INNOVATE TODAY 2020
MARCH 24TH – 26TH, 2020
RP FUNDING CENTER, LAKELAND, FL

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
Dear 65th SSEF of Florida Finalist,

These are challenging and unprecedented times and we share in the sadness and disappointment of all our state of Florida Finalists who looked forward to meeting and competing with their peers from all over the state March 24th – 26th, 2020 in Lakeland. The health and wellbeing of everyone involved with the SSEF of Florida was our top priority. Therefore, the decision was made to cancel this year’s event due to the coronavirus pandemic that was descending upon us. It was a painful decision as we thought about the many years this event has been taking place and the involvement of so many people over those years in spite of other hard times.

We acknowledge and honor you as a 65th State Science and Engineering Finalist as named by your regional fair. We applaud the leadership of all of our 37 successful regional fairs that were held prior to our event and know that these competitions fully prepared you for future higher level competitions. We understand the passion you have for your research and know that you missed out on an opportunity to share your accomplishments. Judging Day is always a big thrill for both you and our Judges as you bring your research to life.

We are grateful to everyone who was dedicated to ensure that the 65th State Science and Engineering Fair of Florida would be a great experience for our Finalists. This includes our Fair Directors, sponsors and award donors, category and special award judges, volunteers, parents, and the FFFS Board of Directors. It is important to understand that the annual SSEF of Florida is an event that provides our state an opportunity to celebrate YOU – our most talented and brightest students! Please know that we share in the loss of not being able to come together and honor each of you.

Your creativity and innovative efforts to make our world a better place through your research and involvement in your communities is valued. We encourage you to continue in your development as scientists and human beings. We are inspired by your energy and fortitude.

We are sad for you and know that are missing out on so much this year. This pandemic cannot put a dent in the passion you have for your community and our world. You are a creative and innovative group and we need you because you provide hope for our future. This year has not been what you envisioned, but we are eager to see what you do with it.

Stay safe and healthy. We are looking forward to a great celebration in 2021 for the 66th State Science and Engineering Fair of Florida.
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Sponsors

We take this opportunity to thank our many Sponsors!

The State Science and Engineering Fair (SSEF) of Florida, is only possible through many teachers, administrators, corporate members and the individuals who volunteer thousands of hours at all levels leading to this competition each year. The SSEF is administered by the Florida Foundation for Future Scientists and is a recognized non-profit 501c3. In order for this event to take place, we rely on many donations at all levels. To find out how you can support and donate to the SSEF, please contact Nancy Besley at nancybesley@gmail.com or visit our website at www.ssefflorida.com.

PRINCIPAL SPONSORS
+$50,000
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Florida Foundation for Future Scientists
Title IV – Part A SSEA Grant
Ms. Swati Mylavarapu & Mr. Matthew Rogers

INNOVATOR SPONSORS
+$10,000
Right Trailers, Inc.
Dr. Nelson Ying Grand Awards, Ying Scholars
Friends of the Science Fair

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Central Florida Tourism & Sports Marketing (CFTSM)
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Ms. Sharon Suits*
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Ms. Patricia Zalo*

The SSEF is administered by the FFFS, an organization that is dedicated to the promotion of excellence in science and engineering education in Florida. The FFFS is designated a 501(c)(3) non-profit organization by the Revenue Service (FEID number 59-6155014).
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UCF College of Community Innovation & Education

Ms. Naomi Michelin, Post-Award Coordinator......................Research Administrative Services Team
UCF College of Community Innovation & Education

Mr. Zachary McCarty, Coordinator Financial Compliance......Research Administrative Services Team
UCF College of Community Innovation & Education
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.

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**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.

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**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, contact the FFFS office at:

www.ssefflorida.com

Florida Foundation for Future Scientists
PO Box 67
Goldenrod, FL  32733

Email: nancybesley@gmail.com
Phone: 407-473-8475
Florida Foundation for Future Scientists

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Mr. Ralph D. Turlington
Dr. Patricia G. Webb
Dr. Rudolph P. Widman
Jane C. Hart Memoriam

IN MEMORIAM
Jane C. Hart, A Legend in Science Education

Jane C. Hart will be remembered as a leader, motivator, bright star and friend to multitudes of science educators in Florida and in the Nation. Jane was loved for her patience and persistence working with Science Educators, Leaders, and Students. Jane passed on July 1, 2019.

Jane devoted over 50 years to a career in science education and provided boundless energy to organizations. She served on the board for the Florida Foundation for Future Scientists helping in the administration of the State Science and Engineering Fair of Florida and the Palm Beach Regional Science and Engineering Fair. She worked to encourage students in grades six through twelve to become scientists and engineers, and to encourage their pursuit of careers in STEM (science, technology, engineering, and math). She was a joy at every event.

Jane was an active leader and board member in the Florida Association of Science Teachers where she served as Executive Director and Finance Officer for Building a Presence for Science, and a member of the Florida Association of Science Supervisors. She helped guide the development of Behavioral Objectives, Sunshine State Standards, and Course Descriptions on teams lead by the Florida Department of Education. Jane was so often the guiding force to prepare for meetings of these organizations. She served many years on the selection committees assembled to identify local and national awardees, including the Presidential Award for Excellence in Science Teaching.

She was named "Outstanding Science Educator" by F.A.S.T. in 2007, received the "Lifetime Achievement Award for Science Education" by the School District of Palm Beach County, as well as many other accolades. She attended and participated in the annual meetings of the National Science Teachers Association around the US.

In Palm Beach County, Jane served on the Board of the Pine Jog Environmental Education Center. The Center relied on her for guiding the development of many new programs. Jane was also a leader in the Delta Kappa Gamma Chapter of Beta Xi, Palm Beach County. She was awarded "Woman of the Year" by Phi Delta Kappa in 1988. She was inducted into the Palm Beach County Hall of Fame in 2008. She received the Community Service Award from Delta Kappa Gamma in 2018.

Jane had a zeal for learning and adventure and was an avid traveler during her retirement years. Her legacy will live on in those whom she has educated, mentored and knew as a friend.

We will remember Jane as a true friend of science.
### SSEF History: Hosts and Directors

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

<table>
<thead>
<tr>
<th>Year</th>
<th>Region</th>
<th>Location/City</th>
<th>Host Director</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>Orange</td>
<td>University of Central Florida Arena, Orlando</td>
<td>Ms. Nancy A. Besley</td>
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<td>1997</td>
<td>Broward</td>
<td>Broward County Convention Center, Ft. Lauderdale</td>
<td>Mr. Doug Garber</td>
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<td>Polk</td>
<td>The Lakeland Center, Lakeland</td>
<td>Ms. Joyce Brennan</td>
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<td>Ms. Michele A. Mingoia</td>
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<td>Alachua</td>
<td>University of Florida, Gainesville</td>
<td>Mrs. Elaine M. Taylor</td>
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<td>Thomas Alva</td>
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<td>Dr. Donna Price Henry</td>
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<td>Northeast Florida</td>
<td>The Prime Osborn III Convention Center, J’ville</td>
<td>Mrs. Pam Dement-Liebenow</td>
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<td>2004</td>
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<td>The Prime Osborn III Convention Center, J’ville</td>
<td>Mrs. Pam Dement-Liebenow</td>
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<tr>
<td>2005</td>
<td>UCF</td>
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<td>Dr. Ronald Atwell</td>
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<td>2006</td>
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<td>Orange County Convention Center, Orlando</td>
<td>Dr. Judith Legault</td>
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<td>Mrs. Carie Lopatka</td>
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<td>2007</td>
<td>Thomas Alva</td>
<td>FL Gulf Coast University Alico Arena, Ft. Myers</td>
<td>Dr. Donna Henry Price</td>
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<td>Edison</td>
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<td>Mr. Rick Tully, Jr.</td>
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<td>Ms. Kim Rex</td>
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<td>Polk</td>
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*State Science and Engineering Fair of Florida*
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.

More than 950 SSEF Finalists from 67 districts throughout Florida have been selected from among more than 11,000 students who exhibited in one of 37 Florida Regional Science and Engineering Fairs (RSEF). The number of projects displayed at 2019-20 sub-regional events and science research competitions leading up to the affiliated RSEFs exceeded 140,000.

The following is a list of 2019-2020 Regional Science and Engineering Fairs, along with their corresponding directors and counties.

<table>
<thead>
<tr>
<th>Region</th>
<th>Directors</th>
<th>Counties</th>
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<tbody>
<tr>
<td>Alachua</td>
<td>Ms. Carly Mikell, Ms. Sara Charbonnet</td>
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<tr>
<td>Big Springs</td>
<td>Ms. Tia Brown, Colleen Strickland</td>
<td>Marion, Sumter</td>
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<tr>
<td>Brevard: Intracoastal</td>
<td>Ms. Deborah Austin, Ms. Jennifer Cotton</td>
<td>Brevard</td>
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<tr>
<td>Brevard: Mainland</td>
<td>Mr. Raul Montes, Mr. Jeff Higginbotham</td>
<td>Brevard</td>
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<tr>
<td>Brevard: South</td>
<td>Ms. Maggie Molledo, Ms. Ellen Muse</td>
<td>Brevard</td>
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<td>Broward</td>
<td>Dr. Merilyn Blair- Johnson</td>
<td>Broward</td>
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<tr>
<td>Capital</td>
<td>Ms. Bonni Warren</td>
<td>Leon, Wakulla</td>
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<tr>
<td>Chipola</td>
<td>Inactive</td>
<td>Calhoun, Jackson, Liberty, Washington</td>
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<td>Ms. Valerie Gaynor, Mr. David Hill</td>
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<td>Northeast Florida</td>
<td>Mrs. Marion Zeiner</td>
<td>Duval, Nassau</td>
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<td>Ms. Karen Perry, Ms. Debbie Bohanan</td>
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<td>Ms. Jennifer Davis</td>
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<td>Mr. Paul Reif</td>
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<td>Flagler, Volusia</td>
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<td>West Panhandle</td>
<td>Mr. Adam Bretschneider, Ms. Carol Myers</td>
<td>Escambia, Santa Rosa</td>
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Florida Foundation for Future Scientists

SSEF Committees

Events Committee
Ms. Nancy Besley, Chairperson
Ms. Jacqua Ballas
Mrs. Vie Vie Baird
Mrs. Joyce Bervaldi
Ms. Susan Cole
Mr. Thomas Dann
Miss Karen J. Malesky
Ms. Claudia Rowe
Mrs. Guytri Still
Mr. Marshall Still

Judging Committee
Mr. Bill Herschleb, Chairperson
Dr. Paul A. Becht
Ms. Joyce Bervaldi
Mr. Robert Johnson
Dr. Mary Jo Koroly
Miss Karen J. Malesky
Dr. Richard Mankin
Dr. Maia McGuire
Mrs. Kimberly Hanisak Unger

Logistics Committee
Mr. Danny Thomas, Chairperson
Mrs. Kim Rex, Co-Chairperson
Mr. Tom Dann
Mr. Craig Gates
Dr. Maia McGuire
Mr. Joe Scott
Ms. Lisa Scott
Mr. Jason Wikman

Policies Committee
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Ms. Nancy Besley
Ms. Sara Charbonnet
Mr. Bill Herschleb
Miss Karen J. Malesky
Ms. Debb Robinson
Dr. Jackie Speake
Ms. Sharon Suits
Mr. Danny Thomas
Ms. Kimberly Hanisak Unger
Dr. William Vernetson
Ms. Marsha Winegarner
Dr. Nancy Webster
Ms. Pat Zalo

Display and Safety Committee
Ms. Kim Rex, Chairperson
Dr. Maia McGuire,
Co-Chairperson
Mrs. Heide Broksas-Weitnauer
Mr. Tom Dann
Mr. Craig Gates
Mr. Greg Goebel
Ms. Maggie Molledo
Ms. Barbara Rapoza
Ms. Lisa Scotte Seitz
Mrs. Kristi
Mr. Danny Thomas

Awards Committee
Ms. Patricia Zalo, Chairperson
Mr. Greg Goebel
Ms. Renae Allen
Ms. Joyce Bervaldi
Ms. Nancy Besley
Dr. Charlotte Emerson
Miss Karen J. Malesky
Ms. Maggie Molledo
Ms. Claudia Rowe
The SSEF of Florida has a core Scientific Review Committee (SRC) made of adults knowledgeable about the research regulations and guidelines required for pre-collegiate students involved in science research. In addition to leading the review of all projects entering the SSEF of Florida, this core SRC Committee of volunteers answers questions about the rules throughout the year from students, teachers, Fair Directors, and regional SRC Committees.

**Sharon Suits, SRC Chairperson, FFFS Board of Directors**

Ms. Renae Allen, Suwannee Valley RSEF  
Mr. William Furioso, Seminole RSEF  
Craig Gates, FFFS Board of Directors  
Karen Johnson, Hillsborough RSEF  
Ms. Cynthia Letcher, Heartland RSEF  
Maia McGuire, FFFS Board of Directors  
Mr. Raul Montes, FFFS Board of Directors  
Ms. Maggie Molledo, Brevard South RSEF  
Ms. Kim Rex, FFFS Board of Directors  
Ms. Cathy Rocke, Brevard RSEF

Joe Scott, FFFS Board of Directors  
Lisa Scott, FFFS Board of Directors  
Danny Thomas, FFFS Board of Directors  
Nancy Webster, FFFS Board of Directors  
Jason Wikman, Thomas Alva Edison RSEF  
Patricia Zalo, FFFS Board of Directors  
Bill Herschleb, FFFS Board of Directors  
Nancy Besley, FFFS Board of Directors

All projects are reviewed by the SSEF of Florida Scientific Review Committee (SRC) prior to competition. The SSEF of Florida SRC is the final arbiter of the eligibility of projects to participate in the SSEF of Florida. Before the fair, committee members review research plans and all required protocol forms to confirm that applicable Intel ISEF and SSEF of Florida Rules have been followed. Committee members represent all affiliated Fair Directors and representatives and FFFS Board of Directors members.

Jacqua Ballas, FFFS Board  
Tom Dann, FFFS Board  
Marna Fox, FFFS Board  
Greg Goebel, FFFS Board  
Karen Malaska, FFFS Board  
Claudia Rowe, FFFS Board  
Guytri Still, FFFS Board  
Sara Charbonnet, FFFS Board  
Tia Brown, Big Springs  
Colleen Strickland, Big Springs  
Emily Keefer, Big Springs  
Daniel Peterson, Big Springs  
Monica Vinas, Big Springs  
Shelbie Wiley, Big Springs  
Deborah Austin, Brevard: Intra  
Jennifer Cotton, Brevard: Intra  
Jeff Higginbothams, Brevard: Main  
Ellen Muse, Brevard: Main  
Loren Kingsley, Brevard  
Dana Warren Capital  
Marilyn Blair-Johnson, Broward  
Bonni Warren Capital  
Aerial Evans, Capital  
Mary Branch, Citrus  
Christian Gallery, Citrus  
Kristen Brooks, Citrus  
Tracy Buettner, Citrus  
Hannah Healey, Citrus  
Christopher Okamoto, Clay Rotary  
Mary Haile, Clay Rotary  
Amanda George, Clay Rotary  
Ryan Westberry, Collier  
Bob Madewell, Ying-Orange  
Judy Bright, Ying - Orange  
Zasha Mickey, Ying – Orange  
Ayeshia Mirza, Ying – Orange  
Darin Hughes, Ying - Orange  
Terry Davis, Ying - Orange  
Kimberly Gasaway, East Panhandle  
Sarah Willson, East Panhandle  
Jennifer Reser, Heartland  
Cat Reichley, Heartland  
Karen Privitello, Heartland  
Rebecca Carr, Hernando  
Colleen Douk, Hernando  
Lauren King, Hillsborough  
Lindsay Guntner, Hillsborough  
Philip Hise, Indian River  
Lisa Presti, Indian River  
Sonia Blackstone, Lake  
Bret Fontenot, Lake  
Steven Craig, Manatee  
Brittany Devlin, Manatee  
David Hill, Martin  
Melissa Alsobrooks, Monroe  
Marion Zeiner, Northeast Florida  
Kara Coffey, Northeast Florida  
Karen Perry, Osceola  
Deborah Bohanen, Osceola  
Jennifer Davis, Palm Beach  
Mark Butler, Pasco  
Branden Anglin, Pasco  
Karen Stewart, Pasco  
Pamela Himmel, Pinellas  
Marjorie Miles-Dozier, Polk  
Bev Stancel, Sarasota  
Sarah Burkett, Sarasota  
Rachel Novella, Seminole  
Wendy Forteza, South Florida  
Kim Seitz, St. Johns  
Paul Reif, St. Lucie  
Stephanie Sellers, Suwannee Valley  
Rachel Summers, Suwannee Valley  
Lee Hughes, Thomas Alva Edison  
Benjamin Johnson, Thomas Alva  
Jeremy Blinn, Tomoka  
Lauralee Wendland, Tomoka  
Mike Cimino, Tomoka  
Adam Bretschneider, West Panhandle  
Carol Myers, West Panhandle
SSEF Events and Awards

Registration and Project Set-up
The SSEF begins Tuesday at the RP Funding Center, Lakeland, Florida with registration and project set-up. RSEF Directors pick up registration materials and distribute them to the participants from their regions. Participants whose projects have met pre-SSEF SRC approval receive a Certification Card/Official Abstract and are permitted to proceed to the display area and set up their projects. Those whose projects were not approved will not receive a Certification Card/Abstract and will need to go to the Fair-Site SRC office immediately.

Display and Safety Certification
Throughout the day, the Display and Safety Certification Committee checks projects for compliance with SSEF rules and regulations. If a project is found to be noncompliant, it is necessary for the participant to correct the discrepancy before 5:00 PM on Tuesday. A final walk through will be conducted during the Opening Ceremony and violations will be posted.

Opening Ceremony
The Opening Ceremony officially begins the SSEF at 7:30 PM in the Youkey Theatre at the RP Funding Center on Tuesday evening. This is a plenary session providing an opportunity to assemble and to recognize the 37 participating regions. Regional T-shirts and spirit are usually in abundance. It is also the time for the Junior and Senior Outstanding Narratives Colloquium (JASON). Several of Florida’s most outstanding youth, selected via a statewide nomination process, address the assembly for approximately three minutes each. Florida Intel ISEF and Broadcom MASTERS’ Finalists are recognized on stage during the ceremony.

Shoptalk
Various speakers, discussions, and workshops are offered to the adults during the day of Judging. Several are offered during both the morning and afternoon judging sessions.

Judging
Wednesday is reserved for judging. This is perhaps the most challenging part of the SSEF, for both the participants and the Judges. Nearly 400 professionals generously contribute their time and expertise to determine those projects most deserving of awards. The judging process is complex and consists of a morning session and an afternoon session.

Student Mixer & Public Review of Exhibits
Social activities for the students are scheduled for the evening hours on Wednesday to provide relaxation and fun. The student mixer is held at Publix Field at Joter Marchant Stadium 7:00 – 10:00 PM. Projects are open for public review Wednesday evening from 7:00 – 9:30 PM and project tear down begins at 10:00 PM.

Field Trips and FFFS Board of Directors Meeting
The last day, Thursday, allows time for field trips to provide an opportunity to explore the local areas of interest. Board of Directors (BOD) members and RSEF Directors attend the Annual FFFS BOD Spring meeting held at 8:30 AM. This meeting is open to the interested public.

Awards Ceremony
The Thursday evening is reserved for the Grand Awards Ceremony, the culmination of the three-day event. The Ceremony begins with the announcement of the Scholarship Awards, Opportunity Awards, and Special Awards. Place and Premium Awards are next and the last announced are the Grand Awards. These awards are summarized below. The Awards Ceremony will begin at 7:00 PM in the Jenkins Arena at the RP Funding Center.

SSEF Event Summary

SSEF Awards Descriptions

Grand Awards
These are chosen from among the First Place Award Winners and include eight Grand Award Ying Scholars’ in the Senior Section ($1,000 each) and four Grand Award Ying Scholars’ in the Junior Section ($500 each). The eight Senior Section Grand Award Ying Scholars’ each receive a “traveling trophy” to display at their school for one-year and an expense-paid trip to the Intel International Science and Engineering Fair during May.

Opportunity Awards
These awards are usually from Special Awards donors and are for specially qualified participants. Opportunity Awards include summer experiences, trips, and camps.

Place Awards
These awards rank the projects in order of excellence. A student can win only one Place Award. The number of Place Awards given in each Category is directly proportional to the number of projects entered in that Category. There are engraved plaques for First, Second, Third, and Fourth Places.

Merit and Recognition Awards
All awards that do not require final judging (those based on “previous” judging) are grouped as Recognition Awards. Paperweights and ribbons are provided to selected students in each Category to recognize science research achievement.

Premium Awards
Premium Awards are cash awards donated for Place Award Winners.

Service Awards
These Awards are designated for teachers, SSEF sponsors, schools, or other assisting professionals for the SSEF. They may be awarded during the Opening Ceremony, Board Meeting, luncheons, or they may be presented at the Grand Awards Ceremony.

Scholarship Nominations
These are for SSEF participants who have submitted applications and who are in high school. Nominations are based on the participant’s academic record maintained through high school.

Special Awards
These awards are donated by business, industry, professional and technical societies, and other interested organizations or individuals. These donors wish to provide recognition to students who share their individual and professional research preferences. The Special Awards are judged exactly as the donor specifies. A student may win more than one Special Award.
Scholarships and Opportunity Awards

The State Science and Engineering Fair of Florida offers Scholarship Nominations and Opportunity Awards to students participating in the SSEF. Complete the application form(s) carefully. Make sure you are currently in the grade level eligible for the award. Submit transcripts and teacher nomination letters as required. Complete the Scholarship Nomination Form (www.ssefflorida.com) for University/College Scholarships Nominations. There are separate applications for National Youth Science Camp; NASA: H2O to Go! and CALS Youth Institute AWARDS at https://ssefflorida.com/scholarships/.

Applications must be completed correctly in order to be considered for the award. Interviews will take place during Judging. ALL Applications are due on-site during Project Set-Up by 5:00 PM. Turn your applications in at the Registration Table when you arrive with your RSEF Delegation.

NATIONAL YOUTH SCIENCE CAMP

A prestigious Award offered by the Governor’s Office
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 22 - July 15, 2020. The camp will be held in the Monongahela National Forest in West Virginia. This is an all-expenses paid opportunity to include transportation. This month-long summer, outdoor adventure program honors excellence in science and promotes scientific leadership through lectures, hands-on research opportunities, and challenging outdoor activities. (See brochure online at www.nysc.org and NYSC FAQ’s at www.ssefflorida.com for more information.) Complete the SSEF/ NYSC application www.ssefflorida.com.

