

## Alachua

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### First Place

#### Junior

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Abhith Kasala	Lincoln Middle School	EAEV
J0644	Global Plastic Pollution- The Depolymerization of Various Plastic Polymers and Finding The Most Effective Chemical for Plastic Recycling	

#### Senior

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Akash Verma	Eastside High School	BMED
S0328	Evaluating the Efficacy of Certain High Altitude Plant Extracts in the Strategies for Potential Chemoprevention - a Radio Chromic Film Colorimeter Guided Approach.	

### Fourth Place

#### Junior

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Maggie Gao	Lincoln Middle School	EAEV
J0643	Effects of Fire Extinguisher Foam on Soil Quality and Plant Growth	

### Honorable Mention

#### Senior

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Benjamin Joseph	Eastside High School	ENMS
S0717	A Prototype for a Motorized Backpack for Students with Muscular Dystrophy	

### Recognition

#### Junior

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Audrey Hertel	Westwood Middle School	ENMS
J0722	How Does the Speed of Flood Waters Affect How Long Girder Bridges Can Stand Before Breaking?	

#### Senior

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Luke Xue	Buchholz High School	MACO
S1018	Observing the Impacts of the COVID 19 Lockdown on Premier League Team Performance	

### Second Place

#### Senior

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Angela Gao	Buchholz High School	ENEV
S0816	Recovering Phosphorus from Wastewater as Fertilizer Using Biochar Enabled Methods	

***7 awards for Alachua Region***

## Big Springs

### Fourth Place

#### Junior

Abigail D. Lacayo J0404	Enzyme Excellency	Wildwood Middle High School	CMBI
Serena N. Saju J0512	Do Sports Drinks Contain more Electrolytes than Coconut Water?	The Cornerstone School	CHEM
Michael D. Ribay J0708	Rolling Rovers: A Feasibility Study of Fused Deposition Modeled Wheels	Howard Middle School	ENMS
Elijah R. Pyle J0812	What Blade Angle is Most Efficient for Water Turbine Design?	The Cornerstone School	ENEV
Miguel A. Secillano J1010	Algorithmically Investing in an Index Fund	Howard Middle School	MACO

#### Senior

Jordan K. Riche S0507	Effectiveness of Using Worms to Biodegrade Plastic	Wildwood Middle High School	CHEM
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### Honorable Mention

#### Junior

Delaney C. Peterson J0206	Effect of Media Consumption Habits on Middle School Students Empathy Quotient	The Cornerstone School	BEHA
Julia P. Temple J0513	Where Rubber Meets the Road	Wildwood Middle High School	CHEM
Amelia J. Schmeltz J0622	Does Temperature Affect Reverse Osmosis?	Saint John Lutheran School	EAEV
Gavin H. Greathouse J0813	Does the Blade Angle of the Blades on a Wind Turbine Affect the Wind Speed Created?	Saint John Lutheran School	ENEV

#### Senior

Grace C. Froehle S0204	Is There a Correlation Between Students' Cell Phone Screen Time and Stress Levels?	The Villages Charter High School	BEHA
Cheyenne R. Shirley S0314	To What Extent Does the L Form of Beta-Hydroxybutyrate have Unique Anti-cancer Effects Compared to the D Form, on U87 Brain Cancer Cells In Vitro?	South Sumter High School	BMED
Ariana Zarazua-Benitez S1309	Hydroponics: What Method of Hydroponics Would Increase the Growth Rate of a Lettuce Plant	Wildwood Middle High School	PLNT

### Recognition

#### Junior

Marcus M. Von Rosenberg J0623	How Well Can Different Types of Biomass Produce Methane through the Anaerobic Process, in Order to Generate Energy?	The Cornerstone School	EAEV
Sophia L. McGill J0707	Insulation Innovation	Wildwood Middle High School	ENMS
Olivia M. McGill J0707	Insulation Innovation	Wildwood Middle High School	ENMS

#### Senior

Emma C. Bogue	South Sumter High School	ANIM
S0108	Testing Effectiveness of Surfactants on Stable Foam Involved in Primary Ruminal Tympany	
Elishah B. Jean-Francois	West Port High School	BEHA
S0203	Enhancing the Educational Experience	
Kadie M. Mariano	Wildwood Middle High School	MICR
S1110	That's Gotta Sting! The of Honey, MEDlhoney and Neosporin on Bacteria	

## Second Place

### Senior

Vivek Sandrapaty	West Port High School	ENMS
S0707	Remote Detection System for Penetrative Bodily Injury Using an Innovative Electrical Engineering Enhancement of Wearable Fabric	

## Third Place

### Junior

Yazen O. Jawad	The Cornerstone School	ANIM
J0105	What Temperature Is Best for Corals?	
Maggie G. Byrne	The Villages Charter Middle School	MACO
J1009	Cookie Calculations	

### Senior

Alynza I. McBride	South Sumter High School	EAEV
S0610	Are Tree Rings Affected in Wetlands Impacted by Groundwater Withdrawals?	

***23 awards for Big Springs Region***

## Brevard: Intracoastal

### Division Grand Award Winner And First Place

#### Junior

Sharanya Natarajan	Edgewood Jr/Sr High School	ENEV
J0817	Suppress that Algae: Mitigating the Effects of Harmful Algal Blooms through Preemptive Detection and Suppression (Year 3)	
Sean Kettering	Herbert H. Hoover Middle School	MICR
J1108	Shungite vs Carbon: Filter Your H2O	

#### Senior

Erin Gaydar	Edgewood Jr/Sr High School	PLNT
S1312	Abolition of Unfurling Nutrients is the Solution for Elimination of Chlorophytes in the Indian River Lagoon(Year III)	

### First Place

#### Junior

Stella Redon	Herbert H. Hoover Middle School	BEHA
J0209	The Impact of COVID-19 on Social Anxiety Levels	

### Fourth Place

#### Junior

Enzo Carter	Herbert H. Hoover Middle School	IMRS
J0910	The Effectiveness of Neural Networks in Pain Detection	
Luke Rodgers	DeLaura Middle School	PHYS
J1211	Will Launching Rockets from Higher Altitudes Allow the Rockets to Achieve a Greater Apogee?	

#### Senior

Neil Reddy	Satellite High School	CMBI
S0411	Customized Cancer Cell Weapons: Using CRISPR Cas9 Genetic Engineering and Human Adipose-derived Mesenchymal Stem Cells to Overcome Platinum-based Chemotherapy Resistance in OVCAR-3 Human Ovarian Cancer Cells Year 4	
Alexander Kaufman	Edgewood Jr/Sr High School	CHEM
S0513	Energy Content of Various Fungi Species for Use in Biofuels	

### Honorable Mention

#### Junior

Jaxon Weakley	Herbert H. Hoover Middle School	EAEV
J0631	An Examination of Macroplastics in Sargassum within Coastal Wrack	

#### Senior

Samantha Lange	Satellite High School	EAEV
S0614	Survivability of <i>Crassostrea virginica</i> Larvae at Elevated Temperatures Due to Anticipated Changes in Climate in the Indian River Lagoon	
Bisrat Kassahun	Edgewood Jr/Sr High School	MACO
S1016	Constructing a Neural Network to Detect Early Lung Cancer	

### Recognition

#### Junior

Lonnah Wall	Herbert H. Hoover Middle School	PLNT
J1312	Compost On Your Mind?	

#### Senior

Thanmay Kumar	Edgewood Jr/Sr High School	BMED
S0322	Novel Study of Role of Saliva in Fluoride Protection of Human Teeth Enamel Against Acidic Erosion in vitro	
Phillip Lavrador	Satellite High School	IMRS
S0916	Real-Time Weapon Detection Using Convolutional Neural Network-Based Computer Vision to Aid in the Quick Response to and Prevention of Tragedies	

## Second Place

### Junior

Jacob Thompson	Herbert H. Hoover Middle School	ANIM
J0110	Oh Barnacles!	
Danika Tirpak	DeLaura Middle School	BMED
J0311	Testing Facial Covering Efficacy Using Schlieren Photography	
Molly Chicherio	Herbert H. Hoover Middle School	ENMS
J0714	An Insulated Idea	

## Third Place

### Junior

Aiden Wright	Herbert H. Hoover Middle School	CMBI
J0406	The Effect of <i>Coffea arabica</i> on <i>Caenorhabditis elegans</i>	
Griffin Kirby	Edgewood Jr/Sr High School	CHEM
J0518	Salty? Lettuce Find Out	

### Senior

Sarita Thosteson	Satellite High School	ANIM
S0110	Genetic Analysis of Solar Powered Sea Slugs	
Ana Garcia	Edgewood Jr/Sr High School	ENMS
S0712	Smooth Sailing: The Effect of Humpback Whale Tubercles on The Hydrodynamics of Sailboats	
Jacob Lavra	Edgewood Jr/Sr High School	ENEV
S0810	Efficacy of Rapidly Cooling Sea Surface Temperatures (SST) for Short and Extended Intervals	

## 22 awards for Brevard: Intracoastal Region

## Brevard: Mainland

### Fourth Place

#### Junior

Alexander L Ferland J0505	Andrew Jackson Middle School The Impact of Different Environmental Conditions on Galvanic Corrosion at a Launch Pad Structure	CHEM
Rachel Devoid J0604	Ascension Catholic School Are We Being Lied to: Do Biodegradable Products Actually Biodegrade?	EAEV

#### Senior

Denee M Lichtenberg S1106	Astronaut High School The Use of Plant Extracts as Antibiotics to Inhibit Bacterial Growth	MICR
James W Egdorf S1203	Viera High School Newfound Electricity Source: The Epic of the Triboelectric Nanogenerators (Year 3)	PHYS

