



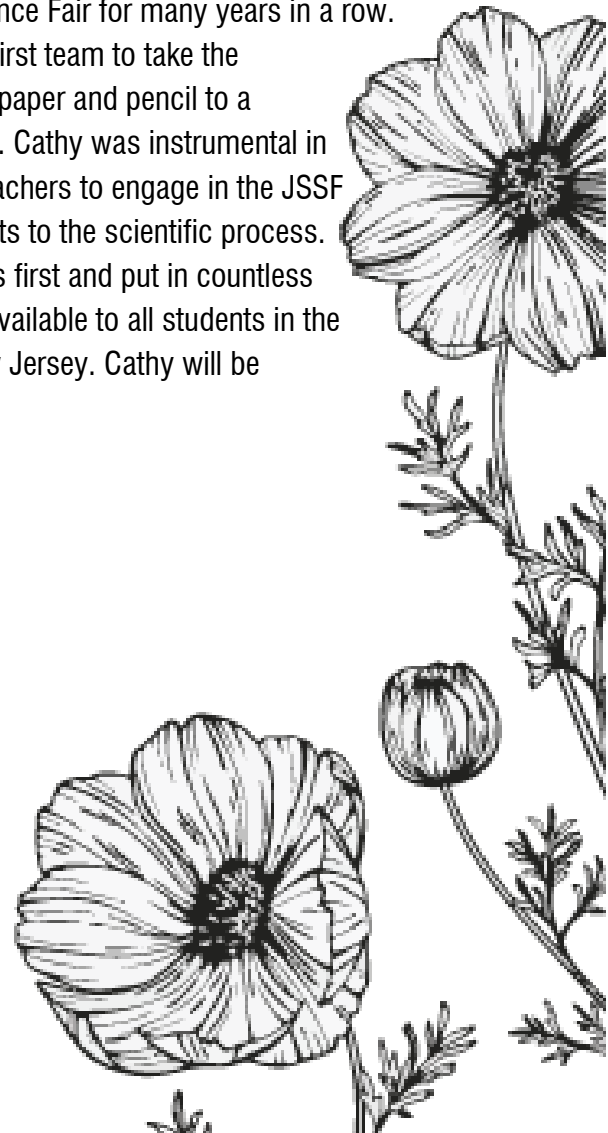
Hosted and Sponsored by
The School of Natural Sciences and Mathematics
and
Stockton University





In memoriam

The Jersey Shore Science Fair community lost a hero in Fall 2022. Cathy Jaggard was the Director of the Fair for over 20 years, and along with her husband Ed helped make the Jersey Shore Science Fair the largest sending event to the Delaware Regional Science Fair for many years in a row. Cathy and Ed were the first team to take the 48-year-old event from paper and pencil to a database driven system. Cathy was instrumental in encouraging science teachers to engage in the JSSF and expose their students to the scientific process. She always put students first and put in countless hours to make the fair available to all students in the coastal counties of New Jersey. Cathy will be missed dearly.



101 Vera King Farris Drive | Galloway NJ 08205-9441
stockton.edu

Date: March 18, 2023
To: Participants in the 48th Annual Jersey Shore Science Fair
From: Amanda Norvell, Dean of Natural Sciences and Mathematics
Subject: Welcome to Stockton University

On behalf of President Harvey Kesselman, Provost and Vice President for Academic Affairs Leamor Kahanov and the faculty, staff and students at the School of Natural Sciences and Mathematics, I welcome you to our Galloway campus. We are excited to welcome the updated numbers from 314 students and 305 projects which represent many of the region's schools.

Congratulations to our future scientists. You did it! You've had the opportunity to learn about the key principles of the scientific method and the importance of presenting results which got you to this event. The steps you have taken from the start of your project, to the conclusion are the same practices researchers, scientists, and professionals around the world use daily to ensure answers to questions are evidenced based.

As you are thinking about your future education, I would like to invite you back to visit the University during one of the Discover Stockton Open House events (stockton.edu/admissions) - the next event is Sunday, March 26th. We offer an array of innovative and forward-looking academic programs for undergraduate students, as well as for post-graduate education and certification. Undergraduate degree programs are offered in Applied Physics, Biochemistry/Molecular Biology, Biology, Chemistry, Computer Science, Environmental Science, Geology, Health Science, Marine Science, Mathematics, Nursing, Public Health, and Sustainability, as well as dual degrees in engineering, pharmacy and medicine with our university partners (Rutgers, Rowan and NJIT). Our graduate and doctoral degrees focus on disciplines such as Coastal Zone Management, Communications Disorders, Data Science and Strategic Analytics, Environmental Science, Nursing, Occupational Therapy, Physical Therapy, and Nursing Practice. In addition, we support a naturally-grown farm, arboretum, pinelands research reserve, and a fleet of coastal oceanographic vessels ran out of the Marine Field Station located on the waterfront of Nacote Creek.

Visit the Academic Affairs website (stockton.edu/academic-affairs/academic-schools-programs) to learn more about our majors and how it may fit your goals. Should you like to visit the campus to tour our science facilities, Marine Science and Environmental Field Station in nearby Port Republic, or meet our faculty and students, please feel free to contact the School of Natural Sciences and Mathematics office (nams@stockton.edu).

I commend you all on a job well done and hope you enjoy the rest of the day.



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EXIT TO PARKING LOT

MIC
Loc # 225 - 250

PHY
Loc # 251 - 275

ZOO
Loc # 276 - 298

TMP
Loc # 299 - 316

EXIT TO CAMPUS

MED
Loc# 194 -
224

ENV
Loc # 156
- 184

MAT
Loc # 185
- 193

ENG
Loc # 134
- 155

ESS
Loc # 123
- 133

BLEACHERS

PLEASE READ THIS

1. Projects must comply with ISEF rules, including;

NO liquids, chemicals, field samples, or tissues (plant, animal, human, etc.) – no living or field-collected samples or organisms for display.

2. Use your location number (Loc #) to find your spot

3. There is no power available to any projects

BLEACHERS

EXIT TO PARKING LOT

CSC
Loc # 113 - 122

COM
Loc# 90 - 112

CHM
Loc # 66 - 89

BOT
Loc # 42 - 65

BCH
Loc # 27 - 41

BSS
Loc # 1 - 26

MAIN ENTRANCE

All food Service and most appropriate areas for visitors to pass time during the 9:00 am to 12:00 pm judging sessions will be in the Campus Center.

All lunchtime Food Service will take place in the Campus Center.

Interested in what Stockton has to offer? Then visit our tables in the Coffee House...

The Admissions Office will offer a staffed table in the Coffee House area and campus tours at 10:30 AM and 12 PM. Guided tours are also available during the week. You can also visit us during our next open House on **Sunday March 26, 2023**. Call Admissions with questions or to schedule a tour 609-652-4261.

Information tables for the School of Natural Sciences and Mathematics and the Atlantic Cape Community College will be in the Coffee House area as well.

Jersey Shore Science Fair Program

March 18, 2023

7:45 – 8:45 am

Project Registration – no earlier please

7:45 – 9:00 am

Safety inspection. **Displays must comply with ISEF regulations.**
Students, please wear registration badges and remain by your displays

8:00 – 9:00 am

Judges will meet in the Campus Center Event Room

9:00 – 12:00 pm

Project judging. Students must wear registration badges and remain by their projects until 12 noon. Judges have until noon to visit and/or revisit projects. In order to be evaluated, students must be present. If a student leaves to use the restroom, please tell the person next to you in case judges come by at that time.

