



TOP 300 MASTERS 2018

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 find STEM elements, 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 nationally ranked panel of scientists, engineers and educators.

The Top 300 MASTERS are honored for their work with a prize package that includes an award ribbon, semifinalist certificate of accomplishment, 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 special edition booklet of Invention and Innovation articles, courtesy of The Lemelson Foundation.

From the Top 300 MASTERS group, 30 finalists are selected on September 18. They will present their research projects and compete in hands-on team 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, trips to STEM summer camps and more.

Broadcom Foundation and Society for Science & the Public thank the following for their support of 2018 Broadcom MASTERS:

- Samueli Foundation
- Robert Wood Johnson Foundation
- The Lemelson Foundation
- Jeff Glassman, CEO
Covington Capital Management
- Wolfram Research
- Computer History Museum
- *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 2,537
Broadcom MASTERS entrants

2018 Top 300 MASTERS

Students are listed in order by home state, fair code, and name of school based on information provided by each student in their entry. Students listed under the state fair may also have qualified through their regional 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 2018.

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

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

ALABAMA

USAL03

Discovery Middle School

Ashwin Prabhakar (7th Grade)

Madison, Alabama

Synthetic Enhancement of Photosynthesis

USAL05

Holy Spirit Catholic High School

Hayden Pilkinton (8th Grade)

Boligee, Alabama

Glaze Color Change

ARIZONA

USAZ03

Arizona College Prep–Oakland

Vinay Raman (8th Grade)

Chandler, Arizona

Effect of Chemical Dispersant Amount on the Difference of Interfacial Tension of Oil

Gowan Science Academy

Matthew Boelts (6th Grade)

Yuma, Arizona

Fatal Attraction

Ironwood Elementary

Adam Velazco (6th Grade)

Marana, Arizona

Wildlife Construction Malfunction

USAZ50

BASIS Scottsdale

Maya Schwickert (7th Grade)

Scottsdale, Arizona

Dissolving Gelatin after High-Performance Synchro

BASIS Scottsdale

Akshaya Venkatesh (8th Grade)

Scottsdale, Arizona

A Novel Mobile App to Minimize Food Waste and Maximize Harvest

ARKANSAS

USAR04

Rural Special School

Echo Mitchell (7th Grade)

Fox, Arkansas

The Arachnoid Fog Trap: Solving the Global Water Crisis

CALIFORNIA

USCA01

Arroyo Vista Middle School

Shaivi Shah (8th Grade)

Rancho Santa Margarita, California

iRelief: Smartphone-Based Eye Exercising Tool to Reduce Computer Vision Syndrome through Visual Movement Patterns

Fairmont Private School

Kamran Ansari (6th Grade)

Tustin, California

Mathematical Modeling of Intracranial Pressure Response to Inversion Therapy for Dural Leak Headaches

Fairmont Private School

Nadia Ansari (8th Grade)

Tustin, California

Removal of Dye Nanoparticles Using a Natural Coagulant with Electrocoagulation in Series to Remediate Wastewater

Fairmont Private School–Anaheim Hills Campus

Firas Qureshi (8th Grade)

Corona, California

A Geotechnical Investigation on Infused Soil Characteristics

Our Lady Queen of Angels School

Emma Zebrowski (8th Grade)

Irvine, California

How do the Angle and Direction of a Solar Cell Affect the Amount of Energy Generated?

Rancho San Joaquin Middle School

Emily Hsi (8th Grade)*

Irvine, California

A Scientific Method of Choosing Sweet Grapes—An Evaluation of 12 Characteristics

Saint Margaret's Episcopal School

Parisa Khashayar (8th Grade)

Laguna Niguel, California

Micro-Processor Based Fire Fighter Assist Unit Using IOT

USCA02

American Martyrs School

Clara Mangali (8th Grade)

Hermosa Beach, California

Ionic Liquids versus Enzymes: Cellulose Saccharification for the Production of Ethanol

USCA02

American Martyrs School
Emily Champion (7th Grade)
Redondo Beach, California
Solutions for Canine Otitis

Vahan and Anoush Chamlian Armenian School
Jake Grigorian (7th Grade)
Glendale, California
Which Robotic Apparatus Picks up a Cone the Fastest?

Mountain Avenue Elementary School
Mahesh Arunachalam (6th Grade)
Montrose, California
Seal that Mask!

Mountain Avenue Elementary School
Mihir Manchikatla (6th Grade)
La Crescenta, California
Seal that Mask!

Saint Gregory A & M Hovsepian School
Daron Yacoubian (7th Grade)
Glendale, California
PorSHA H₂O (Portable Solar Heating Apparatus)

Saint Timothy School
Lola Castorina (7th Grade)
Marina Del Rey, California
Can Road Salt be Used to Control the Mosquito Population?

USCA03

Granite Ridge Intermediate School
John Benedict Estrada (7th Grade)
Fresno, California
Comparison of Plant Chlorophyll Content Measurement Utilizing a Ground SPAD Meter Versus a Low Altitude Multispectral Camera

Granite Ridge Intermediate School
Ananya Vinay (7th Grade)
Fresno, California
Testing Effectiveness of Computer-Based Study versus Traditional Methods: Are You Being a Neo-Luddite?

Quail Lake Charter School
Ashley Schletewitz (8th Grade)
Sanger, California
Determining the Effects of Equisetum hyemale on the Growth Rate of Penicillium italicum

USCA04

Altamont Elementary School
Alicia Roice (8th Grade)
Mountain House, California
Radical Terminators!: Comparing Antioxidant Activity of Different Polyphenol Rich Food Using the Briggs-Rauscher Reaction and a Raspberry Pi

USCA04

Altamont Elementary School

Ashlyn Roice (8th Grade)

Mountain House, California

Radical Terminators!: Comparing the Antioxidant Activity of Different Food Samples Using the Briggs-Rauscher Reaction and Raspberry Pi

California Connections Academy at Ripon

Yahvin Gali (8th Grade)

Tracy, California

eSphere — Buoy-Less, Biomimetic, Versatile, Low-Impact, Zero-Carbon Hydrokinetic Device that Harvests Energy from the Movement of Water Using Electromagnetic Induction, Without Harming the Environment and the Wildlife in It

USCA05

Bernardo Heights Middle School

Anusha Kadiyala (8th Grade)

San Diego, California

Determining Gene Dominance in Polygenic Traits

Escondido Christian School

Adrian Derderian (8th Grade)

San Diego, California

Probing Photons with Polarizers, Counting them with Cosines

Islamic School of San Diego

Ziyad Soliman (8th Grade)

Del Mar, California

Map It Right!

