator

DeLaura Middle School

Satellite Beach, Florida

MAIA GLOCKSON (GRADE 7)

Bio Beacons: How Does Carbon Dioxide Affect the Stress Response of Bioluminescent Dinoflagellates?

DeLaura Middle School

Satellite Beach, Florida

CALEB WALLEN (GRADE 8)

Effect of Salinity on Rhizophora mangle Propagule's Growth

Herbert C. Hoover Middle School

Indianapolis, Florida

USFL15**South Florida Science and Engineering Fair****JULIA HONEY COLAN (GRADE 8) #**

Fibonacci Solar Array Base Part II: Building a FAB-ulous Solar Garden

Highland Oaks Middle School

Miami, Florida

FRANKLIN ZHUANG (GRADE 8)

Testing the Biodegradability of Polymers

George Washington Carver Middle School

Coral Gables, Florida

USFL17**Dr. Nelson Ying-Orange County Science Exposition****ELISE RINA (GRADE 8)**

Access Granted

Lake Eola Charter School

Orlando, Florida

ASHNA MATHUR (GRADE 7)

Are Commonly Used Home Remedies as Effective as Antibiotics Against Common Bacterial Pathogens?

Orlando Science School Middle/High Charter

Orlando, Florida

USFL21**St. Johns County Science Fair****LILY ELIZABETH PIERCE (GRADE 8)**

How Does the Increased Lift from the Use of a Gurney Flap Vary by Airplane Wing Shape?

Fruit Cove Middle School

St. Johns, Florida

KYLIE JADYN WHITE (GRADE 8)

What Water Treatment Removes the Most Chloramines from a Pool Water Sample?

Fruit Cove Middle School
St. Johns, Florida

USFL23

Seminole County Regional Science, Mathematics & Engineering Fair

SIDDHARTH KINI (GRADE 8) *

GnomerBot: An AI-Based Autonomous Weed-Detecting Robot

Seminole Science Charter School
Lake Mary, Florida

ARYAN SAVE (GRADE 8) *

Nanoparticles – A Threat to Marine Ecosystems?

Sanford Middle School
Sanford, Florida

ANOUSKA SEAL (GRADE 8) #

Inhibitory Effects of Azadirachta indica on Gram-Negative and Gram-Positive Bacteria, and Yeast

Sanford Middle School
Sanford, Florida

DIVYA THUMMA (GRADE 8)

Nanoparticles–A Threat to the Marine Ecosystem?

Sanford Middle School
Sanford, Florida

USFL27

Hillsborough Regional Science Fair

JOHN EDWIN JACKSON, JR. (GRADE 6)

Ion Engine

Stewart Middle Magnet School
Tampa, Florida

USFL28

Brevard Mainland Regional Science and Engineering Fair

LOGAN SILVEA (GRADE 7)

Correlation Between Interocular Signal Delay and Luminosity, Measured Through the Perceived Intensity of the Pulfrich Effect, Noting the Impact of Ocular Dominance (2 Year Study – Psychological Adaptations and Optical Illusions)

Holy Trinity Episcopal Academy
Melbourne, Florida

USFL29

Palm Beach Regional Science and Engineering Fair

MARIELLA BRUECK (GRADE 8)

What is the Most Effective Method for Teaching/Coaching Parents to Work with Their Elementary-Aged Child with Special Needs at Home?

A.D. Henderson University Lab School
Boca Raton, Florida

PAUL KIESLING (GRADE 7) #

Correlations Between Sunspots, Coronal Mass Ejections, and Power Grid Anomalies

The Weiss School

Palm Beach Gardens, Florida

BRIANNA MORGAN MARTURANO (GRADE 7)

Supporting the Growth of E. coli Containing a GFP/AMP Plasmid

Wellington Landings Middle School

Wellington, Florida

USFL30

Pasco Regional Science and Engineering Showcase

ROHIL V. AGARWAL (GRADE 8)

Oh Shoot! Hydroponics! The Effect of Varying Amounts of Nutrient Solute Additives (mL) on the Height Growth of Hydroponically Grown

Pisum sativum

Charles S. Rushe Middle School

Land O Lakes, Florida

USFL50

State Science and Engineering Fair of Florida - Ying Scholars

AMELIA BELLE CURRAN (GRADE 8) #

Comparing the Efficiency, Free Fatty Acid Percentage, and Carbon Dioxide Emissions of Waste Vegetable Oil (WVO) and Ethiopian Mustard (Brassica carinata) Biodiesels

Herbert C. Hoover Middle School

Indialantic, Florida

LORELEI GARNET MOHAMMADBHOY (GRADE 8)

Microplastics Do Not Promote Gender Equality

Lecanto Middle School

Lecanto, Florida

SAUMYA NARANG (GRADE 8)

