


2025 Brevard Intracoastal Regional Science and Engineering Fair



February 14
Melbourne Square Mall

Welcome to the 2025

The logo features a central yellow gear with a white circle in the middle. Green circuit lines extend from the gear to eight green circles at the corners. The word "Brevard" is above the gear, and "Regional Science and Engineering Fair" is below it.

Brevard Regional Science and Engineering Fair

This Brevard Regional Science and Engineering Fair is affiliated with the International Science and Engineering Fair (Society for Science and the Public), the world's largest Pre-College Science competition. We are also affiliated with the state's largest academic STEM competition, the Florida State Science and Engineering Fair.

We are aligned with the goals of the state science fair, which are to foster and encourage students to pursue careers in science, engineering, mathematics and research.

Students have experienced science through original research, have practiced scientific thinking and learned scientific processes. These skills will advance them in their educational and career goals in STEM (science, technology, engineering and mathematics) or in any field they choose.

Science research is related to real-world issues. It requires a thoughtful critique of all aspects of investigations and provides extensive opportunities for designing and executing investigations. Our goal is to help students learn and to communicate what they have learned with others.

“The true worth of an experimenter consists in his pursuing not only what he seeks in his experiment, but also what he did not seek.” – Claude Bernard

Cover photo collage was created using Adobe

Brevard Intracoastal Regional Science & Engineering Fair

February 14, 2025, Melbourne Square Mall, Melbourne, Florida

*To the Participants, Research Teachers, Sponsors, Judges and Visitors of the
Brevard Intracoastal Regional Science and Engineering Fair*

Welcome to the Brevard Intracoastal Regional Science and Engineering Fair. The exhibits on display are the result of countless hours of work on the part of our students. The high quality of these exhibits is the direct result of a commitment on the part of all concerned to the pursuit of excellence in science education.

The amount of national and international recognition that Brevard receives from science competition and the science community is further evidence of the dedication of students, research teachers, students' families, and Brevard Public Schools toward the goal of excellence in all fields. We thank all of you for helping make this Science Fair a success.

Debbie Austin & Chelsea George, Brevard Regional Fair Directors

Dr. Peter Gay, Intracoastal Fair Director

Special Thanks to:

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February 14, 2025 Melbourne Square Mall, Melbourne, Florida

Special Awards Sponsors

The Participants, Research Teachers, and Directors of the 2025 Brevard Intracoastal Regional Science and Engineering Fair would like to thank the following companies and organizations for providing awards.

Special Thanks to Our Key Sponsors

Florida Institute of Technology
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Florida Water & Pollution Control Operators Association
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U.S. Metric Association
Yale Science and Engineering Association

Judging Sponsors

The participants, research teachers, and directors of the 2025 Brevard Intracoastal Regional Science and Engineering Fair would like to thank the following companies and organizations for providing judges:

Thank You

American Institute of Aeronautics and Astronautics
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Tensor Engineering
United Launch Alliance
United States Air Force
United States Army
United States Navy
US Space Force
University of Florida
University of Florida, Brevard County Extension
Wabtech Corporation

Animal Science- ANIM

Senior Division – 12 entries

101	Hannah Adams To What Extent Does The Addition of a Glucagon-Like Peptide 1 Agonist Affect Hirudo medicinalis Body Mass?	Edgewood Jr/Sr High School
102	Eden Blanco Exploring the Healing Properties of Fish Skin: Accelerating Burn Tissue Recovery, Year II	Satellite High School
103	Ella Davis Ocean Acidification and Mithraculus sculptus.: Exploring the Effects of Decreased pH in a Simulated Environment	Satellite High School
104	Laney Doll Investigating the Effects of Peanut Oil on Regeneration in C. elegans: A Study on Omega-6 Fatty Acid Influence on Neuronal Repair and Growth	Satellite High School
105	Reese Jennings Prevalence of “Kissing Spine” in the General Horse Population	Edgewood Jr/Sr High School
106	Addilyn Landers Chemical Interference: Evaluating the Effects of Endocrine Disruptors on Estrogen Function	Satellite High School
107	Malina Lawhead Molecular Profiling of BPA in D. melanogaster: Developmental Implications and Health Impacts of our Food Packaging	Satellite High School
108	Mallory Manning Microplastic Distribution and Impact in Male and Female Minuca pugnax: A Comparative Study	Edgewood Jr/Sr High School
109	Jacey Milla The Impact of Paroxetine Hydrochloride Withdrawal Effects on Behavioral and Physiological Symptoms	Satellite High School
110	Lyla Nagy The Effectiveness of Delta Wave Frequencies on the Longevity and Intensity of Epileptic Seizures in C. Elegans. (Year 2)	Satellite High School