### Honorable Mention

#### Senior

Braelynn G Smith S0603	Viera High School The Effects of Nitrogen, Potassium, and Phosphorus on Algae	EAEV
Jason R Whitson S1004	Titusville High School Future Celestial Body Colonization (Year 3)	MACO
Paula A Aguirre Gonzalez S1204	Viera High School Gravitational Influence on Planetesimal Formation from Protoplanetary Disks	PHYS

### Recognition

#### Junior

Aden Morrison J0301	Ascension Catholic School Does Temperature Affect Heart Rate and Blood Pressure?	BMED
Grant Stigall J0301	Ascension Catholic School Does Temperature Affect Heart Rate and Blood Pressure?	BMED
William A Farrell J1202	Andrew Jackson Middle School Which Material Conducts the Most Heat Energy?	PHYS

#### Senior

Jamie B Tucker S0202	Astronaut High School Frequency Specific Sound Therapy to Improve Performance on Standardized Tests	BEHA
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### Second Place

#### Senior

Lavanya S Natarajan S0904	Viera High School Landfill SCADA System: A Next-Gen Prescriptive Lot Solution Engineered to Detect, Transmit, and Mitigate Fugitive Methane Emissions via a Long-Range Supervisory Control and Data Acquisition System (Year 3)	IMRS
Om D Patel S1105	Eau Gallie High School Utilizing Glycolysis in Streptococcus pyogenes to Model Gastrointestinal Stromal Tumors (GIST) in Response to Endogenous Stimulus-Powered Nanoreactors (Year 6)	MICR

### Third Place

#### Junior

Naomi Babb J0202	Ascension Catholic School Does the Lighting in a Room Affect the Productivity and Concentration of Students?	BEHA
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Kathryn Naberhaus	Ascension Catholic School	BEHA
J0202	Does the Lighting in a Room Affect the Productivity and Concentration of Students?	
Ava Wilson	Ascension Catholic School	BEHA
J0202	Does the Lighting in a Room Affect the Productivity and Concentration of Students?	
Alina Zaidi	Holy Trinity Episcopal Academy	PLNT
J1302	How Do Soluble Silicates Affect Insect Damage and Growth in Spinach, Green Beans, and Lettuce?	

### Senior

Emma L Carpenter	Viera High School	MACO
S1003	Lissajous Curves from Chaos	

***18 awards for Brevard: Mainland Region***

## Brevard: South

### Fourth Place

#### Junior

Landon Plechaty J0318	Metal vs Bacteria	West Shore Junior/Senior High School	BMED
Hlla Waregh J0723	Dusty Solar Panels	West Shore Junior/Senior High School	ENMS
Jasmine Gharia J1111	Testing the Difference between Cleaning Wipes and Cleaning Sprays on <i>Staphylococcus epidermidis</i>	Stone Magnet Middle School	MICR

#### Senior

Alex Warren S0116	Effect of Stressors on the Health of Soft Coral, <i>Xenia elongata</i>	Melbourne High School	ANIM
Rushil Shah S0211	Understanding and Creating an Equation on the Impact of Celebrity Endorsements and their Numerous Factors on the Growth of Alt-Coins	West Shore Junior/Senior High School	BEHA
Ava Auter S0624	The Impact of Enhanced Oceanic Inflow on Muck Accumulation in the Indian River Lagoon	West Shore Junior/Senior High School	EAEV

### Honorable Mention

#### Junior

Matthew Grainger J1222	Weighing it on Maglev	West Shore Junior/Senior High School	PHYS
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#### Senior

Bianka Albert S0329	Detection of Benign and Malignant Lung Nodules in 3D Volumes Generated from Thoracic Computed Tomography Scans Leveraging Artificial Intelligence - Year 2	West Shore Junior/Senior High School	BMED
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### Recognition

#### Senior

Courtney Atkins S1318	Testing the Antimicrobial Properties of <i>Bryophyllum pinnatum</i> Utilizing Alcohol Extractions	Heritage High School	PLNT
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### Second Place

#### Junior

William Estevez J0645	How Strong are Dune Plants' Roots?	West Shore Junior/Senior High School	EAEV
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#### Senior

Laya Damaraju S0520	The Effectiveness of Porous Photothermal Sepiida Ink Nanoparticles for Osteosarcoma Treatment	West Shore Junior/Senior High School	CHEM
Sammy Habboub S1221	Synthesizing Indium Doped ZnO Nanowires with Piezoelectric Properties to Produce Voltage in Response Under a Compressive Load	Melbourne High School	PHYS

### Third Place

#### Junior

Gavin Merrell J0916	Constructing a Robot to Care for <i>Dracaena deremensis</i> Autonomously	Stone Magnet Middle School	IMRS
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**Senior**

Jessica Watkins	Melbourne High School	CMBI
S0418	A Multi-approached Transcriptome Analysis of Autism Spectrum Disorder, Schizophrenia and Bipolar Disorder	
Anjani Sharma	West Shore Junior/Senior High School	CMBI
S0419	Antimicrobial Peptide as Next Generation Therapeutic Agents	
Pranav Ponnusamy	West Shore Junior/Senior High School	ENMS
S0719	3rdEye: An Affordable Safety Alert System for Drowsy Drivers	
Sydney Feldbush	West Shore Junior/Senior High School	ENEV
S0817	Optimizing the Energy Output of Dye-Sensitized Solar Cells	
Ayah Saleh	West Shore Junior/Senior High School	IMRS
S0921	Machine vs. Human: Recognizing Emotions In Speech Using Neural Networks	
Kaylee Jordan	West Shore Junior/Senior High School	MICR
S1121	Phage-Derived Endolysin Treatment for Community Associated Epidermal Infections	

**19 awards for Brevard: South Region**

## Broward

### First Place

#### Junior

Anagha Lakshmi Iyer J0648	American Heritage School The Synergistic Effects of Ametryn, Atrazine, Imidacloprid, Spinosad, and Neem Oil on the Development of <i>Danio rerio</i> Embryos	EAEV
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### Fourth Place

#### Junior

Yahya N Sakallah J0534	Broward Christian School The Efficiency of Electrolytes in Hydrogen Production through the Electrolysis of Water	CHEM
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#### Senior

Melodi Diane Fugate S0118	American Heritage School The Effect of Microplastics Alone and in Combination with Neonicotinoids and Heavy Metals in <i>Apis mellifera</i> Using <i>Drosophila melanogaster</i> as a Model Organism	ANIM
Amarachukwu Chimamanda Okpala S0422	American Heritage School, Plantation Downregulation of Triadin as a Potential Treatment for Catecholaminergic Polymorphic Ventricular Tachycardia	CMBI
Celine Yacoub S0629	American Heritage School, Plantation The Effects of Air and Water Pollutants on the Development of Myelination Using <i>Danio rerio</i> Embryos as a Model Organism	EAEV
Shaurnav Kumar Ghosh S1021	Pine Crest School Using an Information-Maximizing Generative Adversarial Network to Investigate the Growth of Multiple Sclerosis Lesions	MACO

### Honorable Mention

#### Junior

Sarah Kouli J0214	Salah Tawfik Elementary and Middle School A Novel Approach to Increasing Fruit and Vegetable Intake Using Skin Carotenoid Scores - A Continuation Project	BEHA
Utkarsh Yellamilli J1223	Parkway Middle School What Effect Does a Change in Voltage and Coils Have on the Magnetic Field of an Electromagnet?	PHYS

#### Senior

Sara Lillian Kaufman S0720	North Broward Preparatory School Using Thermochromic Crystals to Identify Intravenous Infiltration	ENMS
Ethan David Kermis S0820	Saint Thomas Aquinas High School An Energy Efficient Desalination System Based on the Mangrove Transpiration Stream	ENEV
Bhaveshsai Gangula Reddy S0923	American Heritage School, Plantation Early Detection of Lung Cancer Using an Array of Machine Learning Algorithms	IMRS
Kaitlyn Jean Urruela S1125	Saint Thomas Aquinas High School Biodegradation of PLA Plastic with <i>Amycolatopsis mediterranei</i>	MICR

### Recognition

#### Junior

Sophia G. Flores J0408	Pembroke Pines Charter Middle School Hydrophobic Helpers	CMBI
Angeliah J. Pierre J0408	Pembroke Pines Charter Middle School Hydrophobic Helpers	CMBI

Kylin G. Reynolds J0408	Hydrophobic Helpers Pembroke Pines Charter Middle School	CMBI
Mayar Basem Harim J0409	The Effect of Turmeric on Regenerative Adaptation, Neuroplasticity, and Memory in Planaria Salah Tawfik Elementary and Middle School	CMBI

### Senior

Matthew R. Corbett S0721	Increasing Electromagnetic Coil Field Strength Through Layering and Material Composition Saint Thomas Aquinas High School	ENMS
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### Second Place

#### Junior

Daniella Mia Diallo J0319	The Effects of Different Masks on Oxygen Levels American Heritage School	BMED
Yash Umesh Bhatt J0532	Utilizing Ferrofluid for the Removal of Tannin, Microplastic, and Heavy Metals from H <sub>2</sub> O. Falcon Cove Middle School	CHEM
Andres Manuel Matos J0533	Dirty to Clean: Water Purification Challenge Saint Gregory the Great Catholic School	CHEM
Duha Hicham Mabchour J0647	The Effect of Household Cleaning Pollutants on the Survival Rate and Heart Rate of <i>Daphnia magna</i> Alazhar School	EAEV
Noah M.T. Leighton J0725	Can High-Pressure Gas Generate Enough Thrust to Propel an Object Glades Middle School	ENMS
Maximus Corbin Callis J0726	The Effects of Different Carbon Fiber Composite Sandwich Cores on the Young's Modulus and Specific Modulus of the Composite Sandwich Beam when it Is Tested Using a Three-point Beam Test American Heritage School, Plantation	ENMS
Sanya Ahmed J1225	Increasing the Life of a Used Electric Vehicle (EV) Battery Indian Ridge Middle School	PHYS