12:00 – 1:00 pm

Project area opens to the public. **Student, please leave projects on display until 1:00 p.m.**

1:00 – 1:15 pm

Students may take down displays

1:15 pm

Awards Ceremony – All ages and categories, Sports Center

Code of Conduct

For teachers, relatives and friends of the participants and other guests:

The Science Fair provides an opportunity for students to talk with judges about their science projects. For this to occur without distraction, it is important that, during the judging period, the judges and students be left undisturbed. Therefore, between 9:00 am and noon, while judging is taking place, everyone except the judges and the students are asked to leave the immediate judging area. Individuals having questions about the judging process are asked to bring those questions to the Judging Center in the Campus Center Event Room.

Students must wear registration badges and remain by their projects until 12 noon. Judges have until 12:00 PM to visit and/or revisit projects – in order to be evaluated students must be present. If a student leaves to use the restroom, please tell the person next to you in case judges come by at that time.

Thank you for your cooperation.

JSSF Acknowledgments

Dr. Amanda Norvell – Dean, School of Natural Sciences and Mathematics, Stockton University

Dr. Christine Schairer – JSSF Director and Safety Officer, Stockton University

Rosanne Weiss – Chief Judge, Retired FAA

Steve Evert – NAMS Representative & Logistical Management, Stockton University

Adriane Sicknick – Media and Publication Specialist, Stockton University

Lou Regan – Web Developer, Stockton University

Marie Jelinski – Special awards and business operations

Special Awards

The Jersey Shore Science Fair Committee and the School of Natural Sciences and Mathematics would like to acknowledge the following groups for providing special awards to the participants of the 48th annual Jersey Shore Science Fair:

The Natural Science and Mathematics Department – The NAMS Department awards gift certificates to the 1st place projects in the Upper-level divisions.

Institute of Electronics and Electrical Engineers – The IEEE and Women in Engineering (WIE) award special prizes to the top projects in computer science and/or engineering.

The Paul Saraduke, Jr. Award – The top upper-level physics project will receive an award made possible through a generous gift from the Saraduke family as a living memorial to Paul Saraduke, Jr. Paul was a member of the Stockton NAMS staff, and served regularly as a judge. This award is given in hopes that those that receive it will be encouraged to further pursue their interest in physics.

American Chemical Society – Awards two prizes to the projects in upper and intermediate chemistry divisions.

Atlantic Cape Community College – Provides an award to the top projects for Junior medicine and engineering categories.

Save Barnegat Bay organization will present an award for the top project representing Barnegat Bay. Save Barnegat Bay is a 45-year old grassroots organization whose mission is to restore and protect the Barnegat Bay Ecosystem. Their environmental education programs strive to teach about Barnegat Bay and its conservation. Their campaigns engage everyone without the watershed to be more conscientious of how they are affecting the bay and its wildlife for the future.

WIE Southern NJ will present an award prizes for two females in the engineering category.

Schools in JSSF 2023

Alder Avenue Middle School
Barnegat High School
Biotechnology High School
Bishop McHugh Regional Catholic School
Central Regional High School
Chelsea Heights Elementary
Egg Harbor Township High School
Eugene Tighe School
Fernwood Avenue Middle School
Folsom Elementary School
Galloway Township Middle School
High Technology High School
Holmdel High School
Home Schooling
Lacey Township High School
Lower Township Regional High School
Manalapan-Englishtown Middle School
Marine Academy of Technology & Environmental Sciences (MATES)
Pilgrim Academy
Pressler Home School
Ranney School
Rumson Fair Haven Regional High School
Smithville School
Sovereign Avenue School
The Marine Academy of Science and Technology (MAST-Sandy Hook)
Toms River High School North
Toms River Intermediate East
Toms River Intermediate North
Toms River Intermediate South

JSSF 2023 Judges and Affiliations

| | |
|--------------------------|--|
| Rosanne M. Weiss | Atlantic Cape Community College |
| Benita P. Villar | Stockton University |
| Brendan Santangelo | Camden County College |
| Joshua Smith | IBEW |
| Lisa A. McGeoch | Federal Aviation Administration (FAA) |
| Roxanne Terramagra | (No Affiliation) |
| Darrell Gray | Retired |
| Joan B. Vicari | Retired |
| Dr. Elizabeth Pollock | Stockton University |
| Christian Polyak | US Coast Guard |
| Prof. Dick Colby | Stockton University |
| Mr. Usama Chaudhri | Stockton University |
| Dr. Kimberly A. Scata | Duffy Law Group |
| Dr. Joseph J. Trout | Stockton University |
| Judith E. Coburn | ACITech |
| Jerry J. Terramagra | (No Affiliation) |
| David L. Morlando | (No Affiliation) |
| Karyn A. Camilo | (No Affiliation) |
| Sandra Morlando | Retired |
| Scott Summerill | Advanced Sciences and Technologies |
| Dr. Bo Zilovic | Atlantic Cape Community College |
| Christine A. Covello | (No Affiliation) |
| Dennis M. Covello | (No Affiliation) |
| Dr. Stacy L. Onofrietti | Rutgers University NJAES |
| Timothy Cwik | Atlantic Cape Community College |
| Ms. Holly M. Cyrus | FAA Tech Center AvSTEM |
| Ms. Cheryl D. Browne | LS Technologies |
| Prof. Latoya Mcglone | Atlantic Cape Community College |
| Prof. Melissa B. Castone | Rowan College of South Jersey |
| Mr. Alex Kuprianov | TD Bank |
| Brian G. Hilburn | CHPR |
| Mrs. Sondra J. Ritondo | Atlantic Cape Community College |
| Mr. John E. Livezey | Atlantic Cape Community College |
| Mary F. Simpson | Atlantic Cape Community College |
| Melanie Schroer | Stockton University |
| Dr. Christina . Savich | Atlantic Cape Community College |
| Shakila Riaz | Stockton University |
| Mr. Dylan P. Bakley | Big Brothers Big Sisters of Atlantic and Cape May counties |
| Mr. Alan J. Kopala | FAA Tech Center AvSTEM |
| Ms. Erin E. Wannan | Rowan University |
| Ms. Jacqui . Tate | (No Affiliation) |
| Haiying . Tang | CHDI Management Inc. |
| Mark Palmer | Palmer Atlantic Properties, LLC |