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| 111 | Colton Prill
Exploring the Impact of Sound Waves on Barnacle Feeding Rates: A Study of Acoustic Influence in Marine Environments | Edgewood Jr/Sr High School |
| 112 | Stella Redon
Unraveling the Epigenome: Stress-Induced Methylation Changes in C.elegans Utilizing Ultraviolet Light Exposure | Satellite High School |

Animal Science

Junior Division – 7 entries

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|-----|---|----------------------------|
| 151 | Parker Callahan
What Effect Does Diet Have on the Health and Behavior of Fiddler Crabs? | DeLaura Middle School |
| 152 | Ella Drapeau
The Future of Pelican Island as a Sanctuary for <i>Pelecanus occidentalis</i> Year 2: A Longitudinal Study | Hoover Middle School |
| 153 | Izzy Ramsaran
Survival Strategies: How <i>Trichechus manatus</i> Adapt Their Diets in Times of Food Scarcity | Hoover Middle School |
| 154 | Kate Sickler
Bug Magnet: Discovering Which Color Attracts The Most Insects | Edgewood Jr/Sr High School |
| 155 | Nina Snyder & Anne Wilson
Pawfect Guide Dogs for the Blind | DeLaura Middle School |
| 156 | Clara Drew Day
The Metamorphosis of <i>Vanessa cardui</i> (Taylor's Version) | Jefferson Middle School |
| 157 | Dawson Kuhns
Battle of the Phylums | Jefferson Middle School |

Behavioral Science – BEHA

Senior Division – 16 Entries

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| 201 | Farhan Adil
The Effect of Technology | Edgewood Jr/Sr High School |
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202	Ishaaq Ansari The Role of Aluminum and Other Dietary Metals in Autism Spectrum Disorder Symptoms	Edgewood Jr/Sr High School
203	Caroline Brewer The Impact of Font Size and Type on Memory Retention	Satellite High School
204	Reese Cruz Decibels and Decisions: How Different Types of Noise Influence Cognitive Performance	Satellite High School
205	Vanessa Davis Breaking Barriers: Unmasking Sexism in Media Representation	Satellite High School
206	Kya Field Evaluating the Effectiveness of Anxiety Strips: Analyzing Emotional and Textural Responses	Satellite High School
207	Laci Foster Gender-Based Variations in Mobile Phone Usage Patterns Among Adolescents	Satellite High School
208	Finn Hinely Local Perceptions of Water Quality in Brevard County: A Comparative Analysis	Satellite High School
209	Arnav Jain The Impact of Social Media Food Marketing Strategies on Public Health and the Medical Industry	Edgewood Jr/Sr High School
210	Aadi Mondal Sound Waves and Brain Waves: The Cognitive Effects of Music	Satellite High School
211	Case Nibert Investigating Ant Magnetoreception: Analyzing the Impact of Electromagnetic Fields on Pogonomyrmex Behavioral and Interaction Dynamics Year 2	Edgewood Jr/Sr High School
212	Kellen Niles Accuracy of Perception: Analyzing Political Affiliation and Trust in the News	Satellite High School
213	Whitney Ross Exploring the Impact of Competitive Dance on Mental Health: A Study of Stress, Anxiety, and Well-being in Dancers	Satellite High School

214	Paige Rutsis The Effect of Positive Self Affirmations on Athletes Mental Health and Overall Performance	Satellite High School
215	Madelyn Sjobolm Skipping Lunch: The Impact on Decision-Making Abilities	Satellite High School
216	Dylan Wilkhu Smiles That Matter: Exploring the Impact of Dental Health On Community Well-being	Edgewood Jr/Sr High School

Behavioral Science- BEHA Junior Division – 12 Entries

251	Mahaylee Bumgardner How Does The Color Blue Affect Your Mood?	Edgewood Jr/Sr High School
252	Lucas Calero Does Playing Video Games Rot Your Brain?	Edgewood Jr/Sr High School
253	Henry Herbert Memory Matters: Evaluating the Effects of Football, Lacrosse, and Wrestling on Children's Cognitive Abilities	Hoover Middle School
254	Mackenzie Kline Running for a Reward	Edgewood Jr/Sr High School
255	Yichen Mo Chromatic Feelings: Exploring the Emotional Impact of Color on Human Response	Edgewood Jr/Sr High School
256	Alexandros Ramsaran Connecting the Crew: Analyzing the Impact of Wireless vs. Wired Cox Boxes on Communication Efficiency	Hoover Middle School
257	Eshani Sharma Relax: The Brain - Heart Connection	Edgewood Jr/Sr High School
258	Arthur Williams Joke's on You: Exploring how Personality Influences Comicality	Edgewood Jr/Sr High School
259	Adam Cochran The Connection Between Reading Achievement Level and Logical Reasoning in Adolescents	Jefferson Middle School
260	Sophia Dippolito & Kinsley Knoebel	Jefferson Middle School

