

THE FLORIDA FOUNDATION FOR FUTURE SCIENTISTS PROUDLY PRESENTS THE
66TH STATE SCIENCE & ENGINEERING FAIR OF FLORIDA

INNOVATE TODAY

2021



March 28 - April 1st, 2021



Best-in-Fair Grand Awards - Ying Scholars

Sponsored by
Dr. Nelson Ying Orange County Science Exposition



An Affiliate of the Regeneration International
Science & Engineering Fair and
Broadcom MASTERS Program



66th State Science and Engineering Fair of Florida

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Florida Foundation for Future Scientists

FFFS Purpose and Objectives

The **Florida Foundation for Future Scientists (FFFS)** is a statewide, non-profit organization authorized by the 1957 Legislature of the State of Florida to discover scientific and technical talent in the schools of Florida and to encourage the pursuit of careers in STEM (science, technology, engineering, and math). In meeting its obligations, the FFFS promotes and administers the following:

- State Science and Engineering Fair of Florida
- The establishment of guidelines, rules, and procedures for local, regional, and statewide competitions
- The awarding of scholarships and prizes
- The coordination of industrial, professional, and educational activities related to careers in science and engineering
- STEM leadership youth programs

The FFFS is housed at the University of Central Florida and is provided support by the UCF College of Community Innovation & Education. Major programs and operating expenses are financed by grants and contributions from federal agencies, the State Legislature, private industries, businesses, professional organizations, and individuals.

Mission Statement

A primary mission of the Florida Foundation for Future Scientists (FFFS) is to foster and encourage Florida's talented young people to pursue careers in STEM (science, technology, engineering, and math) research. It is an accepted belief that recognition and reward provide a significant impetus to youthful researchers in academic pursuits. The annual State Science and Engineering Fair (SSEF) of Florida is an appropriate vehicle through which to accomplish this mission.

State Science and Engineering Fair of Florida - STEM Competition Objectives

The State Science and Engineering Fair of Florida-STEM Competition and the largest academic competition in Florida, introduces students to STEM research and recognizes their scientific talent. Thousands of hours invested by student across the state as they combine what they have been taught with what they believe to be possible to create a future that many of us cannot imagine. These students will be the developers of technologies, the innovators necessary to drive our economy and the creators of jobs.

The State Science and Engineering Fair (SSEF) of Florida – STEM Competition is a three-day display of science project exhibits prepared by aspiring scientists and engineers in grades six through twelve. More than 900 Finalists display projects illustrating their research in competition for awards.

The main objectives of the SSEF are to: 1) Recognize scientific talent in young people; 2) Introduce students to organized research; 3) Provide teachers a forum for the exchange of ideas; and 4) Focus attention on STEM (science, technology, engineering, and mathematics), thus stimulating student, teacher, and public interest.

During the event, students have the opportunity to share their ideas with one another, increase personal development in scientific and technological areas, gain self-confidence in problem-solving skills, and participate in educational field trips and tours of local areas of interest.

For Information on the FFFS Programs

<http://www.ssefflorida.com>

Florida Foundation for Future Scientists
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Goldenrod, FL 32733

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Board of Directors

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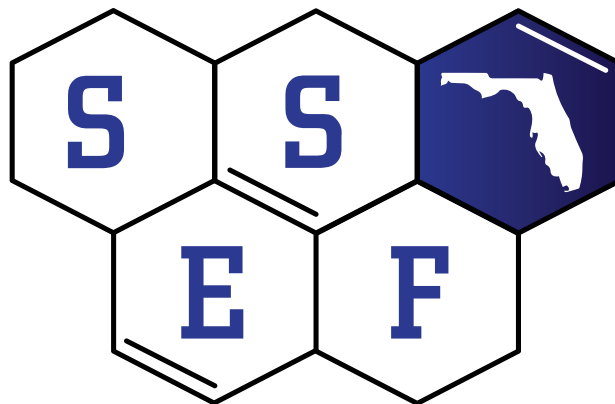
SSEF History: Hosts and Directors

SSEF History: Hosts and Directors

<u>Year</u>	<u>Region</u>	<u>Location/City</u>	<u>Host Director</u>
1956 (1 st)	Alachua	University of Florida, Gainesville	Dr. Robert D. MacCurdy
1957 (2 nd)	Alachua	University of Florida, Gainesville	Dr. Robert D. MacCurdy
1958 (3 rd)	Pinellas.....	St. Petersburg Junior College, St. Petersburg.....	Mr. William Bolin
1959 (4 th)	Capital.....	Florida State University, Tallahassee.....	Mr. A. W. Zeigler
1960 (5 th)	Brevard	Melbourne High School, Melbourne.....	Dr. B. Frank Brown
1961 (6 th)	Polk.....	Florida Southern College, Lakeland.....	Dr. R. E. Kiser
1962 (7 th)	West Panhandle.....	Pensacola Junior College, Pensacola.....	Dr. E. G. Owens
1963 (8 th)	Hillsborough	Electrical Bldg.-State Fairgrounds, Tampa.....	Mr. Harry E. Tropp
1964 (9 th)	NE Florida Kiwanis	Jacksonville Civic Auditorium, Jacksonville.....	Mr. Sidney G. Friend
1965 (10 th)	Orange.....	Exhibit Bldg.-Exposition Park, Orlando.....	Mr. Dallas W. Maddron
1966 (11 th)	Manatee.....	Municipal Auditorium, Bradenton.....	Mr. Phillip V. Doyle
1967 (12 th)	Dade.....	Bayfront Auditorium, Miami.....	Mrs. Harriet M. Ehrhard
1968 (13 th)	Brevard	Civic Auditorium, Melbourne.....	Mr. Gerald Einem
1969 (14 th)	NE Florida Kiwanis	Jacksonville Civic Auditorium, Jacksonville.....	Mr. Sidney G. Friend
1970 (15 th)	West Panhandle.....	Pensacola Junior College, Pensacola.....	Dr. Billy H. Daughdrill
1971 (16 th)	Palm Beach	Civic Auditorium, West Palm Beach	Dr. H. W. Berryman
1972 (17 th)	Orange.....	Rollins College, Winter Park.....	Dr. Raymond E. Roth
1973 (18 th)	Brevard	Brevard Community College, Cocoa.....	Mr. Craig Brosius
1974 (19 th)	Brevard	Florida Institute of Technology, Melbourne	Mr. Craig Brosius
1975 (20 th)	NE Florida Kiwanis	Beaches Civic Auditorium, Jacksonville Beach.....	Mr. Sidney G. Friend
1976 (21 st)	Three Rivers.....	Civic Auditorium, Panama City.....	Mr. Edward L. Sharp
1977 (22 nd)	Brevard	Indian River Community College, Ft. Pierce	Dr. Rudolph P. Widman
1978 (23 rd)	East Panhandle.....	Niceville High School, Niceville.....	Dr. Patricia G. Webb
1979 (24 th)	Thomas Alva Edison.....	Edison Community College, Naples	Dr. Richard A. Felden
1980 (25 th)	Capital.....	Florida State University, Tallahassee.....	Dr. William H. Long
1981 (26 th)	Manatee.....	Bayshore High School, Bradenton	Mr. Robert B. Kitzmiller
1982 (27 th)	Suwanee Valley.....	Lake City Community College, Lake City.....	Mrs. Marie Y. Woodley
1983 (28 th)	Broward	Broward Community College, Davie	Professor Frank P. Sivik Dr. Nancy Romance
1984 (29 th)	Brevard	Florida Institute of Technology, Melbourne	Mr. David E. Murray
		Palm Bay High School, Melbourne.....	Mr. V. David Howell
1985 (30 th)	Polk.....	Lakeland Civic Center, Lakeland	Mrs. Joyce L. Brennan
1986 (31 st)	West Panhandle.....	Pensacola Civic Center, Pensacola	Dr. Billy H. Daughdrill
1987 (32 nd)	Manatee.....	Bradenton Civic Center, Bradenton.....	Mr. Robert B. Kitzmiller
1988 (33 rd)	NE Florida Kiwanis	Florida Community College at Jacksonville	Mrs. Nelle B. Norman
1989 (34 th)	Palm Beach	South Florida Fairgrounds, West Palm Beach.....	Mrs. Jane C. Hart
1990 (35 th)	Pinellas.....	Bayfront Center, St. Petersburg	Mr. Thomas M. Baird Mr. Donald K. Huffman
1991 (36 th)	Dade.....	Deauville Hotel, Miami Beach.....	Mrs. Joyce A. Bervaldi Mr. James F. Miley
1992 (37 th)	Alachua	University of Florida, Gainesville	Mr. Bill Herschleb
1993 (38 th)	Orange.....	Central Florida Fairgrounds, Orlando	Ms. Nancy A. Besley
1994 (39 th)	Hillsborough	USF Sun Dome, Tampa	Mrs. Anne Hartmann
1995 (40 th)	GTE-Manatee	Manatee Civic Center, Palmetto.....	Dr. John Bernreuter Ms. Patricia Zalo

SSEF History: Hosts and Directors

Year	Region	Location/City	Host Director
1996 (41 st)	Orange.....	University of Central Florida Arena, Orlando.....	Ms. Nancy A. Besley
1997 (42 nd)	Broward	Broward County Convention Center, Ft. Lauderdale....	Mr. Doug Garber
1998 (43 rd)	Polk	The Lakeland Center, Lakeland.....	Ms. Joyce Brennan
1999 (44 th)	Orange.....	University of Central Florida Arena, Orlando.....	Ms. Nancy A. Besley Ms. Michele A. Mingoia
2000 (45 th)	Alachua	University of Florida, Gainesville	Mrs. Elaine M. Taylor
2001 (46 th)	Thomas Alva Edison....	Harborside Convention Center, Fort Myers	Dr. Donna Price Henry
2002 (47 th)	Polk	The Lakeland Center, Lakeland.....	Ms. Joyce Brennan
2003 (48 th)	Northeast Florida	The Prime Osborn III Convention Center, J'ville	Mrs. Pam Dement-Liebenow
2004 (49 th)	Northeast Florida.....	The Prime Osborn III Convention Center, J'ville.....	Mrs. Pam Dement-Liebenow
2005 (50 th)	UCF.....	Orange County Convention Center, Orlando.....	Dr. Ronald Atwell
2006 (51 st)	Dr. Nelson Ying Expo...	Orange County Convention Center, Orlando	Dr. Judith Legault Mrs. Carie Lopatka
2007 (52 nd)	Thomas Alva Edison....	FL Gulf Coast University Alico Arena, Ft. Myers.....	Dr. Donna Henry Price Mr. Rick Tully, Jr.
2008 (53 rd)	Polk	The Lakeland Center, Lakeland.....	Ms. Kim Rex
2009 (54 th)	Polk	The Lakeland Center, Lakeland.....	FFFS
2010 (55 th)	UCF	Orange County Convention Center, Orlando	FFFS
2011 (56 th)	UCF	Orange County Convention Center, Orlando.....	FFFS
2012 (57 th)	Polk	The Lakeland Center, Lakeland.....	FFFS
2013 (58 th)	Polk	The Lakeland Center, Lakeland.....	FFFS
2014 (59 th)	Polk	The Lakeland Center, Lakeland.....	FFFS
2015 (60 th)	Polk	The Lakeland Center, Lakeland.....	FFFS
2016 (61 st)	Polk	The Lakeland Center, Lakeland.....	FFFS
2017 (62 nd)	Polk	The Lakeland Center, Lakeland.....	FFFS
2018 (63 rd)	Polk	RP Funding Center, Lakeland.....	FFFS
2019 (64 th)	Polk	RP Funding Center, Lakeland.....	FFFS
2020 (65 th)	Polk	RP Funding Center, Lakeland.....	FFFS
2021 (66 th)	Virtual	FFFS



State Science and Engineering Fair of Florida

Affiliated RSEFs and Directors

Affiliated RSEFs and Directors

The Florida Foundation for Future Scientists wishes to acknowledge and applaud the efforts of the hundreds of dedicated assisting professionals who volunteer in each Region to make it possible for students to compete in science and engineering fairs statewide.

Very special thanks to all the RSEF Directors and other Regional representatives for their commitment to student science research.

The following is a list of 2020-2021 Regional Science and Engineering Fairs, along with their corresponding directors and counties.

Region	Directors	Counties
Alachua	Ms. Carly Mikell, Ms. Sara Charbonnet	Alachua
Big Springs	Ms. Tia Brown, Colleen Strickland	Marion, Sumter
Brevard: Intracoastal	Ms. Maggie Molledo, Ms. Deborah Austin	Brevard
Brevard: Mainland	Mr. Raul Montes, Mr. Jeff Higginbotham	Brevard
Brevard: South	Ms. Loren Kingsley, Ms. Ellen Muse	Brevard
Broward	Dr. Marilyn Blair-Johnson	Broward
Capital	Ms. Bonni Warren	Leon, Wakulla
Chipola	<i>Inactive</i>	Calhoun, Jackson, Liberty, Washington
Citrus	Ms. Mary Branch	Citrus
Clay Rotary	Mr. Christopher Okamoto	Clay
Collier	Mr. Ryan Westberry	Collier
Dr. Nelson Ying Expo-Orange	Mr. Bob Madewell	Orange
East Panhandle	Ms. Neely Calhoun	Okaloosa, Walton
<i>Forgotten Coast</i>	<i>Inactive</i>	Franklin
Heartland	Ms. Cindy Letcher	DeSoto, Hardee, Highlands, Okeechobee, Glade, Hendry
Hernando	Ms. Rebecca Carr	Hernando
Hillsborough	Mr. Larry Plank, Ms. Lauren King	Hillsborough
Indian River	Mr. Patrick Hiser	Indian River
Lake	Ms. Sonia Blackstone	Lake
Manatee	Mr. Steven Craig, Ms. Brittany Devlin	Manatee
Martin	Ms. Mangai Neelavannan	Martin
Monroe	Ms. Melissa Alsobrooks	Monroe
Northeast Florida	Mrs. Marion Zeiner	Duval, Nassau
Osceola	Ms. Cynthia Long	Osceola
Palm Beach	Ms. Jennifer Davis	Palm Beach
Pasco	Mr. Mark Butler, Ms. Karen Stewart, Mr. Brandon Anglin	Pasco
Pinellas	Ms. Pamela Himmel	Pinellas
Polk	Ms. Kim Rex, Ms. Marjorie Miles-Dozier	Polk
<i>Putnam</i>	<i>Inactive</i>	Putnam
Sarasota	Ms. Sarah Burkett, Ms. Beverly Stancel	Sarasota
Seminole	Ms. Rachel Novella	Seminole
South Florida	Dr. Christine Todd	Dade
St. Johns	Ms. Marna Fox	St. Johns
St. Lucie	Mr. Paul Reif	St. Lucie
Suwannee Valley	Ms. Renae Allen	Baker, Bradford, Columbia, Dixie, Gilchrist, Hamilton, Lafayette Levy, Madison, Suwannee, Union
Thomas Alva Edison	Mr. Lee Hughes	Charlotte, Lee
Three Rivers	<i>Inactive</i>	Bay, Gulf, Holmes
Tomoka	Mr. Jeremy Blinn, Ms. Lauralee Wendland	Flagler, Volusia
West Bend	<i>Inactive</i>	Gadsden
West Panhandle	Mr. Adam Bretschneider, Ms. Carol Myers	Escambia, Santa Rosa

Scholarships and Opportunity Awards



SCHOLARSHIPS AND OPPORTUNITY AWARDS 66th State Science and Engineering VIRTUAL Fair of Florida

The 66th VIRTUAL State Science and Engineering Fair (SSEF) of Florida is proud to be able to offer the following Scholarship Opportunities for this year's Finalists. We are also proud to offer the prestigious Opportunity to attend the National Youth Science Camp for 2021.

You will be contacted for online INTERVIEW Instructions and Appointment(s) to be held the afternoon of April 1st.

NATIONAL YOUTH SCIENCE CAMP AWARD

A prestigious Award offered by the Governor's Office

ONLY for 12th GRADE Finalists

Florida will select two candidates and up to four alternates. Candidates must be seniors (12th grade) eligible for graduation this academic year. The candidates must, with parent/guardian permission, commit to attend the National Youth Science Camp from June 28 - July 21, 2021. In response to the COVID-19 pandemic, the 2021 NYSC Camp will be an entirely virtual experience which will include world-class lectures, directed studies, and seminars with prestigious and up and coming STEM professionals who are making a difference in their fields of study and changing the world for good.

(Visit <https://www.nysf.com/w/programs/nyscamp> for more information) Complete the **SSEF/ NYSC application** www.ssefflorida.com .

CHUCK SKOCH FLORIDA SEA GRANT SCHOLARSHIP

ONLY for 12th GRADE Finalists

A \$1,000 Scholarship will be awarded to a 12th grade high school student for the following freshman year for a student enrolled in a fulltime academic program in a Florida university or community college. Eligible science fair projects should address topics related to marine biology, fisheries science, marine aquaculture, seafood safety or technology, oceanography, ocean or environmental engineering, coastal water quality, coastal estuaries and/or habitats, coastal storms or hazards, or any other aspects of marine resource management. **Complete a Scholarship Nomination Application** www.ssefflorida.com .

LINK FOUNDATION

ONLY for 12th GRADE Finalists

A \$1000 Cash Scholarship will be awarded to a **12th grade student** once he/she is registered at a Florida college/university. This scholarship is awarded in memory of E. Clayton Link and Albert D. Stover. The student nominee must have a project related to marine biology, ocean engineering, oceanography, aviation, or energy conservation and research. **Complete a Scholarship Nomination Application** - www.ssefflorida.com .

Scholarships and Opportunity Awards

FLORIDA INSTITUTE OF TECHNOLOGY

ONLY for 11th GRADE Finalists

Florida Institute of Technology (Florida Tech), located in Melbourne Florida, will offer 13 guaranteed minimum scholarships valued at half tuition per academic year (a value of around \$84,000 over four years) for use at Florida Tech. These scholarships will be awarded for each of the 13 subject categories at the 66th State Science & Engineering VIRTUAL Fair of Florida. Awardees must be admitted and attend FIT as a fulltime, degree seeking student to use these scholarships. Winners will be selected by judges from FIT. Students must meet the admissions criteria for the major they are enrolling in. Students are eligible to receive only one FIT Science & Engineering Fair Scholarship at the regional, state, or ISEF levels of competition. If a winner, upon admission to FIT is eligible to receive an academic scholarship that is higher than half tuition per year, the higher scholarship will replace this scholarship. ONLY 11th Grade Finalists for the 66th SSEF of Florida are eligible. **Complete the Scholarship Nomination Application – www.ssefflorida.com.**

UNIVERSITY OF CENTRAL FLORIDA (UCF) PEGASUS GOLD SCHOLARSHIPS

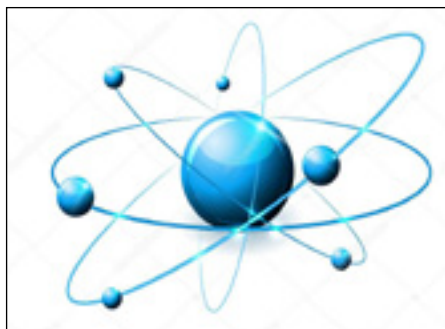
ONLY for 12th GRADE Finalists

Up to five 12th grade Finalists of the 66th State Science and Engineering VIRTUAL Fair of Florida will be awarded the UCF FFFS/PEGASUS GOLD scholarship. Student must be offered admission to the University of Central Florida. The scholarship has a total value of \$14,000 over four years (\$1,750 for up to eight undergraduate semesters). If a student has already received the Pegasus Gold Award upon admittance, he/she would not get an additional award. If a student has received a lower level scholarship upon admittance, the scholarship award would be increased to a Pegasus Gold award for participation in the SSEF. **Students awarded a Pegasus Gold Scholarship must meet all scholarship requirements for disbursement and renewal.** Complete a Scholarship Nomination Application - www.ssefflorida.com.

UNIVERSITY OF FLORIDA COLLEGE OF AGRICULTURAL AND LIFE SCIENCES (UFCALS)

ONLY for 11th or 12th GRADE Finalists

Two Senior Section Finalists in 11th or 12th grade will be awarded a scholarship from the UF/IFAS College of Agricultural and Life Sciences (CALs). To receive this scholarship, the Finalist must be admitted to the University of Florida as a freshman or transfer student and enrolled as full-time degree seeking student pursuing one of 23 undergraduate majors in the CALs or the biological engineering major offered in the College of Engineering. Each scholarship will be \$2500 per academic year and may be renewed for up to four years if the student maintains eligibility requirements. Visit www.cals.ufl.edu for more information on CALs majors. **Complete a Scholarship Nomination Application – www.ssefflorida.com.**



Special and Premium Awards



66th State Science & Engineering VIRTUAL Fair of Florida SPECIAL AWARDS

Special and Premium Awards are donated by business, industry, professional and technical societies, and other interested organizations or individuals. These donors wish to provide recognition to students' projects that share their individual and professional research preferences. The Special Awards are judged exactly as the donor specifies. A project may win more than one Special Award. Premium Awards are awarded to specific Place and/or Grand Award Winners. Monetary awards for a Team project are shared among the Team members/students.

Alachua Regional Science and Engineering Fair*

A \$50 Cash Award will be presented to both a Junior and Senior Section project demonstrating outstanding scientific research and creative thinking.

American Chemical Society Avogadro Award, Florida Sections*

A \$602.23 Cash Award will be awarded to a project demonstrating outstanding chemical research in the Senior Section Chemistry Category. This award is sponsored by the six Florida Sections of the American Chemical Society.

