



**DELAWARE VALLEY SCIENCE FAIRS, INC.**



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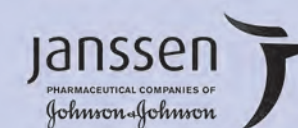
**PROGRAM OF ENTRIES 2023**

**75TH DELAWARE VALLEY SCIENCE FAIRS**  
6th - 12th Grades

**APRIL 4 - 6, 2023**

The Greater Philadelphia Expo Center  
Oaks, Pennsylvania

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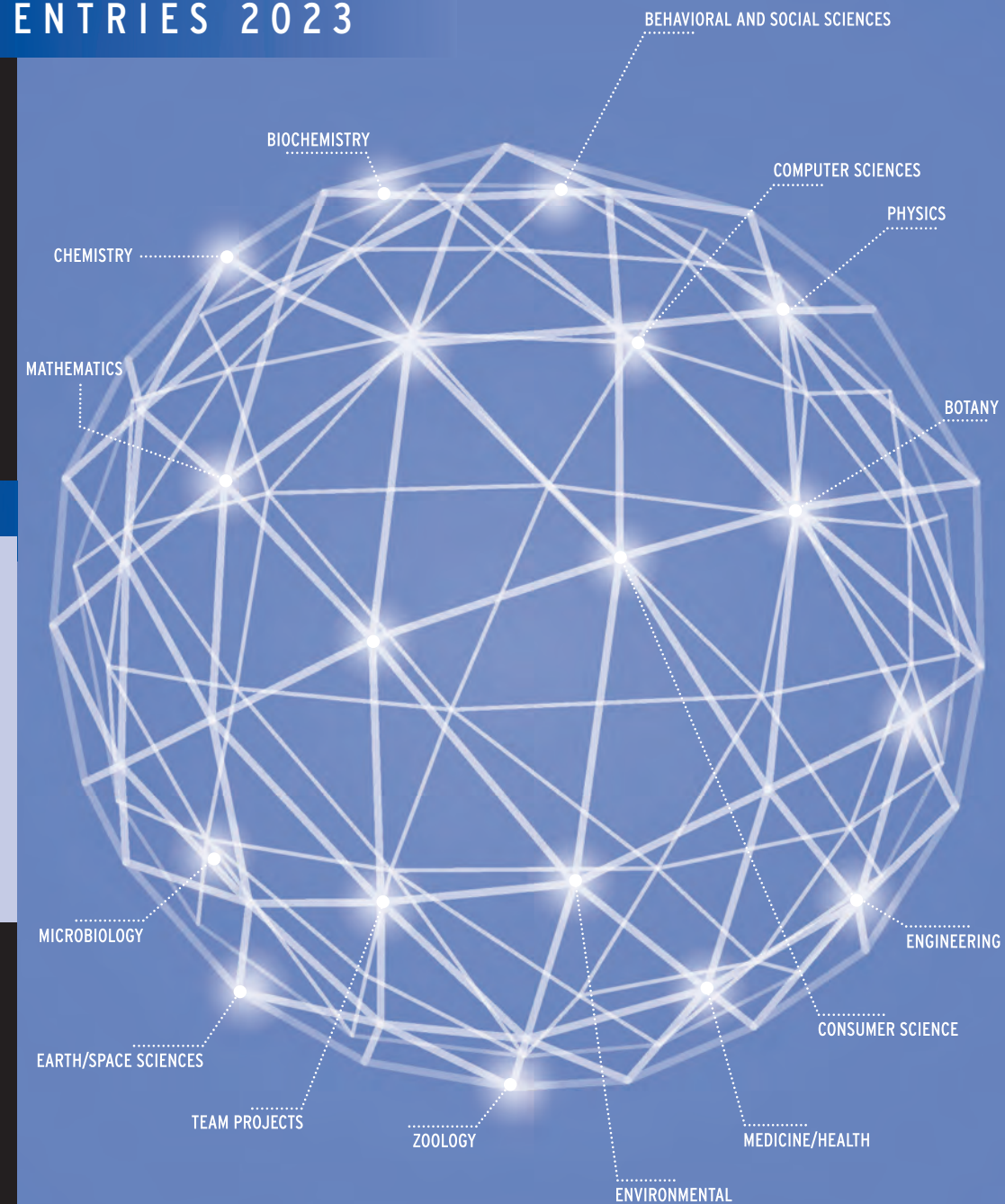
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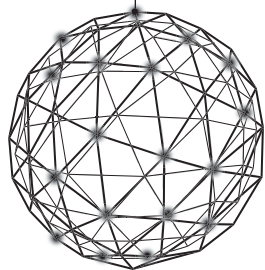
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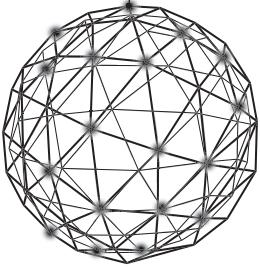
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Welcome to the 75th annual Delaware Valley Science Fairs (DVSF). For 75 years DVSF has provided STEM opportunities to students in the Delaware Valley. I extend congratulations to all the participants. Every student here has won an award from their regional fairs. As I have said many times before, you are not winners because you won an award. You are winners because you started and completed a research project! This is an experience that will serve you well. The skills you learn by participating in a science fair will better prepare you for the journey ahead and I wish you all the best in the future.

## LETTER FROM THE PRESIDENT



DVSF's mission is to bring parents, teachers, and industry together to stimulate and nurture young people so they can grow and develop into contributing members of the community. We will continue to strive to expand our Teacher Development Program, Mentorship Program and collaborations with industry and professional societies. We also provide students from various social and economic backgrounds opportunities to share their aptitudes and interests.

DVSF is focused on encouraging students to think and solve problems; skills that they will need for careers, college, and citizenship. We are committed to preparing tomorrow's innovators. The Next Generation of Science Standards (NGSS) emphasizes critical thinking skills of applying knowledge, evaluating claims, providing evidence for points of view, and analyzing new situations. These are the same skills students learn when they undertake a research project and enter a science fair. It is here where intellectual curiosity and creative problem solving come into play. The importance of science competitions cannot be underestimated. It is ok if one doesn't place. It is the process of participation itself that is uniquely valuable.

Our high school students, who competed at the Regeneron International Science and Engineering Fair (ISEF) last year, did very well. They won 6 awards, including, one 'Best in Category'! Two students from DVSF were also named Semi-Finalist and Finalist in the Broadcom MASTERS competition for middle school students. We also had three Finalists in the Regeneron Science Talent Search for high school seniors. We are all very proud of their accomplishments. DVSF provides a vehicle for all students to excel and reach their full potential.

I want to thank the following for their contributions: our donors and event sponsors, the Board of Trustees, the Regional Fair Directors, our Advisory Board, the professional societies and organizations, the judges, schools, and teachers, many of whom are hardworking fair volunteers, and last, but certainly not least, the parents.

We have a lot of talented young people in the tri-state area who can excel when given the chance. I feel honored to be part of this exciting organization. I strongly believe that if we provide the opportunity for the natural curiosity of our young people to thrive, they will provide us with a future that is bright and prosperous.

Good Luck to everyone,

Bob Solomon  
EXECUTIVE DIRECTOR AND PRESIDENT



COMMONWEALTH OF PENNSYLVANIA  
OFFICE OF THE GOVERNOR



**Greetings:**

It is my pleasure to join with the Delaware Valley Science Fairs Inc (DVSF) to celebrate the 75 years of STEM education.

DVSF is one of the oldest and largest science fairs in the country that has been a leading force in STEM education. In order to continue the Commonwealth's tradition of innovation, our workforce must be supported with policies, protections, and programs like this that help advance the needs of Pennsylvanians. DVSF embraces a philosophy of teaching students to develop critical problem-solving skills, innovation in their projects, and dedication beyond the classroom.

As Governor, and on behalf of all Pennsylvanians, I am delighted to welcome all those gathered for the Delaware Valley Science Fairs Inc. Please accept my best wishes for a productive and memorable event.



JOSH SHAPIRO  
April 5, 2023



# CITY OF PHILADELPHIA

**JAMES F. KENNEY**  
Mayor

Office of the Mayor  
215 City Hall  
Philadelphia, PA 19107  
(215) 686-2181  
FAX (215) 686-2180

April 6, 2023

Dear Friends:

It is a pleasure to welcome you to the 75th annual Delaware Valley Science Fairs (DVSF) and Competition, being held Wednesday, April 5, 2023, at the Greater Philadelphia Expo Center in Oaks, PA.

Founded in 1949, The Delaware Valley Science Fairs, Inc. is a nonprofit organization headquartered in Exton, PA and sponsored by area companies, foundations, universities, and individual donors. It is one of the oldest and largest Fairs in the country and embraces a philosophy that students learn science by doing science. In the process, students learn how to think and develop critical problem-solving skills they will need for careers, college and citizenship. I commend the DVSF's mission to bring parents, teachers, and the industry together to stimulate and nurture young people so that they can grow and develop into contributing members of the community by providing the scientific workforce needed for the future, and they provide mentoring and teacher training to facilitate participation in this activity.

DVSF is an Affiliated Fair for the Regeneron International Science and Engineering Fair (ISEF). Competitors in grades 6 through 12 research sophisticated topics and develop STEM (Science, Technology, Engineering, and Mathematics) projects in any of 13 different categories. Commendably, this sometimes spurs making new discoveries that change their lives forever in many positive ways as they participate in the Delaware Valley Science Fairs, and nearly \$500,000 in scholarship and prize money will be awarded this year to student winners. Top high-school winners will compete in the ISEF competition in May where the prizes are over \$4 million; the top middle-school winners go on to the national competition, the Thermo Fisher Scientific Junior Innovators Challenge.

I congratulate this organization for their significant impact over the past 75 years of recognizing the impressive accomplishments of the students in our region who excel in these essential academic disciplines. With the City of Philadelphia recognized as a national leader in science education and research, it is imperative that we properly educate and prepare our students for potential careers in STEM, and that Philadelphia's STEM education leaders devise creative and innovative ways to motivate children and youth to pursue their interest in science.

On behalf of the City of Philadelphia, I wish all of the competing students the very best of luck and salute you for your interest in science. I encourage you to continue to pursue your passion in these subjects and consider the many rewarding and challenging careers they can open for you.

Sincerely,

A handwritten signature in black ink that reads "James F. Kenney".

James F. Kenney

Mayor

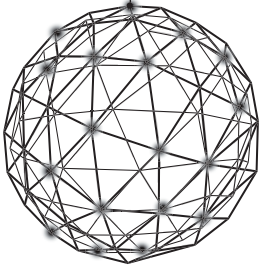
Charitable contributions from individuals, corporations, foundations, agencies, and professional societies enables Delaware Valley Science Fairs to organize and host the annual regional science & engineering research competitions; support 13 local science and engineering fairs in Southeastern Pennsylvania, Delaware, and Southern New Jersey; and provide local teachers the support and tools they need to spark students' creativity and foster multi-dimensional learning in the classroom.

We extend our sincerest thanks to all of you, who through your contributions and partnerships, are investing in STEM education and our region's young students and teachers.

