

## Junior

## Animal Sciences

### Recognition

**Students Name(s):** Angela M Curry

**School:** Trinity Catholic School, **Region:** Capital

**Title:** The Amazing Catch

---

**Students Name(s):** Evan C Takacs

**School:** Christ Classical Academy, **Region:** Capital

**Title:** Is Wildlife More Active During a Full Moon?

### Honorable Mention

**Students Name(s):** Kira Lawless

**School:** Saint Joseph Catholic School, **Region:** Martin

**Title:** Superworms

### Fourth Place

**Students Name(s):** Caitlin Josephine O'Sullivan

**School:** A.D. Henderson University School, **Region:** Palm Beach

**Title:** Join the Shark Side: Digital Image Analysis of Shark Denticles to Determine the Effects of Denticle Density and Size on Speed

---

**Students Name(s):** Kinley McCaw

**School:** Dr. Mona Jain Middle School, **Region:** Manatee STEM Competition

**Title:** How Are Fruit Fly Offspring Impacted by Climate Change?

### Third Place

**Students Name(s):** Lillian M Fontaine

**School:** Saint John Lutheran School, **Region:** Big Springs

**Title:** How can Predatory Mite Environments Be Improved to Increase Production for the Biological Control of Snake Mites?

---

**Students Name(s):** Andrew Lukaj

**School:** Saint Joseph Catholic School, **Region:** Northeast Florida

**Title:** Effect of Calcium Carbonate on Hatch Speed of *Artemia salina*

### Second Place

**Students Name(s):** Aakash Manaswi

**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** A Novel Investigation of Various Beer Brands for Small Hive Beetles Treatment in Honey Bee Colonies

### First Place

**Students Name(s):** Julian James Cebollero

**School:** The Weiss School, **Region:** Palm Beach

**Title:** Tardigrade Tolerance to Extreme Temperatures

## Junior

## Behavioral & Social Sciences

### Recognition

**Students Name(s):** Joshua J Inocencio

**School:** St. Paul's Catholic School - Riverside, **Region:** Northeast Florida

**Title:** Could a Statement Being Positive or Negative Affect its Credibility?

**Students Name(s):** Sephora Esperance

**School:** Saint Andrew Catholic School, **Region:** Thomas Alva Edison

**Title:** The Rashomon Effect

### Honorable Mention

**Students Name(s):** Lilyana Durham

**School:** Holley Navarre Middle School, **Region:** West Panhandle

**Title:** Fear Factor

**Students Name(s):** Jayce E Clark

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Do Discoid Roaches Prefer Peanuts, Dry Oatmeal, or Apples Best?

### Fourth Place

**Students Name(s):** Clara Silva

**School:** Bellalago Charter Academy K-8, **Region:** Osceola

**Title:** The Effect of Faith on the Brain

**Students Name(s):** Rhea Varma

**School:** Williams Middle Magnet School, **Region:** Hillsborough

**Title:** Psychology of Competitiveness

### Third Place

**Students Name(s):** Avi Johnson

**School:** Storm Grove Middle School, **Region:** Indian River

**Title:** Varying Values

**Students Name(s):** Arpita Kumar

**School:** Teague Middle School, **Region:** Seminole

**Title:** Age vs Memory (Year 2)

**Students Name(s):** Juliana J Weldon

**School:** Christ the King Catholic School, **Region:** Northeast Florida

**Title:** How does Visualization Affect Academic Performance in Middle Schoolers?

### Second Place

**Students Name(s):** Michael Alonso Gomez

**School:** A.D. Henderson University School, **Region:** Palm Beach

**Title:** Glossophobia Prevalence in Native vs Non-Native English Speakers

**Students Name(s):** Dominic Tosi

**School:** Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal

**Title:** Learning to Learn or Learning to Teach?

---

**First Place**

**Students Name(s):** Alexander Hsu

**School:** Lincoln Middle School, **Region:** Alachua

**Title:** Social Media's Impact on Teenagers: FoMO, JoMO, and Stress

---

## Junior

## Biomedical & Health Sciences

### Recognition

**Students Name(s):** Camila Salcedo-Lind

**School:** West Gate K-8 School, **Region:** St. Lucie

**Title:** Trendy Low Sugar Diets: What Is the Impact on Yeast Colonization in the Gut Biome?

**Students Name(s):** Rebecca Shackley

**School:** Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal

**Title:** The Effect of Chitosan on Regeneration in *Hydra littoralis*

**Students Name(s):** Zachary Harshman

**School:** Sarasota School of Arts and Sciences, **Region:** Sarasota

**Title:** Development of a Patch to Protect Central Lines from Water Intrusion in Pediatric Cancer Patients

### Honorable Mention

**Students Name(s):** Kyle Galloway

**School:** Saint Paul Catholic School, **Region:** West Panhandle

**Title:** Do Blue Light Filtering Glasses Improve Sleep Quality?

**Students Name(s):** Rohan Rost

**School:** Bay Haven Charter Academy, **Region:** Havens

**Title:** The Effect of Different Sugars on the Growth of Planaria

**Students Name(s):** Eshan Vipuil

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Comparing the Antimicrobial Resistance of *Escherichia coli* Using Different Antibacterial Methods through Inhibition Zones Over Time

### Fourth Place

**Students Name(s):** Avery K Greathouse

**School:** Saint John Lutheran School, **Region:** Big Springs

**Title:** Crazy About Caffeine: What is the Effect of Caffeine on Heart Rate Using *Daphnia magna*?

**Students Name(s):** Adam Ginsburg

**School:** NSU University School, **Region:** Broward

**Title:** How Does Temperature Affect the Viability and Effectiveness of Suture Threads when Closing Wounds?

**Students Name(s):** Aanvi Mathur

**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** The Effectiveness of Smart Sunscreens as Compared to Traditional Sunscreens against Ultraviolet Radiation Using Bacteria as a Skin Cell Model

### Third Place

**Students Name(s):** Abigail D Lacayo

**School:** Wildwood Middle High School, **Region:** Big Springs

**Title:** Enzyme Excellency Year 2

**Students Name(s):** Ashwin Venkatesh

**School:** Julia Landon College Preparatory Middle School, **Region:** Northeast Florida

**Title:** Blocking the Blue

---

**Students Name(s):** Sohail Hai

**School:** American Heritage School, **Region:** Broward

**Title:** The Correlation of Elevated Spermine Levels and the Incidence of Pancreatic Cancer

---

#### **Second Place**

**Students Name(s):** Adhip Maitra

**School:** Jackson Heights Middle School, **Region:** Seminole

**Title:** The Use of Deep Learning to Aid in the Early Detection of Ptosis in the Eye as a Possible Indicator of other Serious Diseases and Disorders

---

**Students Name(s):** Alexa Shamus

**School:** Pembroke Pines Charter Middle School, **Region:** Broward

**Title:** The Influence of Sneaker Type on Eighth and Ninth Graders' Gait

---

#### **First Place**

**Students Name(s):** Kasey Tiffany Moore

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of Aloe barbenditis miller (Aloe Vera) in Regeneration of Eisenia fetida (Red Wiggler Earthworm) Cultured in a Prodiabetic Environment Using a High Sucrose Solution

---

#### **Grand Award Winner**

**Students Name(s):** Kasey Tiffany Moore

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of Aloe barbenditis miller (Aloe Vera) in Regeneration of Eisenia fetida (Red Wiggler Earthworm) Cultured in a Prodiabetic Environment Using a High Sucrose Solution

---

## Junior Cellular/Molecular Biology & Biochemistry

### Recognition

**Students Name(s):** Stella Pham

**School:** Milwee Middle School, **Region:** Seminole

**Title:** Comparing the DNA Mass of Different Fruit Types

**Students Name(s):** Noah N Neihaus

**School:** Martin J Gottlieb Day School, **Region:** Northeast Florida

**Title:** Effects of Number of Organisms on Speed of Nitrogen Cycle Completion

### Honorable Mention

**Students Name(s):** Gerardo J Cardoso

**School:** Wildwood Middle High School, **Region:** Big Springs

**Title:** Bacteria on Kitchen Sponges...Which Method is Best

**Students Name(s):** Emma Windsor; Sophia Torres

**School:** University Academy - Charter, **Region:** Havens

**Title:** Yeast Feast

### Fourth Place

**Students Name(s):** Nidhi Kashyap

**School:** Dr. John Long Middle School, **Region:** Pasco

**Title:** Beacon of the Sea

### Third Place

**Students Name(s):** Arianna Lian

**School:** A.D. Henderson University School, **Region:** Palm Beach

**Title:** Investigating the Effects Of Ocean Acidification On Strombus alatus Conch Shells through Quantitative Image Analysis

**Students Name(s):** Elizabeth Dykxhoorn

**School:** George Washington Carver Middle School, **Region:** South Florida

**Title:** Plastic on the Brain

### Second Place

**Students Name(s):** Aiden Wright

**School:** Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal

**Title:** The Effect of *Punica granatum* on *Drosophila melanogaster* (Year 2)

**Students Name(s):** Tanishka Aglave

**School:** Williams Middle Magnet School, **Region:** Hillsborough

**Title:** An Eco-Friendly Alternative to Chemical Herbicide - A Sustainable Approach for the Amaranthus palmeri Weed Control Using Novel Bio-Herbicide and Analyzing its Efficacy through NDVI/NDRE Vegetation Indexes through RapidScan CS45 Hand Sensor Device

### First Place

**Students Name(s):** Nina Goyal

**School:** Hidden Oaks Middle School, **Region:** Martin

**Title:** A New Weed Management Strategy: RNA Interference Modification of Phytoene Desaturase (PDS) And 5-Enolpyruvylshikimate-3-Phosphate Synthase (EPSP) to Control Purple Nutsedge (*Cyperus rotundus*)

## Junior

## Chemistry

### Recognition

**Students Name(s):** Oliver Schwartz

**School:** Pine Ridge Middle School, **Region:** Collier

**Title:** The Difference of pH Between Several Apple Cultivars

**Students Name(s):** Payton Kaplan

**School:** Sebastian Charter Junior High School, **Region:** Indian River

**Title:** Marvelous Milk Alternatives

**Students Name(s):** Abigail McFarland

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** Corrosive Coffee, Brew Methods and Freshness

**Students Name(s):** Hailey Nutt

**School:** Rocky Bayou Christian School, **Region:** East Panhandle

**Title:** What Fabric Can withstand Washes with a Darker Color?

**Students Name(s):** Dylan Siegal

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Extracting Vitamin C from Potatoes Using Titration

### Honorable Mention

**Students Name(s):** Savannah Cipyak

**School:** A.D. Henderson University School, **Region:** Palm Beach

**Title:** Image Analysis of Natural Shibori Indigo Dye on Various Textiles

**Students Name(s):** Kate Aldridge

**School:** Saint Paul Catholic School, **Region:** West Panhandle

**Title:** What's in Your Water

**Students Name(s):** Kiley-Jo Harrison

**School:** Lake Butler Middle School, **Region:** Suwannee Valley

**Title:** Perplexed by Porous Paper Towels

**Students Name(s):** Charlie Della-Luna

**School:** Oak Hammock Middle School, **Region:** Thomas Alva Edison

**Title:** Rise Above the Rest! Which Sugar Substitute Reacts the Best?

### Fourth Place

**Students Name(s):** Layne Keeran

**School:** New Smyrna Beach Middle School, **Region:** Tomoka

**Title:** Roasting Rainbow

**Students Name(s):** Sarah C Colley

**School:** The Villages Charter Middle School, **Region:** Big Springs

**Title:** Molecular Gastronomy & Medicine

**Students Name(s):** Mia Gindlesberger  
**School:** Ridgeview Global Studies Academy, **Region:** Polk  
**Title:** The Wait Is Killing Me!