Mesa Verde Middle School

Atulya Mandyam (8th Grade)

San Diego, California

Relating Voluntary Wheel Running to Changes in Levels of Dopamine

Nazareth Catholic School

Rohan Murali (7th Grade)

San Diego, California

Functional Orthotic Materials: Force Reduction during Impacts

The Rhoades School

Jasmine Elasaad (8th Grade)

Encinitas, California

Effectiveness of Method of Loci on Short-Term and Long-Term Memory

The Rhoades School

Kian Chakamian (7th Grade)

Rancho Santa Fe, California

Correlating Olive Quick Decline Syndrome Infections to Presence of Sharpshooters

USCA05	<p>Thurgood Marshall Middle School Blake Scurry (8th Grade) San Diego, California <i>A Unique Spin on Aerodynamics; Airfoil Augmented with Semi-Auto Rotating Leading Edge Cylinder</i></p>
USCA06	<p>The Nueva School Jack Albright (8th Grade)* Los Altos, California <i>Predicting the Future: Using Machine Learning to Forecast the Progression of Alzheimer’s Disease</i></p>
USCA07	<p>Challenger School–Strawberry Park Arhana Aatresh (7th Grade) Saratoga, California <i>Up, Up, and Away: The Effect of Substrate Type, Substrate Temperature, and Load on Hover Engines and Hovering Efficiency</i></p> <p>Challenger School–Sunnyvale Diptanshu Sikdar (8th Grade) Milpitas, California <i>Energy Harvesting Utilizing a Wind-Driven Triboelectric Generator</i></p> <p>Challenger School–Sunnyvale Sonia Swamy (6th Grade) Cupertino, California <i>AlgalPlast – Sustainable Bioplastic from Algae and its Effect on Tensile Strength, Water Resistance, and Compostability</i></p> <p>Challenger School–Sunnyvale Henry Yao (6th Grade) Sunnyvale, California <i>What’s in Your Lunch Box? Exploring the Effect of Time and Temperature on Nitrite Level in Cooked Foods</i></p> <p>Granada Islamic School Ahmad Ismail (8th Grade) Santa Clara, California <i>Effect of Combination Antifungal Therapy on the Treatment of Candidiasis</i></p> <p>Granada Islamic School Fatimah Ismail (6th Grade) Santa Clara, California <i>Developing an Artificial Pancreas: Dealing with Diabetes</i></p> <p>The Harker School Sriram Bhimaraju (6th Grade) Cupertino, California <i>Low-Cost Archery Assistant with an Interface for the Visually Impaired</i></p>

The Harker School

Alice Feng (8th Grade)

San Jose, California

The Effect of Mushroom Species and Substrates on the Properties of a Novel Biodegradable Material: Mycelium

The Harker School

Arely Sun (8th Grade)

Saratoga, California

The Effect of Mushroom Species and Substrates on the Properties of a Novel Biodegradable Material: Mycelium

Joaquin Miller Middle School

Krithi Koodli (8th Grade)

Saratoga, California

Distinguishing between Binary and Singular Stars Using Machine Learning

Oakwood Country School

Ayana Wilmot (7th Grade)

San Martin, California

*Factors Affecting the Rate of Photosynthesis of California Lichens:
A Suitability Study into Oxygen Production on Mars*

Quimby Oak Middle School

Sneha Revanur (8th Grade)

San Jose, California

Analyzing Gender-Based Violence and Aggressive Behavior Through Social Media Data

Saint Christopher School

Joseph Thomas (7th Grade)

San Jose, California

A Machine Learning Approach to Predicting NBA Rookie Potential

Stratford School–San Jose Middle School

Vedant Janapaty (6th Grade)

San Jose, California

Redirecting Water to the Roots: An Effective Way to Increase Water Absorbency

Stratford School–Sunnyvale Raynor Middle School

Arhan Rout (8th Grade)

Cupertino, California

Using Adjuvant to Amplify the Effect of Organic Herbicides to Kill Undesired Plants

Stratford School–Sunnyvale Raynor Middle School

Aylin Salahifar (8th Grade)

Redwood City, California

Using Adjuvants to Amplify the Effect of Organic Herbicides to Kill Undesired Plants

USCA07	<p>Terman Middle School Roy Gross (7th Grade) Palo Alto, California <i>An Emergency Communication Mesh Network for Civilians: Lessons from Puerto Rico</i></p>
USCA08	<p>Iron Horse Middle School Jaanavi Thanamala (8th Grade) San Ramon, California <i>How Audience Size Affects an Adolescent Speaker's Heart Rate</i></p> <p>Joaquin Moraga Intermediate School Isabelle Katz (7th Grade) Moraga, California <i>A Bubble Activated Human Powered Carbon Capture Device</i></p>
USCA09	<p>Corpus Christi School Julia Mastracci (8th Grade) Oakland, California <i>Can People Cure Their Own Phone Addiction?</i></p> <p>Harvest Park Middle School Lakshmi Sajith (8th Grade) Pleasanton, California <i>Save Aquatic Life – An Alternative to Toxic Chemicals in Sunscreen</i></p> <p>Homeschool Espen Slettnes (7th Grade)* Castro Valley, California <i>Minimal Embedding Dimensions of Rectangle k-Visibility Graphs</i></p> <p>Homeschool Maya Basu (8th Grade) Fremont, California <i>Can I Predict Double and Triple Slit Interference with Geometry?</i></p> <p>Stratford Middle School Fremont Curtis Sahan Karunaratne (6th Grade) Fremont, California <i>Pill Minder: The Medication Reminder</i></p>
USCA11	<p>Gateway Middle School Abigail Goodman (6th Grade) Santa Cruz, California <i>B Flat Bee: Does Wingbeat Frequency Predict Honeybee Flower Selection?</i></p>
USCA12	<p>International School of Monterey Ciann Amalan (7th Grade) East Garrison, California <i>Are Handheld Devices Really Affecting Your Body?</i></p>

USCA12	<p>International School of Monterey Abby Yamashita (7th Grade) Monterey, California <i>Are Handheld Devices Really Affecting Your Body?</i></p>
USCA13	<p>Lee Vining Elementary School Ellery McQuilkin (8th Grade)* Lee Vining, California <i>A Tale of Two Slopes: Aspect Creates Microclimates</i></p> <p>Mt. Baldy Joint Elementary School Harrison Cameron (7th Grade) Upland, California <i>Out of Control: Blood Glucose Meter Accuracy</i></p>
USCA15	<p>El Cerrito Middle School Nathan Gomez (7th Grade) Corona, California <i>Biomass to Biogas</i></p> <p>Homeschool Saira Gupta (8th Grade) Riverside, California <i>Making Our Smartphones Lifesavers: Allergen Residue Detection</i></p> <p>Riverside Virtual School James Fagan (8th Grade) Riverside, California <i>Design and Calibration of a Subsonic, Low Density Wind Tunnel for Martian Aerodynamic Research</i></p>
USCA16	<p>Central Middle School Sarah Hansen (7th Grade) San Carlos, California <i>Eyedropper Properties that Affect Drop Size</i></p> <p>Central Middle School Christopher Kwok (7th Grade) San Carlos, California <i>R.I.P. Double Reeds: How to Delay the Decaying Rate of a Double Reed?</i></p> <p>Central Middle School Nicholas Kwok (7th Grade) San Carlos, California <i>R.I.P. Double Reeds: How to Delay the Decaying Rate of a Double Reed?</i></p> <p>Crocker Middle School Alexis MacAvoy (7th Grade) Hillsborough, California <i>A Rising Power: Improving the Power Output of a Microbial Fuel Cell, the Rising Solution to Our Quest for Renewable Energy Sources</i></p>

USCA16

La Entrada Middle School

Sina Kassayan (6th Grade)

Atherton, California

Light Bite: An Optical Measurement Method and Device to Determine the Ripeness of Fruits

The Nueva School

Alexandra Wingate (7th Grade)

San Mateo, California

Using Probabilistic Techniques to Build a Better Primality Test

Woodside Elementary School

Georgia Hutchinson (7th Grade)

Woodside, California

Designing a Data-Driven Dual Axis Solar Tracker

USCA50

Altamont Elementary School

Jacqueline Prawira (8th Grade)

Mountain House, California

Bio.fiber.plastic: The Effect of Lignocellulosic Fiber in Enhancing the Formation and Tensile Strength of Rice Bioplastic

Challenger School–Berryessa

Nithika Karthikeyan (8th Grade)

San Jose, California

The Design of Algorithms to Encode English Text in Amino Acids Using Digital Data Compression

Delphi Academy of Campbell

Samik Pattanayak (6th Grade)

Saratoga, California

Does Screen Time before Bedtime Impinge the Quality of your Sleep?