Defining the Efficiency of Cinnamon as an Antioxidant for Chemically Induced Oxidative Stress on Drosophila melanogaster

American Heritage School

Plantation, Florida

KATLYN M. PAUL (GRADE 7)

The Effect of Solar Panels on Atmospheric Temperature

Herbert C. Hoover Middle School

Indialantic, Florida

GEORGIA

USGA06

Henry County Science and Engineering Fair

JONATHAN DORMINY (GRADE 7) *

Amateur Band Text Radio for Emergency Use, Year 2

Homeschool

McDonough, Georgia

USGA09

Griffin RESA Regional Science Fair

KATHERYN WILBER (GRADE 6)

Preventing the Spread of Bacteria from a Cough

Newton County Theme School

Covington, Georgia

USGA13

Fulton County Regional Science & Engineering Fair

NAVYA NORI (GRADE 7)

Intellidose: Mobile App and Model to Reduce Antibiotic Resistance in Developing Countries

Fulton Science Middle School

Alpharetta, Georgia

GRADY SCHMIDT (GRADE 8)

The Attenuation of Cell Phone Radiation Through Casing

River Trail Middle School

John's Creek, Georgia

USGA14

Cobb/Paulding Regional Science Fair

ABHIJEET GHOSH (GRADE 6) *

Recycling with Artificial Intelligence (AI) and Robotics

Dodgen Middle School

Marietta, Georgia

HAWAII

USHI05

Hawaii District Science and Engineering Fair

RYLAN COLBERT (GRADE 7)

Icequakes

Waiakea Intermediate School

Hilo, Hawaii

USHI08

Honolulu District Science & Engineering Fair

SHANE KANESHIRO (GRADE 8)

Essential Nutrients Present in Gray Water

Robert Louis Stevenson Middle School

Honolulu, Hawaii

ILLINOIS

USIL01

Chicago Public Schools Student Science Fair

KAELYN MCCOLL (GRADE 7)

SeeLikeMe

Ogden International School of Chicago

Chicago, Illinois

USIL05

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

SACHLEEN KAUR TUTEJA (GRADE 8)

The Effect of Withania somnifera, an Ayurvedic Herb with Preventive and Therapeutic Properties Against Several Human Pathologies, Including Potentially COVID-19, on Bacteria of the Human Gastrointestinal Tract

Quest Academy

Palatine, Illinois

KENTUCKY

USKY02

Louisville Regional Science and Engineering Fair

SOPHIE ADELE FABING (GRADE 7)

Better Bags: Creating New Hydrophobic Coatings for Paper Bags

Saint Francis of Assisi Catholic School

Louisville, Kentucky

CLAIRE ELLIS MIDLAND (GRADE 7)

Nattokinase & Serrapeptase: Discovering an OTC Cure for Alzheimer's Disease

Saint Francis of Assisi Catholic School

Louisville, Kentucky

USKY03

duPont Manual High School Regional Fair

SHREYAS SAMEER GHARE (GRADE 8)

The Efficiency Comparison of Programs Using the Pick-A-Ball Robot

Meyzeek Middle School

Louisville, Kentucky

VARSHA VENKATARAMAN (GRADE 8)

For Once, Aging Makes You Sweeter

Meyzeek Middle School

Louisville, Kentucky

USKY04

Science and Engineering Fair of Northern Kentucky

NICK RODINO (GRADE 7)

The Effects of Vaping on Cellular Function and Development

Mary Queen of Heaven

Erlanger, Kentucky

USKY50

Kentucky Science and Engineering Fair

LEAH NIEMANN (GRADE 7)

Exploring Neurotoxin Shed in Child Products

St. Francis of Assisi

Louisville, Kentucky

LOUISIANA

USLA04

Louisiana Region VI Science and Engineering Fair

KAYDEN ELIZABETH HEBERT (GRADE 8)

Forensic Paper Chromatography: Can you "Pen-Point" the Suspect?

Lafayette Christian Academy

Lafayette, Louisiana

USLA50

Louisiana Science and Engineering Fair

ANHAAR M. WASI (GRADE 7)

How Does pH Affect Acid-Base Reactions?

A. E. Phillips Laboratory School

Ruston, Louisiana

MARYLAND

USMD01

Anne Arundel County Regional Science and Engineering Expo

ANNEMARIE HARTMAN (GRADE 8)

Am I Protected?