---

**Students Name(s):** Caroline Cornell  
**School:** Hardee Junior High School, **Region:** Heartland  
**Title:** Does the Type of Potassium Applied Foliarly to *Capsicum annuum* (bell peppers) Affect the Size of the Pepper?

---

**Students Name(s):** Colton Harrin  
**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando  
**Title:** Power of Mud: The Effect of Compost Tea, Banana Water, and Tap Water on MFC Production

---

**Students Name(s):** Cody Andrews  
**School:** Lake Butler Middle School, **Region:** Suwannee Valley  
**Title:** The Rubber Rivalry

---

### Third Place

**Students Name(s):** Josiah Mirville  
**School:** Charles S. Rushe Middle School, **Region:** Pasco  
**Title:** Polystyrene Power Up

---

**Students Name(s):** Ella Belvedere Winogradsky  
**School:** Sanderlin K-8 IB World School, **Region:** Pinellas  
**Title:** Spherification

---

**Students Name(s):** Aiden Xu  
**School:** Sanford Middle School, **Region:** Seminole  
**Title:** Formulation of a Fragrant and Skin-friendly Mosquito/Insect Repellent and its Effectiveness Validation via Custom-designed Experiments

---

**Students Name(s):** Cooper Nolte  
**School:** Yearling Middle School, **Region:** Heartland  
**Title:** Homemade Hydrogen: The Effect of Voltage on Electrolysis

---

**Students Name(s):** Shishir Sajja  
**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** Which Artificial Sweetener Does Yeast Grow Best in?

---

### Second Place

**Students Name(s):** Aarohee Dabas  
**School:** Oakridge Middle School, **Region:** Collier  
**Title:** Effect of Using Different Leavening Agents on Cookies

---

**Students Name(s):** Ethan Muller  
**School:** Creekside Middle School, **Region:** Tomoka  
**Title:** Extracting Hydrogen Out of Water to Utilize as an Alternative Energy Source

---

**Students Name(s):** Hunter Wilson  
**School:** Resurrection Catholic School, **Region:** Polk  
**Title:** Sugar Rush

---

**Students Name(s):** Alejandra Stephanie Perry  
**School:** Paul W. Bell Middle School, **Region:** South Florida  
**Title:** An Alteration of Acidic and Alkaline Adhesives

---

**First Place**

**Students Name(s):** Santiago Hernandez  
**School:** Golden Gate Middle School, **Region:** Collier  
**Title:** Water Fountain Impurities

---

**Students Name(s):** Cyler Robinson  
**School:** Fort White High School, **Region:** Suwannee Valley  
**Title:** How Can The Dissolved Oxygen Concentration Be Increased In A Hydroponic Solution?

---

## Junior

## Earth & Environmental Sciences

### Recognition

**Students Name(s):** Rani Gupta

**School:** David C. Hinson Middle School, **Region:** Tomoka

**Title:** Does the Conversion of Florida Marginal Land into Biomass Producing *Panicum virgatum* Change Soil Quality?

**Students Name(s):** Nolan D Kennedy

**School:** The Villages Charter Middle School, **Region:** Big Springs

**Title:** The Efficacy of Various Methods to Transform Macroalgal Sargassum Blooms Into a Sustainable High-nutrient Fertilizer

**Students Name(s):** Valerie Downing

**School:** Bay Haven Charter Academy, **Region:** Havens

**Title:** Seastastic Plastic

**Students Name(s):** Alina Beech

**School:** University Academy - Charter, **Region:** Havens

**Title:** Seagrass Health (Phase II)

**Students Name(s):** Samara Q. MacDonald; Carol Alvarez

**School:** Sigsbee Charter School, **Region:** Monroe

**Title:** Can't Flush This

### Honorable Mention

**Students Name(s):** Lily B Kosa

**School:** Wildwood Middle High School, **Region:** Big Springs

**Title:** What Can Destroy the Growth of Coffee Senna?

**Students Name(s):** Dean Grace

**School:** Saint John Paul II Catholic School, **Region:** Citrus

**Title:** Nature's Fertilizer

**Students Name(s):** Maggie Gao

**School:** Lincoln Middle School, **Region:** Alachua

**Title:** Effect of Fire Extinguisher Foam on Soil Quality and Plant Growth

**Students Name(s):** Kathryn Sharkey

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** Algae Adversary: The Effects of Competition for Nutrients on the Severity of Algal Blooms

**Students Name(s):** Delaney Hermes

**School:** Space Coast Jr/Sr High School, **Region:** Brevard: Mainland

**Title:** Breaking Down Ocean Acidification

### Fourth Place

**Students Name(s):** Alex Ewy

**School:** North Naples Middle School, **Region:** Collier

**Title:** How Varying Levels of Urbanization Increase or Decrease Carbon Dioxide Levels

**Students Name(s):** Tej Patel

**School:** David C. Hinson Middle School, **Region:** Tomoka

**Title:** Which Produces More Electricity in a Microbial Fuel Cell? Mud vs Compost?

---

**Students Name(s):** Theodore Toler

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** The Effect of Land Development on Native *Tillandsia spp.* in the University of South Florida Forest Preserve

---

**Students Name(s):** Trulie Feingold

**School:** Ruth K Broad Bay Harbor K-8 Center, **Region:** South Florida

**Title:** Pastic Sporks

---

**Students Name(s):** Yuthika Panigrahi

**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** The Effect of Soil Permeability on Water Filtration

---

**Students Name(s):** Emma Elfenbein

**School:** L. A. Ainger Middle School, **Region:** Thomas Alva Edison

**Title:** Which Compost Is the Best Plant food?

---

### Third Place

**Students Name(s):** Lenny Jean Hanisko

**School:** Don Estridge High Tech Middle School, **Region:** Palm Beach

**Title:** An Exclamation On Acidification: The Relationship Between CO<sub>2</sub> and Algae In Ocean Water

---

**Students Name(s):** Mili Mohanty

**School:** The Weiss School, **Region:** Palm Beach

**Title:** Comparing the Effects of Different Concentrations of Microplastics on *Daphnia magna*

---

**Students Name(s):** Akshit Ladegaonkar

**School:** Lawton Chiles Middle Academy, **Region:** Polk

**Title:** Spills in Saltwater

---

**Students Name(s):** Mithra Vasanthan

**School:** Julia Landon College Preparatory Middle School, **Region:** Northeast Florida

**Title:** Climate Change: How are Freshwater Organisms Affected?

---

**Students Name(s):** Abigail P Dooley

**School:** San Jose Catholic School, **Region:** Northeast Florida

**Title:** Can Saharan Silver Ant Hair Structures Preserve Earth's Polar Ice?

---

### Second Place

**Students Name(s):** Ariana Bolton

**School:** Storm Grove Middle School, **Region:** Indian River

**Title:** An A-Salt on Our Oceans: The Effects of Salinity on Rate of Thermal Expansion

---

**Students Name(s):** Griffin Kirby

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** A Bright Idea for Tracking Septic Wastewater Pollution

---

**Students Name(s):** Shrinidhi Raghavan

**School:** Seminole Science Charter School, **Region:** Seminole

**Title:** Desalination Innovation - A Foreseeable Solution to Drought

---

**Students Name(s):** Sophia Butori

**School:** Ruth K Broad Bay Harbor K-8 Center, **Region:** South Florida

**Title:** Power of Plastic

---

**First Place**

**Students Name(s):** Marco A Chua

**School:** St. Paul's Catholic School - Riverside, **Region:** Northeast Florida

**Title:** Wave Force Dissipation: Year Two

---

**Students Name(s):** Cydnee E Miranda

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** How Does *Pestalotiopsis microspora* React to Different Types of Plastic?

---

### Junior

### Engineering

#### Recognition

**Students Name(s):** Vandana Rajasekar

**School:** Starkey Ranch K-8, **Region:** Pasco

**Title:** Operation Cellphone Radiation

**Students Name(s):** Emmaline Gambino; Camila Vaca Aguirre

**School:** Pinellas Park Middle School, **Region:** Pinellas

**Title:** Using Wearable Health Technology

**Students Name(s):** Chase Nason

**School:** Madison Middle School, **Region:** Brevard: Mainland

**Title:** Construction Adhesives

**Students Name(s):** Matthew Durham

**School:** Stewart Middle School, **Region:** Hillsborough

**Title:** How Does the Type of Metal Affect the Strength of It as an Electromagnet

#### Honorable Mention

**Students Name(s):** Rene Formoso

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** R.O.D.A: Robotic Operating Discovery Arm

**Students Name(s):** Arnav Khanolkar

**School:** Julia Landon College Preparatory Middle School, **Region:** Northeast Florida

**Title:** Optimization of Photovoltaic Cell Performance using Static and Dynamic Orientation Models

**Students Name(s):** Samuel Mays

**School:** NSU University School, **Region:** Broward

**Title:** inSPECTRO Gadget: Low-cost, Portable Raman Scatter Spectroscopy to Identify Unknown Substances

**Students Name(s):** Adrian Jose Alvarez

**School:** Lockhart Middle School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Single-axis and Dual-axis Tracking Systems

#### Fourth Place

**Students Name(s):** Ethan Bai

**School:** Sanford Middle School, **Region:** Seminole

**Title:** Solutions to Avoid Obstacles on the Road for an Autonomous Driving Car

**Students Name(s):** Graycin Daly

**School:** Canoe Creek K-8, **Region:** Osceola

**Title:** How Strong Is 3-D Printing

**Students Name(s):** Christian Diez

**School:** Classical Conversations of West Plantation, **Region:** Broward

**Title:** Which Bridge Has the Greatest Load Bearing Capacity?

**Students Name(s):** Taylor Thomason  
**School:** Sugarloaf School, **Region:** Monroe  
**Title:** Sorbent Oil Spills

---

**Students Name(s):** Thor Wikman  
**School:** Charlotte Virtual School, **Region:** Thomas Alva Edison  
**Title:** Improving Air Flight Fuel Efficiency: Percent Infill Of 3D Printed Airfoils vs Their Strength

---

### Third Place

**Students Name(s):** Lilly Downs  
**School:** Galaxy Middle School, **Region:** Tomoka  
**Title:** Optimal Gear Ratio of a Gravity Battery

---

**Students Name(s):** Sanjit Prakash  
**School:** Sanford Middle School, **Region:** Seminole  
**Title:** Building a Solar Tracking Energy Estimator

---

**Students Name(s):** David Albertini  
**School:** Classical Conversations of West Plantation, **Region:** Broward  
**Title:** Let There Be Light: The Solar-Faraday Flashlight

---

**Students Name(s):** Emma York  
**School:** Freedom Crossing Academy, **Region:** St. Johns  
**Title:** Testing the Number of Thermoelectric Coolers (TEC) on a Solar Cell to Improve the Solar Cell Efficiency

