

Junior

Animal Sciences

Recognition

Students Name(s): EllaGrace Clinger

School: Meigs Middle School , **Region:** East Panhandle

Title: Is There a Colorful Solution to Light Pollution?

Students Name(s): David Trujillo

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

Title: What Is the Most Efficient Way to Kill Mosquito Larvae and Pupae of the *Culex quinquefasciatus* Species while Preserving Plant Life in an Aqueous Environment?

Honorable Mention

Students Name(s): Brendan G Groff-Vazquez

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

Title: Aphid vs Predator

Students Name(s): Susannah C Zonts

School: Saint Luke's Lutheran School, **Region:** Seminole

Title: What Are the Effects of OTC Medicines on the Lifespan of *Daphnia magna*?

Fourth Place

Students Name(s): Mariah J Golson; Marina V Deubler

School: Brown-Barge Middle School, **Region:** West Panhandle

Title: Competition Behaviors of Gulf Killifish and Mullet

Students Name(s): Emlyn M Arner

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

Title: How Music Affects Ant Productivity

Students Name(s): Shalini Mehra; Alexa Loschiavo

School: James Weldon Johnson College Preparatory Middle School, **Region:** Northeast Florida

Title: How Does Magnetism Affect Planarian Regeneration

Third Place

Students Name(s): Keegan W Emanuel

School: Green Cove Springs Junior High School, **Region:** Clay Rotary

Title: Baiting Beach Mice

Students Name(s): John W Williamson

School: Yearling Middle School, **Region:** Heartland

Title: Protein Power- Investigating the Effect of Different Protein Feeds on the Growth of U.S. Farm-Raised Catfish - A Two-Year Study

Students Name(s): Annabelle Donald

School: Stone Magnet Middle School, **Region:** Brevard: South

Title: The Effects of 470 nm Blue Light and 660 nm Red Light on Tissue Regeneration in the Brown Planarian, *Dugesia tigrina*

Second Place

Students Name(s): Shloke N Patel

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

Title: Testing the Efficacy of Biological Control Measure in Preventing the Re-infection of Citrus Greening Disease and its Validation Through qPCR Technique- Year 2

First Place

Students Name(s): Alexa K Ernce

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

Title: The Effects of Various Pesticides and Fertilizers on *Daphnia* Behavior and Mortality

Grand Award Winner

Students Name(s): Alexa K Ernce

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

Title: The Effects of Various Pesticides and Fertilizers on *Daphnia* Behavior and Mortality



Junior

Behavioral & Social Sciences

Recognition

Students Name(s): Sofia Lataczewski

School: Downtown Doral Charter Upper School, **Region:** South Florida

Title: Virtual Reality vs Reading Comprehension

Students Name(s): Sarah S Felo

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

Title: Gender Aggression

Honorable Mention

Students Name(s): Lucy K Lazenby

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

Title: Sister Symmetry

Students Name(s): Diana Gegaj

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

Title: The Ranschburg Effect: Is the Ranschburg Effect More Prevalent in Older or Younger Adults?

Fourth Place

Students Name(s): Andrew R Bickel

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

Title: Can an Instructional Warning Reduce the Occurrence of False Memories?

Students Name(s): Kiri Haggerty; Tristen Haggerty

School: Lyndon B. Johnson Middle School, **Region:** Brevard: Mainland

Title: Mental Practice vs Physical Practice

Third Place

Students Name(s): Mariella G Brueck

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

Title: Does the Usage of Your iPhone Affect Your Academics?

Students Name(s): Mehereen Chowdhury

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

Title: Paper vs Screen: Which Is Better for Reading Comprehension?

Students Name(s): Preston H Pomp

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

Title: Brain Pop: Cognitive Disruptions through Device Alerts - Year 2

Second Place

Students Name(s): Skylar Robbins

School: Punta Gorda Middle School, **Region:** Thomas Alva Edison

Title: The Effect of Light and Sound Brainwave Synchronizers and Gamma Waves on Cognitive Function and Memory

Students Name(s): David K Cagle

School: Oak View Middle School, **Region:** Alachua

Title: Bullying: Does Information Influence Perception?

First Place

Students Name(s): Logan W Silvea

School: Tropical Elementary School, **Region:** Brevard: Intracoastal

Title: Correlation between Ocular Amplitude and Saccade Behavior Measured through the Perceived Intensity of the Moire Effect



Junior

Biomedical & Health Sciences

Recognition

Students Name(s): Diego A Brown

School: Brown-Barge Middle School, **Region:** West Panhandle

Title: Reaction Rate of Milk of Magnesia Buffer with Acid

Students Name(s): Hannah G Kennedy

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

Title: Now You See It, Now You Don't: Chromatic Adaptation

Students Name(s): Janessa D Whidden

School: Osceola Middle School, **Region:** Heartland

Title: Influence of Acidic Beverages on Tooth Erosion

Honorable Mention

Students Name(s): Akshay D Gupta

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

Title: Which Substance Least Affects the Antioxidant Level in Tea?

Students Name(s): Frederic I Bowen; Kaori R Martin

School: Charles S. Rushe Middle School, **Region:** Pasco

Title: The Pharmaceutical Impact on the Environment

Students Name(s): Ellaheh Gohari

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

Title: Obstructive Sleep Apnea and Sleep Quality: The Impact on Cardio-Metabolic Risk in Spinal Cord Injury

Fourth Place

Students Name(s): Avery E Thomas

School: Neptune Middle School, **Region:** Osceola

Title: To Dissolve or Not Dissolve?

Students Name(s): Harsh Mehta

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

Title: Most Detrimental Juice for Type 1 and Type 2 Diabetes

Students Name(s): Carlo J Fraley

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

Title: Novel Antibiotics among Plants

Students Name(s): Uma Panchal

School: Liberty Middle School, **Region:** Hillsborough

Title: The Vitamin C Integrity Project

Third Place

Students Name(s): Wil R Blackburn
School: Saint Edwards School, **Region:** Indian River
Title: Salvation of the Photoreceptors

Students Name(s): Angela E Yu
School: Pine Ridge Middle School, **Region:** Collier
Title: Productive Planaria

Students Name(s): Ashna Mathur
School: Orlando Science School, **Region:** Dr. Nelson Ying Expo - Orange
Title: Are Homemade Fruit Juices a Better Source of Electrolytes and Carbohydrates than Sports Drinks for Kids?

Second Place

Students Name(s): Kayla Bello
School: Driftwood Middle School, **Region:** Broward
Title: Comparison of Embryonic STEM Cells, Mesenchymal STEM Cells and Induced Pluripotent STEM Cells Ability to Differentiate into Insulin Producing Cells Which Could Be the Cure for Type I Diabetes

Students Name(s): Aidan J Meyers
School: West Shore Junior/Senior High School, **Region:** Brevard: South
Title: Determining the Prophylactic Effects of Melanin and Various Essential Oils Against Erythema and Photocarcinogenesis Simulated Using *Saccharomyces cerevisiae* - Year 2

First Place

Students Name(s): Akash Verma
School: Abraham Lincoln Middle School, **Region:** Alachua
Title: A Novel Study to Evaluate the Possible Effects of RF Radiation on Human Brain Waves and Testing Innovative Strategies to Lower RF Levels from RF-emitting Devices

Grand Award Winner

Students Name(s): Akash Verma
School: Abraham Lincoln Middle School, **Region:** Alachua
Title: A Novel Study to Evaluate the Possible Effects of RF Radiation on Human Brain Waves and Testing Innovative Strategies to Lower RF Levels from RF-emitting Devices

Junior

Cellular/Molecular Biology & Biochemistry

Recognition

Students Name(s): Anya Joshi

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

Title: Sugars in Your Smoothies

Students Name(s): Kara J Norman

School: May Sands Montessori School, **Region:** Monroe

Title: The SCTL D Crisis

Honorable Mention

Students Name(s): Devam Patel

School: Hill-Gustat Middle School, **Region:** Heartland

Title: Role of Sugar in Cardiovascular Disease

Fourth Place

Students Name(s): Allan J Stewart; Connor D McLoughlin

School: Lakeland Christian School, **Region:** Polk

Title: Doping Dodder With Auxin Agar: Growth Changes in a Parasitic Plant by Venous Connection to Host Tomato

Students Name(s): Farhana M Rafi

School: Deerlake Middle School, **Region:** Capital

Title: Catalyst at Work

Third Place

Students Name(s): Jessica R Watkins

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

Title: The Effects of Pteroylmonoglutamic Acid, Folic Acid, and Vitamin B12 on *Danio rerio* Embryos- Year 2

Students Name(s): Carla del Rio

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

Title: The Effects of Variations of Solute Concentration of the Surrounding Solution on the Cell's Survival of the Freezing Process

Students Name(s): Tirth Shah

School: Twin Lakes Academy Middle, **Region:** Northeast Florida

Title: An Investigation of an Interaction between Alpha-Amylase and Phaseolamin, a Derivative of the White Kidney Beans in the Presence of Carbohydrates

Second Place

Students Name(s): Elsa Marcet

School: Paul Laurence Dunbar Middle School, **Region:** Thomas Alva Edison

Title: Lunchbox Science: The Effect of a Homemade Organic, Acidic Solution on Organic Fuji Apples

Students Name(s): Laya Damaraju

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

Title: The Effectiveness of Gold Nanoparticles Radiated by Near-Infrared (NIR) Light on the Cell Viability of *Saccharomyces cerevisiae*

First Place

Students Name(s): Kyra Henriques

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

Title: Determining the Enzyme Inhibitory Effects of the Aqueous Infusion of Leaves of 5 Plants Traditionally Used in the Treatment of Diabetes Mellitus on Glucose Metabolizing Enzymes



Junior

Chemistry

Recognition

Students Name(s): Andie I Litz

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

Title: Which Olive Cultivar is Most Stable for Use in Olive Oil as Determined by UV-Vis Spectrophotometry?

Students Name(s): Karolina S Porcelli

School: Dayspring Academy Middle School, **Region:** Pasco

Title: Yes to Iron! No to Anemia!

Students Name(s): Rowan M Miller

School: Espiritu Santo Catholic School, **Region:** Pinellas

Title: Do Scents Make Sense?

Students Name(s): Bianka A Albert

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

Title: Removal of Methylene Blue from Wastewater

Honorable Mention

Students Name(s): Payson Keown

School: St. Joseph Catholic School, **Region:** Polk

Title: Breathing Bananas

Students Name(s): Therese B Sherwin

School: C. W. Ruckel Middle School, **Region:** East Panhandle

Title: Reverse Filter: The Future of Science

Students Name(s): Luka Smith

School: Punta Gorda Middle School, **Region:** Thomas Alva Edison

Title: Will the Implementation of Thermal Energy in Comparison to Acidic Electrical Outlets, Implement a Change in Luminescence Displayed?