**DVSF SUPPORTERS** | contributions received January 1, 2022 - March 2023

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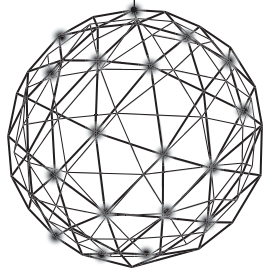
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We celebrate and thank all donors for supporting DVSF!***

\* DVSF 2023 Trustee

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 American Entomological Society/ Calvert Award  
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 American Society for Microbiology - Eastern PA  
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 American Society of Naval Engineers  
 ASM International Philadelphia Liberty Bell Chapter  
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 Broadcom Dept. of Defense STEM Leadership Prize  
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 Delaware Audubon Society  
 Drexel University -Dept. of Biodiversity Earth and Environmental Science  
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**SPECIAL AWARDS**



**Scholarships**

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 Community College of Philadelphia  
 Delaware Valley University  
 Harrisburg University of Science & Technology

*\*Special Awards list is current as of print date and may be subject to change on DVSF Judging Day*

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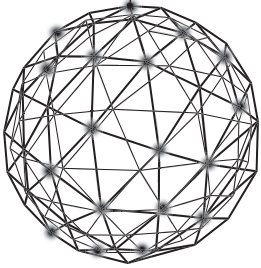
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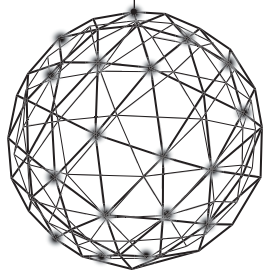
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Delaware Valley Science Fairs, Inc. (DVSF) was founded in 1949, and is thriving in its 75th operating year. Today, DVSF is a non-profit organization and the host of one of the largest and oldest fairs in the country. The Fairs were designed as a vehicle for stimulating interest in STEM (Science, Technology, Engineering and Mathematics) among students in middle and high schools in the tri-state area. The philosophy behind the Fairs is that students learn science by doing science.

The Delaware Valley Science Fairs comprise six separate competitions: with a fair each for 12th, 11th, 10th, 9th, and 6th through 8th grades, and Teams. Society for Science provides a uniform structure and rules, and franchises all regional fairs at the high school level in the United States and in over 70 countries.

In the fall of each school year, teachers introduce the science fair program as an extracurricular activity or as part of the curriculum. Students choose from one of 15 categories (these categories are listed in the

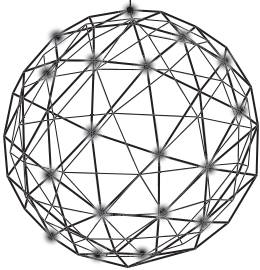
Table of Contents). Along the way, their topics and methodology are reviewed by the DVSF Scientific Review Committee to guarantee that proper scientific safety procedures and federal guidelines are being followed.

Within each category, First, Second, and Third Place winners are chosen by teams of judges who sometimes also designate Honorable Mention awards. After category winners are selected in each grade, separate teams of Medals judges select Gold, Silver, and Bronze Medal winners from among the category winners.

All medal winners in the 9th through 12th grade earn an all-expense-paid trip to the Regeneron International Science and Engineering Fair (ISEF), to be held this year in Dallas, Texas from May 13th through 19th. At the ISEF, DVSF's twelve high school medal winners will compete against winners from other regional fairs in the United States, American Samoa, Argentina, Australia, Austria, Azerbaijan, Belarus, Brazil, Bulgaria, Canada, Chile, China, Chinese Taipei, Columbia, Costa Rica, Czech Republic, Denmark, Egypt, Estonia, Finland, France, Georgia Republic, Germany, Ghana, Guam, Guatemala, Hungary, India, Indonesia, Iraq, Ireland, Israel, Italy, Japan, Jordan, Kazakhstan, Kenya, Kuwait, Latvia, Luxembourg, Malaysia, Mexico, Netherlands, Nigeria, Northern Ireland, North Mariana Islands, Norway, Pakistan, Palestine, Panama, Peru, Philippines, Poland, Portugal, Puerto Rico, Qatar, Republic of Moldova, Romania, Russian Federation, Saudi Arabia, Singapore, Slovakia, Slovenia, South Africa, South Korea, Spain, Sri Lanka, Sweden, Switzerland, Thailand, Tunisia, Turkey, Ukraine, United Arab Emirates, the United Kingdom, Uruguay, U.S. Virgin Islands and Vietnam and Zimbabwe.

Teachers are selected from a pool of applicants to attend ISEF, along with our teacher award winners, as an all-expenses paid professional development opportunity.

## FOREWORD



# DELAWARE VALLEY SCIENCE FAIRS:

A CULMINATION OF THIRTEEN REGIONAL FAIRS THROUGHOUT THE DELAWARE VALLEY

Each student who competes in the Delaware Valley Science Fairs (DVSF) is already a winner. They have earned the right to compete in the DVSF by winning in one of thirteen regional fairs in Delaware, Southern New Jersey, and Southeastern Pennsylvania.

Delaware competitors come from the **Sussex County Science Fair, Kent County Science Fair, and Delaware Tech Science Expo** (New Castle County).

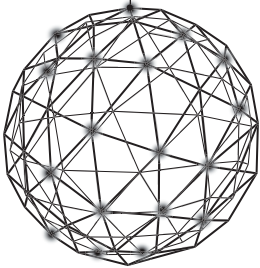
New Jersey competitors come from one of four regional fairs, including the **Cumberland County Science Fair and Salem County Science Fair** for students in those counties, **Jersey Shore Science Fair** for students from Atlantic, Cape May, Monmouth, and Ocean Counties and **Coriell Institute Science Fair** for students from Burlington, Camden, and Gloucester Counties.

Students from Southeastern Pennsylvania come from the **Bucks County Science Research Competition, Delaware County Science Fair, Montgomery County Science Research Competition, Chester County Science Research Competition, George Washington Carver Science Fair** for Philadelphia

County, and **Lehigh Valley Science Fair and Engineering Fair** for Lehigh and Northampton Counties.

Many students were honored as winners in earlier fairs held at their schools and by their school districts.

THIRTEEN REGIONAL FAIRS



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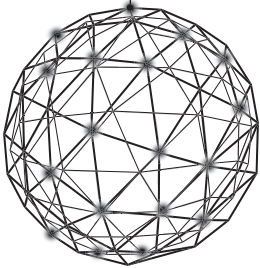
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*Delaware Valley Science Fairs, Inc.*

STAFF



*Teacher Workshop*

Delaware Valley Science Fairs (DVSF) provides several types of awards to student winners. These awards are intended to demonstrate the high value placed on achievement by middle and high school students in STEM.

### MEDALS

Gold, Silver, and Bronze Medals will be presented to three individuals in each grade, selected from the first-place category winners.

### ALL-EXPENSE-PAID TRAVEL TO THE REGENERON INTERNATIONAL SCIENCE AND ENGINEERING FAIR (ISEF)

The Gold, Silver and Bronze Medal Winners of the 9th, 10th, 11th, and 12th grade Fairs will receive an all-expense-paid trip to the Regeneron ISEF in Dallas, Texas from May 13th - 19th, 2023. The high school Medal Winners will compete at ISEF representing DVSF. Selected teachers will also receive an all-expense-paid trip to the ISEF. Approximate value: **\$2,600 per person.**

### CATEGORY AWARDS

Each of the first place winners in the six Delaware Valley Science Fair's categories of the competition will receive \$100, second place winners will receive \$75 and third place winners will receive \$50 along with their medal and certificate. Approximate value: **\$15,300**

### SCHOLARSHIPS

**The Dietrich W. Botstiber Foundation** offers three **\$8,000** unrestricted scholarships. These scholarships go to 12th graders with a project related to aviation and physics. The students will be awarded a \$2,000 per year, for 4 years pending maintenance of full-time status.

**Community College of Philadelphia:** The CCP Summer Advance College Experience (ACE) Scholarship Award will be presented to two rising ninth graders and two tenth or eleventh graders competing at the Delaware Valley Science Fair. Students will receive a scholarship for one Summer ACE course at the college, including tuition and the required textbook(s). This program offers a cross-section of intensive courses and includes a full semester of college-level course material over five weeks in July and August. Students that earn a "C" or better will receive college credit from Community College of Philadelphia. The scholarship must be used within two years of award receipt and will be null and void once the student graduates from high school.

**Delaware Valley University:** This award is offered to high school seniors and juniors competing in the Delaware Valley Science Fairs. The \$2,000 DelVal Mission Scholarship will be awarded to juniors and seniors placing first in their categories at the Delaware Valley Science Fairs. A \$1,000 DelVal

Mission Scholarship will be awarded to juniors and seniors that earn second place, third place or honorable mention in the category. These scholarships are renewable for four years as long as the student remains in good academic standing.

These scholarships are in addition to any academic scholarship for which a student may qualify upon admission. In order to be eligible to claim the DelVal Mission Scholarship described above, the high school student must be in good academic standing and enroll at the Delaware Valley University as a full-time undergraduate student in the fall semester immediately following the winner's high school graduation.

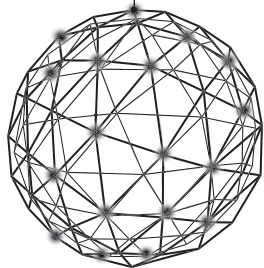
### Science and Technology Award to Harrisburg University of Science and Technology:

This award is offered to all high school seniors and juniors competing in the Delaware Valley Science Fairs. The Science and Technology Scholar Award will cover up to \$1,500 for four (4) academic years at Harrisburg University of Science and Technology and is renewable each year. This award will be in addition to any Merit Scholarship Award the student may receive upon application and admission to the university. To redeem this award, the student must be granted a regular full-time admission to Harrisburg University for the fall semester immediately following graduation from high school.

The university recommends recipients to file the Free Application for Federal Student Aid (FAFSA) before the start of the academic year, and complete any state grant applications by their deadlines. Once we have received the FAFSA data, we will provide recipients with a complete financial aid package that details their overall aid eligibility, including the scholarship as well as any state and federal grants for which they qualify. This award is not transferable and nor is it stackable with any other scholarship from Harrisburg University.

**Special Awards:** DVSF partners with regional professional societies and organizations, schools, and corporations who provide special awards for DVSF student presenters. Many of whom give additional special awards or extend invitations to participate in unique opportunities and experiences to selected students whose projects reflect the mission and goals of the societies and organizations. (See page 7) Approximate value: **\$32,725.**

## MEDALS, SCHOLARSHIPS AND AWARDS



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Delaware Valley Science Fairs, Inc. is a registered 501(c)3 non-profit organization that relies entirely on charitable contributions from companies, foundations, agencies, and individuals to support its annual operating budget, including the costs of organizing and hosting the annual STEM research competitions, The Fairs. All contributions are tax-deductible to the fullest extent allowable by law.

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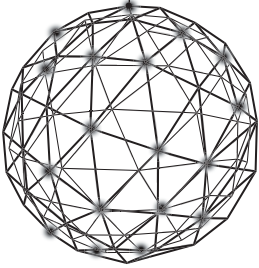
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Delaware Valley Science Fairs, Inc.  
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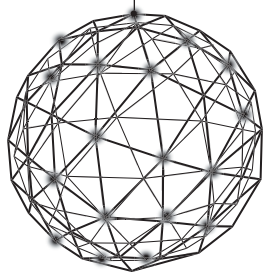
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## CATEGORY DESCRIPTIONS



### **Behavioral and Social Sciences**

Human and animal behavior, social and community relationships - psychology, sociology, anthropology, archaeology, ethology, ethnology, linguistics, learning, perception, urban problems, reading problems, public opinion surveys, educational testing, etc.