FAU PINE JOG SUMMER RESEARCH INSTITUTE H2O TO GO!

CONNECTIONS AWARD for 9th – 11th Grade Finalists
Students currently in grade 9-11 are eligible. This opportunity award for the H2O to Go! Connections week-long summer research institute is valued at $800 and will be held July 13-17, 2020 at the FAU John D. MacArthur Campus in Jupiter, Florida. Participants work alongside scientists at two of FAU’s research facilities (Harbor Branch & Riverwoods) while learning about south Florida water systems and related environmental issues. Complete the H2O to Go! Application www.ssefflorida.com.

NASA OPPORTUNITY AWARD

ONE-WEEK SUMMER EXPERIENCE
Through an interview process, NASA will award one 12th grade student with a project that is related to NASA’s or Kennedy Space Center’s (KSC’s) mission to spend one week at KSC shadowing one or more engineers in the student’s field of interest. The student will also receive two (2) complimentary tickets to the NASA KSC Visitor Complex. Student must be a U.S. citizen, intend to pursue a technical career and be willing to reside within a 50 mile radius of KSC at his/her own travel expense. Complete the NASA opportunity award application.

UNIVERSITY OF FLORIDA COLLEGE OF AGRICULTURAL AND LIFE SCIENCES

FLORIDA YOUTH INSTITUTE SUMMER RESIDENTIAL CAMP AWARD

For Rising 11th or 12th Finalists
CALS will award two students (rising 11th or 12th graders) an opportunity to attend The Florida Youth Institute (FYI) at the University of Florida for one week during the summer of 2020. Students will interact with global leaders, innovators and entrepreneurs in Florida working to end hunger and poverty and improve food security around the world. Students will live in a campus residence hall and meet with the UF Dean for College of Agricultural and Life Sciences and representatives from the Florida Department of Agriculture and Consumer Services. Session Options: July 12-17 or July 19-24, 2020. For more information about FYI go to https://cals.ufl.edu/prospective/fyi/. More information about the final application process will be provided upon the selection of the winners, this award covers the cost of registration ($350.00) Complete the Florida Youth Application www.ssefflorida.com.

CHUCK SKOCH FLORIDA SEA GRANT

SCHOLARSHIP
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 prior to judging - www.ssefflorida.com.
Scholarships and Opportunity Awards

**LINK FOUNDATION**
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 prior to judging - [www.ssefflorida.com](http://www.ssefflorida.com).

**FLORIDA GATEWAY COLLEGE**
Up to two 12th grade Finalists will be nominated for a $1,000 scholarship from Gateway College in Lake City, Florida. Since Florida Gateway College offers baccalaureate degrees in Nursing and Water Resource Management, one scholarship will be awarded to an outstanding health-related project and the second scholarship will be awarded to an outstanding water-related project. Complete a Scholarship Nomination Application prior to judging - [www.ssefflorida.com](http://www.ssefflorida.com).

**FLORIDA GULF COAST UNIVERSITY**
Up to two 12th grade Finalists of the 65th State Science and Engineering Fair of Florida will be nominated for a one-time $2,500 scholarship ($1,250 fall & $1,250 spring) for undergraduate work in the fall immediately following their high school graduation. Students must be admitted to Florida Gulf Coast University and have completed a verified FAFSA. Complete a Scholarship Nomination Application prior to judging - [www.ssefflorida.com](http://www.ssefflorida.com).

**FLORIDA INSTITUTE OF TECHNOLOGY**
ONLY For Finalists in 11th Grade
Florida Institute of Technology (FIT), 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 FIT. One scholarship will be awarded for each of the 13 subject categories at the 65th State Science & Engineering 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 Intel 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 are eligible for the SSEF of Florida scholarship. Complete the Scholarship Nomination Application prior to judging – [www.ssefflorida.com](http://www.ssefflorida.com).

**NEW COLLEGE OF FLORIDA IN SARASOTA**
For students in 11th grade
The New College of Florida SSEF Scholarship award nomination will be awarded for up to ten 11th grade Finalists of the Annual State Science and Engineering Fair of Florida. To be eligible for the award, the Finalists must be admitted and enroll at New College of Florida in Sarasota Fall of 2021 with the intent to study mathematics or science. Each award will be $2,000 per year, totaling $8,000 over four years toward attendance at New College of Florida. Do NOT complete a scholarship application.

**UNIVERSITY OF CENTRAL FLORIDA**
PEGASUS GOLD SCHOLARSHIPS
Up to five 12th grade Finalists of the 65th State Science and Engineering 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 for admission, 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 prior to judging - [www.ssefflorida.com](http://www.ssefflorida.com).

**UNIVERSITY OF FLORIDA**
COLLEGE OF AGRICULTURAL AND LIFE SCIENCES
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](http://www.cals.ufl.edu) for more information on CALS majors. Complete a Scholarship Nomination Application prior to judging – [www.ssefflorida.com](http://www.ssefflorida.com).
Special and Premium 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.

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.
Special and Premium Awards

**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 (by June 10, 2020) to compete for valuable awards and prizes. Semifinalists will be announced September 2, 2020 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 Finals from October 16th – 21st, 2020 to win more awards up to $25,000. FINALISTS’ Teachers/Schools will receive $1,000 and Science News Classroom subscription. Entrants and Semifinalists receive various prizes. [https://student.societyforscience.org/broadcom-masters-faq](https://student.societyforscience.org/broadcom-masters-faq)

**Broward Regional Science and Engineering Fair**
A $20 Gift Card and Certificate will be awarded to both a Senior and Junior Section project with research demonstrating outstanding scientific and creative thinking.

**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.

**Citrus Regional Science and Engineering Fair**
An opportunity to attend Coastal Camp Citrus ($300 value) at the Marine Science Station in Crystal River will be awarded to both a Senior and Junior Section project with research demonstrating outstanding scientific and creative thinking related to water conservation, environmental monitoring, and habitat restoration within watersheds, spring systems, coastal rivers, estuaries, or the Gulf of Mexico.

**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.

**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. Benjamin Cole was a Grand Award Winner at the SSEF in middle school. He received his PhD from UCSD in agricultural genetics in 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.
Special and Premium Awards

Florida Association for Food Protection*
Two $35,000 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 for Water Quality Control*
A $250 First Award, a $150 Second Award, and a $100 Third Award will be awarded in both the Junior and Senior Sections. The project must exhibit excellence in water quality research that fosters an understanding of water related issues, is based upon sound scientific principles, and promotes the enhancement of water resources and/or associated habitat. The project should exemplify the FAWQC’s mission of managing, improving, and protecting the quality of Florida’s waters.

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.

Florida Department of Agriculture and Consumer Services*
Agriculture Award
A $500 Cash Award for a Senior Section project and a $300 Cash Award for a Junior Section project that demonstrates the principles and technical innovations that address a need of Florida agriculture and offer the greatest potential or scientific promise to increase agriculture production or efficiency in Florida.

Florida Department of Agriculture and Consumer Services*
Innovation Award
A $500 Cash Award for a Senior Section project and a $300 Cash Award for a Junior Section project that demonstrates the most challenging, original, thorough, innovative and/or creative investigation of a problem involving agriculture.

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 Museum of Natural History*
A $50 and $100 Cash Award will be awarded to both Junior and Senior Section projects demonstrating outstanding research in the biological sciences.

Florida Society of Environmental Analysts*
A $75, $150 and $250 Gift Card will be presented to Junior Section projects and certificate and a $150, $300, and $500 Gift Card will be presented to Senior Section projects. These projects must be in the Environmental Sciences Category with research specifically related to water, waste water, soil, and/or air quality.

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.

Heartland Regional Science and Engineering Fair*
Two $25 Cash Awards will be awarded to projects in both the Junior and the Senior Sections for research representing sound scientific method procedures and creativity in problem solving.

Hernando Regional Science and Engineering Fair*
Two $50 Cash Awards will be awarded to projects in both the Junior and the Senior Sections for research representing sound scientific method procedures and creativity in problem solving.

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.

J.T. Malesky Award*
A $50 Cash Award will be awarded to projects in the Senior Section and Junior Section Biomedical and Health Sciences or Animal Sciences Categories whose student researchers demonstrate enthusiasm for their outstanding research.
Special and Premium Awards

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 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.

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.

Northeast Florida Regional Science and Engineering Fair*
A $75 Cash Award will be awarded to projects in both the Senior and Junior Section Biomedical and Health Sciences Category demonstrating excellence in science research.

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 demonstrating 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 research.

Sharon H. Suits Award*
A $100 Cash Award will be awarded to a project in the Junior Section Zoology Category with research demonstrating outstanding creativity.

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.

Society of Mining, Metallurgy and Exploration (SME), Florida Section*
Three students in the Junior Physical Sciences Sections will be selected to receive a $200 Cash Scholarship. Three students in the Senior Physical Sciences Sections will be selected to receive a $300 Cash Scholarship. The students’ research must demonstrate excellence in research related to the goals of the SME organization which is the largest society in the world for mining professionals.

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 awarded to both a Senior and Junior Section project for outstanding research and creativity.

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 and a laptop backpack package for an outstanding science research project.

United States Department of Agriculture
United States Department of Agriculture (USDA), Agricultural Research Service* Six Certificates will be awarded to projects in the Junior and Senior Sections demonstrating outstanding research related to agriculture.

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.
Special and Premium Awards

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.

West Panhandle Regional Science and Engineering Fair*
A $50 Cash Awards will be awarded to a project in both the Junior and Senior Sections with student researchers demonstrating enthusiasm for their research.

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.

Vision | Creativity | Innovation

“Imagination is more important than knowledge. For knowledge is limited to all we now know and understand, while imagination embraces the entire world, and all there ever will be to know and understand.”

-Albert Einstein

SCIENCE
The Power to Change the World
## 2020 State Science and Engineering Fair of Florida

### Finalists and Projects

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#### Senior: Animal Sciences

**S0101** *Sherry, Abagail D* The Long-term Effect Of Neonicotinoids On The Complexity Of *Solenopsis geminata* Colony and The Presence Of The Gp-9 Gene  
T: Mr. William Bartsenslager  
S: Palm Beach Central High School  
C: Wellington  
R: Palm Beach

**S0102** *Collie, Samantha M* The Effect of Noise Pollution on the Behavior of *Apis mellifera*  
T: Mrs. Robin Barkes  
S: Florida Atlantic University High School  
C: Boca Raton  
R: Palm Beach

**S0103** *Weimer, Emily J* The Effect of Putative Beneficial Microorganisms for Coral (pBMC) In The Prevention of Disease and Bleaching  
T: Mr. William Bartsenslager  
S: Palm Beach Central High School  
C: Wellington  
R: Palm Beach

T: Dr. Laxmi Kant Pathade  
S: Saint Edwards School  
C: Vero Beach  
R: Indian River

**S0105** *Arain, Kiran S* Does *Isaria fumosorosea* Have an Antifeedant Effect on the *Asian citrus psyllid*?  
T: Dr. Kerryanne Monahan  
S: Saint Edwards School  
C: Vero Beach  
R: Indian River

**S0106** *Noll, Shea E* The Effect of Ocean Acidification on Shells with Carbonic Acid in Them  
T: Mr. Dylan Jones  
S: Freedom High School  
C: Tampa  
R: Hillsborough

**S0107** *Harris, Sophie M* Snails in the Spotlight  
T: Mrs. Joan Kennett  
S: South Walton High School  
C: Santa Rosa Beach  
R: East Panhandle

**S0108** *Sikorski, Lily* The Ingestion and Excretion of Microplastics by Bivalves  
T: Mr. Andrew Harshman  
S: Sarasota High School  
C: Sarasota  
R: Sarasota

**S0109** *Raghavan, Priyanka* Investigating the Ability of Superworms *Zophobas morio* to Consume Microplastics  
T: Mr. William James Furiosi  
S: Oviedo High School  
C: Oviedo  
R: Seminole

**S0110** *Amin, Lina R* Kleiber’s Law and Metabolic Rates: Crickets  
T: Mrs. Cherie Stephens  
S: Pensacola High School  
C: Pensacola  
R: West Panhandle

**S0111** *Leturno, Elise M* Counting Chicks Before They Hatch  
T: Mr. Ryan Campbell  
S: Lecanto High School  
C: Lecanto  
R: Citrus

**S0112** *Hoang, Shane* How Do Magnetic Fields Alter Stem Cell Growth in Planaria  
T: Mrs. Monica Vinas  
S: The Villages Charter High School  
C: The Villages  
R: Big Springs

**S0113** *Saravananpavan, Avneesh* Antsel and Gretal  
T: Mrs. Judith Dominguez  
S: West Port High School  
C: Ocala  
R: Big Springs

**S0114** *Volland, Lauren* BUTT will it grow?  
T: Mrs. Amanda Leggett  
S: South Sumter High School  
C: Bushnell  
R: Big Springs

**S0115** *Kazi, Kira J* The Effect of Kava Kava Root on Planarian Regeneration  
T: Mr. Ryan Cilsick  
S: Edgewood Jr/Sr High School  
C: Merritt Island  
R: Brevard: Intracoastal

**S0116** *Citrano, Emily O; Pitman, Hope A* The Effect of Glutathione on the Neoblast Cells of Planaria  
T: Mrs. Suzanne Winkler  
S: Bishop Kenny High School  
C: Jacksonville  
R: Northeast Florida

**S0117** *Harrow, Jordan R* Developing Pesticide Resistance to Acetylcholinesterase Inhibitors in *D. pulex*  
T: Mrs. Marion Zeiner  
S: Episcopal School of Jacksonville  
C: Jacksonville  
R: Northeast Florida
Finalists and Projects

**S0118** *Hinson, Adelaide k; Saunders, Kathryn A* The Affects of Increased Carbon Dioxide Absorption on Marine/Freshwater Organisms T: Mrs. Victoria Schmitt S: Bishop Kenny High School C: Jacksonville R: Northeast Florida

**S0119** *Miranda, Mailene G; Klingaman, Megan H* The Effect of N-Acetyl-P-Aminophenol (APAP) and Ibuprofen Phylum Rotifera T: Mrs. Victoria Schmitt S: Bishop Kenny High School C: Jacksonville R: Northeast Florida

**S0120** *Shay, Erin C* The Effects of Sunscreen on the Regeneration of Planaria T: Mrs. Marion Zeiner S: Episcopal School of Jacksonville C: Jacksonville R: Northeast Florida

**S0121** *Kelegama, Ania K* Silencing the DENND1A Gene with Drug Treatment and RNAi to Activate Follicle Rupture in Polycystic Ovarian Syndrome Drosophila melanogaster T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**S0122** *Xie, Audrey* Promotion of Neovasculogenesis in Murine Cerebral Organoids T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**S0123** *Madan, Varun R* Year 3: Evaluating the Effects of Bifidobacterium Infantis Compared with Fumagillin on the Honeybee Gut Parasite Nosema ceranae and Overall Gut Microbiota T: Mrs. Zasha A. Mickey S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

**S0124** *Robinson, Javier S* The Social Network: Female Guppies Prefer to Copy the Mate Choice of Females They Know T: Mr. Paul Dean S: Jose Marti MAST 6-12 Academy C: Hialeah R: South Florida

**S0125** *Seide, Widlyne Adassa* Elegance in Mating T: Mrs. Vania Boeva S: North Miami Beach Senior High School C: North Miami Beach R: South Florida

**S0126** * Larson, Jenna F* The Digestibility of Nutrients in Different Varieties of Corn Silage T: Mr. Daniel Thomas S: Okeechobee High School C: Okeechobee R: Heartland

**S0127** *Reister, Zachary S* The Effects of FlyNap on Drosophila melanogaster T: Mrs. Wendy Reister S: Okeechobee High School C: Okeechobee R: Heartland

**S0128** *Rimoldi Ibanez, Camila* Ultrasonic Planimals! The Bioacoustics of Fusing Cyphastrea Coral T: Mrs. Deena Wright S: Sebring High School C: Sebring R: Heartland

**S0129** *Johnson, Perry* Cattle Bloat T: Mrs. Stephanie Sellers S: Union County High School C: Lake Butler R: Suwannee Valley

**S0130** *Ripplinger, Abigail G* Does Adding a Little Make a Difference? T: Mrs. Stephanie Sellers S: Union County High School C: Lake Butler R: Suwannee Valley

**S0131** *Ratliff, Abby* Does the Type of Feed Affect the Weight Gain of a Goat? T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

**S0132** *Caren, Katie* Parasite Problems - Prevalence of Internal Parasites in Indoor vs Shelter Cats T: Ms. Renae Allen S: Union County High School C: Lake Butler R: Suwannee Valley

**S0133** *Adams, Brooke J* Chicken Little, Chicken Big T: Mr. Gray Ange S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

**S0134** *Koller, Jenna E* To Bee or Not to Bee? T: Mr. Samuel Cunningham S: Astronaut High School C: Titusville R: Brevard: Mainland

**S0135** *Foo, Nathan J* Utilization of Mechanically Simulated Kangaroo Care as a Novel Homeostatic Method to Promote Healthy Development in Mus musculus as a Model for Human Preterm Neonates T: Ms. Paula Ladd S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

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**Junior: Animal Sciences**

**J0101** *Blatt, Asher S* Evaluation of Zophobas morio's Ability to Degrade and Survive in the Presence of Common Plastics T: Mr. Kevin Simmons S: The Weiss School C: Palm Beach Gardens R: Palm Beach

**J0102** *DuBois, Daniel* Musical Cats T: Mrs. Elaine Gibbard S: Omni Middle School C: Boca Raton R: Palm Beach

**J0103** *Pino, Christopher* The Effects of Different Starting Coral Fragments Weights on Growth Rate T: Mr. James Less S: Saint Andrew Catholic School C: Cape Coral R: Thomas Alva Edison

**J0104** *Mesa, Eann* Cricket Singers T: Mrs. Karen Perry S: Neptune Middle School C: Kissimmee R: Osceola

**J0105** *Davis, Adison R* It's PAWsitively RIGHT...or Is it LEFT T: Mrs. Theresa Woodward S: Neptune Middle School C: Kissimmee R: Osceola

**J0106** *Miheyenko, Alexander* How Does Exposing Planaria to Ibuprofen, Sucrose, and Caffeine Affect Their Regeneration? T: Ms. Rachel Bogdanoff S: Creekside Middle School C: Port Orange R: Tomoka
Finalists and Projects

**J0107** *Moore, Mariana L* Make Way For Roaches? T: Mrs. Karla Dunnigan S: Nativity Catholic School C: Brandon R: Hillsborough

**J0108** *Clinger, Ella Grace P* The Power of Pink and the Wonder of Worms T: Mrs. Jessica Morehouse S: Clifford Meigs Middle School C: Shalimar R: East Panhandle


**J0110** *Hovator, Elijah* Why I Don’t Have Mussels T: Mrs. Korin Dykhous S: Imagine South Lake Charter School C: Clermont R: Lake

**J0111** *Figueroa, Arizona S; Hutchinson, Shaelon A* Bay Anchovy Habitat Preference T: Mr. Richard Stuart Hunter S: Brown-Barge Middle School C: Pensacola R: West Panhandle

**J0112** *Nagpal, Pranavi* Sunscreen Pollution T: Mrs. Courtney Cassidy S: Liberty Pines Academy C: St. Johns R: St. Johns

**J0113** *Letunno, Evan G* Supplements: Friend or Fowl? T: Mr. Randy Headlee S: Lecanto Middle School C: Lecanto R: Citrus

**J0114** *Compton, Christian* How Clean Is Your Stream: Diving Into Macroinvertebrate Diversity and Water Quality T: Dr. Lori Warren S: North Marion Middle School C: Citra R: Big Springs


**J0116** *Renkiewicz, Colton G* A Dog’s Life, But Longer T: Mrs. Michelle Zimmerman S: Herbert H. Hoover Middle School C: Indialantic R: Brevard: Intracoastal

**J0117** *Weissman, Zoe E* Testing Phytochemicals for Antinociceptive Properties in Both Female and Male *Drosophila melanogaster* In Order to Discover a Natural Painkiller and Reduce Bias in the Drug Industry T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward


**J0119** *Buck-Taylor, Lola M* Will Using Nutritional Supplement, Resveratrol, Increase Poultry Growth as Compared to Control? T: Mr. Shane Edelkind S: Martha B. King Middle School C: Bradenton R: Manatee STEM Competition

**J0120** *Gabriel, Carlos L* What are the Effects of Caffeine on Worms? T: Mr. Zachary Williams S: Jewett Academy C: Winter Haven R: Polk

**J0121** *Holcomb, Jackson W* Which Bait Is Best? T: Ms. Cynthia Letcher S: Yearling Middle School C: Okeechobee R: Heartland

**J0122** *George, Johan* Are Insects Attracted to Different Colors? T: Ms. Paula Price S: Palm Pointe Educational Research School C: Port St Lucie R: St. Lucie

**J0123** *Gawde, Suhanisha* Studying Ant Reaction to Natural Repellent T: Mrs. Rachel Paul S: Maclay School C: Tallahassee R: Capital

**J0124** *Carmody, Kelly A; Haggerty, Kiriana L* PH Levels vs Blue Mussels T: Mr. Marino Nardelli S: Lyndon B. Johnson Middle School C: Melbourne R: Brevard: Mainland

**J0125** *Vanderwyst, Jade* The Effects of Various Light Wavelengths on the Number of Zooxanthellae in Pulsing Xenia, *Heteroxenia fuscescens* T: Mr. Richard Regan S: Stone Magnet Middle School C: Melbourne R: Brevard: South

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**Senior: Behavioral & Social Sciences**

**S0201** *Feuerman, Mandy B* The Creation of a Neural Network to Categorize Electroencephalogram Recordings of Emotional Experiences T: Mrs. Iris Thompson S: American Heritage School of Boca/Delray C: Delray Beach R: Palm Beach

**S0202** *Hardeman, Danielle M* The Effect of Sexual Frustration on *Drosophila* Ethanol Consumption T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

**S0203** *Tan, Junwei* Novel Perspectives in Academic Practice Strategy: Designing and Exploring Alternative Classroom Practice Approaches that Strategically Target Student Motivation and Engagement to Improve Academic Performance for Underperforming Elementary School Students T: Mrs. Brittany Brooks S: Lee Virtual School C: Fort Myers R: Thomas Alva Edison