American Meteorological Society*

Up to four certificates will be awarded in the Senior Section and/or Junior Section for outstanding scientific endeavors in the atmospheric and related oceanic and hydrologic sciences.

American Psychological Association (APA)*

Up to two certificates will be awarded to students in the Junior and/or Senior Section for recognition of outstanding research in psychology under the category of Behavioral and Social Sciences.

American Society of Agricultural and Biological Engineers, Florida Section *

A \$250 Cash Award and a \$100 Cash Award will be provided to Senior Section projects where research is related to agricultural and biological engineering.

American Society of Civil Engineers, Florida Section*

Three awards will be given to projects in both the Junior and Senior Sections for outstanding research related to the goals of the ASCE. A First Award of \$200 and a plaque, a Second Award of \$150 and a plaque, and a Third Award of \$100 and a plaque will go to selected projects in both sections.

American Society of Mechanical Engineers, Florida Section*

A \$250 Cash Award will be presented to a Senior Section project demonstrating outstanding technical prowess on and communication of a mechanical engineering inclined project.

ASM Materials Education Foundation*

Up to two certificates will be awarded to Junior and/or Senior Section projects related to materials engineering and demonstrating a clear understanding of the scientific method.

Special and Premium Awards

Association for Women Geoscientists Foundation*

Up to two certificates will be awarded to female students in either the Junior or Senior Section Earth and Environmental Sciences category whose project exemplifies scientific excellence in the geosciences.

Baird Junior Environmental Sciences Award*

A \$100 Cash Award will be presented to a project in the Junior Section where the research demonstrates concern for domestic animals or wildlife populations. The research must contribute to the body of knowledge that helps preserve healthy animal populations.

Big Springs Regional Science and Engineering Fair*

On behalf of the Big Springs Regional Science and Engineering Fair, the **Felburn Foundation** is proud to honor research with a positive impact on the environment. Two \$100 and one \$50 Cash Award will be awarded to projects in both the Junior Section and Senior Section.

Brevard: Intracoastal Regional Science and Engineering Fair*

Two passes to the Brevard Zoo will be awarded to both a Junior Section project and a Senior Section project with research demonstrating outstanding scientific and creative thinking.

Brevard: Mainland Regional Science and Engineering Fair*

A \$25 Gift Card will be awarded to both a Junior Section project and a Senior Section project with research demonstrating outstanding scientific and creative thinking.

Brevard: South Regional Science and Engineering Fair*

A \$25 Gift Card will be awarded both to a Junior Section project a Senior Section project with research demonstrating outstanding scientific and creative thinking.

Broadcom MASTERS Math, Applied Science, Technology, and Engineering for Rising Stars

First and Second Place winners in the Junior Section will be nominated to submit applications for this competition. Broadcom MASTERS nominees are eligible to complete an on-line application to compete for valuable awards and prizes. Semifinalists will be announced September 1, 2021 and 30 Finalists will be announced by September 16th. FINALISTS will be awarded an all-expense paid trip to Washington, D.C. to compete in Broadcom MASTERS Finalist Week from October 22nd – 27th, 2021 to win more awards up to \$25,000. Finalists' schools will receive \$1,000 and *Science News* Classroom subscription. Entrants and Semifinalists receive various prizes.

Capital Regional Science and Engineering Fair *

A \$25 Cash Award will be awarded to both a Senior and Junior Section project with research demonstrating innovation in the area of sustainability research and application.

Clay Rotary Regional Science and Engineering Fair*

A \$50 Cash award will be awarded to both a Senior and Junior Section project with research demonstrating outstanding scientific and creative thinking.

Collier County Regional Science and Engineering Fair*

A \$50 Cash Award awarded to both a Junior Section and a Senior Section project demonstrating outstanding creativity, scientific thought, thoroughness, technical skill and clarity of the presentation.

Special and Premium Awards

Dr. Benjamin Cole Award*

A \$100 Cash Award will be awarded to a project in the Junior Section Cellular/Molecular Biology & Biochemistry Category demonstrating outstanding research and creativity. Dr. Cole was a Grand Award Winner at the SSEF in middle school. He received his PhD from UCSD in agricultural genetics in 2011. 2011.and donates this award to encourage advanced scientific research.

Dr. Nelson Ying Scholars' Grand Awards*

A \$1000 Cash Award will be awarded to each of the eight Senior Section "Grand Award - Best in Fair" projects for the Biological and Physical Sciences Divisions. A \$500 Cash Award will be awarded to each of the four Junior Section "Grand Award - Best in Fair" projects for the Biological and Physical Sciences Divisions. In addition, the eight Senior Section winners will represent the SSEF of Florida as Ying Scholars at the Intel International Science and Engineering Fair during May.

East Panhandle Regional Science and Engineering Fair*

Brian and Kathy Haugen are proud to present a Portal Mini to a student in the Junior Section recognizing outstanding work in the study of Biomedical and Health Sciences where creativity and innovation are used to find solutions to reduce or prevent sports injuries.

East Panhandle Regional Science and Engineering Fair*

Dynamic Software Solutions is proud to present an Amazon Echo to a student in the Senior Section whose research exemplifies innovation and creativity in the areas of intelligent machines, robotics, and systems software.

Embry-Riddle Aeronautical University – Worldwide Campus College of Arts and Sciences

The Outstanding Researcher \$200 Cash Award will be presented to a project that demonstrates high quality student research in the physical sciences through demonstration of strong research methods, critical thinking, and data analysis.

FFFS Incentive Award*

A \$50 Cash Award will be awarded to both a Junior and Senior Section project with a Finalist who demonstrates enthusiasm for continued research.

Florida Agriculture in the Classroom*

A \$150 Cash Award and Certificate will be awarded to a Senior Section project and a \$150 Cash Award and Certificate will be awarded to a Junior Section project. Research must involve interdisciplinary agriculture.

Florida Association for Food Protection*

Two \$350 Cash Awards will be awarded to projects in both the Senior and Junior Sections with research in the field of food safety, research, development or related programs. All winners will receive a 1-year Honorary Student Membership in FAFP.

Florida Association of Science Supervisors (FASS)*

Up to five \$50 Cash Awards will be presented to projects in both the Junior and Senior Section demonstrating outstanding scientific research.

Florida Association of Science Teachers (FAST)*

A \$50 Cash Award and Certificate will be presented to projects in both the Senior and Junior Sections demonstrating research which exemplifies the nature of science.

Special and Premium Awards

Florida Engineering Foundation*

A First Award of \$150, a Second Award of \$125, a Third Award of \$75 along with FEF Plaques will be provided for outstanding, innovative research in engineering in both the Junior and Senior Sections. In addition three Honorable Mentions of \$50 will be provided in both the Junior and Senior Sections.

Florida Entomological Society*

A \$100 Cash Awards will be awarded to both a Junior and Senior Section project demonstrating research related to the study of entomology and the environment.

Florida State Grange

A \$50 Cash Award will be presented to a project in both the Junior and Senior Section that is related to agriculture or animal husbandry with real world applications.

Friends of the Science Fair Award

The Friends of the Science Fair supports the science fair competitions in Florida. A \$50 Cash Awards will be awarded to projects in both the Junior and Senior Sections with research demonstrating outstanding creativity.

Hillsborough Regional Science and Engineering Fair*

A \$25 Cash Award will be awarded to both a Senior and Junior Section project which displays excellent science creativity and innovation.

Indian River Regional Science and Engineering Fair*

The Education Foundation of Indian River County will award a \$25 Cash Award to both a Junior and Senior Section project with research exemplifying the nature of science.

Lake County Regional Science and Engineering Fair*

A \$25 Cash Award will be awarded to a project in both the Junior and Senior Section exemplifying the nature of science.

Lemelson Early Inventor Prize*

A \$100 Cash Prize will be awarded to a Junior Section student that develops an invention to solve a critical societal problem to improve the lives of others. The Finalist must apply empathy and STEM knowledge to the project.

Manatee Regional STEM Competition*

A \$25 Cash Award will be awarded in both the Junior and Senior Section for an outstanding natural products related project.

Martin Regional Science & Engineering Fair STEM Fair*

A \$25 Cash Award will be awarded to a project in both the Junior and Senior Section. Projects must exemplify the nature of science and creativity.

Michael J. Hansinger Award*

\$50 Cash Award will be awarded to a project in both the Junior and Senior Section. Projects must exemplify the nature of science.

Monroe Regional Science and Engineering Fair*

A \$25 Gift Card will be awarded to both a Junior and Senior Section project with research showing the best use of scientific and creative thinking.

MU Alpha Theta*

This National High School and Two-Year College Mathematics Club will provide up to two certificates of recognition to the individual or group project demonstrating the most challenging, thorough, and, creative investigation of a problem involving modern mathematics.

NASA Earth System Science Award*

A certificate will be awarded in both the Senior and Junior Section Finalist whose project offers the greatest insight into Earth's Interconnected Systems.

Special and Premium Awards

National Aeronautics and Space Administration*

Plaques in recognition of Outstanding Achievement in NASA Mission or space-related research will be awarded to five Senior and five Junior Section projects. Each winner will also receive two (2) complimentary tickets to the NASA Visitor Complex.

NOAA's Taking the Pulse of the Planet Award*

A Certificate, Medallion and letter of congratulations will be presented to up to two Senior and one Junior Section projects whose research emphasizes NOAA's mission to understand and predict changes in earth's environment and conserve and manage coastal and marine resources to meet our nations' economic, social, and environmental needs.

Osceola Regional Science and Engineering Fair*

A \$25 Cash Award will be awarded to both a Senior and Junior Section project which displays excellent science creativity and innovation.

Palm Beach Regional Science and Engineering Fair*

A \$50 Cash Award will be awarded to both a Junior and Senior Section project demonstrating outstanding research in the Earth and Environmental Sciences Category.

Pasco Regional Science and Engineering Fair*

A \$50 Cash Award will be awarded to both a Senior and Junior Section project with research demonstrating innovation in the area of sustainability research and application.

Pinellas County Regional Science and Engineering Fair*

Two \$25 Cash Awards will be awarded to deserving projects in both the Senior and Junior Section with research demonstrating outstanding creativity and innovation.

Polk County Regional Science and Engineering Fair*

A \$25 Cash Award will be awarded to both a deserving Senior and Junior Section project demonstrating outstanding creativity and innovation.

Ricoh Sustainable Development Award*

Certification of Recognition will be awarded to an individual or team entry whose principles and technical innovations address the issues of environmental responsibility and sustainable development.

Robert B. Harnish Award

A \$100 Cash Award for a Senior Section Project demonstration innovation through problem solving. This award is in recognition of his outstanding service to his country and to Lockheed Martin Missiles and Fire Control on the occasion of his retirement.

Robert & Judy Kryger Family Award*

A \$150 Cash Award will be awarded to a Junior Section project and a \$250 Cash Award will be awarded to a Senior Section project in the Physical Sciences Division that investigates a unique or unusual, but scientifically sound idea with a focus on expanding or elucidating current knowledge.

Sarasota Regional Science and Engineering Fair*

A \$50 Gift Card will be awarded to projects in both the Senior and Junior Section demonstrating excellence in science research.

Seminole Regional Science, Math, and Engineering Fair*

A \$25 Gift Card will be given to a student in both the Senior and Junior Section whose project demonstrates creativity and excellence in scientific

Special and Premium Awards

Sierra Club Florida – Cantwell Award*

A \$100 First Award, a \$75 Second Award, and a \$50 Third Award for both Junior and Senior Section projects are awarded to recognize outstanding work in the study of the environment and/or a solution to environmental problems.

Society for In Vitro Biology*

Up to two certificates will be awarded to the most outstanding 11th grade student(s) exhibiting in the areas of plant or animal in vitro biology or tissue culture.

South Florida Regional Science and Engineering Fair*

A \$50 Cash Award will be presented to both a Senior and Junior Section project with research demonstrating outstanding creativity.

St. Johns Regional STEM Fair*

A \$50 Cash Award will be awarded to both a Senior and Junior Section project for outstanding research and creativity.

St. Lucie Regional Science and Engineering Fair

Environmental Science Award*

A \$50 Cash Award will be awarded to both a Senior and Junior Section project for outstanding research and creativity.

Stockholm Junior Water Prize*

Up to three certificates and an opportunity to apply for the state Stockholm Junior Water Prize Competition will be awarded to Senior Section Finalists whose project relates to the local water environment. NOTE: Application deadline is April 15th.

Suwannee Valley Regional Science and Engineering Fair*

A \$25 Cash Award will be presented to both a Junior and Senior Section project exhibiting outstanding research and innovation.

Thomas Alva Edison Regional Science and Engineering Fair*

A \$100 Gift Card will be awarded to a student in both the Senior and Junior Section whose project demonstrates creativity and excellence in scientific research.

Tomoka Regional Science and Engineering Fair*

A \$25 Cash Award to be awarded to a project in both the Junior and Senior Section demonstrating outstanding research and creativity.

United States Air Force

Selected Senior Section students will be awarded a Certificate of Outstanding Achievement for an outstanding science research project.

United States Metric Association*

Up to two Certificates will be awarded to a Junior or Senior Section project that reflects a significant amount of quantitative measurement and the use of the SI Metric System.

United States Navy Science Awards, Office of Naval Research*

Selected Senior Section and Junior Sections students with outstanding research will receive a letter of congratulations, ONR Medallion, and Naval Research Certificate. Additionally, Senior Section winners will receive a \$75 Gift Certificate from the Academy of Applied Science.

USAID

U.S. Agency for International Development

A certificate will be awarded to up to 3 Senior Section Projects demonstrating relevance to solving an important global development challenge.

Yale Science and Engineering Association, Inc.*

A Certificate and Medallion will be awarded to the most outstanding 11th grade student exhibiting in the Chemistry, Computer Science, Engineering, or Physics Categories.

2021

State Science and Engineering Fair of Florida



Finalists and Projects

Senior: Animal Sciences

S0101 * Crisostomo, Anabel A A Study of the Ammoniotelic-Ureotelic Pathway in *L. Terrestris* as a Means to Remediate Soil Damaged by Poor Irrigation Practices *T*: Mr. Branden L. Anglin *S*: Wiregrass Ranch High School *C*: Wesley Chapel *R*: Pasco

S0102 * Sierra, Isabel E "Tri-pawed": Canine Prosthesis *T*: Mr. Ryan Cilsick *S*: Edgewood Jr/Sr High School *C*: Merritt Island *R*: Brevard: Intracoastal

S0103 * Skaggs, Trinity K Shrimply Clean *T*: Ms. Emily Keeler *S*: Wildwood Middle High School *C*: Wildwood *R*: Big Springs

S0104 * Strauss, Lily A Reducing Vehicular Heat Death in *Tenebrio molitor*: Optimizing Changing Carbon Dioxide Levels for Triggering Thermal Comfort Correction to Improve Survival Rates *T*: Dr. Laximikant Pathade *S*: Saint Edwards School *C*: Vero Beach *R*: Indian River

S0105 * Weimer, Emily The Effect of Putative Beneficial Microorganisms for Coral (pBMC) In The Prevention of Disease and Bleaching (Year Two) *T*: Mr. William Bartenslager *S*: Palm Beach Central High School *C*: Wellington *R*: Palm Beach

S0106 * East, Katie Can Cortisol Excretion in Zebrafish Be Measured Using Tank Water? *T*: Ms. Mary Fish *S*: Spanish River Community High School *C*: Boca Raton *R*: Palm Beach

S0107 * Malavé, Katelyn V Will the Longevity of Fruit Flies Be Affected When Consuming GMO Soybeans When Compared to Organic Soybeans? *T*: Aaron LeBlanc *S*: Rockledge High School *C*: Rockledge *R*: Brevard: Mainland

S0108 * Denis, Caralina R Correlation of Diet on Polystyrene Consumption Preferences of *Tenebrio molitor* *T*: Mr. William James Furioli *S*: Oviedo High School *C*: Oviedo *R*: Seminole

S0109 * Tasayco, Angie S; Rosiles, Ana S An Analysis of the Effects of Mangrove Forest Density on the Quantity and Health of Loggerhead Sea Turtle Nests *T*: Mr. Jay Rosenberg *S*: Cypress Bay High School *C*: Weston *R*: Broward

S0110 * Fernandez, Sharon A The Effects of the Modulation by Melatonin on the Pathogenesis of Systemic Lupus Erythematosus on *Drosophila melanogaster* *T*: Mrs. Leya Mathew Joykutty *S*: American Heritage School *C*: Plantation *R*: Broward

S0111 * Madan, Varun R Year 4: Developing a Multiple Linear Regression Model to Predict the Specific Effects of Various Lactic Acid Bacteria Dosages on the Overall Honey Bee Gut Microbiota and *Nosema caranae* Reduction *T*: Dr. Darin Hughes *S*: Lake Highland Preparatory School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

S0112 * Warren, Alex J Global Warming's Effect on Soft Coral, *Xenia elongata* *T*: Mr. Greg Stauffer *S*: Melbourne High School *C*: Melbourne *R*: Brevard: South

S0113 * Foo, Nathan J Utilization of Mechanically Simulated Kangaroo Care as a Novel Homeostatic Method to Treat Mice Carrying a Remutation of the Ppp1r13l Gene as a Model for Humans with Cardiomyopathy (Year 2) *T*: Mrs. Mary Schropp *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

Finalists and Projects

S0114 * Hays, Emma G Does Neodymium Have a Greater Effect on an *Ariopsis felis* Than a Common Magnet? *T*: Mr. Robert Beatty *S*: Hardee Senior High School *C*: Wauchula *R*: Heartland

S0115 * Larson, Jenna F Thermoregulation in Dairy Youngstock: Evaluating the Effectiveness of the Slick-Haired Gene on Heat Abatement in Commercial Holstein Calves *T*: Mrs. Wendy Reister *S*: Okeechobee High School *C*: Okeechobee *R*: Heartland

S0116 * Williamson, John W Feed Conversion Ratio vs Pond Size : Investigating the Effects of Pond Size to the Feed Conversion Ratio of U.S. Farm-Raised Catfish - A Four-Year Study *T*: Mrs. Wendy Reister *S*: Okeechobee High School *C*: Okeechobee *R*: Heartland

S0117 * Biswas, Kristi Novel Geotaxic Data Show Botanical Therapeutics Slow Parkinson's Disease in A53T and ParkinKO Models *T*: Mrs. Emma Gallagher *S*: Paxon School for Advanced Studies *C*: Jacksonville *R*: Northeast Florida

S0118 * Harrow, Jordan R Demonstrating *D. Pulex* as Environmental Buffers to Acetylcholinesterase Inhibitors on *H. littoralis* *T*: Mrs. Marion Zeiner *S*: Episcopal High School of Jacksonville *C*: Jacksonville *R*: Northeast Florida

S0119 * Schinsing, Matthew D The Effect of Pesticides on Varroa Mite Numbers in Apis Mellifera Colonies *T*: Mrs. Marion Zeiner *S*: Episcopal High School of Jacksonville *C*: Jacksonville *R*: Northeast Florida

S0120 * Lahsangah, Jackson X; Bush, Carey W; Hesse, Sam W Effect of Sugar on Lumbricus terrestris *T*: Mr. Ken Wood *S*: Durant High School *C*: Plant City *R*: Hillsborough

Junior: Animal Sciences

J0101 * Eldeeb, Salsabeel T Is Regeneration in *Planaria* Affected by Magnets? *T*: Mrs. Amanda Watson *S*: David C. Hinson Middle School *C*: Daytona Beach *R*: Tomoka

J0102 * Jennings, Eden R What Are the Affects of an Organic vs Inorganic Tofu Diet on the Fertility of the *Drosophila melanogaster*? *T*: Mrs. Colleen McCormick *S*: Academy at the Lakes *C*: Land O' Lakes *R*: Pasco

J0103 * Doersam, Ryan M An Ant Aversion Alternative *T*: Mrs. Michelle Zimmerman *S*: Herbert H. Hoover Middle School *C*: Indialantic *R*: Brevard: Intracoastal

J0104 * Fontaine, Lillian M Mealworm Madness- Which Environmental Conditions Do Mealworms Like Best? *T*: Mrs. Jennifer Fontaine *S*: Saint John Lutheran School *C*: Ocala *R*: Big Springs

J0105 * Abdul-Jawad, Yazen O What PAR Level Is Best for Corals? *T*: Ms. Sydney Norwood *S*: The Cornerstone School *C*: Ocala *R*: Big Springs

J0106 * Boyd, Nathan Color Changing Plecos *T*: Ms. Cathy Hammel *S*: Frostproof Middle Senior High School *C*: Frostproof *R*: Polk

J0107 * Keyser, Declyn Delivering Daphnia *T*: Ms. Teresa Ell *S*: Resurrection Catholic School *C*: Lakeland *R*: Polk

J0108 * Roll, Nicholas ; Tirrell, Dylan OE in Captive-reared Monarch: A Comparative Study *T*: Mrs. Jennifer Canady *S*: Lakeland Christian School *C*: Lakeland *R*: Polk

J0109 * Mikati, Michael Sensitivity of *Manduca sexta* Moths to Various Light Wavelengths *T*: Kevin Simmons *S*: The Weiss School *C*: Palm Beach Gardens *R*: Palm Beach

J0110 * Paz, Anacarolina ; Vargas, Angeline D Effects of Magnetism on Planaria *T*: Mrs. Marilyn Dieppa *S*: Bob Graham Educational Center *C*: Miami Lakes *R*: South Florida

J0111 * Pesin, George Honey, Where's the Sugar? *T*: Mrs. Bertha Vazquez *S*: George Washington Carver Middle School *C*: Miami *R*: South Florida