Students Name(s): John W Cornell

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

Title: Do Surfactants Have an Effect on the Uptake of Foliar Applied Imidacloprid in *Citrus sinensis*? Year 3

Fourth Place

Students Name(s): Samer A Elhoushy

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

Title: The Effects of Ultraviolet Radiation on Elemental Metals, Alloys, and Polyethylene Materials in a Simulated Lunar Regolith Environment

Students Name(s): Amanda Barnes

School: Winston Park K-8 Center, **Region:** South Florida

Title: The Effect of Oil Additives in Clay's Modulus of Elasticity

Students Name(s): Eric N Hoffman

School: Fort Clarke Middle School, **Region:** Alachua

Title: Burning Desire

Students Name(s): Matthew M Settles
School: Westwood Middle School, **Region:** Alachua
Title: How Do Different Combinations of Synthetic Flour Affect How Bread Dough Rises?

Students Name(s): Will W Cornell
School: Hardee Junior High School, **Region:** Heartland
Title: Do Surfactants Affect the Uptake of Soil Applied Imidacloprid in Young *Citrus sinensis*

Third Place

Students Name(s): Gabriel P Lerner-Sperow
School: Okaloosa STEMM Academy, **Region:** East Panhandle
Title: Fueling the Future: The Effect of Oxidation Prone Metal Variance on the Rate of Hydrogen Gas Production in the Reaction of a Metal and Hydrochloric Acid

Students Name(s): Ava L Jones
School: Swift Creek Middle School, **Region:** Capital
Title: Galvanic Wars

Students Name(s): Andrew Mecklenburg
School: Challenger K8 School of Science and Mathematics, **Region:** Hernando
Title: Plop,Plop Fizz, Fizz - Can You Change How Fast It Is? The Effect of the Size of an Alka-Seltzer Tablet on the Rate of a Reaction

Students Name(s): Shrey Gupta
School: Williams Middle Magnet School, **Region:** Hillsborough
Title: Yeast - Feast on the "Rising" Beast

Second Place

Students Name(s): Wenjo Lai
School: Lakeland Christian School, **Region:** Polk
Title: Basic Cocoa: Investigating the Effects of Strong Bases on the Extraction of Caffeine and Theobromine from Cocoa Powder

Students Name(s): Hristos Pavlides
School: Dayspring Academy Middle School, **Region:** Pasco
Title: Which Oil Creates Less Heat?

Students Name(s): Amelia B Curran
School: Herbert H. Hoover Middle School, **Region:** Brevard: Intracoastal
Title: A Comparison of The Energy Content and Yield of *Hydrilla verticillata* and *Lemna minor* Biodiesels

First Place

Students Name(s): Benno S Hermans
School: Pine Ridge Middle School, **Region:** Collier
Title: Additives for Maintaining Bioplastic Tensile Strength Over Time

Students Name(s): Ramsey O Zeidan
School: Orlando Science School, **Region:** Dr. Nelson Ying Expo - Orange
Title: The "C" In Chlorophyll



Junior

Earth & Environmental Sciences

Recognition

Students Name(s): Jasmine Bohannon

School: McNair Magnet Middle School, **Region:** Brevard: Mainland

Title: Determining the Effects of Clay Flocculation of Brown Algae, *Dictyota*

Students Name(s): Brennan A Butler

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

Title: Filter Funk

Students Name(s): Elizabeth S Nowicki

School: Oak View Middle School, **Region:** Alachua

Title: What's In Your Tea?

Students Name(s): Adriana V Dugo

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

Title: Eutrophication

Students Name(s): Arnav N Kapasi

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

Title: Microplastics in Water

Honorable Mention

Students Name(s): Jonny F Sobczak

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

Title: Impacts of Aeration on a Freshwater Body

Students Name(s): Kadin P Musco

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

Title: Bottle Water: Got *E-Coli*?

Students Name(s): Sobheet Rath

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

Title: Lead Content in Broward County Residential Tap Water and the Effectiveness of Filters to Remove Lead from Water

Students Name(s): Zander R Yeomans

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

Title: Does Salinity Affect the Amount of Dissolved Oxygen in Peace River?

Students Name(s): Sydney V Wright

School: Lake Eola Charter School, **Region:** Dr. Nelson Ying Expo - Orange

Title: Good Up High, Bad Nearby

Fourth Place

Students Name(s): Ahmed T Eldeeb

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

Title: Can Nanosilver in Consumer Products Affect Pond Life?

Students Name(s): James A Lovely
School: Resurrection Catholic School, **Region:** Polk
Title: Herbicide's Organic Side

Students Name(s): Austin Lowder; Cassandra Heeg
School: L. A. Ainger Middle School , **Region:** Thomas Alva Edison
Title: The Survival of the Smallest

Students Name(s): Brooke M Buchanan
School: Gray Middle School , **Region:** Lake
Title: Are We Walking on Star Dust?

Students Name(s): Jacqueline M Anders
School: McIntosh Middle School, **Region:** Sarasota
Title: Sunshine on My Solar Makes Me Happy

Students Name(s): Trevor O Overton
School: Pioneer Middle School, **Region:** Broward
Title: Carbon Dioxide's Impact on Temperature

Third Place

Students Name(s): Grace M Hebson
School: Saint Mary Catholic School, **Region:** East Panhandle
Title: Got Algae? Suppressing Harmful Algal Blooms with Calcium Chloride

Students Name(s): Olivia A Booth
School: Holley Navarre Middle School, **Region:** West Panhandle
Title: Don't Be Salty!: Measuring UV Rays at the Beach

Students Name(s): Emily I Revvelta
School: Fruit Cove Middle School, **Region:** St. Johns
Title: The Relationship between Black Mangrove Cover and Marsh Periwinkle Density in a Northeast Florida Salt Marsh

Students Name(s): Jennifer C Holley
School: Sacred Heart Catholic School, **Region:** Northeast Florida
Title: What Is the Most Effective Filtration Method to Remove *Escherichia coli* from Water Collected from the St. Johns River?

Students Name(s): Ava J Auter
School: West Shore Junior/Senior High School, **Region:** Brevard: South
Title: The Effect of Anoxic Conditions on Water Chemistry in the Indian River Lagoon (A Second Year Study)

Second Place

Students Name(s): Marisol R Enguidanos
School: Okaloosa STEMM Academy, **Region:** East Panhandle
Title: Is it Possible to Reduce the Environmental Effects Causing Coral Bleaching?

Students Name(s): Brianna S Jones
School: Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal
Title: *Pestalotiopsis microspora* Breaking Down Plastic

Students Name(s): Khushi Desai

School: Crystal Lake Community Middle School, **Region:** Broward

Title: Evaluation of a Natural Eco-Friendly Bio-Coagulant Moringa Oleifera Compared to Traditional Synthetic Chemical Coagulants for Treatment of Surface Water

Students Name(s): Tamara L Faor; Aleyna G Tunc

School: Alazhar School, **Region:** Broward

Title: The Effect of Different pH levels on Green, Red, & Brown Algae

First Place

Students Name(s): Camille A Duma

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

Title: Breakfast Rubbish... May not be Rubbish After All!: An Experiment on the Effects of Fertilizers on Grass Seeds and Water

Students Name(s): Alejandra S Abramson

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

Title: The Effect of Common Pesticides on *Drosophila melanogaster* in Comparison to Neurodegenerative Diseases, Learning Disorders, and Birth Defects in Humans

Students Name(s): Juliana R Namen

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

Title: Using a Proposed Biochar Briquette Filter to Reduce the Concentration of Diethylene Dioxide in River Water Compared to Reverse Osmosis



Junior

Engineering

Recognition

Students Name(s): Carlos E Ramirez

School: Doral International Academy of Math and Science K-8, **Region:** South Florida

Title: Mars Rover "VOLTEX" with Electrical System

Students Name(s): Nathan J Holmes; Luke S Elmore

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

Title: Can't Handle the Pressure

Students Name(s): Quin Konicek

School: Bonita Springs Middle School Center for the Arts, **Region:** Thomas Alva Edison

Title: Beam Mechanics Using a Pencil Model

Students Name(s): Brady G White

School: Green Cove Springs Junior High School, **Region:** Clay Rotary

Title: Could Induction Be Used to Power Electric Vehicles in Motion?

Students Name(s): Cooper Thomson

School: Stone Magnet Middle School, **Region:** Brevard: South

Title: Testing Boundary Layer Ingesting Engine Cowling Designs as a Method of Reducing Drag

Honorable Mention

Students Name(s): Mahmoud O Abed

School: Saint Cecelia Catholic School, **Region:** Pinellas

Title: Traffic Strap

Students Name(s): Sophia C Cafarelli

School: C. W. Ruckel Middle School, **Region:** East Panhandle

Title: Can Polystyrene Fly?

Students Name(s): Lila T Cueva

School: Sunlake Academy of Math and Science , **Region:** Hillsborough

Title: Radiation and Our Smartphone

Students Name(s): Alexandros Rapanos

School: Beachside Montessori Village , **Region:** Broward

Title: Testing Concrete Performance

Fourth Place

Students Name(s): Takara M White

School: Creekside Middle School, **Region:** Tomoka

Title: Earthquake-Proof Buildings - Testing Vibration Isolators

Students Name(s): Johan Rafeek

School: Lyndon B. Johnson Middle School, **Region:** Brevard: Mainland

Title: How Does Pitch, Diameter, Number of Blades on a Drone Propeller Affect the Drone's Thrust Force?