#### Senior

Malcolm Ernest Owusu S0212	Transgenerational Effects of the Synergy of Nicotine, Atomoxetine and Buspirone in Egg Laying Behaviors, Gene Expression, and Oxidative Stress Levels in <i>Caenorhabditis elegans</i> American Heritage School, Plantation	BEHA
Calvin Thomas Mathew S0524	Developing Novel Plant Waste-Based Hydrogels for Skin Regeneration and Infection Detection in Diabetic Wounds American Heritage School, Plantation	CHEM

### Third Place

#### Senior

Leah Ellison S0423	Assessing the Influence of TOMM40-523' Enhancer Length on APOE 3 Expression in Alzheimers Disease Pine Crest School	CMBI
Sanjana Umesh Bhatt S0523	A Novel Approach for Wastewater Treatment Utilizing Adsorbent Enhanced Biosand Filtration Cypress Bay High School	CHEM
Emir Sami Sahin S0628	Predicting the Intensity of Blocking Events Using Machine and Deep Learning American Heritage School, Plantation	EAEV

**29 awards for Broward Region**

## Capital

### Fourth Place

#### Junior

Liahm R Ilangantileke J0308	Elizabeth Cobb Middle School Efficacy of Masks vs Time and Distance	BMED
Landon W Huber J0709	Christ Classical Academy Forged In Fire - Strength and Hardness of Metal	ENMS

### Honorable Mention

#### Junior

McKenzie G White J0107	Deerlake Middle School Does Temperature Affect Sexual Maturing Time of Red Cherry Shrimp	ANIM
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#### Senior

James J Zhang S0407	Lawton Chiles High School Tagging Core and Selective Autophagy Proteins to Visualize the Colocalization of Autophagy Machinery with Mutant Huntingtin Inclusion Bodies	CMBI
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### Recognition

#### Senior

Shiv Pareshkumar Patel S0408	Maclay School Characterization of Lung Cancer Mechanosensation	CMBI
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### Second Place

#### Junior

Emmie B Kutter J1208	Maclay School In a Galaxy Far, Far Away: Chandra Telescope X-Ray Data Converted into Images	PHYS
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### Third Place

#### Junior

Keya K Patel J0625	Maclay School Effect of CO2 Acidification on Oyster Shells	EAEV
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#### Senior

Sagar R Bhat S1209	James S. Rickards High School Quantum Mechanics and Their Effect on Macroscopic Objects	PHYS
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**8 awards for Capital Region**

## Citrus

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### Fourth Place

#### Senior

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Jahnvi Kompella	Lecanto High School	BMED
S0326	CRISPER: The Gene God	

### Recognition

#### Senior

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Nandini Karanam	Lecanto High School	MICR
S1119	The Efficacy of Persimmon Calyx on Bacteria	

*2 awards for Citrus Region*

## Clay Rotary

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### Fourth Place

#### Junior

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Madison A Chandler J1209	Touch The Sky	Orange Park Junior High School	PHYS
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### Honorable Mention

#### Junior

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Sarah G Fordham J0814	Beating The Florida Heat!	Green Cove Springs Junior High School	ENEV
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### Recognition

#### Junior

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Nadir G Kaser J0710	Rechargeable vs Non-rechargeable	Green Cove Springs Junior High School	ENMS
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Iolanthe Cushman J1310	Biodome Basil	Keystone Heights Elementary School	PLNT
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#### Senior

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Avery K Crawford S0808	A Study into the Absorbency of Fruit Peel Pods	Ridgeview High School	ENEV
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### Third Place

#### Senior

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Lucas S Knutsen S0910	Lending a Hand	Clay High School	IMRS
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Mary C Reed S1310	How Does Nitrate Absorption Differ Between the <i>Rhizophora mangle</i> , <i>Laguncularia racemosa</i> , and <i>Avicennia germinans</i> Over a 48 Hour Period?	Ridgeview High School	PLNT
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***7 awards for Clay Rotary Region***

## Collier

### Fourth Place

#### Junior

Keerthi A. Chandran J0904	The Write Time!	North Naples Middle School	IMRS
Camilo Fernandez J1304	pH of Water vs the Average Growth of French Marigold Across 7 Days	Pine Ridge Middle School	PLNT

#### Senior

Cayley J McCloskey S0504	Comparing the Enthalpy Changes of Anhydrous Salts Using Calorimetry	Lely High School	CHEM
Braden M Miller S1207	Effect of Putting Stroke and Ball Roll Characteristics on Putting Accuracy	Barron Collier High School	PHYS

### Recognition

#### Junior

Amelia R. Scappaticcio J1007	How Strong Is Your Password?	Oakridge Middle School	MACO
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### Second Place

#### Senior

Colin J. Briggs S1008	Improving the Efficiency of Passwordless Authentication	Gulf Coast High School	MACO
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### Third Place

#### Junior

Sara Fernandez J0616	The Absorption of Released Liquid Petroleum Hydrocarbon into Marine Ecosystems	Pine Ridge Middle School	EAEV
Sarah Dabees J0809	The Effect of Water Density on Water Turbine Efficiency	North Naples Middle School	ENEV
Rose Aune J1305	Oh Man! Propagule Mass on Red Mangrove Growth	North Naples Middle School	PLNT

**9 awards for Collier Region**

## Dr. Nelson Ying Expo - Orange

### Division Grand Award Winner And First Place

#### Senior

Tiffani Rai Gay	Orlando Science High Charter School	IMRS
S0926	Designing a LiDAR Topographic Navigation System: A Novel Approach to Aid the Visually Impaired	

#### First Place

##### Senior

Atreya Manaswi	Orlando Science Middle/ High Charter School	ANIM
S0122	Year III: The Development of a Novel Blend of Volatile Compounds Identified from Beer for Small Hive Beetle Treatment within Honey Bee Colonies	

Anne Fang	Lake Highland Preparatory School	CMBI
S0429	Developing a Molecular Scale DNA Nanochip for Educational Purposes: Phase III	

#### Fourth Place

##### Junior

James Lyman Green	Lockhart Middle School	CHEM
J0539	An Examination of the Uses of Martian Resources for a Returning Mission to Earth	

Noah Anderson Hall-King	Lockhart Middle School	CHEM
J0539	An Examination of the Uses of Martian Resources for a Returning Mission to Earth	

Keerthi Karri	Orlando Science Middle Charter School	PLNT
J1333	A Different Route to Harvesting	

##### Senior

Krithik Seela	Lake Highland Preparatory School	BMED
S0334	Using Computational Models and Artificial Intelligence Graph Neural Networks to Repurpose Pre-existing Drugs and Analyze Drug Relationships: Year 2	

Danush Kumar Singla	Trinity Preparatory School	IMRS
S0925	Novel AI Algorithms for Better Segmentation of Prostate MRI Scans towards an Improved Prostate Cancer Management	

#### Honorable Mention

##### Junior

Malak Yehia Salem	Leaders Preparatory School	CMBI
J0410	Effect of Temperature on DNA extraction from Vitis?	

Chloe Manak	Maitland Middle School	MICR
J1112	An Investigation of the Dirtiest Location in a Home	

##### Senior

Meghana Konda	Lake Highland Preparatory School	CHEM
S0529	Study of Magnesium Based Migraine Therapeutics	

Cara Annette Mortimer	Trinity Preparatory School	PHYS
S1226	Linearization of a Stretchable Resistance Sensor	

#### Recognition

##### Senior

Jeffrey Wang	Trinity Preparatory School	PLNT
S1326	The Effect of pH Reduction on the Growth of Brazilian Waterweed and Aquatic Organisms	

#### Second Place

## Junior

Elliet Harper McDermed	Trinity Preparatory School	BEHA
J0216	Logic in Middle School: Can Practicing the Stroop Test Help Middle Schoolers Improve on Logical Thinking Puzzles?	
Monish Saravana	Orlando Science Middle Charter School	EAEV
J0653	Hydrophobic Silica Aerogel or Ferrofluid - Which is More Efficient at Cleaning up Oil Spills	
Snehal Sahu	Orlando Science Middle Charter School	ENEV
J0824	Generating Electricity from the Soil Using Microbial Fuel Cells	
Adam Gareeboo	Leaders Preparatory School	MACO
J1015	Effect of In-Game Cosmetics on Gameplay	

## Senior

Varun Raj Madan	Lake Highland Preparatory School	ANIM
S0123	Year 5: Developing a Novel Multiple Linear Regression Model To Optimize Honey Bee Gut Immunity Using a Lactic Acid Bacteria Probiotic Mixture	
Lene Jean Mortimer	Trinity Preparatory School	ENEV
S0818	Precycling - Novel Strategies for Dealing with Household Plastic Recycling: Year 3	

## Third Place

### Junior

Mahie Patil	Orlando Science Middle Charter School	BMED
J0321	Keep Away!	
Taylor Jayde Burnett	Maitland Middle School	EAEV
J0652	The Sufficiency of the Use of Dried and Saturated Lake Algae as a Plant Growth Medium for <i>Phaseolus vulgaris</i>	

### Senior

Naina Aggarwal	Lake Highland Preparatory School	MICR
S1127	Determining the Presence of Magnetotactic Bacteria in Honeybees	