The Harker School

Harsh Deep (8th Grade)

Saratoga, California

The Effect of T4 Bacteriophages on Antibiotic Resistant E. coli

The Harker School

Shounak Ghosh (8th Grade)

Saratoga, California

The Effect of T4 Bacteriophages on Antibiotic Resistant E. coli

Los Cerritos Middle School

Spencer King (8th Grade)

Thousand Oaks, California

Magnetic Levitation: Reducing Train Friction with Track

Notre Dame Catholic School

Emily Huitt (8th Grade)

Chico, California

Investigating the Effects of Endomycorrhizea Fungi versus Cow Manure on the Growth of Tomato Plants

USCA78	<p>Sierra Vista Middle School Jude Alexis (7th Grade) Irvine, California <i>Melding with Machines: An AI Based Non-Invasive Artificial Pancreas System</i></p> <p>Sierra Vista Middle School Braedyn Hutchison (7th Grade) Irvine, California <i>The “Sweetest” Rocket Candy: Evaluating Sucrose, Glucose, and Fructose as Fuels for Sugar-Based Solid Rocket Motors</i></p>
USCA79	<p>Goleta Valley Junior High School Antonio Cortijo Rodgers (8th Grade) Goleta, California <i>Branding and its Effects on Consumer Satisfaction and Preferences</i></p>
COLORADO	
USCO06	<p>Walt Clark Middle School Kelly Clingan (8th Grade) Loveland, Colorado <i>Can We Prevent Concussions in Youth Sports and Chronic Traumatic Encephalopathy (CTE) in Later Life? An Evidence Based Analysis of Collision Impulse Reduction and Protective Headgear Effectiveness</i></p>
USCO09	<p>Summit Middle Charter School Haiyan Wang (8th Grade) Boulder, Colorado <i>Plant Growth in a Mars-Like Environment</i></p> <p>Summit Middle Charter School Ethan Wurman (8th Grade) Boulder, Colorado <i>A Salt and Battery: The Electrolysis of Salt Water Solutions</i></p>
USCO10	<p>Challenge Middle School Sirinya Frankel (8th Grade) Greenwood Village, Colorado <i>The Effect of Impermeable Surfaces on Soil Biodiversity</i></p> <p>Challenge Middle School Georgia Hartley (8th Grade)* Denver, Colorado <i>Mind the Gape: The Effect of Tension on the Gaping of Sutures</i></p> <p>Challenge Middle School Esha Sury (8th Grade) Greenwood Village, Colorado <i>Synergizing Antibiotics with Broad-Range Bacteriophage K and Prophylactic Silver Nanoparticles: An Attempt to Tackle Specific Cases of Resistance</i></p>

USCO10

Challenge Middle School

Neil Sury (7th Grade)

Greenwood Village, Colorado

Enhancing Gecko Adhesive Technology Using Micro-Fiter Nano Molding and Carbon Nanotubes

STEM School

Gitanjali Rao (7th Grade)*

Lone Tree, Colorado

Detecting Lead Compounds in Water Using Carbon Nanotubes

CONNECTICUT

USCT50

Saint Bridget School

Kavin Kathir (8th Grade)

Cheshire, Connecticut

Transforming Trash into Treasure: Sustainable Approach to Oil Spill Cleanup

Saint Gregory the Great School

Maximilien Coisman (7th Grade)

Danbury, Connecticut

Testing Different Species of Algae in Building Self-Sustaining Microbial Fuel Cells

Talcott Mountain Academy

Julian Kage (8th Grade)

Glastonbury, Connecticut

Quick Lyme: The Rapid Test for Lyme Bacteria in Ticks

Talcott Mountain Academy

Emma Ruccio (8th Grade)

Southington, Connecticut

Got Your Back

Westside Middle School Academy

Khushi Parikh (8th Grade)

Danbury, Connecticut

Artificial Intelligence Based Image Recognition to Diagnose Lyme Disease

FLORIDA

USFL05

Canterbury School

Jason Nanda (6th Grade)

Fort Myers, Florida

Does Transmission Efficiency Correlate with Long-Term Durability in Worm Gear Reducers?

USFL07

Okaloosa STEMM Academy

Gabriel Lerner-Sperow (7th Grade)*

Niceville, Florida

Fueling the Future: Hydrogen Production Yield and Rate Dependent upon Aluminum Surface Area

USFL08	<p>Abraham Lincoln Middle School Anjana Balachandar (8th Grade)* Gainesville, Florida <i>The Behavior of Bent Backbones</i></p>
USFL08	<p>Abraham Lincoln Middle School Janani Kumaran (8th Grade)* Gainesville, Florida <i>Integrated Control of the Invasive Aquatic Plant Hydrilla Using Snails and a Plant Growth Regulator (Continuation Project: Year 2)</i></p> <p>Abraham Lincoln Middle School Akash Verma (7th Grade)* Gainesville, Florida <i>Boosting Cognitive Skills: An EEG Study</i></p> <p>Canterbury School Maya Chandar (8th Grade)* Fort Myers, Florida <i>The Effect of Laser Beams on the Cellular Respiration and ATP Production in Zophobas morio (A Novel 3rd Year Study)</i></p>
USFL09	<p>American Heritage School Christian Custodio (8th Grade) Coral Springs, Florida <i>Analysis of Monotherapy and Combination Therapy on Helicobacter felis</i></p> <p>American Heritage School Rohan Kumar (8th Grade) Miramar, Florida <i>Subculturing Coccolithophores with Iron Fertilization to Sequester Carbon Dioxide as a Potential Solution to Global Warming</i></p> <p>Crystal Lake Middle School Khushi Desai (7th Grade) Coral Springs, Florida <i>Effect of Colloidal Solution Turbidity on Optimum Consumption of Metal-Based Coagulant in Clarification of Colloidal Particles from Solution</i></p>
USFL10	<p>Julia Landon College Preparatory and Leadership Development School Chace Caven (7th Grade)* Jacksonville, Florida <i>Designing Ligands that Dock with Mutated LRRK2 Proteins as a Potential Intervention for Parkinson's Disease</i></p> <p>Julia Landon College Preparatory and Leadership Development School Nicole Stover (8th Grade)* Jacksonville, Florida <i>The Effect of Dissolved Oxygen Augmentation on the Kratky Non-Circulating Method of Hydroponic Tomato Cultivation</i></p>

USFL14	<p>Ronald McNair Magnet Middle School Kai Aravena (8th Grade) Melbourne, Florida <i>The Safest Catcher's Mask</i></p>
USFL15	<p>Saint Rose of Lima Catholic School Gabriela Muriel (8th Grade) Aventura, Florida <i>Paraplegics Achieving Stability in the Vertical Wind Tunnel</i></p> <p>John I. Smith K-8 Center Carina Mariaca (8th Grade) Doral, Florida <i>Squeeze the Green</i></p>
USFL17	<p>Lake Highland Preparatory School Varun Madan (8th Grade)* Orlando, Florida <i>Field Testing of Feeding Bacterium Bifidobacterium infantis (Found in a Human Gut Probiotic) in Order to Improve Honey Bee Health</i></p> <p>Orange County Preparatory Academy Mikayla Simmons (8th Grade) Orlando, Florida <i>The Number 7 May Prove to be Lucky with Cancer</i></p>
USFL19	<p>Covenant Christian School Colin Campbell (8th Grade) Panama City, Florida <i>The Effect of In-Water Application of Vibration on the Posterior Regeneration of Dugesia tigrina</i></p> <p>Surfside Middle School Lillian Mefford (8th Grade) Panama City Beach, Florida <i>Operation Turtle Grass: Exploring the Relationship Between Turbidity and Thalassia testudinum in St. Andrew Bay and Grand Lagoon</i></p>
USFL21	<p>Fruit Cove Middle School Lourdes McKay (8th Grade) St. Johns, Florida <i>Mythbusting: Does Coffee Roast Style Affect Caffeine Concentrations?</i></p> <p>Liberty Pines Academy Hannah Rivkin (7th Grade) St Augustine, Florida <i>Which Airfoil Type Can Achieve the Greatest Angle of Attack (CL Max) Without Losing Lift?</i></p>