Students Name(s): Carlos Rinaldi-Rivera
School: Howard W. Bishop Middle School, **Region:** Alachua
Title: Automated Orchid Watering Machine

Students Name(s): Benjamin M York
School: Twin Lakes Academy Middle, **Region:** Northeast Florida
Title: Moving Water-Optimizing the Pitch of an Archimedes Screw

Students Name(s): Anya B Stewart
School: Avalon Middle School, **Region:** Dr. Nelson Ying Expo - Orange
Title: Newton's Cradle: Does Ball Size Matter? Part II

Students Name(s): Annarose Hilhorst
School: Lincoln Park Academy, **Region:** St. Lucie
Title: Sunflower Solar

Third Place

Students Name(s): Sabyne A Brisson
School: Pine Ridge Middle School, **Region:** Collier
Title: A Stitch to Save a Surgery

Students Name(s): Madeline J Perry
School: Neptune Middle School, **Region:** Osceola
Title: Tethered Technology

Students Name(s): Ellison S Conrad
School: The Cornerstone School, **Region:** Big Springs
Title: Year Two: Aerodynamics for the Trucking Industry

Students Name(s): Maria E Suberviola
School: American Heritage School, **Region:** Broward
Title: Effectiveness of Bifacial Photovoltaic Cells on Maximizing the Absorption of Reflected Sunlight

Students Name(s): Emily M Malzahn
School: Saint Joseph Catholic School, **Region:** Northeast Florida
Title: Mighty Myocytes Meet Their Match: The Effect of Electricity on Artificial Muscles

Second Place

Students Name(s): Makayla L Giggey-Duncan
School: A.D. Henderson University School, **Region:** Palm Beach
Title: Developing and Testing an Activity Monitor as a Component in a Colony Monitoring Sensor System

Students Name(s): Caitlin A Kaiser
School: Resurrection Catholic School, **Region:** Polk
Title: 3D Sensory Tags Part 2

Students Name(s): Aaron M Wilmoth
School: Walton Middle School, **Region:** East Panhandle
Title: Squishy Robots

Students Name(s): Sammy M Habboub

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

Title: Harvesting Piezoelectric Energy Using Zinc Oxide Nanowires

First Place

Students Name(s): Alexandra B Clow

School: Umatilla Middle School, **Region:** Lake

Title: Forgotten Baby Syndrome Year Two

Students Name(s): Vivek S Sandrapaty

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

Title: Take a Dive into the Future of Water Safety: An Idea for the Next Generation Electronic Device that May Prevent Drowning Accidents in Swimming Pools- Year 2

Grand Award Winner

Students Name(s): Alexandra B Clow

School: Umatilla Middle School, **Region:** Lake

Title: Forgotten Baby Syndrome Year Two



Junior

Environmental Engineering

Recognition

Students Name(s): Roseanna M Tagg
School: River Springs Middle School, **Region:** Tomoka
Title: Paper Straws, Fact or Fiction - Are They Really Biodegradable?

Students Name(s): Ethan DiNottia
School: Paul Laurence Dunbar Middle School, **Region:** Thomas Alva Edison
Title: Coastal Eutrophication

Students Name(s): Makana O Salim-Uesi
School: Williams Middle Magnet School, **Region:** Hillsborough
Title: Let's Go RCV H2O!

Honorable Mention

Students Name(s): William J Myers
School: Gifford Middle School, **Region:** Indian River
Title: The Fuel of the Future

Students Name(s): Neil J Dave
School: Lakeland Christian School, **Region:** Polk
Title: Solvents and Smoke, Feat. Invertebrate Indicators - Year 2

Students Name(s): Robert Stewart
School: Paul Laurence Dunbar Middle School, **Region:** Thomas Alva Edison
Title: Resistance Is Futile: A Study on Fluid Drag

Students Name(s): Alexander (Sasha) T Fiola
School: Canterbury School of Florida, **Region:** Pinellas
Title: The Effect of Solar Panel Tracking on How Much Power Is Being Produced 2.0

Fourth Place

Students Name(s): Robert J Zrallack
School: St. Teresa Catholic School, **Region:** Brevard: Mainland
Title: Can an Aeration and Agitation System be Used to Treat Canal Runoff Water to Decrease the Amount of Phosphorus and Nitrate Levels that Enter the Indian River.

Students Name(s): Claire C Classon
School: Montessori at Roseborough, **Region:** Lake
Title: Engineering Efficient Compost Irrigation

Students Name(s): Shilpa M Shiju
School: Deerlake Middle School, **Region:** Capital
Title: Development of an Organic Super Capacitor Using Sugar Polymers and Tannin

Students Name(s): Angela L Gao
School: Abraham Lincoln Middle School, **Region:** Alachua
Title: Evaluation and Optimization of Photocatalytic Ability of Graphitic Carbon Nitride for Contaminant Removal

Students Name(s): Lucy J Stanton

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

Title: Hydro Farming: How Does Farming Certain Plants on Water Affect Nitrate and Phosphate Levels?

Third Place

Students Name(s): Vinu S Suthakaran

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

Title: How Can an ROV with a Sediment Filter be Used in Order to Filter Sediment Out of the Ocean?

Students Name(s): Kiernan R Dally

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

Title: Storm Drain vs. Amount of Water/Pieces of Plastic

Students Name(s): Lavanya S Natarajan

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

Title: An Engineered Solution to Optimize the Hydraulic Conductivity of Highly Permeable Landfill Liners

Students Name(s): Wyatt T Amodeo

School: The Cornerstone School, **Region:** Big Springs

Title: RRC - Reinforced Recycled Concrete

Second Place

Students Name(s): Ishika Nag

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

Title: Breathe Easy: Using Nanoparticles to Improve the Efficiency of Air Filtration Systems by Reducing Particulate Matter

Students Name(s): Adit Agarwal

School: Stone Magnet Middle School, **Region:** Brevard: South

Title: Developing and Testing a Remotely Operated Vehicle Designed to Detect and Reduce Harmful Algae Blooms Caused by *Gymnodinium*

First Place

Students Name(s): Robert N Sansone

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

Title: The Oceanic Oil Spill Solution



Junior Intelligent Machines, Robotics, & Systems Software

Recognition

Students Name(s): Sawyer Vanrider
School: New Smyrna Beach Middle School, **Region:** Tomoka
Title: Low Cost Computing

Students Name(s): Adam J Moore
School: Yearling Middle School, **Region:** Heartland
Title: Drone Tug-a-War

Students Name(s): Ivan A Goponenko
School: Lake Nona Middle School, **Region:** Dr. Nelson Ying Expo - Orange
Title: What AI is the Best at Chess?

Honorable Mention

Students Name(s): Maddison P Orlandi
School: Lyndon B. Johnson Middle School, **Region:** Brevard: Mainland
Title: House Design vs Hurricane

Students Name(s): Ajay N Sastri; Andres G Sanchez
School: Sanford Middle School, **Region:** Seminole
Title: A Helping Hand: A CNC Machining Concept

Students Name(s): Mia T Respeto
School: Nativity Catholic School, **Region:** Broward
Title: Which Common Roomba Algorithm Gets the Best Room Coverage?

Fourth Place

Students Name(s): Samuel E Knight
School: Okaloosa STEMM Academy, **Region:** East Panhandle
Title: AI Obstacle Course

Students Name(s): Victoria J Usrey
School: Windy Hill Middle School, **Region:** Lake
Title: Vroom, Beep Whirr! VEX-IQ

Students Name(s): Alexis E Matzer
School: Ferry Pass Middle School, **Region:** West Panhandle
Title: Is it Possible to Determine an Author Using a Simple Computer Program

Students Name(s): Ahan B Mishra
School: Abraham Lincoln Middle School, **Region:** Alachua
Title: Smartphone Based Biomedical App for the Elderly

Students Name(s): Camelia Bhattacharya; Khwahish Jain
School: Farnell Middle School, **Region:** Hillsborough
Title: Computer Vision to Detect Handwritten Digits and Human Face Using Raspberry Pi

Third Place

Students Name(s): Victoria Parra

School: Loggers' Run Middle School, **Region:** Palm Beach

Title: Using SQL Injections to Hack Databases and How to Prevent Them

Students Name(s): Siddharth A Kini

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

Title: Peek-A-Weed:A Novel Method to Detect Weeds Using Artificial Intelligence

Students Name(s): Madhumita Subbiah

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

Title: Emergency Alerts

Second Place

Students Name(s): Arman S Alexis

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

Title: How Does VR Education Correlate to Academic Improvement?

Students Name(s): Aanya Bhandari

School: Joseph L. Carwise Middle School, **Region:** Pinellas

Title: Robotic Hand

First Place

Students Name(s): Faith E Collins

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

Title: Using Machine Learning to Develop an Image Steganography Detection Software



Junior

Mathematics & Computational Sciences

Recognition

Students Name(s): Brady Fitzpartrick
School: Coleman Middle School, **Region:** Hillsborough
Title: The Risk of Dehydration in NFL Positions

Students Name(s): Zachary W Joiner
School: Christ the King Catholic School, **Region:** Northeast Florida
Title: Cubed

Honorable Mention

Students Name(s): Elianna Sanchez
School: Stone Magnet Middle School, **Region:** Brevard: South
Title: Epidemiology: A Mathematical Model of Disease Transmission

Students Name(s): Jessica C Zhou
School: Maitland Middle School, **Region:** Dr. Nelson Ying Expo - Orange
Title: A Statistical Study Comparing Charter and Traditional Public Schools in Florida Using a Log-Linear Model

Fourth Place

Students Name(s): Allison M Harder
School: Crystal River Middle School, **Region:** Citrus
Title: Proving Picks

Students Name(s): Vicky H Jung
School: Howard W. Bishop Middle School, **Region:** Alachua
Title: Trisecting an Angle

Third Place

Students Name(s): Zadie S Diniz
School: Gifford Middle School, **Region:** Indian River
Title: Can a Ratio Make You Happy?

Students Name(s): Daniel T Chung
School: Sanford Middle School, **Region:** Seminole
Title: How Likely Will You Survive an Alligator Attack? A Decision Tree Model to Predict the Probability of Survival

Students Name(s): Noah A Lutchansky
School: DeLaura Middle School, **Region:** Brevard: Intracoastal
Title: Don't Be Blue about Microwaves

Second Place

Students Name(s): Rebecca D Adler
School: Pine Crest School, **Region:** Broward
Title: The Derivation of the Virgo Constant with Respect to Hubble's Constant

Students Name(s): Emma C Lee

School: James Weldon Johnson College Preparatory Middle School, **Region:** Northeast Florida

Title: Decryption Connoption: Which Attack Strategy Used to Decrypt a Caesar Cipher Is the Most Efficient?

First Place

Students Name(s): Chace R Caven

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

Title: Designing Ligands as a Potential Intervention For Parkinson's Disease



Junior

Microbiology

Recognition

Students Name(s): Alexander M Fagan
School: Okaloosa STEMM Academy, **Region:** East Panhandle
Title: Honey, Are You Cured?

Students Name(s): Kendall E Dean
School: Grace Christian School, **Region:** Big Springs
Title: Which Hand Soaps Eliminate the Most Bacteria?

Honorable Mention

Students Name(s): Lauren E Jones
School: Lakeland Christian School, **Region:** Polk
Title: Cu Later, Aerobic Bacteria?

Students Name(s): Nira Goyal
School: Hidden Oaks Middle School, **Region:** Martin
Title: Essential Oils: Next Generation Antibiotics

Fourth Place

Students Name(s): Zoey L Evans
School: Howard W. Bishop Middle School, **Region:** Alachua
Title: Drool Rules: Can Dog Drool Kill Bacteria on the Human Body?