Music on Memory

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| 261 | Joshua Levine
The Inequality of the Electoral College in Presidential Elections | Jefferson Middle School |
| 262 | Silvia Tomas Pablo
The Influence of Gender over Managing Stressful Situations | Jefferson Middle School |

Biomedical Science – BMED Senior Division – 10 Entries

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| 301 | Isabella Blackburn
Evaluating the Impact of Geographical Shilajit Variants on the Enhancement of Protein Content in Tenebrio Molitor | Edgewood Jr/Sr High School |
| 302 | Alejandro Febres-Cordero
The Effects of flavored Nitrogen Dioxide on Drosophila melanogaster | Satellite High School |
| 303 | Ava Gallo
Exploring the Therapeutic Effects of Aloe Vera on MCF-7 Breast Cancer Cells: A Focus on Anti-inflammatory and Antioxidant Properties (Year II) | Satellite High School |
| 304 | Fiona Glynn
The Impact of Estradiol on Mortality Rates and Behavioral Patterns in Drosophila melanogaster | Satellite High School |
| 305 | Seth Hufty
Exploring the Healing Power of Sound: The Effects of Different Frequencies on Planaria Regeneration | Satellite High School |
| 306 | Zaira Joshi
Comparing Advil to Anticoagulants and Their Anti-clotting Abilities | Edgewood Jr/Sr High School |
| 307 | Evan Lorenz
The Effects of Insulin and Glucose on the Growth of MCF-7 Breast Cancer Cells | Satellite High School |

308	Sarah Miller Utrophin Localization in Dystrophic Myotubes after Transduction with Differing Doses of AAV Vector Containing Micro Dystrophin and Micro Utrophin Targeted to Striated Muscle Cells	Satellite High School
309	Jacob Roberson Bactericidal Effect of UV Filtration and Lysozyme Disinfection on Both Gram-positive and Gram-negative Bacteria; Synergistic or Redundant?	Satellite High School
310	Ryan Schneider AI-Enhanced Prosthetic: Integrating Smart Sensors for Adaptive Functionality	Edgewood Jr/Sr High School

Biomedical Science – BMED Junior Division – 6 Entries

351	Stella Daniels Heartburn, What's the Fastest Way to Speedy Relief?	Edgewood Jr/Sr High School
352	Charleigh Fritz Thyroid Wars: The Rise of the LDL Empire	Edgewood Jr/Sr High School
353	Catherine Shy Viral Villains: The Link Between Shingles and Cognitive Decline	Hoover Middle School
354	Katherine Watkins Zap that Zit: Effectiveness of Active Components in Acne Treatments Targeting Bacteria	Edgewood Jr/Sr High School
355	Layla Whitt Effective and Affordable Teeth Whitening Method	Edgewood Jr/Sr High School
356	Mackenzie Bennett & Alaina Young The Influence of Short Bursts of Exercise on the Mental Clarity of Adolescents	Jefferson Middle School

Cellular/ Molecular Biology & Biochemistry- CMBI

Senior Division – 6 Entries

401	Connor Brown	Edgewood Jr/Sr High
School	Targeted Delivery of Antisense Oligonucleotides Using Polymeric Nanoparticles with Nuclear Localization for HIV Treatment	
402	Audrey Ciccone	Satellite High
School	RNAi Therapy in Cancer Treatment II	
403	Isabella Fusco	Satellite High
School	Exploring the Therapeutic Potential of High FE2+ Inhibition via esiRNA in the Management of Hemochromatosis	
404	Christian Lamothe	Edgewood Jr/Sr High
School	Evaluating the Effects of Small Molecule Inhibitors on E. coli K-12 Growth in the Presence of Ampicillin	
405	Maria Thering	Edgewood Jr/Sr High
School	Assessing the Efficacy and Safety of Colloidal Silver as an Antibiotic: A Comprehensive Evaluation of Medical Benefits Versus Adverse Effects in Clinical Contexts	
406	Aiden Wright	Satellite High
School	Synergistic Integration of Lipid Nanoparticle-Encapsulated CRISPR/Cas9-Superoxide dismutase 2 Complexes: Enhancing Treatment of Breast Cancer Adenocarcinoma Cells Via Simultaneous Gene Editing and Redox Manipulation Year: IV	

Cellular/ Molecular Biology & Biochemistry- CMBI

Junior Division – 3 Entries

451	Sebastian Berry	Hoover Middle School
	Comparative Analysis of Active, Nutritional, and Spent <i>Saccharomyces cerevisiae</i> for Heavy Metal Removal from Contaminated Water	

452	Tyler Parsons Who Do You Call? Pesticide Busters: Residue Data on Everyday Apples	Edgewood Jr/Sr High School
453	Krishna Patel The Chemistry of Capsaicin	Edgewood Jr/Sr High School