### **Biochemistry**

Chemistry of life processes - cell biology, molecular genetics, enzymes, photosynthesis, blood chemistry, protein chemistry, food chemistry, hormones, etc.

### **Botany**

Study of plant life - agriculture, agronomy, horticulture, forestry, plant taxonomy, plant physiology, plant pathology, plant genetics, hydroponics, algae, etc.

### **Chemistry**

Study of nature and composition of matter and laws governing it - physical chemistry, organic chemistry (other than biochemistry), inorganic chemistry, materials, plastics, fuels, pesticides, metallurgy, soil chemistry, etc.

### **Computer Science**

Study and development of computer software and hardware and associated logical devices.



### **Earth and Space Sciences**

Geology, mineralogy, physiography, oceanography, meteorology, climatology, astronomy, geology, speleology, seismology, geography, etc.

### **Engineering**

Technology; projects that directly apply scientific principles to manufacturing and practical uses - civil, mechanical, aeronautical, chemical, electrical, photographic, sound, automotive, marine, heating and refrigerating, transportation, environmental engineering, etc.

### **Environmental Sciences**

Study of pollution (air, water, and land) sources and their control; ecology.

### **Mathematics**

Development of formal logical systems or various numerical and algebraic computations, and the application of these principles - calculus, geometry, abstract algebra, number theory, statistics, complex analysis, and probability.

### **Medicine and Health**

Study of diseases and health of humans and animals - dentistry, pharmacology, pathology, ophthalmology, nutrition, sanitation, pediatrics, dermatology, allergies, speech and hearing, etc.

### **Microbiology**

Biology of microorganisms - bacteriology, virology, protozoology, fungi, bacterial genetics, yeast, etc.

### **Physics**

Theories, principles, and laws governing energy and the effect of energy on matter - solid state, optics, acoustics, particle, nuclear, atomic, plasma, superconductivity, fluid and gas dynamics, thermodynamics, semiconductors, magnetism, quantum mechanics, biophysics, etc.

### **Zoology**

Study of animals - animal genetics, ornithology, ichthyology, herpetology, entomology, animal ecology, paleontology, cellular physiology, circadian rhythms, animal husbandry, cytology, histology, animal physiology, invertebrate neurophysiology, studies of invertebrates, etc.

### **Team Projects**

All disciplines - multidisciplinary or interdisciplinary. Projects consist of 2 or 3 team members.

### **Consumer Science (grades 6-8, only)**

Study of various consumer products like batteries, soaps, detergents, foods, paper towels, cosmetics, etc. These are usually, but not always, comparison studies.

## FREE DELAWARE VALLEY SCIENCE FAIRS PARENT/TEACHER WORKSHOPS

WEDNESDAY, APRIL 5, 2023 • 12:30 TO 3:00 PM, ROOM 5 - GREATER PHILA. EXPO CENTER

### ***INSIDE SCIENCE FAIR JUDGING***

12:30 - 1:45 PM

**PRESENTER:** Bob Hranek, *DVSF Medals Judge and Trustee*

This presentation will focus on the judging process, the criteria that judges use in making selections and what the students can do to improve the judges' impressions and evaluations of their project.

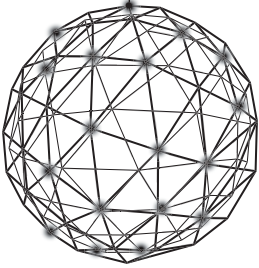
### ***HOW TO BE THE BEST ADVOCATE AND PARTNER FOR YOUR STUDENTS IN THE COLLEGE ADMISSIONS PROCESS***

2:00 - 3:00 PM

**PRESENTERS:** Lou Hegyes, *Retired College Admissions Director and DVSF Trustee* and Joe Alaimo, *Director of Financial Aid, Gwynedd Mercy University*

Learn how to support and assist your students through the college admissions and financial aid processes. Important tips, strategies, guidance, and schedule of events to best maximize your potential in these areas will be discussed.

FREE WORKSHOPS



## FREE DELAWARE VALLEY SCIENCE FAIRS COLLEGE FAIR

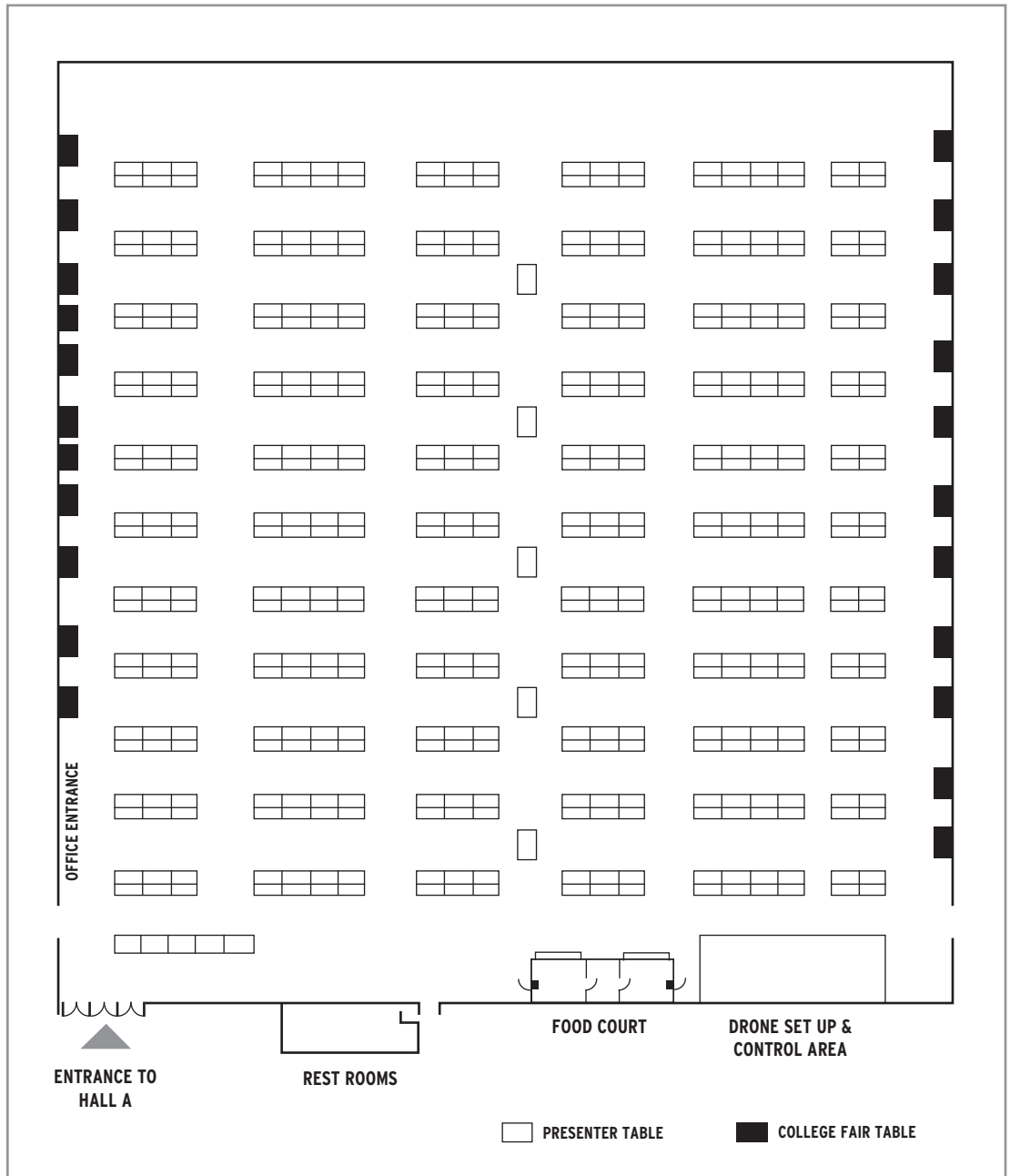
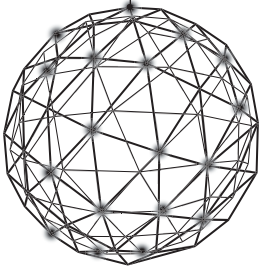
DVSF provides students access to College and University admissions officials and professors at the fair. The following institutions have tables at this year's fair.

Alvernia University  
Cabrini University  
Cairn University  
Cedar Crest College  
Community College of Philadelphia  
Delaware Valley University  
Drexel University  
Holy Family University  
Immaculata University  
LaSalle University  
Lincoln University

Marywood University  
Pennsylvania College of Technology  
Penn State University - Berks  
Rowan University  
St. Joseph's University  
Stevens Institute of Technology  
Stockton University  
Temple University - College of Engineering  
Temple University - College of Science & Tech.  
University of Delaware  
University of Scranton



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2023 FLOOR PLAN



PRESENTER	TITLE	SCHOOL & SPONSOR
<b>BEHAVIORAL/SOCIAL SCIENCES</b>		
12-BEH-001	Talia Willner Music's Effect on Memory Retention	Jack M. Barrack Hebrew Academy Arthur Maiman
12-BEH-002	Axel Valdez-Ruiz What People Think	Archbishop Wood Sharon Hartranft
12-BEH-003	Samantha Gurski Chewing Gum Effects on the Human Brain	Bangor Area High School Robert Hachtman
12-BEH-004	Tedra Robins Is Fear Truly a Factor?	Philadelphia Academy Charter High School Christine Dunne

## BIOCHEMISTRY

112-BCM-001	Victoria Yakes Heavy Metal Biosorption Within the Bark of Acer Rubrum	Marine Academy of Technology and Environmental Science John Wnek
12-BCM-002	Kairi Schrenker A Fight to the Death	Pennsville Memorial High School Cherie Burns
12-BCM-003	Noah Rosenthal The Effects of Varying Acidities of Ascorbic Acid on Fruit	Jack M. Barrack Hebrew Academy Arthur Maiman
12-BCM-004	Katherine He Developing a Cell Line to Characterize Glycostructures Present on Expressed Hepatitis B Surface Antigen	Central Bucks East High School Mark Hayden
12-BCM-005	Dhaval Tantry Determining Most Effective Method of Inhibiting Breast Cancer Inducing Protein RAD52 - Year 2	Central Bucks High School East Mark Hayden
12-BCM-006	Lance Xu Utilizing a Loss-of-Function Approach to Determine Viability of Serine-Arginine Protein Kinase 1 (SRPK1) Inhibition as a Novel Therapeutic Strategy in Hepatocellular Carcinoma Patients	Central Bucks High School West Mark Hayden
12-BCM-007	Jacob Carlson Electroporation is More Efficient Than Lipofectamine Transfection at Inducing Immortalization Through Telomerase	Cherry Hill High School West Brian Grillo
12-BCM-008	Cher Ami Panis Determining the Cytotoxicity of Green Synthesized Silver Nanoparticles Using Moringa oleifera as the Reducing Agent	Cherry Hill High School West Brian Grillo
12-BCM-009	Okezue Bell On Selecting Distance Metrics in n-Dimensional Normed Vector Spaces of Cells: A Novel Criterion and Similarity Measure Towards Efficient and Accurate Omics Analysis	Moravian Academy Upper School Wendy Sheetz
12-BCM-010	Lucy Wang Myofibroblast Transcriptome Changes in Colitis	Methacton High School Robert Helm
12-BCM-011	Aayush Kevadia Effect of Modulating Biotinylation Parameters on Avidin Binding	Germantown Academy Sarah Kesten