**S0204** *Benzon, Joshua* Train a Happy Brain! A Human Behavioral Study on the Emotional Perception of Happiness T: Ms. Kelly Percival S: Canterbury School C: Fort Myers R: Thomas Alva Edison
Finalists and Projects

S0205 * Hesckett, Melina R Persuasive Memory Study  
T: Mr. Prittiraj (Jerry) Ramjisingh  
S: Neocity Academy  
C: Kissimmee  
R: Oviedo

S0206 * Girgis , Miriam M The Halo Effect: Twisting Our View of Others  
T: Dr. Nick Stoute  
S: Spruce Creek High School  
C: Port Orange  
R: Tomoka

S0207 * Beshay, Cathrine A Expectations Changing Outcomes: A Study of Perception  
T: Ms. Anne M. Cooney  
S: Spruce Creek High School  
C: Port Orange  
R: Tomoka

S0208 * Bondu, Muni T Beware of that Blood Type? The Correlation Between Blood Type and Personality  
T: Mrs. Bhagyashree Kulkami  
S: George S. Middleton High School  
C: Tampa  
R: Hillsborough

S0209 * Doad, Naman Social Behaviors in Vaccine Psychology: Countering Vaccine Hesitancy  
T: Mr. William James Furiosi  
S: Oviedo High School  
C: Oviedo  
R: Seminole

S0210 * Xu, Ronald B Fighting Executive Function Disorders via Artificial Intelligence with Facial Movement Data  
T: Mr. Chris Adamson  
S: Winter Springs High School  
C: Winter Springs  
R: Seminole

S0211 * Boyles, Jake A The US Dollar-Petrodollar Association  
T: Mr. Branden L. Anglin  
S: Wiregrass Ranch High School  
C: Wesley Chapel  
R: Pasco

S0212 * Jim, Ramim R Effects of Music on the Brain  
T: Mrs. Cherie Stephens  
S: Pensacola High School  
C: Pensacola  
R: West Panhandle

S0213 * Skaggs, Trinity If You Give a Mouse a Cookie .......  
T: Ms. Emily Keeler  
S: Wildwood Middle High School  
C: Wildwood  
R: Big Springs

S0214 * Jensen, Kiley Noting: a GPA Boost  
T: Mr. Joe Scott  
S: Satellite High School  
C: Satellite Beach  
R: Brevard  
R: Intracoastal

S0215 * Pacchiele, Gabriel A Biopsychosocial Analysis of Mass Shootings Using Pearson Matrix Correlation  
T: Mrs. Diane Enten  
S: Saint Thomas Aquinas High School  
C: Fort Lauderdale  
R: Broward

S0216 * Mathew, Emilin M Synchronizing the Neuronal Network in Schizophrenia Investigating HCN1 Channel Dysregulation in the Prefrontal Cortex as a Biomarker and Developing a Biocompatible Piezoelectric Silk Neuromodulator  
T: Mrs. Laya Mathew Joykutty  
S: American Heritage School  
C: Plantation  
R: Broward

S0217 * Stanton, Savana O A Clinical Study to Assess the Correlation Between Beta-Amyloid (Aβ) Levels in Subjects Who Have an Evaluated Risk of Alzheimer’s Disease Pathology  
T: Mrs. Zasha A. Mickey  
S: Lake Highland Preparatory School  
C: Orlando  
R: Dr. Nelson Ying Expo - Orange

S0218 * Carbajal, Lucas J; Chisholm, Ryan A Students’ Perception of the Validity of One Dimensional View of Resources on Academic Success  
T: Mrs. Lauriann Carbajal  
S: Coral Reef High School  
C: Miami  
R: South Florida

S0219 * Martinez, Dante A The Effect of Increasing Sensory Modalities on Retention Rates  
T: Mrs. Lisa Garrido  
S: Westminster Christian School  
C: Palmetto Bay  
R: South Florida

S0220 * Magdadaro, Cheska Major Implications of Minor Groupthink Cues: The Extent of Groupthink in Popular Media - Year 2  
T: Mrs. Wendy Reister  
S: Okeechobee High School  
C: Okeechobee  
R: Heartland

S0221 * Ripplinger, Caleb Psychometrics and Tactile Agility: The Impact of an Individual’s IQ and EQ on Constructing Structures within a Given Amount of Time  
T: Mrs. Stephanie Sellers  
S: Union County High School  
C: Lake Butler  
R: Suwannee Valley

S0222 * Raines, Whitney L How Does Music Affect Academic Performance?  
T: Mrs. Amanda Phillips  
S: Madison County High School  
C: Madison  
R: Suwannee Valley

S0223 * Bryan, Jasmine D A Cross-Examination of Stereotypical Gender Roles Presented in High-Risk Online Behaviors  
T: Mrs. Amanda Phillips  
S: Madison County High School  
C: Madison  
R: Suwannee Valley

S0224 * Kumar, Surabhi ; Kumar, Sandhya Using Sensor Fusion to Understand the Perception of Wetness and its Use as a Potential Biomarker for Assaying Peripheral Neuropathy  
T: Mrs. Angela Breza-Pierce  
S: Lawton Chiles High School  
C: Tallahassee  
R: Capital

S0225 * Kerr, Rachel B Do Different Types of Social Media Hold more of an Effect on Students Perceived Academic Achievement than Others?  
T: Mr. Jeff Higginbotham  
S: Rockledge High School  
C: Rockledge  
R: Brevard  
R: Mainland

S0226 * Herndon, Matison L The Effects of Ultraviolet Radiation B on the Courtship Behavioral Traits of the Common Fruit Fly, Drosophila meanogaster  
T: Mr. Aaron Mitchell  
S: Bayside High School  
C: Palm Bay  
R: Brevard  
R: South
# Finalists and Projects

## Junior: Behavioral & Social Sciences

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<td>What Is the Most Effective Method for Teaching/coaching Parents to Work with Their Elementary Aged Child with Special Needs at Home?</td>
<td>T: Ms. Suzette Milu S: A.D. Henderson University School C: Boca Raton</td>
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<td>A Novel Approach to the Cognitive Effects of Multitasking and Testing of Academic Performance on Students</td>
<td>T: Ms. Diane Amundson S: Canterbury School</td>
<td>Fort Myers</td>
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<td>Does Cell Phone Use Affect Memory?</td>
<td>T: Mrs. Melissa Sleeper</td>
<td>Vero Beach</td>
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<td>Does Texting Affect Accurate and False Memories?</td>
<td>T: Mrs. Joan Martinelli S: Storm Grove Middle School</td>
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<td>Breaking News</td>
<td>T: Mrs. Karla Dunnigan</td>
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<td>What Effect Does Your Personality Have on Your Handwriting?</td>
<td>T: Mrs. Diana Katongole S: Bay Haven Charter Academy</td>
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<td>Misophonia-related Reactions: Heart Rate Variability in Response to Disgust Stimuli</td>
<td>T: Mrs. Melanie Francher S: Jackson Heights Middle School</td>
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<td>Taste: The Final Frontier</td>
<td>T: Ms. Kiersten Huggins S: Holley Navarre Middle School</td>
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<td>How Does Personality Type Affect Which Studying Technique Is Most Effective for Memory Retention?</td>
<td>T: Mrs. Lauri Sverson S: The Villages Charter Middle School</td>
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## Senior: Biomedical & Health Sciences

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<td>Allergy Antiquity: A Medicine to Create Immunity to Food Allergies</td>
<td>T: Mr. Stephen Anand S: A. W. Dreyfoos Jr. School of the Arts</td>
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<td>The Effects of Variations of Sleep Patterns and Circadian Clock Chronotype Alterations on the Addictive Behaviors, Specifically the Consumption of High Percentages of Ethanol, Odor and Taste Preferences to Ethanol, Resistance Built Against Ethanol and High Alcohol Dehydrogenase Levels, of Drosophila melanogaster</td>
<td>T: Mrs. Leya Mathew Joykutty S: American Heritage School</td>
<td>Plantation</td>
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<td>How Does Multitasking Affect the Quality of Work and the Brain?</td>
<td>T: Ms. Brianna Hooker</td>
<td>Orlando</td>
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<td>The Ability of Social Networking to Improve Depressive Symptoms in Senior Citizens</td>
<td>T: Mr. Oscar Badillo S: Miami Lakes K-8 Center</td>
<td>Miami Lakes</td>
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<td>Does Color Affect Memory and Attentiveness of the Brain</td>
<td>T: Mr. Mark Adamson</td>
<td>Trinity Catholic School</td>
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<td>Correlation between Intercular Signal Delay and Luminosity, Measured through the Perceived Intensity of the Pulfrich Effect Noting the Impact of Ocular Dominance (2 Year Study - Psychological Adaptations and Optical Illusions)</td>
<td>T: Mrs. Cyndi Buist S: Holy Trinity Episcopal Academy</td>
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<td>Beat the Heat</td>
<td>T: Ms. Sara Charbonnet S: Westwood Middle School</td>
<td>Gainesville</td>
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<td>Testing the Effectiveness of Various Cognitive Enhancers on the Learning and Memory of the Peppermint Shrimp, Lymata wurdemanni</td>
<td>T: Mr. Richard Regan S: Stone Magnet Middle School</td>
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<td>Investigating the Effects of Propofol on Reduced Cell Proliferation and Invasion of Human Rheumatoid Arthritis Fibroblast-like Synovocytes (RA-FLLS)</td>
<td>T: Mrs. Iris Thompson S: American Heritage School</td>
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<td>3D Spatial Sampling of Tumors to Assess Genomic Heterogeneity</td>
<td>T: Mrs. Robin Barkes S: Florida Atlantic University High School</td>
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Finalists and Projects

**S0305** *Russell, Jennifer J* Analyzing Concentrations of Carbonyls Found in E-cigarette Aerosols in Comparison to Occupational Standards T: Mrs. Kristian Kohl S: Spruce Creek High School C: Port Orange R: Tomoka

**S0306** *Knor, Jadon ; Castillo, Abigail L ; Sharma, Kunal* Gene Selection Approach for Rheumatoid Arthritis Classification Using Microarray Gene Expression Data T: Ms. Joyeeta Chatterjee S: Joe E. Newsome High School C: Sarasota R: Sarasota

**S0307** *Wolfe-Herman, Aryanna B* The Effect of Neuroglobin and Aldehyde Dehydrogenase on C. elegans with TBI T: Mrs. Courtney Coppola S: Sarasota High School C: Sarasota R: Sarasota

**S0308** *Erdem, Melissa* The Differential Analysis of Respiratory Cancer Diagnosis and Treatment Factors over Patient Survival Rates T: Dr. Romina Jannotti S: Paul J. Hagerty High School C: Oviedo R: Seminole

**S0309** *Subramanian, Krithika* Machine learning analysis of fused MR and PET Images for Alzheimer’s Disease Detection T: Dr. Romina Jannotti S: Paul J. Hagerty High School C: Oviedo R: Seminole

**S0310** *Bowen, Frederic I* Ante Mortem: Combating an Ibuprofen Overdose T: Mr. David Maggi S: Sunlake High School C: Land O’Lakes R: Pasco

**S0311** *Olivanti, Chase A* An Analysis on Reactions and Interactions between Supplemental N-Acetyl-S-Methoxytryptamine and Protein Albumin: A Year IV Study T: Mr. Branden L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco


**S0313** *Moran, Nicole L* Prosthetic Arm for Poverty Affected T: Mr. Ward Cooper S: Academy of Environmental Science C: Crystal River R: Citrus

**S0314** *Darling, Haylee* Phototherapy: A Life Saving Technique for The Treatment of Hyperbilirubinemia of The Newborn - Development of a System to Provide Treatment In Remote Regions of the World T: Mrs. Korie Grimsley S: Forest High School C: Ocala R: Big Springs

**S0315** *Kennedy, Hannah* Efficacy of a Porcine Epiglottis versus a 3D Printed Epiglottis in Mimicking the Natural Closure Process During Swallowing Preventing Aspiration of Liquid Utilizing Different Closure Processes T: Ms. Monica Vinas S: The Villages Charter High School C: The Villages R: Big Springs

**S0316** *Biswas, Kristi* Botanical Remedies Improve Health Markers in Model Diabetic Type 2 Drosophila melanogaster T: Mrs. Emma Gallagher S: Paxon School for Advanced Studies C: Jacksonville R: Northeast Florida

**S0317** *Misra, Rishi* The Role of Adhesion Molecule PLEKHA7 in the Progression of Pancreatic Cancer T: Dr. Kathryn Halloran S: The Bolles School C: Jacksonville R: Northeast Florida

**S0318** *Sonthi, Neha* Elucidating the Role of NRP 1 in Chemotherapy Drug Mediated Cardiotoxicity Using Zebrafish Embryos T: Dr. John Copland S: SPARK Mayo Clinic C: Jacksonville R: Northeast Florida

**S0319** *El-Sharif, Maya W* Understanding the Regulation of Food Consumption in Drosophila melanogaster T: Ms. Jennifer Gordinier S: Pine Crest School C: Ft. Lauderdale R: Broward

**S0320** *Kronrad, Skylar* The Functionality of Memory T-Cells In Preventing AML Relapse In Patients Treated with a Dendritic Cell-Tumor Cell Fusion Vaccine T: Ms. Jennifer Gordinier S: Pine Crest School C: Ft. Lauderdale R: Broward

**S0321** *Yang, Megan D* Inhibiting the ERK Pathway and the TRPM7 Ion Channel in Gastric and Bladder Cancer Cells T: Mrs. Laya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**S0322** *Kumar, Raj R* Engineering a Physiomiimetic Glomerulus-on-Chip to Model Diabetic Kidney Disease T: Ms. Jennifer Gordinier S: Pine Crest School C: Ft. Lauderdale R: Broward

**S0323** *Ansari, Ahad H* Biophysized Characterization of Bovine Serum Coated Gold Nanoparticles Induced with Actin Bundles T: Mr. Darin Hughes S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

**S0325** *Perdomo, Isabela V* A Novel Approach to Improving Blood Circulation Using Complex Ultrasonic Waves T: Mrs. Cristina Madrigal S: MAST Academy at FIU C: Miami R: South Florida

**S0326** *Umas, Jordan M* Whole Body Periodic Acceleration (WBPA) Improves Muscle Function in Diabetic Mice T: Ms. Wendy Guzman S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

**S0327** *Scott, Kelsea D ; Ray, Shreyanshu* Developing a Method to Quantify the Gross Mechanical Properties of Mouse Aortic Valve Leaflet Tissues T: Ms. Patricia Sacasa S: Medical Academy for Science and Technology C: Homestead R: South Florida

**S0328** *Branham, Emily M ; Robinson, Emma L* Combatting Reduced Serotonin in Dead-walking Fruit Flies T: Mr. Matthew Croxton S: Lakeland Christian School C: Lakeland R: Polk

**S0329** *Patel, Rohin P* Correlation of Biomarkers with Colorectal Cancer T: Mrs. Deena Wright S: Sebring High School C: Sebring R: Heartland
S0330  * Wims, Javonnah Cigarettes vs Vapor Pens T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

S0331  * Bhandari, Nirmay V Modeling Childhood Brain Tumor Mutations in Fruit Flies: Testing Therapeutics for H3.3 K27M Mutant Glioblastoma in Drosophila melanogaster T: Mrs. Ariel Evans S: Maclay School C: Tallahassee R: Capital

S0332  * Rendina, Alisa R Bone Regrowth with Parathyroid Hormone T: Mr. Samuel Cunningham S: Astronaut High School C: Titusville R: Brevard: Mainland

S0333  * Shukla, Aditi A A Novel Brain Mapping Approach for Treating Depression with Electrical Stimulation T: Mr. Marc Moody S: Buchholz High School C: Gainesville R: Alachua

S0334  * Verma, Himanshi Exploring the Efficacy of a Novel Ocular Drug Formulation in Alleviating Neurodegenerative Diseases T: Dr. Adenike Akinyode S: Eastside High School C: Gainesville R: Alachua

S0335  * Huberman, Madeline E How do Different Levels of E-Cadherin, Beta-Catenin and Annexin A1 Correlate to the Progression of Colorectal Carcinoma? T: Ms. Paula Ladd S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

S0336  * Jones, Ellen R Correlation between Proteins and Fatality Rate in Zaire ebolavirus T: Mrs. Christina Queen S: Haines City High School C: Haines City R: Polk

Junior: Biomedical & Health Sciences

J0301  * Garine, Sabrina J The Effect of Neurofeedback Therapy on Working Memory T: Mrs. Rhonda Steinmetz S: Bak Middle School of the Arts C: West Palm Beach R: Palm Beach

J0302  * Gupta, Akshay D Creating Bone Conduction Headphones: A Potential Solution for the Hearing Impaired T: Ms. Nita Manis S: David C. Hinson Middle School C: Daytona Beach R: Tomoka

J0303  * Branz, Wakeland E BIOMIMICRY: Can a Common Snail's Slime Be Used as a Medical Glue Alternative to Bond Tree Bark as a Substitute for Bones and Wounds in Multiple Environments? T: Ms. Rebecca Leahey S: New Smyrna Beach Middle School C: New Smyrna Beach R: Tomoka

J0304  * Bertrand, Mikayla A; O'Neill, Payton G UPF vs Cotton Showdown T: Mrs. Melissa Sleeper S: Gifford Middle School C: Vero Beach R: Indian River


J0306  * Albury, Solaris L The Black Light Plague T: Mr. Cole Cairl S: Oslo Middle School C: Vero Beach R: Indian River

J0307  * Panchal, Radha The Magic of Moisturizing T: Ms. Linda Kniskern S: Liberty Middle School C: Tampa R: Hillsborough

J0308  * Wilson, Sarah B The Effect of Magnetic Fields on the Rate of Regeneration in Brown Planaria T: Mrs. Diana Katongoole S: Bay Haven Charter Academy C: Panama City R: Bay Haven

J0309  * Cudney, Addison R Reducing Head Trauma During Bicycle Accidents T: Mrs. Jessica Morehouse S: Meigs Middle School C: Shalimar R: East Panhandle

J0310  * Frino, Gabriella M Testing a Combination of Essential Oils and Sunscreen for Antibacterial Effectiveness T: Mr. Gregory Anthony S: Pine Ridge Middle School C: Naples R: Collier

J0311  * Reilly, Julia C Supplement vs Gluten Concentration T: Miss Katie Cone S: Pine Ridge Middle School C: Naples R: Collier


J0313  * Pomp, Ainsley R Thermal Degradation of Beta-Lactoglobulin T: Mrs. Melanie Francher S: Jackson Heights Middle School C: Oviedo R: Seminole

J0314  * Hartney, Tyler M What Did You Say? T: Mrs. Rachel Kinard S: Mount Dora Middle School C: Mt. Dora R: Lake

J0315  * Porcelli, Karolina S Yes to Iron! No to Anemia! T: Mrs. Jamie Hickey S: Dayspring Academy Middle School C: Port Richey R: Pasco

J0316  * Baumann, Kate E; Castro, Alexa S; Wells, Isabella M Caffeine Is Mean T: Mr. Richard Stuart Hunter S: Brown-Barge Middle School C: Pensacola R: West Panhandle

J0317  * Kompella, Jahnnavi Natural vs Man-made Antibiotics T: Mr. Randy Headlee S: Lecanto Middle School C: Lecanto R: Citrus
Finalists and Projects

J0318 * Braun, Emma Can Rube Goldberg Machines Help Adults with Memory Loss Eat More? T: Mrs. Lauri Siverson S: The Villages Charter Middle School C: The Villages R: Big Springs

J0319 * Cardoso, Nadia Swish, Swash, Sizzle or Simmer: The Most Effective Method to Destroy Germs T: Ms. Emily Keeler S: Wildwood Middle High School C: Wildwood R: Big Springs

J0320 * Hunt, Carson L Feel The Burn...Natural vs Over the Counter Heartburn Remedies T: Mrs. Meredith Spencer S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

J0321 * Fernandez Ramirez, Sharon A The Effects of Various Exercise Regimes with the Combination of Saturated and Unsaturated Diets for the Amelioration of Obesity on Drosophila melanogaster T: Mrs. Lea Mathew Jokvytt S: American Heritage School C: Plantation R: Broward

J0322 * Romero-Mendoza, Fernando M What is the Influence of the Different Food Groups on Dental Plaque? T: Mrs. Robin Devito S: Saint John Vianney Catholic School C: Orlando R: Dr. Nelson Ying Expo - Orange

J0323 * Delgado, Isabela Mindfulness? There’s an App for that! Headspace vs Calm T: Mrs. Bertha Vazquez S: George Washington Carver Middle School C: Miami R: South Florida

J0324 * Lu, Amy T Memory Regeneration T: Mrs. Pamela Woodson S: Martha B. King Middle School C: Bradenton R: Manatee STEM Competition

J0325 * Link, Audrey Scrutinizing Sunscreen Solutions T: Mrs. Mindy Siyufy S: Resurrection Catholic School C: Lakeland R: Polk

J0326 * Mehta, Harsh The Effect of Natural Substances on the Reduction of Obesity and Cardiovascular Disease T: Mrs. Dawn Erb S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0327 * Smith, Kaylee In a Heart Beat T: Mr. Chris Haab S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0328 * Lemons, Tristan S Odontology: Forensic Dentistry T: Ms. Jami Williams S: St. Lucie West K-8 School C: Port St Lucie R: St. Lucie

J0329 * Reenock, Cole Sports Drinks vs Orange Juice: Which Has more Electrolytes T: Ms. Karin Johnson S: Deerlake Middle School C: Rockledge R: Brevard: Mainland

J0330 * Jennings, Kees A; Naik, Anik N Could Auricularia polytricha or Cyanophora paradoxa be the Next Revolutionary Sunscreen? T: Mrs. Dianne Alexis S: Saint Mary Catholic School C: Rockledge R: Brevard: Mainland

J0331 * James, Natheniel A Yeast Infection No More T: Ms. Andrea Anderson S: Fort Clarke Middle School C: Gainesville R: Alachua

J0332 * Shepherd, Kiera L; Scott, Lukas A How Does the Way You Cover Your Sneeze Affect How Far the Germs Spread? T: Mr. Curtis Ericson S: Westwood Middle School C: Gainesville R: Alachua

J0333 * Donald, Annabelle The Effects of Oxybenzone on the Reproduction of the Fruit Fly, Drosophila melanogaster T: Mr. Richard Regan S: Stone Magnet Middle School C: Melbourne R: Brevard: South