USFL21	<p>Sanford Middle School Deepika Kannan (8th Grade)* Oviedo, Florida <i>Li-fi Versus Wi-fi: Factors Affecting Data Transmission Across Electromagnetic Spectra</i></p> <p>Sanford Middle School Annika Vaidyanathan (8th Grade)* Oviedo, Florida <i>The Sweet Sound of Silence: A New Design for Quieter Vent and Fan Grilles (Year 2 Study)</i></p>
USFL23	<p>Sanford Middle School Kyra Henriques (7th Grade) Sanford, Florida <i>Testing the Antimicrobial Properties of Herbs and Spices on Aerobic Microbes in Milk</i></p> <p>Seminole Science Charter School Timo Horn (6th Grade) Winter Park, Florida <i>Performance Difference Between Lithium-Based Automotive Greases</i></p>
USFL29	<p>American Heritage School of Boca Delray Ayden Lapon (8th Grade) Delray Beach, Florida <i>Does Bacteria Show Aggressive and Territorial Behavior?</i></p>
USFL29	<p>The Weiss School Benjamin Barron (8th Grade) Palm Beach Gardens, Florida <i>Coronary Stent Design and Optimization</i></p>
USFL30	<p>Charles S. Rushe Middle School Hailey Mahadeen (8th Grade) Lutz, Florida <i>Cryoprotection</i></p>
USFL31	<p>Gifford Middle School Zachary Hessler (7th Grade)* Vero Beach, Florida <i>SOS 2: See Our Silence; An Optical Approach to Controlling Digital Noise Cancellation</i></p> <p>Storm Grove Middle School Lucero Long (8th Grade)* Vero Beach, Florida <i>Do You Get My Drift? The Effect of Drift Reduction Agent on Spray Patterns</i></p>

USFL50	<p>Howard Middle School Vivek Sandrapaty (7th Grade)* Ocala, Florida <i>Take a Dive into the Future of Water Safety: An Idea for a Small Electronic Device that May Prevent Accidental Drowning in Swimming Pools</i></p> <p>Lawton Chiles Middle School Varsha Naga (8th Grade)* Oviedo, Florida <i>Rush to Green Gold: Comparative Efficiency of Biofuel Processed from Green Sources versus Fossil Fuels</i></p>
USFL50	<p>Pine Ridge Middle School Benno Hermans (7th Grade) Naples, Florida <i>Bioplastics</i></p> <p>West Shore Junior/Senior High School Kaylee Krininger (8th Grade) Melbourne, Florida <i>Determining if a Method Using Chemical and Gelid Temperature Cell Lysis can Most Effectively Decellularize Bos taurus Renal Tissue while Preserving the Extracellular Matrix Scaffolding and Other Intracellular Contents (A Second Year Study)</i></p>
GEORGIA	
USGA03	<p>The Westminster Schools William Jenkins (8th Grade)* Atlanta, Georgia <i>Robotic Tennis Ball Sorter</i></p>
USGA09	<p>J.C. Booth Middle School Marc van Zyl (7th Grade) Peachtree City, Georgia <i>Automatic Mangivison</i></p> <p>Whitewater Middle School Jacob Morrison (7th Grade) Senoia, Georgia <i>Collision Chaos</i></p>
USGA12	<p>General Ray Davis Middle School Nylah Ductan (8th Grade) Conyers, Georgia <i>Which Bioabsorption Technique is More Efficient?</i></p>
USGA13	<p>Fulton Science Middle School Khalil Lindo (6th Grade) Decatur, Georgia <i>Nature's Water Filters</i></p>

USGA50	Chapel Hill Middle School Kennedy Rogers (7th Grade) Douglasville, Georgia <i>Play It Safe: Detecting Concussion Prone Impacts in Youth Sports</i>
	Northwestern Middle School Asmi Kumar (8th Grade) Milton, Georgia <i>Developing a Device to Predict Autistic Meltdowns Using Arduino & MS Azure</i>
USGA78	Lovinggood Middle School Stephen Litt (8th Grade) Marietta, Georgia <i>Phase III: Can Epigallocatechin-3-Gallate Identify and Eliminate Cancerous Tumors in Planarians? A Novel Approach Toward a Cure for Cancer</i>
HAWAII	
USHI05	Waiakea Intermediate School Claire Hughes (8th Grade) Hilo, Hawaii <i>Do Different Populations of Ohia Seedlings from Around the Island Have any Resistance to ROD Lukuhia/Huliohia</i>
USHI06	Kailua Intermediate School Heather Dinman (8th Grade) Kailua, Hawaii <i>Maximize Hydroponic Plant Growth</i>
USHI08	Robert Louis Stevenson Middle School Zoey Duan (8th Grade)* Honolulu, Hawaii <i>Munch On Plastic</i>
USHI50	Waiakea Intermediate School Matthew Okuda (8th Grade) Hilo, Hawaii <i>Obtaining Optimum Efficiency in a Solar Autoclave: A Global Solution</i>
ILLINOIS	
USIL05	Quest Academy Saanvi Chelikani (8th Grade) Palatine, Illinois <i>Heavy Metals in Water: It's Not Just a Band</i>
INDIANA	
USIN24	Schmucker Middle School Faisal Syed (8th Grade) Granger, Indiana <i>The Effect of Artificial Sweeteners on Drosophila melanogaster Circadian Rhythms</i>

USIN26

West Lafayette Junior/Senior High School

Irene Bhunia (8th Grade)

West Lafayette, Indiana

Renal Microbe Mishap: Microbial Imbalance's Effect on the Formation of Kidney Stones

IOWA

USIA50

Lewis Central Middle School

Amara Orth (8th Grade)

Glenwood, Iowa

Chemical Analysis of Honey Bee Propolis: Habitat Diversity Affects the Quality of Propolis, an Essential Component of Honey Bee Colonies

Albert W. Merrill Middle School

Carl Tubbs (7th Grade)

Des Moines, Iowa

Taking the Sting from the Swing

KANSAS

USMO04

Delta Woods Middle School

Bentley Siems (6th Grade)

Blue Springs, Missouri

Radiation's Effects on Bacteria Surface Area

South Middle School

Thomas Lushington (7th Grade)

Lawrence, Kansas

TDP-43 Fibril Cappers for ALS Treatment via Molecular Simulations

South Middle School

Frances Parker (7th Grade)

Lawrence, Kansas

Simulations and Design of Protein Helix Stabilizers for ALS Treatment

KENTUCKY

USKY02

Saint Francis of Assisi

Avery Ramsey (7th Grade)

Louisville, Kentucky

The Impact of Flame Retardants on Stem Cell Behavior

USKY03

Meyzeek Middle School

Shraman Kar (6th Grade)

Louisville, Kentucky

Garden Bot — Healthy Garden Producing Maximum Output while Conserving Precious Groundwater Using Arduino Based Controller and Sensors

Meyzeek Middle School

Shreyas Kar (8th Grade)

Louisville, Kentucky

Right Charity — A Software-Based Web Application to Bring Donors, Charities and Receivers on the Same Platform and Facilitate to Donate and Distribute Most Needed Items to Right People at Right Time