Students Name(s): Zachary R Rediske
School: Maitland Middle School, **Region:** Dr. Nelson Ying Expo - Orange
Title: The Effect of Natural vs Household Cleaning Products on Bacterial Growth

Third Place

Students Name(s): Chloe R Thompson
School: Tallahassee School of Math and Science, **Region:** Capital
Title: *E. Coli*, or Eco-lies? Comparing the Presence of Coliforms in Packaged versus Non-packaged Foods

Students Name(s): Elizabeth H Brown
School: San Jose Catholic School, **Region:** Northeast Florida
Title: Algaecides Effects on Algae; Sodium Carbonate Peroxyhydrate, Potassium Permanganate, and Endothall on *Volvox Globator*

Students Name(s): Madison N Adkins
School: Lincoln Park Academy, **Region:** St. Lucie
Title: Endophytic Bacteria in Sugar Cane

Second Place

Students Name(s): Anouska Seal
School: Sanford Middle School, **Region:** Seminole
Title: Inhibitory Effects of Superfoods on *E. coli*

Students Name(s): Lana E Carter

School: Brown-Barge Middle School, **Region:** West Panhandle

Title: Best Growth Conditions for Yeast

First Place

Students Name(s): Rahul Tummuru

School: Stone Magnet Middle School, **Region:** Brevard: South

Title: A Study of the Antimicrobial Effects of *Moringa oleifera* Extracts on the Growth of the Gram-Negative Bacteria, *Escherichia coli* and the Gram-Positive Bacteria, *Staphylococcus epidermidis*



Junior

Physics & Astronomy

Recognition

Students Name(s): Patrick M O'Leary

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

Title: Can a Computer Classify Craters on the Moon?

Students Name(s): Jackson R Odom

School: Okaloosa STEMM Academy, **Region:** East Panhandle

Title: Detecting Shapes with Light Instead of Radar

Students Name(s): William O Emiro

School: Okaloosa STEMM Academy, **Region:** East Panhandle

Title: Ultrasonic Levitation

Students Name(s): Josie M Kirwan

School: Howard W. Bishop Middle School, **Region:** Alachua

Title: Ball 3: Throw a Strike, Get it Right!

Honorable Mention

Students Name(s): Benjamin Turalic

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

Title: Laser Waves

Students Name(s): Deegan J David

School: D. S. Parrott Middle School , **Region:** Hernando

Title: Delete the Heat

Students Name(s): Holden M Casson

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

Title: Are You Keepin' It Cool? The Effects of Thermal Energy on Different Types of Insulation

Students Name(s): Brody F Crews

School: Fort White High School, **Region:** Suwannee Valley

Title: It's a Matter of Time

Students Name(s): Sydney E Hayes

School: Orange Park Junior High School, **Region:** Clay Rotary

Title: Radiation Penetration

Fourth Place

Students Name(s): Hannah L Ashton

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

Title: Does Changing the Type of Wood Affect The Volume of a Stringed Instrument?

Students Name(s): Drake D Saltarelli

School: Saint Cecelia Catholic School, **Region:** Pinellas

Title: Reducing the Severity of Impact to a Football Player's Head

Students Name(s): Jonah B Gibson
School: Challenger K8 School of Science and Mathematics, **Region:** Hernando
Title: Drone Zone: The Effect of Weight on Drone Battery Life

Students Name(s): Ronan J Mowrey
School: Challenger K8 School of Science and Mathematics, **Region:** Hernando
Title: How Does Water Depth Affect Water Velocity?

Students Name(s): Gisele C Crary
School: Saint Joseph Catholic School, **Region:** Martin
Title: What Is the Sun Made of?

Students Name(s): Zachary H Bridenbaugh
School: Wedgefield School, **Region:** Dr. Nelson Ying Expo - Orange
Title: Foiling Plan(e)s

Third Place

Students Name(s): Joel P Dotter
School: C. W. Ruckel Middle School, **Region:** East Panhandle
Title: Does Adding Tubercles to a Wind Turbine Affect the Energy Output?

Students Name(s): Alysha L Miner
School: Saint Mary Catholic School, **Region:** East Panhandle
Title: Capacitive Coupling Wireless Power Transmission : Electric Car Mobility Charging of the Future

Students Name(s): Riley R Lutes
School: Citrus Springs Middle School, **Region:** Citrus
Title: Line Abrasion Test

Students Name(s): Chad W Brown
School: Milwee Middle School, **Region:** Seminole
Title: 4 Balls and 1 Machine

Students Name(s): Nathan J Boonsanguan
School: West Shore Junior/Senior High School, **Region:** Brevard: South
Title: Dual Axis Solar Tracker Using Arduino Uno Controller (Low Voltage 5 - 12V Electrical Circuit)

Second Place

Students Name(s): Grant P Parker
School: Lakeland Highlands Middle School, **Region:** Polk
Title: Directed Radiation through Improved Magnetic Control

Students Name(s): Aaron M Finch
School: Thomas Jefferson Middle School, **Region:** Brevard: Intracoastal
Title: Aerodynamic Lift of Aircraft Inside a Wind Tunnel

Students Name(s): Claire Huang
School: James Weldon Johnson College Preparatory Middle School, **Region:** Northeast Florida
Title: The Effect of Windows on Photovoltaic Cell Efficiency

First Place

Students Name(s): Russell J Widder

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

Title: Optimization of a Nitinol Hinge for Use on a Lunar Rover

Students Name(s): Julia Colan

School: Highland Oaks Middle School, **Region:** South Florida

Title: Fibonacci Solar Array Base

Grand Award Winner

Students Name(s): Russell J Widder

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

Title: Optimization of a Nitinol Hinge for Use on a Lunar Rover



Junior

Plant Sciences

Recognition

Students Name(s): Kyle D Bartenslager

School: Western Pines Middle, **Region:** Palm Beach

Title: Comparing the Net Primary Productivity of Brown and Green *Sargassum*

Students Name(s): Josie L Driggers; Anna M Meyer

School: Madison Creative Arts Academy, **Region:** Suwannee Valley

Title: Salty Soil: Can It Be Fixed?

Students Name(s): Gavin C Sharp

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

Title: Does Rootstock of *Citrus sinensis* Affect Brix?

Honorable Mention

Students Name(s): Kyla A Grady

School: Espiritu Santo Catholic School, **Region:** Pinellas

Title: The Study of Plant Height

Students Name(s): Jacob H Wolfe

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

Title: What Variance of Light Intensity Affects the Chloroplast Reproduction in a Plant?

Students Name(s): Luke D Meiers

School: Osceola Middle School, Ocala, **Region:** Big Springs

Title: Magnetic Field Effects on Plant Growth

Fourth Place

Students Name(s): Hannah A Herbst

School: Plato Academy Palm Harbor, **Region:** Pinellas

Title: How Does the Amount of TDS in Water Affect the Growth Rate of Bean Plants?

Students Name(s): Stephen W Mello

School: Saint Luke's Lutheran School, **Region:** Seminole

Title: Zinc's Affects on Arugula in Hydroponics

Students Name(s): Rylee A Shirley

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

Title: Fish Species' Effect in Aquaponics Farming

Students Name(s): Elena A Glow

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

Title: Allelopathic Effect of *Cymbopogon citratus* on the Cultivation of *Oryza sativa*

Students Name(s): Madison A Uhlmeyer

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

Title: Determining the Impact of Sterilized *Oreochromis niloticus dermis* on *Buxus microphylla japonica* Cellular Regeneration

Third Place

Students Name(s): Riley Jones
School: Jupiter Middle School, **Region:** Palm Beach
Title: Guppies Green Thumb

Students Name(s): Lily K Gunter
School: Gifford Middle School, **Region:** Indian River
Title: Be the Solution to Water Pollution

Students Name(s): Andrew Pino
School: Saint Andrew Catholic School, **Region:** Thomas Alva Edison
Title: The Effects of Different Florida Native Aquatic Plants on Water Quality

Students Name(s): Sara A Estelow
School: Indian Trails Middle School, **Region:** Seminole
Title: Alternatives to Glyphosphate: Natural Weed Control

Second Place

Students Name(s): Sophia G Carbajal
School: Winston Park K-8 Center, **Region:** South Florida
Title: Phytoremediation: The Effect of Hyperaccumulation of NiSO₄ or Cr₄SO₄ on Magnesium Content within *Brassica juncea*, *Brassica oleracea aceophala* and *Brassica oleracea gongylodes*

Students Name(s): Mori L McCain
School: Rocky Bayou Christian School, **Region:** East Panhandle
Title: Soil, Hydroponics, Aeroponics: What Would A Plant Choose to Grow in?

First Place

Students Name(s): Isabella M Fulbright
School: International Community School, **Region:** Dr. Nelson Ying Expo - Orange
Title: Impacting Indoor Morning Seed Growth Rate through Seed Manipulation

Senior

Animal Sciences

Recognition

Students Name(s): Emily J Weimer
School: Palm Beach Central High School, **Region:** Palm Beach
Title: The Examination of Animal Sleep Patterns Using *Cassiopea*

Students Name(s): Abigail G Ripplinger
School: Union County High School, **Region:** Suwannee Valley
Title: Which Method Has the Best Hatch Rate: the Husbandry Method or the Artificial Insemination Method?

Honorable Mention

Students Name(s): Alexandra Manion
School: Fort Walton Beach High School, **Region:** East Panhandle
Title: To Test Photobiological Light Emissions from Living Organisms and Concluding if the Foundations Are there to Support Photobiological Hydrogen Production

Students Name(s): Emily G Zook
School: Edgewood Jr/Sr High School, **Region:** Brevard: Intracoastal
Title: Clams on Acid- Year 2

Fourth Place

Students Name(s): Lauren E Nonnenmocher
School: Lakeland Christian School, **Region:** Polk
Title: Reef Relief: Investigating the Allelopathic Effects of Soft Corals on the Health of Large and Small Polyp Stony Corals

Students Name(s): Janani S Kumaran
School: Gainesville High School, **Region:** Alachua
Title: Collection and Identification of Mosquitoes: A Precursor to Understanding Insecticide Resistance.

Students Name(s): Cole H Nigro
School: Episcopal School of Jacksonville, **Region:** Northeast Florida
Title: The Effects of Methylparaben on the Health of *Palaemonetes paludosus*

Third Place

Students Name(s): Abigail D Sherry
School: Palm Beach Central High School, **Region:** Palm Beach
Title: The Effect of Neonicotinoids on the Tunnel-Building Patterns of Ants

Students Name(s): Kiran S Arain
School: Saint Edwards School, **Region:** Indian River
Title: Management of *Singhiella simplex* Using *Curinus coeruleus* and *Isaria fumosorosea*

Students Name(s): Maya Chandar
School: Canterbury School, **Region:** Thomas Alva Edison
Title: The Effect of Laser Beams on ATP Uptake and Cellular Membrane Potential (A Novel 4th Year Study on Cell Mechanics)

Second Place

Students Name(s): Varun R Madan

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

Title: Year 2: Understanding the Effects of Bifidobacterium Infantis on Honeybee Gut Parasite *Nosema ceranae*

First Place

Students Name(s): Kaitlyn B Taylor

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

Title: How Do SuperDFM Strong Microbials Affect Varrod Destructor in Relation to Lactobacillus within *Apis mellifera*?