---

### Second Place

**Students Name(s):** Tobias Lou White  
**School:** The Weiss School, **Region:** Palm Beach  
**Title:** Autonomous Boat for Collecting and Testing Water Quality in South Florida's Fresh Water Canals and Lakes

---

**Students Name(s):** Camilla Nieves-Rivera  
**School:** Oak Hammock K-8 School, **Region:** St. Lucie  
**Title:** Water Saver

---

**Students Name(s):** Maximus Callis  
**School:** American Heritage School, **Region:** Broward  
**Title:** The Effects of Material Type on Energy Absorption when Testing 3000 Series Aluminum, Quasi-Isotropic Carbon Fiber, and Self-Reinforced Polypropylene Thermoplastic Using a Custom Impact Testing Machine

---

### First Place

**Students Name(s):** Aadi Bhensdadia  
**School:** Pine View School, **Region:** Sarasota  
**Title:** Utilizing 3D Additive Manufacturing to Develop a Biocompatible, Customizable, and Durable Mechanical Aortic Valve

---

### Grand Award Winner

**Students Name(s):** Aadi Bhensdadia  
**School:** Pine View School, **Region:** Sarasota  
**Title:** Utilizing 3D Additive Manufacturing to Develop a Biocompatible, Customizable, and Durable Mechanical Aortic Valve

---

### Junior

### Environmental Engineering

#### Recognition

**Students Name(s):** Samuel Calhoun  
**School:** Saint Joseph Catholic School, **Region:** Martin  
**Title:** Solar Power in the Sunshine State

**Students Name(s):** Uma Crisafulli  
**School:** Gifford Middle School, **Region:** Indian River  
**Title:** From Food Scraps to Fuel

**Students Name(s):** Sierra Neitzke  
**School:** Okaloosa STEMM Academy, **Region:** East Panhandle  
**Title:** Bioplastics: Strength Battle

#### Honorable Mention

**Students Name(s):** Sophie Barr  
**School:** Modern Schoolhouse, **Region:** Lake  
**Title:** Water You Waiting for? Let's Filter It!

**Students Name(s):** Teresa Zamora  
**School:** Resurrection Catholic School, **Region:** Polk  
**Title:** Rainwater as Drinking Water

#### Fourth Place

**Students Name(s):** Cesar Dato-Slattey; Jack Curley; Nicholas Rummel  
**School:** Saint Edward's Upper School, **Region:** Indian River  
**Title:** Carbon Capture

**Students Name(s):** Aiden Kirkley  
**School:** Cypress Creek Middle School, **Region:** Pasco  
**Title:** Fire Detection Towers

**Students Name(s):** Delaney Peterson  
**School:** The Cornerstone School, **Region:** Big Springs  
**Title:** How Much Power can Be Generated Using a Linear Solar Power System Along the Median and Shoulder of the Florida Turnpike?

**Students Name(s):** Aditi Swain  
**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** Generating Electricity from Food Waste

#### Third Place

**Students Name(s):** Elliana Lovatt  
**School:** Stuart Middle School, **Region:** Martin  
**Title:** St. Lucie Inlet Sand Deposition

**Students Name(s):** Aaron D Zacharia; Lukas A Nye  
**School:** Julia Landon College Preparatory Middle School, **Region:** Northeast Florida  
**Title:** Where Has This Energy Bean? Upcycling Spent Coffee Grounds

---

**Students Name(s):** William J Estevez  
**School:** West Shore Junior/Senior High School, **Region:** Brevard: South  
**Title:** Designing, Creating, and Testing a Multi-Purpose Wave Tank

---

**Second Place**

**Students Name(s):** Aswath Rajesh  
**School:** DeLaura Middle School, **Region:** Brevard: Intracoastal  
**Title:** How Does Chitosan Enhance the Properties of Bio-Plastic?

---

**First Place**

**Students Name(s):** Sophie Schuh  
**School:** Viera High School, **Region:** Brevard: Mainland  
**Title:** Making a Better Rope Cutter for Entangled Whales

---

**Grand Award Winner**

**Students Name(s):** Sophie Schuh  
**School:** Viera High School, **Region:** Brevard: Mainland  
**Title:** Making a Better Rope Cutter for Entangled Whales

---

## Junior Intelligent Machines, Robotics, & Systems Software

### Recognition

**Students Name(s):** Anik Krish Sahai  
**School:** A.D. Henderson University School, **Region:** Palm Beach  
**Title:** The Nose Knows

**Students Name(s):** Gabriel Foote  
**School:** Dayspring Academy Middle School, **Region:** Pasco  
**Title:** Smart Sprinkling

### Honorable Mention

**Students Name(s):** Ryan Glatter-Gotz  
**School:** The Cornerstone School, **Region:** Big Springs  
**Title:** Distinguishing Between AI and Human-Generated Text: A Challenge for LA Teachers?

**Students Name(s):** Nitin Kurup  
**School:** Williams Middle Magnet School, **Region:** Hillsborough  
**Title:** COVID Complication

### Fourth Place

**Students Name(s):** Sidharth Patsamatla  
**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal  
**Title:** A Novel Artificial Intelligence Tool for the Detection of Cancer Towards Improved Radiotherapy via High Level Computer Vision and Image Segmentation

### Third Place

**Students Name(s):** Viktoriia Galushchak  
**School:** St. Paul's Catholic School - Riverside, **Region:** Northeast Florida  
**Title:** How Can People That Don't Know Sign Language Communicate with People That Use it?

**Students Name(s):** Hajun Joshua Chun; Antonio Benjamin Estrada  
**School:** Orange Park Junior High School, **Region:** Clay Rotary  
**Title:** Robot Wheels Effect on Agility and Accuracy

### Second Place

**Students Name(s):** Ankan Das  
**School:** Sanford Middle School, **Region:** Seminole  
**Title:** A Novel Shape Memory Alloy-based Mobile Robot for Surveillance and Planetary Explorations

**Students Name(s):** Abigail Merchant  
**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** The Mindful Arm

### First Place

**Students Name(s):** Dylan Michael Kiesling  
**School:** The Weiss School, **Region:** Palm Beach  
**Title:** Interactive Virtual Reality Learning Program to Improve the Fractured STEM Pipeline

## Junior

## Mathematics & Computational Sciences

### Recognition

**Students Name(s):** Harold Boyce

**School:** Paul R. Smith Middle School, **Region:** Pasco

**Title:** Watch Your Language

---

**Students Name(s):** Jadyn Cross

**School:** DeLaura Middle School, **Region:** Brevard: Intracoastal

**Title:** Designing a Turing Complete 8 Bit Computer

### Honorable Mention

**Students Name(s):** Ariana Alicea

**School:** Bishop Larkin Catholic School, **Region:** Pasco

**Title:** 3D Distortion

### Fourth Place

**Students Name(s):** Matthew G Grainger

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Tracking and Comparing Influenza Patterns

---

**Students Name(s):** Paxton Boaz

**School:** International Community School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** 2 for 1: Yes or No

### Third Place

**Students Name(s):** Lucas Schirripa

**School:** Ascension Catholic School, **Region:** Brevard: Mainland

**Title:** How to Test Peripheral Vision with an App

### Second Place

**Students Name(s):** Hannah Seth

**School:** Sanford Middle School, **Region:** Seminole

**Title:** Facial Recognition Using Python

### First Place

**Students Name(s):** Miguel Secillano

**School:** Howard Middle School, **Region:** Big Springs

**Title:** Now Boarding - A Scientific Simulation of Boarding a Plane

### Junior

### Microbiology

#### Recognition

**Students Name(s):** Gianna Lauren D'Elia

**School:** Storm Grove Middle School, **Region:** Indian River

**Title:** Moss vs Lichen: Which Has More Tardigrades?

---

**Students Name(s):** Malachi Summer

**School:** Martha B. King Middle School, **Region:** Manatee STEM Competition

**Title:** Bro, Wash Your Face!

#### Honorable Mention

**Students Name(s):** Harper Hall

**School:** Sebastian River Middle School, **Region:** Indian River

**Title:** Can't Touch This!

#### Fourth Place

**Students Name(s):** Jaxon Hyczka

**School:** Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal

**Title:** The Antibacterial Effectiveness of a Copper Nanoparticle Polymer Resin

---

**Students Name(s):** Corina Lane

**School:** Johnson Middle School, **Region:** Brevard: Mainland

**Title:** *Escherichia coli* ATCC 25922 Colonies Isolated to Different Temperatures to See Which Will Reproduce the Most

#### Third Place

**Students Name(s):** Ragini Nayak

**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** The Effectiveness of Extracts from Natural Antibacterial Substances at Eliminating Bacteria Compared to Fluorquinolones on *E. coli*

---

**Students Name(s):** Swara Patel

**School:** Carrollwood Day School, **Region:** Hillsborough

**Title:** An Investigation to Determine an Ideal Substrate Ratio for a Martian In-situ Resource Utilization System Using Cyanobacteria (Year 3)

#### Second Place

**Students Name(s):** Shoaib Ahmed

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Bacteria Growth in Different Levels of Magnetic Fields

#### First Place

**Students Name(s):** Bhav Jain

**School:** Don Estridge High Tech Middle School, **Region:** Palm Beach

**Title:** Studying the Antibacterial Properties of Curcumin and the Influence of Piperine

### Junior

### Physics & Astronomy

#### Recognition

**Students Name(s):** Jack Pustizzi

**School:** Oakridge Middle School, **Region:** Collier

**Title:** Magnetic Coaster Launch Systems

**Students Name(s):** Thomas Wendling

**School:** Westwood Middle School, **Region:** Alachua

**Title:** How Do Different Helmet Materials Affect the Strength of an Impact Passed through Them?

**Students Name(s):** Elijah Gibson

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** On the Road Again: The Effect of Weight Distribution on the Speed of a Vehicle on an Incline and on a Decline

#### Honorable Mention

**Students Name(s):** Zander Colangelo

**School:** DeLaura Middle School, **Region:** Brevard: Intracoastal

**Title:** Electromagnetic Launch Systems

**Students Name(s):** Zachariah Clayton

**School:** Citrus Springs Middle School, **Region:** Citrus

**Title:** Musical Flames

**Students Name(s):** Callen Moynihan

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** How Does the Temperature of Steel Affect Its Malleability?

**Students Name(s):** Benjamin Jauregui

**School:** Archimedean Middle Conservatory, **Region:** South Florida

**Title:** Cloudy with a Chance of Cosmic Rays

#### Fourth Place

**Students Name(s):** Lavya Patel

**School:** Oakridge Middle School, **Region:** Collier

**Title:** Something From Nothing!

**Students Name(s):** Rocco Sammartino

**School:** Gulfview Middle School, **Region:** Collier

**Title:** Battle of the Brands

**Students Name(s):** Kaden Janania

**School:** River Springs Middle School, **Region:** Tomoka

**Title:** How Different Materials Affect Sound Absorption

**Students Name(s):** Magnus Aguila-Roehr

**School:** George Washington Carver Middle School, **Region:** South Florida

**Title:** Synchronization

**Students Name(s):** Shourigna Madishetty  
**School:** Paul Laurence Dunbar Middle School, **Region:** Thomas Alva Edison  
**Title:** Dented Versus Non-Dented Instruments: Do Dents Matter on an Instrument?