Senior Cellular/Molecular Biology & Biochemistry

S0401 * Lian, Julianna Atomized Polyphenol-rich Sargassum in Transdermal Patches to Combat Reactive Oxygen Species T: Mrs. Robin Barkes S: Florida Atlantic University High School C: Boca Raton R: Palm Beach

S0402 * Ayyanathan, Aishwarya A Finding the Molecular Pathway of the Twist1 Transcription Factor and its Mutants on the Regulation of Osteoblast Differentiation and Cancer Metastasis T: Mrs. Iris Thompson S: American Heritage School of Boca/Debary C: Delray Beach R: Palm Beach

S0403 * Biggs, Olivia M The Effect the Insertion of Proteins Known as the Damge Suppressor of the Genome from Ramazzottius varieornatus have on Cultured Human Mammary Epithelial Cells T: Mrs. Iris Thompson S: American Heritage School of Boca/Debary C: Delray Beach R: Palm Beach

S0404 * Vadlamudi, Anjali C Investigating the Effect of Simarouba Glaucu on Reducing Cell Inflammation and Regulating the Tumor Necrosis Factor - a Pathway in Colorectal Cells T: Mrs. Iris Thompson S: American Heritage School of Boca/Debary C: Delray Beach R: Palm Beach

S0405 * Liu, Meryl Protein Interactions in Microbial Signal Transduction: Regeneration of Sensory Rhodopsin in Anabaena sp. (ASR) in Vitro by All-trans Retinal and Influence on Soluble Cognate Transducer (ASRT) T: Ms. Anne M. Cooney S: Spruce Creek High School C: Port Orange R: Tomoka

S0406 * Croom, Elizabeth K Comparison of Biosynthetically Produced AuNPs Using Bacillus cereus and E. coli and Chemically Synthesized AuNps. T: Dr. Kerryanne Monahan S: Saint Edwards School C: Vero Beach R: Indian River
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S0407 * McGuin, Rebecca L The Effect of Different Media and Light Regimes on the Growth and Sporulation of *Pseudocercospora sp.* from Blackberry T: Mr. Kenneth Wood S: Durant High School C: Plant City R: Hillsborough

S0408 * Mulhollen, Laney R Effect of Nutritional Supplementary Neuroneuroprotective Agents on Traumatic Brain Injury T: Mrs. Courtney Coppola S: Sarasota High School C: Sarasota R: Sarasota

S0409 * Sreram, Kashyap A Machine Learning-Based Approach for Characterization of Neurological Proteomic Biomarkers in a Mouse TBI Preclinical Model T: Dr. Frances Monroe S: Seminole High School C: Sanford R: Seminole

S0410 * McHale, Ryan T Relative Half-life of Integral 5-Hydroxytryptamine Transport Protein Phosphorylated at the Thr276 Residue in Domesticated Animal Platelets T: Mr. Branden L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco

S0412 * Littler, Grace M Analyzing the Effects of Hyaluronic Acid through Enzymatic Digestion in Cancer Cell-Derived Extracellular Vesicles T: Dr. Kathryn Kehoe S: Ponte Vedra High School C: Ponte Vedra R: St. Johns

S0413 * Hernandez, Stephanie M The Role of Mitochondria in the Aging of Mesenchymal Stem Cells with Implications to Cell-Based Therapy T: Dr. Kathryn Kehoe S: Ponte Vedra High School C: Ponte Vedra R: St. Johns

S0414 * Pham, Victoria B A Study of the Anti-Inflammatory Mechanism of Novel Small Molecules in Endothelial Cells T: Dr. Kathryn Kehoe S: Ponte Vedra High School C: Ponte Vedra R: St. Johns

S0415 * Edwards, Bayley E Analyzing Ultraviolet Sensitive *S. cerevisiae* to Determine Natural and Commercial Sunscreen Effectiveness T: Mrs. Danielle Doherty-Koch S: Crystal River High School C: Crystal River R: Citrus

S0416 * Shirley, Cheyenne How Do Different Concentrations of 2 Deoxy-D-glucose Affect the Proliferation of VM-M3 Brain Cancer Cells in Vitro? T: Mrs. Shelbie Wiley S: South Sumter High School C: Bushnell R: Big Springs


S0418 * Schieman, Maximus Directed Radioresistance via Genetic Engineering (Year V) T: Mr. Joe Scott S: Satellite High School C: Satellite Beach R: Brevard: Intracoastal

S0419 * Barksdale, Sarah E The Effect of Anti-PD1 and anti-PDL1 on the Cytokine Profile and Immune System T: Mrs. Marion Zeiner S: Episcopal School of Jacksonville C: Jacksonville R: Northeast Florida

S0420 * Body, Ashton E Targeted Drug Delivery for Drug Resistant Cancer: Year Two T: Mrs. Marion Zeiner S: Episcopal School of Jacksonville C: Jacksonville R: Northeast Florida

S0421 * Gulani, Yash A Analyzing the Effect of Neuropilin 1 Knockdown on Conventional Chemotherapy in GBM T: Dr. Kathryn Halloran S: The Bolles School C: Jacksonville R: Northeast Florida

S0422 * Verma, Aditi The Effect of DCLK1 Inhibition on Cancer Stem Cell Properties in Early Pancreatic Cancer Development T: Dr. John Copland S: SPARK Mayo Clinic C: Jacksonville R: Northeast Florida

S0423 * Costas, Isabel A Using a Combined Approach of PCR and Gel Entrophoresis to Create a Diagnostic that Determines if a Patient has a Mutation Correlating to Sporadic Hemiplegic Migraine T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward


S0425 * Bennett, Illiana C Promoting Remyelination through Stimulation of Oligodendrocytes by Using Extracellular Matrix Mechanical Cues T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

S0426 * Ortega, Valentina L PLEKH7: Assessing Locational Responses to Induced Cellular Stress to Uncover Functional Mechanisms in Colorectal Cancer T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

S0427 * Dayal, Jaya Developing TorsinA Detection Assays to Facilitate the Generation of a Humanized Mouse Model for DYT1 Dystonia: Year 2 T: Mrs. Zasha A. Mickey S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

S0428 * Derousie, Serenity R Enzymatically Treated Cellulosic Packaging Waste Utilized to Release Fermentable Sugars for the Production of Bioethanol T: Mrs. Bethany Derousie S: Ridgeview High School C: Orange Park R: Clay Rotary

S0429 * Blough, Kylah S Zebra Longwing Caterpillar Response to Three Potential Semiochemicals Supplemented in Frass T: Mr. Matthew Croxton S: Lakeland Christian School C: Lakeland R: Polk

S0430 * Patel, Devam P Effect of Sugar on Endothelial Cells - Year 2 T: Mrs. Deena Wright S: Sebring High School C: Sebring R: Heartland

S0431 * Soriano, Chloe R Supplementation of Retinoic Acid on the Regeneration Rate of *Dugesia tigrina* T: Mrs. Wendy Reister S: Okeechobee High School C: Okeechobee R: Heartland
Finalists and Projects

S0432 * Serrano, Yanet How Does Extracellular pH of Agar Affect Genetic Transformation Frequency of GFP Transformed E. coli? T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

S0433 * Smith, Kaila ; Gee-Washington, Zyтович What Function Does the Polysaccharide Fucoidan Extracted from Undaria pinnatifida have on the Regulation of Apoptosis in Caenorhabditis elegans? Proof to Concept for Cancer Cell Treatment T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

S0434 * Desai, Dhruv N PCR Primer Design for Larger Amplicons of about 5000 Base Pairs Surrounding the dF508del Mutation that Is Known to Cause Cystic Fibrosis T: Dr. Paula Hall S: James S. Rickards High School C: Tallahassee R: Capital

J0401 * Osowski, Kayla R A Solution to Pollution T: Mr. Cole Cairl S: Oslo Middle School C: Vero Beach R: Indian River

J0402 * Veach, Carly J Sweet Victory: A Study of Cellular Respiration T: Mrs. Jennifer Moses S: Okaolos STEMMA Academy C: Valparaiso R: East Panhandle

J0403 * Schlott, Faye L Light to Algae T: Mrs. Jodi Russell S: Holley Navarre Middle School C: Navarre R: West Panhandle

J0404 * Chandrupatla, Sriya R Yeast Your Eyes on This! T: Mr. Randy Headlee S: Lecanto Middle School C: Lecanto R: Citrus

J0405 * Ortengren, Kaitlyn Do Non-chemical Cleaners Work as Effectively as Chemical Cleaners? T: Mrs. Lauri Siverson S: The Villages Charter Middle School C: The Villages R: Big Springs

J0406 * Zayas, Delbie Hot Tamale!!: The Effects of Capsaicin on Bacterial Inhibition. T: Ms. Emily Keeler S: Wildwood Middle High School C: Wildwood R: Big Springs


J0408 * Narang, Saunya S Defining the Efficiency of Cinnamon as an Antioxidant for Chemically-Induced Oxidative Stress on Drosophila melanogaster T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

J0409 * Dorman, Emily K Which Milk is Best for Human Consumption? T: Ms. Janna Cramp S: Orlando Science Schools C: Orlando R: Dr. Nelson Ying Expo - Orange

J0410 * Bandy, Justin M Let's C T: Mr. Justin Jenkins S: Fort White High School C: Fort White R: Suwannee Valley


J0412 * Patel, Diya How Does Heat Affect the Extraction of DNA from Strawberries? T: Mrs. Rachel Paul S: Maclay School C: Tallahassee R: Capital

J0413 * Anderson, Jasper B The Great Composting Race: Black Soldier Fly Larvae vs Earthworms T: Ms. Sara Charbonnet S: Westwood Middle School C: Gainesville R: Alachua

J0414 * Kurzen, Kayman A Study of Factors Affecting the Rate of Reaction for the Enzyme Catalase T: Mr. Richard Regan S: Stone Magnet Middle School C: Melbourne R: Brevard: South

Senior: Chemistry

S0501 * Curzi, Jaynie How Toxic Is Your Mascara: A Study into the Dangers of Makeup T: Mrs. Iris Thompson S: American Heritage School of Boca/Delay C: Delray Beach R: Palm Beach

S0502 * Khambati, Maria J Graphene Synthesis Using Dry Ice T: Ms. Mary Fish S: Spanish River Community High School C: Boca Raton R: Palm Beach

S0503 * Lee, Catherine J The Enhanced Degradation of Polyvinyl Alcohol by Rhizopus and Pre-treatment with Fenton's Reagent T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach
Finalists and Projects

**S0504** *Barnes, Michelle* Going Green: A Comparative Analysis on the Combustion of the Emissions of Carbon Monoxide in *Spirulina, Chlorella vulgaris*, and Fossil Fuels (A Second Year Study) T: Ms. Kelly Percivall S: Canterbury School C: Fort Myers R: Thomas Alva Edison

**S0505** *Damera, Saketh* Analysis of the Effects of Octanoic Acid (Caprylic Acid) on Fungal Biofilm Through Ethanol Fermentation of Yeast T: Mrs. Diane Schroeder S: Strawberry Crest High School C: Dover R: Hillsborough

**S0506** *Patidar, Anya K* Lanthanum-Barium Iron-Based Perovskite Oxides for Low Temperature Carbon Dioxide Conversion T: Mrs. Nicole Richards-Works S: C. Leon King High School C: Tampa R: Hillsborough

**S0507** *Dickerson, Sean M* Pavin Plastic T: Mrs. Scarlett Brock S: Niceville High School C: Niceville R: East Panhandle

**S0508** *Hermans, Benno S* Effect of Citric Acid to Sucrose Ratio on Tensile Strength and Elongation of a Tapioca Starch-Based Bioplastic T: Mr. James Humphrey S: Barron Collier High School C: Naples R: Collier

**S0509** *Swartz, Hannah C* The Effect of Methyl Donors on the Biotransformation Rate of Lead (II) Nitrate, Sodium Arsenate, and Benzene by *Rhodococcus wratislaviensis* T: Mr. Andrew Harshman S: Sarasota High School C: Sarasota R: Sarasota

**S0510** *Gulati, Adya* Developing a Urine Glucose Sensor as a Preliminary Screening for Diabetes T: Mr. William James Furioso S: Oviedo High School C: Oviedo R: Seminole

**S0511** *Henriques, Kyra M* Synthesis of Chitosan-TPP-Essential Oil Nano-Emulsions for use as Prolonged Mosquito Larvicides T: Mr. William James Furioso S: Oviedo High School C: Oviedo R: Seminole

**S0512** *Kannan, Deepika* Factors Affecting Corrosion in Tubing Metals Used in Heat Exchangers T: Dr. Frances Monroe S: Seminole High School C: Sanford R: Seminole

**S0513** *Persaud, Aidan J* Cost-effective Graphene Nanoplatelet Augmentation of Dye-Sensitized Solar Cells T: Mr. Branden L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco

**S0514** *Gates, Samantha I* Testing for Arsenic in Water, Juices, and Soda T: Mrs. Pam Hicks S: Booker T. Washington High School C: Pensacola R: West Panhandle

**S0515** *Nguyen, Stephanie* Development of a Pyrolysis Reactor to Determine the Efficiency of Polystyrene-based Biofuel T: Ms. Monica Vinas S: The Villages Charter High School C: The Villages R: Big Springs

**S0516** *Shar, Andy* Novel Fabrication and Implementation of Copper and Silver Plasmonic Nanostructure-coated Foil as a Spectrally Selective Absorber in Highly Efficient Solar Steam Generation Under One Sun Illumination T: Mrs. Candace Roy S: Vanguard High School C: Ocala R: Big Springs

**S0517** *Netzley, Kendall* Delivering Chelating Agents Using Nanoparticles T: Mr. Joe Scott S: Satellite High School C: Satellite Beach R: Brevard: Intracoastal

**S0518** *Huie, Spencer B* Effect of Electrode and Voltage on the Electrochemical Reduction of CO2 in an Ocean Like Setting T: Mrs. Marion Zeiner S: Episcopal School of Jacksonville C: Jacksonville R: Northeast Florida

**S0519** *Witkovich, Braden D* The Effects of Electrolyte Concentration on Alkaline Water Electrolysis T: Mrs. Marion Zeiner S: Mandarin High School C: Jacksonville R: Northeast Florida


**S0521** *Senthilkumar, Sachittaa ; Suresh, Vishal* A Novel Approach for Heavy Metal Removal from Aqueous Solutions Using Ferrofluids T: Mr. Jay Rosenberg S: Cypress Bay High School C: Weston R: Broward

**S0522** *Zaverchand, Ashni B* Optimizing the Process of Protein Encapsulation for Potential Applications in Intranasal and Oral Drug Delivery T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**S0523** *Thayagabalu, Sionika ; Joseph, Eja* The Removal of Toxic Metals From Industrial Runoff and Seawater Using a Three Electrode Cell T: Mr. Jay Rosenberg S: Cypress Bay High School C: Weston R: Broward

**S0524** *Mathew, Angelin T* Bioinstructive Scaffolds: Characterizing Binding Capabilities of Peptides to Decellularized Scaffolds and Developing Enzymatically Crosslinked Gelatin-Kombucha Waste Based on Hydrogels T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**S0525** *Pham, Lisa K* Making Energy from Vibrations and Mechanical Forces T: Mrs. Elissa Monroe S: Orlando Science School C: Orlando R: Dr. Nelson Ying Expo - Orange

**S0526** *Burga, Bernardo J* Assessing and Quantifying the Effects of Ocean Acidification on Coral Skeletons T: Ms. Beth Rosenow S: Coral Shores High School C: Tavernier R: Monroe

**S0527** *Fuller, Aaliyah J* The Synthesis of XPhos T: Ms. Patricia Sacasa S: Medical Academy for Science and Technology C: Homestead R: South Florida
Finalists and Projects

**S0528** *Garcia, Roylan D* Acid Rain and Dissolved Oxygen 
T: Ms. Janet Stratton S: Miami Coral Park Senior High School C: Miami R: South Florida

**S0529** *Garrido, Annalise H* The Effect of Differing Concentrations of Berberine on Parkinson’s Induced Drosophila melanogaster T: Mrs. Lisa Garrido S: Westminster Christian School C: Palmetto Bay R: South Florida

**S0530** *Govindarajan, Vasundara* Accelerating Plastic Degradation Through Hydro-Thermal Reaction Under Sunlight T: Dr. Julie Sierramontes S: TERRA Environmental Research Institute C: Miami R: South Florida

**S0531** *Santana, Carlos N* Functionalized PEI as a Nucleic Acid Delivery Agent T: Ms. Patricia Sacasa S: MAST at Homestead C: Homestead R: South Florida

**S0532** *Ross, Hayden L* How Does the Concentration of Vinegar Affect the Rate that Calcium Carbonate Dissolves T: Mr. Steven Craig S: Southeast High School C: Bradenton R: Manatee STEM Competition

**S0533** *Keown, Payson M* Octane’s Effect on Gas Mileage T: Mrs. Christina Queen S: Haines City High School C: Haines City R: Polk

**S0534** *Cornell, John W* Do Surfactants Have an Affect on the Amount of Soil Applied Imidacloprid in Citrus sinensis? Year 4 T: Mrs. Tabita See S: Hardee Senior High School C: Wauchula R: Heartland

**S0535** *Velten, Anna R* The Effects of Dissolving Polystyrene with D-Limonene on Soil pH: A Third year Study T: Mrs. Wendy Reister S: Okeechobee High School C: Okeechobee R: Heartland

**S0536** *Roberts, Mia L* Effect of Chemical Properties on Yeast Medication Effectiveness T: Mr. Chris Aurichio S: F. W. Springstead High School C: Spring Hill R: Hernando

**S0537** *Robinson, Reagan* Inhibiting the Corrosion of Metals Using Cathodic Protection T: Mrs. Stephanie Sellers S: Union County High School C: Lake Butler R: Suwannee Valley

**S0538** *Dowdy, Sophia* If I Consume Papaver somniferum, How Will it Affect a Urine Drug Test? T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

**S0539** *Geraghty, William S* How Much Blue Dye is in Your Drink? T: Ms. Lina Rao S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

**S0540** *Mundrathi, Anagha* Separation and Molecular-Level Characterization of Hydrophilic Molecules from Fossil Fuels T: Dr. Paula Hall S: James S. Rickards High School C: Tallahassee R: Capital

**S0541** *Strickland, Emily A* The Effect of Sodium Bicarbonate on the Combustion Rate of Oil Based Paint T: Ms. Gina Rossi S: Space Coast Jr/Sr High School C: Cocoa R: Brevard: Mainland

**S0542** *Jiang, Helena* Characterization of Novel Reconfigurable Mid-IR Metalenses Enabled by Phase Change Materials T: Mr. Marc Moody S: Buchholz High School C: Gainesville R: Alachua

**S0543** *Xue, Jeffrey J* Sunlight-Mediated Growth of Gold Nanoparticles in Plasmon-Driven Synthesis T: Mr. Marc Moody S: F. W. Buchholz High School C: Gainesville R: Alachua

**S0544** *Damaraju, Lasya* Designing UiO-67 Metal Organic Frameworks (MOFs) Loaded with Cadmium Sulfide Quantum Dots: Developing a pH-Responsive Drug Delivery System for Melanoma Treatment T: Mrs. Mary Schropp S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

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**Junior: Chemistry**

**J0501** *Decena, Dealene R* The Effects of Golf Courses on Nitrate and Phosphate Levels on Fresh Water Bodies Around Palm Beach County T: Mrs. Nicolae Lambrrou S: American Heritage School of Boca/Delray C: Delray Beach R: Palm Beach

**J0502** *Marcet, Elsa* Tissue Targeting: Using Starch Values to Determine the Location of Callus Hairs in Sections of Organic Fuji Apples T: Ms. Lisa Leitzen S: Paul Laurence Dunbar Middle School C: Fort Myers R: Thomas Alva Edison

**J0503** *Huffman, Mason* Optimizing the Electrode and Electrolyte of Saltwater Battery T: Ms. Beth Hopkins S: Crestwell School C: Ft. Myers R: Thomas Alva Edison

**J0504** *Pino, Andrew* The Effects of Different Concentrations of Magnesium Sulfate and Magnesium Chloride on Chlorella vulgaris Growth T: Mr. James Less S: Saint Andrew Catholic School C: Cape Coral R: Thomas Alva Edison

**J0505** *Wahl, Wyatt S* How Does Water from Different Sources Cause Limestone to Erode Leading to Sinkholes? T: Ms. Nita Manis S: David C. Hinson Middle School C: Daytona Beach R: Tomoka

**J0506** *Isley, Ella G* Fighting Fire: Reducing the Flammability of Paint T: Mrs. Lisa Hall S: C. W. Ruckel Middle School C: Niceville R: East Panhandle
Finalists and Projects

**J0507** *Calihua, Yeneisi* The Durability of Lipstick T: Ms. Amie Grant S: Immokalee Middle School C: Immokalee R: Collier


**J0509** *Pollastri, Iliana A; Brown, Caroline E* To Dye, or Not to Dye? That Is the Question T: Ms. Pamela Himmel S: Joseph L. Carwise Middle School C: Palm Harbor R: Pinellas

**J0510** *Horn-Domonkos, Timo* Difference in Strength Between Chemical Threadlockers T: Ms. Melissa Cole S: Milwauke Middle School C: Longwood R: Seminole

**J0511** *Croghan, George T* Magnets vs Microplastics T: Mrs. Lisa Adams S: River Ridge Middle School C: New Port Richey R: Pasco

**J0512** *Burke, Savannah L* What's In Your Water? Water Contamination T: Ms. Kiersten Huggins S: Holley Navarre Middle School C: Navarre R: West Panhandle

**J0513** *White, Kylie J* What Water Treatment Removes the Most Chloramines from a Pool Water Sample? T: Mrs. Jill Kiefer S: Fruit Cove Middle School C: St Johns R: St Johns

**J0514** *Temple, Julia* Plastic. Plastic Everywhere!: The Effects of Plastic on Concrete Strength T: Ms. Emily Keeler S: Wildwood Middle High School C: Wildwood R: Big Springs

**J0515** *Curran, Amelia B* Comparing the Efficiency, Free Fatty Acid Percentage, and Carbon Dioxide Emissions of Waste Vegetable Oil (WVO) and Ethiopian Mustard *Brassica carinata* Biodiesels T: Mrs. Michelle Zimmerman S: Herbert H. Hoover Middle School C: Indialantic R: Brevard: Intracoastal

**J0516** *Goyal, Nira* Stability testing of Neem and Turmeric Herbal Creams with and without Silk Protein at Different Temperatures T: Mr. David Hill S: Hidden Oaks Middle School C: Palm City R: Martin