Senior

Behavioral & Social Sciences

Recognition

Students Name(s): Ana-Paula Dovali; Elijah R Slage

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

Title: Effects of Time Constraints on Athletic Performance

Students Name(s): Nicolas R Giraldo; Zack Vanzant

School: Bradenton Christian School, **Region:** Manatee STEM Competition

Title: R U Focused?

Honorable Mention

Students Name(s): Courtney E Sgaliardich

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

Title: Can Autistic Genes Be Found In *Apis mellifera*?

Students Name(s): Eniya Krishnaraj

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

Title: Investigating the Effect of Up-regulating the GABA and NO/cGMP/PKG Pathways as a Potential Therapy for Epilepsy Using *Caenorhabditis elegans* as a Model Organism.

Fourth Place

Students Name(s): Sweta Srinivasan; Divya Srinivasan

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

Title: Adolescent Depression and Its Correlation Between Body Mass Index and Psychosomatic Symptoms: A Prospective Study Amongst the Teenage Population

Third Place

Students Name(s): Ryan Scharlau

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

Title: Crazy Crickets: The Effect of Caffeine and CBD Oil on the Aggressive Behaviors of Crickets

Students Name(s): Saketh Katta

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

Title: Optimization of Pathophysiological Databases for Enhanced User Experience- Year 2

Second Place

Students Name(s): Alyssa Russell

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

Title: Reminiscing: Music and Memory- Year V

Students Name(s): Luke T Geiger

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

Title: Hotheads in Nature: Thermal Stress-Prompted Transgenerational Epigenetic Inheritance of Aggressive Behavior in a Population of *Drosophila melanogaster*

First Place

Students Name(s): Ronald B Xu

School: Winter Springs High School, **Region:** Seminole

Title: Combating Stuttering Via an Empowered Multi-Modal Neural Network Based on Facial and Audio Recognition Data

Grand Award Winner

Students Name(s): Ronald B Xu

School: Winter Springs High School, **Region:** Seminole

Title: Combating Stuttering Via an Empowered Multi-Modal Neural Network Based on Facial and Audio Recognition Data



Senior

Biomedical & Health Sciences

Recognition

Students Name(s): Maryam Imran

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

Title: The Antibacterial Effects of Carrots, Garlic, Kale, and Broccoli on *Escherichia coli*

Students Name(s): Neha R Iyer

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

Title: Collagen Production in Keloid Fibroblasts upon Steroid Treatment

Students Name(s): Kelly B Berkowitz

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

Title: What's Your Gut Feeling?: Can the Usage of a Natural Plant Extract Create a Conducive Environment for Prebiotics to Work? - Year 2

Students Name(s): Katherine L Heitzig

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

Title: The Connection between Rhes and Mitochondria in Huntington's Disease Models

Honorable Mention

Students Name(s): Meryl Liu

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

Title: A Novel Prototypic Approach to Biomechanical Posture Correction in Student Backpacks and Prevention of Intervertebral Disc Herniation in the L4/L5 and L5/S1 Lumbar Spinal Discs- Year 2

Students Name(s): Candela Escolar

School: Dr. Michael M. Krop High School, **Region:** South Florida

Title: Hypertrophic Cardiomyopathy in a Hispanic Population

Students Name(s): Krithika Subramanian

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

Title: Structural Differences in the Brains of Alzheimer's Patients versus Normals as Identified by a Machine Learning Analysis of MR Images

Students Name(s): Kaya L Olszewski

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: Vape on Planaria Regeneration

Fourth Place

Students Name(s): Katherine L Morales

School: Medical Academy for Science and Technology, **Region:** South Florida

Title: Using Luciferase Reporter Gene Assay to Understand the Functions of Genomic DNA

Students Name(s): Tyler (Julia) A Audino

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

Title: Hormone Replacement Therapy - Year 2

Students Name(s): Kashyap Sreeram; Arianna Zhai

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

Title: A New Cure: The Effect of Photodynamic Therapy on the Fragmentation of DNA Utilizing *E. Coli* as an In Vitro Model

Students Name(s): Himanshi Verma

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

Title: Therapeutic Potential of Natural Products Like Centella Asiatica and Resveratrol Against Chemically Induced Mitochondrial Dysfunction in Ocular Manifestations of Schizophrenia and Parkinson's Disease

Students Name(s): Jared E Gould

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

Title: Adult Stem Cells for Musculoskeletal Tissue Regeneration

Students Name(s): Sebastian D Kouchakjy

School: Orange Park High School, **Region:** Clay Rotary

Title: Pneumatic Chest Compressor

Third Place

Students Name(s): Ethan Z Levy

School: Dr. Michael M. Krop High School, **Region:** South Florida

Title: Accuracy of a Novel Method to Measure In-Stent Restenosis Using Embedded Nano-Sensors

Students Name(s): Tanvi Haldiya

School: James S. Rickards High School, **Region:** Capital

Title: Exploring Mechanisms Underlying Temporal Lobe Epilepsy: An Analysis of the Neuron-Astrocyte-Microglia Triad

Students Name(s): Anam Ahmed

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

Title: Development of a PCR Assay for Identification of Chronic Autoimmune Inflammation in Type 1 Diabetes

Students Name(s): Kavitha Vudatha

School: SPARK Mayo Clinic, **Region:** Northeast Florida

Title: Using a Crispr-Cas9 Method to Knockout the Aurora Kinase A Gene Expression in Pancreatic Cancer Cell Lines

Students Name(s): Madeline E Huberman

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

Title: Prevalence of Fusobacterium Nucleatum in Colonic Adenomas and its Localization in Areas of High Grade Dysplasia/Carcinoma In-Situ

Second Place

Students Name(s): Laura S Allen; Hoang C Le

School: Western High School, **Region:** Broward

Title: Near Infrared Light Photobiomodulation and *C. longa* Mitigates the Expression of Mutant Amyloid-Beta Precursor Protein Pathway in *D. melanogaster*

Students Name(s): Marc C Pappas

School: SPARK Mayo Clinic, **Region:** Northeast Florida

Title: Novel Small Molecule Targeted Combination Therapy for Metastatic Prostate Cancer (mPCa)

Students Name(s): Setareh K Gooshvar

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

Title: Effect of Conductive Inks in Silicone Based Wearable Technology on the Human Body

First Place

Students Name(s): Hannah D Herbst

School: Florida Atlantic University High School, **Region:** Palm Beach

Title: Quantitative Analysis of Marine Fouling and Bacterial Settlement on InVitro Shark Skin; Biomimetic Bandage Proof-of-Concept to Reduce Bacterial Contamination in Medical Facilities

Students Name(s): Katherine Rodriguez

School: Allen D. Nease High School, **Region:** St. Johns

Title: Melatonin as an Antiproliferative Agent in Brain Metastasis from Breast Cancer

Grand Award Winner

Students Name(s): Hannah D Herbst

School: Florida Atlantic University High School, **Region:** Palm Beach

Title: Quantitative Analysis of Marine Fouling and Bacterial Settlement on InVitro Shark Skin; Biomimetic Bandage Proof-of-Concept to Reduce Bacterial Contamination in Medical Facilities

Senior Cellular/Molecular Biology & Biochemistry

Recognition

Students Name(s): Angela Shar

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

Title: A Novel Study on Lactose Intolerance: The Correlation between the Chirality of Isomer d-lactose and Observed Rotation of Polarized Light

Students Name(s): Mark T Thivierge

School: Homeschool , **Region:** Hillsborough

Title: Development of PCR-amplified Microsatellite Markers for Genetic Analysis of Bay Scallop (*Argopecten irradians*) Populations: A New Tool for Restoration Efforts

Students Name(s): Mailene G Miranda

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

Title: Physicochemical Properties of Various Fibers of *Musa acuminata* and *Ananas comosus*

Honorable Mention

Students Name(s): Truman J Roland

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

Title: Chemo-enzymatic Synthesis of Poly-N-Acetyllactosamine (Poly-LacNAc) and Sialylated Glycans on GlcNAc-CATCH(4+) Peptides

Students Name(s): Diya K Jayram

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

Title: A Novel Approach to Combating Inflammation in Obesity: Identifying and Targeting the Antigen Presentation of Adipocytes and the Secretion of Autoantibodies

Students Name(s): Albert Ting

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

Title: Development of a Two Pronged Treatment Targeting the NF-KB and MGMT Pathways by Creating a Novel Drug Cocktain Using Temozolomide, Zinc, and Disulfiram to Treat Newly Diagnosed Glioblastoma

Students Name(s): Sarah E Barksdale

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: Comparing the Effectiveness of Nano-pesticides and Traditional Pesticides on Spinach Plants and Aphid Mortality

Fourth Place

Students Name(s): Anabella Maria D Galang

School: Home School , **Region:** Collier

Title: Effects of Genetic Manipulation of Nodal Expression on ER + Breast Cancel Cell Morphology, Proliferation, Invasion and Migration

Students Name(s): Benjamin B Scarpino

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

Title: What Is the Efficacy of Iminosugars in Inhibiting Glucosylceramide Synthase in Canine Macrophages?