---

**Third Place**

**Students Name(s):** Melina Parris  
**School:** North Naples Middle School, **Region:** Collier  
**Title:** Harnessing Solar Energy to Make a "S'moretacular" Dessert

---

**Students Name(s):** Priscilla An  
**School:** Seminole Science Charter School, **Region:** Seminole  
**Title:** Electromagnetic Spectrum vs Solar Panels: How Different Parts of the EM Spectrum Affect How a Solar Panel Charges a Battery

---

**Students Name(s):** Keya K Patel  
**School:** Maclay School, **Region:** Capital  
**Title:** The Inverse Space Leidenfrost Effect

---

**Students Name(s):** Emmie B Kutter  
**School:** Maclay School, **Region:** Capital  
**Title:** Fingerprinting an Individual Cello Using an Algorithm with Fourier Analysis

---

**Second Place**

**Students Name(s):** Brady W Kline  
**School:** The Villages Charter Middle School, **Region:** Big Springs  
**Title:** Which Type of Tape is Objectively the Best?

---

**Students Name(s):** Megha Sandrapaty  
**School:** Osceola Middle School, Ocala, **Region:** Big Springs  
**Title:** What Angle of Trajectory and Fin Configuration will Allow a Rocket to Travel the Farthest?

---

**First Place**

**Students Name(s):** Sarah Dabees  
**School:** North Naples Middle School, **Region:** Collier  
**Title:** Harnessing Waste Energy Using Thermoelectric Generators

---

## Junior

## Plant Sciences

### Recognition

**Students Name(s):** Amelia Peebles

**School:** Raymond B. Stewart Middle School, **Region:** Pasco

**Title:** The Effect of Different Sound Frequencies on Plant Growth

**Students Name(s):** James Do

**School:** Lake Pointe Academy, **Region:** Lake

**Title:** The Effects of Fertilizer on Elodea Plant Growth and its Implication on Algae Growth

**Students Name(s):** Ivan Kalashnykov

**School:** American Heritage School, **Region:** Broward

**Title:** The Effects of Different Preservation Types on the Nutrient Volume of Microgreens Grown in Different Substrates

**Students Name(s):** Keerthi Karri

**School:** Orlando Science Middle School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** The Efficiency of Different Amounts of Ayurvedic Medicine for Nourishment of Young Lettuce Plants

### Honorable Mention

**Students Name(s):** Aiden Hong

**School:** Pal Pointe Educational Research School, **Region:** St. Lucie

**Title:** Algae-rific

**Students Name(s):** Kyle Sposato

**School:** Saint Mary Catholic School, **Region:** East Panhandle

**Title:** Polluted Plants!

**Students Name(s):** Suma Gunupati

**School:** Benito Middle School, **Region:** Hillsborough

**Title:** The Effects of Fertilizer on Different Types of Rice Grains

### Fourth Place

**Students Name(s):** Matias Quinonez Arguedas

**School:** Resurrection Catholic School, **Region:** Polk

**Title:** Rise of the Pumpkins

**Students Name(s):** Ishaan Lakhani

**School:** Lawton Chiles Middle Academy, **Region:** Polk

**Title:** Plants in Outer Space

**Students Name(s):** Anderson Gray

**School:** Hardee Junior High School, **Region:** Heartland

**Title:** Does a Redworm's (*Lumbricus rubellus*) Diet Affect the Rate of Germination for Seeds?

**Students Name(s):** Emily Harrin

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** Water Matters!: The Effect of Water pH on Grass Growth

**Students Name(s):** Bryce Nagel

**School:** Challenger K8 School of Science and Mathematics, **Region:** Hernando

**Title:** The Effects of Ultraviolet Radiation on the Growth of Plants

---

### Third Place

**Students Name(s):** Jaycee G Woody

**School:** Wildwood Middle High School, **Region:** Big Springs

**Title:** Phytoremediation: Using Plants to Remove Lead From Soil

---

**Students Name(s):** Janelle McDuffie

**School:** Hardee Junior High School, **Region:** Heartland

**Title:** Does the Type of Media Affect the Growth and Yield in Potted Basil (*Ocimum basilicum*) Production?

---

**Students Name(s):** Ana C Bouchard

**School:** Christ Classical Academy, **Region:** Capital

**Title:** Hypochlorous Acid and Seedlings

---

**Students Name(s):** Leanna J Kitchen

**School:** Community Leadership Academy, **Region:** Capital

**Title:** Under Pressure: Does it Help Plants?

---

### Second Place

**Students Name(s):** Ben Liu

**School:** A.D. Henderson University School, **Region:** Palm Beach

**Title:** Ground Basalt Application to Agricultural Land as a Strategy for CO2 Sequestration

---

**Students Name(s):** Gianna Dykes

**School:** Sebastian Charter Junior High School, **Region:** Indian River

**Title:** Vermiponics: Wiggly Worms to the Rescue v2

---

**Students Name(s):** Wesley Kettering

**School:** Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal

**Title:** Sea Soak vs Sea Spray

---

### First Place

**Students Name(s):** Olivia Chung

**School:** American Heritage School, **Region:** Broward

**Title:** The Effects of Vegetable Storage Methods on Plant Protein Concentration

---

**Students Name(s):** Parks Meadow Dunn

**School:** Plantation Key School, **Region:** Monroe

**Title:** Microgravity vs Seed Germination

---

### Grand Award Winner

**Students Name(s):** Parks Meadow Dunn

**School:** Plantation Key School, **Region:** Monroe

**Title:** Microgravity vs Seed Germination

---

## Senior

## Animal Sciences

### Recognition

**Students Name(s):** Peyton Prill

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** Measuring the Effect of Urea on the Behavior of *Amphibalanus eberneus*

**Students Name(s):** Caroline E Couch

**School:** Maclay School, **Region:** Capital

**Title:** The Predictive Value of Tibial Plateau Angle for Risk of Cranial Cruciate Ligament Rupture in Dogs

**Students Name(s):** Mollie Usher; Vito Nicolaci

**School:** Durant High School, **Region:** Hillsborough

**Title:** Impact of the Salvator merianae on Native Gopherus polyphemus Population Densities

### Honorable Mention

**Students Name(s):** Alexander Mikheyenko

**School:** Spruce Creek High School, **Region:** Tomoka

**Title:** Effects of Varied Concentrations of Polyvinyl Chloride Microplastics on the Early Embryonic and Post-Hatching Development of Danio reirio as a Model Organism

**Students Name(s):** Megan Nguyenha Vu

**School:** Trinity Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** How Varying Toxicities of Agarwood and Sandalwood Incense Impact *Drosophila melanogaster*

### Fourth Place

**Students Name(s):** Maya Behura

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of HPI Axis Disruptions on Thrombocyte Production in Zebrafish

**Students Name(s):** Ella Baum

**School:** Saint Petersburg Collegiate High School, **Region:** Pinellas

**Title:** Biological Control of Ticks to Prevent Tick-Borne Illness Using Entomopathogenic Fungi

**Students Name(s):** Jenna Larson

**School:** Okeechobee High School, **Region:** Heartland

**Title:** Thermoregulation in Dairy Cattle: Evaluating Milk Production of Lactating Holstein Cow Sired by SLICK Bulls with and without the SLICK Gene: A Third Year Study

**Students Name(s):** Anja Schwarzbauer

**School:** Sarasota High School, **Region:** Sarasota

**Title:** Evaluating the Effectiveness of the *Zophoba satratus* Superworm as a Method of Biodegradation for Polyethylene and Polypropylene Plastics Using a Cyanobacterial Supplement Catalyst

### Third Place

**Students Name(s):** Aayushi Ranjan

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Analyzing the Effects of Turmeric & Curcumin on Tau Aggregation & Amyloid Beta Plaques on *Caenorhabditis elegans* and its Further Implications into Alzheimer's Disease

**Students Name(s):** Ella Pilacek

**School:** Oviedo High School, **Region:** Seminole

**Title:** Using Pavlovian Conditioning to Promote Attraction of *Apis mellifera* to the Endangered Orchid *Prosthechea cochleata*: Year 2

---

**Students Name(s):** Riya Kar

**School:** The Bolles School, **Region:** Northeast Florida

**Title:** The Role of VEGF-B and NRP-1 Axis in Regulating Mitochondrial Homeostasis in Ischemic Heart Disease

---

#### **Second Place**

**Students Name(s):** Lia Lapidot

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of Metformin on Reproduction in the Fruit Fly *Drosophila melanogaster*

---

#### **First Place**

**Students Name(s):** Atreya Manaswi

**School:** Orlando Science High School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Evaluating the Efficacy of Novel Volatile Beer Blend and Coumaphos Acaricide for Small Hive Beetle Treatment within Honey Bee Hives, Year 4

---

#### **Grand Award Winner**

**Students Name(s):** Atreya Manaswi

**School:** Orlando Science High School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Evaluating the Efficacy of Novel Volatile Beer Blend and Coumaphos Acaricide for Small Hive Beetle Treatment within Honey Bee Hives, Year 4

---

## Senior

## Behavioral & Social Sciences

### Recognition

**Students Name(s):** Ayla Sevileno  
**School:** Mount Dora High School, **Region:** Lake  
**Title:** Mozart and the Art of Concentration

**Students Name(s):** Ananya Padala  
**School:** Lecanto High School, **Region:** Citrus  
**Title:** Are Common Memory Supplements "Lion" to Us?

### Honorable Mention

**Students Name(s):** Gabrielle Flynn  
**School:** Spruce Creek High School, **Region:** Tomoka  
**Title:** How Does Verbal Positive Reinforcement Improve Student Performance Academically?