Chemistry- CHEM Senior Division – 6 Entries

501	Alexander Ferland Improving Launchpad Sustainability by Understanding How Realistic Launchpad Environments Affect Crevice Corrosion on Common Structural Metals (Year 6)	Edgewood Jr/Sr High School
502	Katherine Hammond A Comparative Analysis of Electrochemical Remediation Methods for Heavy Metal Purification in the Indian River Lagoon	Edgewood Jr/Sr High School
503	Alena Lamothe Plastic to Power: How Chemical Additives In Plastic Waste Affect Plastic-Produced Fuel Efficiency	Edgewood Jr/Sr High School
504	Avery Lay Harnessing Solar Power for Sustainable Hydrogen Production via Water Electrolysis	Satellite High School
505	Lumen Martin Innovative Methane Capture Technologies for Atmospheric Purification	Satellite High School
506	Bella Maynard Determining the pH Levels That Induce Mortality in Earthworms to Simulate Hookworm Infiltration in Nigeria	Satellite High School

Chemistry- CHEM Junior Division – 8 Entries

551	Isaac Dalton The Effect of Zinc Oxide and Aluminum Oxide Nanoparticles on the Fuel Efficiency of Gasoline	Hoover Middle School
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552	Maya Fleischman The Secret Behind the Immortal Concrete	Edgewood Jr/Sr High School
553	Shruthi Ganesh Synthesis and Characterization of Starch-Based Biodegradable Plastic Using Various Fillers: Bentonite Clay, Microcrystalline Cellulose, and Calcium Carbonate	Edgewood Jr/Sr High School
554	Peter Frederick & Asa Jones What is the Most Efficient Way to Activate Yeast in Order to Release the Largest Amount of Gas?	DeLaura Middle School
555	James Kinsey Barnacles be Gone	Edgewood Jr/Sr High School
556	Ayaan Srivastava Berry Sneaky DNA!	Edgewood Jr/Sr High School
557	Sebastien Tort Pongamia Power: Comparing Biodiesel and Diesel Energy	Hoover Middle School
558	Kiera Jumper & Casey Vu Fake it 'till you Melt it!	Jefferson Middle School

Earth & Environmental Science - EAEV

Senior Division- 18 Entries

601	Robby Bendall Utilizing Data Modeling to Predict and Analyze the Impact of Hurricanes on Coastal Regions	Satellite High School
602	Caitlyn Bernard & Camila Iepert Aquatic pH Dynamics: Comparing Dredging Sites, Clam Tanks, and Montmorillonite Clay Environments	Satellite High School
603	Timothy Doolan Hurricane Tracking: Analyzing the Accuracy of Predictive Models in Forecasting Storm Locations	Satellite High School
604	Hayden Dunton Design and Development of a Compact Floating Buoy for Real-Time Water Quality Monitoring of the Indian River Lagoon	Edgewood Jr/Sr High School

605	Berkeley Griffin Sustainable OE Management: Biopesticides and Their Impact on Butterfly Populations	Satellite High School
606	Nick Ida Are Biodegradable Utensils Really Biodegradable?	Satellite High School
607	London Jacoby Illuminating the Depths: The Influence of Artificial Lighting on Marine Species	Satellite High School
608	Lucy Jenkins Pharmaceutical Footprints: Unraveling Drug Residues in the Indian River Lagoon Ecosystem	Satellite High School
609	Athen Karas The Impact of War on the Environment: Effects of UV Radiation and Heavy Metal Contamination on Soil Biology	Satellite High School
610	Griffin Kirby A Novel Solution to Oil Spills Using Electrocoagulation	Edgewood Jr/Sr High School
611	Makayla Lynch How Microplastics Affect Shrimp Survival Rate	Edgewood Jr/Sr High School
612	Ryan Matrigali Coral Reefs and UV Radiation: Illuminating the Impact of UV Radiation and Increased Temperature on Stimulated Ecosystems (Year II)	Satellite High School
613	Kalia McMahon What Structures Can Best Help Reduce The Effects Of Tsunamis?	Edgewood Jr/Sr High School
614	Nick Morsics Investigating the Impact of Local Weather Conditions on the Microbial Stability of Ocean Ecosystems	Satellite High School
615	Kaitlin Profit Climate Control in Modern Cities: Green Facades as a Solution for CO2 and Temperature Management	Satellite High School
616	Lily Ruda Illuminating the Impact of CO2 and its Effect on Pyrocystis fusiformis, Bioluminescent Dinoflagellates	Satellite High School
617	Bailee Sanchioni Drifting Debris: Investigating the Influence of Derelict Vessel on Sediment Toxicity in the	Edgewood Jr/Sr High School