Students Name(s): Parul R Singh

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

Title: Histone Acetylation Levels in H3.3 Mutant Childhood Glioblastoma Cells

Students Name(s): Brindha P Rathinasabapathi

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

Title: Developing Diagnostic Tools For Vascular Disease Using RNA Markers- Year 2

Students Name(s): Raha Riazati

School: SPARK Mayo Clinic, **Region:** Northeast Florida

Title: The Effect of Interaction with Neural Stem Cells on the Migration, Proliferation, and Proteome of GBM Cells

Third Place

Students Name(s): Julianna Lian

School: Florida Atlantic University High School, **Region:** Palm Beach

Title: Exploring the Effect of Polyphenol-Rich *Sargassum* on Reactive Oxygen Species in the Stomata of a Plant Model

Students Name(s): Jason J Zhang

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

Title: Determining the Role of Checkpoint Protein BUB1 in DNA Replication

Students Name(s): Dhenu P Patel

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

Title: The Development of Zika Virus Pseudoparticles: A Novel Model for the Future

Students Name(s): Ritika Jeloka

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

Title: The Role of Aging, Antioxidants, and Mutant Huntingtin Lowering in the Oxidative Stress Response of HD Neurons

Second Place

Students Name(s): Cynthia Sheng

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

Title: Investigation of the Effects of DNA Concentration on PEI Transfection Success and Efficacy of the SERP-2 Secretion Signal

Students Name(s): Ashton E Body

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: Targeted Drug Delivery for Drug Resistant Cancer

First Place

Students Name(s): Nina Reddy

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

Title: Personalized Cancer Cell Weapons Using CRISPR Genetic Engineering- Year 3

Grand Award Winner

Students Name(s): Nina Reddy

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

Title: Personalized Cancer Cell Weapons Using CRISPR Genetic Engineering- Year 3

Senior

Chemistry

Recognition

Students Name(s): Spencer B Huie

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: Carbon Dioxide Electrochemical Reduction and Effect on pH in an Ocean-Like Environment

Students Name(s): Noah Anuez

School: Fort White High School, **Region:** Suwannee Valley

Title: The Effect of pH and Glyphosate Concentration on Weed Control in GMO Sweet Corn Production

Students Name(s): Zane L Baughman

School: Madison County High School, **Region:** Suwannee Valley

Title: How Does Quench Type Effect the Properties of Metal

Honorable Mention

Students Name(s): Jasper L Montgomery

School: IB at Bartow High School , **Region:** Polk

Title: Comparison of Gold Refractive Index Data Using Plasmon Rulers - Year 2

Students Name(s): Osamah Nafadi

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

Title: Photothermic Steam Generation Enabled by Carbon Nanoparticles

Students Name(s): Lily G England; Lauren M Massais

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

Title: The Effects of a Hydrophilic Substance on Polymer Chains and Cross Links

Fourth Place

Students Name(s): Kindle S Hon; Taylor A Hubbard; Chloe L Johnson

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

Title: Extracting Polysaccharides from Rhodophyta Plantae to Make Biodegradable Plastic

Students Name(s): Rajat K Doshi

School: Henry B. Plant High School, **Region:** Hillsborough

Title: Experimentally Designing Sustainable Clay-based Adsorbents to Remove Arsenic from Drinking Water

Students Name(s): Avani M Bansal

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

Title: Optimizing Water Filtration with Carbon Materials

Students Name(s): Lasya Damaraju

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

Title: UiO-66 Metal Organic Frameworks (MOFs) Decorated with Cadmium Sulfide Quantum Dots: An Investigation of the Effectiveness of MOFs as a Drug Delivery System for Melanoma

Third Place

Students Name(s): Alexis B Crowder

School: Dr. Michael M. Krop High School, **Region:** South Florida

Title: Relative Entropy of Briggs-Rauscher Oscillating Reaction: A Novel Method to Fully Account for this Unique Reaction

Students Name(s): Andy Shar

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

Title: Bucky Paper: Investigating the Viability of Multi-Walled Carbon Nanotubes in Sensors for the Detection of Various Gases

Students Name(s): Alexandria L Bias

School: Lake Nona High School, **Region:** Dr. Nelson Ying Expo - Orange

Title: Reducing Global Warming by Analyzing Storage Capabilities of Mechanically Synthesized Compounds

Second Place

Students Name(s): John-Mark A Phillips

School: Seminole Ridge High School, **Region:** Palm Beach

Title: Synthesis of C60 Buckminsterfullerene Derivatives for DEL, SPS and HTS

Students Name(s): Angelin T Mathew

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

Title: Developing a Multifaceted Smart Scaffold for Application in Tissue Engineering, Organoid Development, and Islet Cell Transplantation: Integrating an Oxygen Generating System to Mitigate Hypoxia and Leveraging the Properties of Bacterial Cellulose

First Place

Students Name(s): Helena Jiang

School: F. W. Buchholz High School, **Region:** Alachua

Title: Novel Colorimetric Sensors for Detecting Chemicals in Vapor, Liquid, and Solid Phases

Grand Award Winner

Students Name(s): Helena Jiang

School: F. W. Buchholz High School, **Region:** Alachua

Title: Novel Colorimetric Sensors for Detecting Chemicals in Vapor, Liquid, and Solid Phases



Senior

Earth & Environmental Sciences

Recognition

Students Name(s): Ananda Chatterjee; Nirmay V Bhanderi

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

Title: How Different Factors Affect Radon Levels in Homes

Students Name(s): Ani I Veltcheva

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

Title: Is Global Warming Making the Earth Greener?

Students Name(s): Krishna M Vekariya

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

Title: The Use of Ultraviolet-C Light to Combat Eutrophication

Students Name(s): Emilin M Mathew

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

Title: Identification of a Novel Biomarker for Pollutant induced Acute Kidney injury and Evaluation of Multifaceted Therapies to Ameliorate Post Injury Fibrosis from Progressing to Coronary Artery Disease

Students Name(s): Karson J Goodwyn

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

Title: Determination of Ascorbic Acid Toxicity in Marine Flora and Fauna- Year 2

Honorable Mention

Students Name(s): Dante A Martinez

School: Westminster Christian School, **Region:** South Florida

Title: Effect of Tardigrades on *Chlamydomonas nivalis* Growth

Students Name(s): Isabelle Barta

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

Title: The Growing Issue of Microplastics

Students Name(s): Anna-Sophie Breitzkreuz; Alec M Latzke

School: Countryside High School, **Region:** Pinellas

Title: Oil Degradation by *Bacillus subtilis*

Students Name(s): Maika Mitsumori

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

Title: Predicted Impact of Climate Change on Indicator Species

Students Name(s): Saahithya K Nagulapalli

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

Title: Episodic Toxicity of Zinc to *Daphnia magna*: Implications for Regulation of Industrial Wastewater Discharge

Fourth Place

Students Name(s): Hannah C Swartz

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

Title: Effects of Methylcobalamin-B12 on the Biotransformation of Arsenic V in *Shewanella oneidensis* MR-1

Students Name(s): Alexa J VanSuch; Lily Sikorski

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

Title: Ingestion of Microplastics by Bivalves

Students Name(s): Hannah M Tesh

School: Darnell Cookman Middle/High School of Medical Arts, **Region:** Northeast Florida

Title: The Effect of Increased Salinity on the Growth of *Lemna minor*

Students Name(s): Julia M Kagiliery

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: The Phytoremediation of Soil Contaminated with Motor Oil Using *Uniola paniculata C*

Students Name(s): Austin Bagby

School: Bell High School, **Region:** Suwannee Valley

Title: Effect of Humate and Humic Acid on Soil Environment

Students Name(s): Aidan P Newsom

School: Union County High School, **Region:** Suwannee Valley

Title: Salinity of Water and Its Effects on Algae Concentration and Growth

Third Place

Students Name(s): Dylan Carman

School: William T. Dwyer High School , **Region:** Palm Beach

Title: Can Electrochemistry Help Reduce Nitrates in Florida Waterways?

Students Name(s): Avanthi S Puvvala

School: Saddlebrook Preparatory School , **Region:** Pasco

Title: Does Microplastic Pollution Impact Aquatic Systems?

Students Name(s): Matthew T Yates

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

Title: Efficacy of Plant Parasitic Nematodes

Students Name(s): Michael J Barker

School: Episcopal School of Jacksonville, **Region:** Northeast Florida

Title: The Effects of Cell Phone Radiation on the Regeneration of Cells

Students Name(s): Minaal Murshid

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

Title: Investigating the Ecotoxicology of Copper Oxide Nanoparticles Encased in Alginate Hydrogel Capsules Designated to Remediate Phosphate Contamination in Water: Year II

Second Place

Students Name(s): Mark Leone

School: Estero High School, **Region:** Thomas Alva Edison

Title: Mitigation of Florida Red Tide (*Karenia brevis*) Blooms through Flocculation with Enhanced Local Sediments

Students Name(s): Esther R Francom

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

Title: Microplastics Spoiling Spoil Islands of the Indian River Lagoon

Students Name(s): Haven R Anderson

School: Hernando High School, **Region:** Hernando

Title: "Mercury"ous about Mycelium: The Effect of the Strain of Oyster Mycelium on the Biosorption of Mercury (Hg) from H₂O

Students Name(s): Rajat Ramesh

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

Title: The Utilization of a Modified Wastewater-Based Medium as a Feedstock for Engineered *Saccharomyces cerevisiae* for the Novel Biological Production of Fatty-Acid Derived Alcohols and Carboxylic Acids

First Place

Students Name(s): Glenn M Grimmett

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

Title: Carbon Capture Using Solid Sorbents. CO₂/N₂ Selectivity with Amine-Tethered Polystyrene and Polyacrylic Polymers.

Students Name(s): Angelina M Guerra

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

Title: Novel Unmanned Environmental DNA Collection Technique

Grand Award Winner

Students Name(s): Angelina M Guerra

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

Title: Novel Unmanned Environmental DNA Collection Technique



Senior

Engineering

Recognition

Students Name(s): Nicole L Moran

School: Academy of Environmental Science, **Region:** Citrus

Title: Homemade Arms

Students Name(s): Junwei Tan

School: Florida Southwestern Collegiate High School- Lee Campus , **Region:** Thomas Alva Edison

Title: Engineering a Bladeless Wind Harvester Using Modified PVDF Piezoelectric Strips to Increase Voltage Response as Well as Bluff Bodies to Create Vortex Induced Vibrations and Employ Vortex Shedding Effects to Amplify Oscillation

Students Name(s): Joshua Stern

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

Title: Hermetic Sealing of 3D Printed Plastics

Students Name(s): Daniela Velez

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

Title: The Facilitation of Communication for People with Disabilities through the Easyspin Keyboard

Students Name(s): Camila Rimoldi Ibanez

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

Title: Is Your Smart Phone Leaking? A Four Year Project

Honorable Mention

Students Name(s): Cole E Kainz

School: Mount Dora Christian Academy, **Region:** Lake

Title: What Type of Wing Design Produces the Least Drag?

Students Name(s): Kaitlyn F Yu

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

Title: Bring on the Heat! From Bimaterial Strip to Off-Grid Heat Sensor

Students Name(s): Caspian Chaharom

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

Title: Solar Powered Plane

Students Name(s): Gavin A Baker

School: Fleming Island High School, **Region:** Clay Rotary

Title: It's Getting Hot in Here!