**Students Name(s):** Alicia Bomhoff  
**School:** Oviedo High School, **Region:** Seminole  
**Title:** Recognition and Perceptions of Neural Network and Human Generated Metal Music

### Fourth Place

**Students Name(s):** Corynne Gabriella Pereira  
**School:** Spanish River Community High School, **Region:** Palm Beach  
**Title:** The Effect Of Frequency Changes on Danio rerio Spatial Memory

**Students Name(s):** Tara Muthuswamy  
**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach  
**Title:** Determining the Relationship between Item Memory and Source Memory to Examine the Predictiveness of Medial Temporal Lobe Disease Development

**Students Name(s):** Naman Doad  
**School:** Oviedo High School, **Region:** Seminole  
**Title:** Associations between Activity in Frontal Lobe during Command-tasks Directed by Anthropomorphic A.I. and Emotional State, Perception and Efficiency

### Third Place

**Students Name(s):** Vineet A Khanolkar  
**School:** Stanton College Preparatory School, **Region:** Northeast Florida  
**Title:** White Bears Paradox of thought Suppression : Evaluation of Determinants of Ironic Process Theory

**Students Name(s):** Emma Delgado  
**School:** American Heritage School, **Region:** Broward  
**Title:** The Effect of Varying Time Periods of the Intermittent Metabolic Switching (IMS) Diet on the Cognitive and Behavioral Abilities of Mutant *Drosophila melanogaster*, Leading to Brief Synaptic Neuroplasticity

**Students Name(s):** Ece Sarioglu  
**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** Analyzing Search Guidance from the Relative Arrangement between Objects

### Second Place

**Students Name(s):** Sarah C Park

**School:** The Bolles School, **Region:** Northeast Florida

**Title:** Spark Care+: Personalized Music Therapy for Relaxation and Energizing Using a Mobile and AI Approach

---

**First Place**

**Students Name(s):** Rushil S Shah

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Understanding the Impact of Celebrity Endorsements on the Artificial Growth of Altcoins through a Multi-Level Latent Class Analysis and Software Based Approach

---

**Grand Award Winner**

**Students Name(s):** Rushil S Shah

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Understanding the Impact of Celebrity Endorsements on the Artificial Growth of Altcoins through a Multi-Level Latent Class Analysis and Software Based Approach

---

## Senior

## Biomedical & Health Sciences

### Recognition

**Students Name(s):** Kate Niehoff

**School:** Wiregrass Ranch High School, **Region:** Pasco

**Title:** Developing a Novel Treatment Utilizing Nutraceuticals to Enhance Neuroprotective Benefits Against Stress in Neurodegenerative Diseases

**Students Name(s):** Niya Patel

**School:** Mount Dora High School, **Region:** Lake

**Title:** Screening an Underrepresented Demographic, Lake County, through a Cumulative Questionnaire on Cardiovascular Health in Relation to Diet - Year 2

**Students Name(s):** Hazel Parent

**School:** Ponte Vedra High School, **Region:** St. Johns

**Title:** Targeted Gold Nanoparticles Enhance Radiosensitivity of Pancreatic Cancer Cells in Vitro

**Students Name(s):** Kathryn Shapiro

**School:** Ponte Vedra High School, **Region:** St. Johns

**Title:** Sex Differences in Cardiac Energetics During Viral Myocarditis

**Students Name(s):** Anna Davis-Lunardi

**School:** Sarasota High School, **Region:** Sarasota

**Title:** Observing the Effect of Suboptimal Temperature on the Behavior of *Escherichia coli* Encapsulated Inside Hydrogels

### Honorable Mention

**Students Name(s):** Karolina Porcelli

**School:** J. W. Mitchell High School, **Region:** Pasco

**Title:** Probiotics: An Innovative Solution to Lactose Intolerance

**Students Name(s):** Jahn timer Kompella

**School:** Lecanto High School, **Region:** Citrus

**Title:** Combination Therapy's Effect on Biofilm Production in Patients with Pneumonia

**Students Name(s):** Erin Glenn

**School:** Indian Rocks Christian School, **Region:** Pinellas

**Title:** The Effectiveness of an Alternative Shunt Design

**Students Name(s):** Sara M Wasserman

**School:** The Bolles School, **Region:** Northeast Florida

**Title:** Effect of Anti-Inflammatories on the Growth and Treatment of Breast Cancer Cells

### Fourth Place

**Students Name(s):** Kristi Biswas

**School:** Paxon School for Advanced Studies, **Region:** Northeast Florida

**Title:** Elucidating TDP-43's Role in SYT7 Cryptic Exon Inclusion Reveals Novel Insights on ALS/FTD Pathology

**Students Name(s):** James Cai

**School:** Miami Palmetto Senior High School, **Region:** South Florida

**Title:** Detecting Prostate Cancer from MRI Imaging Using Machine Learning

**Students Name(s):** Jane Zhao

**School:** School for Advanced Studies, **Region:** South Florida

**Title:** The Identification of SOX7 as a Novel Susceptibility Gene for Autism through the Utilization of Multi-Omics and Human Brain Organoid Analysis

---

**Students Name(s):** Melodi Fugate

**School:** American Heritage School, **Region:** Broward

**Title:** Transgenerational Effects of the College Epidemic on Food Addiction and Obesity Using *Caenorhabditis elegans* as a Model

---

**Students Name(s):** Hayley Hodes

**School:** Pine Crest School, **Region:** Broward

**Title:** Identifying MicroRNA Targets for Treatment of Multiple Myeloma with Chromosome 1q21 Amplification

---

**Students Name(s):** Aum Dhruv

**School:** Fort Myers High School, **Region:** Thomas Alva Edison

**Title:** Development of a Low-Cost Machine Learning Diagnostic Device and Medical IoT Application as a Novel Approach to Combating Retinal Diseases

---

### Third Place

**Students Name(s):** Hannah G Kennedy

**School:** The Villages Charter High School, **Region:** Big Springs

**Title:** A Method for Papanicolaou Tests Utilizing a Novel Cytobrush to Reduce Acute Pain and Increase Effective Sample Collection

---

**Students Name(s):** Jeremiah Feizi

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** Seaweed and Spheroids: Investigating the Maintained Anti-Cancer Efficacy of the Seaweed Extract Fucoidan Against Adenocarcinoma Cultured Two and Three Dimensionally Year III

---

**Students Name(s):** Ethan Reshad

**School:** Oviedo High School, **Region:** Seminole

**Title:** Exploring Tissue Viability and Tubule Formation of 3D Bio-printed MDCK and Canine Smooth Muscle Cells

---

**Students Name(s):** Akash Verma

**School:** Eastside High School, **Region:** Alachua

**Title:** Evaluating the Efficacy of Certain High-altitude Plant Extracts in Mitigating the Potential Harmful Effects Caused by High Levels of Deleterious Chemicals in Skin Lightening Creams Using a Radiochromic Film Colorimeter Guided Approach, Year 2 Study

---

**Students Name(s):** Krithik Seela

**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Using Artificial Intelligence Graph Neural Networks to Repurpose Pre-existing Drugs and Analyze Drug Relationships, Year 3

---

### Second Place

**Students Name(s):** Sruthi Balasubramanian

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of Nicotinamide on the IL-6 Expression and Cell Count of Barrett's Esophagus Expressing Cells

---

**Students Name(s):** Jasmine Desai

**School:** Okeechobee High School, **Region:** Heartland

**Title:** The Effect of Climate Change on *Drosophila melanogaster* when on Dietary Supplements (Resveratrol), a Second Year Study

---

**Students Name(s):** Shaoyang Ma

**School:** Lawton Chiles High School, **Region:** Capital

**Title:** Exosome Biogenesis of Human Stem Cells Regulated by Scalable Bioreactors

---

**Students Name(s):** Sonia Patel

**School:** Community School Naples, **Region:** Thomas Alva Edison

**Title:** Corneal Applanation Scleral Buckling Model (C.A.S.B.M)

---

**First Place**

**Students Name(s):** Maya Mohanty

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Utilizing Caulobacter crescentus to Target the Bcl-2 Gene and NF-KB to Cause Apoptosis in Nasal Squamous Cell Carcinoma

---

**Students Name(s):** Rohith Karthik

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Investigating the Effects of Vinblastine and Alpha Tocopheryl on A549 Lung Cancer Cells and Prostate Cancer Cells

---

**Grand Award Winner**

**Students Name(s):** Maya Mohanty

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Utilizing Caulobacter crescentus to Target the Bcl-2 Gene and NF-KB to Cause Apoptosis in Nasal Squamous Cell Carcinoma

---

## Senior Cellular/Molecular Biology & Biochemistry

### Recognition

**Students Name(s):** Nyla T Searl

**School:** Stanton College Preparatory School, **Region:** Northeast Florida

**Title:** Investigating Pharmacodynamic Biomarkers in the PKC $\alpha$ -SOX2-Hh Signaling Pathway with LDE-225 and ANF

**Students Name(s):** Phoenix Amirah Ricketts

**School:** Ridgeview High School, **Region:** Clay Rotary

**Title:** Cellulose Isolation from Sorghum Bicolor Biomass via Alkaline, Hydrogen Peroxide Treatment

**Students Name(s):** Megan D'Souza

**School:** Community School Naples, **Region:** Thomas Alva Edison

**Title:** Determining the Effect of Acetic Acid on Alginate Bead Membrane Permeability to Aid the Implementation of Allogeneic Transplantation without Immunosuppression

### Honorable Mention

**Students Name(s):** Nia E Atcherson

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Role of ANGPTL4 in Regulation of Alpha-Synuclein Gene Expression

**Students Name(s):** Jasmine Bohannon

**School:** Rockledge High School, **Region:** Brevard: Mainland

**Title:** A Novel Imaging Technique: Using Fluorescent Dyed Silica Nanoparticles in Identifying Leukemia Biomarkers

**Students Name(s):** Manish Kota

**School:** Creekside High School, **Region:** St. Johns

**Title:** Investigating Cellular Localization and Aggregation Properties of Chimeric Dipeptide Repeat Proteins in C9ORF72-associated FTD/ALS

### Fourth Place

**Students Name(s):** Dikembai Woodfill

**School:** Wiregrass Ranch High School, **Region:** Pasco

**Title:** A Novel Approach to Mitigate Endoplasmic Reticulum Stress in Yeast by Inducing INO1 and INO2 Expression Pathways Using Lithium

**Students Name(s):** Angela Huang

**School:** Sebring High School, **Region:** Heartland

**Title:** Confirming Inflammation and Immune Cell Presence as Hallmarks of the Epithelial-Mesenchymal Transition in Colorectal Cancer - Year 2

**Students Name(s):** William B Li

**School:** Stanton College Preparatory School, **Region:** Northeast Florida

**Title:** Investigating the Factors for p120 Catenin and PLEKHA7 Co-localization at the Adherens Junctions

**Students Name(s):** Yangying Jiang

**School:** Stanton College Preparatory School, **Region:** Northeast Florida

**Title:** ABCA7 Deficiency Disturbs Mitochondrial Properties in hiPSC-derived Neurons and Mouse Synaptosomes

### Third Place

**Students Name(s):** Jesse White

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** Gene Therapy Cancer Cell Treatment: Using Predesigned Lentiviral Plasmid Glycerol Stocks to Knockback and Silence the Gene CLDN1

---

**Students Name(s):** Anouska Seal

**School:** Hagerty High School, **Region:** Seminole

**Title:** Bone Implant Infection Therapeutics Leveraging a Novel Protein Coating Derived from *Lactobacillus acidophilus* and Modulating Pro-inflammatory Gene Expression and Osteogenic Activity

---

**Students Name(s):** Shiv P Patel

**School:** Maclay School, **Region:** Capital

**Title:** Characterization of Lung Cancer Mechanosensation

---

## Second Place

**Students Name(s):** Anay Rajesh Shah

**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Examining Endothelial Cell Migration in the Presence of Magnetic Fields for Wound Healing Purposes

---

**Students Name(s):** Nicholas Cox

**School:** Sarasota High School, **Region:** Sarasota

**Title:** Wastewater Treatment Chemicals' Effect on *Escherichia coli* WP2 pKM101 Mutation & Antibiotic Resistance Genes

---

## First Place

**Students Name(s):** William A Held

**School:** Heritage High School, **Region:** Brevard: South

**Title:** Determining an Optimal Carbon Source to Promote the Radiosynthetic Growth of *Cladosporium sphaerospermum*

---

## Senior

## Chemistry

### Recognition

**Students Name(s):** Dylan R Barclay  
**School:** Orange Park High School, **Region:** Clay Rotary  
**Title:** Poseidon's Wind

**Students Name(s):** Kate Elizabeth Martyny  
**School:** Trinity Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** What Is the Protective Capacity of the Components of Reef-Safe Sunscreens?