Indian River Lagoon

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| 618 | Devin Wooten
Quantifying Microplastic Concentrations Present in Copepods Found in the Indian River Lagoon | Edgewood Jr/Sr High School |
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Earth & Environmental Science – EAEV Junior Division – 6 Entries

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| 651 | Finnegan Armstrong
Nurturing the Guardians of the Coast: Nutrient Impact on Mangrove Development | Hoover Middle School |
| 652 | Tyler Hart
Shoreline Showdown: Exploring the Water Quality in the Indian River Lagoon | Hoover Middle School |
| 653 | Isabelle Parsons
Illuminating the Issue: Analyzing the Impacts of Different Colored Lights on Night Sky Brightness | Edgewood Jr/Sr High School |
| 654 | Brady Watson
The Precipitation-Earthquake Connection: Exploring the Link Between Heavy Rainfall and Seismic Activity | Hoover Middle School |
| 655 | Aleah Wolfe
Race to Rot: Comparing the Biodegradation Rate Of Different Green Plastics | Edgewood Jr/Sr High School |
| 656 | Jeremiyah Boyd-Popovic & Reagan Silvio
Big Tires, Bigger Impact | Jefferson Middle School |

Engineering – ENMS Senior Division – 14 Entries

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| 701 | Lindsey Brown
Novel Residential Insulation Systems: Year 2 | Edgewood Jr/Sr High School |
| 702 | Daria Budko
Autonomous Underwater Vehicle for Enhanced Maritime Cleanup | Satellite High School |
| 703 | Ben Frallicciardi
Reinventing the Automobile: An Amphibious, | Satellite High School |

**Solar Powered, Sodium Ion Battery Car Of
The Future**

704	Maia Glockson Self-Healing Circuits: Can Slime Mold Be Used to Create a Regenerative Biological-Electrical Circuit?	Satellite High School
705	Dillon Gutowski Dynamic Cross-Sectional Extrusion Profiles for More Efficient FFF Printing	Edgewood Jr/Sr High School
706	Caroline Hall Maximum Hold Duration from Different Angles of the Wrist Actuated Phoenix v2 Hand	Satellite High School
707	Garret Kiger Enhancing Turtle Trackers: Development of a Durable and Adaptive Shell Design	Edgewood Jr/Sr High School
708	Thor Kopenkoskey Carbon Fiber's Use In Sidewalk Concrete For Anti-degradation Purposes and Analysis of Flexural Strength Testing (Modulus of Rupture)	Satellite High School
709	Leilani McMahon How Much Electricity Does Quartz Produce?	Edgewood Jr/Sr High School
710	Eleanor Murphy Lightening Holes: How to Decrease Weight of Metal Extrusions Without Decreasing their Strength	Edgewood Jr/Sr High School
711	Ryan Sinkeldam Building the best ion drive with science!	Satellite High School
712	Brett Stuckey Magnetohydrodynamic Thrust: Revolutionizing Propulsion with Magnetic Forces	Edgewood Jr/Sr High School
713	Cydney Underwood The Antibacterial Properties of Copper and Electricity on Reducing Nosocomial Infections: A Novel Study Year 3	Edgewood Jr/Sr High School
714	Madeline Weium Light it Up, Up, Up With Thermal Energy	Satellite High School

Engineering- ENMS
Junior Division – 8 Entries

751	Axel Bourgoin Remote Controlled Weed Wacker and Edger	DeLaura Middle School
752	Andrew Dahl Cactus Inspired Cooling: Thermal Performance of Vertical Fins and Ribbed Metal Panels on a Model Building	Hoover Middle School
753	Everett Gilchrist Pet Escape Door	DeLaura Middle School
754	Caiden Lott Modular Minnow: Engineering A 3D Printed Fishing Lure With a Detachable End	Hoover Middle School
755	Cameron Miller Plastic Showdown: Green Dreams vs Commercial Nightmare!	Edgewood Jr/Sr High School
756	Noah Savage Making and Measuring Thrust: Afterburner vs Thermojet	Edgewood Jr/Sr High School
757	James Stroda Clash of the Printable Plastics	Edgewood Jr/Sr High School
758	Brandon Watts How can I play with my dog without being there?	DeLaura Middle School

Environmental Engineering – ENEV
Senior Division – 11 Entries

801	Averi Bourgoin Creation of a Wick-Free Solar Desalination Device: Amplifying the Solar Evaporation Process	Satellite High School
802	Addie Brewer Sustainable Farming: Evaluating the Efficiency of	Satellite High School

Biodegradable Hydrogels using Agar, opposed to Hydroxyethylcellulose (HEC Powder) in Water Conservation