J0112 * Piotrowski, Alexia M One Turtle Two Turtle *T*: Mrs. Alexandria Wicker *S*: Andrew Jackson Middle School *C*: Titusville *R*: Brevard: Mainland

J0113 * Kumar, Arpita Are Insects Attracted to Light or Heat of a Light Bulb? *T*: Mr. Andrew Bernhardt *S*: Teague Middle School *C*: Altamonte Springs *R*: Seminole

J0114 * Garcia, Rigoberto ; Le, Koby Insect Attraction to Different Colored Lights *T*: Mrs. Ms. Hazza *S*: Indian Ridge Middle School *C*: Davie *R*: Broward

J0115 * Dania, Aliyah D The Effect of Food Choices on the Taste Neurons in *D. Melanogaster* *T*: Mrs. Leya Mathew Joykutty *S*: American Heritage School *C*: Plantation *R*: Broward

J0116 * Manaswi, Atreya Finding the Best Novel Compound to Attract Small Hive Beetles and Improve Honey Bee Strength *T*: Mrs. Emine Demir *S*: Orlando Science Middle School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

Finalists and Projects

J0117 * Donald, Corgan The Effects of Artificial Sweeteners on the Speed of Memory in Peppermint Shrimp, *Lysmata wurdemanni* *T:* Mrs. Julie Schmidt *S:* Stone Magnet Middle School *C:* Melbourne *R:* Brevard: South

J0118 * Williams, Kaylyn M Which Feed Type Demonstrates the Most Efficient Effect on *Notemigonus crysoleucas* Growth? *T:* Mr. Wayne Oelfke *S:* Fort White High School *C:* Fort White *R:* Suwannee Valley

Senior: Behavioral & Social Sciences

S0201 * Buksbaum, Rachel E Jewish Identity Formation Processes within Reform Adolescents *T:* Mr. Branden L. Anglin *S:* Wiregrass Ranch High School *C:* Wesley Chapel *R:* Pasco

S0202 * Cohen-Pinsky, Brooke R Unmasking Microexpressions *T:* Mrs. Magdalena Molledo *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

S0203 * Haskins, Kasani Assessed IB Stress *T:* Mrs. April Blaze *S:* Haines City High School *C:* Haines City *R:* Polk

S0204 * Feuerman, Mandy An Examination of the Association Between Empathy and Adherence to Covid-19 Safety Guidelines *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

S0205 * Sokolova, Daria The Effect of Phenotypic Variations on Shoaling Behavior in Zebrafish *T:* Ms. Mary Fish *S:* Spanish River Community High School *C:* Boca Raton *R:* Palm Beach

S0206 * Colan, Julia The Effect of Medical Masks on the Perception of Facial Social Cues in Adolescents *T:* Mrs. Cristina Madrigal *S:* MAST Academy at FIU *C:* Miami *R:* South Florida

S0207 * Martinez, Dante A The Effect of Constraining Eye Movements on Learning Gains and Retention *T:* Mrs. Lisa Garrido *S:* Westminster Christian School *C:* Palmetto Bay *R:* South Florida

S0208 * Doad, Naman Artificial Voice Intelligence in Memory Retention: Does A.I. Anthropomorphism Impact Auditory Memory Recall? *T:* Mr. William James Furioli *S:* Oviedo High School *C:* Oviedo *R:* Seminole

S0209 * Pilacek, Ella A Impacts of Camera Usage on Memory of Students Attending via Video Conference Call *T:* Mr. William James Furioli *S:* Oviedo High School *C:* Oviedo *R:* Seminole

S0210 * Mathew, Emilin M Digital Phenotyping Autism: Investigating Objective Vocal and Movement Quantification for Characterizing Autism Severity *T:* Mrs. Leya Mathew Joykuty *S:* American Heritage School *C:* Plantation *R:* Broward

S0211 * Sreekanth, Shreya A Survey Study on Student Perception of Distance Learning *T:* Ms. Joann Bukovey *S:* Lake Nona High School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

S0212 * Lee, Courtnie R Does the Genre of Music Effect a Person's Short-term Memory? *T:* Mr. Steven Craig *S:* Southeast High School *C:* Bradenton *R:* Manatee STEM Competition

S0213 * Foster, Justin V Effectiveness and Longevity of Messaging Strategies at Shifting Attitudes Towards Climate Science and Climate Policy. *T:* Mrs. Mary Schropp *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0214 * Barker, Michael J Study of Factors that Affect a Successful Grant Application *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0215 * Largen, Ariel A Links between Online Learning and Student Progress *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0216 * Morgan, Lauren X Impact of Protective and Risk Factors on Adolescent Responses to COVID-19 *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

S0217 * Movva, Chetana ; Tangudu, Divyani Camera On or Off: Does Being Watched Affect Behavior in Class? *T:* Mrs. Bhagyashree Kulkarni *S:* George S. Middleton High School *C:* Tampa *R:* Hillsborough



Finalists and Projects

Junior: Behavioral & Social Sciences

J0201 * Redon, Stella A Frequency of Face Touching with and without a Mask *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indialantic *R:* Brevard: Intracoastal

J0202 * Peterson, Delaney C Effect of After-School Activities on Middle School Students' Empathy Quotient *T:* Ms. Sydney Norwood *S:* The Cornerstone School *C:* Ocala *R:* Big Springs

J0203 * Ismail, Yara Optical Illusions *T:* Princess Abdul-Akbar *S:* Garden of the Sahaba Academy *C:* Boca Raton *R:* Palm Beach

J0204 * Devoid, Rachel ; Naberhaus, Kathryn D; Wilson, Ava H Does Text Color Affect Readability? *T:* Mrs. Jesse Leon *S:* Ascension Catholic School *C:* Melbourne *R:* Brevard: Mainland

J0205 * Bhanderi, Nishi V Does Having a Purpose Affect the Time of a Person Racing 1600 Meters? *T:* Mrs. Rachel Paul *S:* Maclay School *C:* Tallahassee *R:* Capital

J0206 * Won, Taehyun V SCPS Parents' Experience with Education Options During COVID-19 *T:* Mrs. Melanie Francher *S:* Jackson Heights Middle School *C:* Oviedo *R:* Seminole

J0207 * Satterfield, Savannah How Do ABA Techniques (Positive Reinforcement) Affect How Long it Takes a Senior Cat to Learn a Trick *T:* Danielle Nelson *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0208 * Milosevic, Clara How Does the Bias of the Media Affect Teens' Perspectives of COVID-19? *T:* Danielle Nelson *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0209 * Coombe, Emily The Effect Different Wavelengths of Light has on Brittle Stars *T:* Mrs. Julie Schmidt *S:* Stone Magnet Middle School *C:* Melbourne *R:* Brevard: South

J0210 * Virkler, Elisa N Pitch Perfect *T:* Mrs. Penny Piccione *S:* Hill-Gustat Middle School *C:* Sebring *R:* Heartland

J0211 * Anderson, Zoeyanna R Colors In My Brain *T:* Ms. Amy Gerlt *S:* Heron Creek Middle School *C:* North Port *R:* Sarasota

J0212 * Chowdhury, Mehereen A Novel Approach to the Cognitive Effects of Different Types of Multitasking and its Effect on Short Term Memory *T:* Mrs. Cara Summit *S:* Canterbury School of Fort Myers *C:* Fort Myers *R:* Thomas Alva Edison

J0213 * Fang, Madison Y U Drive. U Text. U Pay. *T:* Ms. Linda Kniskern *S:* Liberty Middle School *C:* Tampa *R:* Hillsborough

Senior: Biomedical & Health Sciences

S0301 * Frino, Gabriella M Testing the Combination of Homemade Organic Sunscreen and Environmentally Friendly Essential Oils for Antibacterial Effectiveness Against *Escherichia coli*, K-12 Using the Kirby- Bauer Method: Replication Study *T:* Mr. Chris Humphrey *S:* Barron Collier High School *C:* Naples *R:* Collier

S0302 * Nicholas, Bianca R The Influence of Temperature on the Concentration of Hemoglobin in *Lumbricus terrestris* and *Eisenia fetida* Erythrocytes *T:* Mr. Branden L. Anglin *S:* Wiregrass Ranch High School *C:* Wesley Chapel *R:* Pasco

S0303 * Feizi, Jeremiah E Fucoidan Factories as Additional Combatants to Cancer Development *T:* Mrs. Magdalena Molledo *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

S0304 * Bandarupalli, Aakanksha ; Shrishti, Fnu Fungus Among Us *T:* Mrs. Cheri Stephens *S:* Pensacola High School *C:* Pensacola *R:* West Panhandle

S0305 * Meiers, Luke D Face Coverings: Which Are Friends and Which Are Foes? *T:* Mrs. Michelle Miller *S:* West Port High School *C:* Ocala *R:* Big Springs

S0306 * Shirley, Cheyenne R The Effects of Ketone Supplements on Reducing Postprandial Glucose Levels *T:* Mrs. Shelbie Wiley *S:* South Sumter High School *C:* Bushnell *R:* Big Springs

S0307 * Darling, Haylee A Development of an Improved High Intensity Off-Grid Phototherapy System to Provide Treatment In Remote Regions of the World *T:* Mrs. Korie Grimsley *S:* Forest High School *C:* Ocala *R:* Big Springs

S0309 * Lantzy, Victoria L Antibacterial Capability of Hand Sanitizers *T:* Mr. Ryan Campbell *S:* Lecanto High School *C:* Lecanto *R:* Citrus

S0310 * Szylkowski, Olivia V Replenishing Hydration with Electrolytes *T:* Dawna Boley *S:* Crystal River High School *C:* Crystal River *R:* Citrus

Finalists and Projects

S0311 * Mehta, Harsh Natural Antioxidants: A Possibility to Decrease Cancer, Cardiovascular and Neurodegenerative Diseases *T:* Mr. Chris Auricchio *S:* F. W. Springstead High School *C:* Spring Hill *R:* Hernando

S0312 * Fong, Aiden ; Kupcha, Stephen A; VanLue, David P Testing for Water-Soluble Antimicrobial Compounds in Primitive Herbal Remedies *T:* Dr. Kathryn Kehoe *S:* Ponte Vedra High School *C:* Ponte Vedra *R:* St. Johns

S0313 * Tanyag, Nicholas Is the Mask Mandate Effective in Controlling the Spread of COVID-19 Infection in a Diverse Population of Four Tampa Bay Counties? *T:* Mrs. April Blaze *S:* Haines City High School IB East *C:* Haines *R:* Polk

S0314 * Jones, Ellen Association between Genomic Differences in *Dengue virus* and Dengue Hemorrhagic Fever with Other Hemorrhagic Viruses, While Blocking for Immune Status *T:* Mrs. April Blaze *S:* Haines City High School IB East *C:* Haines *R:* Polk

S0315 * Stantz, Hannah E Metal Showdown *T:* Mrs. Tracy Springman *S:* Indian Rocks Christian School *C:* Largo *R:* Pinellas

S0316 * Altidor, Diane Determining the Effect of a Disulfiram Copper Complex on Drug Resistance in Metastatic Breast Cancer Cells Through Deletion of ALDH1 (A Three Year Study) *T:* Mr. William Bartenslager *S:* Palm Beach Central High School *C:* Wellington *R:* Palm Beach

S0317 * Imran, Maryam Developing an Artificial Neural Network as a Method for Real-Time Diagnosis and Detection of Atrial Fibrillation in Electrocardiograms *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

S0318 * Cai, James Y Neural-network Based Genomic Tests to Predict the Recurrence Risk of Breast Cancer *T:* Ms. Pamela Shlachtman *S:* Miami Palmetto Senior High School *C:* Pinecrest *R:* South Florida

S0319 * Perdomo, Isabela V A Mathematically Generated Bessel Function Based Ultrasonic Waveform Tractor Beam for Optimizing Blood Circulation *T:* Mrs. Cristina Madrigal *S:* MAST Academy at FIU *C:* Miami *R:* South Florida

S0320 * Ross, Isabella C Coronavirus Masks: What stops the Spread? *T:* Ms. Elizabeth Youngs *S:* Viera High School *C:* Viera *R:* Brevard: Mainland

S0321 * Dunn, Kaitlyn R Biomaterial Fabrication Techniques: Preparing Decellularized Plants for Use as Tissue Engineering Scaffolds *T:* Ms. Courtney Stokes *S:* Tavares High School *C:* Tavares *R:* Lake

S0322 * LeDuc, Abigail M Does Pastured Poultry Have a Nutritional Advantage? *T:* Mr. David Lunn *S:* North Florida Christian School *C:* Tallahassee *R:* Capital

S0323 * Erdem, Melissa Comparative Analysis and Modeling of Cancer Survival Rates *T:* Mrs. Angela Campbell *S:* Hagerty High School *C:* Oviedo *R:* Seminole

S0324 * Gupta, Prateek Identification and Analysis of Key Candidate Genes and Pathways in Lung Adenocarcinoma by Integrated Pathways in Lung Adenocarcinoma by Integrated Bioinformatics *T:* Mrs. Leya Mathew Joykuty *S:* American Heritage School *C:* Plantation *R:* Broward

S0325 * Yared, Mahdere M Investigating Differences in DRD4 Expression in a Comparison Analysis Between Young, Old, and Alzheimer's Frontal Cortex Brain Tissues *T:* Ms. Jennifer Gordinier *S:* Pine Crest School *C:* Ft. Lauderdale *R:* Broward

S0326 * Seela, Krithik A Novel Computational Approach to Drug Discovery through Drug Repositioning *T:* Dr. Darin Hughes *S:* Lake Highland Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

S0327 * Barendse, Madison L Unmasking the Truth *T:* Mr. Steven Craig *S:* Southeast High School *C:* Bradenton *R:* Manatee STEM Competition

S0328 * Shukla, Aditi Precision Targeting and Brain Stimulation for Treating Depression *T:* Mr. Marc Moody *S:* Buchholz High School *C:* Gainesville *R:* Alachua

S0329 * Verma, Akash Evaluating the Efficacy of Different Face Masks in Obstructing Respiratory Droplets Innovating a Sensor-based Technology to Maintain Social Distancing *T:* Dr. Adenike Akinyode *S:* Eastside High School *C:* Gainesville *R:* Alachua

S0330 * Huberman, Madeline E Differential Expressions of WNT Pathway Proteins in Colorectal Carcinoma Metastasis to Liver Versus Lung *T:* Ms. Paula Ladd *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0331 * Duncan, Jacob R Does Bipartite Patella Affect Range of Motion? *T:* Mrs. Daphne Hays *S:* Hardee Senior High School *C:* Wauchula *R:* Heartland

S0332 * Tinsley, Bailey A The Tempers of Water *T:* Mrs. Daphne Hays *S:* Hardee Senior High School *C:* Wauchula *R:* Heartland

S0333 * Nickerson, Christopher M Does the Type of Face Mask a Person is Wearing Affect the Intake of Air Particles and Duration of Their Effectiveness? *T:* Mr. Robert Beatty *S:* Hardee Senior High School *C:* Wauchula *R:* Heartland

S0334 * Maxwell, Rylann K The Relationship Between an Individual's Water Intake and Max Weight *T:* Mrs. Wendy Reister *S:* Okeechobee High School *C:* Okeechobee *R:* Heartland

Finalists and Projects

S0335 * Buschini, Isabella A Observing the Impact of UV light on Chicken Embryo Eye Growth *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0336 * Commander, Thomas C Using Nanoparticle-Based Magnetic Hypothermia to Hinder Planarian Regeneration *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0337 * Bailey, Olivia S The Effect of Fabric Composition on the Efficacy of Water Droplet Transmission Suppression *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

S0338 * Greenan, Kassie L Determining the Genetic Development of Human Ovarian Cancer Induced by Exposure to Bisphenol-A *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

S0339 * Dhruv, Aum J Modeling the Effectiveness of Pre-Existing Sutures and a Novel Chitosan Approach in a Simulated, Biodegradable Environment *T:* Ms. Cathy Tucker *S:* Fort Myers High School *C:* Fort Myers *R:* Thomas Alva Edison

S0340 * Barnes, Michelle A A Novel Approach, to the Comparative Analysis of Natural Polymer, Based Biomimetic Neural Scaffolds *T:* Ms. Kelly Percivall *S:* Canterbury School of Fort Myers *C:* Fort Myers *R:* Thomas Alva Edison

S0341 * Buragadda, Shriya R Identifying Blood-Based Biomarkers for Systemic Lupus Erythematosus (SLE) *T:* Mrs. Bhagyashree Kulkarni *S:* George S. Middleton High School *C:* Tampa *R:* Hillsborough

Junior: Biomedical & Health Sciences

J0301 * Brewer, Helena A 20-20-20 in 2020 for 20//20 *T:* Mrs. Amy Diemert *S:* Oakridge Middle School *C:* Naples *R:* Collier

J0302 * Laber, Abigail K Which Masks Will Protect the Best Against Covid-19? *T:* Mrs. Kim Aursland *S:* Charles S. Rushe Middle School *C:* Lutz *R:* Pasco

J0303 * Porcelli, Karolina S YES to Moisturizer! NO to Eczema! *T:* Leanne Hebb *S:* Seven Springs Middle School *C:* New Port Richey *R:* Pasco

J0304 * Bhattachryya, Twisha Pills, Pain Relievers, PH: Effect of GI PH on OTC Pain Medicine Absorption. *T:* Ms. Katie Reninger *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

J0305 * Hopper, Ava M FAT EXTRACTION *T:* Mrs. Jodi Russell *S:* Holley Navarre Middle School *C:* Navarre *R:* West Panhandle

J0306 * Tico, Jordana M Which Honey out of Local Made and Store Bought Has More Glucose? *T:* Ms. Sydney Norwood *S:* The Cornerstone School *C:* Ocala *R:* Big Springs

J0307 * Paschall, Sawyer R Mask Mashup *T:* Mrs. Christina Brako *S:* Sebastian Charter Junior High School *C:* Sebastian *R:* Indian River

J0308 * Newton, Ava Mask Efficiency *T:* Ms. Kristen Brooks *S:* Crystal River High School *C:* Crystal River *R:* Citrus

J0309 * Rutherford, Maria Vittoria A Bright Idea for Treating Lung Infections: Studying the Propagation of UV Light in a Phantom Medium for Surfactant Lipids Using a Common Household Item *T:* Mrs. MaryBeth Letscher *S:* Palmer Catholic Academy *C:* Ponte Vedra Beach *R:* St. Johns

J0310 * Nasello, Nathan ; Stiltner, Evan Masked Mannequin: How Effective Are Different Masks at Various Distances? *T:* Mrs. Jennifer Canady *S:* Lakeland Christian School *C:* Lakeland *R:* Polk

J0311 * Wilmot, Braden Sweet Sweet Sugar *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J0312 * Alsheikh, Rima SPF Longevity of Natural Oils in an Oxybenzone and Octinoxate-Free Base *T:* Kimberly Gioia *S:* Eagles Landing Middle School *C:* Boca Raton *R:* Palm Beach

J0313 * Vazquez, Nataly Masks vs Particles *T:* Mrs. Bertha Vazquez *S:* George Washington Carver Middle School *C:* Miami *R:* South Florida

J0314 * Naik, Anik Could *Porphyra umbilicalis* be a Better Alternative than Chemical Sunscreen for Protection Against Ultraviolet Rays and the Safety of Marine Life? *T:* Mrs. Terr Segal *S:* Holy Trinity Episcopal Academy *C:* Melbourne *R:* Brevard: Mainland

J0315 * Myatt, Charlie J Fueling Your Energy *T:* Mr. Mark Adamson *S:* Trinity Catholic School *C:* Tallahassee *R:* Capital

Finalists and Projects

J0316 * Fattah-Patil, Armaan J The Effect of Mask Fabric on the Transmission of Glo Germ through the Mask. *T:* Mrs. Leya Mathew Joykuty *S:* American Heritage School *C:* Plantation *R:* Broward

J0317 * Mathur, Aanvi Which Form of Calcium Supplementation Is Most Effective for Osteoporosis? *T:* Ms. Brianna Hooker *S:* Orlando Science School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0318 * Ecogo, Andrei Mask Up *T:* Mrs. Sharon Gearhart *S:* Lincoln Park Academy *C:* Ft. Pierce *R:* St. Lucie

J0319 * Prater, Olivia How Do Different LED Light Colors Affect the Color Contrast of the Text Color and Background Color of a Book? *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0320 * Shah, Savita Which Mask Fabric Is Most Protective at Repelling the Coronavirus? *T:* Mrs. Susan Shrum *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0321 * Knoblock, Nicole E Mask Filter Effectiveness vs Bacteria *T:* Mr. Robert Klaasen *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

J0322 * Chua, Marco A Stop Cross-Contact: How Proper Washing of Shared Utensils Can Keep People with Food Allergies Safe *T:* Ms. Kelsey Theodore *S:* St. Paul's Catholic School *C:* Jacksonville *R:* Northeast Florida

J0323 * Jeanpierre, Sebastian Which Mask is Safest? *T:* Ms. Joanne Garzarella *S:* Horace O' Bryant School *C:* Key West *R:* Monroe

J0324 * Moenning, Jaxson D Wearing a Swim Cap is a Drag... or Not? *T:* Mr. Russell Hendricks *S:* Charlotte Preparatory School *C:* Port Charlotte *R:* Thomas Alva Edison

J0325 * Huffman, Mason Assessing Mask Efficacy with Laser and Sound Transmission *T:* Mrs. Kathlyn Hendee *S:* Trafalgar Middle School *C:* Cape Coral *R:* Thomas Alva Edison