**J0517** *Smith, LaLaine A* Color Damage T: Mr. David Hill S: Redeemer Lutheran Church and School C: Stuart R: Martin

**J0518** *Cratem, Thomas P* Food Electrolytes and Temperature T: Ms. Carol Turner S: San Jose Catholic School C: Jacksonville R: Northeast Florida


**J0520** *Shires, Alessandra* A Passion for Fashion T: Ms. Jessica Lanzetta S: NSU University School C: Fort Lauderdale R: Broward

**J0521** *Sherman, Rebecca T* Picture Perfect Paintings T: Ms. Catrina Liptak S: Beachside Montessori Village C: Hollywood R: Broward

**J0522** *Patel, Isha; Greenfield, Emily B* Styrague T: Mrs. Adrienne Hazza S: Indian Ridge Middle School C: Davie R: Broward

**J0523** *Joshi, Vishakha* The Effect of Different Gel Electrophoresis on the Separation of Compounds T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

**J0524** *Jaber, Tessneem Z* The Effect of Curcumin on Metal Ions T: Mrs. Lubna Hamad S: Alazhar School C: Tamarac R: Broward


**J0526** *Sandoval, Nathan* Going Bananas T: Mrs. Mindy Siyufy S: Resurrection Catholic School C: Lakeland R: Polk

**J0527** *Cornell, Will W* Do Surfactants Affect the Uptake of Manganese and Zinc in *Citrus sinensis?* Year 2 T: Ms. Debra Kelly S: Hardee Junior High School C: Wauchula R: Heartland

**J0528** *Rucks, Romin W* The Effects of Temperature Extremes on Batteries T: Ms. Cynthia Letcher S: Yearling Middle School C: Okeechobee R: Heartland

**J0529** *Erb, Haylie E* Reflect on Your Reflux: The Effect of Sodium Bicarbonate, Calcium Carbonate, or Calcium Carbonate with Magnesium Hydroxide on the pH of Acidic Foods T: Mrs. Colleen Doulk S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

**J0530** *Acosta, Tianna* When Life Gives You Lemons, Make Lemonade: The Effect of Type of Sweetener on Glucose Levels T: Mrs. Dawn Erb S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando


**J0532** *Heeke, Sarah J* Dissolving Particles T: Ms. Trini Johannesen S: Fort White High School C: Fort White R: Suwannee Valley

**J0533** *Lee, Lauryn N* Let's Play - Batter Up T: Mrs. Nancy Brannaka S: Richardson Sixth Grade Academy C: Lake City R: Suwannee Valley
**Finalists and Projects**

**J0534** *Gopalchar, Narain K* Plop, Plop, Fizz Fast! T: Ms. Mary Bowen S: Elizabeth Cobb Middle School C: Tallahassee R: Capital

**J0535** *Ferland, Alexander L* Corrosion's Effect on Electrical Conductivity of Launch Structures T: Mrs. Rhonda Ripperger S: South Lake Elementary School C: Titusville R: Brevard: Mainland

**J0536** *Gonzalez, Michael ; Leptich, Ben* Elephant Toothpaste Reactions T: Mrs. Jana Gabrielski S: Suntree Elementary School C: Melbourne R: Brevard: Mainland

**J0537** *Collins, Jackson C* Fishy Business T: Mrs. Elizabeth Thompson S: Oak View Middle School C: Newberry R: Alachua

**J0538** *Denton, Kayleigh* How Do Different Liquids Affect the Preservation of Apples? T: Mrs. Susan Shrum S: Westwood Middle School C: Gainesville R: Alachua

**J0539** *Law, Kathryn A* What Is Really in that Dietary Supplement? T: Mrs. Tonya Camaratta S: Howard Bishop Middle School C: Gainesville R: Alachua

**J0540** *Rockwell, Logan P* How Does Mixing Salt, Sugar, and Baking Soda into a Cup of Water Affect the Rate at Which Ice Melts in the Water? T: Ms. Sara Charbonnet S: Westwood Middle School C: Gainesville R: Alachua

**Senior: Earth & Environmental Sciences**

**S0601** *Grimmett, Glenn M* Carbon Capture Using Solid Sorbents, CO2 Adsorption Using Amine-Tethered Polystyrene and Polyacryl Polymers in Humid Conditions T: Ms. Suzanne Williamson S: American Heritage School of Boca/Delray C: Delray Beach R: Palm Beach

**S0602** *Miller, Lindsey F* The Effect of Nanosilver Particles on *Daphnia magna* Gene Expression over Multiple Generations T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

**S0603** *Kari, Tejasvi C* The Effect of Oil Dispersants on the Mortality Rate of *A. borkumensis* T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

**S0604** *Jiang, Sarah* Analysis of Endocrine Disrupting Chemicals (EDCs) in Southwest Florida Water Resources by Liquid Chromatography Mass Spectrometry (LC/MS) T: Ms. Jodie Godwin S: Cape Coral High School C: Cape Coral R: Thomas Alva Edison

**S0605** *Barnes, Morgan* Modeling In-vitro Environmental Impacts on Nutrient Remediation in Immobilized *Chlorella vulgaris* (A Novel 2 Year Study) T: Ms. Kelly Percivall S: Canterbury School C: Fort Myers R: Thomas Alva Edison

**S0606** *Sai, Ashna* Engineering a Filter through 3-D Printing Capabilities in Order to Remove Microplastics from Drinking Water T: Mrs. Kristian Kohl S: Spruce Creek High School C: Port Orange R: Tomoka

**S0607** *Butler, Jade E ; Sweetland, Jillian A* Computational Analysis of Everglades Health T: Dr. Nicole Mosblech S: Vero Beach High School C: Vero Beach R: Indian River

**S0608** *Wagner, Griffin M* A Novel Machine Learning Process for Proactive Management of Cyanobacteria Blooms and Microcystin Toxins T: Dr. Nicole Mosblech S: Vero Beach High School C: Vero Beach R: Indian River

**S0609** *Kalia, Ojas* What Is the Effect of the Mixed Culture of the Soil Bacteria *Pseudomonas fluorescens* and the *Cyanobacteria Anabenea* on the Degradation of Polyvinyl Chloride Plastic T: Mrs. Bhagyashree Kulkarni S: George S. Middleton High School C: Tampa R: Hillsborough

**S0610** *Enguidanos, Joseph T* Remote Controlled Solar Powered Micro and Macro Plastic Water Cleaning System (Year 2) T: Ms. Gina Emery S: Niceville High School C: Niceville R: East Panhandle

**S0611** *Brush, Isabella D* Observing the Interaction Between Chlorella Vulgaris Microalgae and Microplastic Particles T: Mr. Andrew Harshman S: Sarasota High School C: Sarasota R: Sarasota

**S0612** *Titus, Carolina G* The Effect of Prolonged Exposure of *Kareia brevis* on the Filtration Rate of *Crassostrea virginica* T: Mr. Andrew Harshman S: Sarasota High School C: Sarasota R: Sarasota

**S0613** *Ramesh, Eshan* Forecasting the Localized Bilateral Effect of Ocean Acidification on the Counter Carbonate Pump Using Recurrent Neural Networks T: Mr. William James Furiosi S: Oviedo High School C: Oviedo R: Seminole

**S0614** *Barr, Clara L* Creating Clean Water on a Deserted Island: Distillation Desalination in Action T: Mrs. Fawn Stam S: Montessori at Roseborough C: Mount Dora R: Lake


**S0616** *Wajid, Manahil ; Shahraj, Muhammad* Utilizing Ligninolytic Enzymes from White-Rot Fungi for Bioremediation: Using *Pleurotus ostreatus* for the Biosorption of Heavy Metals In Water T: Mr. Daniel Uchacz S: Cypress Creek Middle High School C: Wesley Chapel R: Pasco
Finalists and Projects

**S0617** *Bullion, Bailey M; Kruse, Jenna N* Mealworms: The Solution to Mounting Plastic Waste  
*T:* Mrs. Cherie Stephens  
*S:* Pensacola High School  
*C:* Pensacola  
*R:* West Panhandle

**S0618** *Fields, Lily R; Maughan, Winding M* The Effects of Microplastic Exposure on the Regrowth and Regeneration of Starfish  
*T:* Dr. Kathryn Kehoe  
*S:* Ponte Vedra High School  
*C:* Ponte Vedra  
*R:* St. Johns

**S0619** *Villemaire, Lisel V* Ocean Acidification on Zooplankton  
*T:* Mr. Ryan Campbell  
*S:* Lecanto High School  
*C:* Lecanto  
*R:* Citrus

**S0620** *Taylor, Kaitlyn ; Johnson, Mia* A Natural Solution to Sinkholes  
*T:* Ms. Monica Vinas  
*S:* The Villages Charter High School  
*C:* The Villages  
*R:* Big Springs

**S0621** *LaFortune, Alexander* The Impact of the Saharan Air Layer (SAL) on North Atlantic Tropical Cyclones (Year 3)  
*T:* Mr. Joe Scott  
*S:* Satellite High School  
*C:* Satellite Beach  
*R:* Brevard: Intra-coastal

**S0622** *Doro, Miranda K* Analyzing the Efficacy and Effects of Microplastic Removal with Ferrofluids  
*T:* Mrs. Marion Zeiner  
*S:* Episcopal School of Jacksonville  
*C:* Jacksonville  
*R:* Northeast Florida

**S0623** *Kagiliery, Julia M* A Dual Sensor Machine Learning Approach to Sulfur Quantification in Lignite Coal  
*T:* Mrs. Marion Zeiner  
*S:* Episcopal School of Jacksonville  
*C:* Jacksonville  
*R:* Northeast Florida

**S0624** *Lopez, Sofia G; Rowan, Alannah R* Smart Roofing: Controlling Indoor Temperatures and Energy by Taking Roof Designs to the Next Level  
*T:* Mrs. Victoria Schmitt  
*S:* Bishop Kenny High School  
*C:* Jacksonville  
*R:* Northeast Florida

**S0625** *Rojas, Victoria E; Stringfellow, Caroline I* Earth-tastic Bioplastics  
*T:* Mrs. Victoria Schmitt  
*S:* Bishop Kenny High School  
*C:* Jacksonville  
*R:* Northeast Florida

**S0626** *Namen, Juliana R* The Usage of a Proposed Agricultural Bio-Waste Purification System for the Removal of THMs and HAAs  
*T:* Mrs. Victoria Schmitt  
*S:* Bishop Kenny High School  
*C:* Jacksonville  
*R:* Northeast Florida

**S0627** *Reddy, Bhaiveshraj G* Optimizing Lignocellulosic Bio-Hydrogen Production through a Hybrid Fermentation System in Rhodobacter Sphaeroides and Pseudomonas Putida with the Co-generation of Nylon Precursors  
*T:* Mrs. Leya Mathew Joykutty  
*S:* American Heritage School  
*C:* Plantation  
*R:* Broward

**S0628** *Waldman, Austin M* Biodegradable Lobster Traps  
*T:* Mrs. Zasha A. Mickey  
*S:* Lake Highland Preparatory School  
*C:* Orlando  
*R:* Dr. Nelson Ying Expo - Orange

**S0629** *Liang, Simone M* The Effects of Agricultural Runoff on Marine Algal Growth  
*T:* Mr. Steven Craig  
*S:* Southeast High School  
*C:* Bradenton  
*R:* Manatee STEM Competition

**S0630** *Wang, Cindy* The Effect of Scotts Fertilizer and Miracle Grow in Different Measurements in a Microbial Fuel Cell  
*T:* Mrs. April Blaze  
*S:* Haines City High School  
*C:* Haines City  
*R:* Polk

**S0631** *Egger, Jaydon M* Straw Wars  
*T:* Mrs. Wendy Reister  
*S:* Okeechobee High School  
*C:* Okeechobee  
*R:* Heartland

**S0632** *Goldrick, Cassandra M* The Magnitude in the Melting  
*T:* Mr. Matthew Burnner  
*S:* Central High School  
*C:* Brooksville  
*R:* Hernando

**S0633** *Anderson, Haven R* (As)cisco: The Effect of the Strain of Oyster Mycelium on the Biosorption of Arsenic in H2O  
*T:* Mr. Chris Auricchio  
*S:* Hernando High School  
*C:* Brooksville  
*R:* Hernando

**S0634** *Warfel, Timothy C* 3 Year Study: Algae Accumulator  
*T:* Mr. David Raney  
*S:* Hamilton County High School  
*C:* Jasper  
*R:* Suwannee Valley

**S0635** *Parikh, Vraj A* The Effects of Nitrogen Influxes on the Photosynthesis and Growth Rate of Air Potato  
*T:* Ms. Lisa Hevner  
*S:* Lincoln Park Academy  
*C:* Ft. Pierce  
*R:* St. Lucie

**S0636** *Chadha, Rohan* Optimizations of Algal-Microbial Fuel Cell (AMFC) to Produce Sustainable Bioenergy  
*T:* Mrs. Angela Breza-Pierce  
*S:* Lawton Chiles High School  
*C:* Tallahassee  
*R:* Capital

**S0637** *Ugas, Alejandro M* Sponge Wars  
*T:* Mr. Jeff Higginsbotham  
*S:* Rockledge High School  
*C:* Rockledge  
*R:* Brevard: Mainland

**S0638** *Stanton, Sean* Examining Leachate from Sediment in the IRL (Indian River Lagoon)  
*T:* Mrs. Courtney Harris  
*S:* Odyssey Charter School  
*C:* Palm Bay  
*R:* Brevard: South
Finalists and Projects

Junior: Earth & Environmental Sciences

J0601 * Adams, William L Strategies to Mitigate Microclimates Associated with Urban Development T: Mr. Shaun Stabler S: Polo Park Middle School C: Wellington R: Palm Beach

J0602 * Mensah, Deborah D Which Materials Filter out the Most TDS from Water? T: Ms. Suzette Milu S: A.D. Henderson University School C: Boca Raton R: Palm Beach

J0603 * Mitchell, Samantha The Chaetomorpha Query T: Ms. Janel Massing S: Saint Francis Xavier Catholic School C: Fort Myers R: Thomas Alva Edison

J0604 * Fischer, Michaela Nature’s Filter: The Effect of * Stropharia rugosoannulata Mycelium on the Nitrate and Phosphate Levels in Contaminated Runoff T: Mrs. Cara Summit S: Canterbury School C: Fort Myers R: Thomas Alva Edison

J0605 * Rodriguez, Elise O Follow the Light T: Mrs. Karen Perry S: Neptune Middle School C: Kissimmee R: Osceola

J0606 * Tagg, Roseanna M Oil Spills - How Much Is too Much? An Investigation into the Retardation of Aquatic Plant Photosynthesis Due to Oil Spills T: Ms. Julie Graham S: River Springs Middle School C: Orange City R: Tomoka

J0607 * Erikson, Quenten Water E-Quality: An Evaluation of the Safety of Drinking Water Available at Public Recreational Sites as Affected by the Age of Delivery Infrastructure and Neighborhood SES T: Mr. Alexander Dillard S: Garlic V. Stewart Middle Magnet School C: Tampa R: Hillsborough

J0608 * Nallamshetty, Ayan Climate Change - Is There an Ideal Balance Between Benefits of Plant Growth and Rising Temperatures? T: Mrs. Kristy Weg S: Williams Middle Magnet School C: Tampa R: Hillsborough

J0609 * Paul, Kathlyn M The Effect of Solar Panels on the Atmospheric Temperature T: Mrs. Diana Katongole S: Bay Haven Charter Academy C: Panama City R: Bay Haven

J0610 * Amans, Lauren E Paving the Way for a Cooler Future T: Mrs. Lisa Nall S: C. W. Ruckel Middle School C: Niceville R: East Panhandle

J0611 * Enguidanos, Marisol R Is It Possible to Create a Self-sufficient Solar-powered Filtration System to Reduce Coral Bleaching (Year 2) T: Mrs. Jennifer Moses S: Okaloosa STEMM Academy C: Valparaiso R: East Panhandle

J0612 * Malick-Beltran, Brad M How Does the Amount of Salt Added to the Senko-style Fishing Lure Affect its Fall Rate, and What Amount of Salt Will Reproduce the Fall Rate of a Real Worm? T: Mr. Gregory Anthony S: Pine Ridge Middle School C: Naples R: Collier

J0613 * Knoth, Paige E Salinity vs. plankton density T: Miss Katie S: Pine Ridge Middle School C: Naples R: Collier


J0616 * Ramaciere, Roberto What Natural Chemical Mixtures Can Exterminate Unwanted Vegetation without Causing Harm? T: Mrs. Erin Spence S: Saint Cecelia Catholic School C: Clearwater R: Pinellas

J0617 * Save, Aryan ; Thumma, Divya Nanoparticles - A Threat to Marine Ecosystems? T: Mrs. Amanda Holden S: Sanford Middle School C: Sanford R: Seminole

J0618 * Sureshkumar, Maunicakka ; Vishwakarma, Ananya Dying Daphnia: How Toxic Can Water Get? T: Mrs. Amanda Holden S: Sanford Middle School C: Sanford R: Seminole

J0619 * Stephens, Devyn M How Does Light Pollution Affect Our View of the Night Sky T: Mrs. Jodi Russell S: Holley Navarre Middle School C: Navarre R: West Panhandle


J0621 * Mohammadbhoy, Lorelei G Microplastics Do Not Promote Gender Equality T: Ms. Sandra Pope S: Lecanto Middle School C: Lecanto R: Citrus

J0622 * Duma, Camille Zeolite Rocks and the Conversion of Corn Husks into Activated Carbon for the Adsorption of Excessive Nutrients in the Runoffs and Their Essentiality in Nutrient Recovery T: Mr. Stephen Hamby S: Howard Middle School C: Ocala R: Big Springs

J0623 * Lynch, Makayla E All Washed Out T: Ms. Meredith Spencer S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

J0624 * Coffey, Catherine A Study of the Effect of Microplastics on the Rate of Marine Algae Growth T: Mrs. Kara Coffey S: San Juan Del Rio Catholic School C: St. Johns R: Northeast Florida

J0625 * Khanolkar, Vineet A Synthesis, Application, and Decomposition of Biodegradable Plastic T: Mr. Daniel Geary S: Julia Landon College Preparatory Middle School C: Jacksonville R: Northeast Florida

J0626 * Correa, Jacqueline S; Shon, Charlee M Mealworm Magic T: Mrs. Adrienne Hazza S: Indian Ridge Middle School C: Davie R: Broward
Finalists and Projects

J0627 * Redlich, Avery G The Biodegradability of Different Materials in Different Environments over Elongated Periods of Time T: Ms. Jessica Lanzetta S: NSU University School C: Fort Lauderdale R: Broward

J0628 * Sakallah, Abdallah N The Effect of Metal Nanoparticles on Daphnia magna T: Mrs. Lubna Hamad S: Alazhar School C: Tamarac R: Broward

J0629 * Melian, Aniya The Effects of Processing Algae for Biofuel Production Using Flocculation T: Mrs. Leya Mathew Joykutty S: American Heritage School C: Plantation R: Broward

J0630 * Gay, Tiffani R Clean Our Oceans T: Ms. Janna Cramp S: Orlando Science Schools C: Orlando R: Dr. Nelson Ying Expo - Orange

J0631 * Aleman, Robert R Does Bisphenol A (BPA) Leach into Soil after Being Heated? T: Ms. Jessica Graham S: Key Largo School C: Key Largo R: Monroe

J0632 * Caraballo, Daniel D Medicine Shield T: Ms. Patricia Bennett S: Lawton Chiles Middle School C: Hialeah R: South Florida

J0633 * Mathews, Peyton T Cleaning Our Oceans T: Mrs. Christina Chiossone S: Green Cove Springs Junior High School C: Green Cove Springs R: Clay Rotary

J0634 * Propheter, Michaella A; Ordonez, Emily Iron TriOxide T: Mr. Eliud Keverenge S: Shell S. Boone Middle School C: Haines City R: Polk

J0635 * Parrish, Rhyen E Acidic Dangers to Our World T: Ms. Elizabeth Livesay S: Lakeland Highlands Middle School C: Lakeland R: Polk


J0638 * Butler, Brennan A Using Aquatic Plants to Mitigate Phosphate Runoff T: Mrs. Dawn Erb S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0639 * Casson, Holden Weighted Water T: Mrs. Kallie Hilyard S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0640 * Mowrey, Ronan J Motion in the Ocean: The Effect of Ocean Floor Morphology on the Height of a Wave T: Mrs. Dawn Erb S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0641 * Cooper, Autumn A The Effect of Various Organic Biochar on the Efficacy of Nitrate and Phosphate Adsorption in Contaminated Water T: Mrs. Kallie Hilyard S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

J0642 * Meis, Alexandria D Growing Mutant Crops: The Effects of Microwave Radiation on Pea Plant Growth T: Mrs. Gina Gass S: Elizabeth Cobb Middle School C: Tallahassee R: Capital

J0643 * Estevez, Christopher D The Effects of Phosphate and Nitrate on Chlorella vulgaris T: Mrs. Jana Gabrielski S: Suntree Elementary School C: Melbourne R: Brevard: Mainland

J0644 * Fournier, Aubrey S Filtering Florida’s Future T: Mrs. Elizabeth Thompson S: Oak View Middle School C: Newberry R: Alachua

J0645 * Freer, Flora Jane M How Does the Streamflow of a River Affect the Number of Microplastics Collected per Drop? T: Mr. Curtis Ericson S: Westwood Middle School C: Gainesville R: Alachua


J0647 * Nowicki, Elizabeth S Oil Spills! Hair Today, Gone Tomorrow! T: Mrs. Elizabeth Davis S: Oak View Middle School C: Newberry R: Alachua

J0648 * Shah, Rushil S Testing Humic Acids as an Alternative to Synthetic Chelators on the Phytoextraction of Zinc from Soil T: Mrs. Magdalena Molledo S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

J0649 * Esperance, Naissa Comparing the Efficiency of Reverse Osmosis (RO) and Thermal Desalination for Decreasing the Salt Concentration of Water T: Mr. James Less S: Saint Andrew Catholic School C: Cape Coral R: Thomas Alva Edison

J0650 * Trott, Weston C Does the Amount of Citrus Drop from a Citrus sinensis Tree Affect the pH of the Leachate as it Passes through the Soil? Year 2 T: Ms. Debra Kelly S: Hardee Junior High School C: Wauchula R: Heartland
Finalists and Projects

**Senior: Engineering**

**S0701** *Genoway, Ward C* Creating a Cost Effective Device for the Early Detection and Prevention of Coronary Heart Disease *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