803	Kyan Clark Harnessing Energy from Ocean Waves with a Piezoelectric System	Satellite High School
804	Dalton Cummins Jellyfish Mucus: The Future of Microplastic Removal from Aquatic Environments	Satellite High School
805	Riley Dehuff Thermal Optimization for Improved Biogas Generation from Indian River Lagoon Muck	Edgewood Jr/Sr High School
806	Piper Doherty Balloons Need a Change; a Biodegradable Improvement Year III	Satellite High School
807	Sharanya Natarajan An Integrated Detection & Delivery System to Abate Contaminants in Water Bodies	Edgewood Jr/Sr High School
808	Kierstin Paulsson Vibrio Fischeri and Solar Energy: Traversing the plane of Convertible Solar Energy through Bioluminescent Bacterium	Satellite High School
809	Preston Ratliff Effectiveness of Ultrasonic Waves in its Ability to Reduce Algae	Edgewood Jr/Sr High School
810	Julia Van Nes Can Harmful Microplastics be Filtered Out of Coral Reefs?	Edgewood Jr/Sr High School
811	Gus Vanwickle Biodegradation Breakthrough: Fungi Consumption of Plastic for Waste Reduction	Satellite High School

Environmental Engineering- ENEV
Junior Division – 6 Entries

851	Ari Berrocales Enhancing the Strength and Acid Resistance of Concrete Utilizing the Biochar of Waste Products	Hoover Middle School
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852	Caroline Foss How Can I Build a Solar-Powered Water Desalination System?	DeLaura Middle School
853	Lucas Gamblin Fountain Finding: Revealing the Secrets of the School Water	Edgewood Jr/Sr High School
854	Constance Jean Bioplastic Breakdown: A Comparative Analysis of a Cocos nucifera-Mycelium Bioplastic and Petroleum-based Plastics	Hoover Middle School
855	Eloise Miyamoto Gunk-Guzzling Gizmo	DeLaura Middle School
856	Vaishnavi Tewatia Soil Showdown- Which Soil Combinations Let Water and Nutrients Flow?	Edgewood Jr/Sr High School

Intelligent Machines & Systems Software – IMRS

Senior Division – 10 Entries

901	Kalvin Coloma ChemCraft	Edgewood Jr/Sr High School
902	Alyssa Condon Autonomous AI-Driven Rover for Material Detection and Collection: Navigating, Avoiding Obstacles, and Sample Acquisition	Satellite High School
903	Ashwin Gudiseva Intelligent Waste Sorting: Automating the Separation of Recyclable and Non-Recyclable Waste	Edgewood Jr/Sr High School
904	Aneesha Guna Implementation of Whale Image Recognition Using Machine Learning in Resource-Constrained Environments	Edgewood Jr/Sr High School
905	Anna Perret AI in the Skies: Efficiency and Efficacy in Modern Air Traffic Management	Satellite High School
906	Ishaan Sen Myoelectric Human-Computer Interfaces for Below-Elbow Amputees	Edgewood Jr/Sr High School

907	Yilu Wang Flying Robot	Edgewood Jr/Sr High School
908	Ryan Ware Evaluating the Effectiveness of Machine Learning – Based Password Cracking Algorithms vs. Traditional Methods: Identifying Vulnerable Password Tendencies	Satellite High School
909	Ellis Williams Evaluating the Effectiveness of Autonomous Robot Navigation for Scouting and Mapping Foreign Areas	Satellite High School
910	Garrison Winters Revolutionizing Battery Design with Quantum Algorithms	Satellite High School

Intelligent Machines & Systems Software – IMRS

Junior Division – 8 Entries

951	Shah Arham AI or Human: The Ultimate Test!	Edgewood Jr/Sr High School
952	Christian Bowers AI Weather Odyssey: Experimenting Using The Predictive Power of Local Data	Edgewood Jr/Sr High School
953	Aadhira Guna The Oxygen Oracle: Machine Learning Predicts Future Water Quality	Edgewood Jr/Sr High School
954	Mahi Patel Maze Robot	DeLaura Middle School
955	Darshan Patel Fortifying Enterprise Defenses: A Comparative Analysis and Evaluation of OS Vulnerabilities on Fresh Installs	Edgewood Jr/Sr High School
956	Kai Snyder How Can I Create a Robot That Has the Ability to Traverse Any Terrain?	DeLaura Middle School
957	Juliette Stricklan AI to Identify: Training an AI Model to Identify Patch Antenna Frequencies	Hoover Middle School
958	Nathaniel Zhang	Edgewood Jr/Sr High School