**22 awards for Dr. Nelson Ying Expo - Orange Region**

## East Panhandle

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### Fourth Place

#### Junior

Kai Loux	C. W. Ruckel Middle School	PHYS
J1210	Superconducting Supremacy	

#### Senior

Zoe Orange	Paxton High School	ENEV
S0809	Not Your Average Soil	

### Honorable Mention

#### Junior

Olivia Hodapp	Okaloosa STEMM Academy	PLNT
J1311	The Effects of Motor Oil on Plant Growth	

### Recognition

#### Junior

Sierra Neitzke	Okaloosa STEMM Academy	ENEV
J0815	How Well Different Biodegradable Materials Prevent Food Spoilage	

Kathryn Conlan	Okaloosa STEMM Academy	MICR
J1107	Warming Waters: The Effect on Oceans	

#### Senior

Aurora Mendenhall	Niceville High School	IMRS
S0915	Sweet Sixteen: Taking Control	

Adeline Berte'	Niceville High School	PHYS
S1212	Enlightening Spy Techniques	

### Third Place

#### Junior

Caitlin Scroggs	C. W. Ruckel Middle School	BMED
J0310	Incision Decisions	

Zachary Ott	C. W. Ruckel Middle School	ENMS
J0713	Spin With the Wind: A Study of Windmill Blade Design	

Elizabeth Teater	C. W. Ruckel Middle School	ENEV
J0816	Solar Powered Misting System	

***10 awards for East Panhandle Region***

# Havens

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## Fourth Place

### Senior

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Henry Jiang S0918	North Bay Haven Charter Automated Intersection Management for Self-Driving Vehicles with Q-Learning	IMRS
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## Recognition

### Junior

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Alina Beech J0638	University Academy - Charter How Does Water Turbidity Affect Seagrass Width?	EAEV
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### Senior

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Katlyn Paul S0619	North Bay Haven Charter The Effect of Solar Panels on the Atmospheric Temperature of Earth When Installed on Black Roofs	EAEV
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***3 awards for Havens Region***

## Heartland

### First Place

#### Junior

Cohen Trott J0526	Hardee Junior High School Do Foods Labeled Sugar Free Contain Glucose?	CHEM
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### Fourth Place

#### Senior

Austin R. Walker S1217	Hardee High School Does the Composition of Different Welding Wires Affect the Strength of a MiG Weld?	PHYS
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### Recognition

#### Junior

Meagan Joens J0213	DeSoto Middle School Taking Turns	BEHA
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Meikya Hills J1322	Hill-Gustat Middle School Fruit With a Side of DNA : Eat Your DNA	PLNT
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#### Senior

Anna Velten S0518	Okeechobee High School The Effects of Dissolving Polystyrene with D-Limonene on the pH of Seawater: A Fifth Year Study	CHEM
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Laina Canary S0620	Hardee High School Do the Extraction Methods of Plastic Mulch Affect the Amount of Microplastics in the Soil?	EAEV
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### Second Place

#### Junior

Anika Bhandare J1321	Hill-Gustat Middle School Plants of the Red Planet	PLNT
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Brady Williamson J1324	Yearling Middle School Money In the Bag: Investigating the Effectiveness of Individual Tree Protectors vs Open Air Protection Against Huanglongbing In Two-Year Old Valencia Orange Trees	PLNT
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#### Senior

Angela Huang S0417	Sebring High School <i>Fusobacterium nucleatum</i> as a Marker for Epithelial to Mesenchymal Transition in Colorectal Cancer	CMBI
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### Third Place

#### Junior

Emma Jane Johnson J1323	Hardee Junior High School Does the Application Method of Molasses Affect the Height of Watermelon <i>Citrullus lanatus</i> Plants?	PLNT
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#### Senior

Jenna Larson S0114	Okeechobee High School Thermoregulation in Dairy Youngstock : Evaluating Thermotolerance of Holstein Heifers Sired by SLICK Bulls and Without the SLICK Gene: A Second Year Study	ANIM
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**11 awards for Heartland Region**

## Hernando

### Fourth Place

#### Junior

Kathryn Sharkey J0115	Challenger K8 School of Science and Mathematics Hindered Hatchings-The Effect of Pollutants on Brine Shrimp Hatching Rates	ANIM
Theodore Toler J0315	Challenger K8 School of Science and Mathematics The Effect of PPE Mask Use During Moderate Activity on the Oxygen Saturation of Adults	BMED
Kaylee Smith J0521	Challenger K8 School of Science and Mathematics The Effect of Fuel Type on Burn Time - Biodiesel, a Go Or a No	CHEM
Elijah Gibson J1217	Challenger K8 School of Science and Mathematics Driven by Power: The Effect of Engine Placement on the Average Speed of a Car	PHYS

### Honorable Mention

#### Junior

Haylie Erb J0314	Challenger K8 School of Science and Mathematics Reflect on Your Reflux: The Effect of Homeopathic, Naturopathic, and Synthetic Ingredients on the Differences in the pH of Acidic Beverages	BMED
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#### Senior

Harsh Mehta S0323	F.W. Springstead High School Antioxidant Vitamins: A Possibility to Decrease Cancer, Cardiovascular and Neurodegenerative Diseases	BMED
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### Third Place

#### Junior

Colton Harrin J0522	Challenger K8 School of Science and Mathematics Recycling for Power: The Effect of Organic Material on Energy Output in a MFC	CHEM
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***7 awards for Hernando Region***

## Hillsborough

### Division Grand Award Winner And First Place

#### Senior

Shloke Patel	Hillsborough High School	MICR
S1130	Developing a Monomolecular Model to Describe the Disease Progress Curve	

### Fourth Place

#### Junior

Delaney Kane	Buchanan Middle School	BEHA
J0218	Relationship of Age and Response Time in the Stroop Effect	
Cheyenne Lefczuk	Buchanan Middle School	BEHA
J0218	Relationship of Age and Response Time in the Stroop Effect	
Tanishka Aglave	Williams Middle Magnet School	CMBI
J0411	A Novel Nanotechnology Based Approach for the Control of Pestalotiopsis Disease Outbreak in Florida Strawberries	
Julia McWilliams	Buchanan Middle School	ENMS
J0732	Using a 3-D Printer to Fix a Handicapped Spork	
Sara McWilliams	Buchanan Middle School	ENMS
J0732	Using a 3-D Printer to Fix a Handicapped Spork	

### Honorable Mention

#### Junior

Emily Van Name	Buchanan Middle School	BMED
J0324	How Does Light Effect The Vitamin Content of Fruit Juices?	
Brandon Brewer	Stewart Middle School	PHYS
J1232	James Webb and Hubble Space Telescope, Visible Light vs Infrared Light	
Kyrie Mcdaniel	Buchanan Middle School	PLNT
J1334	Humidity's Effects on Potato Longevity	

#### Senior

Rudra Patel	Middleton High School	IMRS
S0928	A Novel Approach to Analyzing Alzheimer's Disease in MRI Scans Using a Computational Neural Network	

### Recognition

#### Junior

Lilienn Carpenter	Sunlake Academy of Math and Science	EAEV
J0656	Salinity and Soil pHacts about Tampa's Drinking Water	

#### Senior

Joshua Selvan	Hillsborough High School	BMED
S0336	Evaluate the Role of Mismatch Repair System in Causing Genomic Alterations in Glioblastoma	

### Second Place

#### Junior

Swara Patel	Carrollwood Day School	MICR
J1113	Multinutrient Biofortification of Microgreens Using Cyanobacteria Year 2	

#### Senior

Khushi Mathur	Brooks DeBartolo Collegiate High School	EAEV
S0641	Soda Lime: A Solution to Global Warming?	

### Third Place

#### Junior

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Deshna Pal	Benito Middle School	ENMS
J0733	Wireless Electricity	

#### Senior

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Suchi Patel	Middleton High School	EAEV
S0640	Utilizing Microalgae Free Cells to Combat <i>Dinoflagellate Karenia brevis</i> Algae Blooms	

**16 awards for Hillsborough Region**

## Indian River

### Fourth Place

#### Junior

John E Curley J0610	Solar Science	Saint Edwards School	EAEV
William M Lockwood J0610	Solar Science	Saint Edwards School	EAEV
Evan M Schneider J1303	Silver Seeds	Storm Grove Middle School	PLNT

### Honorable Mention

#### Senior

Elizabeth C DeSchouwer S1108	Impact of Medium Transfer Time on Electroporation of E. coli HB101	Vero Beach High School	MICR
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### Recognition

#### Junior

Hunter G Cook J1005	Masks, Masks, and More Masks 2: A Study of the Efficacy of Face Masks to Block H2O from Leaving the Human Body	Sebastian Charter Junior High School	MACO
Lilyana M Wilsnack J1103	Bacteria Be Gone	Sebastian River Middle School	MICR

### Second Place

#### Junior

Tyler S Simpson J0204	You Make the Call	Sebastian River Middle School	BEHA
Ariana S Bolton J0609	Global Warming on the Rise: The Effects of Melting Ice and Thermal Expansion on Sea Level	Storm Grove Middle School	EAEV

### Third Place

#### Junior

Avi R Johnson J0203	Mind Madness	Storm Grove Middle School	BEHA
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**9 awards for Indian River Region**

## Lake

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### Honorable Mention

#### Junior

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Landon Dodd J0724	Tiolet Trouble: Year 2	Windy Hill Middle School	ENMS
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#### Senior

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Roshna Mannuthoduvil S0117	Assessment of the Neurological Effects of Withania somnifera and resveratrol using a Drosophila model	Tavares High School	ANIM
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### Recognition

#### Junior

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Kaian Da Fonseca J0530	Denaturing Proteins	East Ridge Middle School	CHEM
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Isabella Masson J0530	Denaturing Proteins	East Ridge Middle School	CHEM
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#### Senior

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Kaitlyn Dunn S0331	The Effects of Connective Tissue Derivatives on Plant Tissue Strength	Tavares High School	BMED
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***5 awards for Lake Region***

## Manatee STEM Competition

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### Fourth Place

#### Junior

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Kinley McCaw J0114	Dr. Mona Jain Middle School Determining the Phenotype of a Fruit Fly	ANIM
Payton Casto J0819	Dr. Mona Jain Middle School Testing the Bending Strength of Plastic Made from Milk and Vinegar	ENEV

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### Honorable Mention

#### Senior

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Natalie Barendse S0413	Southeast High School Rising to the Challenge	CMBI
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***3 awards for Manatee STEM Competition Region***

## Martin

### Fourth Place

#### Junior

Ashleigh Polhemus	Saint Joseph Catholic School	EAEV
J0657	Plants, Pesticides, and pH	

#### Senior

Nira Goyal	Martin County High School	PLNT
S1304	Plastic Mulch and Organic Amendments- Can They Help Us Control Nutsedge?	