**Students Name(s):** Lydia Linares  
**School:** Strawberry Crest High School, **Region:** Hillsborough  
**Title:** To What Extent Does the Addition of Bisphenol A into an Aquatic Environment Affect the Efficiency of the Consumption of Calcium in *Halimeda opuntia*?

### Honorable Mention

**Students Name(s):** Kaithlyn Jamaludin  
**School:** Lecanto High School, **Region:** Citrus  
**Title:** Relationship between Carbon Dioxide Levels and the Spoilage Time of Bos Taurus Meat

**Students Name(s):** Kavyashree Kadhivelu  
**School:** James S. Rickards High School, **Region:** Capital  
**Title:** A Python Tool for Analysis and Prediction of Bio-Oil Quality Using Molecular Composition Data Derived from FT-ICR MS

**Students Name(s):** Zaina Waldo  
**School:** Rockledge High School, **Region:** Brevard: Mainland  
**Title:** Using Dyed Silver Nanoparticles as a Novel Latent Fingerprint Testing Medium

### Fourth Place

**Students Name(s):** Dominique Thomas  
**School:** Treasure Coast High School, **Region:** St. Lucie  
**Title:** Color Wave - Investigating the Impact of Organic Dyes on Dye Sensitized Solar Cell Performance

**Students Name(s):** Nathan Wei  
**School:** Buchholz High School, **Region:** Alachua  
**Title:** Ultra-High Molecular Weight Polystyrene Covalent-Adaptable Networks for Enhancing Plastic Recyclability and Durability

**Students Name(s):** Nha-Thanh Duong  
**School:** Ridgeview High School, **Region:** Clay Rotary  
**Title:** Titanium Bonds: A Study of the Efficacy of Varied Surface Preparation Methods on Titanium Substrates for Optimized Structural Adhesion

**Students Name(s):** Yusef Mujtaba  
**School:** Fort Myers High School, **Region:** Thomas Alva Edison  
**Title:** Tackling the Global E-Waste Problem: Constructing and Testing the Efficiency of Sustainable Cellulose-Derived Batteries

**Students Name(s):** Jessica Ritchie  
**School:** Sarasota High School, **Region:** Sarasota  
**Title:** The Effect of BPA and Endocrine Disruptor on Phytohormones in *Chlorella vulgaris*

### Third Place

**Students Name(s):** Litian Zheng; Diana Gegaj

**School:** Vanguard High School, **Region:** Big Springs

**Title:** Optimizing of the Suzuki Cross-coupling Reaction Using Design of Experiments (DOE) in 3 Factors Reaction Time, Temperature, and Catalyst Loading

---

**Students Name(s):** Vaughn Sirkis; Raaghuv Nandur; Shane Hoang

**School:** Vanguard High School, **Region:** Big Springs

**Title:** Investigating the Viability of Molten Salt Batteries as a Sustainable and Effective Substitute for Lithium Ion Batteries

---

**Students Name(s):** Adelmo Morrison Orozco; Zoe Reisman

**School:** Cypress Bay High School, **Region:** Broward

**Title:** Iron Cross-linked Alginate Beads for the Photosensitive Release of Fertilizer

---

**Students Name(s):** Laya Damaraju

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Novel Red Blood Cell Membrane-Wrapped Septenary High-Entropy-Alloy Nanoparticles for Photothermal Osteosarcoma Treatment - Year 2

---

### Second Place

**Students Name(s):** Tom C Commander

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Use of Magnetic Nanochains to Increase Drug Delivery and Efficacy in Glioblastoma Multiforme

---

**Students Name(s):** Calvin Mathew

**School:** American Heritage School, **Region:** Broward

**Title:** 3D Printing Personalized Knee Implants: Novel Computational Geometric Models for Stem Cell Regeneration in Meniscus Tears

---

### First Place

**Students Name(s):** Nolan Chen Wen

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Development and Characterization of a Novel Instantaneous-Crosslinking Pectin-based Hydrogel

---

### Grand Award Winner

**Students Name(s):** Nolan Chen Wen

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Development and Characterization of a Novel Instantaneous-Crosslinking Pectin-based Hydrogel

---

## Senior

## Earth & Environmental Sciences

### Recognition

**Students Name(s):** Sneha Ann Joseph

**School:** Palm Beach Central High School, **Region:** Palm Beach

**Title:** The Effect of Basalt Rock Dust on CO2 Levels, Proline Levels, and Growth of a Soybean Plant (Glycine max)

**Students Name(s):** Jacob Friedman; Ahmed Eldeeb

**School:** Spruce Creek High School, **Region:** Tomoka

**Title:** Utilizing a Novel Two-Step Method of Ultraviolet Photocatalytic Oxidation with the Addition of Reusable Magnetic Nanoparticles for the Removal of Microplastics in Aquatic Environments

**Students Name(s):** Heewon Seo; Arib M Syed

**School:** Lawton Chiles High School, **Region:** Capital

**Title:** Predicting and Evaluating Water Quality in Areas Affected by Tropical Cyclones Using Machine Learning

**Students Name(s):** Ava J Auter

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Muck Accumulation and Nutrient Cycling within Salt Wedge Zones in the Indian River Lagoon: A Second Year Study

### Honorable Mention

**Students Name(s):** Grace C Froehle

**School:** The Villages Charter High School, **Region:** Big Springs

**Title:** A Quantitative Study of Microplastics in Freshwater Systems in Florida and their Contribution to Microplastics found in the Ocean off the Gulf of Mexico

**Students Name(s):** Laina Canary

**School:** Hardee Senior High School, **Region:** Heartland

**Title:** Do Cattle that Graze from Farmfields that Have Been Farmed with Plastic Mulch Have Microplastics in Them? Year 4

**Students Name(s):** Jacob Hobensack

**School:** Bishop Kenny High School, **Region:** Northeast Florida

**Title:** Alum Effectiveness for Improving Water Quality

### Fourth Place

**Students Name(s):** Shelly Ballaish

**School:** Spanish River Community High School, **Region:** Palm Beach

**Title:** The Effect of Water Levels on Danio rerio Reproductive Fitness and Embryonic Development: Year 2

**Students Name(s):** Amy King

**School:** Burns Science and Technology Charter School, **Region:** Tomoka

**Title:** Recycling Polyethylene Terephthalate to Reduce Plastic Waste

**Students Name(s):** Sara Mozdzen

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** Understanding Water Spangles (*Salvinia minima*) Highly Invasive Nature by Comparing Population Growth and Nutrient Absorption with Common Duckweed (*Lemna minor*), and Assess its Potential to Remediate Nutrient Polluted Waters.

**Students Name(s):** Jackson Holcomb

**School:** Okeechobee High School, **Region:** Heartland

**Title:** Growing More with Less: The Effect of Microbes on Fertilizer Efficiency

**Students Name(s):** Anika Sackerlotzky

**School:** Sarasota High School, **Region:** Sarasota

**Title:** The Effect of Varying Oxybenzone Concentrations on Absciscic Acid Levels in *Dunaliella salina*

---

### Third Place

**Students Name(s):** Abhith Kasala

**School:** Gainesville High School, **Region:** Alachua

**Title:** Global Plastic Pollution: A Novel Investigation of the Ecotoxicological Effects of Microplastics on *Danio rerio* (Zebrafish) Embryonic Development and Assessing the Biomarkers to Determine Morphology, and Organ Viability, a Holistic Approach

---

**Students Name(s):** Sunny You

**School:** Miami Palmetto Senior High School, **Region:** South Florida

**Title:** Hurricane Rapid Intensification Convolutional Neural Network: A Novel Deep Learning Model for Predicting Tropical Cyclone Intensification Using Twenty Years of Satellite Rainfall Data

---

**Students Name(s):** Anik Bora

**School:** American Heritage School, **Region:** Broward

**Title:** Creating a Drought Prediction Model Using Convolutional Neural Networks

---

**Students Name(s):** Daniel Park

**School:** King High School, **Region:** Hillsborough

**Title:** Foxfire Fungi: The Effect of Lead Oxide Amounts on the Bioluminescence Intensity of *Panellus stipticus*

---

### Second Place

**Students Name(s):** Ryan N Napoleon

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Nutrient Controlled Expression of Glut1 Gene in Diatoms for Enhanced Prevention of Eutrophication

---

**Students Name(s):** Morgan Barnes

**School:** Canterbury School, **Region:** Thomas Alva Edison

**Title:** Utilizing Nutrient Enriched Biologically Activated Bioremediation Units as a Soil Amendment in a Cyclic Remediation System, 5th Year

---

**Students Name(s):** Suchi Patel

**School:** Middleton High School, **Region:** Hillsborough

**Title:** Novel 3D Multiplex Bioprinting Approach for Restoration of Coral Nurseries Utilizing CRISPR/Cas9-mediated Genome Editing of *Symbiodinium Microadriaticum*

---

### First Place

**Students Name(s):** Alynza McBride

**School:** South Sumter High School, **Region:** Big Springs

**Title:** Are Growth Rates of Pine Trees Affected by Depth to Ground Water?

---

## Senior

## Engineering

### Recognition

**Students Name(s):** Areesh Manohar Sobhani

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Development of a Hands-Free System to Automate the Control of Instrumental Amplifier Parameters

**Students Name(s):** Varun Singh

**School:** South Fork High School, **Region:** Martin

**Title:** Self Filling Water Bottle Using the GWAC(Generation of Water using Atmospheric Conditions)

**Students Name(s):** Summer House

**School:** Magnet Innovation Center - South Walton High School, **Region:** East Panhandle

**Title:** What Is the Best Windblade Shape

### Honorable Mention

**Students Name(s):** Andrew Lambert

**School:** Wiregrass Ranch High School, **Region:** Pasco

**Title:** Developing a Novel Vehicle Sensor to Improve Driver Performance During Adverse Winter Weather Conditions

**Students Name(s):** Luke Yang

**School:** Miami Palmetto Senior High School, **Region:** South Florida

**Title:** The Mini Magnetometer: Portable Alternating Current Magnetometer

**Students Name(s):** Deshna Pal

**School:** Strawberry Crest High School, **Region:** Hillsborough

**Title:** Real Time Implementation of Eye Tracking Cursor

### Fourth Place

**Students Name(s):** Siddhartha Gadamsetti

**School:** Suncoast Community High School, **Region:** Palm Beach

**Title:** Using Magnesium and CO<sub>2</sub> as a Fuel Source for Future Mars Colonization Attempts

**Students Name(s):** Alejandra Abramson

**School:** American Heritage School, **Region:** Broward

**Title:** The Development of 3D-Printed Bio-Renewable Polymer Aqueous Solution for Tissue Engineering

**Students Name(s):** Caroline Guerra

**School:** Community School Naples, **Region:** Thomas Alva Edison

**Title:** Transforming Corn Husks and Plantain Peels into Eco-Friendly, Resourceful Bioplastics, 2nd Year

### Third Place

**Students Name(s):** Brianna Jones

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** Inhibiting the Ripening and Infection of Crops Through Cold Plasma Treatment

**Students Name(s):** Banmeet Singh

**School:** Oviedo High School, **Region:** Seminole

**Title:** Enhanced White Cane Object Detection for Visually Impaired Individuals Using Improved Sensors & Modules: Year 2