| | |
|------------------------------|--|
| Dr. Simohamed Roudani | Atlantic Cape Community College |
| Jamie C. Covello | State of New Jersey |
| Mr. Armen R. Amirian | Gemological Institute of America (GIA) |
| Prof. Erin DeLong | Atlantic Cape Community College |
| Ed Mack | FAA Tech Center, retired |
| Joe Burns | FAA Tech Center AvSTEM |
| Brian E. Vernachio | ACITech |
| Adam S. Miklovic | US Navy, Retired |
| Mylee S. Shultz | Atlantic Cape Community College |
| Michael Bolicki | Atlantic Cape Community College |
| Evelynn "Lynn" S. Caterson | Atlantic County Board of Elections |
| Josephine L. Bruce | Stockton University |
| Gayle R. Dabate | Federal Aviation Administration (FAA) |
| Mrs. Dianne T. Dieterly | Atlantic Cape Community College |
| Michelle Fitzgerald | Egg Harbor Township High School |
| Dr. Anna Pfeiffer-Herbert | Stockton University |
| Kevin J. Cameron | Stockton University |
| Hope A. Pressler | Teacher |
| Scott M. Larew | Kennedy/Jenks Consultants, Inc. |
| Gwenda Burkhardt | Friend of Professor |
| Jenna N. Hernandez | Stockton University |
| Hunter-Lynne N. Wesely | Stockton University |
| Jess R. Nanni | Stockton University |
| Clare L. Ng | MAST |
| Michael H. Suleiman | Atlantic County Democratic Committee |
| Mr. William C. beard | Federal Aviation Administration (FAA) |
| Hazel A. Mueller | Stockton University |
| Dana Cironi | Atlantic Cape Community College |
| Daniel Vasquez Garcia | Stockton University |
| Marium . Bhatti | Stockton University |
| Mrs. Brittany A. Berchtold | Stockton University |
| Dr. Richard E. Lyon | Federal Aviation Administration (FAA) |
| Alex Konkel | FAA Tech Center AvSTEM |
| Mr. Luke T. Ngo | Stockton University |
| Mariah M. Mendoza | Stockton University |
| Peter K. Tran | Rutgers University |
| Dr. Thushani Rodrigo-Peiris | Stockton University |
| Karen Brundage-Johnson, Ph.D | Atlantic Cape Community College |
| Linda Rabuano | Pharmaceutical |
| Olivia M. Wood | Atlantic Cape Community College |
| Miss Agnes A. Galiano | Atlantic Cape Community College |
| Nadine Hollis-Turner | Atlantic Cape Community College |
| Athina Gramuglia | New Jersey Water Environment Association (NJWEA) |
| Mrs. Jennifer P. Marques | New Jersey Water Environment Association (NJWEA) |
| Carrie Anne . Lyons | New Jersey Water Environment Association (NJWEA) |
| Gerhard M. Mueller | None |
| Gerhard M. Mueller | Stockton University |

JSSF 2023 Judges and Affiliations (Con't)

| | |
|------------------------------|---|
| Miss Abigail Ferreras-Amador | Atlantic Cape Community College |
| Aarani Kamalanathan | Stockton University |
| Hunter J. Dudkiewicz | (No Affiliation) |
| Ida Jones | Red Bank Charter School |
| Liam McCollum | Stockton University |
| Mr. Etzel C. Brower | Egg Harbor Township High School |
| Ms. Risemary G. Goldberg | (No Affiliation) |
| James J. Carson | Retired |
| Dr. Vandna Sikand | (No Affiliation) |
| Kimberly Smith | Middlesex County Utilities Authority |
| Kathleen T. Spaeth | Green Team Member and Master Gardener |
| Prof. Michael Hackett | Community College of Philadelphia |
| Ralph Cooper | (No Affiliation) |
| Mr. Joseph Falcone | (No Affiliation) |
| Mrs. Kathleen Ghanavati | Retired Science Educator/Ocean City High School |
| Gabriel C. Ybanez | Rutgers University |
| Miss Megan D. Tran | Egg Harbor Township High School |
| Brian Hilburn | CHPR |

Jersey Shore Science Fair 2023

Participants & Projects

Delaware Valley Science Fair Eligibility

The following winners of the Jersey Shore Science Fair will be eligible to attend the Delaware Valley Science Fair (DVSF)
Tuesday, April 4 through Thursday, April 6:

Delaware Valley Science Fair
(DVSF) Drexel University
236 Randall Hal
3141 Chestnut Street, Philadelphia, PA 19104
www.dvsf.org

The following awarded projects are eligible to attend DVSF:

Juniors – 6-8 Grade

1st and 2nd place only, all categories including teams

Intermediate – 9-10 Grade

1st, 2nd and 3rd place except Team category 1st place only

Upper – 11-12 Grade

1st, 2nd and 3rd place except Team category 1st place only

Set-up and event detail for the DVSF can be found on the JSSF webpage

EXIT TO PARKING LOT

MIC
Loc # 225 - 250

PHY
Loc # 251 - 275

ZOO
Loc # 276 - 298

TMP
Loc # 299 - 316

EXIT TO CAMPUS

MED
Loc# 194 - 224

ENV
Loc # 156 - 184

ESS
Loc # 123 - 133

MAT
Loc # 185 - 193

ENG
Loc # 134 - 155

BLEACHERS

PLEASE READ THIS

1. *Projects must comply with ISEF rules, including;*

NO liquids, chemicals, field samples, or tissues (plant, animal, human, etc.) – no living or field-collected samples or organisms for display.

2. *Use your location number (Loc #) to find your spot*

3. *There is no power available to any projects*

BLEACHERS

EXIT TO PARKING LOT

CSC
Loc# 113 - 122

COM
Loc# 90 - 112

CHM
Loc# 66 - 89

BOT
Loc # 42 - 65

BCH
Loc# 27 - 41

BSS
Loc # 1 - 26

MAIN ENTRANCE

JSSF 2023 Participating Projects

Behavioral and Social Sciences - BSS

Junior BSS

| | | |
|----------|--------------------------------------|--|
| J BSS 1 | Caleb O Bae | The Effect of Time of Day on Speed and Accuracy of Math |
| J BSS 2 | Sophia L Villanueva | Get Off That Dang Computer! |
| J BSS 3 | Tiana N Nguyen | Can You Spot the Differences? |
| J BSS 4 | Jack T Caffrey | How Age affects the Stroop Effect |
| J BSS 5 | Stella M Barilotti | Tasting With Your Eyes! Morning vs Afternoon; Which Time Are Students More Polite To a Door Holder? |
| J BSS 6 | Ava M Puggi | |
| J BSS 7 | Vanessa A Dangallo | My English Teacher's Mad at Me! |
| J BSS 8 | Omuwa Izah | Be Loud, HooK a Crowd |
| J BSS 9 | Allie Garrabrant Zeleste Martinez | Bias Interpreting Facial Expressions |
| J BSS 10 | Panesso | Opps, You Missed It! |
| J BSS 11 | Lily Vita | Color Your Mind: Does Color Affect Memory Recognition |

Intermediate BSS

| | | |
|---------|--------------|---|
| I BSS 1 | Michelle Kim | The Chameleon Effect: The Difference Between Which Parts of the Brain Are Active During Anatomical Mimicry and Mirrorwise Mimicry |
|---------|--------------|---|