Old Mill Middle North School

Millersville, Maryland

RYAN KIRKENDALL (GRADE 8)

Creating a Babysitter

Severna Park Middle School

Severna Park, Maryland

STIG LUNDIN (GRADE 6)

To Tape or Not to Tape...(The Effect of How Blade Tape Is Applied)

Crofton Middle School

Gambrills, Maryland

USMD03

ScienceMontgomery

JOSEPH PROKOP SIMAK (GRADE 7)

Proteolytic Activity of Gastric Mucosa Homogenate of Channel Catfish

(Ictalurus punctatus), Black Bullhead Catfish (Ameiurus melas), Tilapia

(Oreochromis sp.) and Chicken (Gallus g. domesticus), Assayed by Gelatin

Plate Method

Takoma Park Middle School

Silver Spring, Maryland

SUDHISH MADAPUR SWAIN (GRADE 8)

A Method to Produce Clean, Safe and Affordable Drinking Water Using

Ultraviolet (UV) Radiation Generated by an Electrode-less Bulb in a

Household Microwave Oven

Takoma Park Middle School

Silver Spring, Maryland

YUN YEUNG (GRADE 7)

Using Machine Learning for Breast Cancer Prognosis

Takoma Park Middle School

Silver Spring, Maryland

MASSACHUSETTS

USMA02

Massachusetts Region IV Science Fair

ANNA DU (GRADE 8) #

Developing Spatial Maps/Simulation Model to Predict the Vertical Trajectories of Ocean Floor Microplastics Using Recurrent Neural Networks

Andover School of Montessori

Andover, Massachusetts

SAMMY SAAK (GRADE 8)

The Effects of Music on Academic Memory

Carlisle Public School

Carlisle, Massachusetts

USMA04

Massachusetts Region I Science Fair

GIORGIA SANTORE (GRADE 8)

Drop Formation from a Free-Falling Flow

Pioneer Valley Chinese Immersion Charter School

Hadley, Massachusetts

USMA05

Massachusetts Region II State Science Fair

SEOKHYUN CHIN (GRADE 7)

What Is the Most Helpful in Improving Air Quality?

Hillside School

Marlborough, Massachusetts

RAGAV IYER (GRADE 7) #

Energy eXtraction Using PiezoElectric Renewable Technology (EXPERT)

Ashland Middle School

Ashland, Massachusetts

ANAGHA KULKARNI (GRADE 7) #

Energy eXtraction Using PiezoElectric Renewable Technology (EXPERT)

Ashland Middle School

Ashland, Massachusetts

ANISH KULKARNI (GRADE 7) #

Energy eXtraction Using PiezoElectric Renewable Technology (EXPERT)

Ashland Middle School

Ashland, Massachusetts

BRIGID LYONS (GRADE 7)

The Effect of Water Temperature on the Fading of Permanent Hair Dye

Bancroft School

Worcester, Massachusetts

MICHIGAN

USMI02

Science and Engineering Fair of Metropolitan Detroit

AKSHAR COWLAGI (GRADE 8)

Not All That Is Yellow Is Turmeric: Designing Analytical Chemistry Methods and Photometric Circuitry to Detect Lead Chromate Adulteration of Turmeric

Clague Middle School

Ann Arbor, Michigan

ANITA GAENKO (GRADE 8)

Not All That Is Yellow Is Turmeric: Designing Analytical Chemistry Methods and Photometric Circuitry to Detect Lead Chromate Adulteration of Turmeric

Clague Middle School

Ann Arbor, Michigan

ANKITA SINHA (GRADE 7)

A Data Analytics Approach for Identifying Cardiac Risk from Sleep Apnea

Boulan Park Middle School

Troy, Michigan

USMI03

Flint Regional Science & Engineering Fair

MATLYN HAZE MILLER (GRADE 6)

Reducing the Carbon Footprint

Saginaw Arts and Sciences Academy

Saginaw, Michigan

MINNESOTA

USMN01

Northern Minnesota Regional Science Fair

ADAM DARWIN JACOBSON (GRADE 6)

Are You a Ticking Lyme Bomb?

Robert J. Elkington Middle School

Grand Rapids, Minnesota

PAIGE LANA JACOBSON (GRADE 8)

Are You a Ticking Lyme Bomb?

Robert J. Elkington Middle School

Grand Rapids, Minnesota

USMN02

Northeast Minnesota Regional Science Fair

GRACE KATHRYN LAVAN (GRADE 8) *

Seasonal Movements of Canis lupus (Gray Wolf) Movement in Northeastern Minnesota

Cloquet Middle School

Cloquet, Minnesota

USMN04

Twin Cities Regional Science Fair

MAGGIE BANKS (GRADE 8) *

Currently Knocking on Wood: Toward a Biodegradable Piezoelectric Transducer from Rochelle Salt and Wood

Stillwater Junior High School

Stillwater, Minnesota

USMN09

St. Paul Science Fair

MADDY SCHILLING (GRADE 8)

How Does the Type of Ice Melt Affect the Death Rate of Freshwater Amphipods?