**S0702** *Nge, Thi-han W* Here Comes the Sun: Aerodynamic Optimization of a Solar Cruiser Race Car *T:* Mrs. Robin Barkes *S:* Florida Atlantic University High School *C:* Boca Raton *R:* Palm Beach

**S0703** *Behara, Eeshani* Edge-Intelligence Biosensor Based Point-of Care Device for Chronic Kidney Disease *T:* Mrs. Iris Thompson *S:* American Heritage School of Boca/Delray *C:* Delray Beach *R:* Palm Beach

**S0704** *Prendiville, James; Naik, Anay; Ravulapati, Sriram* Increasing the Angle of Attack of An Airfoil Using Bernoulli’s Principle *T:* Mr. John Woodward *S:* Fort Myers High School *C:* Fort Myers *R:* Thomas Alva Edison

**S0705** *Elford, James R* Solar Desalination: Hot But Not Salty *T:* Mr. Scott Hurley *S:* Sebastian River High School *C:* Sebastian *R:* Indian River

**S0706** *McCaffrey, Katherine A* Graphene Nanocomposite Strain Sensors for Physiologic Monitoring *T:* Mrs. Carrie Prieto *S:* Carrollwood Day School *C:* Tampa *R:* Hillsborough

**S0707** *Pant, Akshat* Integrating Kinematic Linear Systems with Computer Vision to Develop Robotic Systems that Implement Machine Learning to Transport Objects Along Transversal Paths *T:* Mrs. Dianne Schroeder *S:* Strawberry Crest High School *C:* Dover *R:* Hillsborough

**S0708** *Sherwin, Charles B* Wing Ding *T:* Mrs. Scarlett Brock *S:* Niceville High School *C:* Niceville *R:* East Panhandle

**S0709** *Kappeler, Cooper J* Transferring Kinetic Energy of Waves into Electricity *T:* Mrs. Tracy Springman *S:* Indian Rocks Christian School *C:* Largo *R:* Pinellas

**S0710** *Knuth, Christian J* Engineering a Low Cost Bioprinter *T:* Mr. Andrew Harshman *S:* Sarasota High School *C:* Sarasota *R:* Sarasota


**S0713** *Christianson, Finnur T* Development of Novel Cerebral Aneurysm Embolization Method Via Injection of Pluronic F-127 Multiblock Copolymer Hydrogel *T:* Dr. Kathryn Kehoe *S:* Ponte Vedra High School *C:* Ponte Vedra *R:* St. Johns

**S0714** *Foster, Juan Carlos* The Impact of Spin Rate on Model Rocket Recovery *T:* Ms. Janice David *S:* West Port High School *C:* Ocala *R:* Big Springs

**S0715** *Trotter, Niamh* 3D Printed Touch: Year 2 *T:* Mr. Joe Scott *S:* Satellite High School *C:* Satellite Beach *R:* Brevard: Intracoastal

**S0716** *Vokoun, Steven C* Creation of a Highly Efficient Surface ROV Invoking Cylindrical Solar Panels *T:* Mr. David Hill *S:* Martin County High School *C:* Stuart *R:* Martin

**S0717** *Valentino, Antonio G* Conquering Concrete - Year II *T:* Mrs. Victoria Schmitt *S:* Bishop Kenny High School *C:* Jacksonville *R:* Northeast Florida

**S0718** *Jayram, Diya K* Engineering Macroporous Hydrogels to Recapitulate Aspects of the Tumor Microenvironment *T:* Mrs. Leya Mathew Joykutty *S:* American Heritage School *C:* Plantation *R:* Broward

**S0719** *Bhatheja, Ananya* Ceria Infused Nano Silk Fibroin Patch Fabrication and Applications *T:* Mrs. Zasha A. Mickey *S:* Lake Highland Preparatory School *C:* Orlando *R:* Dr. Nelson Ying Expo - Orange

**S0720** *Deville, Melanie D* Visualization of Two-Dimensional Rocket Motor Flow Using Schlieren Photography *T:* Mrs. Lisa Garrido *S:* Westminster Christian School *C:* Palmetto Bay *R:* South Florida

**S0721** *Kouchakjy, Sebastian D* Light Framed Pneumatic Chest Compressor *T:* Ms. Amanda George *S:* Orange Park High School *C:* Orange Park *R:* Clay Rotary

**S0722** *Williamson, John W* Protein Power vs Horsepower - Investigating Aeration vs Horsepower with the Effects of Different Protein Feeds on the Growth of U.S Farm-Raised Catfish- A Three Year Study *T:* Mr. Daniel Thomas *S:* Okeechobee High School *C:* Okeechobee *R:* Heartland

**S0723** *Pinto, Kathryn M; O'Donnell, Lauren E* Roofs: Harvesting Water *T:* Ms. Lina Rao *S:* Lincoln Park Academy *C:* Ft. Pierce *R:* St. Lucie

**S0724** *Bhathena, Tomas M* What Household Items are Best for Soundproofing? *T:* Ms. Patricia Sposato *S:* Fort Pierce Westwood Academy - MOA *C:* Fort Pierce *R:* St. Lucie

**S0725** *Bai, Jayi* Wave Energy Generator - Clean Energy of the Future *T:* Mrs. Angela Breza-Pierce *S:* Lawton Chiles High School *C:* Tallahassee *R:* Capital
**Finalists and Projects**

**Junior: Engineering**

**S0726** *Weiner, Isabella R* In Situ Resource Utilization of Martian Regolith for Construction - Year 3 T: Mr. Trevor Herntier S: Holy Trinity Episcopal Academy C: Melbourne R: Brevard: Mainland

**S0727** *Critchfield, Carl A* The Development and Testing of a Thrust Vector Flight Control System for Scale Rocketry Using an 8-bit AVR Microcontroller T: Mr. Greg Stauffer S: Melbourne High School C: Melbourne R: Brevard: South

**J0701** *Ouyang, Theodore G* Optimization of Linear Actuators Using Various External Thread Pitch Length and Angles T: Mr. Kevin Simmons S: The Weiss School C: Palm Beach Gardens R: Palm Beach

**J0702** *Taylor, Lydia* Using Waste Thermal Air Flows to Improve Air Conditioning and Heat Pump Operating Efficiencies T: Ms. Mary Jane Judith S: IDEAL School of Advanced Learning C: Royal Palm Beach R: Palm Beach

**J0703** *Miller, Trinity G* Fluid Dynamics of Objects T: Mr. Mark Gallagher S: St. Thomas Aquinas Catholic School C: St. Cloud R: Osceola

**J0704** *Truesdell, Mitchell* Effects of Screws on Hurricane Ties T: Mrs. Colleen Bender S: New Smyrna Beach Middle School C: New Smyrna Beach R: Tomoka

**J0705** *Jackson, John Edwin* ION Engine T: Mrs. Heather Frost S: Stewart Middle Magnet School C: R: Hillsborough

**J0706** *Kling, Daniel J* Electromagnetism in Action T: Mrs. Amy Canfield S: Bay Haven Charter Academy C: Panama City R: Bay Haven

**J0707** *Vander Koooy, Mary Elizabeth* How Does the Infill of a 3D Object Affect Its Strength T: Mrs. Angela Robinson S: Okaloosa STEMM Academy C: Valparaiso R: East Panhandle

**J0708** *Gurney, Ronald M* Pane Gain Window Glue T: Mrs. Lisa Nall S: C. W. Ruckel Middle School C: Niceville R: East Panhandle

**J0709** *Miller, Braden M* Different Homemade Water Purification Systems vs Impact on Water Contaminants T: Miss Katie Cone S: Pine Ridge Middle School C: Naples R: Collier

**J0710** *Proctor, Summer; Warnakulasuryia, Alani* Tiny Breeze T: Ms. Dorothy Rieger S: McIntosh Middle School C: Sarasota R: Sarasota

**J0711** *Singla , Udeshya* Beat the Heat: An Effective Method to Save Lives in Overheated Vehicles T: Mrs. Ramona Lataille S: Seminole Science Charter School C: Lake Mary R: Seminole

**J0712** *Clow, Alexandra* Forgotten Baby Syndrome - Year 3 T: Ms. Emily Logan S: Umatilla Middle School C: Umatilla R: Lake

**J0713** *Dodd, Addison T; Dodd, Landon* H2O Christmas Tree T: Mr. Dennis Doherty S: Windy Hill Middle School C: Clermont R: Lake

**J0714** *Sawall, Gavin M* Chill Out T: Mrs. Darcy Cleek S: Dr. John Long Middle School C: Wesley Chapel R: Pasco

**J0715** *Salazar, Adrian A* Top Flow T: Mrs. Jodi Russell S: Holley Navarre Middle School C: Navarre R: West Panhandle

**J0716** *Te, Jaeden* How Different Angles of Exposure of Solar Cells to Sunlight Impact Their Performance T: Mr. Jack Smith S: Osceola Middle School, Ocala C: Ocala R: Big Springs

**J0717** *Guna, Aneesha* 3, 2, 1, Lift Off! T: Ms. Meredith Spencer S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

**J0718** *Jendrusiak, Zoe L* How Storage Temperature Affects Battery Powering Longevity T: Mr. David Hill S: Redeemer Lutheran Church and School C: Stuart R: Martin

**J0719** *Vivek, Arnav* The Hiker’s Outlet T: Mr. David Hill S: Dr. David L. Anderson Middle School C: Stuart R: Martin

**J0720** *Hernandez-Abdallah, Marianna E; Hodgett, Eila N* Turning Solid Waste Into Electricity Using Thermocouples T: Ms. Carol Turner S: San Jose Catholic School C: Jacksonville R: Northeast Florida

**J0721** *York, Benjamin M* Investigating the Efficiency of the Rateau And Curtis Steam Turbines T: Mrs. Margaret Van De Gucht S: Twin Lakes Academy Middle C: Jacksonville R: Northeast Florida

**J0722** *Eldabbas, Khaled A* Can More MBPS Speed up IOT Smart City? T: Mrs. Heather Ihamaki S: Glades Middle School C: Miramar R: Broward

**J0723** *Whitney, Maxwell P; Lee, Galen* Eyes Under the Sea T: Mrs. Jessica Aguina S: Pioneer Middle School C: Cooper City R: Broward

**J0724** *Barker, Rylee J* Fluidized Bed - Which Spherical Objects Will Float? T: Mrs. Patricia Pascatore S: Driftwood Middle School C: Hollywood R: Broward
Finalists and Projects

J0725 * Tinder, Colin P Lego Tower and Earthquake Simulation T: Mrs. Adrienne Hazza S: Indian Ridge Middle School C: Davie R: Broward

J0726 * Avila, Gabriela N The Clarinet Umbrella T: Mrs. Najdah McCoy S: Silver Trail Middle School C: Pembroke Pines R: Broward

J0727 * Rina, Elise A Access Granted T: Mr. Bob Madewell S: Lake Eola Charter School C: Orlando R: Dr. Nelson Ying Expo - Orange

J0728 * Eysenbach, Sydney M Ebike T: Mrs. Bobbi Burson S: Treasure Village Montessori School C: Islamorada R: Monroe

J0729 * Stolze, William T; Stunk, Edward N Attachable Biometric Interface System for an Internal Locking ISO Shipping Container T: Mrs. Nicole Wahlgren S: Sigsbee Charter School C: Key West R: Monroe

J0730 * Schwartzman, Ryan RA Tracker: Following the Sun T: Mr. Daniel Goodfriend S: Norman S. Edcelcup Sunny Isles Beach K-8 Community School C: Sunny Isles Beach R: South Florida


J0732 * Kreisel, Karen A Non-Serendipitous Bubbles T: Mr. Shane Edelkind S: Martha B. King Middle School C: Bradenton R: Manatee STEM Competition

J0733 * Holmes, Tramari M What Will Break the Bridge? T: Mrs. Elizabeth Ridgeway S: Lake Placid Middle School C: Lake Placid R: Heartland

J0734 * Biegner, Katherine R Clean Cow, Clean Energy T: Ms. Carrie Kahr S: Mosaic Digital Academy C: Port St. Lucie R: St. Lucie

J0735 * Sasso, Anthony (Charlie) C Wonderful Winglets: How Does Winglet Design Affect Flight T: Mr. Mark Adamson S: Trinity Catholic School C: Tallahassee R: Capital

J0736 * Rafeek, Johan How Do Different Drone Propellers Materials Affect the Drone’s Efficiency, Battery Life and Thrust Force of a Drone? T: Mr. Marino Nardelli S: Lyndon B. Johnson Middle School C: Melbourne R: Brevard: Mainland

J0737 * Tapia-Ruano, Daniel E; Bell, Damien R Which 3D Tessellations Are the Strongest/Weakest? T: Mrs. Cindy Tompkins S: High Springs Community School C: High Springs R: Alachua

J0738 * Niwas, Mehek The Effects of Various Surface Modifications on the Lift and Drag Produced by an Airfoil T: Mr. Richard Regan S: Stone Magnet Middle School C: Melbourne R: Brevard: South

Senior: Environmental Engineering


S0802 * Linville, Ciara The Implementation of Hydroxide Solution to Adequately Reduce Carbon Dioxide Emissions T: Ms. Rebecca Hill S: North Fort Myers High School C: North Fort Myers R: Thomas Alva Edison

S0803 * Nasr, Yara G Extracting Water From Humid Air Using Condensation T: Ms. Anne M. Cooney S: Spruce Creek High School C: Port Orange R: Tomoka

S0804 * Fini, Emma J Effects of Prickly Pear Mucilage Filter and Activated Charcoal Powder Filter on the Filtration of Water T: Dr. Laxmikant Pathade S: Saint Edwards School C: Vero Beach R: Indian River

S0805 * McCaffrey, Elizabeth I The Effectiveness of a Solar Powered Electrocoagulation-flocculation Cell for the Removal of the Algae Chlorella vulgaris and Phosphates from Water Bodies T: Mrs. Carrie Prieto S: Carrollwood Day School C: Tampa R: Hillsborough

S0806 * Whatmore, Reece; Surattanont, Supawadee C STEM the Tide: 3-D Printed Reefs Against Red Tide T: Mr. Ryan Kinser S: The-out-of-door Academy C: Sarasota R: Sarasota

S0807 * Nag, Ishika A Solution to Pollution: Enhancing Efficiency and Cost Effectiveness of Air Filtration Using Nanoparticles T: Mr. William James Furiosi S: Oviedo High School C: Oviedo R: Seminole

S0808 * Thupili, Sarvani Optimization of Polyethylene Degradation by Gut Bacteria in Galleria mellonella T: Mr. William James Furiosi S: Oviedo High School C: Oviedo R: Seminole

S0809 * Classon, Claire C Can I Engineer a Biodegradable, Wildlife-safe Fishing Line to Reduce Fishing Materials Waste? T: Mrs. Fawn Stam S: Montessori at Roseborough C: Mount Dora R: Lake

S0810 * Davis, Sadie G Recycled Concrete T: Mrs. Laura Barker S: Mount Dora Christian Academy C: Mount Dora R: Lake
**Finalists and Projects**

**S0811** *Adams, Isabella J* Algal Bio-Geoengineering in Solar Radiation Management T: Mr. Branden L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco

**S0812** *Cardwell, William G* The Effect of a Fresnel Lens on Solar Panels T: Mr. Daniel Uchacz S: Cypress Creek Middle High School C: Wesley Chapel R: Pasco

**S0813** *Han, Claire J* Using Different Charged Media to Remove Heavy Metal Ions from Contaminated Water T: Mrs. Cherie Stephens S: Pensacola High School C: Pensacola R: West Panhandle

**S0814** *Ortengren, Tyler* Can Energy Be Harvested from the Swaying Motion of Trees? T: Ms. Darsani Sookdeo S: The Villages Charter High School C: The Villages R: Big Springs

**S0815** *Almeda, Jasmine R* Energy Content of Various Algae Biodiesels T: Ms. Briana Clarke S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

**S0816** *Jakhete, Rohan S* SAMMI: Smart Autonomous Mercury Monitoring Instrument T: Mr. David Hill S: South Fork High School C: Stuart R: Martin


**S0819** *Nikiforova, Katerina A* Elemental Battle T: Mr. Carl Bish S: Marathon High School C: Marathon R: Monroe

**S0820** *Diederich, Zoe F* A Fail Safe Cooling System: A Novel Passive Nuclear Safety Design for Nuclear Power Plants T: Mrs. Gina Sese S: Maritime and Science Technology Academy C: Miami R: South Florida

**S0821** *Onder, Michael N* A Sound Analysis: An Acoustic and Statistical Investigation of Frequency Patterns in Breaking Waves for Use in Autonomous Vehicle Guidance Applications T: Mr. Todd Thompkins S: Dr. Michael M. Krop High School C: Miami R: South Florida

**S0822** *Pineda, Karen L; Perez, Heleny* Macro-algae Bioplastics as an Alternative to Petroleum Based Single Use Plastics T: Dr. Monique Salazar S: iMater Preparatory Academy High School C: Miami R: South Florida

**S0823** *Chen, Michael* A Novel Seawall Design to Reduce Wave Reflections and Overtopping T: Mr. Devan Skapetis S: Ridgeview High School C: Orange Park R: Clay Rotary

**S0824** *Maurer, Hailey L* Fantastic Bioplastic: Investigating the Effect of a Bioplastic's Starch Content on its Biodegradability T: Mr. Steven Craig S: Southeast High School C: Bradenton R: Manatee STEM Competition

**S0825** *Ducar, Watson* Chef’s Eggcellence T: Mrs. Mindy Siyufy S: Resurrection Catholic School C: Lakeland R: Polk

**S0826** *Hu, Sabrina Y* Solar-Powered Water Purifier T: Dr. Paula Hall S: James S. Rickards High School C: Tallahassee R: Capitol

**S0827** *Natarajan, Lavanya* Engineering a Solution to Determine Linear Configuration, Depth, and Location by Observing Contaminant Flow Profiles in Simulated Landfill Column T: Ms. Elizabeth Youngs S: Viera High School C: Viera R: Brevard: Mainland

**S0828** *Bramblett, Kyle W* Designing an Improved Method of Shellfish Restoration: Increasing Shell Growth by Constructing an Artificial Structure to Increase Surface Area for Oyster (Crassostrea virginica) Spat Settlement Using Calcite Media to Improve Water Quality Parameters. T: Mrs. Jennifer Cotton S: Titusville High School C: Titusville R: Brevard: Mainland


**S0830** *Agarwal, Adit S* Developing and Testing a Device Using Electrocoagulation to Remove Suspended and Dissolved Solids from Water T: Mr. Greg Stauffer S: Melbourne High School C: Melbourne R: Brevard: South

**S0831** *Londono, Manuela* The Effects of Ozone on Chlorella T: Mrs. Lisa Garrido S: Westminster Christian School C: Palmetto Bay R: South Florida

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**Junior: Environmental Engineering**

**J0801** *Modzelewski, Daria C* Wind Turbine Electricity Generation T: Mrs. Elaine Gibbard S: Omni Middle School C: Boca Raton R: Palm Beach

**J0803** *Liu, Isabel* Kitchen Supplies... to Biodegradable Plastic! T: Ms. Jill Whitewood S: Cypress Lake Middle School C: Fort Myers R: Thomas Alva Edison

**J0804** *Mejia, Perla J* Engineering *Dicranum scoparium* as a CO₂ Absorbant under Two Conditions: Light and Quantity T: Mr. Mark Gallagher S: St. Thomas Aquinas Catholic School C: St. Cloud R: Osceola

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Finalists and Projects

**J0805** *Dorn, Cassandra E* What Method of UV Light Is Most Effective at Killing Algae? **T:** Mrs. Abigail Crain **S:** David C. Hinson Middle School **C:** Daytona Beach **R:** Tomoka

**J0806** *Dato Slattery, Marlon S* Wind Turbine Efficiency **T:** Mr. Karl Leonhardt **S:** Saint Edwards School **C:** Vero Beach **R:** Indian River

**J0807** *Mohammad, Ibrahim ; Alhamzawi, Youssef ; Khan, Umar H* Rainwater: The Energy of the Future **T:** Ms. Areej Farhat **S:** American Youth Academy **C:** Tampa **R:** Hillsborough

**J0808** *Santra, Moitri* Innovative Engineering Tools for Controlling Harmful Algal Blooms **T:** Mrs. Melanie Francher **S:** Jackson Heights Middle School **C:** Oviedo **R:** Seminole

**J0809** *Torkzadeh, Rubina* Wondrous Waves! **T:** Ms. Nicole Downey **S:** Tuskawilla Middle School **C:** Oviedo **R:** Seminole

**J0810** *Rodriguez, Jasmine A* Desalination Process Solar Impact **T:** Ms. Olga Britton **S:** Pasco Middle School **C:** Dade City **R:** Pasco

**J0811** *Rodriguez, Marco A* Dematerializing Bio-Plastics **T:** Ms. Olga Britton **S:** Pasco Middle School **C:** Dade City **R:** Pasco

**J0812** *Peoples, James T* Is It Terminal? **T:** Ms. Kiersten Huggins **S:** Holley Navarre Middle School **C:** Navarre **R:** West Panhandle

**J0813** *Herndon, Chase A* Repurposing Plastics **T:** Mrs. Jannette Coker **S:** Inverness Middle School **C:** Inverness **R:** Citrus

**J0814** *Mohammadhboy, Felicity A* Let's Bring the "Crystal" back to Crystal River **T:** Ms. Rebecca Clymer **S:** Lecanto Middle School **C:** Lecanto **R:** Citrus

**J0815** *Von Rosenberg, Marcus M* Can I Make a Manure Powered Digester that Can Produce Methane and Other Gases that Could Easily Be Used for Energy? **T:** Ms. Sydney Norwood **S:** The Cornerstone School **C:** Ocala **R:** Big Springs

**J0816** *Chen, Tracey Q* Mimicking Mangroves **T:** Mrs. Michelle Zimmerman **S:** Herbert H. Hoover Middle School **C:** Indialantic **R:** Brevard: Intracoastal

**J0817** *Calhoun, Isabella G* Charcoal Not Just for the Grill **T:** Ms. Kimberly Nunez **S:** Saint Joseph Catholic School **C:** Stuart **R:** Martin

**J0818** *Hay, Jesse J* Isomalt as a Biodegradable Plastic Alternative **T:** Ms. Erin Magee **S:** Tequesta Trace Middle School **C:** Weston **R:** Broward