Upper BSS

| | | |
|----------|---------------------|--|
| U BSS 1 | Augustus M Giller | Social Media and Political Extremism |
| U BSS 2 | James J Vallillo | The Internal Effects of Strawberries The Effect Cosmetic Advertisements Targeting Females' Insecurities Has on Purchase Inclination |
| U BSS 3 | Marissa Shapiro | |
| U BSS 4 | Xu Chen | Comparing the efficacy of various systems in ensuring diversity The Effects of Different "Colors" on the Sound Spectrum on <i>Caenorhabditis elegans</i> Chemotaxis Toward NaCl or Water. |
| U BSS 5 | Zoe Goudas | |
| U BSS 6 | Broden M Connolly | Developing an Artificial-Morality Algorithm for Self-Driving Cars Role of 5-HTP Mediated Serotonergic Activity in Operantly Conditioned Memory Consolidation for <i>D. Tigrina</i> |
| U BSS 7 | Hanyi Deng | |
| U BSS 8 | Joshua S Hong | The Neurological Effects of Aluminum Nitrate 9-Hydrate on the Behavior of <i>Caenorhabditis Elegans</i> Evaluating Eyewitness Memory & Suspect Lineups: What Method Is Most Reliable? |
| U BSS 9 | Megan R Costigliola | |
| U BSS 10 | Aidan L Welch | Effects of Exercise and Meditation on Mental Dexterity Constructing a Lactase Evolutionary Tree Using Amino Acid Pairwise Alignments |
| U BSS 12 | Andrew Cagliostro | |
| U BSS 13 | Megan P Thomas | An Evaluation of Olfactory Dysfunction Symptoms in Post COVID-19 Individuals |

Biochemistry - BCH

Junior BCH

| | | |
|---------|---------------------------|--|
| J BCH 1 | Sarah A Turk | How Do Different Liquid Solutions Affect the Dehydration of Apples? |
| J BCH 2 | Hridaya Bala | How Does the Dosage Form of a Drug Affect Its Solubility? |
| J BCH 3 | TJ J Chubb | Measuring the Vitamin c in Different Orange Juice Brands |
| J BCH 4 | Melodie S Au Gregory M | Which Liquid Will Make the Roundest Sphere? |
| J BCH 5 | DeSantis | How mold is it? |
| J BCH 6 | Kora N Bair | Egg-Cellent Substitutes! |
| J BCH 7 | Lyla J Steet | Milk! Solid Or Spoiled? |
| J BCH 8 | Owen R Barton | The Impacts of Organic and Inorganic Fertilizers on the Growth of Broccoli Sprouts |

Intermediate BCH

| | | |
|---------|-------------------|--|
| I BCH 1 | Sophia X Gao | Protein Structure Comparison of Epidermal Growth Factor Receptor from X-ray Crystallography, AlphaFold and RoseTTAFold |
| I BCH 2 | Kyle J Wlazlowski | Dissolution Effects of Acetaminophen in Association with Vitamin B? |

Upper BCH

| | | |
|---------|-----------------------|---|
| U BCH 1 | Michelle Kagramian | Using ATP to Trigger Satellite Cell Activity for Muscle Regeneration Gene Therapy in Patients with Facioscapulohumeral Muscular Dystrophy |
| U BCH 2 | Chris C Smith | Using waste to generate fuel |
| U BCH 3 | Vivianna M Onofrietti | Inhibitory Effects of Phytochemicals from Agriculture By-Products as Therapeutic Agents on Predominant Oral Pathogens |
| U BCH 4 | Victoria M Yakes | Heavy Metal Biosorption Within the Bark of Acer rubrum |

Botany – BOT

Junior BCH

| | | |
|----------|------------------------------|--|
| J BOT 2 | Liam J Villamor Alexandra | How do different directions of gravity affect root growth? |
| J BOT 3 | Kanterezhi-Gatto | How do different pH levels from three substances affect a tomato plant's growth? |
| J BOT 4 | Maha J Protiva | Ants In My Plants |
| J BOT 5 | Chase R Gregoire | Salty Plants |
| J BOT 6 | Isabella Gutierrez | Speaking To Spinach! |
| J BOT 7 | Emma G Mastriano | Do Seeds Grow Taller In Soil Or Hydroponically? |
| J BOT 8 | Nicholas J Silverberg | What Brand of Hydroponic Solution Works Best? |
| J BOT 9 | Francis A Clarici | How Water from Different Sources Affects a Plants Growth |
| J BOT 10 | Samantha E Hughes | The Effects of Watering Time on Grass Growth |
| J BOT 11 | Fiona J Gleeson | Hot or Cold |
| J BOT 12 | Myka L Morris | Plants heart Java |

Intermediate BOT

| | | |
|---------|----------------|---|
| I BOT 1 | Lillian G Cole | Effects of Tomato Plants (<i>Lycopersicon esculentum</i>) in Response to Saltwater Intrusion and Inundation |
| I BOT 2 | Raymond Jiang | Effects of supplementation of ascorbic acid on the success and speed of phototropism in <i>Lepidium sativum</i> |
| I BOT 3 | Sophia Dong | Is <i>Phragmites australis</i> a Comparable Alternative to Tree-based Paper? |
| I BOT 4 | Emily Yao | Effect of <i>Lactobacillus casei</i> Concentration on <i>Graptopetalum paraguayense</i> 's Leaf Width and Thickness |
| I BOT 5 | Jason Wang | Effects of Hydrogen Peroxide on <i>Ocimum basilicum</i> |
| I BOT 6 | Briana N Ecke | Growth of Golden Oyster Mushrooms in the Mediums of Different Artificial Environments |

| | | |
|---------|--------------------|---|
| I BOT 7 | Bianca N DeSpirito | The Effects of Light Cycles on the Health and Growth of Festuca arundinacea |
|---------|--------------------|---|

Upper BOT

| | | |
|---------|----------------|--|
| U BOT 1 | Sarah N Taylor | Correlation Between Various Methods of Fertilizer and Development of Salicornia Europaea |
| U BOT 2 | Shalini Mudda | Comparison Between Plants Grown in an Hydroponic Environment and Soil-Based Environment |
| U BOT 3 | Derek A Norris | Maximizing botanical growth through renewal |

Chemistry - CHM

Junior CHM

| | | |
|----------|----------------------|---|
| J CHM 2 | Colin M Villani | CALEFACTION HYDRATION ELECTROLYTE EXPERIMENT |
| J CHM 3 | Owen Soheily | Enzyme Catalase Reactions: What Affects Their Rates? |
| J CHM 4 | Ayaan Toseef | Homemade Toothpaste... Sort Of? |
| J CHM 5 | Isaac D Huang | How Does the Amount of Sodium Alginate Affect an Edible Water Bottle? |
| J CHM 6 | Ivan C Valentin | Up Up and Away |
| J CHM 7 | Vincenzo G Bisciegia | I Got a Carbon Sugar Snake in my Boot |
| J CHM 8 | Christopher M Ford | Agony of the Wires |
| J CHM 9 | Charles J Smith | Popping Boba! How does the amount of Calcium chloride used affect the size of the boba? |
| J CHM 10 | Dante A Olivieri | Slime Chemistry: What Activator Is The Best For Slime? |
| J CHM 11 | Cameron C Walterson | Do Different Brands Of Soda Carbonate Soda Differently? |
| J CHM 12 | Charlotte Curry | Does Substituting Eggs With Other Ingredients in a Cake Recipe Affect Leavening? |
| J CHM 13 | Zachary B Wistreich | The Effect of UVA Radiation on The Time it Takes for A Chemical Reaction to Happen. |
| J CHM 14 | Samantha G Rodrick | How Much Salt Has to Be Added to Water for an Egg to Float? |
| J CHM 15 | Krishna J Goswami | Does Salt Affect the Density of Different Liquids |
| J CHM 16 | Daniel Paton | Oh the Iron-Y! - Iron in cereal |