---

**Students Name(s):** Benjamin York

**School:** Creekside High School, **Region:** St. Johns

**Title:** Designing and Testing Heat Exchanger Types for Solar Preheating of Gas Turbine Combustion Air

---

#### **Second Place**

**Students Name(s):** Sophia Weiner

**School:** Holy Trinity Episcopal Academy, **Region:** Brevard: Mainland

**Title:** Detecting Myofascial Tightness in the Lower Extremities

---

**Students Name(s):** Pranav Ponnusamy

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** 3rd Eye: A Novel Embedded System for Driver Attentiveness Monitoring Using Data Fusion and Machine Learning (Year 2)

---

#### **First Place**

**Students Name(s):** Deeksha Kumaresh

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** A Novel Application of Microfluidics to Develop a Rapid and Cost-effective Objective Diagnostic Method for Parkinson's Disease

---

#### **Grand Award Winner**

**Students Name(s):** Deeksha Kumaresh

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** A Novel Application of Microfluidics to Develop a Rapid and Cost-effective Objective Diagnostic Method for Parkinson's Disease

---

## Senior

## Environmental Engineering

### Recognition

**Students Name(s):** Angela Gao

**School:** Buchholz High School, **Region:** Alachua

**Title:** Iron-Modified Biochar Recovers Phosphorus from Wastewater as Fertilizer through Column Filters and Flow Reactors (Year 2)

**Students Name(s):** Zoe Orange

**School:** Paxton High School, **Region:** East Panhandle

**Title:** Χωρ?ς Χ?μα β: A Realistic Solution to the 2050 Soil Crisis and Possible Use for the Nutrient Additive to Soil on Mars

**Students Name(s):** Erik Dyer; Findlay Hartman

**School:** Newsome High School, **Region:** Hillsborough

**Title:** Reinventing Strategies of Domestic Cooking to Curtail Carbon Monoxide Exposure in Developing Countries

### Honorable Mention

**Students Name(s):** Aayna Rohit Bhatheja

**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Hybrid Clay Films with Antimicrobial Efficacy for Treating Burns and Wounds, Year II

**Students Name(s):** Genesis Cely

**School:** Trinity Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** The Novel Development of a Bio-Based Smart Material for Pharmaceutical Packaging and Temperature Monitoring

**Students Name(s):** Tyler Isaacson; Riley Plank

**School:** Sarasota High School, **Region:** Sarasota

**Title:** Optimization of Paint Formulation for Antifouling Properties

### Fourth Place

**Students Name(s):** Samhita Konuru

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** Repurposing Solar Membrane Distillation Systems as Efficient and Sustainable Irrigation Systems

**Students Name(s):** Brad Malick-Beltran

**School:** Barron Collier High School, **Region:** Collier

**Title:** 3D Printing Biodegradable, Environmentally Friendly, Slow Sinking, Lipless Crankbaits to Match the Fall Rate of the Market Standard

**Students Name(s):** Gargi Paranjape

**School:** Oviedo High School, **Region:** Seminole

**Title:** Ion Exchange Treatment as an Alternative to Biologically Active Filtration (BAF) for Direct Potable Reuse

**Students Name(s):** Divya S Vemireddy

**School:** James S. Rickards High School, **Region:** Capital

**Title:** AI Designed Rover That Uses Object Detection to Identify and Collect Trash Off Ocean Floors

### Third Place

**Students Name(s):** Sharanya Natarajan  
**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal  
**Title:** An Engineered Hub & Spoke System to Seek and Destroy HABs (Yr-4)

---

**Students Name(s):** Aanya Bhandari  
**School:** Palm Harbor University High School, **Region:** Pinellas  
**Title:** Calcium Batteries: A Green Alternative

---

**Students Name(s):** Claire M Huang  
**School:** Episcopal High School, **Region:** Northeast Florida  
**Title:** The Energy Generation Efficiency and Storage Capability of a Novel Dye-Sensitized Solar Cell, Year 2

---

#### **Second Place**

**Students Name(s):** Isabella Lackner  
**School:** Florida Atlantic University High School, **Region:** Palm Beach  
**Title:** O.D.O.B.A (Object Detection Of Blood Abnormalities)

---

**Students Name(s):** RJ Zrallack  
**School:** Titusville High School, **Region:** Brevard: Mainland  
**Title:** Engineering a Completely Biodegradable System of Microsorium Pteropus to Reverse Eutrophication in Leachate Canals that Lead into the Indian River

---

#### **First Place**

**Students Name(s):** Samara Rashid  
**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach  
**Title:** Effects of Artificial Algal-bacterial Symbioses (E. Coli K-12, C. Fruendii, & E. Coli MC4100) on Microbial Hydrogen Production

---

## Senior Intelligent Machines, Robotics, & Systems Software

### Recognition

**Students Name(s):** Alan M Alwakeel

**School:** Stanton College Preparatory School, **Region:** Northeast Florida

**Title:** Using Artificial Intelligence to Diagnose Tumors in MRI Scans of the Brain

**Students Name(s):** Angelo De La Rosa

**School:** Ridgeview High School, **Region:** Clay Rotary

**Title:** A Novel Application Including Usage of Deep Learning Algorithms, 3-Channel Accelerometers, and Gyroscopic Technologies to Assist the Visually Impaired in Surroundings Identification

**Students Name(s):** Rudra Patel

**School:** Middleton High School, **Region:** Hillsborough

**Title:** Using an Electroencephalogram and a Transcutaneous Electrical Nerve Stimulation (TENS) Unit to Develop a Noninvasive Neuroprosthetic for Quadriplegic Patients

### Honorable Mention

**Students Name(s):** Dylan Thomas McClish

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Integration of a Deep Q Reinforcement Learning Algorithm to Optimize the Exploration Strategy of a Swarm Robot System

**Students Name(s):** Maya Neeranjun

**School:** American Heritage School, **Region:** Broward

**Title:** Deep Learning Automated Segmentation of Left Atrium in Cardiac MRI for Atrial Fibrillation: a Benchmark Study of State-of-the-Art Methods

**Students Name(s):** Alexander James Gordon

**School:** Ridgeview High School, **Region:** Clay Rotary

**Title:** Motion Profiling Algorithm for Improved Intelligent Machine Target Correction

### Fourth Place

**Students Name(s):** Ayush Gowda

**School:** Florida Atlantic University High School, **Region:** Palm Beach

**Title:** A 2D-Based Framework Using Artificial Intelligence for Biomechanical Analysis

**Students Name(s):** Henry Jiang; Walker Verenakis

**School:** North Bay Haven Charter, **Region:** Havens

**Title:** Batstick: Ultrasonic Smart Walking Aid

**Students Name(s):** Lavanya Natarajan

**School:** Viera High School, **Region:** Brevard: Mainland

**Title:** Autonomous Data Acquisition and Imaging System to Mitigate Fugitive Methane Emissions in Landfills

**Students Name(s):** Basil M Salem

**School:** Melbourne High School, **Region:** Brevard: South

**Title:** Utilizing Arduino to Develop a Haptic Virtual Interaction Glove

### Third Place

**Students Name(s):** Lalit (Sailalit) Mudunuri; Aadithyaa Vishegu  
**School:** Ponte Vedra High School, **Region:** St. Johns  
**Title:** A Novel Approach to Electric Vehicle Battery Protection from Floods

---

**Students Name(s):** Bianka A Albert  
**School:** West Shore Junior/Senior High School, **Region:** Brevard: South  
**Title:** An AI-Driven Approach for Early Diagnosis of Bronchogenic Carcinoma to Aid Radiologists to the Detection and Classification of Lung Nodules in 3-Dimensional Volumes Generated from Patients' Thoracic CT Scans Implementing 3-Dimensional Convolutional Neural Networks

---

**Students Name(s):** Advait Menon  
**School:** Dunbar High School, **Region:** Thomas Alva Edison  
**Title:** LesionGAN: A Generative Adversarial Network-based Image Augmentation Algorithm to Improve CNN Performance in Lesion Detection

---

## Second Place

**Students Name(s):** Colin Briggs  
**School:** Gulf Coast High School, **Region:** Collier  
**Title:** Quiver: Creating an Improved Efficacy Java Cybersecurity Library by Optimizing Application Based Programming Interfaces and Parameterizing Cryptographic Functions of Existing Packages

---

**Students Name(s):** Ethan Thomas  
**School:** Ransom Everglades School, **Region:** South Florida  
**Title:** Novel Deep Learning Approach to Assess Cardiac Function

---

## First Place

**Students Name(s):** Tiffani Gay  
**School:** Orlando Science High School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** Designing a Novel LiDAR Navigation System with Haptic feedback, Bluetooth and App Integration for the Visually Impaired, Year II

---

## Grand Award Winner

**Students Name(s):** Tiffani Gay  
**School:** Orlando Science High School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** Designing a Novel LiDAR Navigation System with Haptic feedback, Bluetooth and App Integration for the Visually Impaired, Year II

---

## Senior

## Mathematics & Computational Sciences

### Recognition

**Students Name(s):** Leah G Kiros

**School:** Maclay School, **Region:** Capital

**Title:** Defining and Modeling Nuclear Migration in the Early Drosophila Embryo

**Students Name(s):** Aurora Mendenhall

**School:** Niceville High School, **Region:** East Panhandle

**Title:** Folding the Future: An Innovative Approach to Solving the Supply Chain Crisis with Geometry

**Students Name(s):** Rohan Dash

**School:** Pine View School, **Region:** Sarasota

**Title:** Using Novel AI Detection Systems to Identify Skin Abnormalities

### Honorable Mention

**Students Name(s):** Thanmay Kumar

**School:** Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal

**Title:** A Novel Analysis of Machine Learning Approaches in Aiding Glaucoma Identification

**Students Name(s):** Dhruva Sharma

**School:** Fort Myers High School, **Region:** Thomas Alva Edison

**Title:** Optimizing Traffic Flow: Implementing Neural Networks And Deep RL Machine Learning Algorithms To Make Traffic Management More Effectual

### Fourth Place

**Students Name(s):** Sophia Rong

**School:** Buchholz High School, **Region:** Alachua

**Title:** The Role of Cell-to-cell Transmission in HIV Infection: Insights from a Mathematical Modeling Approach

**Students Name(s):** William R Rosenberg

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Use of Unsupervised Machine Learning Algorithms to Identify Shared Bacteriophage Genomic Regions

**Students Name(s):** Emma Carpenter

**School:** Viera High School, **Region:** Brevard: Mainland

**Title:** A Time-series Analysis of Period-doubling Bifurcations in Cepheid Variable Stars to Identify the Edge of Chaos

**Students Name(s):** Lucas Gutman

**School:** iPrep Academy North, **Region:** South Florida

**Title:** A Logistic Regression Model Representing the Genetic Landscape Differences between Bipolar Disorder 1 and Bipolar Disorder 2

### Third Place

**Students Name(s):** Ava Allwardt

**School:** St. Andrew's School, **Region:** Palm Beach

**Title:** Computational Analysis of Human Antibody Repertoires to Inform Design of HIV-1 Vaccines

**Students Name(s):** Noah Anderson Hall-King  
**School:** West Orange High School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** A Novel Model for Reactor-Grade Crystalline Nuclear Fuel