Murray Middle School

St. Paul, Minnesota

MONTANA

USMT02

Montana Tech Regional Science and Engineering Fair

JAMES A. HOLMES (GRADE 7)

Designing a Heated, Dye-Sensitized Photovoltaic Cell

Butte Central Elementary and Middle School

Butte, Montana

USMT04

Montana Region II Science and Engineering Fair

NICOLE NAU (GRADE 8)

Re-Engineering a Wind Turbine for Increased Energy Output

Sunburst Elementary/Middle School

Sunburst, Montana

USMT50

Montana Science Fair

KEANU QUON-CHIAN NG (GRADE 8)

Microplastics: A Macro Problem

Kalispell Middle School

Kalispell, Montana

NEBRASKA

USNE02

Greater Nebraska Science and Engineering Fair

ANUJ D. SINGH (GRADE 7)

C. elegans as a Model of the Effects of the Host-Microbe Interactions on Health

Kiewit Middle School

Omaha, Nebraska

NEW JERSEY

USNJ03

Mercer Science and Engineering Fair

ANTONIA COMANICIU (GRADE 7)

A Novel Seasonal Prediction of Atlantic Hurricanes Using Neural Networks

Thomas R. Grover Middle School

West Windsor, New Jersey

CHARLOTTE LENORE SIMON MICHALUK (GRADE 8) #

Simulating Slipping Snails: Mitigating Climate Change and Oceanborne Invasive Species Transport with Biomimicry
Timberlane Middle School
Pennington, New Jersey

USNJ79

Bergen County Academy Science Challenge

RAUNAK SINGH (GRADE 6)

Recycle Sorting Robot
Memorial Middle School
Fair Lawn, New Jersey

NEW MEXICO

USNM01

Central New Mexico Regional Science and Engineering Challenge

JAMES ALEXANDER CLARK (GRADE 7)

How Varying Light Intensities on Radishes Affects Overall Growth and Mass
Alice King Community School
Albuquerque, New Mexico

CALVIN GOODKIND (GRADE 7)

Could Detecting Cancer Be Easier Than You Think? Using Genetic Mutation Data to Predict Cancer Tumor Type
Jefferson Middle School
Albuquerque, New Mexico

USNM02

San Juan New Mexico Regional Science and Engineering Fair

ALEXANDRA S. BESSINGER (GRADE 7)

How Sweet Is It? Does It Matter?
Tibbetts Middle School
Farmington, New Mexico

NEW YORK

USNY05

Regeneron-Westchester Science and Engineering Fair

IRENE BASU (GRADE 8)

The Antibacterial Effect of m"Ag"nificent Tiny Particles
Pelham Middle School
Pelham, New York

ELLA GRANN (GRADE 7)

What Impact Does Calcium Hydroxide (Limestone) or Seagrass Have on pH Level in Salt Water to Help with Ocean Acidification?
Rye Neck Middle School
Mamaroneck, New York

ISHANA KUMAR (GRADE 6)

Color Is in the Eye of the Beholder: The Role of Retinal Fatigue on Imaginary Fechner Colors

Robert E. Bell Middle School
Chappaqua, New York

USNY07

Greater Capital Region Science and Engineering Fair, Inc.

ISHAN M. KHAMBETE (GRADE 8)

What Angle Between the Branches of a Tree Is Best Suited for Sun Collection?

Shaker Junior High School
Latham, New York

ARIN KHARE (GRADE 8) #

Hacking the Election: Measuring and Solving Gerrymandering in Today's Political System

Iroquois Middle School
Niskayuna, New York

JAMES LIAN (GRADE 8) #

Hacking the Election: Measuring and Solving Gerrymandering in Today's Political System

Iroquois Middle School
Niskayuna, New York

KAI VERNOOY (GRADE 8) #

Hacking the Election: Measuring and Solving Gerrymandering in Today's Political System

Iroquois Middle School
Niskayuna, New York

USNY11

Western New York Regional Science and Engineering Fair

SOUMYADEEP BHATTACHARJEE (GRADE 7)

SmartChair: Unobtrusive Monitoring of Vital Health Signals

Transit Middle School
East Amherst, New York

USNY78

Hunter College High School Science and Engineering Fair

TAJ CHHABRA (GRADE 7)

Even Larvae Can Learn

Hunter College High School
New York, New York

AJANI STELLA (GRADE 8)

Measuring the Difference in Output of Horizontal Axis versus Savonius Vertical Axis Wind Turbines

Hunter College High School
New York, New York

NORTH CAROLINA

USNC01

Charlotte-Mecklenburg Regional Science Fair

RISHI SARVEPALLI (GRADE 6)

Green Technology: Build an Electronic Soil Moisture Sensor to Conserve Water

Weddington Middle School

Matthews, North Carolina

VIVAANA YASHASVI HAVAL (GRADE 7)

Repurposing Agro-Industrial Wastes to Increase Lipid Production from Scenedesmus dimorphus as a Sustainable Biofuel Feedstock