Intermediate CHM

| | | |
|---------|---------------------|--|
| I CHM 1 | Havana E Companioni | How Does Bleach Produce False Positives For Blood? |
| I CHM 2 | Liam Goodrich | Which Orange Juice Brand has the most Vitamin C? |
| I CHM 3 | Mia G Sullivan | Examination of the Effect of Coffee Grain Size on Caffeine Content |
| I CHM 4 | Anders Nielsen | Optimal Electrolysis Voltage for the Rate of Hydrogen Generation From Seawater |

Upper CHM

| | | |
|---------|-------------------|--|
| U CHM 1 | Mariana O Kaiafas | Examining the Concentration of Quaternary Ammonium Compounds (QAC) in Varying Concentrations of Salt Water Solutions |
| U CHM 2 | Victoria L Walker | Correlation methylmercury concentrations in tissues of Lampris guttatus, Cynoscion regalis, and Micropogonias undulatus. |

Computer - COM

Junior COM

| | | |
|---------|-----------------|---|
| J COM 1 | Julian m Murcia | Switch It Up! |
| J COM 2 | Aaryan Nagaria | Can an Ultrasonic Sensor be used to Help People with Peripheral Visual Impairments? |

Intermediate COM

| | | |
|---------|------------------|--|
| I COM 1 | Saketh R Satti | User Lending Risk Modeling and Transaction Monitoring using Support Vector Machines and Dense Neural Networks |
| I COM 2 | Shreyas Musuku | A Novel Algorithm for Automatic Detection and Diagnosis of Inflammatory Skin Conditions using Convolutional Neural Networks (CNNs) |
| I COM 3 | Ishani Singh | Improving Sign Language Translation To Text Using Machine Learning |
| I COM 4 | Vishrut Thoutam | Target Driven Visual Navigation to Find Objects Based on Given Descriptions |
| I COM 5 | Kriti Srivastava | A Novel System to Improve Upon the Validity and Efficiency of the College Admissions Process Using Blockchain Technology |
| I COM 6 | Eshaan Barkataki | VNN: Variable Neural Networks for Variable Domain Space |
| I COM 7 | Ayan Patel | Using a Long Short-Term Memory (LSTM) Network to Forecast the Future Trophic State of Lakes |
| I COM 8 | Ethan Yung | The size of kernels in a convolutional neural network and its effects on overfitting |
| I COM 9 | Aden j Rella | Autonomous Machine Learning System That Distinguishes Between Trash and Natural Objects |

Upper COM

| | | |
|----------|----------------|---|
| U COM 1 | Anna R Pitera | A Novel Data Analysis and Collection Program for Beach Cleanups |
| U COM 2 | Kevin B Liu | Automatic Speech Recognition and Transcription of Huntington's Disease Patients Utilizing Convolutional and Recurrent Neural Networks |
| U COM 3 | Amanda Guan | Detecting Fake News |
| U COM 4 | Animish Jain | Applying Multiplicative Weights Update To Skin Cancer Classification Applications |
| U COM 5 | Rebecca Wang | Reduce E-commerce Fulfillment Waste and Environmental Impact by Optimizing Shipment Packaging |
| U COM 6 | Ayush Bobra | Using Deep Learning with Advanced Optimization Algorithms to Efficiently Classify and Analyze White Blood Cells in Microscopic Blood Smear Images |
| U COM 7 | Advika Vuppala | Detection of Anemia Through Image Color Threshold Processing of Palpebral Eye Conjunctiva |
| U COM 8 | Ananya Vuppala | Using Machine Learning and Metabolomics to Identify Diagnosis Patterns in Multiple Sclerosis Patients |
| U COM 9 | Lirui Liu | Image Recognition of Ore Specimens Based on Deep Neural Network |
| U COM 10 | Jared Danko | Is Virtual Reality the Future of Real Estate Design? |

Consumer Science - CSC

Junior CSC

| | | |
|---------|------------------|--|
| J CSC 1 | Bryce R Scheer | Diaper Absorbency |
| J CSC 2 | Lei N Martinez | How do different disinfectant sprays affect the amount of bacteria left? |
| J CSC 3 | Sandhana Rajesh | Rise Of The Yeast! |
| J CSC 4 | Brielle S Taluba | Cleaner Crew! |
| J CSC 5 | Addison Brittin | Taste the Rainbow |
| J CSC 6 | Sophie Memmelaar | How Does Temperature Affect Magnetism? |
| J CSC 7 | Simone James | What makeup remover works the best? |

Earth and Space Science - ESS

Junior ESS

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|---------|------------------|-------------------------------|
| J ESS 1 | Giana M Sinclair | Crystallization Measurization |
| J ESS 2 | Flora A Morris | Making Waves |

Intermediate ESS

| | | |
|---------|-------------------|---|
| I ESS 1 | Morgan S Zylinski | Analysis and Seasonal Comparison of Mainland and Saltmarsh Soils Located in Barnegat Bay, NJ |
| I ESS 2 | Pramya Surapaneni | A Physics-Informed Neural Network with 3D Modeling Capabilities to Predict the Behavior of Tsunamis in Ocean Basins with Arbitrary Geometries |
| I ESS 3 | Eshan Guha | Examining the relationship between the metallicities and masses of type K stars and the number of orbiting planets the stars contain. |
| I ESS 4 | Suchit S Basineni | The Occurrence of Tornadogenesis by Analyzing Multiple Severe Weather Parameters |
| I ESS 5 | Jasmine Guo | Identifying Galaxy Mergers With Self-supervised Deep Learning |
| I ESS 6 | Ryan Z Geddes | Comparing Soil Quality of Reynoutria japonica Dominant Sites to Native Species Dominant Sites |
| I ESS 7 | Rachel K Kunz | Growth Rate Comparison of Lactuca sativa and Phaseolus vulgaris in Regolith Versus Traditional Soil |

Upper ESS

| | | |
|---------|-------------------|---|
| U ESS 1 | Kailey B Miller | The Relation Between the Quantification of Objects in an SDSS Image and the Potential of it Being a Gravitationally Lensed Quasar Candidate |
| U ESS 2 | Aleksander Garbuz | The Effect of Surface Temperature on the Albedo of Common Materials |
| U ESS 3 | Riya Sikand | Utilizing Self-Supervised Learning to Predict Geographically Diverse Deforestation Drivers in Low-Resource Regions |

Engineering - ENG

| | | |
|---------|---------------------|--|
| J ENG 1 | Willow Pressler | Powered by the Sun |
| J ENG 2 | Shiori M Tewasiliig | Racing in the light |
| J ENG 3 | Julia C Lemon | The Rocket Went to Space! |
| J ENG 4 | Sorrento N Esposito | A Dog on an Escalator! |
| J ENG 5 | Josephine S Le | What inexpensive wall material best prevents water from getting through? |

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|---------|---------------|---|
| J ENG 6 | Ahad Hoque | Keeping You Suspended |
| J ENG 7 | Jackson Perez | Sour Power |
| J ENG 8 | Aidan Garcia | Do You Hear What I Hear? A Study on the Comparison of Sound |