USKY03	Meyzeek Middle School Luke Mo (7th Grade) Louisville, Kentucky <i>Does Ambient Particulate Matter Cause Cytotoxicity and DNA Damage?</i>
USKY05	Trinity Christian Academy Alexis Hopper (7th Grade) Georgetown, Kentucky <i>Shocking Stem Cells</i>
USKY05	Edythe J. Hayes Middle School Kiera Fehr (7th Grade) Lexington, Kentucky <i>Saved in Space: The Mission Continues</i>
USKY50	Saint Francis of Assisi Catholic School John Mulvihill (6th Grade) Louisville, Kentucky <i>Creating Pawpaw Bioplastics</i>
	Saint Francis of Assisi Catholic School Kate Quinn (6th Grade) Louisville, Kentucky <i>Exploring Atrazine's Neurotoxicity as a Possible Cause of Parkinson's Disease</i>

LOUISIANA

USLA02	Caddo Parish Middle Magnet School Ashini Modi (8th Grade)* Shreveport, Louisiana <i>Photometric Detection of Extra Solar Planetary Transits Across Sun-Like Stars</i>
USLA08	John Curtis Christian Rachel Pizzolato (8th Grade)* Metairie, Louisiana <i>Improving 3D Printed Turbine Efficiency by Exploiting the "Lotus Effect" Through the Application of Silicon Nanoparticles to Turbine Blade Surfaces and Varying the Wind Diverter Angle of a Venturi</i>

MARYLAND

USMD02	Urbana Middle School Maansi Manoj (7th Grade) Frederick, Maryland <i>The Effect of Neem Leaf Extract as an Antibacterial and Antifungal Agent</i>
	Urbana Middle School Emily Wang (7th Grade) Frederick, Maryland <i>The Effect of Neem Leaf Extract as an Antifungal and Antibacterial Agent</i>
USMD03	Roberto Clemente Middle School Daniel Choi (8th Grade) Germantown, Maryland <i>Antioxidants on Regeneration: The More the Better?</i>

Roberto Clemente Middle School

Efe Eroo (8th Grade)

Rockville, Maryland

Examining the Correlation between Water Toxicity and Lettuce Growth through a Biological Assay

Roberto Clemente Middle School

Mihir Gupta (8th Grade)

Clarksburg, Maryland

How Different Types of Helmets Affect How the Head Is Protected

Roberto Clemente Middle School

Frank Horrigan (8th Grade)

Darnestown, Maryland

The Ratio of Antioxidant to Glycemic Load in Fruit Juice

Roberto Clemente Middle School

Jeffrey Jiang (8th Grade)

Germantown, Maryland

What Helmet is Best for You?

Roberto Clemente Middle School

Benjamin Nachod (8th Grade)

Clarksburg, Maryland

Measuring the Effect of Different Seaweed Based Bio-Stimulants on the Growth of Plants

Roberto Clemente Middle School

Sarah Thomas (8th Grade)

Clarksburg, Maryland

*The Effects of Aerobic and Anaerobic Conditions on the Metabolic Efficiency of Yeast***MASSACHUSETTS**

Andover School of Montessori

Anna Du (6th Grade)

Andover, Massachusetts

Developing a Smart Infrared Based ROV to Identify Microplastics in Marine Environments

Blanchard Middle School

Diya Godavarti (8th Grade)

Westford, Massachusetts

The Science Behind Homemade Yogurt Manufacturing

Littleton Middle School

Vivienne Lance (8th Grade)*

Littleton, Massachusetts

Plant-Based Phytol Makes Clean-Up of Oil Spills More Effective

USMA02 Littleton Middle School
Michael Taylor (8th Grade)*
Littleton, Massachusetts
An Analysis of the Effects of Increased Atmospheric Carbon Dioxide on the Protein Concentration and Proteinogenic Amino Acid Concentrations of Brassica rapa Floral Pollen: A Potential Cause of Honeybee Colony Loss and Colony Collapse Disorder (CCD)

USMA05 Advanced Math and Science Academy Charter School
Sruthi Kurada (8th Grade)
Littleton, Massachusetts
Building a State-of-the-Art Audio Classifier through Machine Learning

USMA50 Homeschool
Ella Berger (6th Grade)
Marlborough, Massachusetts
Are Superluminal Speeds Really Unreachable?

Oak Middle School
Diya Satanur (8th Grade)
Shrewsbury, Massachusetts
Helping Hands–Aide Speech Disorder in Children

Sharon Middle School
Srivishnu Piratla (8th Grade)
Sharon, Massachusetts
R-View: An Inexpensive and Efficient System to Detect Firearms in Public Spaces

South Middle School
Kaia Rodrigues (7th Grade)
Brockton, Massachusetts
Improving the Effectiveness of Highway Noise Barriers

MICHIGAN

USMI02 Huda School and Montessori
Adnan Khan (7th Grade)
Bloomfield Hills, Michigan
Cages, Foil, and Shields – How to Keep Your Smartphone from Zapping You!

Michigan Islamic Academy
Ahmad Sukhon (6th Grade)
Ann Arbor, Michigan
Braille Translator Device and Software

Saint Matthew Lutheran School
Anthony Quittschreiber (8th Grade)
Milford, Michigan
Riddled with Potholes

USMI02 West Hills Middle School
Pooja Kannappan (8th Grade)
West Bloomfield, Michigan
Artificial Intelligence (AI) in Healthcare

USMI03 Saginaw Arts and Sciences Academy
Jett Miller (6th Grade)
Merrill, Michigan
Improving Air Bag Safety

MINNESOTA

USMN04 Math and Science Academy
Rikhil Seshadri (8th Grade)*
Woodbury, Minnesota
Low Cost, Non-Aqueous Electrolyte Based Supercapacitors for Energy Storage

Stillwater Junior High School
Margaret Banks (6th Grade)*
Woodbury, Minnesota
Fruity Power: Creating a Biodegradable Battery

USMN07 Homeschool
Supriya Roy (8th Grade)
Rochester, Minnesota
Mathematical Modeling of Virus Transmission During the 1918 Influenza Pandemic

MISSOURI

USMO02 Saint Patrick Catholic School
Andrew Woodley (8th Grade)
Rolla, Missouri
The Effect of the Angle of a Fidget Spinner on Spin Time

MONTANA

USMT50 Hamilton Middle School
Peyton Haddock (8th Grade)
Hamilton, Montana
Beetle Kill Wood: Changing Construction as We Know It

Kalispell Middle School
Alexandra Houseworth (8th Grade)
Kalispell, Montana
The Renewable Rotating Recharger

Sussex School
John Duerk (8th Grade)
Missoula, Montana
Quantum Entanglement with Polarization

USMT50

Sussex School
Daisy Kulina (8th Grade)
Missoula, Montana
Quantum Entanglement with Polarization

NEBRASKA

USNE02

Millard North Middle School
Anvitha Boosani (8th Grade)
Omaha, Nebraska
Immune Engineering to Prevent Atherosclerosis and Other Immune-Related Diseases

NEW JERSEY

USNJ03

Homeschool
William Owen (7th Grade)
Princeton, New Jersey
Angular Momentum Transport in a Galactic Collision

Timberlane Middle School
Charlotte Michaluk (6th Grade)
Titusville, New Jersey
Terrific Tensile Tester: A Cost Effective Solution for Evaluating Adhesive Systems

Toms River Intermediate North
Julietta Onofrietti (8th Grade)
Toms River, New Jersey
Can Plant Derived Oils Act as a Natural Way to Decrease Caries Causing Bacteria Streptococcus mutans in the Oral Cavity?