## BOTANY

12-BOT-001	Joshua Graub Impact of inoculants on the Growth of the Bush Bean Plant	Jack M. Barrack Hebrew Academy Arthur Maiman
12-BOT-002	Leah Loukedis Development of a Soil Moisture Sensor for Houseplants	Central Bucks East High School Judy Elinow
12-BOT-003	Micah Addun Does Growing Plants with Urine and Soil Amendments Have the Same Affect as Growing Plants with Synthetic Fertilizer?	Cherry Hill High School West Brian Grillo



2023 12TH GRADE ENTRIES

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
12-BOT-004	Keyan Vojdani Compostal Analysis: The Effects of Compost Efficiency on Optimal Growth for a Recommendation System	Moorestown High School Sean Watson
12-BOT-005	Sarah Taylor Correlation Between Various Methods of Fertilizer and Development of <i>Salicornia europaea</i>	Marine Academy of Science and Technology Liza Baskin
12-BOT-006	Jenna Freeman Effects of Allelochemicals on Soil Microbial & Plant Fitness	Bangor Area High School Robert Hachtman
12-BOT-007	Vivianna Onofrietti Inhibitory Effects of Phytochemicals from Agriculture By-Products as Therapeutic Agents on Predominant Oral Pathogens	Toms River High School North Christine Girtain

## **CHEMISTRY**

12-CHM-001	Rishi Raghav Suresh Developing an Extended-Release Tablet for Diflunisal	Central Bucks East High School Mark Hayden
12-CHM-002	Deven Chakrabarti Soil Release Finish on Clothing Using Novel Polymerization Method of Salts of Acrylic Acid	Moorestown High School Sean Watson
12-CHM-003	Paraskevi Kontomaris The Synthesis & Structure of Quaternary Alkaline and Rare Earth Metal Silicides and Germanides, $X_2LiAlZ_2$ (X= Mg, Ca, Sr, Ba, Yb, Eu; Z= Si, Ge)	The Charter School of Wilmington Jennifer Toner
12-CHM-004	Daniil Salimov Changing the World's Energy Production	Upper Dublin High School David Price
12-CHM-005	Kateryna Kosheva The Cool Blue Light of Luminol	Philadelphia Academy Charter High School Christine Dunne

## **COMPUTER**

12-CMP-001	Zahid Rafeek Teaching a Computer to Play 2048	Upper Darby High School Roseann Burns
12-CMP-002	Mason Matich dataBASE DNA Data Storage	Central Bucks High School East Mark Hayden
12-CMP-003	Maehul Bhandary Analyzing Various Compression Techniques on Genetic Data	Methacton High School Robert Helm
12-CMP-004	Samuel Wang Rapid Cardiac Screening Using Deep Learning	Germantown Academy Sarah Kesten
12-CMP-005	Varun Singh Exploring Different Methods of Decrypting a Vigenere Cipher	Lower Moreland High School Richard Becker

## **EARTH & SPACE SCIENCES**

12-E&S-001	Josiah Saddick Basalt Thickness of Mare Imbrium Using Two Methods	Upper Darby High School Roseann Burns
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## **ENGINEERING**

12-ENG-001	Lucy Hughes Pollination via Electrostatic Force	Academy of Notre Dame de Namur Jessica Reid
12-ENG-002	Abrar Laskar Effect of Shade Balls on Evaporation Suppression	Upper Darby High School Roseann Burns
12-ENG-003	Rebecca Wind Energy Production From Organic Solar Cells	Council Rock High School North Terese Grateful
12-ENG-004	Anna Zeigler Determining the Efficiency of Varying Spoke Patterns Within Airless Tires	Cherry Hill High School West Brian Grillo
12-ENG-005	Vrishti Yadav Smart Exoskeleton Knee Brace for ALS Patients	North Penn High School Melody J. Leithold

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>	
<b>ENVIRONMENTAL</b>			
12-ENV-001	Bethany Mariel Suliguin	A Comprehensive Water Quality Analysis Along the Toms River and Dillon's Creek, New Jersey	Marine Academy of Technology and Environmental Science (MATES) John Wnek
12-ENV-002	Lindsay McBride	Characterizing Fungal-Bacterial Interactions in Basil Microbiome Compositions	Academy of Notre Dame de Namur Jessica Reid
12-ENV-003	Noah Pomerantz	An Investigation into the Rapid Proliferation of Electronic Waste (E-Waste) in the Northern Regions of India	Jack M. Barrack Hebrew Academy Arthur Maiman
12-ENV-004	Makayla Amatuegwu	What Materials Absorb Oil from Seawater Most Efficiently?	Central Bucks East High School Judy Elinow
12-ENV-005	Gavin Swope	Munching Mealworms Purging Plastic Pollutants	Council Rock High School North Terese Grateful
12-ENV-006	Fernando Mendoza	Enzymatic Biodegradation of Plastics by Cyanobacteria and Chlorella	Cherry Hill High School West Brian Grillo
12-ENV-007	Abigail Duyssen	The Effects of Deer Population on Stream Coliform Counts	Bangor Area High School Robert Hachtman
12-ENV-008	William Stuhrke	Acidity and Creek Health	Avon Grove Charter School Kate Richardson
12-ENV-009	Patrick Ingham	Testing the Rate of Water Flow Through Various Permeable Paving Surfaces	Avon Grove Charter School Kate Richardson
12-ENV-010	Sofia Trone	Biological Effects of Marine Debris on Daphnia Magna	Avon Grove High School Lakshmi Vaddi
12-ENV-011	Sarah Beth Sandifer	The Effect of Microplastic on Freshwater Algae Productivity	Germantown Academy Sarah Kesten
12-ENV-012	Alana Lewis	Effect of Microplastic Exposure on Health of Begonias	Cheltenham High School Russell Wolff
12-ENV-013	Sameeksha Panda	Mutagenicity & ROS Formation in Tire-Chemicals 6PPD & 6PPD-Q	Methacton High School Robert Helm

## **MATHEMATICS**

12-MTH-001	Thomas Cherry	Analyzing Traffic Patterns for Accident Prevention and Efficient Transportation	Central Bucks High School East Judy Elinow
12-MTH-002	Charley Wan	Mathematical Modelling of Neurodegeneration and Regeneration Through Computer Simulations	Central Bucks High School East Judy Elinow
12-MTH-003	Makayla Collins	Determining the Relationship between Fingerprint Characteristics, Ethnicity and Gender	Cherry Hill High School West Brian Grillo

## **MEDICINE/HEALTH**

12-MED-001	Riya Patel	Organ Rejection in Gene Sequences	Academy of Notre Dame de Namur Jessica Reid
12-MED-002	Felicia Kachenmeister	Later School Start Times	Cherry Hill High School East Mark Brandreth
12-MED-003	Jonathan Koshko	Blue Light Filtering Experiment: How Devices Affect Our Sleep	Lacey Township High School John Kuzan
12-MED-004	Zachary Brewer	Varus, Valgus, and Neutral Knee Joint Alignment Effects	Lacey Township High School John Kuzan
12-MED-005	Kayla D'Eletto	Mitochondrial Disease	Germantown Academy Sarah Kesten

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>	
<b>MICROBIOLOGY</b>			
12-MIC-001	Amanda Chan	Inducing a T Cell Immune Response Using Peptides Derived from Viral Proteins to Combat the Dengue Fever	Central Bucks East High School Mark Hayden
12-MIC-002	Mia Watson	A Feasibility Study: Using an <i>Aspergillus flavus</i> Biofilter to Reduce Nitrogen Pollution in an Aquaponic System	Cherry Hill High School West Brian Grillo
12-MIC-003	Edward Fusciello	The Growth of Genetically Engineered <i>E. Coli</i> for Antibiotic Resistance	Lacey Township High School John Kuzan
12-MIC-004	Benjamin Pfefer	How ONPG Assay Tests can be Used as a Model for Pathogen Development	Liberty High School Graceanne Ruggiero
12-MIC-005	Annabelle Gormont	The Effects of Microplastics on <i>E. coli</i>	Bangor Area High School Robert Hachtman
12-MIC-006	Devyn Stek	Isolation & Analysis of Malaria's Mutant DXR Enzyme	James Kolter
12-MIC-007	Matthew Uppani	Treating Cytotoxicity Caused by Oxidative Stress	Methacton High School Robert Helm
12-MIC-008	Clara Zhu	Effects of Classical Music on Probiotic Colonization and Mouse Behavior	Harriton High School Daniel Powers
12-MIC-009	Miranda Veloz	Planaria Addiction	Carver Engineering and Science Amit Basu
<b>PHYSICS</b>			
12-PHY-001	Mitchell Rosenthal	Testing the Efficiency and Strength of 3D Print Infill Patterns	Jack M. Barrack Hebrew Academy Arthur Maiman
12-PHY-002	Hannah Buckleman	How Does the Composition of Tuning Forks Physics Affect Their Frequencies at Different Temperatures?	Villa Joseph Marie High School John Gentile
12-PHY-003	Clare Rajapakse	Optimizing the Generation of Electricity Through Electromagnetism	Central Bucks East High School Judy Elinow
12-PHY-004	Matthew Sonn	Creating a High-Voltage Mud Based Microbial Fuel Cell	Cherry Hill High School West Brian Grillo
12-PHY-005	Joseph Richards	Effectiveness of Topical Agents Blocking Ionizing Radiation	Germantown Academy Sarah Kesten
12-PHY-006	Joel Outen	Leg Length vs. Speed	Hill-Freedman World Academy Eual Phillips
<b>ZOOLOGY</b>			
12-ZOO-001	Raina Bandekar	Factors that Predispose Canines to CCL Injury Using MLR Analysis	Germantown Academy Sarah Kesten
12-ZOO-002	Gabriel DeVine	Does Ice Affect the Geotaxis Capabilities of <i>Drosophila Melanogaster</i> ?	Central High School Robert Herbstritt