Metrolina Regional Scholars Academy

Charlotte, North Carolina

USNC02

North Carolina Central Region III Science Fair

LAYA NATHAN (GRADE 6) *

FANTASTIC CORN-PLASTIC: The Effect of Glycerin & Vinegar in Formulation of Corn-Based BIOPLASTIC and Its Impact on Tensile Strength and Hardness

Lufkin Road Middle School

Apex, North Carolina

USNC50

North Carolina State Science Fair

AVERY FRANCES DAVIS (GRADE 8)

Do You Have the Heart to Taste? A Study of the Effects of Beta-Blockers on Older Adults' Tasting Abilities

Belmont Middle School

Belmont, North Carolina

SARRAH ELIZABETH KITCHELL (GRADE 7)

Can You Make a Carbon Sink with What's Under Your Sink?

Valle Crucis Elementary School

Sugar Grove, North Carolina

OHIO

USOH01

Southeastern Ohio Regional Science and Engineering Fair

WYATT VICK (GRADE 8)

Alternative Paper

Zane Trace Middle School

Chillicothe, Ohio

USOH02

Northeastern Ohio Science and Engineering Fair

JOHN ANAND (GRADE 7)

LoWER: Low-Power, Wide-Range Emergency Radio — A Texting-Based, Solar-Powered Communication System for Use in Natural Disasters

Homeschool

Akron, Ohio

USOH06**Northwest Ohio Science and Engineering Fair****NATE ROBERT KAMPHAUS (GRADE 8)**

How Do Plates and Camber Affect Joints on a Warren Truss Bridge?

Saint Anthony of Padua Catholic School

Columbus Grove, Ohio

USOH07**Marion Area Science and Engineering Fair****JOSHUA W. COX (GRADE 7)**

Lift Off! Finding Rockets Using Sound Waves

Buckeye Valley Middle School

Delaware, Ohio

USOH10**University of Cincinnati Science and Engineering EXPO****LAASYA ACHARYA (GRADE 7)**

Panacea: A Neural Network System to Detect Lung Fluid Buildup for Early and Accurate Detection of Pneumonia

Mason Middle School

Mason, Ohio

MARIO FERRERI (GRADE 7)

Effects of Settings on the Strength of a 3D Build

Saint Columban School

Loveland, Ohio

BRENDAN MCPHERON (GRADE 8)

Tsunami Defense Strategies

Saint Columban School

Loveland, Ohio

RAMYA RAJAN (GRADE 7)

Fractal Analysis of Retinal Vessels in Diabetic Retinopathy

Mason Middle School

Mason, Ohio

JACOB MICHEAL TERRELL (GRADE 8)

Wind Energy: What Is the Most Efficient Way to Build a Wind Turbine?

Saint Columban School

Loveland, Ohio

USOH51**State Science Day****GIANCARLO CEFARATTI (GRADE 7)**

A Decoupled Aquaponics System Improves the Production, Yield and Quality of Microgreens within the Brassicaceae and Asteraceae Families vs. a Traditional Coupled Aquaponics System

Saint Anselm School

Chesterland, Ohio

KARA JONES (GRADE 7)

Do Mycorrhizae Help Your Plants Grow?

Central Christian School

Kidron, Ohio

RISHIVARSHIL NELAKURTI (GRADE 8)

The Effects of Cooling Systems on a CPU

Olentangy Shanahan Middle School

Lewis Center, Ohio

SAMANTHA SARGEANT (GRADE 8)

Glucose, but Not Fructose, Increases the Lipid Content of Adipocytes

Holy Angels Catholic School

Sidney, Ohio

DARELLE ALAN THORNTON (GRADE 8)

How Will Polymer Water-Soluble Microneedles and Neuronetworking

Predict and/or Prevent SARS-COV-2?

Litchfield Middle School

Litchfield, Ohio

OKLAHOMA

USOK04

Northeastern Oklahoma A&M Science and Engineering Fair

JACE WALKER SAMPLE (GRADE 7)

Astroworms: The Effects of Microgravity on Planaria Regeneration

Grove Middle School

Grove, Oklahoma

OREGON

USOR04

Beaverton-Hillsboro Science Expo

ARJUN AGARWAL (GRADE 6)

An Artificial Intelligence-Based Approach to Improve the Accuracy of

Hurricane Strength Prediction in the North Atlantic

Stoller Middle School

Portland, Oregon

ISHAN AHLUWALIA (GRADE 8)

A Real-Time System for Detecting Tire-Road Friction in Different Weather

Conditions Using Dynamic Time Warping

Stoller Middle School

Portland, Oregon

AUTRI APARAJITA DAS (GRADE 7) #

Agar Gel-Based Slow Release Fertilizers

Stoller Middle School

Portland, Oregon

KARINA MURAI (GRADE 8)