NEW MEXICO

USNM01

Jefferson Middle School
Olivia Cole (7th Grade)
Albuquerque, New Mexico
The "Far Out" Spectrum of a Quasar

School of Dreams Academy
Gianna Nilvo (6th Grade)*
Los Lunas, New Mexico
The Digestion of Cat Food

USNM50

Sierra Middle School
Ksenia Sevostianov (7th Grade)
Las Cruces, New Mexico
Play "Spot the Difference" to Fight Cancer

NEW YORK

USNY01

Lagrange Middle School
Aidan Yen (7th Grade)
Poughkeepsie, New York
The Effects of Ultraviolet Light on Yeast Cells

USNY02	<p>Commack Middle School Michael Jang (8th Grade) Commack, New York <i>Development of Solar-Powered Toxic Metal Cleaning Station from Water Bodies</i></p> <p>Garden City Middle School Austin Crouchley (8th Grade) Garden City, New York <i>Designing More Efficient Solar Panels: The Effect of Copper Cooling Coils on Solar Module Output and Hot Water Production</i></p> <p>Garden City Middle School Caroline Crouchley (6th Grade) Garden City, New York <i>Comparing Structural Integrity of Traditionally Shaped Housing and Geodesic Domes</i></p> <p>Grand Avenue Middle School Tyler Bissoondial (7th Grade) Bellmore, New York <i>MicroRNA-156 Regulates Gametophyte to Sporophyte Development and Sensitivity to Salinity in Ceratopteris richardii</i></p>
USNY05	<p>Rye Neck Middle School Kyle Ryan (6th Grade) Mamaroneck, New York <i>Air Pollution: Particulate Matter in the Village of Mamaroneck</i></p>
USNY09	<p>Allendale Columbia School Madeleine Cotter (8th Grade) Rochester, New York <i>Smooth Moves: A Comparison of Inverse Kinematics Algorithms for Natural Positions</i></p>
USNY11	<p>Transit Middle School Alexandra Nikiforov (7th Grade) Williamsville, New York <i>EyeFitness</i></p>
USNY78	<p>Hunter College High School Andrei Iosifescu (8th Grade) Brooklyn, New York <i>Tracking Geomagnetic Storms Using a WAAS-Enabled GPS Receiver</i></p> <p>Hunter College High School Aidan Lok (7th Grade) Howard Beach, New York <i>Is the Five Second Rule True? The Effects of Food Type, Surface Type and Contact Time on Bacterial Transfer to Dropped Food</i></p>

NORTH CAROLINA

USNC50

R. Max Abbott Middle School

Kaitlyn Zuravel (8th Grade)

Fayetteville, North Carolina

Glue Busters: A Quest to See which Glue Will Make a Lap Joint with the Largest Ultimate Shear Strength and Be Most Efficient Over Time Considering the Ultimate Shear Strength of the Joint as Well as the Cost and Mass of the Glue

R. Max Abbott Middle School

Lauren Zuravel (6th Grade)

Fayetteville, North Carolina

Glue Busters: A Quest to See which Glue Will Make a Lap Joint with the Largest Ultimate Shear Strength and Be Most Efficient Over Time Considering the Ultimate Shear Strength of the Joint as Well as the Cost and Mass of the Glue

East Wilkes Middle School

Chance Mastin (7th Grade)

North Wilkesboro, North Carolina

Is It Just a Simple Dimple?

Roland-Grise Middle School

Uma Voley (8th Grade)

Wilmington, North Carolina

What's in Your Water? Lethal and Sub-Lethal Effects of the Polyfluorinated Compound, GenX, on the Eastern Oyster, Crassostrea virginica

Roland-Grise Middle School

Regan Williams (7th Grade)

Wilmington, North Carolina

One Grass, Two Grass, Old Grass, New Grass: Tropicalization and Its Effects on a Coastal Marine Ecosystem

OHIO

USOH02

Academy of Saint Adalbert

Daniel Anthony (7th Grade)

Strongsville, Ohio

The Effect of Magnetic Field Strength on Ferrofluid and Its Weight Bearing Capacity

Birchwood School

John Shin (7th Grade)*

Richfield, Ohio

Predicting Geomagnetic Storms with GPS

Homeschool

David Anand (7th Grade)

Akron, Ohio

Use of Haptic Feedback Controller to Counter the Effects of Varying Levels of Gravity on the Vestibular System for Inter-Planetary Space Travel

USOH02	Homeschool Kaz Kojima (7th Grade) Medina, Ohio <i>Pupillography Image Analysis for Measuring Pupillary Light Reflex</i>
USOH10	Mason Middle School Gayatri Rajan (8th Grade) Mason, Ohio <i>Application Development for Alzheimer's Pre-Symptomatic Testing (ADAPT)</i>
USOH50	Saint Columban School Regan Sharp (7th Grade) Loveland, Ohio <i>What Factors Impact Muscle Stretch?</i>
OREGON	
USOR04	Meadow Park Middle School Gauri Arora (7th Grade) Portland, Oregon <i>Mitosis in Onions</i>
	Stoller Middle School Pratik Vangal (8th Grade)* Portland, Oregon <i>Ameliorating Acute Respiratory Infections from Solid Biomass Fuel Combustion and Empowering Rural Kitchens with a Sustainable, Cost-Effective Ventilation Solution</i>
USOR07	Howard Street Charter School Mihir Joshi (7th Grade)* Salem, Oregon <i>Terrella Aurora Model: A Demonstration of Charged Particle Shielding for Space Exploration</i>
	Leslie Middle School John Madland (7th Grade)* Salem, Oregon <i>Solar Radiation Charged Particle Deflector</i>
USOR50	Bend Science Station Teaghan Knox (8th Grade) Bend, Oregon <i>Increasing the Speed of Olivine Weathering as a Means of Sequestering Carbon Dioxide</i>
	Bend Science Station Tiadora Wisco (7th Grade) Bend, Oregon <i>Exploration of BZ Magnetic Rings Valley Catholic Middle School</i>

Cedar Park Middle School

Arunima Deval (6th Grade)

Portland, Oregon

Mycorrhizal Fungi: An Exploration of the Impact of Organic Fertilizers on Plant Growth

Cedar Park Middle School

Nikita Istratov (6th Grade)

Portland, Oregon

How Different Methods of Proportional Stringing Affect the Sweet Spot of a Tennis Racquet

Stoller Middle School

Rishab Jain (7th Grade)

Portland, Oregon

A Novel Deep Learning Approach Towards Semantic Segmentation of Malignant Pancreatic Adenocarcinoma Growths for Pancreatoduodenectomy and Image-Guided Radiotherapy (IGRT)

Stoller Middle School

Mithra Karamchedu (8th Grade)

Portland, Oregon

Arctic Methane Risk: Remote Sensing and Quantifying Permafrost Melt in Circumpolar Regions by Performing Fractal Analysis to Establish Temperature Correlations

Stoller Middle School

Darsh Manderia (7th Grade)

Portland, Oregon

A Novel General Purpose Machine Learning Approach for Effective Targeted Drug Prescription for Cancer Based on Genetic Mutations

Valley Catholic Middle School

Dev Rishi Udata (8th Grade)

Beaverton, Oregon

*Adsorption of Lead in Contaminated Water***PENNSYLVANIA**

USPA01

Saint Theresa School

Danielle Uroda (7th Grade)

Camp Hill, Pennsylvania

Crash Barriers: Plastic or Sand?