**PRESENTER****TITLE****SCHOOL & SPONSOR****BEHAVIORAL/SOCIAL SCIENCES**

11-BEH-001	Janell Moore	Does Facial Proportion and Symmetry Determine Attractiveness?	Upper Darby High School Roseann Burns
11-BEH-002	Asmita De	How English Monolingualism vs. Bilingualism Impacts Pronunciation of Foreign Language Words	Charter School of Wilmington Jennifer Toner
11-BEH-003	Julia Rhodes	The Effects of Regeneration on Memory in Planarians	Council Rock South High School Megan Mohl
11-BEH-004	Shane Wattenmaker	The Impact of the Placebo Effect on Physical Attributes	Council Rock High School North Terese Grateful
11-BEH-005	Ashley Kim	Opposing Common Conception: Weak Negative Relationship Between Academic Performance and Exercise	Moorestown High School Sean Watson
11-BEH-006	Veer Pahwa	Economic Return of College Education: Considering the Impact of Degree, Major and In-State/Out-of-State Institution	Tower Hill School Jessica Douglass
11-BEH-007	Victoria Yin	Involution and Pluralistic Ignorance Amongst Chinese Adolescents	St. Andrew's School, DE Ashley Hyde
11-BEH-008	Zoe Goudas	The Effects of Different Colors on the Sound Spectrum on <i>Caenorhabditis elegans</i> Chemotaxis Toward NaCl or Water	Biotechnology High School Samantha Haughwout
11-BEH-009	Naomi Tzoanos	Do Environmental Signs Impact Students' Choices of Paper vs. Plastic Cups?	Owen J. Roberts High School Sheila Hinkley
11-BEH-010	Hanyi Deng	Role of 5-HTP Mediated Serotonergic Activity in Operantly Conditioned Memory Consolidation for <i>D. Tigrina</i>	High Technology High School Dina Ellsworth
11-BEH-011	Lucy Fassler	Study Time Displacement vs. Test Taking Performance	Germantown Academy Sarah Kesten
11-BEH-012	Karen Zhou	Fluctuations of Heart Rate Caused by Different Music Genres	Upper Dublin High School Dawn Edelman
11-BEH-013	Joshua Kim	Does Scent Really Improve Memorization?	Upper Dublin High School Dawn Edelman
11-BEH-014	Zain Murtaz	How Language Impacts Our Perception of the World	Central High School Robert Herbstritt
11-BEH-015	Worth Bergeland	Masked Perceptions	J. R. Masterman School Zachary Minken
11-BEH-016	Cecelia Stevenson	The Impact of Red and Blue Color Light Exposure Chromotherapy on Student Anxiety	Springside Chestnut Hill Academy Scott Stein
11-BEH-017	Joshua Hong	The Neurological Effects of Aluminum Nitrate 9-Hydrate on the Behavior of <i>Caenorhabditis Elegans</i>	Biotechnology High School Samantha Haughwout

**BIOCHEMISTRY**

11-BCM-001	Michelle Using Kagramian	ATP to Trigger Satellite Cell Activity for Muscle Regeneration Therapy in Patients with Facioscapulohumeral Muscular Dystrophy	Marine Academy of Technology and Environmental Science (MATES) John Wnek
11-BCM-002	Bharat Elango	Applying a Recently Proposed Molecular Evolution Theory, Near-Neutral Balanced Selectionist Theory, to decipher the evolutionary nature of a hemagglutinin gene from Influenza A Virus (H3N2)	Cinnaminson High School

2023 11TH GRADE ENTRIES

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
11-BCM-003	Rayna Malhotra Year Two: Biochemical Interactions of siRNA-Based Gene Silencing for Elastic Matrix Regenerative Repair in Vascular Tissue Abnormalities	Moravian Academy Wendy Sheetz
11-BCM-004	Liya Zhang Impact of Various Processing Methods on Ascorbic Acid Content in Fruit	Methacton High School Robert Helm
11-BCM-005	Jaeseok Yoon Intraoral Vitamin D Toothpaste Formulation with Polysorbate 80 and DMSO	The Hill School Jared Courtney
11-BCM-006	Karina Chan-van der Helm Effect of Natural Anticoagulants on Endocytosis in Tetrahymena	Springside Chestnut Hill Academy Ann Zalasky
11-BCM-007	Amal Oubbari Functional Effects of Drug Treatment for the NLRP3 Gene	Central High School Robert Herbstritt
11-BCM-008	Gabrielle McHugh An Investigation on Heat Damage of Human Hair and the Reliability of Heat Protectant	Springside Chestnut Hill Academy Scott Stein
<b>BOTANY</b>		
11-BOT-001	Brianna Melanie Suliquin	
11-BOT-002	Saara Sheth Plant Pigments as Anticancer Agents	Central Bucks High School South Mark Hayden
11-BOT-003	Riley Smith Finding Superhydrophobic Aquatic Plants to Clean Up Oil Spills	Central Bucks High School West Diane Liddington
11-BOT-004	Barry Othman Attractive and Repulsive Forces in Ferromagnetic Magnets Stimulates Plant Growth	Moorestown High School Sean Watson
11-BOT-005	Mia Mariano The Effects of Juglone on Trichome Production in Brassica rapa	Bangor Area High School Robert Hachtman
11-BOT-006	Payton Singley Rooting Hormones Productivity	Avon Grove Charter School Kate Richardson
11-BOT-007	Kithya Borey The Influence of Plant Anatomy on Rates of Transpiration	Robert Herbstritt
11-BOT-008	Arjun Goswami How the Sound of Water Affects the Angle of Raphanus Sativus Root Growth	Springside Chestnut Hill Academy Scott Stein
11-BOT-009	Allie Stoddard The Effect of Bruising on Pear Ripening	Springside Chestnut Hill Academy Scott Stein
<b>CHEMISTRY</b>		
11-CHM-001	Jasmin Kainth SNP in CD151 Effect on Signal Transduction in HepG2 and Huh7	Central Bucks High School East Mark Hayden
11-CHM-002	Mason Smith Virtually Screening Potential Ligand-to-Enzyme Interactions for Inhibiting the Yellow Fever Virus	Central Bucks East High School Mark Hayden
11-CHM-003	Srijay Chenna Simplified Process for Synthesis of mRNA Therapeutics	The Charter School of Wilmington Jennifer Toner
11-CHM-004	Rishab Yanala Optimization of Photovoltaic Performance of a Dye-Sensitized Solar Cell with Zn Doped TiO <sub>2</sub> Nanoparticles	Parkland High School Kaitlin Heintzelman
11-CHM-005	Mariana Kaiafas Examining the Concentration of Quaternary Ammonium Compounds (QAC) in Varying Concentrations of Salt Water Solutions	Marine Academy of Technology and Environmental Science (MATES) John Wnek
11-CHM-006	Andrew Carver Luminol: The Study of pH Effect on a Light Reaction	Collegium Charter School Kassandra High
11-CHM-007	April Chou Investigation of Triboluminescent Properties of Several Common Household Objects	Unionville High School Meghan Kanski

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>	
11-CHM-008	Gus Platt	Effects of Effects of NaHCO <sub>3</sub> on Hydrogen Creation Through Electrolysis	Upper Dublin High School Dawn Edelman
11-CHM-009	John Akladus	The Efficacy of Potassium Metabisulfite as a Preservative	Methacton High School Robert Helm
11-CHM-010	Farkhunda Ashurova	The Cool Blue Light of Luminol	George Washington High School Anita Abraham
11-CHM-011	Kadiatu Barrie	Electroplating	George Washington High School Anita Abraham

## **COMPUTER**

11-CMP-001	Advika Vuppala	Detection of Anemia Through Image Color Threshold Processing of Palpebral Eye Conjunctiva	High Technology High School Dina Ellsworth
11-CMP-002	Srilekha Mamidala	CAPCODRE: A Computational Systems Biology and Machine Learning-Based Approach to Predict Cognitive Disorder Risk in the Elderly	Garnet Valley High School Brenda Frost
11-CMP-003	Kelly Lao	Early Detection of Major Depression in Adolescents	Council Rock North High School Stacey Gould
11-CMP-004	Krithi Ramnath	Impact of Pandemics Simulated through Object Oriented Programming	Council Rock High School North Stacey Gould
11-CMP-005	Animish Jain	Applying Multiplicative Weights Update (MWU) to Skin Cancer Classification Applications	High Technology High School Dina Ellsworth
11-CMP-006	Armaan Gupta	Navigating the Future: A Novel Approach to Autonomous Vehicle Trajectory Generation with RAMSETE Control and Quintic Beziér Splines	Cherry Hill High School East Mark Brandreth
11-CMP-007	Sophia Liu	A Novel Study on Using Convolutional Neural Networks and Wearable Devices to Detect Myocardial Infarction Via a Mobile Application	Cherry Hill High School East Mark Brandreth
11-CMP-008	Ananya Vuppala	Using Machine Learning and Metabolomics to Identify Diagnosis Patterns in Multiple Sclerosis Patients	Marine Academy of Science and Technology Liza Baskin
11-CMP-009	Antony Tomy	Utilizing Deep Generative Modeling for Data Augmentation to Develop a Low-Cost Revolutionary Machine Learning Solution to Diagnose Skin Lesions	Parkland High School Kaitlin Heintzelman
11-CMP-010	Ryan Paul	The Iterative Development of Localization Algorithms and Sensor Fusion Towards Accurate, Efficient, and Affordable Applications to Improve Independent Mobility for the Visually Impaired	Moravian Academy Upper School Wendy Sheetz
11-CMP-011	Anika Basu	Exploring the Effectiveness of COVID-19 Measures Across Population Densities Using the SIR Epidemic Model	Conestoga Highschool Kelly Showers
11-CMP-012	Leihui Tong	A Hybrid Intelligence Approach for Circulating Tumor Cell Enumeration in Cancer Patient Screenings	Conestoga Highschool Kelly Showers
11-CMP-013	Yitong Wang	Emotion Recognition Based on Convolutional Neural Networks	Westtown School Jennifer Anthony
11-CMP-014	Liam Resnick	Optimizing Multidimensional Scheduling with Heuristic-based Satisfiability Solvers	Lower Moreland High School Richard Becker
11-CMP-015	Sam Schneider	Optimizing Usage of Recipe Generators to Mitigate Food Waste	Upper Dublin High School Michael Morgan
11-CMP-016	Mario Toscano	Using Neural Networks for Art Verification	Germantown Academy Sarah Kesten



<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>	
11-CMP-017	Joyce Zheng	Email Tracker	Central High School Robert Herbstritt
11-CMP-018	Brynn Donohue	What do Diabetes Patients Want in an app to Help Them Self Manage Their Disease?	Springside Chestnut Hill Academy Scott Stein

## **EARTH & SPACE SCIENCES**

11-E&S-001	Katherine Fang	Discovering Habitable Exoplanets Using GPU Folding, Sigma Clipping, and Deep Learning	High Technology High School Dina Ellsworth
11-E&S-002	Riya Sikand	Utilizing Self-Supervised Learning to Predict Geographically Diverse Deforestation Drivers in Low-Resource Regions	Ranney School Roxanne Spencer
11-E&S-003	Kailey Miller	The Relation Between the Quantification of Objects in an SDSS Image and the Potential of it Being a Gravitationally Lensed Quasar Candidate	Marine Academy of Technology and Environmental Science (MATES) John Wnek
11-E&S-004	Ava Barrera	Mission Mars	Academy of Notre Dame de Namur Jessica Reid
11-E&S-005	Elise Olmstead	Analysis of Double Ridges on Europa	Upper Darby High School Roseann Burns
11-E&S-006	Hannah Knapp	The Consistency and Accuracy of a Handmade TC-1 Seismometer	Council Rock North High School Stacey Gould
11-E&S-007	Arnav Rajesh	Soil Productivity and Parent Material	Council Rock High School North Terese Grateful
11-E&S-008	Aleksander Garbuz	What is the Effect of the Surface Temperature of Common Materials on Albedo?	Biotechnology High School Samantha Haughwout
11-E&S-009	Shashwat Sharma	Dual Axis Solar Tracking Panel to Deter Seasonal Output Decrease	Parkland High School Kaitlin Heintzelman
11-E&S-010	Mia Peng	Heavy Metals: Adverse Effects on Our Oceans	Lower Moreland High School Richard Becker
11-E&S-011	Julia Lee	Effects of Condensation Covers on Solar Stills	Lower Moreland High School Richard Becker
11-E&S-012	Zhen Zhang	Effect of Temperature on Ocean Water's Absorption of CO <sub>2</sub>	Central High School Robert Herbstritt
11-E&S-013	Ava DeCesare	The Protective Effect of Vitamin C on <i>Saccharomyces Cerevisiae</i> Population Growth Simulating Atmospheric UV Exposure	Springside Chestnut Hill Academy Scott Stein