**J0819** *Hosein, Sophia A* Evaluating the Effectiveness of Tsunami Barriers **T:** Ms. Brianna Hooker **S:** Orlando Science Schools **C:** Orlando **R:** Dr. Nelson Ying Expo - Orange

**J0820** *Martinez, Daniella* A Hybrid Model: Let the Sun Heat it Up **T:** Mrs. Rebeca Martinez **S:** Downtown Doral Charter Upper School **C:** Doral **R:** South Florida

**J0821** *Ramirez, Carlos E* PET-EX, Simulation of the Plastic Recycling Process Used in Space Stations (ISS) **T:** Mrs. Rebeca Martinez **S:** Downtown Doral Charter Upper School **C:** Doral **R:** South Florida

**J0822** *Berrios-Cortes, Alejandro O* Which Is the Best Rotor Design **T:** Mrs. Brittany Devlin **S:** Dr. Mona Jain Middle School **C:** Bradenton **R:** Manatee STEM Competition

**J0823** *Hurd, Kailyn C* Bye Bye Mosquitoes **T:** Mrs. Kailie Hilyard **S:** Challenger K8 School of Science and Mathematics **C:** Spring Hill **R:** Hernando

**J0824** *Wilkerson, Zanya* Wily Waves: Build an Oscillating Water Column that Will Extract Energy from Waves **T:** Mrs. Sarah Young **S:** North Florida Christian School **C:** Tallahassee **R:** Capital

**J0825** *Weiner, Sophia M* Constructive Utilization of Indian River Lagoon Muck - Year 2 **T:** Mr. Trevor Herntier **S:** Holy Trinity Episcopal Academy **C:** Melbourne **R:** Brevard: Mainland

**J0826** *Vaughn, Quinn H* Enviro: The Greenest Cryptocurrency on Earth **T:** Mrs. Tonya Camaratta **S:** Howard Bishop Middle School **C:** Gainesville **R:** Alachua

**J0827** *Milosevic, Clara L* How Do Different Types of Weed Killer Affect Ants? **T:** Ms. Sara Charbonnet **S:** Westwood Middle School **C:** Gainesville **R:** Alachua

**J0828** *Puskur, Shruti* Testing the Effects of Iron Nitrate on the Biofixation of Carbon Dioxide in Cocciliphorid Algae **T:** Mr. Robert Klaasen **S:** West Shore Junior/Senior High School **C:** Melbourne **R:** Brevard: South

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**Senior: Intelligent Machines, Robotics, & Systems Software**

**S0901** *Alexis, Arman S* Utilizing Virtual Reality to Augment the Efficiency of Analyzing CT Scanned Organisms **T:** Mrs. Robin Barkes **S:** Florida Atlantic University High School **C:** Boca Raton **R:** Palm Beach

**S0902** *Bowonthamachak, Micah A* Machine Learning for a Self-Balancing Robot **T:** Mr. Jeffrey Lauffer **S:** Suncoast Community High School **C:** Riviera Beach **R:** Palm Beach
Electromyographic Signals Released by Severed Nerves to Machine Learning to Predict the Outcome of Shelter Animals

S0905 * Hunter, Isaac A Project Redigo: Reduce Confusion, Reduce Waste T: Dr. Nicole Mosblech S: Vero Beach High School C: Vero Beach R: Indian River


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

S0908 * Khatib, Samer M Mapping & Filtering Trends in Electromyographic Signals Released by Severed Nerves to Accurately Articulate and Model Finger Movements Observed in Myoelectric Prosthetics to Increase Fluidity of the Prosthetic T: Mr. Brandon L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco


S0910 * Johnson, Alex E; Walker, Jonathan C I've Got a Feeling-A Novel, Economical Approach to a Portable, Refreshable Braille System that Functions in Real-Time T: Mrs. Beverly Barron S: Rutherford High School C: Panama City R: West Panhandle


S0913 * Iyer, Nikhil H Evolutionary Algorithm to Construct Artificial Neural Network Architectures for Various Applications T: Mr. Ryan Cisick S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

S0914 * Singh, Viraj See with NFC - A Novel Solution to Assist the Blind and Visually Impaired T: Mr. David Hill S: Martin County High School C: Stuart R: Martin

S0915 * Shaik, Aman A Novel Deep Learning Model to Detect and Respond to Cyberbullying on Instagram T: Dr. Kathryn Halloran S: The Bolles School C: Jacksonville R: Northeast Florida

S0916 * Young, MaryAlice D; Young, Izabelle J Creating an Electromagnetic Suit to Simulate Gravity and Electromagnetism Effects on Dugesia tigrina T: Mrs. Victoria Schmitt S: Bishop Kenny High School C: Jacksonville R: Northeast Florida

S0917 * Aviles, Andrea M; Xiao Barbero, Miguel Mammogram Classification System T: Mr. Jay Rosenberg S: Cypress Bay High School C: Weston R: Broward

S0918 * Boughton, Matthew Can an Arduino Microcontroller Sustain Multiple Types of Living Plants Over a Period of Time? T: Mrs. Judith Bright S: Orlando Science School C: Orlando R: Dr. Nelson Ying Expo - Orange

S0919 * Mair, Shania T Construction of a Robotic Hand T: Ms. Patricia Sacasa S: Medical Academy for Science and Technology C: Homestead R: South Florida

S0920 * Knutsen, Lucas S JARVIS the Healthcare Robot T: Mrs. Rebecca Swain S: Clay High School C: Green Cove Springs R: Clay Rotary


S0923 * Helmy, Jad A Sonar: Remote Detection of Falls and Emergencies Using Ultrasound in Home Assistant Devices T: Mr. Erik Shuping S: Gainesville High School C: Gainesville R: Alachua


S0925 * Bahsoun, Sarah A Automating the Segmentation of Neuron-Derived Exosomes in Blood Samples for Early Detection of Alzheimer's and Parkinson's Disease T: Mrs. Mary Schropp S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South
Finalists and Projects

**Junior: Intelligent Machines, Robotics, & Systems Software**

**J0901** *O'Leary, Patrick M* Can Deep Learning Be Used to Trigger a Shark Alert at Public Beaches and Minimize False Positives? T: Ms. Suzette Milu S: A.D. Henderson University School C: Boca Raton R: Palm Beach

**J0902** *Salcedo, Julian* Why Can't Robots Replace the Human Touch? T: Ms. Jody Callahan S: Good Shepherd Lutheran School C: North Fort Myers R: Thomas Alva Edison

**J0903** *Watford, Gracelyn R; Disney, Charley G; Jaret, Talia N* GOT BOT? T: Mr. Donald Perry S: Neptune Middle School C: Kissimmee R: Osceola

**J0904** *Bisesi, Olivia M* How Efficient Is an Autonomous Robot at Locating, Retrieving, and Returning an Object? T: Mr. Martin Ingoldsby S: Creekside Middle School C: Port Orange R: Tomoka

**J0905** *Bargouthi, Adam* Safety Circuits T: Mrs. Mageda El Moubarak S: American Youth Academy C: Tampa R: Hillsborough

**J0906** *Wilmoth, Aaron M* It's All in Your Head: Virtual World Telekinesis T: Mrs. Angela Reinke S: Walton Middle School C: Defuniak Springs R: East Panhandle

**J0907** *Kini, Siddharth A* GnomonBot: An AI-based Autonomous Weed Detecting Robot T: Mr. Christopher Duffy S: Seminole Science Charter School C: Lake Mary R: Seminole

**J0908** *Leinenbach, Sierra R* Building Structures Using Genetic Algorithms T: Mrs. Kim Coleman S: Sanford Middle School C: Sanford R: Seminole

**J0909** *Anderson, Haden* CPU Heat Exterminator T: Mrs. Korrin Dykhous S: Imagine South Lake Charter School C: Clermont R: Lake

**J0910** *Smith, Keaton D* Autonomous Device to Locate and Eradicate Cyanobacteria T: Mrs. Michelle Zimmerman S: Herbert H. Hoover Middle School C: Indialantic R: Brevard: Intracoastal

**J0911** *Singh, Varun* Busted! Monitoring Hand Hygiene with Smart RFID Technology T: Mr. David Hill S: Dr. David L. Anderson Middle School C: Stuart R: Martin

**J0912** *Lee, Jonathan A* Translation Glove T: Mrs. Robin DeVito S: Saint John Vianney Catholic School C: Orlando R: Dr. Nelson Ying Expo - Orange

**J0913** *Streets, Jonas J* Designing a Remote-controlled Multi-terrain Military Surveillance Robot T: Mr. Matthew Croxton S: Lakeland Christian School C: Lakeland R: Polk

**J0914** *Dicks, Grant* Which WiFi Frequency Has a Stronger Connectivity Strength? A Continuation Study T: Ms. Rachel Summers S: Lake Butler Middle School C: Lake Butler R: Suwannee Valley

**J0915** *Khatiwada, Avis* For a Brain, By a Brain T: Ms. Paula Price S: Palm Pointe Educational Research School C: Port St Lucie R: St. Lucie

**J0916** *Stacy, Amelie H* The Big Picture: Hiding in Plain Sight T: Mrs. Dianne Alexis S: Saint Mary Catholic School C: Rockledge R: Brevard: Mainland

**J0917** *Sarabjit, Gabriel* Building and Programming a Drivable Object Recognition Robot using an ImageNet Neural Network with the NVIDIA Jetson Nano T: Mr. Richard Regan S: Stone Magnet Middle School C: Melbourne R: Brevard: South

**J0918** *Subbiah, Madhumita* Stomp Out Bullying! T: Mr. Robert Klaasen S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

**Senior: Mathematics & Computational Sciences**


**S1002** *Jenkins, Noah B* Analyzing the Rationality of Options Pricing Theory within the Student Loan Sector of the Asset-Backed Securities Market T: Mr. Timothy Mathis S: St. Cloud High School C: St. Cloud R: Osceola

**S1003** *Chehaithi, Rania K* Public vs Private Defense Attorneys and the Court System Bias: A Statistical Analysis of the Gideon Effect T: Mrs. Kristian Kohl S: Spruce Creek High School C: Port Orange R: Tomoka

**S1004** *Quach, Nicholas H* Impact of Style of Play on NBA Player and Team Efficiency T: Mrs. Sarah Sanford S: T. R. Robinson High School C: Tampa R: Hillsborough

**S1005** *Santos, Breno* A Novel Approach for Solving Non-deterministic Problems in Polynomial Time T: Ms. Beth Russell S: Fort Walton Beach High School C: Fort Walton Beach R: East Panhandle

**S1006** *Waters, Rachael* Can You Predict the Spatter? T: Mrs. Jessica McMahan S: Indian Rocks Christian School C: Largo R: Pinellas
Finalists and Projects

**S1007** *Kopp, Joshua D* A Novel Study of the Potential Applications of Higher Efficiency Extraterrestrial Solar Cells
- *T*: Mr. Branden L. Anglin
- *S*: Wiregrass Ranch High School
- *C*: Wesley Chapel
- *R*: Pasco

**S1008** *Bassett, Roman M; Osburn, Zachary O* Maximum Altitude in Model Rockets
- *T*: Ms. Suzanne Ryals
- *S*: Pensacola High School
- *C*: Pensacola
- *R*: West Panhandle

**S1009** *Fraga, Sarah M* Computational Modeling and Assessment of Novel Serine Protease Inhibitors for Better Drug Behavior
- *T*: Dr. Kathryn Kehoe
- *S*: Ponte Vedra High School
- *C*: Ponte Vedra
- *R*: St. Johns

**S1010** *Phillipswatson, Marcus* Asymptotic Behavior of Prime Numbers, Dirichlet's Theorem, and Its Connection to the Riemann Hypothesis
- *T*: Ms. Monica Vinas
- *S*: The Villages Charter High School
- *C*: The Villages
- *R*: Big Springs

**S1011** *Strickland, Jessie* Cancer Survival Rate Analysis: Cytoskeletal Protein Stop and Frame-shift (FS) Codons vs Missense Codons
- *T*: Ms. Emily Keeler
- *S*: Wildwood Middle High School
- *C*: Wildwood
- *R*: Big Springs

**S1012** *Chaharom, Caspian* Development of a Scalable Algorithm to Solve the Schrodinger Equation for Applications in Quantum Chemistry
- *T*: Mr. Ryan Cilick
- *S*: Edgewood Jr/Sr High School
- *C*: Merritt Island
- *R*: Brevard: Intracoastal

**S1013** *Lee, Eric W* Using Facial Recognition to Streamline Student Identification
- *T*: Mr. Andy Thompson
- *S*: Science Club Association
- *C*: Jacksonville
- *R*: Northeast Florida

**S1014** *Williams, Jonathan C* Identifying Optimal Panobinostat Treatment Regimens Utilizing Reverse-Engineered Concentration-Time Curves
- *T*: Ms. Jennifer Gordiner
- *S*: Pine Crest School
- *C*: Ft. Lauderdale
- *R*: Broward

**S1015** *Shah, Sonia* A Developing Surgical Simulations for Different Scenes for a Laparoscopic Cholecystectomy
- *T*: Mrs. Zasha A. Mickey
- *S*: Lake Highland Preparatory School
- *C*: Orlando
- *R*: Dr. Nelson Ying Expo - Orange

**S1016** *Reddy, Asha M* Implementation of Time Frequency Analysis For Seizure Localization: Phase I
- *T*: Mrs. Zasha A. Mickey
- *S*: Lake Highland Preparatory School
- *C*: Orlando
- *R*: Dr. Nelson Ying Expo - Orange

**S1017** *Frometa, Peter N* The Effect of Multiple Variables Upon Likelihood of Major League Baseball Drafting
- *T*: Mrs. Lisa Garrido
- *S*: Westminster Christian School
- *C*: Palmetto Bay
- *R*: South Florida

**S1018** *Joshi, Arjun N* Analyzing the Correlation between Rift Valley Fever Cases/Deaths and Livestock Populations in Africa
- *T*: Mr. Steven Craig
- *S*: Southeast High School
- *C*: Bradenton
- *R*: Manatee STEM Competition

**S1020** *Cobb, Christopher D* Have High Market or Low Market NFL Franchises Been More Successful? - Year 2
- *T*: Mrs. Wendy Reister
- *S*: Okeechobee High School
- *C*: Okeechobee
- *R*: Heartland

**S1021** *Darji, Rayyan Y; Choudhary, Sanjita S* Free Energy Molecular Dynamics Simulation: A Comparison of Ab-apo, Abi-Gleevec, and c-SRC-apo
- *T*: Dr. Paula Hall
- *S*: James S. Rickards High School
- *C*: Tallahassee
- *R*: Capital

**S1022** *Jones, Jada R* Using Predictive Analytics to Identify Geological Areas More Likely to Experience a Criminal Event
- *T*: Ms. Elizabeth Youngs
- *S*: Viera High School
- *C*: Viera
- *R*: Mainland

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**Junior: Mathematics & Computational Sciences**

**J1001** *Mcivor, Eoghan* Encryption! Which to Use?
- *T*: Mr. Shaun Stabler
- *S*: Polo Park Middle School
- *C*: Wellington
- *R*: Palm Beach

**J1002** *Diaz, Marcos S* Gaming. The Next Level of Awareness Training
- *T*: Mrs. Karen Perry
- *S*: Neptune Middle School
- *C*: Kissimmee
- *R*: Osceola

**J1003** *Blanken, Logan* An Experiment with Descriptive Statistics, Sampling Distributors, and Biased and Unbiased Estimators
- *T*: Mrs. Colleen Bender
- *S*: New Smyrna Beach Middle School
- *C*: New Smyrna Beach
- *R*: Tomoka

**J1004** *Diniz, Zadie S* (A) Symmetrical or asymmetrical?
- *T*: Mrs. Melissa Sleeper
- *S*: Gifford Middle School
- *C*: Vero Beach
- *R*: Indian River

**J1005** *Ononiewu, Donte J* How Does the Length of Experience Affect the Rate of Change in Skill Level for Basketball Players?
- *T*: Mrs. Paquetta Thomas
- *S*: Beth Shields Middle School
- *C*: Ruskin
- *R*: Hillsborough

**J1006** *Mendenhall, Aurora J* Hiding a Needle in a Haystack: Computer Password Entropy
- *T*: Mrs. Lisa Nall
- *S*: C. W. Ruckel Middle School
- *C*: Niceville
- *R*: East Panhandle

**J1007** *Briggs, Colin J* Strengthening Different Variations of Parameterized Sequences in a Relational-Database to Prevent Hackers Collecting Vulnerabilities Using the Method of Structured Query Language Injection
- *T*: Ms. Natalie Brosig
- *S*: North Naples Middle School
- *C*: Naples
- *R*: Collier

**J1008** *Cordero, Karina C* Using Gradient-Boosting Machines to Calculate Your Risk of Heart Disease
- *T*: Mrs. Victoria Casey
- *S*: East Naples Middle School
- *C*: Naples
- *R*: Collier
Finalists and Projects

J1009 * Garfield, David W Raspberry Pi Supercomputer T: Mrs. Laurel Anderson S: Oakridge Middle School C: Naples R: Collier

J1010 * Brames, Herman A Chirp! Chirp! T: Mrs. Molly Stagg S: Espiritu Santo Catholic School C: Safety Harbor R: Pinellas


J1012 * Rogers, Kathryn G Predicting the Population T: Mr. Matthew DeGiovine S: Dr. David L. Anderson Middle School C: Stuart R: Martin

J1013 * Adler, Sara P Can Markovian Mathematical Analysis Be Used to Determine if William Shakespeare Independently Wrote All of His Plays: “To Be or Not To Be?” T: Ms. Jennifer Gordinier S: Pine Crest School C: Ft. Lauderdale R: Broward

J1014 * Zhou, Jessica C An Investigation of the Perceived Harm of E-Cigarettes Among 2018 U.S. National Youth T: Dr. Anne Albright S: Mattiatl Middle School C: Mattiatl R: Dr. Nelson Ying Expo - Orange

J1015 * Shoemaker, Lillie J Using Orbtology Principles to Compare the Efficiency of Launching Directly vs Orbit Transfer to Rendezvous with Space Junk in the Lower Earth Orbit T: Mrs. Terry Davis S: International Community School C: Winter Park R: Dr. Nelson Ying Expo - Orange

J1016 * Miranda, Jordan J Playing with Geometry T: Mrs. Mili Rengifo S: Rockway Middle School C: Miami R: South Florida

J1017 * Solano Diaz, Jacinto L The Study of Airfoils T: Mr. Gary Carlson S: Ridgeview Global Studies Academy C: R: Polk

J1018 * Schwier, Adleigh R Gator It Up T: Mrs. Mariela De La Cruz S: Yearling Middle School C: Okeechobee R: Heartland

J1019 * Lichtstein, Gordon E How Does the Numerical Base Affect the Number of Digits it Takes to Write a Number? T: Mrs. Rachel Paul S: Maclay School C: Tallahassee R: Capital

J1020 * Abraham, Ethan Shot Percentage vs Position T: Mr. Marino Nardelli S: Lyndon B. Johnson Middle School C: Melbourne R: Brevard: Mainland

J1021 * Wynn, Alex Who’s the Author? T: Mrs. Elizabeth Thompson S: Oak View Middle School C: Newberry R: Alachua

J1022 * Abdulla, Teymur Utilizing Eulerian Path for DNA Sequencing T: Ms. Paula Ladd S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

Senior: Microbiology

S1101 * Peggs, Coleen M The Effect of Pisum sativum Exudates on Biofilm Formation and AHL-Mediated Quorum Sensing in V. fisheii T: Mr. William Bartenslager S: Palm Beach Central High School C: Wellington R: Palm Beach

S1102 * Kinley, Vanessa Determining the Relationship between Bacteria Classification and the Susceptibility of Escherichia coli and Bacillus cereus to Antibiotics and Apple Cider Vinegar Using the Gram Stain and Kirby-Bauer Method T: Ms. Austin Kelly S: Bonita Springs High School C: Bonita Springs R: Thomas Alva Edison

S1103 * Patel, Shloke N Testing the Efficacy of Nanoparticles Based Biological Formulation with qPCR Technique to Improve Citrus Greening Disease Management T: Mrs. Mishell Thomas-King S: Hillsborough High School C: Hillsborough R: Hillsborough

S1104 * Botello, Ruben A Combating E. Coli with Silver Nanoparticles T: Mrs. Tracy Springman S: Indian Rocks Christian School C: Largo R: Pinellas

S1105 * Abbott, Elizabeth H The effect of fatty acid structural isomers on the rate of conjugation in E. coli K-12 T: Mrs. Courtney Coppola S: Sarasota High School C: Sarasota R: Sarasota


S1107 * Patel, Shruti In Vitro Study of the Antibacterial Properties of Azadirachta indica on Oral Lactobacillus acidophilus to Prevent Dental Caries T: Mrs. Tracy Illig S: J.W. Mitchell High School C: Trinity R: Pasco

S1108 * Charles, Roger ; Fleming, Jalon ; Jones, Josh The Effect of Electromagnets on Bacteria T: Ms. Stephanie Connors S: Booker T. Washington High School C: Pensacola R: West Panhandle

S1109 * Kumar, Thanmay V A Novel Study of Phage Therapies T: Ms. Briana Clarke S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal
Finalists and Projects

S1110 * Jin, Ylliah The Effect of MSC-derived Extracellular Vesicles on Cell Proliferation T: Dr. Kathryn Halloran S: The Bolles School C: Jacksonville R: Northeast Florida

S1111 * Yan, Amy C The Potential of Base Editing for Future Gene Therapy in Alzheimer’s Disease T: Dr. John Copland S: SPARK Mayo Clinic C: Jacksonville R: Northeast Florida

S1112 * Konda, Sanjana R Bactericidal and Cytotoxic Properties of Antibiotic-Loaded Chitosan Nanoparticles T: Mrs. Zasha A. Mickey S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

S1113 * Lu, Denny T The Antimicrobial Properties of N2O and Compressed Air T: Ms. Christine Miller S: Manatee High School C: Bradenton R: Manatee STEM Competition

S1114 * Huang, Angela Bacteria without Borders: An Analysis of Antibiotic Policies and Environments in Countries Involved in Travel Associated Drug-Resistant Bacterial Infection T: Mrs. Amy Bubb S: Sebring High School C: Sebring R: Heartland

S1115 * Schultz, Lily H Antimicrobial Properties of Colloidal Silver Nanoparticles and Curcuma Longa on Escherichia coli T: Mr. Chris Auricchio S: F. W. Springstead High School C: Spring Hill R: Hernando

S1116 * Barnes, Mattie What is the Most Effective, Yet Natural Way to Prevent Mold and Bacterial Growth on Citrus? T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