Centerville Middle School

Daniel Hufnagle (7th Grade)

East Petersburg, Pennsylvania

Liquid Armor

USPA02

Lancaster Country Day School

Milana Breuninger (7th Grade)

Lancaster, Pennsylvania

Even Small Towns Contribute to Global Warming

USPA02

Lancaster Country Day School
Gavin Wang (8th Grade)
Wyomissing, Pennsylvania
Characteristics of High-Energy Cosmic Rays

Manheim Township Middle School
Krishnakumar Chinnasamy (7th Grade)
Lancaster, Pennsylvania
Functionalized Magnetic Nanoparticles Engineering for Cancer Theranostics

USPA03

Arcola Intermediate School
Parmesh Sivakumar (7th Grade)
Collegeville, Pennsylvania
Maximizing the Combustion Power of Ethanol

C.C.A. Baldi Middle School
Maria Calderon (8th Grade)
Philadelphia, Pennsylvania
The Effects of Hurricanes

Great Valley Middle School
Brighton Risch (6th Grade)
Malvern, Pennsylvania
Placebos and Prestige: Flavor Testing

Springhouse Middle School
Victor Cai (8th Grade)
Orefield, Pennsylvania
Designing a Sun Tracking Solar Panel to Maximize and Quantify Energy Harvest Efficiency

Springhouse Middle School
Dhivya Shepherd (8th Grade)
Allentown, Pennsylvania
Fermentation in Aerobic and Anaerobic Environments

Tredyffrin-Easttown Middle School
Leo Wylonis (8th Grade)
Berwyn, Pennsylvania
"Make Airplanes Great Again": Optimizing and Controlling Aircraft Wing Shape and Efficiency In-Flight through Novel Polymer Artificial Muscle Actuators

University Scholars
Eeshwar Krishnan (8th Grade)
Exton, Pennsylvania
Using a Computer Algorithm to Predict if a Patient with Diabetes Will Return within 30 days

USPA04

The Campus School of Carlow University
Eleanor Barth-Wu (8th Grade)
Pittsburgh, Pennsylvania
Can Indium Be Extracted from Used Touch Screens

USPA04

Dorseyville Middle School

Arvind Seshan (7th Grade)

Pittsburgh, Pennsylvania

Leveraging Directional Antenna-Based Wireless Signal Localization to Aid Search and Rescue Efforts

Kentucky Avenue School

Olina Mukherjee (6th Grade)

Pittsburgh, Pennsylvania

Complex Social Behavior in Madagascar Hissing Cockroaches

Saint Kilian Parish School

Anna Spalvieri (8th Grade)

Seven Fields, Pennsylvania

Eye See It Differently

WinchesterThurston School

Jackson Zemek (8th Grade)

Pittsburgh, Pennsylvania

Harvester Robot

USPA06

Saint Francis Xavier Catholic School

Walter Kotlinski (8th Grade)

Gettysburg, Pennsylvania

Camber Position in Effective Airfoil Design

SOUTH CAROLINA

USSC04

Dent Middle School

Parth Desai (8th Grade)

Columbia, South Carolina

Effects of Musical Training on the Cognitive Performance of Children

Dutch Fork Middle School

Sullivan French (8th Grade)

Columbia, South Carolina

Sustainable Engineering Green Roof Design

USSC78

Homeschool

Danielle Brooks (8th Grade)

Seneca, South Carolina

Why Don't Birds of a Feather Freeze Together? A Study of the Thermal Insulation Value of Feathers

TENNESSEE

USTN04

Farragut Middle School

Ridhima Singh (7th Grade)

Knoxville, Tennessee

Does Urbanization Impact Flooding?

USTN05

Pleasant View School

Yasmeen Mannan (6th Grade)

Germantown, Tennessee

The Effect of pH in Liquids on the Rate of Corrosion

USTN05

Pleasant View School
Naisha Chowdhury (8th Grade)
Memphis, Tennessee
Effect of Linoleic Acid on Wood Sealing Abilities

TEXAS

USTX01

Pat and Catherine Fowler Middle School
Vinay Ravi (8th Grade)
Plano, Texas
The Application of Au Nanoparticles in Dye-Sensitized Solar Cells

Frankford Middle School
Sophie Krajmalnik (8th Grade)*
Dallas, Texas
SANDRA (Serve and Data Results Analysis) Athletic Tech Glove

Otto Middle School
Sidhya Peddinti (8th Grade)*
Richardson, Texas
AlzAlertPi: Facial Recognition Alert System for Alzheimer's Patients

Otto Middle School
Neel Shanmugam (8th Grade)
Richardson, Texas
Feeling Feelings — Using Wearable Technology to Teach Autistic Children Emotion Recognition

Rice Middle School
Rithvik Ganesh (8th Grade)*
Plano, Texas
Diminishing Dementia: Piperine Derivatives as Inhibitors of the Angiotensin II Receptor, a Promising Drug Target Linked to Dementia Treatment

Schimelpfenig Middle School
Charles Hou (8th Grade)
Plano, Texas
A Novel Approach to Increase the Efficiency of a Galvanic Cell Battery Using Graphene Nanoplatelets

Wilson Middle School
Harshal Bharatia (8th Grade)
Plano, Texas
Intellitherm: So Cool, It's Hot

USTX02

Radford School
Vincent Yang (8th Grade)*
El Paso, Texas
An Unprecedented Approach to Perceive Surrounding Environment: Helping the Visually Impaired and Blind with a New Invention

USTX05	The Emery/Weiner School Victor Markhasin (8th Grade) Houston, Texas <i>Identifying Urban Micrometeorites</i>
	Seabrook Intermediate School Austin Nelson (7th Grade) League City, Texas <i>Preserving Peanut Butter Puppies</i>
	Seabrook Intermediate School Pratishtha Sharma (8th Grade) League City, Texas <i>It's Lit!</i>
USTX06	Gilmer Intermediate School Madison Perkins (7th Grade) Gilmer, Texas <i>I've Got the Power: Creating Sustainable Energy Using Bacterial and Algae Fuel Cells</i>
USTX11	BASIS San Antonio Shavano Campus Arhan Rao (7th Grade) San Antonio, Texas <i>Effect of Sleep Hormone "Melatonin" on Breast Cancer Growth</i>
	Navarro Junior High School Megan Clark (8th Grade) Seguin, Texas <i>Water Powered Cars – Pollution Free Renewable Energy</i>
	Saint Matthew Catholic School Laura Reilly (8th Grade)* San Antonio, Texas <i>The Role of Tilapia Skin and UV Light on Tissue Regeneration and Wound Healing</i>
USTX13	Canyon Vista Middle School Prayag Sreenivasan (7th Grade) Austin, Texas <i>Analyzing Asymmetry in Human Locomotion to Improve Body Posture</i>
	Deerpark Middle School Faith Larimore (8th Grade) Austin, Texas <i>Plasma and Magnetic Confinement</i>
	Harmony School of Political Science and Communication Abrar Rahman (6th Grade) Austin, Texas <i>Smart Personnel Assistant</i>

USTX13	<p>Pflugerville Middle School Lamisa Mahmud (8th Grade) Austin, Texas <i>The Effect of Milli-Quantities of Essential Oils on Drug-Resistant E. coli (Year 2)</i></p>
USTX50	<p>Fort Settlement Middle School Anisha Parsan (7th Grade) Sugarland, Texas <i>Go with the Flow (GFLOW) – Real-Time Street Flood Prediction and Warning System</i></p> <p>Saint Matthew Catholic School Paula Reilly (7th Grade)* San Antonio, Texas <i>Biochemical and Physiologic Effects of Slime-Derived Gas Products</i></p>
UTAH	
USUT04	<p>American Heritage School Olivia Washburn (8th Grade) Orem, Utah <i>THE NOISY NICU – There’s a Cap for That</i></p> <p>Summit Academy Jr. High–Bluffdale Independence Aspen Delis (7th Grade) Sandy, Utah <i>Does SPF Matter? An Analysis of SPF Effectiveness in Sunscreen Lotions</i></p> <p>West Jordan Middle School Jonathan LeBaron (7th Grade) West Jordan, Utah <i>Mind over Math</i></p>
USUT05	<p>American Preparatory Academy Draper 2 Huck Jones (8th Grade) Salt Lake City, Utah <i>A Measurement of the Onset Time of the Occipital Alpha Rhythm Using a Brain Computer Interface</i></p> <p>Ensign Elementary School Elizabeth Bennion (6th Grade) Salt Lake City, Utah <i>Do Rich Cities Have Better Water?</i></p>
USUT07	<p>Bear River Charter School Gary Zhan (8th Grade) North Logan, Utah <i>The Colder, the Bluer – Significant Enhancement of Indigoidine Production Using a Cold-Shock Inducible Promoter</i></p>