## **ENGINEERING**

11-ENG-002	Arjun Tschand	Realtime Drowning Detection Using a Motorized Machine Learning Monitor System	High Technology High School Dina Ellsworth
11-ENG-003	Caitlyn Zito	Shoelace Locking Device for Individuals With RA in Finger Joints	High Technology High School Craig Queenan
11-ENG-004	Emma Dunn	Engineering a Dose Proportional, Orally Disintegrating Baclofen Tablet	Central Bucks East High School Mark Hayden
11-ENG-005	Tamir Sklansky	Analyzing the Effects of Different Wing Types on a Model Plane	Central Bucks High School West Diane Liddington
11-ENG-006	Sooraj Tharumia	Digital Eyes: A Computer Vision Assisted Probing Cane for the Visually Impaired	Parkland High School Kaitlin Heintzelman
11-ENG-007	Everett McCrea	Electrical Active Cooling of Epinephrine Auto-Injectors	Avon Grove Charter School Kate Richardson
11-ENG-008	Arjun Surjawanshi	ArmLev - A Wearable, Dual-mechanism, Arm-stabilizing Device Aimed to Mitigate Tremors	Unionville High School Meghan Kanski

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
11-ENG-009	Lucas Philip Analyzing Sweat Molecules Using Microfluidic Technology	Germantown Academy Sarah Kesten
11-ENG-010	Arnav Tiwari Graphene Augmented PV Cells For Fossil Fuel Independence	Methacton High School Robert Helm
11-ENG-011	Blake Iezzi How Are Rooted Vegetables Affected When Growing in Confined Spaces	Carver Engineering and Science Amit Basu
11-ENG-012	Fatoumata Jalloh Bridge Design For The Modern World	Northeast High School James Finley
11-ENG-013	Cameron Lyon The Insertion of Methylene Blue into a Microbial Fuel Cell using Saccharomyces Cerevisiae	Springside Chestnut Hill Academy Scott Stein
11-ENG-014	Vatsal Jain Development of AhR Biosensor For Detection of Cancer Cells	Biotechnology High School Samantha Haughwout
<b>ENVIRONMENTAL</b>		
11-ENV-001	Erin Sweeney Blame it on the Rain: A Study on Soil Erosion	Academy of Notre Dame de Namur Jessica Reid
11-ENV-002	Nitil Raj The Effect of Agricultural Herbicides and Insecticides on Caenorhabditis elegans with Respect to Nitrogen Cycle Efficacy	Biotechnology High School Samantha Haughwout
11-ENV-003	Ellie Noh The Effects of Utilizing Natural Compounds on the Sustainability of Produce	Cherry Hill High School East Mark Brandreth
11-ENV-004	Isabela Saltar Determining the Effects of Burned Soil	Cumberland County Technical Education Center Tyler Davenport
11-ENV-005	Andrew Bosco The Effects of Turbidity on Fish Bait Choice	Bangor Area High School Robert Hachtman
11-ENV-006	Eric Jin Monitoring and Analyzing Water Quality Data from Rivers in the Lehigh Valley	Parkland High School Kaitlin Heintzeman
11-ENV-007	Grace Leavitt Analysis of the Production and Utilization of Bioplastics Derived from Various Microalgae Species	Marine Academy of Technology and Environmental Science Jason Kelsey
11-ENV-008	Anneli Erion The Effects of Global Warming on Aquatic Life	Avon Grove Charter School Kate Richardson
11-ENV-009	Lilly Zhang Urban Heat Island Mitigation by Aerogel Coating	Unionville High School Meghan Kanski
11-ENV-010	Sreevarshini Yedida Predicting Flood Patterns Using Machine Learning	Unionville High School Meghan Kanski
11-ENV-011	Saranya Anantapantula Meta-Analysis, Experimentation & Robotics Towards Effective Algal Bloom Control	North Penn High School Melody J. Leithold
11-ENV-012	Anna Weatherwax Phytoremediation Capabilities of Canola Plants on AMD Contaminated Soil	North Penn High School Melody J. Leithold
11-ENV-013	SydneyBlu Garcia-Yao Modeling Stream Microplastics and Effects of Anthropogenic & Watershed Factors	Harriton High School Daniel Powers
11-ENV-014	Nidhi Nair Genetic Modification of E. Coli to Produce PETase for Accelerated Degradation of PET Microplastics	High Technology High School Dina Ellsworth
11-ENV-015	Shannon Darsono Pestalotiopsis Microspora's Function in Breaking Down Plastic	George Washington Carver Engineering and Science Amit Basu
11-ENV-016	William Kollmar Is There a Correlation Between Artificial Turf Balls and Planaria Regeneration when Compared to Eco Friendly Turf	Springside Chestnut Hill Academy Ann Zalasky
11-ENV-017	Karina Lad Optimizing the Foam Fractionation Method for Microplastic Removal	Central High School Robert Herbstritt

PRESENTER	TITLE	SCHOOL & SPONSOR
<b>MATHEMATICS</b>		
11-MTH-001	Chloe Smith The Effect of Covid-19 on the College Admissions Process	Academy of Notre Dame de Namur Jessica Reid
11-MTH-002	Jake Dorick Comparison of Password Strength Modeling Using a Probabilistic Context-Free Grammar and a First-Order Markov Model	Marine Academy of Technology and Environmental Science John Wnek
11-MTH-003	Prithvi Vijay Predicting when Moore's Law will Reach its Mathematics Physical Limit	Downingtown STEM Academy Anton Ocepek
11-MTH-004	Saptak Das Modeling Epidemics Using Differential Equations	Downingtown STEM Academy Anton Ocepek
11-MTH-005	Bhavesh Mantrabuddi Impact of Player Status on Referee Bias as Seen in Momentum Shifts in the NBA Finals	Downingtown West High School Wendy King
11-MTH-006	Nidhi Ram Modeling Dengue Cases Using Weather Factors	Lower Moreland High School Richard Becker
11-MTH-007	Bryan Wu Predicting Airline Delays	Souderton Area High School Karen Wolfe
11-MTH-008	Samantha Kostacos Shot Analysis and Probability of Winning a Basketball Game	Germantown Academy Sarah Kesten
11-MTH-009	Evan Chang Asymptotic Estimate of Number of Letters Required to be Appended or Prepend to Create Unbordered Word	High Technology High School Craig Queenan

## MEDICINE/HEALTH

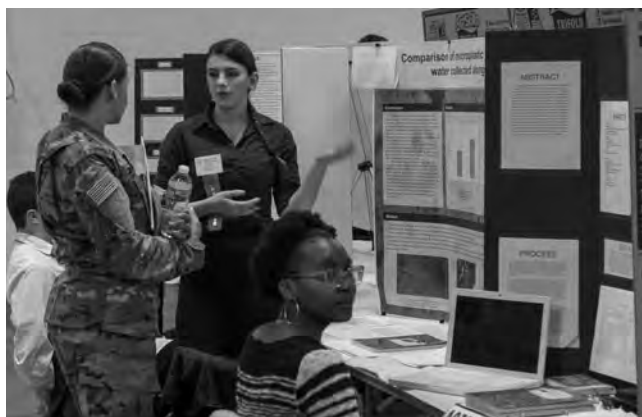
11-MED-001	Bella Bin Cytotoxicity of Algacide on Human Cells	The Episcopal Academy Matthew Memmo
11-MED-002	Sienna McKeown Swimming Heart Rates Increase vs. Walking Heart Rate Increase	Academy of Notre Dame de Namur Jessica Reid
11-MED-003	Rahul D'Souza Length of Hospital Stay in Orthopedic Patients	Sanford School Alyssa Hull
11-MED-004	Clara Lee A Screening Method for Viral Peptides in Influenza T Cell Vaccine Development	Central Bucks East High School Mark Hayden
11-MED-005	Diya Thomas Developing a Method of Transdermal Delivery for Tofacitinib with Comparative Technologies	Central Bucks East High School Mark Hayden
11-MED-006	Parth Vaidyanath Determining Potential Molecular Inhibitors as Ligands for Structures in Dengue Virus Serotypes	Central Bucks East High School Mark Hayden
11-MED-007	Declan Turbitt Analysis of Cyanocobalamin (Vitamin B12) in the Health of Caenorhabditis elegans and in Preventing Oxidative Stress from Hydrogen Peroxide	Biotechnology High School Samantha Haughwout
11-MED-008	Katherine Green Comparison of Blood Glucose Measurement Technology in Swine	Moorestown High School Sean Watson
11-MED-009	Nysa Chawla Health Equity in Philadelphia	Cherry Hill East Mark Brandreth
11-MED-010	Shrivats Gour	
11-MED-011	Amanrai Kahlon Gait Assessment With Inertial Measurement Units: Similarity and Dissimilarity of Walking Gait on Treadmill and Outdoor Overground Reflected in Lower Limb Angular Velocity and Acceleration in Typically Developing Children	Sanford School Alyssa Hull
11-MED-012	Claire McCann The Quality of Pencil Grasp Among First Grade Students and How it Correlates to Legible and Timely Handwriting	The Charter School of Wilmington Jennifer Toner

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
11-MED-013	Blake Kornafel Effects of Caffeine and Sucrose on Daphnia Heart Rate	Bangor Area High School Robert Hachtman
11-MED-014	Mary Kate D'Ambrosio A Novel Paradigm For Etiopathogenesis of Adolescent Verruciform Xanthoma	Avon Grove High School Lakshmi Vaddi
11-MED-015	Kieran Chetty Optimization of Drug Release from a Blended Biodegradable Polymeric Film Using a Central Composite Design	Conestoga Highschool Kelly Showers
11-MED-016	Anya Yang Effects of Thyroid Hormone on Medulloblastoma Progression	Lower Moreland High School Richard Becker
11-MED-017	Zara Bhatt Efficacy of Low-Cost Hearing Aids vs. Service Delivery Models	Germantown Academy Sarah Kesten
11-MED-018	Saloni Bhatia Vegetable Juice Effect on Tooth Health	Germantown Academy Sarah Kesten
11-MED-019	Nyla Williams Do Philadelphia School District Lunches Provide Adequate Nutrition for High School Students?	Robert Herbstritt
11-MED-020	Declan Lemole The Effect of High Arch Insoles on the Human Gait Cycle	Springside Chestnut Hill Academy Scott Stein
11-MED-021	Gavriela Kalish-Schur Fly Sleep: Using Drosophila Genes to Understand Sleep	Zachary Minken