J0326 * Maeda, Lisa M Are You Safe Behind Your Mask? Reduction of Airborne Transmission Through Air Flow By Various Mask Materials *T:* Mr. David Faysash *S:* Benito Middle School *C:* Tampa *R:* Hillsborough

J0327 * Purimetla, Ananya How Do the Devices We Use Daily Affect our Health? *T:* Mr. Mathew Swatzell *S:* Orlando Science Middle/ High Charter School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange



Senior Cellular/Molecular Biology & Biochemistry

S0401 * Eckermann, Nathalie J Alcoholic Photosynthesis *T:* Mr. Ed Braddy *S:* Saddlebrook Preparatory School *C:* Wesley Chapel *R:* Pasco

S0402 * Reddy, Neil Targeted Cancer Cell Weapons: Using CRISPR Genetic Engineering and SiRNA to Modify MCF7 Human Breast Cancer Cells as a Treatment Vector Year III *T:* Mrs. Magdalena Molledo *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

S0403 * Vick, Michael A Substituting Plastic *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

S0404 * Winningham, Madison R Sweat Chloride levels and Classes of Mutations of the CFTR Gene *T:* Mr. Ryan Campbell *S:* Lecanto High School *C:* Lecanto *R:* Citrus

S0407 * Pruthi, Jasmin Starch Concentration in Different Varieties of Rice *T:* Mrs. Madhu Thomas *S:* Haines City High School IB East *C:* Haines *R:* Polk

S0408 * Ayyanathan, Aishwarya Developing an Convolutional Neural Network for Accurate and Inexpensive Lung Cancer Diagnosis *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

S0409 * Lian, Julianna Exploring ROS-mediated Inflammation with Polyphenol-rich *Sargassum sp.* and Incredibly Regenerative *D. dorotocephala* *T:* Mrs. Robin Barks *S:* Florida Atlantic University High School *C:* Boca Raton *R:* Palm Beach

S0410 * Beck, Anna M Molecular Docking Study of the Ebolavirus Surface Glycoprotein to Develop Anti-Ebola Drug *T:* Ms. Lauriann Carbajal *S:* Coral Reef Senior High School *C:* Miami *R:* South Florida

S0411 * Phillips, Caleb A Heat Shock to Transmission Efficiency *T:* Mr. Jason Rowe *S:* Titusville High School *C:* Titusville *R:* Brevard: Mainland

S0412 * Kumar, Sandhya ; Kumar, Surabhi Extrathymic T-Cell Development in the Mesenteric Lymph Nodes of Mice *T:* Mrs. Angela Breza-Pierce *S:* Lawton Chiles High School *C:* Tallahassee *R:* Capital

Finalists and Projects

S0413 * Fry, Katelyn B *Haloferax volcanii* Response to Low Oxygen Environment and UV Mutagenesis *T:* Mr. William James Furiosi *S:* Oviedo High School *C:* Oviedo *R:* Seminole

S0414 * Fang, Anne Developing a Molecular Scale DNA Nanochip for Educational Purposes, Phase II *T:* Mrs. Zasha A. Mickey *S:* Lake Highland Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

S0415 * Derousie, Serenity R Enzymatically Treated Cellulosic Packaging Waste Utilized to Release Fermentable Sugars for the Production of Bioethanol: A Second Year Study *T:* Mr. Devan Skapetis *S:* Ridgeview High School *C:* Orange Park *R:* Clay Rotary

S0416 * Delano, Elynn M Farewell with Fungi *T:* Mr. Joseph Messina *S:* Fort Pierce Westwood Academy *C:* Ft. Pierce *R:* St. Lucie

S0417 * Xavioer, Jonathan P Impact of *Solanum tuberosum* Cultivar on Hydrogen Peroxide Decomposition *T:* Mr. Steven Craig *S:* Southeast High School *C:* Bradenton *R:* Manatee STEM Competition

S0418 * Wakim, Julien J An In Silico Study on the Effects of DNA Replication Inhibitors on the Apoptosis of Multinucleated Giant Cancer Cells *T:* Mrs. Mary Schropp *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0419 * Huang, Angela Assessing the Expression of Angiogenesis-Related Receptors in Endothelial Cell RNA *T:* Mrs. Amy Bubb *S:* Sebring High School *C:* Sebring *R:* Heartland

S0420 * Rimoldi Ibanez, Camila Ultrasonic Planimals! Identifying Genes Associated with Coral Bioacoustics *T:* Dr. James Hawker *S:* Sebring High School *C:* Sebring *R:* Heartland

S0421 * Cornell, Warren Does the Type of Calcium Applied Foliarly to *Capsicum annuum* Grove (Bell Peppers) Affect the Uptake of Calcium? *T:* Mr. Robert Beatty *S:* Hardee Senior High School *C:* Wauchula *R:* Heartland

S0422 * Barksdale, Sarah Machine Learning to Predict Response to Anti-PD1 Treatment in Melanoma Based on Genetic Biomarkers *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0423 * Whitchurch, Jackson L Measuring UV-C Energy Dissipation from UV-C LEDs *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0424 * Mulhollen, Laney The Effect of Neuroprotection on Wound Healing Rates in an In Vitro TBI Model *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

S0425 * Selvan, Joshua Role of Mismatch Repair Gene hMSH2 in Malignant Glioma *T:* Mrs. Mishell Thomas-King *S:* Hillsborough High School *C:* Tampa *R:* Hillsborough



Junior: Cellular/Molecular Biology & Biochemistry

J0401 * Masuecos, Mavis C Comparing the Absorbed Radiation Dosage of *Chlorella vulgaris* and *Aspergillus niger* Pigment *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indialantic *R:* Brevard: Intracoastal

J0402 * Webster, Kailee A Beware of the Bezoar *T:* Mrs. Joan Martinelli *S:* Storm Grove Middle School *C:* Vero Beach *R:* Indian River

J0403 * Stern, Victoria What Type of Milk Has the Highest Amount of Protein? *T:* Mr. Richard Kabinoff *S:* Loggers' Run Middle School *C:* Boca Rotan *R:* Palm Beach

J0404 * Keskek, Neva N How Does Temperature and Height Affect Bloodstain Pattern? *T:* Mrs. Marla Blair *S:* Deerlake Middle School *C:* Tallahassee *R:* Capital

J0405 * Sakallah, Abdallah ; Dirdis, Yusuf The Effect of Vitamin Antioxidants on *Daphnia* Exposed to Silver Nanoparticles *T:* Mrs. Mrs. Hamad *S:* Alazhar School *C:* Tamarac *R:* Broward

J0406 * Pack, Julia UV: The Increased Probability of Deceased Yeast *T:* Mr. Bob Madewell *S:* Lake Eola Charter School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0407 * Dovell, Ryan How Do Different Carbonated Beverages Affect Eggshell *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0408 * Brien, Mia G Binding Agents for Chai Tea *T:* Dr. Archie Yumul *S:* Sacred Heart Catholic School *C:* Jacksonville *R:* Northeast Florida

J0409 * Aglave, Tanishka B Screening of alternative hosts of Pestalotiopsis disease in strawberry and its validation through PCR *T:* Dr. Laura Staden *S:* Williams Middle Magnet School *C:* Tampa *R:* Hillsborough

Finalists and Projects

Senior: Chemistry

S0501 * McCloskey, Cayley How Does the Starting Temperature Affect the Time of Crystal Growth in a Reusable Hand Warmer? (Sodium Acetate Trihydrate Solution) *T:* Ms. Carmeline Williams *S:* Lely High School *C:* Naples *R:* Collier

S0502 * Kopp, Joshua D A Novel Study on the Potential Application of Higher Efficiency Extraterrestrial Solar Cells: A Year Two Study *T:* Mr. Branden L. Anglin *S:* Wiregrass Ranch High School *C:* Wesley Chapel *R:* Pasco

S0503 * Stuart, Matthew A Hot Fusion: Testing the Terpenes Implementations of Brazilian Peppertree, *Schinus terebinthifolia* in Conjunction with Biodiesel in Order to Improve Combustibility and Efficiency in Diesel Engines. *T:* Mr. Ryan Cilsick *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

S0504 * Gates, Samantha I Measuring Arsenic in Baby Foods and Formulas *T:* Mrs. Pam Hicks *S:* B. T. Washington High School *C:* Pensacola *R:* West Panhandle

S0505 * Shar, Andy Novel Synthesis and Microstructure Optimization of Facile, Robust, and Transparent Triboelectric Nanogenerators *T:* Mrs. Christina Davis *S:* Vanguard High School *C:* Ocala *R:* Big Springs

S0506 * Stephens, Savannah P Do Oranges Lose or Gain Vitamin C After Being Picked? *T:* Stephanie Yarbrough *S:* South Sumter High School *C:* Bushnell *R:* Big Springs

S0507 * Yang, Ivy ; Bao-He, Mei Measuring the Effect of Titanium (IV) Oxide Surface Modification on Hydrogen Production in a 5% Citric Acid-Water Aqueous Solution Reacting with Magnesium *T:* Dr. Laxmikant Pathade *S:* Saint Edwards School *C:* Vero Beach *R:* Indian River

S0508 * Goyal, Nira Stability Testing of CBD and Hemp Creams with and without Silk Protein at Different Temperatures *T:* Mrs. Shannon Parks *S:* Martin County High School *C:* Stuart *R:* Martin

S0511 * Weiner, Bari The Basics of Humid Nature: Does High Humidity Affect the Antacid Property of Sodium Bicarbonate? *T:* Mrs. Nanette Bradley *S:* William T. Dwyer High School *C:* Palm Beach Gardens *R:* Palm Beach

S0512 * Wen, Nolan The Effect of Cyanoacrylate on the Setting Time and Adhesive Strength of a Nitrocellulose Based Liquid Bandage: A Proof of Principle Study *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

S0513 * Garrido, Annalise H The Effect of Berberine upon Depression Induced in *Drosophila melanogaster* *T:* Mrs. Lisa Garrido *S:* Westminster Christian School *C:* Palmetto Bay *R:* South Florida

S0514 * Kaur, Harmanpreet Aluminum Hydroxide Concentrated Filtration Device Systems for the Removal of Phosphates to Combat Eutrophication in Aquatic Ecosystems. *T:* Ms. Patricia Sacasa *S:* Medical Academy for Science and Technology *C:* Homestead *R:* South Florida

S0515 * Govindarajan, Vasundara Plastic Water Bottle Degradation through Artificial Weathering Process *T:* Dr. Dr. Sierramontes *S:* TERRA Environmental Research Institute *C:* Miami *R:* South Florida

S0516 * Bhatt, Sanjana ; Thayagabalu, Sahana Ocean's Declining pH: The Effects of Surface Agitation Aeration on Calcium Carbonate Dissolution Levels in Acidified Seawater *T:* Mr. Jay Rosenberg *S:* Cypress Bay High School *C:* Weston *R:* Broward

S0517 * Rubinow, Aaron G Plant-based Bio-Plastics from Low-cost Materials *T:* Dr. Elmarie Mortimer *S:* Trinity Preparatory School *C:* Winter Park *R:* Dr. Nelson Ying Expo - Orange

S0518 * Karalkar, Vedant Fabrication of Naphthalimide Chemosensor Using InkJet Printing on Cellulose Paper for Determination of Uric Acid and Metal in Solution *T:* Dr. Adenike Akinyode *S:* Eastside High School *C:* Gainesville *R:* Alachua

S0519 * Auter, Layla G Mitigating Harmful Algal Bloom Contributing Nutrients: Year Two Comparing the Effectiveness of the Amino Acid Derivative Cysteine Methyl-Ester Alongside Aluminum Sulfate to Reduce Aluminum and Soluble Reactive Phosphorus in Water Treatment in Anoxic and Oxidic Conditions *T:* Mrs. Mary Schropp *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0520 * Velton, Anna R The Effects of Dissolving Polystyrene with D-Limonene on the Germination of Plants : A Fourth Year Study *T:* Mrs. Wendy Reister *S:* Okeechobee High School *C:* Okeechobee *R:* Heartland

S0521 * Ramsey, Sean R The Properties of Martian Concrete with Molten Sulfur Binder *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0522 * Elan, Liya D The Effect of Amorphous Carbon Created by Sugar and Sulfuric Acid on Hydrogen Fuel Storage Cells *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota



Finalists and Projects

J0523 * Bowen, Nina K The Effects of High Concentrations of Nitrates and Phosphates in Runoff *T:* Ms. Joy Smith *S:* Key West High School *C:* Key West *R:* Monroe

J0524 * Patidar, Anya K Silica-Supported Perovskite Oxides for Low Temperature Carbon Dioxide Conversion *T:* Mr. Daniel McFarland *S:* C. Leon King High School *C:* Tampa *R:* Hillsborough

Junior: Chemistry

J0501 * Wahl, Wyatt S How Does Water from Different Sources Cause Limestone to Erode Leading to Sinkholes? *T:* Mrs. Amanda Watson *S:* David C. Hinson Middle School *C:* Daytona Beach *R:* Tomoka

J0502 * Mathews, Bailey G What Is the Minimum Amount of Flame Retardant Needed to Still Be Effective While Minimizing Health Risks? *T:* Ms. Regina Bale *S:* Cypress Palm Middle School *C:* Naples *R:* Collier

J0503 * Chandran, Keerthi A Are Sugar Substitutes a Stretch? *T:* Mrs. Casey Mathis *S:* North Naples Middle School *C:* Naples *R:* Collier

J0504 * Hursey, Olivia K Flammable Fabric *T:* Michele Fisher *S:* Cypress Creek Middle High School *C:* Wesley Chapel *R:* Pasco

J0505 * Hammond, Brian A Color Writing *T:* Ms. Nicole Dunleavy *S:* Pasco Middle School *C:* Dade City *R:* Pasco

J0506 * Sun, Christina L The Antibacterial Effect of a Crystal Violet Gold Nanoparticle Coating *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indialantic *R:* Brevard: Intracoastal

J0507 * Teague, Sidney Playing with Fire *T:* Mrs. Jodi Russell *S:* Holley Navarre Middle School *C:* Navarre *R:* West Panhandle

J0508 * Temple, Julia P Plastic ... plastic Everywhere!: ... Is Polyethylene Terephthalate or Polyethylene a More Suitable Replacement for Sand Based Cement? *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

J0509 * Zapata, Aryca B What Is the Best Natural Repellent to Get Rid of Ants? *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

J0510 * Hepler, Sasha Sphere Magic *T:* Mrs. Tricia Perakes *S:* Sebastian River Middle School *C:* Sebastian *R:* Indian River

J0511 * Massaroni Santella, Adriana R Dissolving Design *T:* Mrs. Christina Brako *S:* Sebastian Charter Junior High School *C:* Sebastian *R:* Indian River

J0512 * Wood, Cian B Electrolysis with Varied Electrolyte Contents *T:* Mrs. Jennifer Ellerbee *S:* Citrus Springs Middle School *C:* Dunnellon *R:* Citrus

J0513 * Arenth, Emma How Acids Affect Corrosion *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J0514 * Ferry, Sienna Burning Colors *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J0515 * Moore, Kasey Vitamin C in Oranges over Elapsed Time *T:* Mrs. Nicolae Lambrou *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

J0516 * Bresier, Herbert G Hey! I Didn't Know My Bike Could Rust So Quick! *T:* Mr. Jose Saud *S:* Shenandoah Middle School *C:* Miami *R:* South Florida

J0517 * Ortega, Kevin Pain Terminator! *T:* Mrs. Dennie Curry *S:* Palm Springs Middle School *C:* Hialeah *R:* South Florida

J0518 * Ferland, Alexander L Environmental Conditions Affecting Corrosion of Launch Structures in a Real Launch Environment *T:* Mrs. Alexandria Wicker *S:* Andrew Jackson Middle School *C:* Titusville *R:* Brevard: Mainland

J0519 * Booeshaghi, Justin I The Corrosion Test *T:* Mrs. Amanda Mills *S:* Swift Creek Middle School *C:* Tallahassee *R:* Capital

J0520 * Prendeville, William C C₈H₁₈ vs H₂O *T:* Mr. Mark Adamson *S:* Trinity Catholic School *C:* Tallahassee *R:* Capital

J0521 * Peltier, Logan E Charcoal Purifier *T:* Mrs. Marla Blair *S:* Deerlake Middle School *C:* Tallahassee *R:* Capital

J0522 * Henry, Cora L Are Household Liquids Effective in Breaking Down Plastics? *T:* Mr. William Fabian *S:* South Seminole Academy *C:* Casselberry *R:* Seminole

J0523 * McCormick, Eugenia How Does the Amount of Sugar in Homemade Ice Cream Affect How Fast It Freezes? *T:* Mrs. Melissa Szentmiklosi *S:* South Seminole Academy *C:* Casselberry *R:* Seminole

J0524 * Hsiao, Anneliese C The Effect of a Hot Car Interior on Hand Sanitizer Alcohol Content *T:* Mrs. Jennifer Page *S:* American Heritage School *C:* Plantation *R:* Broward

J0525 * Priano, Vincenza R My Hair, My Passion *T:* Mrs. Jessica Lanzetta *S:* Nova Southern University School *C:* Ft. Lauderdale *R:* Broward

Finalists and Projects

J0526 * Chowdhury, Taufeeq From Dull to Dazzling *T:* Mrs. Aeysha Mirza *S:* Leaders Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0527 * Smith, Dream ; Glavis, Danna ; Ramirez, Nahomy Shooting Star *T:* Miss Rebecca Farrell *S:* Electa Arcotte Lee Middle School *C:* Bradenton *R:* Manatee STEM Competition

J0528 * Griffin, Jonah How Do Different Liquids Affect the Amount of Plaque on Your Teeth? *T:* Mrs. Christine Floyd *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0529 * Hsu, Alexander Minimizing Teeth Stains *T:* Ms. Rachel Brown *S:* Lincoln Middle School *C:* Gainesville *R:* Alachua

J0530 * Milosevic, Gloria How Does the Type of Flour Added into Banana Bread Effect its Bake Time? *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0531 * Wendling, Thomas How Do the Two Metals in a Galvanic Couple, also Known as a Corrosion Couple Affect the Amount of Corrosion that Forms? *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0532 * Nicolas, Stephen The Effects of Trisodium Phosphate on Bone Density *T:* Mrs. Julie Schmidt *S:* Stone Magnet Middle School *C:* Melbourne *R:* Brevard: South

J0533 * Morton, Madeleine G O J Can You "C"? *T:* Mrs. Penny Piccione *S:* Hill-Gustat Middle School *C:* Sebring *R:* Heartland

J0534 * Cornell, Will W Does the Type of Nitrogen Applied Foliarly to Bell Peppers (*Capsicum annum* group) Affect the Uptake of Nitrogen? *T:* Mrs. Kim R McGuckin *S:* Hardee Junior High School *C:* Wauchula *R:* Heartland

J0535 * Spencer, Gracie Kate What Brand of Sunscreen With the Same SPF Is Most Effective? *T:* Mrs. Micaela Ford *S:* Hardee Junior High School *C:* Wauchula *R:* Heartland

J0536 * Bonilla, Matthew C Pearly Whites-Not So Pearly Anymore? *T:* Mrs. Karen Perry *S:* Neptune Middle School *C:* Kissimmee *R:* Osceola

J0537 * Butler, Reese Fast Food Burgers and Perservatives *T:* Mrs. Karen Perry *S:* Neptune Middle School *C:* Kissimmee *R:* Osceola

J0538 * Saab Reyes, Sara I A-Peel-ing: Which Liquid is the Most Efficient in Extending the Freshness of an Apple? *T:* Mrs. Karen Perry *S:* Neptune Middle School *C:* Kissimmee *R:* Osceola

J0539 * Jaffa, Kyra What Type of Paint Mediums Is Best for Paint Pouring *T:* Mrs. Karianne Jaffa *S:* The Martin J Gottlieb Day School *C:* Jacksonville *R:* Northeast Florida

J0540 * Della-Luna, Charlie B Feelin' the Fizz: Which Brand of Soda Contains the Most Carbonation? *T:* Mr. Andrew Urnezis *S:* Oak Hammock Middle School *C:* Fort Myers *R:* Thomas Alva Edison

J0541 * Della-Luna, Kaelie M Feelin' the Burn? Which Antacid Neutralizes Acid Most Effectively? *T:* Mr. Andrew Urnezis *S:* Oak Hammock Middle School *C:* Fort Myers *R:* Thomas Alva Edison

J0542 * Patel, Rudra A 65mg FeSO₄ or is it? *T:* Ms. Linda Kniskern *S:* Liberty Middle School *C:* Tampa *R:* Hillsborough



Senior: Earth & Environmental Sciences

S0601 * King, Amy E Coagulation Flocculation Sedimentation Filtration of Microplastics *T:* Mrs. Barbara Hawes *S:* Burns Science and Technology Charter School *C:* Oak Hill *R:* Tomoka

S0602 * Proctor, Amanda G A Novel Study of the Effect Of A Nutrient Enrichment on *Thalassia testudium* Chloroplast Photosynthetic Activity *T:* Mr. Branden L. Anglin *S:* Wiregrass Ranch High School *C:* Wesley Chapel *R:* Pasco

S0603 * Alagal, Elyse L A Study of Ion Exchange and Ultraviolet Radiation as a Method for Remediating Aquatic Systems Damaged by Mining Runoff *T:* Mr. Branden L. Anglin *S:* Wiregrass Ranch High School *C:* Wesley Chapel *R:* Pasco

S0604 * LaFortune, Alexander Predictive Modeling of Tropical Cyclone Rapid Intensification by Analyzing Convective Patterns with Convolutional Neural Networks - Year Four *T:* Mrs. Magdalena Molledo *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

S0605 * Gosselin, Destiny N The Plot Thickets: Worms vs Crickets *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