### Recognition

#### Junior

Kira Lawless	Saint Joseph Catholic School	ANIM
J0102	Cockroaches	

#### Senior

Viraj Singh	South Fork High School	MACO
S1002	A Mathematical Approach to Cryptography Using Laplace Transform and Taylor Series and its Vulnerabilities	

### Second Place

#### Junior

Nina Goyal	Hidden Oaks Middle School	CMBI
J0402	Effects of Double-stranded RNA Treatment on Sunflowers	

Bella Calhoun	Saint Joseph Catholic School	EAEV
J0603	Are We Eliminating Our Ecosystem?	

Varun Singh	Dr. David L. Anderson Middle School	IMRS
J0902	Are You in My Hotspot?	

### Third Place

#### Junior

Kathryn Rogers	Dr. David L. Anderson Middle School	BEHA
J0201	Feeling the Beat	

***8 awards for Martin Region***

## Monroe

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### Honorable Mention

#### Junior

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Carly Lefelar J0538	Sugarloaf School The Study of Different Filtration Techniques and How They Reduce the Dissolved Solids and Their Effect on the pH Level	CHEM
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Ivy Tiedemann J0823	Treasure Village Montessori School Eiffel Tower, Nope, It's a Solar Hydro Tower	ENEV
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#### Senior

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Nina Bowen S1325	Key West High School The Effect of Airation on Agricultural Runnoff	PLNT
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### Third Place

#### Junior

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Violet Matthews J0320	Treasure Village Montessori School Green Light Go!	BMED
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*4 awards for Monroe Region*

## Northeast Florida

### Division Grand Award Winner And First Place

#### Junior

Aaron Zacharia J0309	Mission Go Dark	Julia Landon College Preparatory Middle School	BMED
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#### First Place

##### Senior

Claire Huang S0612	The Energy Generation Efficiency and Storage Capability of a Novel Dye-Sensitized Solar Cell	Episcopal High School	EAEV
Ryan Napoleon S0638	Use of Plasmids for the Trophic Conversion of <i>P. tricornutum</i> for Prevention of Eutrophication	Episcopal High School	EAEV

#### Fourth Place

##### Junior

Marco Chua J0626	Wave Force Dissipation: Testing the Effectiveness of Geometric Shapes in Wave Breaking	St. Paul's Catholic School	EAEV
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##### Senior

Sarah Park S0206	Spark Care+: Personalized Music Therapy Device Utilizing Artificial Intelligence Model	The Bolles School	BEHA
Avery Blalock S0708	Improving the Regression Rate of a Hybrid Rocket Engine through Modifications of the Fuel Geometry	Episcopal High School	ENMS
Antonio Valentino S0710	Conquering Concrete- Year IV	Bishop Kenny High School	ENMS
Emma Lee S0913	Simulating Astronautic Information Transfer through the Implementation of Optical Laser Technology	Stanton College Preparatory School	IMRS
Eric Lee S0913	Simulating Astronautic Information Transfer through the Implementation of Optical Laser Technology	Stanton College Preparatory School	IMRS
William Rosenberg S1014	Computer Program to Identify and Record Gene Clusters in Phage Genomes	Episcopal High School	MACO

#### Honorable Mention

##### Junior

Stephen Dornier J0711	The Effect of a Five Pound Weight on Epoxy Resin, Polyester Resin, and UV Cure Resin	Christ the King Catholic School	ENMS
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#### Recognition

##### Senior

Mary Clare Stinneford S0511	Levels of BPA and Styrene Caused by Microwaving Water in Different Containers	Bishop Kenny High School	CHEM
Michael Kachergus S1112	Synergistic Antibacterial Effects of Metallic Nanoparticles & Antibiotics on <i>E. coli</i> & <i>S. epidermis</i>	Bishop Kenny High School	MICR

Melanie Staples	Bishop Kenny High School	PHYS
S1211	The Effect of Temperature on the Volume of Different Frequency Sounds through Different Densities	

## Second Place

### Junior

Abigail Dooley	San Jose Catholic School	ANIM
J0108	What Damages Coral Reefs Most?	

### Senior

Kristi Biswas	Paxon School for Advanced Studies	BMED
S0317	Associations of Genetic SNPs with AD, Neuropathology, & Gene Expression Offers Novel Insight into AD	
Siddharth Chitta	Stanton College Preparatory School	BMED
S0318	Investigating the Role of WNK-1 Kinase in Glioblastoma Malignancy	
Tom Commander	Episcopal High School	CMBI
S0410	Analyzing the CD44-targeting Capabilities of Chitosan-coated Iron Oxide Nanoparticles in GBM	
Izabelle Young	Bishop Kenny High School	MACO
S1015	Utilizing Mycelial Network Electrical Makeup to Communicate Data	

## Third Place

### Junior

Mia Hutto	Assumption Catholic School	ENMS
J0712	Turning Hydro into Electric Flow	
Alan Alwakeel	Saint Joseph Catholic School	IMRS
J0909	The Efficacy of Using Artificial Intelligence for Identifying Tumors in MRIs	

### Senior

Sean Ramsey	Episcopal High School	CHEM
S0510	Improving the Structural Strength of Martian Concrete with Molten Sulfur Binder	
George Delong	Episcopal High School	IMRS
S0914	An improved Robotic Hand Design Using Dynamic Gear Systems and a Novel Prosthetic Control System	
Matthew Salek	Episcopal High School	PHYS
S1210	Controlled Plasma in a Magnetic Field	
Matthew Schinsing	Episcopal High School	PLNT
S1311	Effect of Protein Hydrolysates on Plant Growth and Quality	

***25 awards for Northeast Florida Region***

## Osceola

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### Recognition

#### Junior

Neyshlian De Lleguas - Pagan J0914	Earthquakes Don't Fall In!	Neptune Middle School	IMRS
Logan Forty-Way J0914	Earthquakes Don't Fall In!	Neptune Middle School	IMRS
Emily Torres J0914	Earthquakes Don't Fall In!	Neptune Middle School	IMRS

### Third Place

#### Senior

Noah Bryan Jenkins S1017	Using the GARCH Family of Volatility Forecasting Models for the Valuation of Options via the Black-Scholes Options Pricing Model	St. Cloud High School	MACO
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***4 awards for Osceola Region***

## Palm Beach

### Division Grand Award Winner And First Place

#### Senior

Nolan Chen Wen	American Heritage School of Boca/Delray	CHEM
S0501	Development and Characterization of a Novel Laponite-Enhanced Tannic-Acid-Based Hydrogel	

#### First Place

#### Junior

Tanvi Reddy Desai	A.D. Henderson University School	CMBI
J0401	Quantitative Image Analysis of Ocean Acidification Effects on <i>Argopecten irradians</i> Shell Integrity	
Andrew Michael Fiedor	The Weiss School	EAEV
J0601	How Are Green Star Polyps Bleached by Oxybenzone and Heated Waters?	
Dylan Michael Kiesling	The Weiss School	MACO
J1001	Florida Coast Wave Data Analysis to Assess the Optimal Locations for Shoreline Wave Energy Production	

#### Fourth Place

#### Junior

Michael Jamil Mikati	The Weiss School	ENEV
J0801	A Prototype Structure to Mitigate the Urban Heat Island Effect with Possibilities for Energy and Rainwater Collection	
Kolbi Rhys Biggs	A.D. Henderson University School	MICR
J1101	Can Image Analysis of The <i>E.coli</i> (K-12 strain) Inhibition Zone Quantify The Antibacterial Effects of Various Types of Honey?	