Fourth Place

Students Name(s): Albert A Manrique

School: MAST Academy at FIU, **Region:** South Florida

Title: Augmented Reality for Autism

Students Name(s): Annika M L Vaidyanathan

School: Winter Springs High School, **Region:** Seminole

Title: Spring Break: A Non-Explosive Device for Astronauts to Collect Planetary Rock Samples and for First Responders in Rescue Missions

Students Name(s): Nicholas A Ruppel
School: Forest High School, **Region:** Big Springs
Title: First Response Medical Drone

Students Name(s): Steven C Vokoun
School: South Fork High School, **Region:** Martin
Title: A Study on Solar- Cones Are No Longer Just For Ice Cream Pt. 3

Students Name(s): Christian J Knuth
School: Sarasota High School, **Region:** Sarasota
Title: Engineering a Low Cost UV Crosslinking Hydrogel Bioprinter

Students Name(s): Aidan L McLaughlin
School: Trinity Preparatory School, **Region:** Dr. Nelson Ying Expo - Orange
Title: Carbon Dioxide Capture with Liquids in Microgravity

Third Place

Students Name(s): Dylan C Ryan
School: Lyman High School, **Region:** Seminole
Title: Zonal Differentiating Soundbar

Students Name(s): Christian B Hughes
School: Allen D. Nease High School, **Region:** St. Johns
Title: Affordable Exoskeletons for Industrial Use

Students Name(s): Katherine A McCaffrey
School: Carrollwood Day School, **Region:** Hillsborough
Title: Construction and Performance of a Silicone-Graphene Nanocomposite Strain Gauge

Students Name(s): Alexander Divoux
School: American Heritage School, **Region:** Broward
Title: Tesla Polymorphic Structures

Students Name(s): Brooke C Rentschler
School: West Shore Junior/Senior High School, **Region:** Brevard: South
Title: Fabricating a Novel Bioplastic Contrived of Chondrus Macroalgae Extract for the Purpose of Determining its Structural Integrity Compared to PETE Plastic

Second Place

Students Name(s): Michael J A Panarisi
School: Niceville High School, **Region:** East Panhandle
Title: A PROP-O-SITION: Cut the Drag!

Students Name(s): Kevin Zhu
School: Pine View High School, **Region:** Sarasota
Title: Increasing Scanning Range of MEMS Mirrors for Endoscopic Optical Systems via Submersion in High RI Fluids

Students Name(s): Hans C Ehrnrooth
School: Pine Crest School, **Region:** Broward
Title: Improving the Efficacy of Modern Airlines with the Co-Flow Jet Airfoil

Students Name(s): Alexis M Base

School: Florida Atlantic University High School, **Region:** Palm Beach

Title: Developing a Solution to Ocean Acidification using Excess CO2 from Power Plants

First Place

Students Name(s): Eeshani Behara

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

Title: Smart Microfluidics-based Impedance Aggregometry Biosensor for Detection of Platelet Hyperaggregation

Students Name(s): Akhil K Shiju

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

Title: Development of a Novel Biohybrid Nanorobot for Detection and Treatment of Disease

Grand Award Winner

Students Name(s): Eeshani Behara

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

Title: Smart Microfluidics-based Impedance Aggregometry Biosensor for Detection of Platelet Hyperaggregation



Senior

Environmental Engineering

Recognition

Students Name(s): Michael N Odzer

School: Dr. Michael M. Krop High School, **Region:** South Florida

Title: Airborne Hurdles: Identifying and Overcoming Environmental Factors in Wildlife Studies of *Chelonia midas* When Utilizing Unmanned Aerial Systems for Data Collection

Students Name(s): Niamh E Ordner

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

Title: Investigations Toward a Novel, More Efficient Route for the Synthesis of Gelatin-Derived Bioplastics from Agroindustrial Residues

Students Name(s): Karrah L Christensen; Taylor R Powell; Tyler R Higginbotham

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

Title: Rubber Roads..... Take Me Home!!

Students Name(s): Julia J Wu

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

Title: Development of Photoacid Protonated Polyaniline Polymer as a Conductor

Honorable Mention

Students Name(s): Scott R Tobin

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

Title: A Three Phase Process for Nutrient Stabilization and Red Tide Prevention

Students Name(s): Neica I Joseph

School: North Miami Beach Senior High School, **Region:** South Florida

Title: Alternative Energy: Harnessing the Power of Mud in the Form of Microbial Fuel Cells

Students Name(s): Donovan Freedom

School: Fort White High School, **Region:** Suwannee Valley

Title: Efficiency Comparison of Four Hydroponic Growing Systems

Fourth Place

Students Name(s): Marina Karki

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

Title: Effect of Ring Opening Polymerization Using 2-Deoxy-ribose Sugar and Captured Carbon on the Production of Biodegradable Plastic

Students Name(s): Grace M Thompson; Taeseung Um; Travis A Koenig

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

Title: Key to Eliminating the Plastic Problem: Degradation of Polyethylene Plastic Using *Bacillus sp.* YP1 and *Enterobacter asburiae* YT1 from Wax Worm Gut

Students Name(s): Isabella D Brush

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

Title: Measuring the Effect of Gene Silencing on Lipid Yield in *Spirulina platensis*

Students Name(s): Pranav Ananthan

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

Title: Enzymatic Degradation of Bioplastic

Students Name(s): Zijie Yang

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

Title: UV-Catalyzed Fenton Processes for Hydroxyl Oxidation of Aqueous Amoxicillin

Third Place

Students Name(s): Vithulan Suthakaran

School: Florida Atlantic University High School, **Region:** Palm Beach

Title: Developing a Biologically Based Artificial Leaf to Filter and Transform Carbon Dioxide Emissions into Oxygen via Photosynthesis

Students Name(s): Isabela V Perdomo

School: MAST Academy at FIU, **Region:** South Florida

Title: A Novel Environmentally Friendly Approach to Controlling Marine Growth Using Complex Ultrasonic Waveforms

Students Name(s): Claire J Han

School: Pensacola High School, **Region:** West Panhandle

Title: Solar Energy Driven Membrane Distillation Process to Make Fresh Water from Undrinkable Water

Students Name(s): SriVarsha Katoju; Huzefa Johar

School: C. Leon King High School, **Region:** Hillsborough

Title: Nanoformulations: More in Less

Second Place

Students Name(s): Griffin M Wagner

School: Vero Beach High School, **Region:** Indian River

Title: A Holistic Engineering Plan Incorporating Predictive Data Modeling Into the Process of Remediating Cyanophyta Algae Blooms and Applying Photoautotrophic Prokaryotes Biomass to Improve Agricultural Outcomes

Students Name(s): Zoe F Diederich

School: Coral Reef Senior High School, **Region:** South Florida

Title: Stepping Down into Cooler Waters (Fountains vs Waterfalls)

Students Name(s): Rohan S Jakhete

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

Title: Saving our Waterways: Autonomous Dissolved Oxygen Generation Vehicle

First Place

Students Name(s): Kyle W Bramblett

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

Title: A Concrete Solution for Oyster Recruitment and Growth: Designing an Artificial Structure to Increase Oyster Shell Growth and Oyster Spat Settlement Using Calcite Media



Senior Intelligent Machines, Robotics, & Systems Software

Recognition

Students Name(s): Srikar Parsi

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

Title: The Encryption and Decryption of Messages With an Intelligent Chatbot Through the Usage of Polygraphs

Students Name(s): Sofia E Klostermeyer

School: Douglas Anderson School of the Arts, **Region:** Northeast Florida

Title: A Decentralized Consensus Algorithm for Equitably Serializing Blockchain Transactions

Students Name(s): Varun N Aggarwal

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

Title: Exploring a Novel Method of Foveated Rendering in Virtual Reality with an Object Based Approach

Honorable Mention

Students Name(s): Jack F Polk

School: Medical Academy for Science and Technology, **Region:** South Florida

Title: Evaluation and Classification of Anonymous Communication Systems

Students Name(s): Sameer V Ponnaluri

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

Title: Application Program Interface with Data-Driven Machine-Learning to Predict Waitlist and Survival in Organ Transplantation

Students Name(s): Alan A Michael

School: Allen D. Nease High School, **Region:** St. Johns

Title: Autism Diagnostics Tool Using Gesture Recognition and Machine Learning

Fourth Place

Students Name(s): Matthew G Graham

School: Polk Pre-Collegiate Academy, **Region:** Polk

Title: Electromagnetic Wall Climber - Year 2

Students Name(s): Eshan Ramesh

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

Title: Predicting International Infectious Disease Incidence Rates Using Neural Networks

Students Name(s): Amy A Zhang; Richie Dong

School: Pensacola High School, **Region:** West Panhandle

Title: Indoor Positioning/Navigation Using a Radar Implemented With An Ultrasonic Sensor and Magnetometer

Students Name(s): Jad A Helmy

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

Title: Sonario: Remote Detection of Falls and Emergencies Using Ultrasound in Smartphones

Third Place

Students Name(s): Karen A Copeland

School: Alexander W. Dreyfoos School of the Arts, **Region:** Palm Beach

Title: Using Three-Dimensional Modeling to Analyze the Vascular System and Radiation-Induced Lung Damage

Students Name(s): Varun A Lakshmanan

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

Title: A Novel Diagnostic Method for Manifestations of Disease in the Fingernails through a Machine Learning Model Ensemble and Computer Vision System

Students Name(s): Juliette A Koval

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

Title: The Development of a Data Pipeline to Improve Cancer Diagnosis Using Convolutional Neural Networks

Second Place

Students Name(s): Zack Hohl

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

Title: Drones for Invasive Species Monitoring

Students Name(s): Geela Margo M Ramos; Fabio Ibanez

School: Miramar High School, **Region:** Broward

Title: Development of Software for Mental Illness Diagnostics: Facial Classification through Machine Learning

First Place

Students Name(s): MaryAlice D Young

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

Title: Using a Computer Program Applied to an Electromagnetic Walking Apparatus to Simulate Earth's Gravity in Space



Senior

Mathematics & Computational Sciences

Recognition

Students Name(s): Ben L Myers

School: Alexander W. Dreyfoos School of the Arts, **Region:** Palm Beach

Title: Toeplitz and the Square Peg Conjecture

Students Name(s): Emma A Johnston

School: Manatee High School, **Region:** Manatee STEM Competition

Title: Statistical Evaluation of Three Computer Models to Determine the Minimum Size of a Large Population Which Remains in Hardy-Weinberg Equilibrium

Students Name(s): Aditi A Shukla

School: F. W. Buchholz High School, **Region:** Alachua

Title: Landscape of Adolescent Obesity in the United States: Anthropometry, Perception and a Prediction Model for Finding Solutions.