## **MICROBIOLOGY**

11-MIC-001	Aashka Patel Using Internal Mechanisms as a Novel Method to Ultraviolet Sterilization of Computer Keyboards	Marine Academy of Technology and Environmental Science (MATES) John Wnek
11-MIC-002	Sreeja Paruchuri The Antibacterial Efficacy of Antibiotics Supplemented with Varying Sizes of Gold Nanoparticles on E.coli	High Technology High School Dina Ellsworth
11-MIC-003	Hannah Downing M. Oleifera Antibacterial Properties on E. Coli	Academy of Notre Dame de Namur Jessica Reid
11-MIC-004	Maryam Abdel-Azim Targeting Signaling Molecules of P. Aeruginosa by Mucin as an Anti-quorum Sensing Drug: A Novel Design to Evaluate Efficacy in the Context of Multidrug Resistance	Central Bucks High School East Judy Elinow
11-MIC-005	Sehaj Verma Influence of the Pre-S1 Domain and Different Mutations of the Domain in HBsAg on Infectivity of Hepatocyte Cells	Central Bucks East High School Mark Hayden
11-MIC-006	Anika Kaushal Testing Different Methods of Antibiotic Combination with Other Agents to Combat Antibiotic Resistance	Frances S. DeMasi Middle School YARD Sciences
11-MIC-007	Alexander Ortiz Pantoja Determining How Plasmid Size and Recipient Species Affect the Rate of Bacterial Conjugation	Cherry Hill High School West Brian Grillo
11-MIC-008	Alyvia Herman Effects of Glucose on MRSA Growth on Surface of an Antibacterial Envelope	Emmaus High School Brent Landrum
11-MIC-009	Ian Fabris Efficacy of the Use of Bacteriophages to Combat Potato Black Leg Caused by Pectobacterium Atrosepticum	Emily Minbiolo
11-MIC-010	Brianna Geist Testing Disinfectants on Phone Cases with Microban	Germantown Academy Sarah Kesten
11-MIC-011	Aditya Pasumarthi Essential Oils: The Special Agents	Methacton High School Robert Helm
11-MIC-012	Angela Wang The Chilling Truth	Methacton High School Robert Helm

PRESENTER	TITLE	SCHOOL & SPONSOR
11-MIC-013	Hudson Barry Alcohol vs. Non Alcohol Based Antibacterial Agents' Effects on Bacterial Resistance	Springside Chestnut Hill Academy Scott Stein
11-MIC-014	Anya Rosenbloom Investing Gut Microbiome Health: Can Probiotic Bacteria Outcompete Pathogenic Bacteria?	Springside Chestnut Hill Academy Scott Stein
<b>PHYSICS</b>		
11-PHY-001	Daniel Zlotnick A Comparison of Common Flooring Materials in Minimizing Head Injury Severity: A Follow Up Study	High Technology High School Craig Queenan
11-PHY-002	Varun Gabbita Examining How the Length and Material of a Baseball Bat Optimize its Center of Percussion	High Technology High School Craig Queenan
11-PHY-003	Rong Xu The Effects of Curved Spacetime on Relativistic and Classical Projectile Motion	Central Bucks High School East Judy Elinow
11-PHY-004	Jessica Lee How Much Energy is Lost in a Roller Coaster Based on Different Materials Used?	Cumberland County Technical Education Center Tyler Davenport
11-PHY-005	Nathan Hong Materials' Affect on Travel of Sound With Varying Frequency	Upper Dublin High School Dawn Edelman
11-PHY-006	Pooja Patel Speed of Light	George Washington High School Anita Abraham
11-PHY-007	Mohinur Rashidova Extreme Sounds: Lessons in a Noisy World	George Washington High School Anita Abraham
<b>ZOOLOGY</b>		
11-ZOO-001	Nikhil Osuri Effect of Varying Amounts of Oldenlandia diffusa and Astragalus membranaceus on the Regeneration of D.tigrina	High Technology High School Craig Queenan
11-ZOO-002	Fahad Alsobei Determining the Effectiveness of Various Deer Repellents	Cherry Hill High School West Brian Grillo
11-ZOO-003	Hannah Halm Effects of Caffeine on the Heart Rate of Daphnia magna	Freedom High School Graceanne Ruggiero
11-ZOO-004	Drew Craven The Effects of Natural Repellents on Ants	Freedom High School Graceanne Ruggiero
11-ZOO-005	Anthony DiFranco Effect of Human Vocal Intonation on Bird Behavior	Germantown Academy Sarah Kesten
11-ZOO-006	Anthony Billotti Developing an iOS Application to Determine if a Marine Species is the Appropriate Size to be Harvested	Marine Academy of Technology and Environmental Science Jason Kelsey



PRESENTER	TITLE	SCHOOL & SPONSOR
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### BEHAVIORAL/SOCIAL SCIENCES

10-BEH-001	Naima Doraiswamy	How do Different Frequencies Affect Cognitive Functioning?	Pennsbury High School Jamie Swanson
10-BEH-002	Meha Koul	Using In-silico Analysis to Identify Biomarkers for Major Depressive Disorder	Pennsbury High School Jamie Swanson
10-BEH-003	Vladimir Bondar	QGrade: Instant Feedback to Enhance Education Outcomes	Moorestown High School Sean Watson
10-BEH-004	Angelo Boujaoude	Effects of Sleep Duration on High School Students' Test Anxiety Levels and Performance	Moorestown High School Sean Watson
10-BEH-005	A'lisa Orr	Mood vs. Music	Bridgeton High School Claudia Angle
10-BEH-006	Emma Bluske	Can we Invoke Particular Brainwave Frequencies Using Various Sensory Inputs?	Emmaus High School Brent Landrum
10-BEH-007	Faizaan Siddique	Predicting Adolescent Mental Health Outcomes from Prenatal Factors and Family History	Conestoga High School Kelly Showers
10-BEH-008	Elizabeth Hercek	Mental Health Knowledge's Impact on Mental Health Education	Souderton Area High School Karen Wolfe
10-BEH-009	Winston Sun	The Effect of Emotional Attachment on Adolescent Resilience	Germantown Academy Sarah Kesten
10-BEH-010	Larry Zhan	The Effects of Audio-Visual Stimuli and Repetition on Memory	Germantown Academy Sarah Kesten
10-BEH-011	Michelle Kim	The Chameleon Effect: The Difference in Alpha Wave Activity in the Presence of Mirrorwise Mimicry and Anatomical Mimicry	High Technology High School Craig Queenan
10-BEH-012	Julianna Chang	More Talkative = More Confident?	Philadelphia Academy Charter High School Christine Dunne
10-BEH-013	Thomas Nguyen	Musical Preference to Become Generous?	Central High School Robert Herbstritt

### BIOCHEMISTRY

10-BCM-001	Terrance Godwin	The Properties of Biodegradable Casein Plastic	Upper Darby High School Roseann Burns
10-BCM-002	Sophia Fehrenbach	Drugs & Genetics: Why Do Some People Respond to Drugs Differently Than Others?	Central Bucks High School West Diane Liddington
10-BCM-003	Vanessa Genda	Determining the Mutagenic Effects of Titanium Dioxide on <i>Saccharomyces cerevisiae</i>	Cherry Hill High School West Brian Grillo
10-BCM-004	Arisdelsi Acevedo	Beat the Beet with Some Heat	Cumberland County Technical Education Center Tyler Davenport
10-BCM-005	Gloria Klees	The Effectiveness of Homemade Sunscreens	Emmaus High School Brent Landrum
10-BCM-006	Katie Young	Acne Alleviation	Methacton High School Robert Helm
10-BCM-007	Yueyi Bao	Investigation of Potential PARP-1 Inhibitors as Drugs for Alzheimer's Disease	Jared Courtney
10-BCM-008	Jianna Kim	Quantitative Effects of pH on Plant Antimicrobial Peptide Activity	Germantown Academy Sarah Kesten

2023 10TH GRADE ENTRIES

PRESENTER	TITLE	SCHOOL & SPONSOR
<b>BOTANY</b>		
10-BOT-001	Grace Leavitt	
10-BOT-002	Jonathan Farrell Hydroponics vs. Traditional Farming Methods	Woodstown High School Stephen Ordog
10-BOT-003	Cole Lucas Do Different Soil pHs Change the Rate of Germination?	Woodstown High School Carol Althouse
10-BOT-004	Kayleen Ries Homemade Fertilizer vs. Commercial Fertilizer: Who is the Fastest	Madeline Fenner
10-BOT-005	Liliana Andres Magnets Potentially Changing Plant Growth	Cumberland County Technical Education Center Tyler Davenport
10-BOT-006	Bania Barrera Can We Simulate Mars' Soil to Support Earth Plant Growth?	Bridgeton High School Claudia Angle
10-BOT-007	Antony Coque Does a Magnetic Field Affect Plant Growth?	Bridgeton High School Claudia Angle
10-BOT-008	Jerry Huynh The Effects of Nutrient Distribution by Microfluidic Channels on the Growth of Rye Plants	Westtown School Jennifer Anthony
10-BOT-009	Lance Yang Bacterial Symbiosis to Improve Hydroponic Legume Growth	Upper Dublin High School Joanne Lilliendahl
10-BOT-010	Roma Reddy Pathogenicity of Staphylococcus Aureus on Plant Microbiomes	Germantown Academy Sarah Kesten
10-BOT-011	Myles Harris Allelopathy in Black Walnut	Central High School Robert Herbstritt

## CHEMISTRY

10-CHM-001	Mackenzie Simonin Does an Increase in a Room's Temperature Affect the Lux of Luminol?	Woodstown High School Carol Althouse
10-CHM-002	Cecilia Zarinko Does the Temperature of a Drink Affect its Electrolyte Conductivity?	Woodstown High School Carol Althouse
10-CHM-003	Keino Shaw Preventing Rust Using Sacrificial Anodes	Upper Darby High school Roseann Burns
10-CHM-004	Meredith Czyz Can Carbon Filters Remove the Same Amount of Chlorine?	Villa Joseph Marie High School Joe Sheenan
10-CHM-005	Ranjit Rajapakse Developing a More Effective Rechargeable Battery	Central Bucks High School East Judy Elinow
10-CHM-006	Mia Sullivan Examination of the Effect of Coffee Grind Size on Caffeine Content	Marine Academy of Technology and Environmental Science Jason Kelsey
10-CHM-007	Suhani Patel Do Metal Electrodes Affect Voltage?	
10-CHM-008	Desteny Rios Torres Orange Juice vs. Sports Drinks	Bridgeton High School Claudia Angle
10-CHM-009	Jimmy Guzman How pH Levels Affect Drinking Water	Bridgeton High School Claudia Angle
10-CHM-010	John Mendoza Merino What is the Best Way to Store Bread to Preserve its Freshness?	Bridgeton High School Claudia Angle
10-CHM-011	Emily Biedenkapp Best Recycled Water Color Paper	Coatesville Area Senior High School Cheryl Krasowski
10-CHM-012	Glenn Xavier Testing Different Methods to Purify Water	North Penn High School Melody J. Leithold
10-CHM-013	Elena Lin Electropolishing 316L Tri-Clamp Caps for Pharmaceutical Vessels	Germantown Academy Sarah Kesten

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
10-CHM-014	Adarsh Narayanan Which Metal Corrodes the Quickest?	Parkland High School Kaitlin Heintzelman
10-CHM-015	Havana Companioni How Does Bleach Produce False Positives for Blood?	Lacey Township High School John Kuzan
10-CHM-016	Anders Nielsen Optimal Electrolysis Voltage for the Rate of Hydrogen Generation From Seawater	High Technology High School Dina Ellsworth
10-CHM-017	Noelle Smith Water Purification by Rosasite	Hill-Freedman World Academy Eual Phillips