#### Senior

Liliana Pilar Remillard	Palm Beach Central High School	ANIM
S0102	The Effect of Cognition of Substrate Site on Trap Building in <i>Myrmeleon</i> Sp.	
Jaynie Geraldine Curzi	American Heritage School of Boca/Delray	CHEM
S0502	The Effect of Mercury Intake Through Mascara Application On The Thyroid Gland	
Shelly Ballaish	Spanish River Community High School	EAEV
S0601	The Effect of Water Levels on <i>Danio rerio</i> Reproductive Fitness and Embryonic Development	
Jake Houd	Palm Beach Central High School	ENMS
S0702	Using Nerve Impulses to Manipulate a Prosthetic; Increase Mobility for Individual Digits	
Isabella Catalina Lackner	Florida Atlantic University High School	ENEV
S0802	Using Machine Learning to Determine the Presence and Abundance of Microplastics in Sea Turtle Nesting Beaches has an Impact on Gender Ratios	
Michael Charles Sarullo	Suncoast High School	IMRS
S0901	Using Convolutional Neural Networks to Predict the Presence of MGMT Promoter Methylation in Glioblastoma	
Ayush Vasu Gowda	Florida Atlantic University High School	MACO
S1001	Strategic Energy and Time Management Optimization for a Cross Country Solar Car Trip	
Ruby Lily Aubin	Florida Atlantic University High School	PHYS
S1201	RUBES: Resonators Used in Building Emergency Sensors	

#### Honorable Mention

#### Junior

Gabriel Hosein Mikati	The Weiss School	ENMS
J0701	Thermoelectricity - The Free Hidden Energy in our Roadways	

## Senior

S0103	Gabriele Rose Barrocas The Effect of Induced Oxidative Stress on Genetically Modified <i>Caenorhabditis elegans</i> with the Inclusion of a Mutated GLO-1 Gene	American Heritage School of Boca/Delray	ANIM
S0401	Matthew David Kidd Recombinant Expression of Pancreas-Specific Aquaporin-12 in <i>Saccharomyces cerevisiae</i> Combined with Molecular Dynamics Simulations to Characterize the Channels Permeability to Hydrogen Peroxide	American Heritage School of Boca/Delray	CMBI
S1302	Patricia Yu Comparison of the Contact Angles of <i>Euphorbia cytaphora</i> , <i>Salvinia minima</i> , and <i>Alocasia macrorrhiza</i>	Florida Atlantic University High School	PLNT

## Recognition

### Junior

J0802	Alejandro Rincon Saving Energy With A Living Roof	Polo Park Middle School	ENEV
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### Senior

S0101	Kyle Edward Villalobos Utilizing <i>Neritina reclivata</i> Mucin as an Industrial Adhesive	Florida Atlantic University High School	ANIM
S0701	Deeksha Kumaresh A Novel Application of Artificial Intelligence and Microfluidics for the Development of a Cost-effective and Non-invasive Point of Care Tool for Parkinson's Disease Diagnosis	American Heritage School of Boca/Delray	ENMS
S0902	Angelina Ning A Deep Learning Approach for Invasive Lobular Breast Cancer Classification Using Gene Expression	American Heritage School of Boca/Delray	IMRS

## Second Place

### Junior

J0502	Colin Christopher Quinn Characterizing the Short Term Ecological Impacts of Industrial Brine Spills	The Weiss School	CHEM
J1002	Aiden Thuong Phipps Does a Minecraft Stochastic Cellular Automaton Discrete Mathematical Infectious Disease Model Accurately Simulate Vaccination Efficacy and Disease Spread?	A.D. Henderson University School	MACO

### Senior

S0301	Tara Muthuswamy Testing the Effects of Anti-DLL4 Monoclonal Antibody in Conjunction with Tamoxifen Hormone Therapy Treated Ovarian Cancer	American Heritage School of Boca/Delray	BMED
S0703	Cooper Andrew Weisman Creation of an Artificial Atmosphere at Orbital Altitudes to Combat Space Debris	Alexander W. Dreyfoos School of the Arts	ENMS
S1101	Satviki Singh Biodegradable Chitosan-Silver Hydrogel As A Delivery Mechanism for Cyclic Lipopeptide-4	Florida Atlantic University High School	MICR

## Third Place

### Junior

J0101	Caitlin Josephine O'Sullivan Pitch Perfect Dolphins; Determining the Pitch Frequency Communication in Dolphins	A.D. Henderson University School	ANIM
J0501	Ekansh Puri Using Iodine to Mitigate Tropospheric Ozone	The Weiss School	CHEM
J0503	Navraj Singh Dhillon Chicken Egg Albumen Mucosin and Filtration of Microplastics	A.D. Henderson University School	CHEM

Caitlin Anne Yaralli	A.D. Henderson University School	PLNT
J1301	Astrobotany on the Red Planet: Sunlight and Soil Nutrient Limiting Factors	
<b>Senior</b>		
Sarah Rose Garfield	Palm Beach Central High School	BEHA
S0201	The Effect of Virtual Learning on Student Long Term Self-Esteem	
Saachi Anika Mody	Florida Atlantic University High School	BMED
S0302	The Effect of Heat Shock Proteins on <i>Drosophila</i> with Malignant Tumors	
Seymour Mahdi Haque	Florida Atlantic University High School	CHEM
S0503	Molecular Dynamics Simulations Of PLK-Small Receptor Binding	
Tejasvi Chengala Kari	Palm Beach Central High School	EAEV
S0602	The Effect of Magnetic Carbon Nanotubes on the Oil Degrading Ability, Vitality, and Gene Mutations of <i>A. borkumensis</i>	
Chloe Barreto-Massad	American Heritage School of Boca/Delray	MICR
S1103	An Investigation of the Effects of Aerobic and Anaerobic Environments on Antibiotics Produced by Soil Bacteria	
Nicholas Anthony Ostheimer	Florida Atlantic University High School	PHYS
S1202	Maximizing Ducted Propeller Efficiency by Optimizing Entrance-to-Exit Ratios through Computational Fluid Dynamics	

**37 awards for Palm Beach Region**

## Pasco

### First Place

#### Junior

Darren Lau J0905	Academy at the Lakes Color Recognition in Machine Learning	IMRS
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### Fourth Place

#### Senior

Katelynn Paciorek S0608	Wiregrass Ranch High School Study on the Effects of Polyvinyl Chloride (PVC) Water Contamination on the Oxygen Production Levels of <i>Elodea densa</i> (Aquatic Elodea Plant)	EAEV
Raven Pascua S1109	Wiregrass Ranch High School The Development of an Effective Antibiotic Treatment to Limit the Growth of <i>Staphylococcus epidermidis</i> on Arthroplasties	MICR

### Honorable Mention

#### Junior

Paityn Sadler J0104	Dayspring Academy Middle School Trapping Flies	ANIM
Jake Johnson J0510	Paul R. Smith Middle School Spherification	CHEM
Lorenzo Blanco J0618	Charles S. Rush Middle school How Does the Amount of Carbon Dioxide Affect the pH of Water?	EAEV

#### Senior

Anabel Crisostomo Guerrero S0107	Wiregrass Ranch High School A Study on The Use <i>E. senticocus</i> and <i>W. somnifera</i> As a Means to Reduce Stress On <i>E. fetida</i> Caused By Elevated Salinity	ANIM
Frederic Bowen S0312	Sunlake High School Ante Mortem: Combating an Ibuprofen Overdose (Year Two)	BMED
Christian Rios S0505	Wiregrass Ranch High School Effects of Herbicide on the Rate of Dissolution of Limestone Specimens	CHEM
Amanda Proctor S0609	Wiregrass Ranch High School A Novel Study of Phytic Acid Reduction through a Use of Fermentation, Germination, and Soaking in Vinegar in <i>Hordeum vulgare</i>	EAEV

### Recognition

#### Junior

Sophie Henniger J0103	Dayspring Academy Middle School Buckling Braces	ANIM
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#### Senior

Caroline McHale S0106	Wiregrass Ranch High School Calcium in Lowering Levels of Serotonin in <i>Daphnia magna</i>	ANIM
Cemre Kayisli S0404	Wiregrass Ranch High School BMP4 Prevents Thrombin-Induced Inflammation and Vascular Damage of Endothelial Cells	CMBI
Stella Tucker S0805	J. W. Mitchell High School Salinity, Clay Flocculation, and Red Tide Mitigation	ENEV
Dikembai Woodfill S1308	Wiregrass Ranch High School Effects of Iron (II, III) Oxide Particle Movement on Cellular Damage in <i>Allium Cepa</i> (Onion Bulbs)	PLNT

### Third Place

#### Junior

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Gavin Sawall	Dr. John Long Middle School	ENMS
J0706	Under Pressure	

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Daniel Park	Cypress Creek Middle School	MICR
J1105	Sparkling Seas: The Effect of Copper Sulfate Amounts on the Light Output of Bioluminescent Pyrocystis Dinoflagellates	

#### Senior

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Matthew Okashita	Wiregrass Ranch High School	MACO
S1009	LineSpike: A Topological Data Analysis Framework on Time Series Spikiness	

***18 awards for Pasco Region***

## Pinellas

### First Place

#### Junior

Abby Solondz	Carwise Middle School	PLNT
J1313	The Best Food for Carnivorous Plants	

### Fourth Place

#### Senior

Keira Fedotov	Indian Rocks Christian School	EAEV
S0615	Saturation of CO2 Sequestration	
Charles LaBrant	Indian Rocks Christian School	EAEV
S0615	Saturation of CO2 Sequestration	

### Honorable Mention

#### Junior

Mia Grousset	Saint Cecelia Catholic School	PLNT
J1314	Does the Color of Light Affect a Plant's Germination?	

### Second Place

#### Senior

Samantha Shackton	Countryside High School	PLNT
S1313	Hydroponically Grown Basil	
Ella Baum	Indian Rocks Christian School	PLNT
S1314	Determining the Mortality Rate of Aphids on Milkweed Using Cordyceps Militaris Spray	

### Third Place

#### Junior

Senait Alier	Saint Cecelia Catholic School	ANIM
J0112	Milkweed vs Synthetic Diet for Monarch Caterpillars	
Vyom Bhandari	Carwise Middle School	IMRS
J0911	AI Using Hand Gestures for Challenged People	
Andrew Poulos	Saint Cecelia Catholic School	PHYS
J1212	How Does Changing the Angle of Fan Blades Affect Airflow?	