S1117 * Dancharnijtt, Nichapa How Does a Temperature Characterize Bacteriophage Infecting Mycobacterium smegmatis? T: Ms. Lisa Hevner S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

S1118 * Adkins, Madison N Comparison and Characterization of Endophytic Bacteria in Fruit Trees T: Ms. Deborah Lookabill S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

S1119 * Krishnan, Antariksh R Sustainable Production of Biodiesel from Locally Prospected Algal Strains T: Mrs. Angela Breza-Pierce S: Lawton Chiles High School C: Tallahassee R: Capital

S1120 * Patel, Om D Differentiating the Effect of Aqueous-based Synthetic and Natural Antibiotic Hybrids in a Model of an Infected Terminal Ileum of the GI Tract (Year 4) T: Ms. Chelsea George S: Eau Gallie High School C: Melbourne R: Brevard: Mainland

S1121 * Huff, Noah S A Comparison of the Effectiveness of Different Bacterial Expression Systems in the Facilitation of PETase (alpha/beta hydrolase) Production from a Bacterial Vector (pET21b(+)is-PETase) Expressing the Gene ISF6_4831 from Ideonella sakaiensis T: Mr. Ryan Cisick S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

S1122 * Wong, Bailey G The Effects of Preemptive Sepsis Treatment on the Neonatal Skin, Gut, and Oral Microbiota T: Ms. Paula Ladd S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

S1123 * Tummuru, Rahul R The Effect of Water Extraction Temperature and Length of Extraction Time on the Antimicrobial Property of the Curry Leaf (Murraya koenigii) on the Gram-Positive Bacteria, Staphylococcus epidermidis T: Mr. Greg Stauffer S: Melbourne High School C: Melbourne R: Brevard: South

S1124 * Shah, Pooja S Isolating the Quorum Sensing Mechanism in the Model Eukaryote Chlamydomonas reinhardtii T: Mrs. Mary Schropp S: West Shore Junior/Senior High School C: Melbourne R: Brevard: South

Junior: Microbiology

J1101 * Marturano, Brianna M Supporting the Growth of E. coli Containing a GFP/AMP Plasmid T: Mr. Sean Streed S: Wellington Landings Community Middle School C: Wellington R: Palm Beach

J1102 * Lowder, Rose The Effects of Natural Essential Oils on Spirogyra and Anabaena Algae T: Ms. Mary Sanger S: L. A. Ainger Middle School C: Rotonda West R: Thomas Alva Edison

J1103 * Carter, Lana E Optimum Sugar For Yeast Culture T: Mr. Richard Stuart Hunter S: Brown-Barge Middle School C: Pensacola R: West Panhandle

J1104 * Lugo-Iglesias, Fabiola E. Coli’s Resistance to Antibiotics T: Mrs. Lauri Stiverson S: The Villages Charter Middle School C: The Villages R: Big Springs

J1105 * Miller, Sarah J What is the Effect of Vitamins on C.elegans’ Longevity and Reproduction Rate? T: Ms. Kelly Smith S: DeLaura Middle School C: Satellite Beach R: Brevard: Intracoastal

J1106 * Dillon, Julia C Antioxidants Against Vibrio anguillarum T: Mrs. Elizabeth Carter S: Cocoa Beach Junior/Senior High School C: Cocoa Beach R: Brevard: Intracoastal
Finalists and Projects

**J1107** *Kachergus, Michael P* Antimicrobial Effects of Silver Nanoparticles on Gram Negative and Gram Positive Bacteria T: Mr. Doug Malie S: Saint Paul’s Catholic School Beach C: Jacksonville Beach R: Northeast Florida

**J1108** *Elimairi, Ahmed* Antimicrobial Effect of *Acacia nilotica* Seed Pods T: Mrs. Ayesha Mirza S: Leaders Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

**J1109** *Thompson, Chloe R* Ready or Not? Testing "Ready to Eat" Produce for Coliform Activity T: Mr. Adil Demirleng S: Tallahassee School of Math and Science C: Tallahassee R: Capital

**Senior: Physics & Astronomy**

**S1201** *Fuentes, Johnathan D* S.C.A.R.E (Silver Copper Alloy Resistance Experimentation) T: Mrs. Robin Barkes S: Florida Atlantic University High School C: Boca Raton R: Palm Beach

**S1202** *Kantamneni, Subhash C* Precise Stellar Ages: Calibrating Theoretical Stellar Isochrones Using Non Local Thermodynamic Equilibrium (NLTE) Conditions T: Mr. Jeffrey Lauffer S: Suncoast Community High School C: Riviera Beach R: Palm Beach

**S1203** *Iyer, Rhea* Manipulating Fluid Shear to Mimic Microgravity and Analyze Virulence and Antibiotic Resistance in *Staphylococcus aureus* and *epidermis* T: Mrs. Iris Thompson S: American Heritage School of Boca/Delray C: Delray Beach R: Palm Beach

**S1204** *Silver, Jacob* Humidity's Effect on Conductivity T: Ms. Bente Brauer S: Cypress Lake High School C: Ft. Myers R: Thomas Alva Edison

**S1205** *Barkhurst, Morgan* Solar-Photon Sail Analysis: Incorporating Tensile Properties in the Figure of Merit of a Solar Sail for Interstellar Space Exploration T: Ms. Melissa Lewellen S: Mariner High School C: Cape Coral R: Thomas Alva Edison

**S1206** *Bejjaj, Abdurrahman A* Soccer Protective Headgear: To Absorb or not to Absorb, the Collision Is the Question T: Mr. Prittiraj (Jerry) RamjiSingh S: Neocity Academy C: Kissimmee R: Osceola

**S1207** *Conway, Lindsey N* Experimental Analysis of the Impeller-top-Cutwater Clearance in a Radial Flow Centrifugal Pump with the Aim of Optimizing Pump Design T: Mrs. Linda Kenney S: Spruce Creek High School C: Port Orange R: Tomoka

**S1208** *Kanuganti, Aksheta S* A Mathematical Model to Calculate the Intensity of Sun Rays to Determine the Cost of Solar Panels T: Mrs. Carrie Prieto S: Carrollwood Day School C: Tampa R: Hillsborough

**S1209** *Cook, Jackson A* Design and Analysis of Electromagnetic Fields in Confined Regions for Behavioral Studies of *Apis mellifera* T: Mrs. Jennifer Cook S: Niceville High School C: Niceville R: East Panhandle

**S1210** *Reiter, Karl* Investigating the Effect of Different Widths of the Mars Rover Wheel on the Amount of Electrostatic Charges in Mars Regolith Dust after its Agitation T: Mrs. Elizabeth Mongiello S: Gulf Coast High School C: Winter Springs R: Seminole

**S1211** *Vaidyanathan, Annika M* Super-Repellent Surfaces: Contact Angle Measurements, Superhydrophobicity and Superoleophobicity in Fabrics Dip-Coated with Silane, Polyurethane and Nano-Silica T: Mr. Chris Adamson S: Winter Springs High School C: Winter Springs R: Pasco

**S1212** *Ng, Kelvin H* A Novel Model of the Thermally-driven Structural Dynamics within Spinel Oxides T: Mr. Brandon L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco

**S1213** *Zhang, Ryan ; Edupuganti, Danish S* Theories and Planes T: Ms. Suzanne Ryals S: Pensacola High School C: Pensacola R: West Panhandle

**S1214** *Cross, Giovanna C* Does PEMF Technology Affect Blood and Micro-capillary Circulation and Potentially Accelerate Healing? T: Mr. Ryan Campbell S: Lecanto High School C: Lecanto R: Citrus

**S1215** *Kennedy, Genevieve E* Weighting for More Power: The Effects of Different Weights on Voltage Output T: Mr. Timothy Byrne S: Crystal River High School C: Crystal River R: Citrus

**S1216** *Long, Vijjearta S* Watt Ways Can We Create Light? T: Mrs. Dawna Booley S: Crystal River High School C: Crystal River R: Citrus
Finalists and Projects


**S1218, *Gay*, Brandon M** The Effect of a Dimple Surface on Drag During Pre Hypersonic Rocket Flight T: Mr. Ryan Clisick S: Edgewood Jr/Sr High School C: Merritt Island R: Brevard: Intracoastal

**S1219, *Tabiran*, Levon N** Refining Cosmology: Addressing Dark Energy Controversies through a Novel non-Doppler Cosmological Redshift Model T: Mr. Michael Arney S: Trinity Preparatory School C: Winter Park R: Dr. Nelson Ying Expo - Orange

**S1220, *Holt*, Christian S** Preventing Drag of Cross-Currents in Submersibles T: Mr. Devan Skapetis S: Ridgeview High School C: Orange Park R: Clay Rotary

**S1221, *Caparas*, Nicole P** A Novel Method to Create a Delineation to Assist in Counterterrorism Raids T: Mrs. Bethany Derousie S: Ridgeview High School C: Orange Park R: Clay Rotary

**S1222, *Burt*, Madison E** The Orbital Period of Moons Based on Kepler's Laws Related to Eccentricity T: Ms. Christine Miller S: The Manatee High School C: Bradenton R: Manatee STEM Competition

**S1223, *Patel*, Vishesh A** Cooling Properties of Surface Area T: Mr. Royden Jones S: Haines City High School C: Haines City R: Polk

**S1224, *Cash*, Allison C** How Does Temperature Affect the Pitch of a Tuning Fork? T: Ms. Catherine Reichley S: DeSoto High School C: Arcadia R: Heartland

**S1225, *Hernandez*, Aleida** Aerodynamics, Semi-Truck, and Trailer T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

**S1226, *Hackle*, Bailey N** What Type of White Paint Keeps the Coolest Temperature T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

**S1227, *Jiang*, Brighten J** Improving Self Similar Solutions for Interacting Supernovae T: Mrs. Angela Breza-Pierce S: Lawton Chiles High School C: Tallahassee R: Capital

**S1228, *Conti*, Jozette L** Cloud Chamber Supersaturation Year 2 T: Ms. Chelsea George S: Eau Gallie High School C: Melbourne R: Brevard: Mainland


**S1230, *Vinson*, Brooke C** Designing an Electrodynamic Dust Shield to Remove Simulated Martian Regolith T: Mr. Jason Dooley S: Melbourne High School C: Melbourne R: Brevard: South

**S1231, *Cisler*, Ethan J** Testing the Physical Effects of Heat Treatment Cycles on the Tensile Strength of Low Carbon Steel T: Mrs. Rachael Klaereen S: Academy at the Lakes C: Land O’ Lakes R: Pasco

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**Junior: Physics & Astronomy**

**J1201, *Elhoushy*, Samer A** Optimization of a COTS Capacitor-Based Electrical Power System in a CubeSat T: Mr. Kevin Simmons S: The Weiss School C: Palm Beach Gardens R: Palm Beach


**J1204, *Tuy*, Davin** Citrus Battery T: Ms. Marcia Nelson S: Neptune Middle School C: Kissimmee R: Osceola


**J1206, *Vest*, Laura A** The Effect of Air Temperature on Air Pressure T: Ms. Michelle Boorse S: Sunlake Academy of Math and Science C: Lutz R: Hillsborough

**J1207, *Mandapat*, Jacob P** Aerodynamics: The Effect of Rotational Motion on a Projectile T: Mrs. Amy Canfield S: Bay Haven Charter Academy C: Panama City R: Bay Haven


**J1209, *Knoth*, Madison C** Density of Sound Proofing Material vs Amount of Sound Heard T: Mr. Gregory Anthony S: Pine Ridge Middle School C: Naples R: Collier

**J1210, *Chang*, Stephanie F** # of Flammable Ingredients vs Distance Traveled by the Projectile T: Mr. Gregory Anthony S: Pine Ridge Middle School C: Naples R: Collier
Finalists and Projects

**J1211** *Spence, Matthew B* How Do Different Wing Angles and Positions Affect a Glider’s Flight Path and Distance? *T:* Mrs. Erin Spence *S:* Saint Cecelia Catholic School *C:* Clearwater *R:* Pinellas

**J1212** *Vaidyanathan, Arvid C* Reinventing the Wheel: Reducing Vibrations in Wheels Based on Vibration Meter Testing of 3D Printed Wheels *T:* Mrs. Jane Clemens *S:* Sanford Middle School *C:* Sanford *R:* Seminole

**J1213** *Montaye, Madison T* Blades of Power *T:* Sr. Ogechi Ofurum *S:* Bishop Larkin Catholic School *C:* Port Richey *R:* Pasco

**J1214** *Zapata, Aidan A* The Big Bang Theory *T:* Mrs. Beth Long *S:* Seven Springs Middle School *C:* New Port Richey *R:* Pasco

**J1215** *Holck, Isabelle K* Polynesian Star Navigation *T:* Mr. Richard Stuart Hunter *S:* Brown-Barge Middle School *C:* Pensacola *R:* West Panhandle

**J1216** *Sarfert, Mallory D; Parks, Jo’leigha K; Peppers, Katherine F* Launch Angle And Flight Path *T:* Mr. Richard Stuart Hunter *S:* Brown-Barge Middle School *C:* Pensacola *R:* West Panhandle

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**J1228** *Tsiros, Emily* Fluids in Microgravity *T:* Ms. Cassandra Winkle *S:* Archimedeans Middle Conservatory *C:* Miami *R:* South Florida

**J1229** *Stanley, Gabriel S* Magnetic Shielding *T:* Mr. David McCollum *S:* Keystone Heights Junior/Senior High School *C:* Keystone Heights *R:* Clay Rotary

**J1230** *Little, Bryson J* Hot or Cold: Temperature’s Effects on the Strength of Magnets *T:* Miss Rebecca Farrell *S:* Electa Arcotte Lee Middle School *C:* Bradenton *R:* Manatee STEM Competition

**J1231** *Heter, Julia; Morris, Keira* Run, Hide, Fight! *T:* Mrs. Katie Heter *S:* Dundee Ridge Academy *C:* Dundee *R:* Polk

**J1232** *Lovely, James* Radiation Neutralization *T:* Mrs. Mindy Siyufy *S:* Resurrection Catholic School *C:* Lakeland *R:* Polk

**J1233** *Gibson, Jonah B* Does Dropping Weight Drop the Wait? The Effect of Weight on Drone Speed *T:* Mrs. Kallie Hilyard *S:* Challenger K8 School of Science and Mathematics *C:* Spring Hill *R:* Hernando

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**S1302** *Pizzo, Nicholas J* Utilizing Real-Time qPCR and Scanning Electron Microscopy to Gauge Proliferation of Citrus Greening Disease in Persian Lime Trees in South Florida T: Mrs. Robin Barkes S: Florida Atlantic University High School C: Boca Raton R: Palm Beach

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**S1307** *Santra, Laboni* A Flexible DLP 3D-printed Coated Microneedle Patch for the Delivery of New Therapeutics to Citrus Stem Tissue T: Mr. William James Furioso S: Oviedo High School C: Oviedo R: Seminole

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**S1310** *Scott, Sarah R* Ketone Bodies Promoting Meristematic Cell Growth T: Mr. Branden L. Anglin S: Wiregrass Ranch High School C: Wesley Chapel R: Pasco

**S1311** *Kesler, Ava R* Effects of Fertilizers on an Agricultural Crop T: Mrs. Cherie Stephens S: Pensacola High School C: Pensacola R: West Panhandle

**S1312** *Nguyen, Van T* Soybean Germination T: Mrs. Cherie Stephens S: Pensacola High School C: Pensacola R: West Panhandle

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**S1314** *Westphal, Riona A* The Impact of Bisphenol A on the growth of Egeria densa T: Mr. Ryan Campbell S: Leonco High School C: Leonco R: Citrus

**S1315** *Ward, Diana M* Xanthomonas axonopodis pv. glycines: Phenotypical Differences Expressed by Mutant Strains within Soybean T: Mr. Mark Cassidy S: Citrus High School C: Inverness R: Citrus

**S1316** *Peterson, Chamar; Williams, Thordis* Unsaturated Soil Hydraulic Conductivity T: Ms. Emily Keeler S: Wildwood Middle High School C: Wildwood R: Big Springs

**S1317** *Gaydar, Erin K* Iron (III) Oxide-Hydroxide is the Solution for Elimination of Chlorophytes in the Indian River Lagoon through Chemical Absorption T: Ms. Briana Clarke S: Edgewood JrSr High School C: Merritt Island R: Brevard: Intracoastal

**S1318** *Nigro, Cole H* Using Hydroponics to Promote Zinc Uptake in Romaine Lettuce T: Mrs. Marion Zeiner S: Episcopal School of Jacksonville C: Jacksonville R: Northeast Florida

**S1319** *Stover, Nicole E* Dissolved Oxygen Augmentation Effects on Nitrogen Uptake Efficiency in Hydroponic Tomato Cultivation T: Mr. Nathaniel Rollerson S: Samuel W. Wolfson Senior High School C: Jacksonville R: Northeast Florida

**S1320** *Makkena, Taneeesh* Assessing Fern Biodiversity through DNA Barcoding and Measuring Abiotic Conditions T: Mrs. Zasha A. Mickey S: Lake Highland Preparatory School C: Orlando R: Dr. Nelson Ying Expo - Orange

**S1321** *Bowen, Nina K* Concentrations of Nitrates and Phosphates in Agricultural Runoff T: Ms. Joy Smith S: Key West High School C: Key West R: Monroe

**S1322** *Snodgrass, Colton D; Lindback, Roy J* How Casuarinas Affect Water Acidity T: Ms. Beth Rosenow S: Coral Shores High School C: Tavernier R: Monroe

**S1323** *Sanchez, Justin; Pino, Lazaro; Ramos, Matthew* J Effects of Neighboring Plants on the Production of Phenolic Compounds T: Dr. Monique Salazar S: iMater Preparatory Academy High School C: Miami R: South Florida
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**S1324 * Gonzalez, Isabella M** The Effect of Copper Upon the Growth of *Agrobacterium tumefaciens* T: Mrs. Lisa Garrido S: Westminster Christian School C: Palmetto Bay R: South Florida

**S1325 * Manalang , Juliana-Elize S; Gardiner, Benjamin L** Growing Grass for Fuel: Determining the Best Environment for Switchgrass to Be Grown as an Alternative Fuel Source T: Mrs. Bethany Derouzie S: Ridgeview High School C: Orange Park R: Clay Rotary

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**S1327 * Duncan, Elijah H** Compaction Action...Does Soil Compaction Affect *Arachis hypogaea* (Peanut Plant) Growth? T: Mrs. Daphne Hays S: Hardee High School C: Wauchula R: Heartland

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**S1329 * Anuez, Noah** The Effect of Nano Pro on Varying Concentrations of Glyphosate Efficiency T: Mr. Wayne Oelke S: Fort White High School C: Fort White R: Suwannee Valley

**S1330 * Sparks, Hannah** Does Plant Growth Promoting Bacteria in Agriculture Work Better than Fertilizer Alone? T: Mrs. Amanda Phillips S: Madison County High School C: Madison R: Suwannee Valley

**S1331 * Crawford, Lily L** Microgreen Biofortification for Human Health T: Mr. Gray Ange S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

**S1332 * Ashley, Malaica** What Is the Effect of Non-Thermal Plasma on Seed Germination? T: Ms. Lisa Hevner S: Lincoln Park Academy C: Ft. Pierce R: St. Lucie

**S1333 * Bodner, Kendall J** Sucrose Augmentation and Increasing the Growth Rate of Tomato Plants in the Face of Global Warning T: Ms. Stephanie Campbell S: Lincoln High School C: Tallahassee R: Capital

**S1334 * Zaidi, Faizan** Quorum Sensing: How Long Does it Take for *Chlamydomonas reinhardtii* to Speed Up? T: Mrs. Cyndi Buist S: Holy Trinity Episcopal Academy C: Melbourne R: Brevard: Mainland

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**J1301 * Jobish, Theresa** Compost Methods and Soil Quality T: Mrs. Andrea Brewer S: St. Ann Catholic School C: Palm Beach R: Palm Beach

**J1302 * Patel, Akshar** How Does Microfiber Affect Plant Growth? T: Ms. Marilyn Stevens S: Bonita Springs Middle School Center for the Arts C: Bonita Springs R: Thomas Alva Edison

**J1303 * Briseno, Michael** The Effects of Fertilizer Type on Duckweed Growth T: Ms. Kim Raubolt S: Lexington Middle School C: Fort Myers R: Thomas Alva Edison

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**J1306 * Glow, Elena A** Evaluation of Soil Biological Indicators in Response to Glyphosate Exposure T: Mrs. Amparo Krug S: Williams Middle Magnet School C: Tampa R: Hillsborough

**J1307 * Leach, Alyssa C** Hydroponics vs Soil T: Mrs. Amy Canfield S: Bay Haven Charter Academy C: Panama City R: Bay Haven

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**J1310 * Choe, Tyler ; Bauer, Luke G** Turf Wars T: Mr. Adam Goodman S: Markham Woods Middle School C: Lake Mary R: Seminole

**J1311 * Drabicki, Alexander** Waste Matters T: Mrs. Heidi Broksas S: Greenwood Lakes Middle School C: Lake Mary R: Seminole

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J1316 * Ash, David R The Color Spectrum of Plant Growth T: Mrs. Deanna Hadley S: Citrus Springs Middle School C: Dunnellon R: Citrus

J1317 * Cottrell, Hannonamee Tree Science T: Ms. Sarah Cunningham S: Inverness Middle School C: Inverness R: Citrus

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J1326 * Keister, Abigail N Earthworms: A Plant’s Best Friend T: Mr. Chris Haab S: Challenger K8 School of Science and Mathematics C: Spring Hill R: Hernando

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J1331 * Ely, Connor J Do Plants Have a Favorite Color? T: Ms. Andrea Anderson S: Fort Clarke Middle School C: Gainesville R: Alachua

J1332 * Settles, Matthew M Is it Possible to Tell the Ripeness of a Watermelon by the Volatiles in its Rind? T: Ms. Sara Charbonnet S: Westwood Middle School C: Gainesville R: Alachua

J1333 * Yoon, Grace J To Grow or Not to Grow: Measuring the Growth of Bean Plants with Different Liquids T: Ms. Andrea Anderson S: Fort Clarke Middle School C: Gainesville R: Alachua

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**Scientific Method**

1. **STEP 1: Ask a question**
2. **STEP 2: State a hypothesis**
3. **STEP 3: Conduct an experiment**
4. **STEP 4: Analyze the results**
5. **STEP 5: Make a conclusion**
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