The Effects of Quantum Dot Wavelength on E. coli K12

Whitford Middle School

Beaverton, Oregon

SHREEMOYEE SAHA (GRADE 6)

Perfecting Pyrolysis: The Evolution of Plastic

Stoller Middle School

Portland, Oregon

USOR07

Central Western Oregon Science Expo

AIDEN SETH PERPELITT (GRADE 8)

S.P.A.C.E. Sabatier Process with an Affordable Catalytic Experiment

The Delphian School

Sheridan, Oregon

USOR50

Northwest Science Expo

RICHARD ZILUN DENG (GRADE 7)

Quantum Motions and Emotions for a Humanoid Robot Actor

ACCESS Academy

Portland, Oregon

PENNSYLVANIA

USPA01

Capital Area Science and Engineering Fair

ALEXANDER WOLFE PETULA (GRADE 8)

Sugar Rocket Fuel Comparison

Hershey Middle School

Hershey, Pennsylvania

USPA02

North Museum Science and Engineering Fair

AMELIE BREUNINGER (GRADE 7)

*Assessing the Impact of Airborne Plastics Pollution Through
Snowfall Analysis*

Lancaster Country Day School

Lancaster, Pennsylvania

JOHNNY LEE KELLOGG (GRADE 8)

Aerodynamic Study: Drag Reduction by Use of Patterned Impressions

Warwick Middle School

Lititz, Pennsylvania

EVERETT ROY (GRADE 8)

Herbicide Efficacy

Centerville Middle School

Lancaster, Pennsylvania

USPA03

Delaware Valley Science Fairs

RAFE A. CULTRARA (GRADE 7)

Outstanding Oil Absorbents

William Allen Middle School

Moorestown, New Jersey

SRILEKHA MAMIDALA (GRADE 8)

The Effect of Secondhand and Thirdhand E-Cigarette Vapor on the Geotaxis and Olfaction of Larval and Adult Drosophila melanogaster

Garnet Valley Middle School

Glen Mills, Pennsylvania

ETHAN DAVID STEINMETZ (GRADE 7)

Which Brand of Fishing Line Is the Strongest?

Philadelphia Academy Charter Grade School

Philadelphia, Pennsylvania

USPA04

Covestro Pittsburgh Regional Science & Engineering Fair

JACOB COLLINS (GRADE 8)

Increase the Enthalpy! — The Use of Plasma-Assisted Combustion in Jet Engines

Ingomar Middle School

Pittsburgh, Pennsylvania

LUKE PATRICK HARTMAN (GRADE 7)

Working for a Good Night of Sleep — Relationship Between Exercise and Sleep

Fanny Edel Falk Laboratory School

Pittsburgh, Pennsylvania

AUREA AUGUST HICKENBOTH (GRADE 7)

Effect of Insulation on the Temperature of Overwintering Honeybee Hives

Homeschool

Zelienople, Pennsylvania

VALOR LEKAS (GRADE 8)

How Can We Predict the Effect of Human Pandemics on Recovering Species?

Hampton Middle School

Allison Park, Pennsylvania

ANNE LINDSAY (GRADE 8)

The Optimal Amount of Titanium Dioxide Needed to Reduce Bacterial Proliferation

Freeport Area Middle School

Sarver, Pennsylvania

ANERI SHETHJI (GRADE 8)

The Inhibitory Benefits of Turmeric with Ampicillin on Escherichia coli

Marshall Middle School

Wexford, Pennsylvania

ADHITYA THIRUMALA (GRADE 8)

Developing an Early Screening Application to Detect Lung Abnormalities Using Machine Learning

Dorseyville Middle School
Pittsburgh, Pennsylvania

DAVID ISAAC THOMAS (GRADE 8)

Effects of Vapes and Cigarettes on Platyhelminthes

Holy Cross Academy
Pittsburgh, Pennsylvania

PUERTO RICO

TEPR12**Puerto Rico Metropolitan Science Fair****ANDRÉS JOSÉ FARÍA (GRADE 7)**

¡Mira, Solo con Líquido y Sin Electricidad!