---

**Students Name(s):** Anika Prasad  
**School:** Strawberry Crest High School, **Region:** Hillsborough  
**Title:** Analysis and Prediction of Breast Cancer Using Machine Learning Approach

---

**Second Place**

**Students Name(s):** Camille A Duma  
**School:** Vanguard High School, **Region:** Big Springs  
**Title:** Application of Michaelis-Menten Rational Function Models, Parametric Calculations, and Differential Equations to Determine the Most Influential Factor on Histamine Levels

---

**First Place**

**Students Name(s):** Kevin Perez  
**School:** Crooms Academy of Information Technology, **Region:** Seminole  
**Title:** Cryptographic and Empirical Evaluations of Strong Goldbach Conjecture with Sieving Algorithms and Fourier Transformations

---

## Senior

## Microbiology

### Recognition

**Students Name(s):** Samer Elhoushy

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** The Effect of a Novel Therapy to Optimize the Mechanism of Action in the Inhibition of *Staphylococcus aureus* Bacteria

**Students Name(s):** Addison Logemann

**School:** Saint Edward's Upper School, **Region:** Indian River

**Title:** The Effect of Temperature and Nutrients on the Concentration of Dinoflagellates

### Honorable Mention

**Students Name(s):** Navya S Kommu

**School:** James S. Rickards High School, **Region:** Capital

**Title:** Metagenome Assembled Genome (MAG) As a Tool to Better Understand Uranium Bioremediation

**Students Name(s):** Parthiv T Reddy

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** The Effect of UV Light on Cyanobacteria Strains

### Fourth Place

**Students Name(s):** Elizabeth De Schouwer

**School:** Vero Beach High School, **Region:** Indian River

**Title:** Identifying, Cloning, and Validating a Lysin Gene into *E. coli*

**Students Name(s):** Akansha Mehta

**School:** American Heritage School, **Region:** Broward

**Title:** Evaluating the Quorum Quenching Potential of Phytochemicals Rutin, Syringic Acid, and *Ziziphus mucronata* Extract on *Chromobacterium violaceum* Quorum Sensing

### Third Place

**Students Name(s):** Julia Cohen-Pinsky

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** Extracting and Purifying *Apis mellifera* Venom for Use as an Antimicrobial Agent

**Students Name(s):** Nandini Karanam

**School:** Lecanto High School, **Region:** Citrus

**Title:** Natural Herbal Remedies vs Pharmaceutical Treatments Against Bacterial Species Commonly Found in Wounds

**Students Name(s):** Sina Stefanos

**School:** St. Thomas Aquinas High School, **Region:** Broward

**Title:** Action Mechanisms of Acne Medications Modeled by *Mycobacterium smegmatis*

### Second Place

**Students Name(s):** Rishit Shaquib

**School:** Vanguard High School, **Region:** Big Springs

**Title:** Bi-Directional Hygiene: Combating Nosocomial Infection with the Microbiome

**Students Name(s):** Adrian Deonarine

**School:** Community School Naples, **Region:** Thomas Alva Edison

**Title:** The Effect of *Chaetomorpha linum* on Oxygen, Nitrogen, and Phosphorus Levels in a Hypoxic Environment

---

**First Place**

**Students Name(s):** Chloe Barreto-Massad

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** In Pursuit of New Soil-based Bacteriophages that Infect *Gordonia rubripertincta*: Discovering Evergreen

---

**Grand Award Winner**

**Students Name(s):** Chloe Barreto-Massad

**School:** American Heritage School of Boca/Delray, **Region:** Palm Beach

**Title:** In Pursuit of New Soil-based Bacteriophages that Infect *Gordonia rubripertincta*: Discovering Evergreen

---

## Senior

## Physics & Astronomy

### Recognition

**Students Name(s):** Harsh Mehta

**School:** Frank W Springstead High School, **Region:** Hernando

**Title:** Discrepancies in Exoplanetary Data

---

**Students Name(s):** Matthew E Salek

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Plasma Diagnostics of Magnetically Confined Plasmas

### Honorable Mention

**Students Name(s):** Jose M Carvajal-Beltran

**School:** Wildwood Middle High School, **Region:** Big Springs

**Title:** Establishing a Possible Correlation between Variation of Thermodynamics and Corresponding Aerodynamics in Descent of Maple Samara Seeds...: Year II

---

**Students Name(s):** Jade A Collins

**School:** West Port High School, **Region:** Big Springs

**Title:** Testing the Tensility of Spider Silk in Comparison to Steel

### Fourth Place

**Students Name(s):** Gavin Anthony Martin

**School:** Palm Beach Central High School, **Region:** Palm Beach

**Title:** Detection of Meteor Activity with Various Lens Types

---

**Students Name(s):** James Egdorf

**School:** Viera High School, **Region:** Brevard: Mainland

**Title:** How Does the Application of a Free-Rotating Disk Design for Triboelectric Nanogenerators Compare to a Paper Based Design?

### Third Place

**Students Name(s):** Ruby Lily Aubin

**School:** Florida Atlantic University High School, **Region:** Palm Beach

**Title:** RUBES: Resonators Used in Building Emergency Sensors - Simulated

---

**Students Name(s):** Matthew W Krininger

**School:** West Shore Junior/Senior High School, **Region:** Brevard: South

**Title:** Development of a Bleed Based Aerospike Engine

---

**Students Name(s):** Mason Huffman

**School:** Cape Coral High School, **Region:** Thomas Alva Edison

**Title:** Data Analysis of Gravitational Wave Signals Using Python

### Second Place

**Students Name(s):** Arvid Vaidyanathan

**School:** Winter Springs High School, **Region:** Seminole

**Title:** Anti-Static and Anti-Reflective Solar Panels for Dust free use on Earth, the Moon, and Mars

**Students Name(s):** Aryan Pathak

**School:** Lake Highland Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange

**Title:** Extending the Analysis of TNO Data to Longer Wavelengths in Advance of James Webb Space Telescope Data

---

**First Place**

**Students Name(s):** Dillen Scott

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** A Novel Method of Calculating Air Shower Muon Half Life Using Time of Flight

---

**Grand Award Winner**

**Students Name(s):** Dillen Scott

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** A Novel Method of Calculating Air Shower Muon Half Life Using Time of Flight

---

## Senior

## Plant Sciences

### Recognition

**Students Name(s):** Ava Katherine Tracy

**School:** Florida Atlantic University High School, **Region:** Palm Beach

**Title:** Testing to See PVC Microplastics Effects on Raphanus sativus Plant Structure and Germination Rate

**Students Name(s):** Samantha Cohen-Pinsky

**School:** Satellite High School, **Region:** Brevard: Intracoastal

**Title:** Targeted Mutagenesis of the Arabidopsis Deoxyhypusine Synthase (DHS) Gene via CRISPR/Cas9 Enzyme Engineering; Generating an Increase in Carbon Sequestration and Photosynthetic Rate

**Students Name(s):** Jenna Johnston

**School:** Okeechobee High School, **Region:** Heartland

**Title:** Microgravity and its Effect on Plant Growth

**Students Name(s):** Sofia Davila

**School:** Episcopal High School, **Region:** Northeast Florida

**Title:** Addition of Potassium to Make Lettuce More Drought Resistant

### Honorable Mention

**Students Name(s):** Emma Jane Johnson

**School:** Hardee Senior High School, **Region:** Heartland

**Title:** Does the Application Method of Molasses Affect the Brix in *Citrullus lanatus*? Year 3

**Students Name(s):** Mia Milchman

**School:** Coral Shores High School, **Region:** Monroe

**Title:** *Rhizophora mangle* Growth in Sunscreen

**Students Name(s):** Emma P Schaff

**School:** Melbourne High School, **Region:** Brevard: South

**Title:** The Effects of Ocean Acidification on *Halimeda opuntia*

### Fourth Place

**Students Name(s):** Gavin J Emerick

**School:** Palm Beach Central High School, **Region:** Palm Beach

**Title:** The Effect of Predatory Stress on the Production of VOCs in the Roots of *Solanum lycopersicum*

**Students Name(s):** Kailee Webster

**School:** Vero Beach High School, **Region:** Indian River

**Title:** Repopulating *Halodule wrightii* in the Indian River Lagoon: Getting to the Root of the Problem

**Students Name(s):** Caroline McHale

**School:** Wiregrass Ranch High School, **Region:** Pasco

**Title:** An Innovative Approach to Promoting Lignin Biosynthesis in *S. lycopersicum* Using Sound Waves

**Students Name(s):** Grayce Meredith

**School:** Astronaut High School, **Region:** Brevard: Mainland

**Title:** Does Grass Variety Impact Absorption of Fertilizer Runoff?

**Students Name(s):** Nicholas Selvaggi; Tyler Delgado  
**School:** St. Thomas Aquinas High School, **Region:** Broward  
**Title:** Natural Plant Filtration with *Funaria hygrometrica* and *Phyllostachys edulis* Cellulose

---

### Third Place

**Students Name(s):** Brady Williamson  
**School:** Okeechobee High School, **Region:** Heartland  
**Title:** Money in the Bag: Investigating the Effectiveness of Individual Tree Protectors vs Open Air Protection against Huanglongbing In Three-Year Old Valencia Orange Trees, a Two Year Study

---

**Students Name(s):** Isabella Gonzalez; Lisandra Lima Dapena; Orialis Portales Romero  
**School:** iMater Preparatory Academy High School, **Region:** South Florida  
**Title:** The Effects of Simulated Microgravity on the Cherry Belle Radish (*Raphanus sativus*)

---

**Students Name(s):** Nina Bowen  
**School:** Key West High School, **Region:** Monroe  
**Title:** The Effect of Aeration on Algal Blooms by Agricultural Runoff

---

**Students Name(s):** Anthony James Miceli  
**School:** Trinity Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange  
**Title:** The Effects of *Rhizobium leguminosarum* Inoculation on *Pisum sativum* Grown in Martian Regolith

---

### Second Place

**Students Name(s):** Jenna Leiss  
**School:** Oviedo High School, **Region:** Seminole  
**Title:** Effect of Lunar Highland Simulant Particle Size on *Tagetes patula*'s Root Structure and Growth

---

**Students Name(s):** Moitri Santra  
**School:** Oviedo High School, **Region:** Seminole  
**Title:** Development of Novel Ocimum Sanctum-derived Biotherapeutic Nanoparticles for Potential Drug Delivery Applications

---

**Students Name(s):** Kurukulasuriya Fernando  
**School:** Dunbar High School, **Region:** Thomas Alva Edison  
**Title:** Phytochemical Analysis and Comprehensive Evaluation of Antimicrobial and Antioxidant Properties of Six Native Plant Species: Innovations for Novel Drug Discovery

---

### First Place

**Students Name(s):** Nira Goyal  
**School:** Martin County High School, **Region:** Martin  
**Title:** Quantification of *Macrophomina phaseolina* Survival after Organic Soil Treatments Under Multiple Temperature Regimes

---

**Students Name(s):** Jacob Federici  
**School:** American Heritage School, **Region:** Broward  
**Title:** Mitigation of Decreased Protein Synthesis under Elevated Carbon Dioxide in *Arabidopsis thaliana*

---