Honorable Mention

Students Name(s): Madison Versaggi

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

Title: Fractals in Nature

Students Name(s): Raphael R Brosula

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

Title: Analysis of the Error Convergence and Efficiency of Numerical Quadrature Algorithms for Approximating Different Integrals

Fourth Place

Students Name(s): Yael Klucznik

School: Dr. Michael M. Krop High School, **Region:** South Florida

Title: 3-D Modeling of Acid-Base Titrations

Students Name(s): Nathan Foo

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

Title: Statistical Regression Analysis for Population Ecology: Mitigation of Invasive Lionfish (*Pterois volitans/miles*)

Students Name(s): Sreya Banik

School: Lincoln Park Academy, **Region:** St. Lucie

Title: Generation of Classified Image Libraries to Train Machine Learning Algorithms to Identify Different Marine Phytoplankton

Third Place

Students Name(s): Anish Ravichandran

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

Title: Developing a Histopathological Image-Based Tool for Accurate Prognosis of Pancreatic Adenocarcinoma by Implementing Deep Structured Learning

Students Name(s): Andy Jiang; Dennis Jiang

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

Title: Diagnosis of Liver Cancer Using Deep Neural Network: Applied into Application Software

Students Name(s): Peyton W Robertson
School: Stanford Online High School, **Region:** Broward
Title: A Heuristic for Optimal Buoy Placement

Second Place

Students Name(s): James M Baker
School: Choctawhatchee High School, **Region:** East Panhandle
Title: Applications of Hyperdimensional Linear Algebra and Complex Analysis

Students Name(s): Dahlia Dry
School: Fort Myers High School, **Region:** Thomas Alva Edison
Title: Plotting New Horizons: A Statistical Analysis of Potential Factors Influencing the Probability of Planetary System Formation

First Place

Students Name(s): Roshan Warman
School: Academy at the Lakes, **Region:** Pasco
Title: Generalization of Bridge Length to Other Cartan-Killing Forms



Senior

Microbiology

Recognition

Students Name(s): Madison A Solodky

School: Deland High School, **Region:** Tomoka

Title: Dose Response of the Plant Pathogen *Raffaelea lauricola* to Biological Detergents

Students Name(s): Caleb S Brock

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

Title: The Influence of Lytic Bacteriophages on Bacterial Infections

Students Name(s): Nichapa Dancharnjitt

School: Lincoln Park Academy, **Region:** St. Lucie

Title: How Does Temperature Characterize Bacteriophage Infecting *Mycobacterium smegmatis*?

Honorable Mention

Students Name(s): Brian Magnuson

School: Florida Southwestern Collegiate High School , **Region:** Thomas Alva Edison

Title: The Influence of Bacteriophages on Antibiotic Resistance in *E. coli*

Students Name(s): Ella M Griffith

School: Pensacola High School, **Region:** West Panhandle

Title: Evaluating the Influence of WiFi on *Physarum polycephalum* (Slime Mold) Growth

Fourth Place

Students Name(s): Varsha Naga

School: Winter Springs High School, **Region:** Seminole

Title: Nanoceramic Coating of Central Venous Catheters has Inhibitory Effect on Colonization by *E. Coli* and *Bacillus cereus*

Students Name(s): Maximus Schieman

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

Title: Resisting the Nucleotide in Oligonucleotide-Directed Mutagenesis- Year IV

Students Name(s): Alexander J Tun

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

Title: Anti-PD-1 Immune Checkpoint Blockade Therapy to Simulate T-Cell Activating Properties of Dendritic Cells

Students Name(s): Sanjana R Konda

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

Title: Evaluation of the Antibacterial Efficacy and Cytotoxicity of Chitosan Nanoparticles

Third Place

Students Name(s): Tushar S Shenoy

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

Title: Utilizing Kefir Bacteria to Target NF-KB and the Bax Gene to Induce Apoptosis in Colorectal Adenocarcinoma Cells - Year 2

Students Name(s): Om D Patel

School: Eau Gallie High School, **Region:** Brevard: Mainland

Title: What Is the Minimum Concentration of Piper Betel Leaf Oil and Holy Basil Oil that has an Inhibitory Effect on *Bacillus megaterium*, *Micrococcus luteus*, and *Serratia marcescens* Bacterial Strains?

Students Name(s): Aksheta S Kanuganti

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

Title: Estimation of Antibody Titers in Duffy Binding Protein (DBP) Immunized Mice and Sequencing DBP-Species B-Cells

Second Place

Students Name(s): Kathryn E Savage

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

Title: Degrading Bacterial Biofilms Using Trehalase for Alzheimer's Disease Treatment

First Place

Students Name(s): Luke Long

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

Title: GREEN WATTS - Investigating Power Production of a Single Chamber Plant Microbial Fuel Cell in a Modular System Comparing Crop Plants, *Triticum aestivum*, *Saccharum officinarum* and *Zea mays*, A Novel Fifth Year Study



Senior

Physics & Astronomy

Recognition

Students Name(s): Jozette L Conti

School: Eau Gallie High School, **Region:** Brevard: Mainland

Title: Cloud Chamber Saturation Does the Varying Level of Supersaturation within a Cloud Chamber Affect the Particles Originating from Cosmic Rays?

Students Name(s): Haylee A Darling

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

Title: Sustainable Energy: Can this be Accomplished with a Permanent Magnet Generator?

Students Name(s): Megan N Mondek

School: Saint Thomas Aquinas High School, **Region:** Broward

Title: The Differences of Impact Shock and Force in Pelvic and Mid-Upper Body Tackling

Honorable Mention

Students Name(s): Michael Bregar

School: MAST Academy at FIU, **Region:** South Florida

Title: Cell Circuits: Using Nyquist Plot to Find Equivalent Circuit Models to Human Keratinocyte Cells

Students Name(s): Emily L Pallack

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

Title: Genetic Consequences of Stiff-Conditioned and Soft-Conditioned Fibroblasts

Fourth Place

Students Name(s): Sydney A Tran; Lauren M Amos

School: Vero Beach High School, **Region:** Indian River

Title: Optimization of Drone Flight Patterns for Use in Extraterrestrial Cave Mapping

Students Name(s): John W Baker

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

Title: Using Thermoelectric Couplers and the Seebeck Effect to Convert Environmental and Waste Heat into a Useful Renewable Power Source: Green Energy from Heat

Students Name(s): Emily S Daldine

School: Fort Walton Beach High School, **Region:** East Panhandle

Title: Bubbles Continue to Implode: A Four-Year Study on Sonoluminescence

Students Name(s): Mahmood H Syed

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

Title: Enhancing Fiber Optic Channel Bandwidth by Integrating Spatial Domain Multiplexing and Pulse Amplitude Multiplexing (PAM4) Signals: Year 5

Third Place

Students Name(s): Madison E Burt

School: Manatee High School, **Region:** Manatee STEM Competition

Title: Orbital Speeds of Jupiter and Saturn's Moons Relating to Distance and Diameter

Students Name(s): Anjana Balachandar

School: F. W. Buchholz High School, **Region:** Alachua

Title: Behavior of Bent Backbones: Is Muscular Asymmetry the Source of Scoliosis?

Students Name(s): Levon N Tabirian

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

Title: Non-Doppler Redshifts due to Light-Matter Interactions as a Solution for Redshift Controversies

Second Place

Students Name(s): Subhash C Kantamneni

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

Title: Characterizing the WLM Galaxy Using RR Lyrae Variable Stars

First Place

Students Name(s): Morgan Barkhurst

School: Florida Southwestern Collegiate High School- Lee Campus , **Region:** Thomas Alva Edison

Title: Graphene Solar-Photon Sail: A Novel Approach to the Application of Monolayer Graphene on Aluminumized Polyimide Film Using a Figure of Merit of a Solar-photon Sail Membrane for Interstellar Space Exploration

Grand Award Winner

Students Name(s): Morgan Barkhurst

School: Florida Southwestern Collegiate High School- Lee Campus , **Region:** Thomas Alva Edison

Title: Graphene Solar-Photon Sail: A Novel Approach to the Application of Monolayer Graphene on Aluminumized Polyimide Film Using a Figure of Merit of a Solar-photon Sail Membrane for Interstellar Space Exploration



Senior

Plant Sciences

Recognition

Students Name(s): Saadhana Sridharan

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

Title: Cultivation Methodologies' Effects on Antimicrobial Phenolic Compound Content and Efficacy in Dwarf Kale.

Students Name(s): Max L Ngnepieba

School: James S. Rickards High School, **Region:** Capital

Title: Does the Different pH of Solutions Impact the Rate of Germination of *Cucurbita pepo* Seeds When They All Occur at the Same Temperature?

Students Name(s): Makayla D Bedgood

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

Title: Tabebuia, A Botanical Path to Fighting Cancer

Honorable Mention

Students Name(s): Ana S Vanegas

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

Title: Resource Conservation Exhibited by Kin Recognition in Arabidopsis

Students Name(s): Jetta Zakaria

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

Title: Which Nitrogen-Fixing Bacteria, *Rhodococcus rhodochrous* or *Rhizobium leguminosarum*, Will Help *Trifolium hybridum* Grow?

Students Name(s): Chase A Olivanti

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

Title: Using Guaiacol to Measure the Effect of a Natural Hormone (N-Acetyl-5-Methoxytryptmine) and Artificial Substitutes on the Rate of Enzymatic Reactions in Plant Cells via Peroxidase Reactions and Oxygen Production- Year 3

Fourth Place

Students Name(s): Shruti Patel

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

Title: Examining the Anticarcinogenic Properties of Diferuloylmethane by Inhibiting Mitosis in Onion Meristematic Tissue

Students Name(s): John P Oleksak

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

Title: The Use of Plants Grown in Florida as a Natural Insecticide to Kill Mosquito Larvae

Students Name(s): Nicole E Stover

School: Samuel W. Wolfson Senior High School, **Region:** Northeast Florida

Title: The Metabolic Effect of Dissolved Oxygen Augmentation on Hydroponic Cultivation of *Solanum lycopersicum*

Students Name(s): Lilian L Crawford

School: Lincoln Park Academy, **Region:** St. Lucie

Title: Organic Amendments for Vegetable Pest Management

Third Place

Students Name(s): Julia E Downes

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

Title: Examining the Effects of High Concentrations of Potassium Iodide on the Iodine Biofortification of *Lactuca sativa L.* and *Spinacia oleracea L.* Grown in a Hydroponic System

Students Name(s): Rohin P Patel

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

Title: Novel Anti-Cancer, Anti-Bacterial, and Anti-Inflammatory Properties of the Rare Plants of the Florida Ridges Implicates Urgency of Conservation

Students Name(s): Callie W Zheng

School: Lincoln Park Academy, **Region:** St. Lucie

Title: How Will a Mixed Infection of Tomato Spotted Wilt Virus (TSWV) and Tomato Chlorotic Spot Virus (TCSV) Affect *Datura stramonium*?

Second Place

Students Name(s): Jieli A Wegerif

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

Title: The Uptake and Fate of Antibiotics in Plant Systems

Students Name(s): Pooja S Shah

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

Title: Density Dependent Signaling in the Model Eukaryote- *Chlamydomonas reinhardtii*

First Place

Students Name(s): Laboni Santra

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

Title: A Minimally-invasive 3D-printed Microneedle Array Applicator System (μ NAAS) for Delivery of Therapeutics to Citrus Leaf Tissue

Grand Award Winner

Students Name(s): Laboni Santra

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

Title: A Minimally-invasive 3D-printed Microneedle Array Applicator System (μ NAAS) for Delivery of Therapeutics to Citrus Leaf Tissue