Colegio de La Salle Bayamón
Bayamón, Puerto Rico

SOUTH CAROLINA

USSC02**Sea Island Regional Science Fair****ANABELLA HAYNES PLATT (GRADE 8)**

Bioprospecting Fish Mucus: Analysis of Antimicrobial Activity Found Inside Fish Mucus

Hilton Head Preparatory School
Hilton Head Island, South Carolina

TENNESSEE

USTN04**Southern Appalachian Science and Engineering Fair****ADITHYA VIGNESH SASTRY (GRADE 6)**

Material Identification Using Arduino-Powered Surface Spectroscopy for Improved Household Recycling

Farragut Middle School
Knoxville, Tennessee

TEXAS

USTX01**Beal Bank Dallas Regional Science and Engineering Fair****SHOBHIT AGARWAL (GRADE 8)**

LungAI: A Novel Artificial Intelligence Post-Scan Tool to Detect Malignant Lung Nodules Towards Finding Improved Treatment

Pearson Middle School
Frisco, Texas

ERIN QIAN BEALL (GRADE 7)

The Future of Rainbows

Douglas W. Otto Middle School
Plano, Texas

MANYAA BHATIA (GRADE 8)*Fighting Alzheimers: Memories Last*

Pearson Middle School

Frisco, Texas

ANIKA CHEBROLU (GRADE 8)*In Silico Molecular Docking Study of Hemagglutinin Protein to Develop Anti-Influenza Drugs*

Nelson Middle School

Frisco, Texas

SARANG GOEL (GRADE 8)*Smart Ventilation for Vehicles Using Machine Learning*

Coppell Middle School

East Coppell, Texas

MANYA GUMMARAJU (GRADE 7)*We Are What We Eat: The Effect of Different Edible Ingredients on the Inheritance Patterns of Drosophila melanogaster (Fruit Fly)*

Rice Middle School

Plano, Texas

KATHERINE YUNSEO LEE (GRADE 8)*Finding an Accessible Environmentally Friendly Solution to Water Purification: Using Barbadensis miller and Bambusoideae as Natural Coagulants to Purify Water*

Schimelpfenig Middle School

Plano, Texas

LINO EDGAR MARRERO (GRADE 7)*The Kinetic Kickz*

Hunt Middle School

Frisco, Texas

ANUSHKA SRIDHAR (GRADE 8)*SPARKS – Smart Parkinson's Strap – to Mitigate Hand Tremors in Parkinson's Patients*

Douglas W. Otto Middle School

Plano, Texas

USTX05**Science Engineering Fair of Houston****ANUSHKA AGGARWAL (GRADE 8)***PURi – The Water Purification Process*

Quail Valley Middle School

Missouri City, Texas

VARUN BALAJI (GRADE 8)*The Dark Side of Light: Fruit Flies' Plight*

Seabrook Intermediate School

Seabrook, Texas

MADISON BURKE (GRADE 8)

PURi – The Water Purification Process

Quail Valley Middle School

Missouri City, Texas

SANSKRITI MANOHARAN (GRADE 7)

A Novel Method to Measure Long-Term Particulate Matter (PM)

Accumulation on Ligustrum japonicum 'Texanum' Leaves as an Indicator of Airborne PM

Quail Valley Middle School

Missouri City, Texas

MADELYN PUZA (GRADE 8)

Biodegradability of Starch-Based Bioplastics in an Ocean Environment

Knox Junior High School

Spring, Texas

ANNA K. SINGH (GRADE 7)

Goldfish and Plant Growth

Homeschool

Pearland, Texas

NATALIE ELIZABETH SMITH (GRADE 8)

Better Bioleather from a Kombucha Colony

Magnolia Junior High School

Magnolia, Texas

USTX11**Alamo Regional Science and Engineering Fair****LUKE CHRISTOPHER ANDERSON (GRADE 8)**

Can Perennial Grass Systems Store Anthropogenic Carbon Dioxide in Subsoil? A Study Evaluating the Effectiveness of a Multiyear Planting of Perennial Grasses to Capture and Store Anthropogenic Atmospheric Carbon in the Soil at Varying Depths

Anderson Christian Academy

Seguin, Texas

LYLA MICHELLE ARNOLD (GRADE 7)

A Prototype Device for Early Detection of Harmful Algae Blooms (HABs) in Marine Ecosystems

Young Women's Leadership Academy

San Antonio, Texas

ELIZABETH REILLY (GRADE 6)

Would CBD Oil and Melatonin Improve Function, Cognition and Survival Among the Cognitively Impaired? A Tau (+) Drosophila Model Study

Saint Matthew Catholic School

San Antonio, Texas

JOANNA SOHN (GRADE 8)

The Effect of Probiotics and Metformin on C. elegans After Treatment in a Hypoxia Chamber Year II

Keystone School

San Antonio, Texas

NIRAJ SRIVASTAVA (GRADE 8)

Investigating the Release of N-cadherin in Brain Tumors of Drosophila melanogaster Exposed to Hypoxic Conditions

Keystone School
San Antonio, Texas

USTX13

Austin Energy Regional Science Festival

VIBHA HIRSAVE (GRADE 6)