Intermediate ENG

| | | |
|---------|-----------------------|--|
| I ENG 1 | Mia C Mastroianni | Environmental Impacts of Modified Sports Water Bottle Cap Design |
| I ENG 2 | Carly Gittle | RV Disability Modification |
| I ENG 3 | Maggie A Kelleher | Woodpeckers and the Future of Helmet Technology |
| I ENG 4 | Edward J Sedeno | The Iron Fist of Water (The effects of magnetism on various types of water) |
| I ENG 5 | Owen Seavey | Preventing School Deaths From Mass Shootings Through Science |
| I ENG 6 | Bhargav R Yerramsetty | A Study of a Biodegradable Polysaccharide-based Hydrogel in an Energy-Dense, Cost-Efficient Aluminum Battery |
| I ENG 7 | Samantha A Capili | Investigating Asphalt Road Temperature Differentials for Electrical Production via Thermoelectric Generators |
| I ENG 8 | Susana Gonzalez | Comparing Methods To Reduce Microfiber Pollution From Laundry Wastewater And Washing Machines |

Upper ENG

| | | |
|---------|----------------|--|
| U ENG 1 | Caitlyn A Zito | Shoelace Locking Device for Individuals With RA in Finger Joints |
| U ENG 2 | Arjun Tschand | Realtime Drowning Detection Using a Motorized Machine Learning Monitor System |
| U ENG 3 | Jack Conte | Improving the Protective Structure of Helmets Through Biomimicry |
| U ENG 4 | Vatsal Jain | Development of AhR Biosensor for Detection of Cancer Cells |
| U ENG 5 | Saanvi Mehta | Engineering Low Noise Organic Electrochemical Transistors Capable of Electroencephalogram Gamma Oscillation Recordings |

Environmental Science – ENV

Junior ENV

| | | |
|---------|-----------------|---|
| J ENV 1 | Julia M Dalton | Does Location Affect the pH Levels of Rain Water? |
| J ENV 2 | Mason Grohman | A Better Way to Make Cities Cool |
| J ENV 3 | Jacob Strothers | How Does Detergent Affect Plant Growth? |

Intermediate ENV

| | | |
|---------|--------------------|--|
| I ENV 1 | Amalie J Werner | Examining the Salinity and Depth of Floodwater on Long Beach Island Versus the Barnegat Bay |
| I ENV 2 | Abigail Jones | Predicting Sea Ice Composition and Abundance Based on Water Quality Parameters Affected by Climate Change |
| I ENV 3 | Zoey C Smith | Determining the Efficiency of Purple Non-Sulfur Bacteria in Controlling Micro Algae Populations Through Nitrate Reduction |
| I ENV 4 | Gajan Mohan Raj | The Effect of Motor Oil Pollution on the Regeneration Properties of Brown Planaria and Zooplankton Population |
| I ENV 5 | Anusha Sharma | Analysis of the correlation between temperature and precipitation quantities in Osaka, Japan in relation to Climate Change |
| I ENV 6 | Pranshu Suyal | Investigating the effects of a high carbon dioxide environment on photosynthetic productivity and leaf characteristics in <i>Epipremnum aureum</i> |
| I ENV 7 | Zachary S Ciappa | Examining Differences of Microplastics Shed from Various Synthetic Fabrics |
| I ENV 8 | Kealia Grace Smith | The Effects of Sound Wave Frequencies on the Activity of Dinoflagellates |

Upper ENV

| | | |
|----------|---------------------|---|
| U ENV 1 | Afia Lateef | The Effect of Salinity on the Degradation of PVA |
| U ENV 2 | Khushi B Patel | Methyl Mercury (MeHg) Concentrations in <i>Lampris Guttatus</i> , <i>Cynoscion regalis</i> , and <i>Micropogonias undulatus</i> species of Sandy Hook |
| U ENV 3 | Caroline A Liebmann | Quantification of Atmospheric Microplastics in Sea Spray on Long Beach Island, New Jersey |
| U ENV 5 | Nidhi Nair | Genetic Modification of <i>E. Coli</i> to produce PETase for Accelerated Degradation of PET Microplastics |
| U ENV 7 | Ishaan Akula | Implementing an Offline Coordination System for Agricultural UAVs |
| U ENV 8 | Jacey Antczak | Efficacy of Fish Effluent verses Commercial Fertilizer on Growth of Sea Asparagus |
| U ENV 9 | Nitil Raj | The Effect of Commonly Used Agricultural Herbicides and Insecticides on the Response and Locomotion of <i>Caenorhabditis elegans</i> |
| U ENV 10 | Samantha J Slota | Components of an Entirely Sustainable Building |
| U ENV 11 | Riley J Mahan | Aquatic Environments Affected By Microplastics |
| U ENV 12 | Helena K Messihi | Physical And Chemical Impacts On The American Horseshoe Crab Population On Sandy Hook, NJ |
| U ENV 13 | Grace K Leavitt | Analysis of the Production and Utilization of Bioplastics Derived from Various Microalgae Species |
| U ENV 14 | Madison D MacKenzie | The Effects of Different Amounts of Calcium Carbonate on the Growth of Wild Type and Mutant <i>Arabidopsis Thaliana</i> Undergoing Sulfuric Acid Rain |
| U ENV 15 | Austin G Van Zant | Why Floating Offshore Wind Turbines Are Optimal For New Jersey. |
| U ENV 16 | Karen Tsang | Assessing Wildfire Risk Using Geographical Analysis of Carbon Loads of Fuel and Existing Vegetation in the New Jersey Pine Barrens |
| U ENV 17 | Jacey R Antczak | Efficacy of Fish Effluent verses Commercial Fertilizer on Growth of Sea Asparagus |

Mathematics - MAT

Junior MAT

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|---------|-----------------|--|
| J MAT 1 | Yash M Ghayal | How Does the Configuration and Quantity of Dice Affect Rolling a Sum of at Least 18? |
| J MAT 2 | Samuel Leonardo | Hot vs. Cold: How the Temperature Affects How Fast I can Solve a Rubik's Cube |
| J MAT 3 | Aark S Bhagat | Need for Speed: How Fast Can You Solve a Rubik's Cube? |
| J MAT 4 | Kavya V Patel | Multiple Choice: Is Your Guess As Good As the Rest |

Intermediate MAT

| | | |
|---------|--------------------|---|
| I MAT 1 | Duy A Nguyen | How Do You Determine The Evolution Of A World Technology? |
| I MAT 2 | Logan H Mesh | Collatz sequence generalizations' speeds at reaching cycles |
| I MAT 3 | Sravanti Manikonda | Computational Modeling of the Efficacy of Ginger, Garlic, and Onion Extracts in the Presence of <i>E. Coli</i> JM 101 |

Upper MAT

| | | |
|---------|-------------------|--|
| U MAT 1 | Evan Chang | Asymptotic Estimate Of Number Of Letters Required To Be Appended Or Prepend To Create Unbordered Word |
| U MAT 2 | Michael E Grohman | Getting a Better Grasp of Things |
| U MAT 3 | Jake Dorick | Comparison of Password Strength Modeling Using a Probabilistic Context-Free Grammar and a First-Order Markov Model |