Mathematics & Computational Sciences – MACO

Senior Division – 6 Entries

1001	Dillon Diaz Enhancing Foot Traffic with Sensor-Driven Algorithms	Edgewood Jr/Sr High School
1002	Marcus Hatzakis Impact of Tennis Play Styles on Match Performance and Key Statistical Outcomes	Satellite High School
1003	Jacob Junek Predicting Heart Disease Risk: Analyzing Patient Data Using the UCI Heart Disease Dataset	Satellite High School
1004	Vaughn McNeil Impact of Red Tide on the Movement Patterns of Sharks: Analyzing Behavioral Changes in Response to Harmful Algal Blooms	Satellite High School
1005	Amy Qiao Evaluating the Association Between Transporter Mutations and Type 2 Diabetes Mellitus Using Differential Gene Expression Analysis	Edgewood Jr/Sr High School
1006	Vijay Taylor Utilizing a 5-Step GIS Approach to Analyze Public Transportation Access Across Demographics in Metro Areas	Edgewood Jr/Sr High School

Mathematics & Computational Sciences

Junior Division – 2 Entries

1051	Lillian Fahey Children Consuming Caffeine: Results of Restlessness on Test Scores	Edgewood Jr/Sr High School
1052	Domenico Goodson Rocket Math	DeLaura Middle School

Microbiology – MICR

Senior Division – 12 Entries

1101	Christopher Bravo Exploring the Efficacy of Mushroom Mycelium in Mycoremediation: Assessing Its Impact on E. coli Contamination in Water	Edgewood Jr/Sr High School
1102	Reagan Cancro Visualizing Genetic Concepts: The Use of Color-Generating Plasmids in Bacterial Transformation Studies	Satellite High School
1103	Molly Chicerio Unlocking the Secrets of Tardigrade Protein Dsup: Investigating its Influence on Radiation Resistance in Fabric	Satellite High School
1104	Julia Cohen-Pinsky Fighting the Pro-tumorigenic biofilm present in the breast cancer tumor microenvironment with Apis mellifera (honey bee) venom to understand the tumor microenvironment cell interaction III	Satellite High School
1105	Cassina Couluris Ethnobotanical Applications of Psychotria nervosa and Ricinus communis in the Inhibition of Staphylococcus epidermidis	Edgewood Jr/Sr High School
1106	Bennett Gonzalez pH and Hygiene: Measuring Bacterial Reduction using Swab and Plating Techniques	Satellite High School
1107	David Raguindin Battling Sepsis at the Source: Creating an Antimicrobial Solution to be Used on Severe Burn Patients	Edgewood Jr/Sr High School
1108	Gio Ramsaran Assessing the Impact of Phi x174 Coliphage on Water Quality and Ecosystem Health in the Indian River Lagoon	Satellite High School
1109	Kendall Ratliff Stinky Shoes - The Study of How Bacteria Spreads From Dirty Shoes to Other Surfaces in the Classroom	Edgewood Jr/Sr High School

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| 1110 | Aariv Shah
Effects of Lactobacillus rhamnosus, Bifidobacterium bifidum, and Lactobacillus acidophilus on Staphylococcus epidermidis | Edgewood Jr/Sr High School |
| 1111 | Mackenzie Thompson
Biotechnology in Action: Screening and Purifying GFP from Bacteria | Satellite High School |
| 1112 | Jaxon Weakley
Comparative Analysis of Plastic Degradation Effectiveness by Bacillus subtilis and Pseudomonas fluorescens | Satellite High School |

Microbiology- MICR

Junior Division – 6 Entries

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| 1151 | Luiz Coelho De Oliveira
Microbial Madness: Using Alcohol, Hydrogen Peroxide, and Vinegar to Limit Microbial Growth | Edgewood Jr/Sr High School |
| 1152 | James Diaz Johnson
Spice It Up! | Hoover Middle School |
| 1153 | Aron Mcfarland
Assessing Antibacterial Action: The Quantity Sensitive Impact of Copper Nanoparticles on E. coli | Edgewood Jr/Sr High School |
| 1154 | Cj Shepherd
Utilizing Florida's Native Tree Species: Inhibitory Effects of Conocarpus erectus and Rhizophora mangle on Pathogenic Bacteria | Hoover Middle School |
| 1155 | Shea Young
Bacteria Buster? | Edgewood Jr/Sr High School |
| 1156 | Soleil Zimmerman
Battle of Bacteria: Killing Microbes Naturally | Edgewood Jr/Sr High School |

Physics and Astronomy – PHYS

Senior Division – 7 Entries

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| 1201 | Zander Colangelo | Satellite High School |
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Investigating Asteroid Internal Structure through Muon Radiography

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| 1202 | Michaela Gaskins
Suppressor Valve: A Novel Approach to a Thrust Diversion System | Satellite High School |
| 1203 | Jaydon Hahn
The abilities of the magnetic force, what are they? | Satellite High School |
| 1204 | Elena Huyard
Advanced Material Applications in Space: Protecting Supplies from Harsh Environmental Conditions | Satellite High School |
| 1205 | Hayden Mallory
Noise Pollution: Analyzing Loud Sounds Produced by Theme Parks | Edgewood Jr/Sr High School |
| 1206 | Christopher Teufer
Cosmic Concrete: Creating Concrete for use on the Moon | Edgewood Jr/Sr High School |
| 1207 | Mohammed Vayda
Dimples vs. Drag: Testing Aerodynamic Efficiency on the Cybertruck | Edgewood Jr/Sr High School |