A Search for Novel, Organic, Safe and Natural Antibiotics

Canyon Vista Middle School
Austin, Texas

REUBEN ABISHAI PAUL (GRADE 8) *

Solar-Powered Autonomous Robotic Car

Kelly Lane Middle School
Pflugerville, Texas

ABRAR AZIZ RAHMAN (GRADE 8) #

Wearables for Parkinson's Disease Monitoring

Harmony School of Political Science and Communication
Austin, Texas

UTAH

USUT04

Central Utah STEM Fair

DEREK HOWARTH BLACKWELL (GRADE 8)

Ham Radio Networking: Replacing the Internet in a Crisis

Willowcreek Middle School
Lehi, Utah

ZOE ORCHID ERICKSON (GRADE 7)

Essentially Safe Chemical Warfare Agent Simulants

Homeschool
Lehi, Utah

USUT05

University of Utah Science and Engineering Fair

MADILYNE KAY BEAUDRY (GRADE 8)

Bioplastic Development; Yielding Lactic Acid Using Compost

Saint Joseph Catholic Middle School
Ogden, Utah

SAHIL RAJIV SHAH (GRADE 7)

Boosting the Brain

The Waterford School
Sandy, Utah

DALLIN SOUKUP (GRADE 8) #

Double Rainbows: Using Computer Modeling and Calculus to Explore the Phenomenon

Olympus Junior High School
Salt Lake City, Utah

USUT07

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

ANGELA ZHAN (GRADE 7) #

Discovery of Novel Soil Microbes for Efficient Plastic Degradation

Mount Logan Middle School

Logan, Utah

VIRGINIA

USVA01

Northern Virginia Science and Engineering Fair

EYUEL BERHANU (GRADE 8)

The Effect of MSE Reinforcement Type on How Much Weight MSE can Withstand

Thomas Jefferson Middle School

Arlington, Virginia

USVA02

Virginia Piedmont Regional Science Fair

AKHIL MARRI (GRADE 8)

The Effect of Different Materials as Cathode and Anode to Produce Electricity in a Hydrogen Fuel Cell

William Monroe Middle School

Standardsville, Virginia

USVA09

Tidewater Science and Engineering Fair

MICHAEL ALAN HERATH (GRADE 7)

Fog Harp Efficiency Investigation (FEI)

Yorktown Middle School

Yorktown, Virginia

USVA11

Metro Richmond STEM Fair

CAMELLIA SHARMA (GRADE 7)

AquaDrone: Improving the Watercraft Hull Efficiency and Designing a Novel Amphibious Vehicle

George H. Moody Middle School

Henrico, Virginia

WASHINGTON

USWA50

Washington State Science and Engineering Fair

CHARLOTTE EMILY GRUIAN (GRADE 7)

Wearable Solid-State Thermal Aid for Heat Fluctuating Disorders

Inglewood Middle School

Sammamish, Washington

EDMUNDA LI (GRADE 7)

Factors that Influence Fires in Eastern Washington

Odle Middle School

Bellevue, Washington

RICHARD LI (GRADE 8)

Comparing Atmospheric Diurnal Patterns in Pasadena, CA
Odle Middle School
Bellevue, Washington

ANGAD SINGH (GRADE 7) #

Drowsy Driver Detection and Warning with Data Logging
Explorer Middle School
Everett, Washington

KOSHA UPADHYAY (GRADE 8)

High Accuracy Machine Learning Classifier and Microcontroller Ecosystem to Consistently Predict Relapses in Recovering Opioid Addicts
Odle Middle School
Bellevue, Washington

WEST VIRGINIA**USWV01****West Virginia Eastern Panhandle Regional High School
Science Fair****RALPH WOJTOWICZ (GRADE 7)**

Electrohydrodynamic Engines
Moorefield Middle School
Moorefield, West Virginia

WYOMING**USWY50****Wyoming State Science Fair****SHELBY SCOUT HOOBLER (GRADE 7)**

Leave It to Beaver Dam Analogs ... To Change Soil Moisture
Carey Junior High School
Cheyenne, Wyoming

ASRIYAH ISLAM (GRADE 7)

Effect of Silicic Acid on Growth, Productivity and Quality of Alfalfa
Laramie Junior High School
Laramie, Wyoming

PADMALAKSHMI RAMESH (GRADE 7)

Interaction of Light with Water Under Clear and Algal Bloom Conditions
Laramie Junior High School
Laramie, Wyoming



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Founded in April 2009, the Broadcom Foundation is a 501(c)(3) nonprofit with the mission of advancing science, technology, engineering and math (STEM) education by funding research, recognizing scholarship and increasing opportunity.

The foundation inspires young people to pursue careers in STEM and to develop 21st Century skills of critical thinking, collaboration, communication and creativity. It is a founding member of the National STEM Funders Network and plays a leadership role in the STEM Education Ecosystem Initiative in the U.S. and Israel.

The foundation's signature programs, the Broadcom MASTERS® and the Broadcom MASTERS® International, are the premier science and engineering competitions for middle school students around the United States and the world.

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