**9 awards for Pinellas Region**

# Polk

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## Fourth Place

### Senior

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Connor McLoughlin	Lakeland Christian School	PLNT
S1324	Dodder Dichotomy: Investigating the Mutual Changes Between Cuscuta gronovii and Its Separate Hosts	

## Honorable Mention

### Junior

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Kelsey Cook	Lawton Chiles Middle Academy	ENMS
J0729	Roofing Ways for Sunny Days	

## Recognition

### Junior

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Zahaira Cromwell	Academy Prep Center of Lakeland	CHEM
J0537	To Study the Presence of Oxalate Ions in Food	

### Senior

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Zane Carter	International Baccalaureate East	CHEM
S0526	An Evaluation of the Performance of Post-use Firefighter Turnout Gear Using NFPA Standards	

## Second Place

### Senior

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Christopher Rosario	Lakeland Christian School	IMRS
S0924	Quadcopter Drone Dynamics Using Tilted Rotor Angles	

## Third Place

### Junior

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Abby Cruz	Ridge Global Studies Academy	PHYS
J1227	A Butterfly's Lift	

### Senior

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Ashley Logan	Lakeland Christian School	ANIM
S0121	Heavy Metal Levels in Gopher Tortoise Bone and Shell	

***7 awards for Polk Region***

## Sarasota

### Fourth Place

#### Junior

Aadi Bhensdadia J0727	Pine View School A Home-Based, Non-Invasive Device to Detect Hyperkalemia	ENMS
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### Honorable Mention

#### Senior

Nicholas Cox S0630	Sarasota High School How Do Different Concentrations of Glyphosate Affect Phytoplankton Populations and How Effective Will a Granular Activated Carbon (GAC) Absorption Filtration Test Be at Removing Glyphosate from an Herbicide to Protect Phytoplankton Populations?	EAEV
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Rylee Mulhollen S0630	Sarasota High School How Do Different Concentrations of Glyphosate Affect Phytoplankton Populations and How Effective Will a Granular Activated Carbon (GAC) Absorption Filtration Test Be at Removing Glyphosate from an Herbicide to Protect Phytoplankton Populations?	EAEV
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Jack Wardlaw S1225	Venice High School Walk the Planck!: Measuring Planck's Constant Using LED Lights	PHYS
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### Recognition

#### Senior

Skylar Woods S0631	Sarasota High School The Effect of Light Source on the Behavior of Daphnia magna	EAEV
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Alexia King S1224	Venice High School Water 'bout Density?	PHYS
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### Third Place

#### Junior

Rohan Dash J1014	Pine View School Herd Immunity - Save the Community	MACO
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***7 awards for Sarasota Region***

## Seminole

### Division Grand Award Winner And First Place

#### Senior

Ishika Nag	Oviedo High School	ENEV
S0811	Development of an Engineered Face Mask with Optimized Nanoparticle Layering for Filtration of Air Pollutants and Viral Pathogens	

#### First Place

#### Junior

Allison Alfert	Indian Trails Middle School	ANIM
J0113	Can an Ant Be Tricked Into Thinking that a Live Ant Is Dead?	
John Lee	Jackson Heights Middle School	CHEM
J0519	Governing Factors for Improving Electrochemical Hydrogen Production and a New MoS <sub>2</sub> Electrode Development	

#### Senior

Aleksander Sobik	Oviedo High School	PHYS
S1214	The Relationship between Droplet Movement and Cyclical Stress: Using the Leidenfrost Effect to Determine Fatigue in Concrete	

#### Fourth Place

#### Junior

Angela Calvo-Chumbimuni	Saint Luke's Lutheran School	EAEV
J0633	Algae Growth in Different Bodies of Water	
Shreyas Korimilli	Sanford Middle School	PLNT
J1316	Magnetized Seeds?	

#### Senior

Anouska Seal	Paul J. Hagerty High School	CMBI
S0412	A Novel Approach to Bone Implant Infection Therapeutics Leveraging Proteins Derived from Lactobacillus and Modulating Anti-inflammatory Gene Expression	
Arvid Vaidyanathan	Winter Springs High School	CHEM
S0515	On Demand Oxygen in a Bottle for Medical Emergency Use: Prototype and Kinetics	
Katelyn Fry	Oviedo High School	MICR
S1116	Life on Mars: An Archaeal Extremophile ( <i>Haloferax volcanii</i> ) and its Ability to Survive on Mars Global Simulant Soil MGS-1 with Potential to Promote Plant Growth	
Kalash Patel	Oviedo High School	PLNT
S1315	The Effect of Surface Wettability on Contact Angles and Pesticide Deposition Across Multiple Plant Surfaces	

#### Honorable Mention

#### Junior

Bailey McDowell	Millennium Middle School	MACO
J1012	Investing In Reinforcement Learning	
Aarush Balakrishnan	Jackson Heights Middle School	PLNT
J1315	Health Effects of Pesticides	

#### Recognition

#### Junior

Mahika Podarala	Seminole Science Charter School	EAEV
J0632	S.O.S: Save our Soil!	
Simon Chung	Sanford Middle School	IMRS
J0912	Wildfire Analytics: What Conditions Lead to the Most Damaging Wildfires?	

Brenda Maciel	Lawton Chiles Middle School	PHYS
J1213	Weigh Your Methods Carefully: The Impacts of Weight Distribution within Vehicles	

## Second Place

### Junior

Moitri Santra	Jackson Heights Middle School	ENEV
J0818	Innovative Engineering Tools for Controlling Harmful Algal Bloom (HAB): Year 3	

### Senior

Ella Pilacek	Oviedo High School	ANIM
S0112	Associating Floral Volatiles of the Endangered Clamshell Orchid ( <i>Prosthechea cochleata</i> ) with Food Reward in Honeybees ( <i>Apis mellifera</i> ) through Pavlovian Conditioning	

Annika Vaidyanathan	Winter Springs High School	PHYS
S1215	Dynamic Contact Angle Measurements of Superhydrophobicity in Face Masks to Minimize Exposure to COVID-19 (Year 3: Lab-to-Market)	

## Third Place

### Senior

Kyra Henriques	Oviedo High School	CHEM
S0514	Analysis of Microplastic Removal Efficiency of Synthesized Ferrofluids and Development of an Automated Prototype for Aquatic Environments	

Banmeet Singh	Oviedo High School	ENMS
S0715	White Cane Object Detector For Improved Safety of Visually Impaired Individuals	

**20 awards for Seminole Region**

## South Florida

### First Place

#### Senior

Emilie Steinberg	Dr. Michael M. Krop High School	MACO
S1006	Utilizing Convergence Tests and Complex Analysis to Re-define the Provability of the Partition Formula	

### Fourth Place

#### Junior

Angeline Martinez	Ethel Koger Beckham K-8 Center	PHYS
J1205	Measuring Sugar Content in a Liquid with a Laser Pointer	

#### Senior

Vasundara Govindarajan	TERRA Environmental Research Institute	BMED
S0308	ERVK3-1 as a Prognostic Marker for Invasive Ductal Carcinoma	
Luke Linxiao Yang	Miami Palmetto Senior High School	BMED
S0310	Frequency Analysis of Wireless Neuronal Activation	

### Honorable Mention

#### Junior

Trulie Feingold	Ruth K Broad Bay Harbor K-8 Center	EAEV
J0612	Environmental Impacts That Affect Ocean Water Visibility	
Ace Stein	iPrep Academy North	MACO
J1006	The Cohesiveness of Leonardo da Vinci's Paintings: Who Really Painted Salvatore Mundi?	

#### Senior

Sabina Khizroev	Miami Palmetto Senior High School	ENEV
S0804	Collecting Tire and Road Wear Particulates Using Magnets	
Peter Frometa	Westminster Christian School	MACO
S1007	Can High School Baseball Players Optimize Their College Recruiting By Analyzing Their Athletic Metrics?	

### Recognition

#### Junior

Oliver Holt	George Washington Carver Center for International Studies	BMED
J0305	How the Number of Students Affect the CO2 Levels in a Classroom	
Ariela Brody	Ruth K Broad Bay Harbor K-8 Center	EAEV
J0613	Laundry: An Unexpected Source of Plastic Pollution	

#### Senior

Miguel Javier	Medical Academy for Science and Technology	CMBI
S0402	Differentially Expressed Genes and Biological Pathways Involved in PTSD Development	
Harmanpreet Kaur	Medical Academy for Science and Technology	CMBI
S0402	Differentially Expressed Genes and Biological Pathways Involved in PTSD Development	
Kevin Toledo	Medical Academy for Science and Technology	CMBI
S0402	Differentially Expressed Genes and Biological Pathways Involved in PTSD Development	

### Third Place

#### Junior

Elena Beck	George Washington Carver Center for International Studies	EAEV
J0611	Food for Florida's Gentle Giants: The Effect of Water Quality on Water Vegetation Eaten by Manatees	
Pranav Rai	Archimedean Middle Conservatory	ENEV
J0807	Ferrofluids to the Rescue!	
<b>Senior</b>		
Lara Gastelumendi	Medical Academy for Science and Technology	BMED
S0306	Immunomodulatory Properties of Mesenchymal Stem Cells for Knee Osteoarthritis Prevention and Treatment	
Annalise Garrido	Westminster Christian School	BMED
S0307	The Effect of Varying Concentrations of Artemisinin, Berberine, and Sulforaphane Upon Ocular Tumor Formation in <i>Drosophila melanogaster</i>	
James Cai	Miami Palmetto Senior High School	BMED
S0309	Predicting Cancer Prognosis from Gene Expression Using Machine Learning	
Sunny You	Miami Palmetto Senior High School	EAEV
S0606	Predicting Future Tropical Cyclone Intensity Using a Convolutional Neural Network	

**19 awards for South Florida Region**

## St. Johns

### First Place

#### Junior

Emma York	Freedom Crossing Academy	ENMS
J0718	Testing the Impact of Different Fin Lengths on a Heat Sink with a Thermoelectric Cooler (TEC)	