S0606 * Duma, Camille A Utilization of *Manihot esculenta* Peels, Used Coffee Grounds, and Eggshells from *Gallus gallus* to Create Biodegradable Polymers *T:* Mrs. Christina Davis *S:* Vanguard High School *C:* Ocala *R:* Big Springs

Finalists and Projects

S0607 * Lindenthal, Stephan O A Novel Model of Microplastics Pollution for Terrestrial Environments for *Drosophila melanogaster* T: Dr. Kerryane Monahan S: Saint Edwards School C: Vero Beach R: Indian River

S0608 * Enguidanos, Marisol R Is It Possible to Create a Self-sufficient Solar Powered Filtration System to Reduce Coral Bleaching Using Natural Resources (Year 3)? T: Ms. Gina Emery S: Niceville High School C: Niceville R: East Panhandle

S0609 * Dillersberger, Lucia C Is Henderson Healthy? T: Hannah Healey S: Academy of Environmental Science C: Crystal River R: Citrus

S0610 * Johnson, Haley M Forces of the Twister T: Mr. Richard Archambault S: Citrus High School C: Inverness R: Citrus

S0611 * Mohammadbhoj, Lorelei G Microplastics Still Do Not Promote Gender Equality T: Mr. Ryan Campbell S: Lecanto High School C: Lecanto R: Citrus

S0612 * Pitre, Shelby-Lynn S Biodiversity in the Rainbow River T: Mr. Ryan Campbell S: Lecanto High School C: Lecanto R: Citrus

S0613 * Woodhouse, Paige N The Effects of Sunscreen Compounds on Our Native Eelgrass (*Vallisneria americana*) T: Mr. Jacob Shidner S: Academy of Environmental Science C: Crystal River R: Citrus

S0614 * Butler, Brennan A When Temperature and Substrate Are Controlled, Which Native Aquatic Plant Mitigates Phosphate Introduced into Water Bodies through Runoff most Effectively? T: Mr. Chris Auricchio S: Springstead High School C: Spring Hill R: Hernando

S0616 * Garfield, Sarah The Effect of Predator-Induced Increases on CO₂ Sequestration in Bromeliad-Daphnia Reservoir Ecosystems T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

S0617 * Kari, Tejavsi The Effect of Carbon Nanotubes and Oil Dispersants on the Oil Degrading Ability, Vitality, and Gene Expression of *A. borkumensis* T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

S0618 * Brouse, Michael Behavioral Responses to Acute Caffeine Exposure in *Danio rerio* T: Ms. Mary Fish S: Spanish River Community High School C: Boca Raton R: Palm Beach

S0619 * You, Sunny J A Novel Deep Learning Model for Estimating Tropical Cyclone Intensity from Satellite Images T: Ms. Pamela Shlachtetman S: Miami Palmetto Senior High School C: Pinecrest R: South Florida

S0620 * Buriani, Raquel Biofuel Optimization: Investigating the Relationship between Habitat Temperature and Cellobiase Optimal Temperature for *Lentinula edodes*, Shiitake Mushrooms. T: Michael Weiss S: John A. Ferguson Senior High School C: Miami R: South Florida

S0621 * Francom, Esther R Bamboozling Microplastic Runoff into the Indian Rive Lagoon - Year 3 T: Ms. Elizabeth Youngs S: Viera High School C: Viera R: Brevard: Mainland

S0622 * Fetherlin, Carmella Climate Change in Shells: the Effect of Ocean Acidification on Marine Life T: Mrs. April Blaze S: Haines City High School IB East C: Haines R: Polk

S0623 * Chadha, Rohan Formulating Green Degreaser - Concept to Commercialization T: Mrs. Angela Breza-Pierce S: Lawton Chiles High School C: Tallahassee R: Capital

S0624 * Lam, Minh K Fungi to the Rescue! Acid Rain Mycoremediation of Soil Using *Pleurotus ostreatus* T: Dr. Chantal Bodkin-Clarke S: Lake Mary Preparatory School C: Lake Mary R: Seminole

S0625 * Richburg, Justin W Creating a Model Ecosystem to Analyze the Correlation between Shoal Grass (*Halodule wrightii*) and Epiphytic Diatoms: Year 5 T: Mr. William James Furiosi S: Oviedo High School C: Oviedo R: Seminole

S0626 * Subramanian, Krithika Growth and Decay of Coral Due to Coral Bleaching as Identified by Machine Learning Analysis of Satellite Images T: Mrs. Angela Campbell S: Paul J. Hagerty High School C: Oviedo R: Seminole

S0627 * Desai, Khushi Evaluation of the Impact of Filter Media Effective Size on Removal Efficiency of Coagulated Colloidal Particles from Surface Water T: Mr. Joshua Smith S: Deerfield Beach High school C: Deerfield Beach R: Broward

S0628 * Dania, Abdul-Jalil D Evaluating the Economic and Social Ramifications from Sea Level Rise in the Florida Coastal Region in 2050 and Solutions to Alleviate Potential Damages T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

S0629 * Aggarwal, Naina T Effect of Air Pollution on the Biodiversity of Lichens T: Mrs. Zasha A. Mickey S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

S0630 * Hassan, Asmaa A Nanosilvers and Their Effect on *Daphnia magna* T: Mrs. Bethany Derousie S: Ridgeview High School C: Orange Park R: Clay Rotary

S0631 * Ramadan, Sami M The Effects of Heavy Metals on Aquatic Organisms T: Mrs. Mary Schropp S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

Finalists and Projects

S0632 * Warfel, Timothy C Four Year Study: Fertilizer Frenzy *T*: Mr. David Raney *S*: Hamilton County High School *C*: Jasper *R*: Suwannee Valley

S0633 * Doro, Miranda K Pb (II) Filtration Using an Eco-Friendly Synthesized Ag Nanoparticle Enhanced Biosand Filter *T*: Mrs. Marion Zeiner *S*: Episcopal High School of Jacksonville *C*: Jacksonville *R*: Northeast Florida

S0634 * Kagiliery, Julia M The Creation and Practical Application of Industry Standards Water Analysis Via PXRF *T*: Mrs. Marion Zeiner *S*: Episcopal High School of Jacksonville *C*: Jacksonville *R*: Northeast Florida

S0635 * Rabil, Natalie C The Combined Toxicity of Lead Nitrate and Dibutyl Phthalate on Freshwater Amphipods *T*: Mrs. Marion Zeiner *S*: Episcopal High School of Jacksonville *C*: Jacksonville *R*: Northeast Florida

S0636 * Sikorski, Lily ; VanSuch, Alexa J Secretion of Microplastics on the Seafloor *T*: Mr. Andy Harshman *S*: Sarasota High School *C*: Sarasota *R*: Sarasota

S0637 * Austin, Aidan A How Did Closing the Keys Affect Our Oceans? *T*: Mrs. Bobbi Burson *S*: Coral Shores High School *C*: Tavernier *R*: Monroe

S0638 * Barnes, Morgan T Analyzing In-situ Environmental Impacts on Long Term Durability, Cohesivity and Viability Sodium Alginate Immobilized *Chlorella vulgaris* Bioremediation Units (Year 3) *T*: Ms. Kelly Percivall *S*: Canterbury School *C*: Fort Myers *R*: Thomas Alva Edison

S0639 * Burbidge, Hannah G; Still, Savannah S Anthropogenic Effects on Aquatic Life *T*: Mr. Ken Wood *S*: Durant High School *C*: Plant City *R*: Hillsborough

Junior: Earth & Environmental Sciences

J0601 * Gupta, Rani V Does Adding Natural Starch Prevent Soil Erosion? *T*: Mrs. Amanda Watson *S*: David C. Hinson Middle School *C*: Daytona Beach *R*: Tomoka

J0602 * Frino, Gianna C The Inhibitory Effects of Environmentally Safe Essential Oil Compounds on the Proliferation of *Cyanobacteria* (Blue-Green Algae) *T*: Mr. Greg Anthony *S*: Pine Ridge Middle School *C*: Naples *R*: Collier

J0603 * Knoth, Paige Iron vs Algae Density *T*: Mr. Greg Anthony *S*: Pine Ridge Middle School *C*: Naples *R*: Collier

J0604 * Jacob, Daniel M Split Decision: How Do Temperature-Based Variables Affect Planarian Regeneration? *T*: Mrs. Colleen McCormick *S*: Academy at the Lakes *C*: Land O' Lakes *R*: Pasco

J0605 * Davis, Sebastian Saving the Earth One Volt at a Time! *T*: Mrs. Alice Novak *S*: Pasco Middle School *C*: Dade City *R*: Pasco

J0606 * Krasnick, Hudson M Roofing Materials and Their Effect on Solar Energy Output and Inside Temperature *T*: Mrs. Michelle Zimmerman *S*: Herbert H. Hoover Middle School *C*: Indialantic *R*: Brevard: Intracoastal

J0607 * Bakhshi, Omeir S Won by a Landslide: Can Plants Solve Soil Erosion? *T*: Mrs. Jodi Russell *S*: Holley Navarre Middle School *C*: Navarre *R*: West Panhandle

J0608 * White, William T Do UPF Shirts Hold Their Protection? *T*: Mr. William Reed *S*: Blessed Trinity Catholic School *C*: Ocala *R*: Big Springs

J0609 * McBride, Alynza I Can Hydrologic Records Be Reconstructed Using Tree Rings from the Upper Withlacoochee River? *T*: Mrs. Shelly Paulinyce *S*: South Sumter Middle School *C*: Webster *R*: Big Springs

J0610 * Asthana, Aahan Rainfall Test *T*: Mrs. Shannon Parks *S*: Stuart Middle School *C*: Stuart *R*: Martin

J0611 * Calhoun, Isabella Compost: Nature's Fertilizer *T*: Mrs. Shannon Parks *S*: Saint Joseph Catholic School *C*: Stuart *R*: Martin

J0612 * Goyal, Nina Greenhouse Gases Showdown *T*: Mrs. Shannon Parks *S*: Hidden Oaks Middle School *C*: Palm City *R*: Martin

J0613 * Bollin, Isabella J The Affect of Salinity on Plant Growth *T*: Ms. Ciera Markey *S*: Citrus Springs Middle School *C*: Dunnellon *R*: Citrus

J0614 * Vivolo, Daniel What Is an Impact from a Meteor? *T*: Veronica Uzar *S*: Saint John Paul II Catholic School *C*: Lecanto *R*: Citrus

J0615 * LoBello, Sophia Is My Car an Oven? *T*: Mrs. Rhonda Steinmetz *S*: Bak Middle School of the Arts *C*: West Palm Beach *R*: Palm Beach

J0616 * Phelps, Grace At What Concentration of Zinc Oxide Are *Anthelia clauca* Exposed to Coral Bleaching? *T*: Ms. Suzette Milu *S*: A.D. Henderson University School *C*: Boca Raton *R*: Palm Beach

J0617 * Morales, Angelika M Death of the Duckweed *T*: Mr. Eugenio Machado *S*: Norman S. Edelcup Sunny Isles Beach K-8 Community School *C*: Sunny Isles Beach *R*: South Florida

Finalists and Projects

J0618 * Politis, Alexia P Designing the Best Storm Drain *T:* Livan Escudero *S:* Aventura Waterways K-8 Center *C:* Miami *R:* South Florida

J0619 * Liendo, Luis Fernando Is It True that Cleaning Potatoes with Baking Soda, Vinegar, or Water Decreases the Fertilizer Residue to a Safe Consumption Level? *T:* Melvin Ovaes *S:* Downtown Doral Charter Upper School *C:* Doral *R:* South Florida

J0620 * Robaina, Isabella V Heat Coefficient Reduction in Windows *T:* Ms. Silvia Mayorga *S:* Ruth K. Broad Bay Harbor K-8 Center *C:* Bay Harbor Islands *R:* South Florida

J0621 * Marchio, Michaela Heavy Metals! *T:* Mrs. Dianne Alexis *S:* Saint Mary Catholic School *C:* Rockledge *R:* Brevard: Mainland

J0622 * Hancock, Amalie L Who Will Win the Temperature Changing Race, Soil or Air? *T:* Mrs. Amanda Mills *S:* Swift Creek Middle School *C:* Tallahassee *R:* Capital

J0623 * Ward, Alexis S Which Paper Biodegrades the Fastest? *T:* Mrs. Melanie Francher *S:* Jackson Heights Middle School *C:* Oviedo *R:* Seminole

J0624 * Rozenberg, Laila R The Effects of PCB's and PFA's on the Neurological Development of Zebrafish Embryos *T:* Mrs. Leya Mathew Joykuty *S:* American Heritage School *C:* Plantation *R:* Broward

J0625 * Fahy, Keira G Microplastics In Our Sand *T:* Mrs. Ashley Trimble *S:* New River Middle School *C:* Ft. Lauderdale *R:* Broward

J0626 * Saravana Kumar Divya Sundari, Monish Ocean Acidification: Could Nanotechnology Cause Macro Problems *T:* Mr. Mathew Swatzell *S:* Orlando Science Middle School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0627 * Benedict, Rowan How Does Lime Affect Spoil PH? *T:* Mrs. Christine Floyd *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0628 * Kasala, Abhith Global Plastic Pollution *T:* Mrs. Christine Floyd *S:* Abraham Lincoln Middle School *C:* Gainesville *R:* Alachua

J0629 * Freer, Flora Jane How Does the Streamflow of a River Affect the Number of Microplastics Collected? *T:* Danielle Nelson *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0630 * Jarzin, Rohan Tsunami! *T:* Mr. Robert Klaasen *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

J0631 * Abbott, Thomas L Does the Type of Desalination Method Affect the Amount of Salinity in Water? *T:* Mrs. Kim R McGuckin *S:* Hardee Junior High School *C:* Wauchula *R:* Heartland

J0632 * Cratem, Thomas P; Kartsonis, Caroline N Removing Oil from Water *T:* Mrs. Sarah Pascual *S:* San Jose Catholic School *C:* Jacksonville *R:* Northeast Florida

J0633 * Aleman, Robert R Does Bisphenol A (BPA) IEach into Soil after Being Heated? *T:* Mrs. Devi Hall *S:* Key Largo School *C:* Key Largo *R:* Monroe

J0634 * McCoy, Sebastian Lighting Up the Sky! *T:* Ms. Jessica Graham *S:* Key Largo School *C:* Key Largo *R:* Monroe

J0635 * Fernando, Kurukulasuriya Microplastic Interaction in Aquatic Primary Consumers: Potential for Biomagnification *T:* Ms. Lisa Leitten *S:* Paul Laurence Dunbar Middle School *C:* Fort Myers *R:* Thomas Alva Edison

J0636 * Urakawa, Maria Does Hydrogen Peroxide Save Aquatic Animals from Toxic Algal Blooms? *T:* Mr. Jason Laux *S:* Three Oaks Middle School *C:* Ft Myers *R:* Thomas Alva Edison

J0637 * Brown, Cameron Determining the Sources of Excess Phosphate and Nitrate Concentrations in the Upper Hillsborough River *T:* Ms. Rachel Miller *S:* Rampello Downtown Partnership K-8 *C:* Tampa *R:* Hillsborough

Senior: Engineering

S0701 * Goforth, Tanner J Remote Float *T:* Mr. Ryan Cilsick *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

S0702 * Vokoun, Steven Creation of a Highly Efficient Surface ROV Invoking Cylindrical Solar Panels Year 5 *T:* Mrs. Shannon Parks *S:* South Fork High School *C:* Stuart *R:* Martin

S0703 * York, Benjamin M Designing and Testing a Novel 25% Degree of Reaction Steam Turbine *T:* Mrs. Amy Eardley *S:* Creekside High School *C:* St. Johns *R:* St. Johns

S0704 * Kappeler, Cooper J Charging a Battery with aWave Current Generator *T:* Mrs. Tracy Springman *S:* Indian Rocks Christian School *C:* Largo *R:* Pinellas

Finalists and Projects

S0705 * Oleksak, John P; Banse, Jason-Perry J Testing a Novel Arduino Pressure Sensing Insole to Identify Hazardous Walking Conditions for Persons with Lower Limb Differences *T:* Mrs. Tracy Springman *S:* Indian Rocks Christian School *C:* Largo *R:* Pinellas

S0706 * Lee, Catherine Decreasing Acoustic Footprint of Marine Propellers, Using Geometric Modifications. *T:* Mr. William Bartenslager *S:* Palm Beach Central High School *C:* Wellington *R:* Palm Beach

S0707 * Joseph, Jimmy Utilizing Solar Tracking Technologies to Provide Cheap and Efficient Energy *T:* Mrs. Robin Barkes *S:* Florida Atlantic University High School *C:* Boca Raton *R:* Palm Beach

S0708 * Pitts, Michael Creating Hydrogen through Solar-Powered Electrolysis *T:* Mr. Jeff Laufer *S:* Suncoast Community High School *C:* Riviera Beach *R:* Palm Beach

S0709 * Stawikowska, Lucja Determination of the Parameters Influencing Cooling Fan Efficiency *T:* Mrs. Robin Barkes *S:* Florida Atlantic University High School *C:* Boca Raton *R:* Palm Beach

S0710 * Gittes Taplin, Trevor A; Matzner, Ethan ; Sevilla, Luis F Smart Space Helmet Prop *T:* Mrs. Nydia Molina *S:* TERRA Environmental Research Institute *C:* Miami *R:* South Florida

S0711 * Weiner, Isabella In Situ Resource Utilization of Martian Regolith for Construction - Year 4 *T:* Mrs. Terrie Segal *S:* Holy Trinity Episcopal Academy *C:* Melbourne *R:* Brevard: Mainland

S0712 * Trotter, Niamh 3D Printed Touch: Year 3 *T:* Ms. Maggie Molledo *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

S0713 * Um, Taehee Characterizing the Electrical and Thermal Performance of a Circular Exhaust Pipe Thermoelectric Generator *T:* Mr. William James Furioli *S:* Oviedo High School *C:* Oviedo *R:* Seminole

S0714 * Stocker, Sierra Using Electrical Stimulation to Provide Reliable Haptic Feedback in Virtual Object Classification Tasks *T:* Ms. Jennifer Gordinier *S:* Pine Crest School *C:* Ft. Lauderdale *R:* Broward

S0715 * Bhatheja, Ananya Modeling the Robustness of Ceria Nanoparticle Infused Silk Fibrion Polymer *T:* Dr. Darin Hughes *S:* Lake Highland Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

S0716 * Kouchakjy, Sebastian D Muscle Controlled Exoskeleton *T:* Ms. Amanda George *S:* Orange Park High School *C:* Orange Park *R:* Clay Rotary

S0717 * Joseph, Benjamin Muscular Dystrophy Backpack *T:* Dr. Adenike Akinyode *S:* Eastside High School *C:* Gainesville *R:* Alachua

S0718 * Kish, Matthew H Comparing Reinforced Polymers to Traditional Steel for Bridge Construction *T:* Ms. Paula Ladd *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0719 * Jett, Clarence N Comparison of a Vertical Hydroponic System Fabricated from Recycled Materials vs a Commercial Vertical System *T:* Mr. Wayne Oelfke *S:* Fort White High School *C:* Fort White *R:* Suwannee Valley

S0720 * Perry, Madeline J Weighted Wings: Analyzing Airfoil Performance in Tropospheric Conditions *T:* Mr. Robert Dombo *S:* St. Cloud High School *C:* St. Cloud *R:* Osceola

S0721 * Griffith, Christopher-John Using Neuromuscular Electrical Stimulation to Engineer a Device to Control Earthworm's Movements *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0722 * O'Neill, Madeline C Sticky Situations: The Biomechanics of Gecko Feet *T:* Mrs. Lee Paulus *S:* Bishop Kenny High School *C:* Jacksonville *R:* Northeast Florida

S0723 * Valentino, Antonio G Conquering Concrete - Year III *T:* Mrs. Vicki Schmitt *S:* Bishop Kenny High School *C:* Jacksonville *R:* Northeast Florida

S0724 * O'Connor, Quinn M Comparing the Effectiveness of a 3D Printed vs an Industrial Agarose Gel Electrophoresis Chamber *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

S0725 * Gomer, Laura S; Barrow, Brook A; Diaz, Diana I Rockin Rocket Experiment *T:* Natalie Ledoux *S:* Coral Shores High School *C:* Tavernier *R:* Monroe

S0726 * Chavakula, Jay The Utilization of Dimples to Reduce Wind Load on Parabolic Structures *T:* Ms. Kelly Percivall *S:* Canterbury School *C:* Fort Myers *R:* Thomas Alva Edison



Finalists and Projects

Junior: Engineering

J0701 * Miller, Braden M Wing Airfoil Designs vs Climb, Stall and Recovery Characteristics *T:* Mr. Greg Anthony *S:* Pine Ridge Middle School *C:* Naples *R:* Collier

J0702 * Young, David K Incorporating Mars Simulant into a Thermoplastic Polymer to 3D Print an Insulative and Structurally Sound Mars Habitat *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indian River *R:* Brevard: Intracoastal

J0703 * Curtis, Rory AND THEY ALL COME TUMBLING DOWN! *T:* Mrs. Jodi Russell *S:* Holley Navarre Middle School *C:* Navarre *R:* West Panhandle

J0704 * Durst, Shyanne M Surface Groundwater Filtration *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

J0705 * Ribay, Michael D The Optimal Arrangement of Solar Cells on a Mendocino Motor *T:* Mr. William Bondank *S:* Howard Middle School *C:* Ocala *R:* Big Springs

J0706 * Dykes, Lincoln A How Accurate Is Sound? *T:* Mrs. Christina Brako *S:* Sebastian Charter Junior High School *C:* Sebastian *R:* Indian River