Physics and Astronomy – PHYS Junior Division – 8 Entries

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| 1251 | Gabriel Alvarez
Hydro Surge | Edgewood Jr/Sr High School |
| 1252 | Connor Drake
Testing the Physics of Different Nose Cone Designs | Edgewood Jr/Sr High School |
| 1253 | Cash Fields & Ryker Stout
Which Boat Shape Will Hold the Most Weight? | DeLaura Middle School |
| 1254 | Saul Gilstad
Exploring the Limits of Airfoil Lift: Design Optimization for Next-Generation Aircraft | Hoover Middle School |
| 1255 | Sophia Kanellopoulos
The Pressure is On: Finding the Perfect Volleyball Velocity | Edgewood Jr/Sr High School |
| 1256 | Kai Mauro
Asteroids to Assets: Determining the Most Optimal Extraction Location | Hoover Middle School |

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| 1257 | Colby Molesky
How Does the Type of Gas Affect How Far a Balloon Car Will Travel? | DeLaura Middle School |
| 1258 | Zayne Jentz
The Effect of Fog on Scattering the Visible Light Spectrum | Jefferson Middle School |

Plant Science- PLNT

Senior Division – 13 Entries

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| 1301 | Brett Adams
Carbon Capture Capabilities: Single Species vs. Cross-Bred Plants | Satellite High School |
| 1302 | Thomas Cullifer
Cross-Breeding Jalapeno and Bell Pepper Plants | Edgewood Jr/Sr High School |
| 1303 | Chloe Field
Beyond Fertilizers: The Environmental Impact of Nitrogen-Fixing Plants | Satellite High School |
| 1304 | Colleen Gaydar
Hydroponic Hyper-Accumulators: The Novel Solution for Plant-Based Heavy Metal Removal within the Indian River Lagoon | Edgewood Jr/Sr High School |
| 1305 | Adrian Guadarrama Viamonte
Hydroponic Harmony: The Impact of Snake Plant Varieties on Water Quality | Edgewood Jr/Sr High School |
| 1306 | Melinda Hok
Acid Rain Simulation: Effects on Plant Growth and Development | Satellite High School |
| 1307 | Kimora Hooker
Detection of Hornworm Infestation in Tomato Plants Using Ultrasonic Sensors | Satellite High School |
| 1308 | Laila Jenkins
The Effects of Microgravity on Plant Protein Concentrations: A Comparative Study between <i>Vigna radiata</i> and <i>Raphanus sativus</i> | Edgewood Jr/Sr High School |
| 1309 | Julia Locke
Planting Resilience: Using CRISPR to Transfer HSP70 from <i>C. elegans</i> for Enhanced Desiccation | Satellite High School |

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| 1310 | Noah Luehrs
Tiny Troubles: Assessing the Impact of Microplastics on Mangrove Tree Health and Growth | Edgewood Jr/Sr High School |
| 1311 | Andrew Skinner
Quantitative Analysis of Gly m 5 Allergen in Diverse Soybean Strains | Satellite High School |
| 1312 | Reece Stelfox
CRISPR-Cas9 Mediated Knockout of TaNAC2 Gene for Improved Stripe Rust Resistance | Satellite High School |
| 1313 | Feliciano Virgen
Green Thumb | Edgewood Jr/Sr High School |

Plant Science- PLNT Junior Division – 6 Entries

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| 1351 | Anne Eidson
How Do Fertilizers and Light Color Affect the Growth and Health of Green Bean Plants? | DeLaura Middle School |
| 1352 | Brentin Folsom & Sol Gomez
Does Diet of Earthworms Affect the Soil and How It Promotes Pepper Plant Growth? | DeLaura Middle School |
| 1353 | Maci Jacques
Acidic Advances: Foliar Application of Humic and Fulvic Acids in Raphanus sativus farming | Hoover Middle School |
| 1354 | Aryan Thakkar
Silent killer: How can Acid Rain Affect Brassica Rapa's Plant Growth? | Edgewood Jr/Sr High School |
| 1355 | Jakob Trask
A Little Ceratophyllum demersum Can Go A Long Way: Ceratophyllum demersum Cleans Florida's Canals | Edgewood Jr/Sr High School |
| 1356 | Noah Spicer
Ready, Set, Let's Grow to Mars! | Jefferson Middle School |

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Dr. Mark Rendell, Ed.D.

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Saxenmeyer.J@brevardschools.org

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