Medicine and Health - MED

Junior MED

| | | |
|---------|-----------------------|--|
| J MED 1 | Audrey J Holder | How Do Different Liquids Affect Pills Dissolving Time? |
| J MED 2 | Cameron E Gruber | How Do Different Sodas Affect Your Teeth? |
| J MED 3 | Cameron E Gruber | How Do Different Sodas Affect Your Teeth? |
| J MED 4 | Maddie McAleer | Your Eyes Tell All: How Old is Your Peripheral Vision? |
| J MED 5 | Krisana M Shah | Is the 5 Second Rule Accurate? |
| J MED 6 | Moeez Iftikhar | How does temperature affect typing speed and accuracy? |
| J MED 7 | Harshavardhan Annangi | Water Danger! |
| J MED 8 | Claire McGowan | What type of face masks work the best? |
| J MED 9 | Nellie Schwegman | How to Get Your Heart Pumping |

Immediate MED

| | | |
|---------|-----------------|--|
| I MED 1 | Ava K Boyle | Examining How Fatigue Affects an Athlete's Performance of Balance |
| I MED 2 | Ria Jordan Ulep | Comparing the Efficiency of Herbs and Spices in Reversing Hyposmia |
| I MED 3 | Tajneen Islam | Examining the Short-Term and Long-Term Effects of Cardiovascular Medications on Patients |
| I MED 4 | Prisha Rai | The Effect of Quercetin on the Shrinkage and Behavior of Planaria |
| I MED 5 | Daniel D'Silva | The Effects of Eclipta alba Extract on Planaria |
| I MED 6 | Kaitlyn M Siino | A Comparison of Hygiene Between Three Methods of Drying Hands |

Upper MED

| | | |
|----------|---------------------|---|
| U MED 1 | AJ Todisco | The Impact Of Fruits On Endurance Activities |
| U MED 2 | Meera R Nair | Comparison of natural product Artocarpin with other natural products as a potential lead targeting Pathogenic drug resistant bacteria |
| U MED 3 | Ariella Minsky | Designing and Testing a Wetsuit With a Waterproof Attachment for an Insulin Pump |
| U MED 4 | Yuvna R Musuku | Refining a Novel Device to Prevent Perineal Tears During Labor |
| U MED 5 | Shravani Vedagiri | Effects of Vitamin Supplements on the Impact of Blue Light Exposure on Glucose Metabolism in D. Melanogaster |
| U MED 6 | | Development of AhR Biosensor for Detection of Cancer Cells |
| U MED 7 | Zachary M Brewer | Varus, Valgus, and Neutral Knee Joint Alignment Effects |
| U MED 8 | Declan A Turbitt | Analysis of Cyanocobalamin (Vitamin B12) in the Health of Caenorhabditis elegans and in Preventing Oxidative Stress from Hydrogen Peroxide |
| U MED 9 | Jonathan Koshko | Blue Light Filtering Experiment: How Devices Affect Our Sleep |
| U MED 10 | Victoria L Fitlin | The Limits of Genetic Testing For Familial Hypercholesterolemia |
| U MED 11 | Jonathan Koshko | Blue Light Filtering Experiment: How Devices Affect Our Sleep |
| U MED 12 | Rebecca Y Zhang | Assessing sucrose preference and the possible effects of L-glutamine or chromium picolinate on sucrose preference in Caenorhabditis elegans |
| U MED 13 | Hersh R Yadava | Alternatives to Opioids To Treat Pediatric Postoperative Pain |
| U MED 14 | Moniayo O Mabogunje | The Effects of Vitamin B-12 Complex on Caenorhabditis elegans with Alzheimer's Disease and its Effects on Associative Learning |

Microbiology - MIC

Junior MIC

| | | |
|---------|----------------------|---|
| J MIC 1 | Jamie L Ewing | cleanest way to dry your hands |
| J MIC 2 | Shane A Golley | How Long Does it Take for Different Styles of Bread to Mold? |
| J MIC 3 | Ajay Patel | How Much Bacteria is in Different Types of Water? |
| J MIC 4 | Lisa Farha | Water Quality |
| J MIC 5 | Addison R McColligan | On Wednesdays We Wear Pink Lipstick |
| J MIC 6 | Giuliana E Raso | How Composting Material Affects the Amount of Thermal Energy Released |
| J MIC 7 | Tessa D'Alessandris | What is the dirtiest place in the school? |

Intermediate MIC

| | | |
|----------|------------------------|--|
| I MIC 1 | Maya Abdelaal | Assessing Airborne Bacteria Abundance in Seafoam Aerosol |
| I MIC 2 | Aarya Sood | Soil Analysis of Mycorrhizal Fungi in Forest & Wetland Regions of New Jersey |
| I MIC 3 | Derek Wang | The Effect of Different Wavelengths of Light on Ampicillin Susceptibility in Escherichia coli |
| I MIC 4 | Aarnav Baxi | Effect of pH levels on Escherichia coli K12 enterobactin production rates |
| I MIC 6 | Om Agrawal | Effect of the Breakdown of Cereal Plant Straws on Algae Population Size, Oxygen Levels, and Carbon Dioxide Levels |
| I MIC 7 | Jyothi S Ramesh | Effect of E.coli K-12 on Planarian Regeneration |
| I MIC 8 | Rohit R Kottomtharayil | The Effect of pH upon the Growth of Streptococcus salivarius |
| I MIC 9 | Isabella S Morgan | Analyzing Pre- and Post-Rain Water Quality Parameters at Various Recreational Ponds Throughout Northern Ocean County, New Jersey |
| I MIC 10 | Abhinav Kartik | Effect of Activating Phosphofructokinase 1 using Adenosine Monophosphate on Ethanol Production in Saccharomyces cerevisiae |
| I MIC 11 | Matthew P Thomas | The Use of the T4 Bacteriophage in Reducing Escherichia coli on Ground Beef Products |

Upper MIC

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|---------|---------------------|---|
| U MIC 1 | Chloe J Uy | Investigating the Effects of Varying Nickel Media on Saccharomyces cerevisiae to Aid Type IV Hypersensitivity |
| U MIC 2 | Aashka S Patel | Using Internal Mechanisms as a Novel Method to Ultraviolet Sterilization of Computer Keyboards |
| U MIC 3 | Sreeja Paruchuri | The Antibacterial Efficacy of Antibiotics Supplemented With Varying Sizes of Gold Nanoparticles on E. coli |
| U MIC 4 | Hannah y Jacobs | Effects of Coligate T4 bacteriophage and Ampicillin on E. coli grown on chicken cells |
| U MIC 5 | Edward R Fusciello | The Advancements of Genetic Engineering Based off Disease Within Humans |
| U MIC 6 | Katherine H Schmitt | Bacterial Growth on |
| U MIC 7 | Adrian Wang | The Effect of Grapefruit Seed Extract on the Prevention of Mold on Bread |

Physics - PHY

Junior PHY

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|---------|------------------|--|
| J PHY 1 | Dylan Lancaster | Drop Height and Liquid Spatter |
| J PHY 2 | Owen R Renaud | How do Different Temperatures Affect Battery Life? |
| J PHY 3 | Zackary I Simon | How Do Different PSIs Affect How Far I Can Kick A Soccer Ball? |
| J PHY 4 | Michelle P Hoang | Freeze Time! |
| J PHY 5 | Aliya Alam | Effect of Surface Friction on Speed |