### Fourth Place

#### Junior

Delia McKay	Fruit Cove Middle School	CHEM
J0523	Determining Ascorbic Acid Levels in Fruit	

#### Senior

Emma Chirila	Ponte Vedra High School	BMED
S0325	Altering Metabolic Pathways To Override Drug Resistance in Cancer	
Emily Dorairaj	Ponte Vedra High School	CMBI
S0414	Unraveling the Link between the Enzymatic and Intracellular Signaling Properties of CD38 in Malignant B-cells	

### Honorable Mention

#### Junior

Sierra Leinenbach	Fruit Cove Middle School	IMRS
J0915	The Benefits of Multi-Agent Systems in Robotics	

### Recognition

#### Senior

Jackson Wolfe	Ponte Vedra High School	BMED
S0324	Cloning of Human PRSS1 Promotor for Pancreatic Specific Gene Therapy	
Aneesh Sattiraju	Creekside High School	ENMS
S0716	Flow Pattern Alterations to Optimize Efficiency of the Tesla Valve	

### Third Place

#### Junior

William Davis	Fruit Cove Middle School	PHYS
J1219	Wind Tunnel Measurement: How Rocket Nosecone Shape Affects Drag Force	

#### Senior

Andrew Liu	Ponte Vedra High School	CMBI
S0415	Developing Anti-CLL-1 and MSLN Immunogens for CAR-T Cell Therapeutic Treatment of AML	

**9 awards for St. Johns Region**

## St. Lucie

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### Division Grand Award Winner And First Place

#### Senior

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Robert Sansone	Fort Pierce Central High School	ENMS
S0723	Investigating the Performance of a Novel Synchronous Reluctance Electrical Design	

### Honorable Mention

#### Senior

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Madison Adkins	Lincoln Park Academy	MICR
S1126	How Do Endophytic Bacteria from Mango Affect the Growth of Fungus?	

### Recognition

#### Junior

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Camila Salcedo-Lind	West Gate K-8	CHEM
J0535	Does the Type of Yeast Effect How Much Bread Rises?	

### Third Place

#### Junior

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Kai Valko	Southern Oaks Middle School	EAEV
J0649	Salty Metals	

*4 awards for St. Lucie Region*

## Suwannee Valley

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### Fourth Place

#### Junior

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Cyler Robinson	Ft. White Middle School	PLNT
J1330	Effect of Organic and Inorganic Amendments on Soil Sustainability as Indicated by Plant Growth and Soil Analysis	

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Jonaz Watson	Ft. White Middle School	PLNT
J1330	Effect of Organic and Inorganic Amendments on Soil Sustainability as Indicated by Plant Growth and Soil Analysis	

#### Senior

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Jackson Crook	Union County High School	EAEV
S0625	Effects of Pollutants on Aquatic Plant Species and Water Quality	

### Recognition

#### Senior

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Caleb Raines	Madison County High School	EAEV
S0626	The Effects of Water Hardness, pH, and Nitrate Leaching on Net Primary Productivity in Aquatic Environments	

***4 awards for Suwannee Valley Region***

# Thomas Alva Edison

## Division Grand Award Winner And First Place

### Junior

Kurukulasuriya Nishini Fernando	Paul Laurence Dunbar Middle School	EAEV
J0654	A Comprehensive Analysis: An Indication of the Impact of Microplastics on Plants and Soil in Terrestrial Ecosystems and Bacterial Degradation of Microplastics	

### Senior

Junwei Tan	Lee Virtual School	BEHA
S0214	Addressing Barriers to Classroom Communication by Automating Student Educator Feedback Loops through a Novel Software-based Approach	
Lara Kendall	Canterbury School	BMED
S0335	Analyzing the Viability of Pure Mushroom-derived Chitosan as an Alternative to Pure Crustacean-derived Chitosan in Hemostatic Agents	

## First Place

### Junior

Mason Huffman	Trafalgar Middle School	PHYS
J1230	Cooling with Acoustics	

## Fourth Place

### Senior

Michelle Barnes	Canterbury School	CMBI
S0430	A Novel Approach to the Comparative Analysis of Natural Polymer-based Biomimetic Neural Scaffolds: Using the Toxic Response of Fungal Mycelium to Model Cell Response and Repair in Peripheral Nerve Gap Injuries such as the Medulla Spinalis in Paraplegics (2nd Year Study)	
Amaya Etcheverry	Community School of Naples	MICR
S1129	Phytoplankton in Air Purification: Utilizing Novel Treatment Strategies to Improve Air Quality while Producing a Reliable Nutrient Supplement Using Coconut Husk and Charcoal with Chlorella vulgaris and Spirulina Major	

## Honorable Mention

### Junior

Kaelie Della-Luna	Oak Hammock Middle School	BMED
J0322	Gauging the Glucose in Fruit Juices	

### Senior

Caroline Guerra	Community School of Naples	ENMS
S0726	Bioplastics from Banana Peels	
Aum Dhruv	Fort Myers High School	IMRS
S0927	Comparing the Efficiency of Novel Point of Care Approaches to Identifying Specific Stages of Diabetic Retinopathy through the Use of Low-Cost Neural Networks and Deep Learning Solutions (2nd Year Study)	
Nicholas Harty	Fort Myers High School	IMRS
S0927	Comparing the Efficiency of Novel Point of Care Approaches to Identifying Specific Stages of Diabetic Retinopathy through the Use of Low-Cost Neural Networks and Deep Learning Solutions (2nd Year Study)	

## Recognition

### Junior

Miles Hammond	Mid Cape Global Academy	ENMS
J0731	Hydrogen from Water as a Green Energy Source: A Study of the Ideal Power Conditions for Hydrogen and Oxygen Generation	

### Senior

Maya Chandar	Canterbury School	MACO
S1024	Developing an Algorithm to Analyze Structural Characteristics of Alzheimer's Disease in Different Stages of Mild Cognitive Impairment and Validate White Matter Atrophy as an Early Predictor of Mild Cognitive Impairment (2nd Year Study)	

### Second Place

#### Senior

Morgan Barnes	Canterbury School	EAEV
S0637	Engineering a biomimetic system that maximizes surface area exposure to water flow thereby increasing the rate of bioremediation in an in-vitro hypereutrophic system (A Novel Fourth Year Study)	

### Third Place

#### Junior

Tanish Madhar	Paul Laurence Dunbar Middle School	EAEV
J0655	How Do Different Amounts of Herbicides Affect the <i>Daphnia magna</i> ?	
Thomas Eichten	Saint Francis Xavier Catholic School	PHYS
J1229	Duration of Movement with Decreased Air Pressure	

#### Senior

Isabel Liu	Dunbar High School	ENEV
S0819	Mimicking Photosynthesis: Which Dye Is the Best?	
Bryce Krohnfeldt	Estero High School	PLNT
S1327	The Creation and Sustainability of a Symbiotic Atmosphere in Relation to Surface Area	

**17 awards for Thomas Alva Edison Region**

## Tomoka

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### Fourth Place

#### Junior

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Rani V. Gupta J0606	David C. Hinson Middle School Which Erosion Controlled Environment Creates the Most Biomass Energy?	EAEV
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#### Senior

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Jacob Friedman S1306	Spruce Creek High School Examining the Effect of Simulation of Varied Microplastic Types on <i>Rhizophora mangle</i>	PLNT
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### Honorable Mention

#### Junior

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Brooklyn A. Bernstein J0507	New Smyrna Beach Middle School Get The Chlorine Out!	CHEM
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Reagan M. Ursini J1204	New Smyrna Beach Middle School Does the Temperature of the Dryer Influence the Efficiency of Aluminum Foil Balls in Eliminating Static Electricity from Laundry?	PHYS
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### Recognition

#### Junior

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Emma M. Jandrew J0302	New Smyrna Beach Middle School Can You Remove Food Dye From Soda?	BMED
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Madison Hancock J0506	New Smyrna Beach Middle School Let's See How Much Vitamin C	CHEM
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Salsabeel T. Eldeeb J0607	David C. Hinson Middle School Aquatic Remediation: Using an Alternative to Aluminum Sulfate to Prevent Phosphate Stripping From Damaging Eutrophic Waterways for <i>Daphnia magna</i>	EAEV
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Douglas I. Jett J1203	Heritage Middle School Does the Temperature of a Magnet Effect its Efficiency?	PHYS
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### Second Place

#### Senior

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Ahmed T. Eldeeb S0605	Spruce Creek High School Year 2: Testing the Efficiency of the Novel Model of Biodegradable Magnetic Nanoparticles for the Removal of Homosalate-Infused Microbeads to Prevent the Harm of Aquatic Life	EAEV
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**9 awards for Tomoka Region**

## West Panhandle

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### Fourth Place

#### Senior

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Grace Williams	Pensacola High School	MACO
S1010	Using Principles of the Lorenz Energy Cycle to Estimate Kinetic Energy in Studies of Greenhouse Gases	

### Honorable Mention

#### Junior

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Story Novotny	Brown-Barge Middle School	EAEV
J0619	The Nurdle Hurdle	

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Lilo Vuong	Brown-Barge Middle School	EAEV
J0619	The Nurdle Hurdle	

#### Senior

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Alice Zhang	Pensacola High School	CHEM
S0506	Alternative Energy: Producing Hydrogen from Water Using Solar Energy	

### Recognition

#### Junior

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Ian Newgent	Holley Navarre Middle School	BEHA
J0205	Can You Taste Colors?	

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Julia Bailey	Holley Navarre Middle School	ENEV
J0811	Fresh Off The Sun	

### Second Place

#### Junior

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Michael Power	Holley Navarre Middle School	IMRS
J0907	AI Speaks Your Language	

***7 awards for West Panhandle Region***