USUT07

Mountain Logan Middle School
Camellia Yuan (8th Grade)
Providence, Utah
The Application of Sound Detection in Antiterrorism

Vernal Middle School
Kaylee Huber (7th Grade)
Vernal, Utah
Playing with Fire

VIRGINIA

USVA02

Ni River Middle School
Ryan Catullo (8th Grade)
Fredericksburg, Virginia
How the Collective Variation in Airfoil Height and Wing Weight Affect the Amount of Lift Force Generated by Airplane Wings

Stafford Middle School
Michael Foley (8th Grade)
Stafford, Virginia
Utilizing Psychological Priming for the Purpose of Improving Test Scores

USVA11

George H. Moody Middle School
Cameron Sharma (8th Grade)
Glen Allen, Virginia
Was This Year's Flu Epidemic Preventable: Designing the Type A Flu Vaccine, A Novel Computational Biology Approach

George H. Moody Middle School
Tatiana Vaniakin (8th Grade)
Richmond, Virginia
The Effect of Dominant and Non-Dominant Brain Stimulation on Cognitive Skills

Short Pump Middle School
Alexander Coffman (8th Grade)
Glen Allen, Virginia
The Effect of Winglet Design on Weight of Aircraft Due to Lift and Drag

USVA12

Warrenton Middle School
Nathaniel Ribeiro (8th Grade)
Warrenton, Virginia
The Iron Chef System: The Essential Safety Cooking Accessories for Every Home and Kitchen

USVA78

Edlin School
Ananya Yarlagadda (7th Grade)
Ashburn, Virginia
Predicting Gene Mutations that Could Cause Cystic Fibrosis

WASHINGTON

USIL05

Quest Academy

Gabriella Lui (8th Grade)

Bellevue, Washington

Design a Fully Automated Real Time Presence Detection Safety System in a School Environment Using Radio Frequency Identification (RFID) Technology

USWA01

Enterprise Middle School

Nikhita Bontha (8th Grade)*

Richland, Washington

Understanding the Efficacy of Off-the-Shelf Probiotics and Prebiotics on the Gut Microbiome

USWA50

Homeschool

Cleah Winston (6th Grade)

Seattle, Washington

Investigating Cyber-Security in Autonomous Cars

International Community School

Audrey Gruian (8th Grade)

Sammamish, Washington

UVPDetect: Black Light and Computer Vision in a Novel Approach to the Detection of Microplastics in Water

Jason Lee Middle School

Simmi Sen (6th Grade)

Vancouver, Washington

ColiClean – E. coli Water Filter

McMurray Middle School

Iris Bordman (8th Grade)

Vashon, Washington

WaTeaUV – Saving Trees and Lives

McMurray Middle School

Alyssa Hawkins (8th Grade)

Port Orchard, Washington

WaTeaUV – Saving Trees and Lives

Arhana Aatresh	7	Naisha Chowdhury	31
Jack Albright	7	Megan Clark	32
Jude Alexis	12	Kelly Clingan	12
Ciann Amalan	9	Alexander Coffman	34
David Anand	26	Maximilien Coisman	13
Kamran Ansari	4	Olivia Cole	24
Nadia Ansari	4	Antonio Cortijo Rodgers	12
Daniel Anthony	26	Madeleine Cotter	25
Kai Aravena	16	Austin Crouchley	25
Gauri Arora	27	Caroline Crouchley	25
Mahesh Arunachalam	5	Christian Custodio	14
Anjana Balachandar	14	Harsh Deep	11
Margaret Banks	23	Aspen Delis	35
Benjamin Barron	16	Adrian Derderian	6
Eleanor Barth-Wu	29	Khushi Desai	14
Maya Basu	9	Parth Desai	30
Elizabeth Bennion	33	Arunima Deval	28
Ella Berger	22	Heather Dinman	18
Harshal Bharatia	31	Anna Du	21
Sriram Bhimaraju	7	Zoey Duan	18
Irene Bhunia	19	Nylah Ductan	17
Tyler Bissoondial	25	John Duerk	23
Matthew Boelts	3	Jasmine Elasaad	6
Nikhita Bontha	35	Efe Eroz	21
Anvitha Boosani	24	John Benedict Estrada	5
Iris Bordman	35	James Fagan	10
Milana Breuninger	28	Kiera Fehr	20
Danielle Brooks	30	Alice Feng	8
Victor Cai	29	Michael Foley	34
Maria Calderon	29	Sirinya Frankel	12
Harrison Cameron	10	Sullivan French	30
Colin Campbell	15	Yahvin Gali	6
Lola Castorina	5	Rithvik Ganesh	31
Ryan Catullo	34	Shounak Ghosh	11
Chace Caven	14	Diya Godavarti	21
Kian Chakamian	6	Nathan Gomez	10
Emily Champion	5	Abigail Goodman	9
Maya Chandar	14	Jake Grigorian	5
Saanvi Chelikani	18	Roy Gross	9
Krishnakumar Chinnasamy	29	Audrey Gruian	35
Daniel Choi	20	Mihir Gupta	21

Saira Gupta	10	Kavin Kathir	13
Peyton Haddock	23	Isabelle Katz	9
Sarah Hansen	10	Adnan Khan	22
Georgia Hartley	12	Parisa Khashayar	4
Alyssa Hawkins	35	Spencer King	11
KYRA Henriques	16	Teaghan Knox	27
Benno Hermans	17	Kaz Kojima	27
Zachary Hessler	16	Krithi Koodli	8
Alexis Hopper	20	Walter Kotlinski	30
Timo Horn	16	Sophie Krajmalnik	31
Frank Horrigan	21	Kaylee Krininger	17
Charles Hou	31	Eeshwar Krishnan	29
Alexandra Houseworth	23	Daisy Kulina	24
Emily Hsi	4	Asmi Kumar	18
Kaylee Huber	34	Rohan Kumar	14
Daniel Hufnagle	28	Janani Kumaran	14
Claire Hughes	18	Sruthi Kurada	22
Emily Huitt	11	Christopher Kwok	10
Georgia Hutchinson	11	Nicholas Kwok	10
Braedyn Hutchison	12	Vivienne Lance	21
Andrei Iosifescu	25	Ayden Lapon	16
Ahmad Ismail	7	Faith Larimore	32
Fatimah Ismail	7	Jonathan LeBaron	33
Nikita Istratov	28	Gabriel Lerner-Sperow	13
Rishab Jain	28	Khalil Lindo	17
Vedant Janapaty	8	Stephen Litt	18
Michael Jang	25	Aidan Lok	25
William Jenkins	17	Lucero Long	16
Jeffrey Jiang	21	Gabriella Lui	35
Huck Jones	33	Thomas Lushington	19
Mihir Joshi	27	Alexis MacAvoy	10
Anusha Kadiyala	6	Varun Madan	15
Julian Kage	13	John Madland	27
Deepika Kannan	16	Hailey Mahadeen	16
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