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|----------|------------------|--|
| J PHY 6 | Bradyen J Macom | How does the temperature of a tennis ball affect how it bounces? |
| J PHY 7 | Lacie N Thompson | Soundz of Softball |
| J PHY 8 | Xian A Peralta | Magnitude and Magnetic |
| J PHY 9 | Elias Person | What Floats Your Boat? |
| J PHY 10 | Kavi Patel | Watts the Temperature? |
| J PHY 11 | Nathan C Smith | If I Put A Toy Race Car On Different Surfaces, Which Surface Will The Car Go The Fastest On? |
| J PHY 12 | Anik Ahsan | It's Fall not Spring |
| J PHY 13 | Nathaniel E Rupp | Can Carbon Filters Change The Color Of Water? The Effects Different Hockey Sticks have on the Velocity of a Hockey Ball |
| J PHY 14 | Brayden A Murphy | |
| J PHY 15 | Mason Newby | Hotter is Higher |
| J PHY 16 | Isabella G Frame | Ride The Stride |
| J PHY 17 | Jack Voigt | Weight Affecting Flight |
| J PHY 18 | Jonathan Lowry | Science Mountain |

Intermediate PHY

| | | |
|---------|-------------------|--|
| I PHY 1 | heh gag | Saving Exoplanets! |
| I PHY 2 | Indus Boddu | A Novel Two-Phase Switched Reluctance Motor Design Utilizing a Radial-Axial Layout and Modified Stator-Rotor Ratio to Reduce Torque Ripple |
| I PHY 3 | Andrew G Van Pelt | How Different Geometric Shapes and Arrays Affect the Strength and Properties of a 3D Printed Part |
| I PHY 4 | Dugan Tunney | Does the speed of a magnet traveling through a coil affect the amount of current induced in the coil? |

Upper PHY

| | | |
|---------|-----------------|--|
| U PHY 1 | Daniel Zlotnick | A Follow Up Study of Flooring Materials and their Ability to Minimize Head Injury Severity |
| U PHY 2 | Katherine Fang | Discovering Habitable Exoplanets Using Deep Learning |
| U PHY 3 | Varun N Gabbita | Examining How the Length and Material of a Baseball Bat Optimize its Center of Percussion |

Zoology - ZOO

Junior ZOO

| | | |
|---------|--------------------|---|
| J ZOO 1 | Ava E Gentile | The Fast and the Scaliest |
| J ZOO 2 | Alexandra C Hernon | The Natural Way or the Toxic Way? |
| J ZOO 3 | Chase Caucci | Which kind of food do dogs prefer best? |
| J ZOO 4 | Julianna D Romnano | The Best Way To Treat Your Horse. |

Intermediate ZOO

| | | |
|---------|----------------------|--|
| I ZOO 1 | Avery M Larew | Investigating the Locomotor Changes in Captive Atelerix albiventris in Relationship to Temperature |
| I ZOO 2 | Cassara V Yannarelli | Lionfish Correlation Study of Venom Placement and Weight Sustainability of Lionfish Spines |
| I ZOO 3 | Chloe C Wnek | Analysis of Environmental Conditions Between Novel Diamondback Terrapin Hatchery Designs |
| I ZOO 4 | Violet G Fischer | Effects of Climate Change and Bay Acidification on Mud Dog Whelks (Nassarius Obsoletus) |

Upper ZOO

| | | |
|----------|----------------------|---|
| U ZOO 1 | James E Treshock | Assessing the relationship between Striped Bass Morone Saxatilis yield and Urbanization along the Hudson River |
| U ZOO 2 | Ariana N Satruc | Relationship Between Temperature and Survivorship of Ambystoma mexicanum Eggs |
| U ZOO 4 | Melina Varouhakis | Effect of predator kairomones on the life history and inducible defenses of Daphnia pulex |
| U ZOO 5 | Nikhil Osuri | Effect of Varying Concentrations of Oldenlandia Diffusa and Astragalus Membranaceus on the Regeneration of D.Tigrina |
| U ZOO 6 | Kaitlyn N Culbert | Year 3: Breakthroughs in Honey Bee Health, Summer Weather Humidity Conditions Influence Winter Survival |
| U ZOO 7 | Nicholas D Guerriero | Shellfish Growth and Seasonal Water Factors |
| U ZOO 8 | Evan R Essig | Creating a Code to Calculate the Probability of Invasion and Survival for a Given Non-Native Insect in NJ |
| U ZOO 9 | Aidan J Henbest | An Analysis of the Ranges of Invasive Bird Species Across New Jersey |
| U ZOO 10 | Anthony L Billotti | Developing an IOS Application Utilizing Swift and Augmented Reality to Determine if a Marine Species is the Appropriate Size and Gender to be Harvest |
| U ZOO 11 | Jerry Seinfeld | Analysis of if Dog-Fighting is Ever Viable |
| U ZOO 12 | | Constructing a Lactase Evolutionary Tree Using Amino Acid Pairwise Alignments |
| U ZOO 13 | Zehra A Taqvi | Using C. Elegans as a Model Organism to Investigate Caffeine and Sugar Addiction by Way of a Chemotaxis Assay |
| U ZOO 14 | Kaitlyn Muller | Optimal Growth for Diamondback Terrapin Hatchlings in a Head Start Conservation Program |

Team Project - TMP

Junior TMP

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|----------|-----------------------|---|
| J TMP 1 | Susana E Robledo Cruz | Which Oil Works Best For Lava Lamps? |
| J TMP 2 | Maseeha Yousaf | Clorox Rubs It Off |
| J TMP 3 | Rai Chowdhury | Nickel Busters |
| J TMP 4 | Quetzali Robledo-Cruz | Goopy Glucose |
| J TMP 5 | Celine Pham | Germ Alert |
| J TMP 6 | Pierson Nguyen | Drone Delivery |
| J TMP 7 | Keertiman Dev | Solar Wonder |
| J TMP 8 | Nusaibah Nawar | Cleanse The Best |
| J TMP 9 | Bryce R Judge | The Effects of Different Sided Wind Catchers on Air Temperature |
| J TMP 10 | Marven D Hill | Which Filtration Materials Leads to the Best Drinking Water? |

Upper TMP

| | | |
|---------|---------------------------|--|
| U TMP 1 | Tessa Campolattaro | The Relationship Between Road Salt Application and Salinity/Toxicity of Freshwater Streams in Monmouth County, New Jersey |
| U TMP 2 | Nicholas Godkin | Growth of a novel halophyte (Salicornia bigelovii) as part of an integrated aquaculture system |
| U TMP 3 | Bethany Mariel A Suliguin | A Comprehensive Water Quality Analysis Along the Toms River and Dillon's Creek, New Jersey |
| U TMP 4 | Sarah E Grenz | The Effect of UVGI Wastewater Treatment Technology on the Relationship Between Quaternary Ammonium Compounds (QACs) and Bacterial Growth |

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|---------|------------------|---|
| U TMP 5 | Caroline # Flinn | Microplastic Concentration in the Molts of the Limulus Polyphemus |
| U TMP 6 | Timothy Bykowski | Analysis of Temperature, Salinity, and Flow in the Beach Haven West, New Jersey Lagoonal System |



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