J0707 * Johnson, Avi R Wireless World *T:* Ms. Ashley Rollin *S:* Storm Grove Middle School *C:* Vero Beach *R:* Indian River

J0708 * Panwar, Samarvir Prepare for Perpetual! *T:* Mrs. Shannon Parks *S:* Hidden Oaks Middle School *C:* Palm City *R:* Martin

J0709 * Vivek, Arnav A.C.D Atmospheric Carbon Detector *T:* Mrs. Shannon Parks *S:* Dr. David L. Anderson Middle School *C:* Stuart *R:* Martin

J0710 * Smith, Kaylee Can We TRUSS It? *T:* Mrs. Colleen Douk *S:* Challenger K8 School of Science and Mathematics *C:* Spring Hill *R:* Hernando

J0711 * York, Emma Testing the Efficiency of Different Curvatures of the Blades of a Savonius Wind Turbine *T:* Mr. David Zeinert *S:* Freedom Crossing Academy *C:* St. Johns *R:* St. Johns

J0712 * Townson, Ronnie How Do Different Wings Affect Aerodynamics? *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J0713 * Gallogly, Colin Does the Viscosity of a Liquid affect the Flight Time of a Rocket? *T:* Mrs. Rhonda Steinmetz *S:* Bak Middle School of the Arts *C:* West Palm Beach *R:* Palm Beach

J0714 * Gomez, Andres J; Spreitzer, Evan It's a Slippery Slope! How Can Depths and Angles Affect the Foundation of a Building? *T:* Mrs. Jesse Leon *S:* Ascension Catholic School *C:* Melbourne *R:* Brevard: Mainland

J0715 * Dodd, Landon Toilet Trouble *T:* Ms. Sharon Kunsman *S:* Windy Hill Middle School *C:* Clermont *R:* Lake

J0716 * Patel, Jainish H Project OxiDrone *T:* Mrs. Natalie Cambell *S:* East Ridge Middle School *C:* Clermont *R:* Lake

J0717 * Spencer, Gustavo D Carrier Collision Catastrophe! *T:* Mrs. Ramona Lataille *S:* Seminole Science Charter School *C:* Lake Mary *R:* Seminole

J0718 * Ciril, Elie Energy Storage Levels of Different Types of Supercapacitors *T:* Mrs. Jennifer Page *S:* American Heritage School *C:* Plantation *R:* Broward

J0719 * Shamus, Alexa G Understanding Dog Body Language *T:* Mr. Fermin Vasquez *S:* Pembroke Pines Charter Middle School *C:* Pembroke Pines *R:* Broward

J0720 * Gay, Tiffani R Which Method of Biomedical Waste Disposal Is Most Efficient in Protecting Frontline Workers from Needle Injuries? *T:* Mrs. Emine Demir *S:* Orlando Science Middle School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0721 * Nye, Samuel S Breaking Point *T:* Mr. Christopher Nooney *S:* Green Cove Springs Junior High School *C:* Green Cove Springs *R:* Clay Rotary

J0722 * Paulk, Kevin A What Angle of a Solar Panel Makes a Robot Move Faster? *T:* Ms. Carrie Kahr *S:* Mosaic Digital Academy *C:* Port St. Lucie *R:* St. Lucie

J0723 * Rosado, Michael J Gravitational Acceleration *T:* Mrs. Jeacla Clarke *S:* Forest Grove Middle School *C:* Ft. Pierce *R:* St. Lucie

J0724 * Bonilla Grillo, Joshua ; Quinlan, Conner ; Trego, Aiden Prosthetic Hand Test *T:* Miss Rebecca Farrell *S:* Electa Arcotte Lee Middle School *C:* Bradenton *R:* Manatee STEM Competition

J0725 * Adams, Molly V How Does the Shape of Sediment Affect the Steepness of a Hill? *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J0726 * Von Meding, Judah How Does Wind Speed Affect Paper Planes? *T:* Mrs. Christine Floyd *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

Finalists and Projects

J0727 * Xu, Shuhuai The Effect of Ram on the Number of Tabs You Are Able to Open *T*: Mr. Robert Klaasen *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

J0728 * Reser, Meredith A The Effects of Temperature on the Strength of Polylactic Acid Filament *T*: Mrs. Penny Piccione *S*: Hill-Gustat Middle School *C*: Sebring *R*: Heartland

J0729 * Schmalfeld, Sydney E Drone Landing Accuracy and Precision *T*: Ms. Lilia Darrow *S*: Christ the King Catholic School *C*: Jacksonville *R*: Northeast Florida

J0730 * Muldoon, Rylie A; Villas, Ania Flood Prevention: Sandbags vs Polyvinyl Chloride *T*: Dr. Archie Yumul *S*: Sacred Heart Catholic School *C*: Jacksonville *R*: Northeast Florida

J0731 * Bhensdadadi, Aadi N Have a Safe Journey! *T*: Ms. Hali Flahavan *S*: Pine View School for the Gifted *C*: Osprey *R*: Sarasota



Senior: Environmental Engineering

S0801 * Forgas, Rachel A The Utilization of *Bambusa vulgaris* Biochar to Address Runoff Contamination in Ecosystems Damaged by Intense Forest Fires *T*: Mr. Branden L. Anglin *S*: Wiregrass Ranch High School *C*: Wesley Chapel *R*: Pasco

S0802 * Johnston, Mark H Effect of Placing Root-like Structures at Varying Distances and Densities in the Nearshore Region of Coastlines to Mitigate Shoreline Erosion *T*: Mr. Ryan Cilsick *S*: Edgewood Jr/Sr High School *C*: Merritt Island *R*: Brevard: Intracoastal

S0803 * Han, Claire J Using a Positive Charged Media to Remove Different Heavy Metal Ions from Contaminated Water Samples *T*: Mrs. Cheri Stephens *S*: Pensacola High School *C*: Pensacola *R*: West Panhandle

S0804 * Williams, Olivia L Can Palm Tree Fibers Be Used as a Filter Media? *T*: Ms. Monica Vinas *S*: The Villages Charter High School *C*: The Villages *R*: Big Springs

S0805 * Fini, Emma J Effects of Moringa Oleifera Seed Filter and Maize Filter on the Filtration of Water *T*: Dr. Kerryane Monahan *S*: Saint Edwards School *C*: Vero Beach *R*: Indian River

S0806 * Walker, Jonathan C Development and Implementation of a Bio-based Filter to Mitigate the Effusion of Harmful Pollutants from Internal Combustion Engines and Combustion Processes *T*: Dr. Steven Neely *S*: Rutherford High School *C*: Panama City *R*: East Panhandle

S0807 * Amatya, Ashesh Artificial Neural Network Modeling of Harmful Algal Blooms in Lake Okeechobee *T*: Mr. Stephen Anand *S*: Alexander W. Dreyfoos School of the Arts *C*: West Palm Beach *R*: Palm Beach

S0808 * Habona, Sarah A Using Sargassum and Flaxseed to Create a Mucilaginous Microplastic Filter *T*: Mrs. Robin Barks *S*: Florida Atlantic University High School *C*: Boca Raton *R*: Palm Beach

S0809 * Sapir, Dana Fibonacci Hydropower Efficiency *T*: Ms. Mary Fish *S*: Spanish River Community High School *C*: Boca Raton *R*: Palm Beach

S0810 * Diederich, Zoe F An Efficient and Cost-Effective Cooling System for Nuclear Power Plants *T*: Ms. Claudia Torres *S*: Maritime and Science Technology Academy *C*: Miami *R*: South Florida

S0811 * Weiner, Sophia M Construction Utilization of Indian River Muck - Year 3 *T*: Mrs. Terrie Segal *S*: Holy Trinity Episcopal Academy *C*: Melbourne *R*: Brevard: Mainland

S0812 * Natarajan, Lavanya S Landfill SCADA System: A Nex Gen IoT Solution Engineered to Mitigate Fugitive Methane Emissions in Landfills via a Remote Supervisory Control and Sata Acquisition System *T*: Ms. Elizabeth Youngs *S*: Viera High School *C*: Viera *R*: Brevard: Mainland

S0813 * Vanga, Sarayu Desalination of Water Using Solar Energy *T*: Dr. Paula Hall *S*: James S. Rickards High School *C*: Tallahassee *R*: Capital

S0814 * Nag, Ishika Development of a Combinatory Filtration System for Pollution and Virus Abatement *T*: Mr. William James Furiosi *S*: Oviedo High School *C*: Oviedo *R*: Seminole

S0815 * Mortimer, Lene J Precycline-Novel Strategies for Dealing with Plastic Household Waste Year 2 *T*: Dr. Elmarie Mortimer *S*: Trinity Preparatory School *C*: Winter Park *R*: Dr. Nelson Ying Expo - Orange

S0816 * Pinto, Megan M How do Different Coverings Around a House Affect the Temperature... *T*: Ms. Deborah Lookabill *S*: Lincoln Park Academy *C*: Ft. Pierce *R*: St. Lucie

S0817 * Gao, Angela Life Cycle Analysis of the Environmental Impact of Disposable Drinking Straws: A National Scale Gabi Application *T*: Mr. Marc Moody *S*: F. W. Buchholz High School *C*: Gainesville *R*: Alachua

Finalists and Projects

J0818 * Habboub, Sammy M Harvesting Piezoelectric Energy Using Grown Zinc Oxide Nanowires Upon A Nanoporous Polycarbonate Template *T:* Mr. Greg Stauffer *S:* Melbourne High School *C:* Melbourne *R:* Brevard: South

J0819 * Norwine, Nicole H The Optimization of Forward Osmosis Desalination (Year 3) *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota

J0821 * Kinsey, Heidi E A Comparison of Domestic Dryer Contributions to Previous Domestic Washer Data of Microplastic Fiber Emissions in Waste Water Generated from Synthetic Textiles *T:* Ms. Cathy Tucker *S:* Fort Myers High School *C:* Fort Myers *R:* Thomas Alva Edison



Junior: Environmental Engineering

J0801 * Grunden, Alysa D The Roof Over Our Heads *T:* Ms. Hope Greenier *S:* Dayspring Academy Middle School *C:* Port Richey *R:* Pasco

J0802 * Rooker, Eli A Recyclable Building Materials *T:* Ms. Hope Greenier *S:* Dayspring Academy Middle School *C:* Port Richey *R:* Pasco

J0803 * Lawhorne, Luke T Sharks of Steel *T:* Sr. Offurum *S:* Bishop Larkin Catholic School *C:* Port Richey *R:* Pasco

J0804 * Natarajan, Sharanya Suppress that Algae: Mitigating the Effects of Harmful Algal Blooms through Preemptive Detection and Suppression *T:* Ms. Katie Reninger *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

J0805 * Van Antwerpen, Heidi R Solar Disco Fan *T:* Mrs. Jodi Russell *S:* Holley Navarre Middle School *C:* Navarre *R:* West Panhandle

J0806 * Strickland, Emma A Can Orange Peels Take Textile Dyes out of Water? *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

J0807 * Rogers, Kathryn Saving with Solar *T:* Mrs. Shannon Parks *S:* Dr. David L. Anderson Middle School *C:* Stuart *R:* Martin

J0808 * Stevens, Colt Building the Most Effective Sea Wall for Mitigating Tsunami Damage *T:* Mr. Brian Alldredge *S:* Rocky Bayou Christian School *C:* Niceville *R:* East Panhandle

J0809 * Wentworth, Cade A Rust Prevention *T:* Ms. Kristen Brooks *S:* Crystal River Middle School *C:* Crystal River *R:* Citrus

J0810 * Bernhard, Bianca Comparing the Efficiencies of Different Methods of Biological and Technological Carbon Sequestration *T:* Kevin Simmons *S:* The Weiss School *C:* Palm Beach Gardens *R:* Palm Beach

J0811 * Schnur, Liam Evaluating Hydrocarbon Absorption of Various Textiles for Use in Oil Spill Mitigation. *T:* Kevin Simmons *S:* The Weiss School *C:* Palm Beach Gardens *R:* Palm Beach

J0812 * Rai, Pranav Ferrofluids to the Rescue! *T:* Ms. Cassandra Winkle *S:* Archimedean Middle Conservatory *C:* Miami *R:* South Florida

J0813 * Gozalo, Frank ; Gozalo, Virginia Energy Sources: Biofuels vs Nonrenewable Fuels *T:* Mr. Eugenio Machado *S:* Ponce De Leon Middle School *C:* Coral Gables *R:* South Florida

J0814 * Weiner, Gabriella Removing Microplastics from The Ocean *T:* Mrs. Dianne Alexis *S:* Saint Mary Catholic School *C:* Rockledge *R:* Brevard: Mainland

J0815 * Santra, Moitri Innovative Engineering Tools for Controlling Harmful Algal Bloom (HAB): Year 2 *T:* Mrs. Melanie Francher *S:* Jackson Heights Middle School *C:* Oviedo *R:* Seminole

J0816 * Mills, Justin P Anaerobic Biogas Production *T:* Mr. Jeffrey Wandel *S:* Westpine Middle School *C:* Sunrise *R:* Broward

J0817 * Larrazabal, Santiago O Wind Turbine vs Solar Panel *T:* Ms. Gabriela Rivera *S:* Apple Tree Montessori *C:* Southwest Ranches *R:* Broward

J0818 * Wadhwa, Aarush Wind Turbine Blade Design *T:* Ms. LaChanda Mitchell *S:* Pines Charter School - Central Campus *C:* Pembroke Pines *R:* Broward

J0819 * Mendez, Jasmine M Solar-Powered Water Desalination *T:* Mrs. Yulanda Ellis *S:* James S. Rickards Middle School *C:* Oakland Park *R:* Broward

J0820 * Swain, Aditi Eco-friendly Water Purifier *T:* Ms. Kelsey Beeghly *S:* Orlando Science Middle School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0821 * Singh, Mehak What Makes a Stronger and Flexible Bioplastic? *T:* Mr. Mathew Swatzell *S:* Orlando Science Middle School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0822 * McNeill, Kathryn A How Temperature Affects Solar Cells *T:* Mr. Christopher Nooney *S:* Green Cove Springs Junior High School *C:* Green Cove Springs *R:* Clay Rotary

Finalists and Projects

J0823 * Diaz, Janessa Wind Turbine *T*: Mr. Jon Breedlove
S: Samuel S. Gaines Academy *C*: Fort Pierce *R*: St. Lucie

J0824 * Pothu, Saharsh How Well Do Different Materials Purify Water? *T*: Ms. Rachel Brown *S*: Abraham Lincoln Middle School *C*: Gainesville *R*: Alachua

J0825 * Nowicki, Elizabeth Oil Spills: Hair Today Gone Tomorrow *T*: Barbara Brock *S*: Oak View Middle School *C*: Newberry *R*: Alachua

J0826 * Konicki, Elena N *Tenebrio molitor*: Expendable or Exceptional? *T*: Mr. Robert Klaasen *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

J0827 * Nguyen, Kevin ; Cabrera, Nathaniel J Sound Barriers! *T*: Dr. William Siminovsky *S*: Sigsbee Charter School *C*: Key West *R*: Monroe

J0828 * Engel, Sarah A Oil and Water Don't Mix *T*: Mr. James Less *S*: Saint Andrew Catholic School *C*: Cape Coral *R*: Thomas Alva Edison

J0829 * Salim-Uesi, Makana O Designing a Sustainable Water Collection and Filtration System for Water-Stressed Communities *T*: Dalton Holcomb *S*: Turner/ Bartels K-8 School *C*: Tampa *R*: Hillsborough

Senior: Intelligent Machines, Robotics, & Systems Software

S0901 * Baer, Jacob E Internet of Things (IoT) Device Anomaly Detection through Network Traffic and Detainment *T*: Ms. Laura Panek *S*: Community School of Naples *C*: Naples *R*: Collier

S0902 * Briggs, Colin Parameterizing Weak Query Statements to Protect Against the Popular Hacking Method of Structured Query Language Injection. *T*: Mrs. Elizabeth Mongiello *S*: Gulf Coast High School *C*: Naples *R*: Collier

S0903 * Iyer, Nikhil H Novel Architectures for the Artificial Neural Network *T*: Mr. Ryan Cilsick *S*: Edgewood Jr/Sr High School *C*: Merritt Island *R*: Brevard: Intracoastal

S0904 * Ribay, Gabriel D MENACE, the Mastermind: Comparing the Effects of Positive Versus Negative Reinforcement on Machine Learning Systems *T*: Mrs. Christina Davis *S*: Vanguard High School *C*: Ocala *R*: Big Springs

S0905 * Singh, Viraj See with NFC - A Novel Solution to Assist the Blind and Visually Impaired - A Continuation *T*: Mrs. Shannon Parks *S*: South Fork High School *C*: Stuart *R*: Martin

S0906 * Singh, Yash Using Image Processing to Evaluate the Health of Teeth *T*: Mrs. Marsha Sanford *S*: Allen D. Nease High School *C*: Ponte Vedra *R*: St. Johns

S0907 * Bhandari, Aanya Bio-Bin *T*: Ms. Pamela Himmel *S*: Palm Harbor University High School *C*: Palm Harbor *R*: Pinellas

S0908 * Kumar, Aditya Creating a Prototype Device to Monitor Preliminary Symptoms of Sepsis *T*: Ms. Mary Fish *S*: Spanish River Community High School *C*: Boca Raton *R*: Palm Beach

S0909 * Parthasarathy, Ashwin G Classification and Prediction of Head and Neck Squamous Cell Carcinomas Using Generative Adversarial Network Models *T*: Mrs. Iris Thompson *S*: American Heritage School of Boca/Delray *C*: Delray Beach *R*: Palm Beach

S0910 * Schwartz, Isaiah T Simulated Ecosystems vs Environmental Alterations *T*: Ms. Chelsea George *S*: Eau Gallie High School *C*: Melbourne *R*: Brevard: Mainland

S0911 * Andrews, Rylan S A Novel Approach to Calculating Orbital Mechanics with Machine Learning *T*: Mrs. Magdalena Molledo *S*: Satellite High School *C*: Satellite Beach *R*: Brevard: Intracoastal

S0912 * Sentil, Sruthi A Machine Learning Tool for the Smartphone Based Rapid Detection of *Salanum lycopersium* (Tomato) Diseases Caused by Destructive Pathogenic Bacteria, Fungi, and Viruses *T*: Dr. Paula Hall *S*: James S. Rickards High School *C*: Tallahassee *R*: Capital

S0913 * Kini, Siddharth A Using Machine Learning to Identify Metastatic Tissue in Histopathic Scans of Lymph Node Sections *T*: Dr. Josue Urbina *S*: Crooms Academy of InformationTechnology *C*: Sanford *R*: Seminole

S0914 * Neeranjun, Maya The Effectiveness of Deep Learning Models on the Detection of Pneumonia *T*: Mrs. Leya Mathew Joykutty *S*: American Heritage School *C*: Plantation *R*: Broward

S0915 * Yang, Megan D Utilizing Reinforcement Learning and Deep Neural Networks to Optimize Non-pharmaceutical COVID-19 Interventions in Florida *T*: Mrs. Leya Mathew Joykutty *S*: American Heritage School *C*: Plantation *R*: Broward

S0916 * del Rio, Carla The Simulation and Analysis of Random Bipartite Graphs Synthesized to Model Statistical Properties of Datasets for Computer Diagnostics *T*: Mrs. Leya Mathew Joykutty *S*: American Heritage School *C*: Plantation *R*: Broward

Finalists and Projects

S0917 * Wang, Alexander Using a Novel Semi-supervised Machine Learning Method to Improve Image Based Lung Cancer Diagnostic Algorithms *T:* Dr. Elmarie Mortimer *S:* Trinity Preparatory School *C:* Winter Park *R:* Dr. Nelson Ying Expo - Orange

S0918 * Delarosa, Angelo The Effect of Operating Systems on Resource Usage of Computational Hardware *T:* Mrs. Bethany Derousie *S:* Ridgeview High School *C:* Orange Park *R:* Clay Rotary

S0919 * Subbiah, Madhumita Wireless Speech Assistance *T:* Ms. Paula Ladd *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S0920 * Delong, George D Engineering a Robot Arm with Computer Vision and Simulated Grabbing for Manipulation of Objects *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S0921 * Ghosh, Arko A Novel Approach to Citrus Disease Management: Leveraging Computer Vision, Machine Learning and Convolutional Neural Networks *T:* Mr. Daniel McFarland *S:* C. Leon King High School *C:* Tampa *R:* Hillsborough

Junior: Intelligent Machines, Robotics, & Systems Software

J0901 * Muller, Ethan H Distance Learning Dilemma: How Do Various Wi-Fi Boosters Affect Internet Speed? *T:* Mr. Martin Ingoldsby *S:* Creekside Middle School *C:* Port Orange *R:* Tomoka

J0902 * Montayre, Morgan T A Timed Test *T:* Sr. Offurum *S:* Bishop Larkin Catholic School *C:* Port Richey *R:* Pasco

J0903 * Smith, Keaton D Autonomous Device to Locate and Eradicate Cyanobacteria (Year 2) *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indianalantic *R:* Brevard: Intracoastal

J0904 * Singh, Varun Busted! Monitoring Hand Hygiene with Smart RFID Technology: Part 2 *T:* Mrs. Shannon Parks *S:* Dr. David L. Anderson Middle School *C:* Stuart *R:* Martin

J0905 * Barker, Hunter A Does the File Size of a PS4 Game Affect the System Fan? *T:* Mrs. Aimee Owens *S:* Crystal River Middle School *C:* Crystal River *R:* Citrus

J0906 * Miller, Nicolas Drones are the Hottest Thing! *T:* Mrs. Therese Gibson *S:* Lawton Chiles Middle Academy *C:* Lakeland *R:* Polk

J0907 * Bhandari, Vyom Phishing Blocker *T:* Ms. Pamela Himmel *S:* Joseph L. Carwise Middle School *C:* Palm Harbor *R:* Pinellas

J0908 * Kessler, Benjamin Comparison of Programming Methods for Computer Solutions to Sudoku Puzzles *T:* Kevin Simmons *S:* The Weiss School *C:* Palm Beach Gardens *R:* Palm Beach

J0909 * O'Leary, Patrick Can an Underwater Camera be Attached to a Buoy to Identify Sharks Using a Monorail System that Can Alert People at Local Beaches When a Shark Is Approaching? *T:* Ms. Suzette Milu *S:* A.D. Henderson University School *C:* Boca Raton *R:* Palm Beach

J0910 * Arrubla, Daniel ; Bovenkerk, Colin J; Rubio, Santiago A Time is Everything *T:* Mrs. Jesse Leon *S:* Ascension Catholic School *C:* Melbourne *R:* Brevard: Mainland

J0911 * Guna, Aneesa Empeers (Empower Peers) *T:* Ms. Katie Reninger *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

J0912 * Martinez, Paxton B My Prosthetic Hand *T:* Ms. Monique Rickman *S:* Carver Middle School *C:* Leesburg *R:* Lake

J0913 * Vikram, Meghna Identical Identity? *T:* Mr. Brandon VanNuys *S:* Sanford Middle School *C:* Sanford *R:* Seminole

J0914 * Leinenbach, Sierra R Building Structures Using Genetic Algorithms (Year 2) *T:* Mrs. Amanda Holden *S:* Sanford Middle School *C:* Sanford *R:* Seminole

J0915 * Serrano-Diaz, Zara I Which Brand of Battery Makes the Robot Last Longer? *T:* Mr. Mathew Swatzell *S:* Orlando Science Middle School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

J0916 * Mendoza, Anthony Quick Charge *T:* Mrs. Sabrina Silver *S:* Northport K-8 *C:* Port St. Lucie *R:* St. Lucie

J0917 * Stewart, Sean Hacking the Air Gap: Stealing Data from a Computer *T:* Mrs. Sharon Gearhart *S:* Lincoln Park Academy *C:* Ft. Pierce *R:* St. Lucie

J0918 * Sarabjit, Lucas Designing, Building, and Coding a Human Recognition Robot for Area Management *T:* Mrs. Julie Schmidt *S:* Stone Magnet Middle School *C:* Melbourne *R:* Brevard: South

Finalists and Projects

J0919 * De Llieguas-Pagan, Neyshlian ; Naranjo, Fabian ; Ortiz, Jacob E Project Zero *T*: Mr. Donald Perry *S*: Neptune Middle School *C*: Kissimmee *R*: Osceola

J0920 * Weldon, Juliana J Typing Made Easy: A Coding Project *T*: Ms. Lilia Darrow *S*: Christ the King Catholic School *C*: Jacksonville *R*: Northeast Florida

Senior: Mathematics & Computational Sciences

S1001 * Kayisli, Cemre S Analysis of the Regulatory Role of Small Nucleolar RNA and Small Nuclear Expression Pathways on the Pathogenesis of Preeclampsia *T*: Mr. Branden L. Anglin *S*: Wiregrass Ranch High School *C*: Wesley Chapel *R*: Pasco

S1002 * Karcher, Evan L A Spatial Analysis of Photovoltaic Conversions to Obtain Carbon Neutrality *T*: Mrs. Magdalena Molledo *S*: Satellite High School *C*: Satellite Beach *R*: Brevard: Intracoastal

S1003 * Williams, Grace C Using Mathematics to Research the West Nile Virus and Neuroinvasive Disease *T*: Ms. Karen Bruening *S*: Pensacola High School *C*: Pensacola *R*: West Panhandle

S1004 * Alsheikh, Ramsey Natural Computational Entropy and Random Number Generations *T*: Mrs. Iris Thompson *S*: American Heritage School of Boca/Delray *C*: Delray Beach *R*: Palm Beach

S1005 * Kumaresh, Deeksha Using Different Machine Learning Classifiers to Examine the Relationship Between Prodrimal Huntington's Disease and miRNAs *T*: Mrs. Iris Thompson *S*: American Heritage School of Boca/Delray *C*: Delray Beach *R*: Palm Beach

S1006 * Whitson, Jason R Future Celestial Bodies Colonization (Year 2) *T*: Mr. Jason Rowe *S*: Titusville High School *C*: Titusville *R*: Brevard: Mainland

S1007 * Ghosh, Shaurnav Determining the Optimal MRI Sequence for the Automatic Segmentation of Multiple Sclerosis Using Convolutional Encoder Networks *T*: Mrs. Katherine Ganden *S*: Pine Crest School *C*: Ft. Lauderdale *R*: Broward

S1008 * Reddy, Asha M Implementation of Time Frequency Analysis for Seizure Localization: Phase II *T*: Mrs. Zasha A. Mickey *S*: Lake Highland Preparatory School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

S1009 * Xue, Jeffrey J College Football Playoff Expansion: A Statistical Analysis via Monte Carlo Simulation *T*: Mr. Marc Moody *S*: F. W. Buchholz High School *C*: Gainesville *R*: Alachua

S1010 * Shah, Rushil S Developing a Model on the Effects of Government Spending on the Long Term Impact of Economic Factors Such As Interest Rates, Taxes, Unemployment Rates, Stock Market Levels, and National Debt *T*: Ms. Paula Ladd *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

S1011 * Cohen, Joshua R Simulating Traffic Volume Change in Global Central Business Districts from 2020 to 2050 *T*: Mrs. Valerie Ledford *S*: Columbia High School *C*: Lake City *R*: Suwannee Valley

S1012 * Jenkins, Noah B Developing Heteroscedastic Estimations of Volatility for the Valuation of Options Using the Black-Scholes Options Pricing Model *T*: Mr. Anthony DeLuca *S*: St. Cloud High School *C*: St. Cloud *R*: Osceola

S1013 * Chandar, Maya S Development of a Novel Machine Learning Algorithm to Aid in Detection of Structural Characteristics of Alzheimer's Disease in MCI Patients *T*: Ms. Kelly Percivall *S*: Canterbury School of Fort Myers *C*: Fort Myers *R*: Thomas Alva Edison

S1014 * Gona, Tushar S Determining the Stick Index of Unexplored Families of (p, q) Torus Knots in the Cubic Lattice *T*: Mr. Daniel McFarland *S*: C. Leon King High School *C*: Tampa *R*: Hillsborough

Junior: Mathematics & Computational Sciences

J1001 * Leptich, Benjamin Execution Speed of Interpreted vs Compiled Computer Programs *T*: Ms. Kelly Smith *S*: DeLaura Middle School *C*: Satellite Beach *R*: Brevard: Intracoastal

J1002 * Secillano, Miguel A Throwing Darts to Derive the Value of Pi *T*: Mr. William Bondank *S*: Howard Middle School *C*: Ocala *R*: Big Springs

J1003 * Cook, Hunter G Masks, Masks, and More Masks *T*: Ms. Jennifer Serino *S*: Sebastian Charter Junior High School *C*: Sebastian *R*: Indian River

J1004 * St. Petery, Louis B The Speedy Solution *T*: Mrs. Tricia Perakes *S*: Sebastian River Middle School *C*: Sebastian *R*: Indian River

Finalists and Projects

J1005 * Mcivor, Eoghan Comparing Programming Languages *T*: Mr. Shaun Stabler *S*: Polo Park Middle School *C*: Wellington *R*: Palm Beach

J1006 * Jaramillo, Martina Impact of Current Events on S&P500 Prices *T*: Mrs. Bertha Vazquez *S*: George Washington Carver Middle School *C*: Miami *R*: South Florida

J1007 * Stein, Ace j The Unification of the 4 Quantum Numbers: Exponential Smoothing for a Fifth Quantum Number *T*: Dr. David Buncher *S*: iPrep Academy North *C*: North Miami *R*: South Florida

J1008 * Wang, Alex S Estimating the Value of Pi by the Monte Carlo Method *T*: Mrs. Marla Blair *S*: Deerlake Middle School *C*: Tallahassee *R*: Capital

J1009 * Chung, Simon T Who Will Be the Next President? A Linear Regression Model Predicting the US Presidential Result *T*: Mrs. Jane Clemens *S*: Sanford Middle School *C*: Sanford *R*: Seminole

J1010 * Trivedi, Shrey The Secret to Making Free Throws in Basketball *T*: Mr. Mathew Swatzell *S*: Orlando Science Middle School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

J1011 * Abdulla, Teymur Utilizing Eulerian Path for DNA Sequencing: Year 2 *T*: Ms. Paula Ladd *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

J1012 * Pringle, Daniel L Math Magic: What's the Chances *T*: Mrs. Heather Frost *S*: Stewart Middle Magnet School *C*: Tampa *R*: Hillsborough

Senior: Microbiology

S1101 * Klukosky, Rowan B Gene Expression and Cancer Progression *T*: Mrs. Magdalena Molledo *S*: Satellite High School *C*: Satellite Beach *R*: Brevard: Intracoastal

S1102 * Mariano, Kadie Sugar and Spice, Aren't They Nice? Is Garlic, Ginger, Cinnamon, or Honey More effective than Antibiotics Against Bacteria? *T*: Ms. Emily Keeler *S*: Wildwood Middle High School *C*: Wildwood *R*: Big Springs

S1103 * Bailey, Lorelei E The Effect of Electromagnetic Fields on Ermosphaera Algae Cells *T*: Mr. Jayson Houp *S*: South Walton High School *C*: Santa Rosa Beach *R*: East Panhandle

S1104 * Deven, Anjli S Inhibition Effect of Mangosteen Extract on *Streptococcus salivarius* *T*: Mr. Ryan Campbell *S*: Lecanto High School *C*: Lecanto *R*: Citrus

S1105 * Ning, Angelina Testing the Extent of Synergistic Anti-biofilm Activity of *Galla chinensis* and Potentially Adjuvant Chemicals on *Escherichia coli* Biofilm Formation and Preformed Biofilm *T*: Mrs. Iris Thompson *S*: American Heritage School of Boca/Delray *C*: Delray Beach *R*: Palm Beach

S1106 * Mayorga, Natasha Can Mycorrhizal Fungi Inhabit Mars? *T*: Mrs. Robin Barkses *S*: Florida Atlantic University High School *C*: Boca Raton *R*: Palm Beach

S1107 * Patel, Om D A Multi-Factor Study Deriving a Comprehensive Evaluation of Natural Antibiotic Hybrids Bound to Novel Nanoreactors in an Inorganic Model of an *Enterococcus faecalis* Infected Jejunum Cross-Analyzed through Static Biofilm Production and Quorum Sensing (Year 5) *T*: Ms. Chelsea George *S*: Eau Gallie High School *C*: Melbourne *R*: Brevard: Mainland

S1108 * Chauhan, Adi J; Taywade, Aryan S A Ticking Time Bomb: Bioinformatics Analysis on Environmental *Serratia* Species to Assess the Emergence of Antibiotic and Virulence Traits *T*: Dr. Paula Hall *S*: James S. Rickards High School *C*: Tallahassee *R*: Capital

S1109 * Naga, Varsha Prevention of Healthcare Associated Infections Using Antibacterial Boron Carbonitride Nanoparticle Coating on Medical Devices *T*: Mr. Christopher Adamson *S*: Winter Springs High School *C*: Winter Springs *R*: Seminole

S1110 * Kessler, Olivia R; Krishna, Dhruv R Addressing the Worldwide Threat of Diminishing Antibiotics through Discovery of Antibiotic Producing Bacteria from the Soil *T*: Mr. Wilford Miranda *S*: Nova Southern University School *C*: Ft. Lauderdale *R*: Broward

S1112 * Vyas, Bhargav Evaluating the Fundamental Conditions Necessary for Development of a Potential COVID -19 Vaccine *T*: Ms. Joann Bukovey *S*: Lake Nona High School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

S1113 * Adkins, Madison N How do Endophytic Bacteria Affect the Growth of Plant *T*: Ms. Deborah Lookabill *S*: Lincoln Park Academy *C*: Ft. Pierce *R*: St. Lucie

S1114 * Thomas, Autumn A Bacteria Busters *T*: Ms. Lisa Hevner *S*: Lincoln Park Academy *C*: Ft. Pierce *R*: St. Lucie

S1115 * Chacko, Alina A Testing the Effectiveness of Different Types of Chemicals in Inhibiting the Growth of *Lactobacillus acidophilus* *T*: Mr. Steven Craig *S*: Southeast High School *C*: Bradenton *R*: Manatee STEM Competition

Finalists and Projects

S1116 * Wong, Bailey G Assessment of Antibiotic Resistance in the Indian River Lagoon *T*: Mrs. Mary Schropp *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

S1117 * Bryan, Jasmine D Utilizing Eukaryotic *Saccharomyces cerevisiae* as an Electricigen in Both Pure and Co-Culture in the Anode of a Microbial Fuel Cell *T*: Mrs. Amanda Phillips *S*: Madison County High School *C*: Madison *R*: Suwannee Valley

S1118 * Kinley, Vanessa K Testing the Antibacterial Effectiveness of Yunnan Baiyao, Propolis, Turmeric, and Tea Tree Oil on the Growth of *Escherichia Coli* and *Bacillus subtilis* in Comparison to Antibiotics on an Agar Plate *T*: Ms. Courtney Sparrow *S*: Bonita Springs High School *C*: Bonita Springs *R*: Thomas Alva Edison

S1119 * Patel, Shloke In-vitro Evaluation of Herbal Bionematicide and its Effect on Management of Nematodes in *Solanum lycopersicum* *T*: Mrs. Mishell Thomas-King *S*: Hillsborough High School *C*: Tampa *R*: Hillsborough

Junior: Microbiology

J1101 * Abu Khaled, Fatima B Best Bacteria Blocker *T*: Mrs. Theresa Hammond *S*: Pasco Middle School *C*: Dade City *R*: Pasco

J1102 * Collins, Aubree A; Regan, Brianna L Stop the Spread *T*: Michele Fisher *S*: Cypress Creek Middle High School *C*: Wesley Chapel *R*: Pasco

J1103 * Chen, Tracey Q Seaweed Supplements for Agriculture? *T*: Mrs. Michelle Zimmerman *S*: Herbert H. Hoover Middle School *C*: Indialantic *R*: Brevard: Intracoastal

J1104 * Reddy, Karsyn R Do Hand Dryers Cause More Bacteria Growth on our Hands? *T*: Ms. Sydney Norwood *S*: The Cornerstone School *C*: Ocala *R*: Big Springs

J1105 * Lipham, Noella R Which Antibiotic Will Be More Efficient When Fighting Against *E.coli* K-12? *T*: Ms. Emily Keeler *S*: Wildwood Middle High School *C*: Wildwood *R*: Big Springs

J1106 * Plotkin, Max T UV Ray Ruination *T*: Mr. Les Rogers *S*: Saint Edwards School *C*: Vero Beach *R*: Indian River

J1107 * Marturano, Brianna Is *Pseudomonas fluorescens* the answer to Environmental Pollution? *T*: Mrs. Margarette Marturano *S*: Home School *C*: Wellington *R*: Palm Beach

J1108 * Miller, Mallori J Disinfectant Products and School Laptops *T*: Mrs. Alexandria Wicker *S*: Andrew Jackson Middle School *C*: Titusville *R*: Brevard: Mainland

J1109 * Lee, John A Novel Artificial Reflector for Effective *E.Coli* Disinfection Using UV *T*: Mrs. Melanie Francher *S*: Jackson Heights Middle School *C*: Oviedo *R*: Seminole

J1110 * Deloach, Carter B Can an Isolated T4 Living Bacteriophage Successfully Kill a Colony of K12 *E.coli* more Effectively than Common Antibiotics? *T*: Mrs. Terry Davis *S*: International Community School *C*: Winter Park *R*: Dr. Nelson Ying Expo - Orange

J1112 * Ernest-White, River How Does the Temperature Affect the Survival Rate of Tardigrades? *T*: Ms. Sara Charbonnet *S*: Westwood Middle School *C*: Gainesville *R*: Alachua

J1113 * Gharia, Shalini Testing the Antimicrobial Properties of Store Bought vs Homemade Disinfectants on Corian Infected with *Staphylococcus epidermidis* *T*: Mrs. Julie Schmidt *S*: Stone Magnet Middle School *C*: Melbourne *R*: Brevard: South

J1114 * Sharma, Dhruva R Protective Efficiency of Masks in Preventing the Spread of COVID-19 *T*: Ms. Lisa Leitten *S*: Paul Laurence Dunbar Middle School *C*: Fort Myers *R*: Thomas Alva Edison

J1115 * Patel, Swara Innovative Approach to Terraforming Mars using Cyanobacteria *T*: Mrs. Carrie Prieto *S*: Carrollwood Day School *C*: Tampa *R*: Hillsborough

Senior: Physics & Astronomy

S1201 * Panek, Nathan The Growth of Radishes in a Simulated Martian Soil *T*: Ms. Laura Panek *S*: Community School of Naples *C*: Naples *R*: Collier

S1202 * Reiter, Karl Determining The Mitigative Effect Of Indium Tin Oxide (In₂O₃:SnO₂) Raw Nanopowder on Mars Regolith Dust Electrostatic Charge, Year Two *T*: Mrs. Elizabeth Mongiello *S*: Gulf Coast High School *C*: Naples *R*: Collier

Finalists and Projects

S1203 * Toledo, Gustavo A Underwater Golf: An Evaluation of the Effects of Organized Surface Irregularities on the Hydrodynamic Efficiency of Underwater Projectiles *T:* Mr. Ryan Cilsick *S:* Edgewood Jr/Sr High School *C:* Merritt Island *R:* Brevard: Intracoastal

S1204 * Fort, Kaitlyn E Turn It Down *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

S1205 * Sandrapaty, Vivek S A Novel Computer Simulation of a Deployable Parachute System with Aerial Detachment of the Cabin for Commercial Airplane Crashes (2nd Year Continuation Project) *T:* Ms. Janice David *S:* West Port High School *C:* Ocala *R:* Big Springs

S1206 * Elhaouaji, Khalil The Size of a Container's Hole and the Flow of Water *T:* Mr. Royden Jones *S:* Haines City High School *C:* Haines City *R:* Polk

S1207 * Dooner, Caeden Mitigating Lunar Dust Accumulation on Spacecraft Surfaces via Electric and Magnetic Fields *T:* Mrs. Nanette Bradley *S:* William T. Dwyer High School *C:* Palm Beach Gardens *R:* Palm Beach

S1208 * Elhoushy, Samer The Effects of the Naturally Produced Magnetic Field of the Moon's Lunar Regolith on Material Degradation and Data Transfer *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

S1209 * Deville, Melanie Visualization of Three-Dimensional Aerospike Nozzle Flow Using Schlieren Photography *T:* Mrs. Lisa Garrido *S:* Westminster Christian School *C:* Palmetto Bay *R:* South Florida

S1210 * Egdorf, James W Newfound Electricity Source: The Epic of the Triboelectric Nanogenerators (Year 2) *T:* Ms. Elizabeth Youngs *S:* Viera High School *C:* Viera *R:* Brevard: Mainland

S1211 * Ferebee, Emma G The Affect of Tesistance in a DC Circuit. *T:* Mrs. Michele Baker *S:* Mount Dora Christian Academy *C:* Mount Dora *R:* Lake

S1212 * Atwood, Elijah P The Shape of Foam *T:* Mrs. Michele Baker *S:* Mount Dora Christian Academy *C:* Mount Dora *R:* Lake

S1213 * Scalf, Brian Impacts of Mass Distribution of Maple Samara in Flight *T:* Mr. William Furiosi *S:* Oviedo High School *C:* Oviedo *R:* Seminole

S1214 * Vaidyanathan, Annika M Dynamic Contact Angle Measurements of Superhydrophobicity in Dip-Coated Face Masks to Minimize Exposure to COVID-19 Sized Nanoparticles *T:* Mr. Christopher Adamson *S:* Winter Springs High School *C:* Winter Springs *R:* Seminole

S1215 * Corbett, Matthew R Creating an Efficient Electromagnetic Model to Replace Current Inadequate Magnetic Rail Designs *T:* Mrs. Diane Enten *S:* Saint Thomas Aquinas High School *C:* Fort Lauderdale *R:* Broward

S1216 * Hasan, Aliza The Impact of Basaltic and Pyroclastic Lunar Volcano Flows *T:* Mrs. Zasha A. Mickey *S:* Lake Highland Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

S1217 * Graham, Haley M Which Cheerleading Surface Presents the Lowest Risk of Concussion? *T:* Mrs. Tammy Jeffrey *S:* Oakleaf High School *C:* Orange Park *R:* Clay Rotary

S1218 * Balachandar, Anjana Pushing the Boundaries of 3D Printing of Soft Matter *T:* Mr. Marc Moody *S:* Buchholz High School *C:* Gainesville *R:* Alachua

S1219 * Feldbush, Sydney E Printing a Dye-Sensitized Solar Cell *T:* Ms. Paula Ladd *S:* West Shore Junior/Senior High School *C:* Melbourne *R:* Brevard: South

S1220 * Beattie, Drew E Does the Angle of Incidence of Sunlight throughout the Day Affect the Efficiency of Solar Cells? *T:* Mr. Robert Beatty *S:* Hardee Senior High School *C:* Wauchula *R:* Heartland

S1221 * Bankston, Jace D Effects of Shark Skin Denticles on Drag *T:* Mrs. Marion Zeiner *S:* Episcopal High School of Jacksonville *C:* Jacksonville *R:* Northeast Florida

S1222 * Lee, Eric W Analyzing the Implementation of Optical Wireless Communication in Aerospace Science *T:* Mr. Ye Lee *S:* Stanton College Preparatory School *C:* Jacksonville *R:* Northeast Florida

S1223 * Young, Izabelle J Developing a Novel System to Combat Space Radiation and Neurodegeneration Using Electromagnetism *T:* Mr. Scott Thomas *S:* Bishop Kenny High School *C:* Jacksonville *R:* Northeast Florida

S1224 * Belli, Sarah R Optimizing the Photodegradation of High-Density Polyethylene Films Using Mechanically Engineered Strain-Enhancing Techniques *T:* Mr. Andy Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota



Finalists and Projects

Junior: Physics & Astronomy

J1201 * Lankford, Isabella S When Searching for Exoplanets, Which Kepler Mission Data Set Is Easier to Access for Analysis? *T:* Mr. Martin Ingoldsby *S:* Creekside Middle School *C:* Port Orange *R:* Tomoka

J1202 * Gulati, Kush Astrophotography : How Air Quality Affects Detail in Telescopic Images of Space Objects *T:* Mrs. Casey Mathis *S:* North Naples Middle School *C:* Naples *R:* Collier

J1203 * Curtis, Palmer D Need More Power! *T:* Ms. Hope Greenier *S:* Dayspring Academy Middle School *C:* Port Richey *R:* Pasco

J1204 * Carter, Enzo B The Effectiveness of BBO Crystals in Quantum Ghost Imaging *T:* Mrs. Michelle Zimmerman *S:* Herbert H. Hoover Middle School *C:* Indialantic *R:* Brevard: Intracoastal

J1205 * Novotny, Story L; Vuong, Lilo A Break It! How Much Force Is Required to Break Taekwondo Boards? *T:* Mr. Richard Stuart Hunter *S:* Brown Barge Middle School *C:* Pensacola *R:* West Panhandle

J1206 * Carvajal-Beltran, Jose M Let's ENLIGHTen on Night Insects! *T:* Ms. Emily Keeler *S:* Wildwood Middle High School *C:* Wildwood *R:* Big Springs

J1207 * Blackwell, Elijah W Mars Needs Windmills *T:* Mrs. Joan Martinelli *S:* Storm Grove Middle School *C:* Vero Beach *R:* Indian River

J1208 * Clayton, Skye A How Does the Temperature of a Magnet Affect Its Strength? *T:* Mr. Roberto Crespo *S:* Sebastian River Middle School *C:* Sebastian *R:* Indian River

J1209 * Hernandez, Noah F The Effect of Current and Voltage on the Strength of an Electromagnet *T:* Mr. Les Rogers *S:* Saint Edwards School *C:* Vero Beach *R:* Indian River

J1210 * Mallon, Sienna L How Voltage of Battery Affects Heat Energy Absorbed *T:* Mr. Les Rogers *S:* Saint Edwards School *C:* Vero Beach *R:* Indian River

J1211 * Powell, Conor S Stop. Drop. Rebound. A Study Into the Relationship Between the Drop and Rebound Height of a Ball. *T:* Mr. Les Rogers *S:* Saint Edwards School *C:* Vero Beach *R:* Indian River

J1212 * Chouinard, Caiden R To Stretch or Not to Stretch? *T:* Mrs. Deanna Hadley *S:* Citrus Springs Middle School *C:* Dunnellon *R:* Citrus

J1213 * Robbins, Daelyn J The Heat Is On! *T:* Mrs. Deanna Hadley *S:* Citrus Springs Middle School *C:* Dunnellon *R:* Citrus

J1214 * Sevilla, Joshua M Power Gels *T:* Mrs. Jennifer Ellerbee *S:* Citrus Springs Middle School *C:* Dunnellon *R:* Citrus

J1215 * Klaber, Amber Transfer the Pressure *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J1216 * Overbough, Bella Does it Ink? *T:* Ms. Teresa Ell *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

J1217 * O'Brien, Su Water Power *T:* Ms. Mary Judith *S:* IDEAL School of Advanced Learning *C:* Royal Palm Beach *R:* Palm Beach

J1218 * Tsiros, Emily Flames in Microgravity *T:* Ms. Cassandra Winkle *S:* Archimedean Middle Conservatory *C:* Miami *R:* South Florida

J1219 * LaFrance, Nadia Does the Cost of Golf Balls Affect How Far They Go? *T:* Mr. Marino Nardelli *S:* Lyndon B. Johnson Middle School *C:* Melbourne *R:* Brevard: Mainland

J1220 * Simmons, Daron Adventures in Reducing Friction *T:* Mrs. Ramona Lataille *S:* Seminole Science Charter School *C:* Lake Mary *R:* Seminole

J1221 * Vaidyanathan, Arvid C Photometer Measurements of the Rayleigh Light Scattered Intensity of Different Concentrations of Covid-19 Sized Nanoparticles *T:* Mrs. Amanda Holden *S:* Sanford Middle School *C:* Sanford *R:* Seminole

J1222 * Samuels, Zachary R Electromagnetic Radiation and Smartphones *T:* Mr. Fermin Vasquez *S:* Pembroke Pines Charter Middle School *C:* Pembroke Pines *R:* Broward

J1223 * Teifeld, Sofia E I Guess That's Why They Call it the Blues *T:* Mrs. Jessica Lanzetta *S:* Nova Southern University School *C:* Ft. Lauderdale *R:* Broward

J1224 * Mortimer, Cara Investigating Fluid Dynamics: The Mystery of a Ball in Water *T:* Dr. Elmarie Mortimer *S:* Trinity Preparatory School *C:* Winter Park *R:* Dr. Nelson Ying Expo - Orange

J1225 * Dos Santos, Lina How Does the Type of Material Affect How Much Water it Soaks Up? *T:* Mr. Curtis Ericson *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

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J1226 * Knowles, Harlow How Do Different Aerodynamic Clay Shapes Affect a Smoke Pattern in a Wind Tunnel *T*: Ms. Sara Charbonnet *S*: Westwood Middle School *C*: Gainesville *R*: Alachua

J1227 * Liberto, Sophia A Friction Can Be a Drag *T*: Mr. Robert Klaasen *S*: West Shore Junior/Senior High School *C*: Melbourne *R*: Brevard: South

J1228 * Roberts, Ava Does the Time of Year Affect the Amount of Solar Irradiance Absorbed by a Solar Cell? Year 3 *T*: Mrs. Kim R McGuckin *S*: Hardee Junior High School *C*: Wauchula *R*: Heartland

J1229 * Thomas, Gracyn Does the Angle of a Camera with Flash Affect the Quality of a Shoe Print Photograph? *T*: Mrs. Kim R McGuckin *S*: Hardee Junior High School *C*: Wauchula *R*: Heartland

J1230 * Walker, Austin R Does the Flowrate of Stargon Affect the Quality of a MIG Weld? *T*: Mrs. Kim R McGuckin *S*: Hardee Junior High School *C*: Wauchula *R*: Heartland

J1231 * Whittington, Jackson Does Adding Salt to Water Affect its Boiling Point? *T*: Mrs. Marcia Nelson *S*: Neptune Middle School *C*: Kissimmee *R*: Osceola

J1232 * Sonthi, Mihir Using Artificial Gravity to Simulate Gravitational Force on Earth *T*: Mrs. Bhavani Sonthi *S*: Julia Landon College Preparatory Middle School *C*: Jacksonville *R*: Northeast Florida

J1233 * Wold, Davis R Up, Up, and Away! *T*: Mrs. Kathryn Hendee *S*: Trafalgar Middle School *C*: Cape Coral *R*: Thomas Alva Edison

J1234 * Mustafa, Hakeem H Potato Power *T*: Ms. Joanna Pearl *S*: Oak Hammock K-8 School *C*: Port St Lucie *R*: St. Lucie

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S1301 * Fortuna, Daniil A Effects of Curcumin and Silibinin as Telomerase Inhibitors on the Size of Agrobacteria Tumefaciens-Induced Crown Galls in *Solanum lycopersicum* *T*: Mr. Branden L. Anglin *S*: Wiregrass Ranch High School *C*: Wesley Chapel *R*: Pasco

S1302 * Gaydar, Erin K Phosphate Binders are the Solution for Elimination of Chlorophytes in the Indian River Lagoon through Chemical Absorption (Year II) *T*: Mr. Ryan Cilsick *S*: Edgewood Jr/Sr High School *C*: Merritt Island *R*: Brevard: Intracoastal

S1303 * Kesler, Ava R Effect of Combined Fertilizers on an Agricultural Crop *T*: Mrs. Cheri Stephens *S*: Pensacola High School *C*: Pensacola *R*: West Panhandle

S1304 * Wolff, Mia E At Risk Agriculture: Effects of Salinity on Land Fertility in Coastal Areas of Florida *T*: Mrs. Judith Dominguez *S*: West Port High School *C*: Ocala *R*: Big Springs

S1305 * Grace, Amberly E Ready or Not, It's Going to Get Hot! *T*: Mr. Ryan Campbell *S*: Lecanto High School *C*: Lecanto *R*: Citrus

S1306 * Yuan, Kelly Y Comparing Plant Growth in Hydroponics vs Soil *T*: Mrs. Marsha Sanford *S*: Allen D. Nease High School *C*: Ponte Vedra *R*: St. Johns

S1308 * McLoughlin, Connor Cuscuta Cross-cutting: Observing the Morphological Changes in Haustorial Structure of Cuscuta Gronovii Between Hosts *T*: Mr. Matthew Croxton *S*: Lakeland Christian School *C*: Lakeland *R*: Polk

S1309 * Peracciny, Noah Image Analysis of Herbivory and Leaf Area of Infected and Uninfected Invasive Air Potato Leaves *T*: Mr. Matthew Croxton *S*: Lakeland Christian School *C*: Lakeland *R*: Polk

S1310 * Shah, Etasha The Effect of Ultraviolet Radiation on the Amount of Lipids Extracted from *Chlorella vulgaris* *T*: Mr. William Bartenslager *S*: Palm Beach Central High School *C*: Wellington *R*: Palm Beach

S1311 * Maldur, Isabella How Much Fluoride is Too Toxic? *T*: Ms. Mary Fish *S*: Spanish River Community High School *C*: Boca Raton *R*: Palm Beach

S1312 * Ramnaraine, Daveena Moringa Seed Purification *T*: Mr. Eric Castaing *S*: Miami Sunset Senior High School *C*: Miami *R*: South Florida

S1313 * Toledo, Kevin An Investigation of the Most Effective Methods of Nitrogen Enrichment with *Vigna radiata* *T*: Ms. Patricia Sacasa *S*: Medical Academy for Science and Technology *C*: Homestead *R*: South Florida

S1314 * Zaidi, Faizan Quorum Sensing and Biofuel Production: A Solution to Clean Energy? *T*: Mrs. Terrie Segal *S*: Holy Trinity Episcopal Academy *C*: Melbourne *R*: Brevard: Mainland

S1315 * Nandineni, Nitishsai R The Effects of a Loam-Vermiculite Soil Compound with Different Nitrogen Concentrations on the Dry Mass and Height of *Raphanus sativus* *T*: Dr. Paula Hall *S*: James S. Rickards High School *C*: Tallahassee *R*: Capital

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S1316 * Santra, Laboni Minimizing Food Waste Using a Nature-derived Coating – an Innovative Step towards Addressing Global Food Security *T*: Mr. William James Furioli *S*: Oviedo High School *C*: Oviedo *R*: Seminole

S1317 * Shah, Anay Air Pollution and Bryophyte Diversity *T*: Mrs. Zasha A. Mickey *S*: Lake Highland Preparatory School *C*: Orlando *R*: Dr. Nelson Ying Expo - Orange

S1318 * Miller, Eryn R How does pH Impact Bean Plant Growth? *T*: Ms. Jennifer Abbott *S*: Treasure Coast High School *C*: Port St. Lucie *R*: St. Lucie

S1319 * Crawford, Lilian L Multinutrient Biofortification of Microgreens for Human Health *T*: Ms. Deborah Lookabill *S*: Lincoln Park Academy *C*: Ft. Pierce *R*: St. Lucie

S1320 * Daniel, Tyler E The Relationship between Iron & Chlorophyll Contents *T*: Ms. Deborah Lookabill *S*: Lincoln Park Academy *C*: Ft. Pierce *R*: St. Lucie

S1321 * Patel, Dev J Which Ph Level Is Best for the Average Height of Bean Plants *T*: Mr. Steven Craig *S*: Southeast High School *C*: Bradenton *R*: Manatee STEM Competition

S1322 * Blacknell, Taleese Hydroponics: A Plant's Alternate Soil *T*: Dr. Adenike Akinyode *S*: Eastside High School *C*: Gainesville *R*: Alachua

S1323 * Grady, Joshua Using Natural Replacements for Fertilizer in a Hydroponic System to Reduce Waste *T*: Mr. Robert Cooper *S*: Palm Bay Magnet High School *C*: Melbourne *R*: Brevard: South

S1324 * Taylor, Trace R; Tyre, Trey D The Effect of a 1% Microflora Inoculant Soil Solution on Cucumber Nutrient Density, Plant Growth, and General Health *T*: Mr. Wayne Oelfke *S*: Fort White High School *C*: Fort White *R*: Suwannee Valley

S1325 * Stover, Nicole E Dissolved Oxygen Augmentation Effects on the Hydroponic Cultivation of *Eruca sativa* in NFT System *T*: Mr. Jeffrey Steele *S*: Samuel W. Wolfson Senior High School *C*: Jacksonville *R*: Northeast Florida

S1326 * Krohnfeldt, Bryce M Speed of Photosynthesis in Relation to Surface Area *T*: Mr. Cody Rimes *S*: Estero High School *C*: Estero *R*: Thomas Alva Edison

Junior: Plant Sciences

J1301 * Harrison, Ben T Does Electrifying a Plant Increase Its Speed of Growth? *T*: Mrs. Colleen McCormick *S*: Academy at the Lakes *C*: Land O' Lakes *R*: Pasco

J1302 * Marathas, Nicholas S Comparing the Effect of Manure Compost, Seaweed Fertilizer, Synthetic Fertilizer, and Soil on *Lactuca sativa* *T*: Mrs. Michelle Zimmerman *S*: Herbert H. Hoover Middle School *C*: Indialantic *R*: Brevard: Intracoastal

J1303 * Mueller, Jaycee M Can the Tomato Take the Heat? *T*: Mrs. Shelly Paulinyce *S*: South Sumter Middle School *C*: Webster *R*: Big Springs

J1304 * Crisafulli, Enzo M Promising Propogules *T*: Mrs. Carlean Browning *S*: Gifford Middle School *C*: Vero Beach *R*: Indian River

J1305 * Moran, Kaileigh L Fast Beans *T*: Ms. Ciera Markey *S*: Citrus Springs Middle School *C*: Dunnellon *R*: Citrus

J1306 * Jain, Bhav What Is the Effect of Acid Rain on Plants? *T*: Mrs. Heather Tully *S*: Don Estridge High Tech Middle School *C*: Boca Raton *R*: Palm Beach

J1307 * Zhao, Catherine Storing Strawberries to Maintain Freshness *T*: Mrs. Rhonda Steinmetz *S*: Bak Middle School of the Arts *C*: West Palm Beach *R*: Palm Beach

J1308 * Struble, Amanda M The Effect of Climate Change on Seeds *T*: Mr. Julio Miguez *S*: Highland Oaks Middle School *C*: North Miami Beach *R*: South Florida

J1309 * Zaidi, Alina How do Iron Levels Affect the Bacterial and Physical Growth of Spinach? *T*: Mrs. Terrie Segal *S*: Holy Trinity Episcopal Academy *C*: Melbourne *R*: Brevard: Mainland

J1310 * Behanan, John M The Pull of Magnets *T*: Mrs. Ramona Lataille *S*: Seminole Science Charter School *C*: Lake Mary *R*: Seminole

J1311 * Khimani, Laabih Inside and Out *T*: Mrs. Ramona Lataille *S*: Seminole Science Charter School *C*: Lake Mary *R*: Seminole

J1312 * Jaeger, Mei Ling Q Does Carbon Monoxide Affect Plant Health *T*: Ms. Jessica Villanueva *S*: Parkway Middle School *C*: Ft. Lauderdale *R*: Broward

J1313 * MeDermed, Elliot How Florida Residents Can Help Solve the Algae Bloom Crisis *T*: Dr. Elmarie Mortimer *S*: Trinity Preparatory School *C*: Winter Park *R*: Dr. Nelson Ying Expo - Orange

J1314 * Adams, Brodyn What Kind of Worm Makes a Marigold Flower Grow the Fastest? *T*: Ms. Sara Charbonnet *S*: Westwood Middle School *C*: Gainesville *R*: Alachua

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J1315 * Lauerman, Samuel W How Does the Type of Liquid Given to a Pea Seed Affect its Growth? *T:* Ms. Sara Charbonnet *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J1316 * Manley, Dorothy How Does Tap Water, Well Water, Rain Water, and Grey Water Affect a Plant's Growth? *T:* Mr. Curtis Ericson *S:* Westwood Middle School *C:* Gainesville *R:* Alachua

J1317 * Gharia, Nandini The Effects of Native Ground Covers on the Growth of the Invasive Species, *Ardisia crenata* *T:* Mrs. Julie Schmidt *S:* Stone Magnet Middle School *C:* Melbourne *R:* Brevard: South

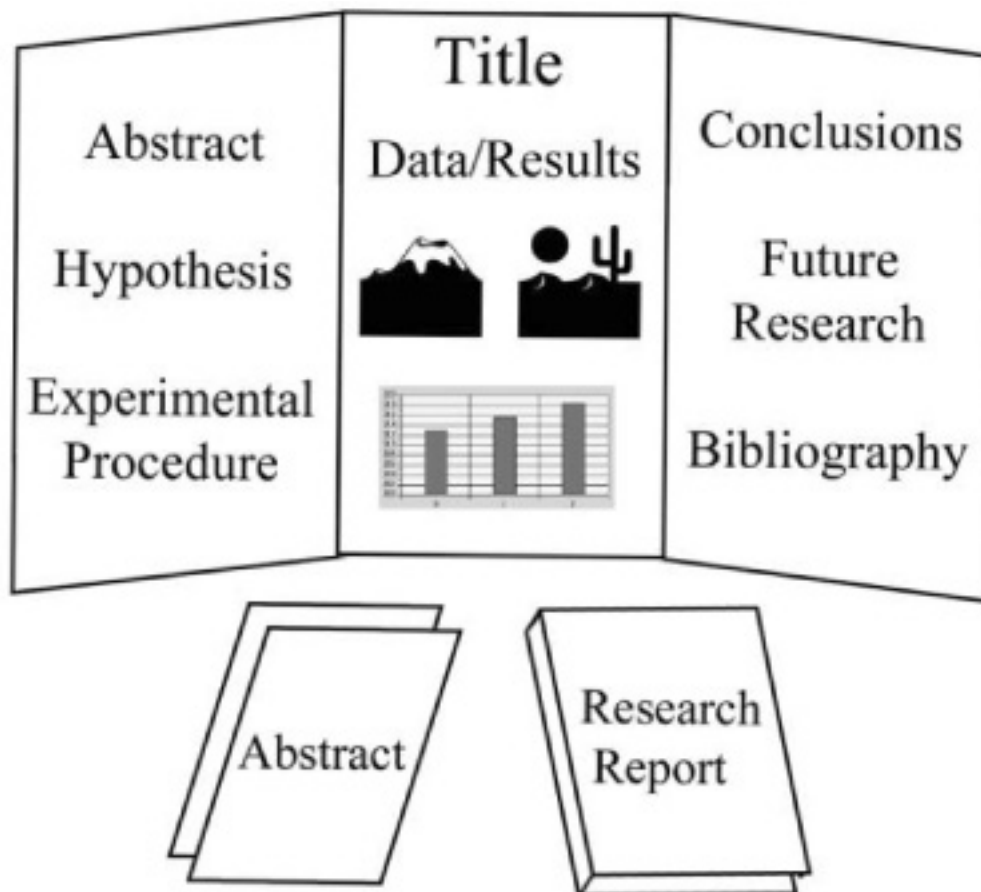
J1318 * Robinson, Cyler P; Burton, Kelly L; Watson, Jonaz The Effect of Organic and Inorganic Fertilizers on Collard Green Growth and Soil Health *T:* Mr. Wayne Oelfke *S:* Fort White High School *C:* Fort White *R:* Suwannee Valley

J1319 * Tang, Dylan Temperature to Keep Grapes Fresh at Home *T:* Mrs. Normia Cord *S:* Sebring Middle School *C:* Sebring *R:* Heartland

J1320 * Johnson, Emma J Does Molasses Affect the Growth of a Watermelon (*Citrullus lanatus*) Plant ? *T:* Mrs. Kristie Benton *S:* Hardee Junior High School *C:* Wauchula *R:* Heartland

J1321 * Keller, Trenton S Does the Time After Harvesting Affect the Amount of Ascorbic Acid (Vitamin C) in *Citrus sinensis*? *T:* Mrs. Kim R McGuckin *S:* Hardee Junior High School *C:* Wauchula *R:* Heartland

J1322 * Mitchell, Makayla S Red Light, Yellow Light, Green Light (Does the Color of Light Affect Plant Growth?) *T:* Mrs. Kathlyn Hendee *S:* Trafalgar Middle School *C:* Cape Coral *R:* Thomas Alva Edison



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