## **COMPUTER**

10-CMP-001	Ishani Singh Improving Sign Language Translation to Text Using Machine Learning	High Technology High School Craig Queenan
10-CMP-002	Aum Mehta App for Dementia Patients to Maintain Active Mind and Memory	Central Bucks High School East Judy Elinow
10-CMP-003	Alex Tao Long Term Effects of Afforestation in Peat Bogs	Council Rock High School North Terese Grateful
10-CMP-004	Kriti Srivastava A Novel System to Improve Upon the Validity and Efficiency of the College Admissions Process Using Blockchain Technology	High Technology High School Craig Queenan
10-CMP-005	Shreyas Musuku DermDetect: A Novel Application for Automatic Diagnosis of Inflammatory Skin Conditions using Convolutional Neural Networks (CNNs)	Manalapan High School Erik Levin
10-CMP-006	Kushagra Goel Stroke Prediction Using Machine Learning Models	Cherry Hill High School East Mark Brandreth
10-CMP-007	Kaiyan Ling Mole-Buster: A Smartphone Game for Detecting Early Parkinson's Disease	Cherry Hill High School East Mark Brandreth
10-CMP-008	Akshay Mandapati The Cybersecurity Risks of Smart Home Devices	Downingtown STEM Academy Anton Ocepek
10-CMP-009	Shivam Maheshwari A Machine Learning Approach to Test the Effectiveness of Therapeutic Interventions in Facilitating Read through of Nonsense Mutations and Restoring Protein Production	Unionville High School Meghan Kanski
10-CMP-010	Luke Hu Sleep Quality Predictions Using Fitbit and Deep Learning	Germantown Academy Sarah Kesten
10-CMP-011	Katherine Song The Dewey Decimal System of Clothes	Germantown Academy Sarah Kesten

## **EARTH & SPACE SCIENCES**

10-E&S-001	Kasey Walker Preventing Erosion	Central Bucks High School East Judy Elinow
10-E&S-002	Morgan Zylinski Analysis and Seasonal Comparison of Mainland and Saltmarsh Soils Located in Barnegat Bay, NJ	Marine Academy of Technology and Environmental Science Jason Kelsey
10-E&S-003	Jasmine Guo Identifying Galaxy Mergers with Self-supervised Deep Learning	High Technology High School Dina Ellsworth
10-E&S-004	Eileen Wang Relationship between Planets' Rings and Roche Limits	Germantown Academy Sarah Kesten
10-E&S-005	Roy Zhao Analysis of Urban Heat-Induced Rainfall in Philadelphia	Germantown Academy Sarah Kesten
10-E&S-006	Suchit Basineni The Occurrence of Tornado Genesis by Analyzing Multiple Severe Weather Parameters	High Technology High School Dina Ellsworth



<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
<b>ENGINEERING</b>		
10-ENG-001	Sarah Gentile Dampening Sound Made by Roller Coaster Track	Upper Darby High School Roseann Burns
10-ENG-002	Matthew Cherry Grain Orientation Affects on Wood Strength	Central Bucks East High School Judy Elinow
10-ENG-003	Soumil Sharma Prototype Artificial Pancreas	Central Bucks East High School Judy Elinow
10-ENG-004	Cymerly Tsai A Novel Approach to Underwater Mobility	Council Rock North High School Stacey Gould
10-ENG-005	Mia Mastroianni Modified Plastic Sports Water Bottle Cap Design to Deter Coenobita clypeatus	High Technology High School Dina Ellsworth
10-ENG-006	Maggie Kelleher Woodpeckers and the Future of Helmet Technology	Marine Academy of Technology and Environmental Science Jason Kelsey
10-ENG-007	Brandon Cai Creating a Low Cost 2D LiDAR Based 3D Scan to Detect Potholes Hazardous for Blind or Visually Impaired People	Parkland High School Kaitlin Heintzelman
10-ENG-008	Remington Yang Uniform Cold Plasma Sterilizer Customizable In Shape for Medical Devices and Food Processing	Conestoga Highschool Kelly Showers
10-ENG-009	Zeshen Chen Stroke Rehabilitation Crutch Robot with Auto-Follow and Fall Alarming System	Hoda Ehsan
10-ENG-010	Taryn DiFranco The Effect of Heavy Backpacks and Incorrect Use on Posture	Germantown Academy Sarah Kesten
<b>ENVIRONMENTAL</b>		
10-ENV-001	Vidya Jayaprakash Which Gas is the Source of Global Warming?	Council Rock High School North Terese Grateful
10-ENV-002	Zoey Smith Determining the Efficiency of Purple Non Sulfur Bacteria in Controlling Micro Algae Populations Through Indirect Nitrate Reduction	Marine Academy of Technology and Environmental Science Jason Kelsey
10-ENV-003	Abigail Jones Predicting the Concentration and Abundance of Sea Ice in the Arctic Based on Air and Water Parameters Affected by Climate Change	Marine Academy of Technology and Environmental Science (MATES) John Wnek
10-ENV-004	Gajan Mohan Raj The Effect of Motor Oil Pollution on the Regeneration Rate of Brown Planaria and Relative Population Density of Zooplankton	High Technology High School Craig Queenan
10-ENV-005	Priya Mancheril How Different Household Materials are Impacted by Thirdhand Smoke	Emmaus High School Brent Landrum
10-ENV-006	Jillian Halm The Effectiveness of Different Sorbents on Oil Spill Remediation	Freedom High School Graceanne Ruggiero
10-ENV-007	Brian Yang Geologically Based Correlation of Rock Type and Indoor Radon Levels in Eastern Pennsylvania from 531,799 Radium Emanation Measurements Collected Between 1990-2022	Moravian Academy Wendy Sheetz
10-ENV-008	Pooja Menon Eco-friendly and Efficient Removal of Organics from Water	West Chester East High School Maria Bolner
10-ENV-009	Cate Haigh Phytoremediation and Oil Polluted Soil	Souderton Area High School Karen Wolfe
10-ENV-010	Alycia Steck Biostim: From Freshwater to Seawater Oil Spill Remediation	Germantown Academy Sarah Kesten
10-ENV-011	Misimi Owolabi Effects of Types and Amounts of Selenium in the Soil	Germantown Academy Sarah Kesten

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
<b>MATHEMATICS</b>		
10-MTH-001	Logan Mesh Collatz Sequence Generalizations' Speeds at Reaching Cycles	High Technology High School Craig Queenan
10-MTH-002	Dylan Wen The Pythagorean Expectation's Relationship to Soccer	Methacton High School Robert Helm
10-MTH-003	Sravanti Manikonda Computational Modeling of the Efficacy of Ginger, Garlic, and Onion Extracts in the Presence of E. coli JM101	Biotechnology High School Samantha Haughwout
<b>MEDICINE/HEALTH</b>		
10-MED-001	Isabella Hutton The Connection Between Filtration and and Turbidity	Woodstown High School Carol Althouse
10-MED-002	Trevin Plum The Effects of Tech Neck on the Distance a Baseball is Hit	Woodstown High School Carol Althouse
10-MED-003	Anya Dunn Towards a More Comprehensive Conception of Covid Comorbidity	Academy of Notre Dame de Namur Jessica Reid
10-MED-004	Grace Yacobe Mesenchymal Stem Cell Therapy for Celiac Disease	Academy of Notre Dame de Namur Jessica Reid
10-MED-005	Prithvi Krish The Concentration of Glucose in Different Types of Food	Central Bucks High School West Diane Liddington
10-MED-006	Marianne Moise Long Term Effects of Covid-19	Council Rock High School North Stacey Gould
10-MED-007	Ava Boyle Examining How Fatigue Affects an Athlete's Performance of Balance	Marine Academy of Technology and Environmental Science Jason Kelsey
10-MED-008	Ria Jordan Ulep Comparing the Efficiency of Herbs and Spices in Reversing Hyposmia	Marine Academy of Technology and Environmental Science Jason Kelsey
10-MED-009	Prisha Rai The Effect of Quercetin on the Shrinkage and Behavior of Planaria	High Technology High School Craig Queenan
10-MED-010	Alexandra Torres Emiliano Does Sleeping Position Affect Your Health?	Bridgeton High School Claudia Angle
10-MED-011	Yakeline Cruz Santiago Blue Drinks	Bridgeton High School Claudia Angle
10-MED-012	Vedika Deshpande Cannabis-induced Metabolic Changes in Immune Cells	North Penn High School Melody J. Leithold
10-MED-013	Haruka Weir A Study of the Most Efficient Treatment Method for the CFTR Mutation	North Penn High School Melody J. Leithold
10-MED-014	Aidan Gor Hippocampal Volumetry for Diagnosing Alzheimer's Dementia	Germantown Academy Sarah Kesten
10-MED-015	Joshua Comitalo Radioactive	Philadelphia Academy Charter High School Christine Dunne
<b>MICROBIOLOGY</b>		
10-MIC-001	Maya Abdelaal Assessing Airborne Bacteria Abundance in Sea Foam Aerosol	Marine Academy of Technology and Environmental Science Jason Kelsey
10-MIC-002	Ava Candela Is Helping the Environment Harming You: Bacteria Growth in Reusable Water Bottles	Villa Joseph Marie High School Christine Poll
10-MIC-003	Sydney Houseman Yeast Metabolism With and Without Aeration	Villa Joseph Marie High School Christine Poll

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
10-MIC-004	Mia Rosica The Effectivity of Soap vs. Hand Sanitizer on the Bacteria that Accumulates on your Hands	Central Bucks East High School Judy Elinow
10-MIC-005	Jyothi Ramesh The Effect of E.coli K-12 on Planarian Regeneration	High Technology High School Dina Ellsworth
10-MIC-006	Srija Chaudhuri Tracking DNA Mutation Durability After Genetic Modification	Upper Dublin High School Joanne Lilliendahl
10-MIC-007	Ada Leeds The Effect of Various Acne Medications on Clearing Acne	Germantown Academy Sarah Kesten
<b>PHYSICS</b>		
10-PHY-001	Sophie DeMott The Relationship Between LED Threshold Voltage and Photon Frequency	Upper Darby High School Roseann Burns
10-PHY-002	Mary Rossano Calculating the Speed of Light in Different Different Mediums	Academy of Notre Dame de Namur Jessica Reid
10-PHY-003	Catherine Gumbs Energy Conversion Using a Marble Roller Coaster	Villa Joseph Marie High School Molly Kenny
10-PHY-004	Naievaidya Kaushik Effect of Hydrophobicity in Water Wave Analog	Council Rock High School North Terese Grateful
10-PHY-005	Lauren Stanger Going the Distance: How Does an Airplane's Wingtip Impact its Ability to Fly?	Cumberland County Technical Education Center Tyler Davenport
10-PHY-006	Elizabeth Reyes Santiago Color Heat Absorption	Bridgeton High School Claudia Angle
10-PHY-007	Sohum Gautam RAMION Rocket Thruster	Downingtown STEM Academy Anton Ocepek
10-PHY-008	Ishaan Baheti Increasing Efficiency of Solar Panels	Downingtown STEM Academy Anton Ocepek
10-PHY-009	Brinda Dass CT Densitometry based Predictive Model to Quantify Hair	Lower Moreland High School Richard Becker
10-PHY-010	Indus Boddu A Novel Two-Phase Switched Reluctance Motor Design Utilizing a Radial-Axial Layout and Modified Stator-Rotor Ratio to Reduce Torque Ripple	High Technology High School Dina Ellsworth
10-PHY-011	Jefferson Lin The Power of Light Through Chiral!	Northeast High School James Finley
10-PHY-012	Daisy Wang	
<b>ZOOLOGY</b>		
10-ZOO-001	Austin Short Which of the Chicken Breeds That Have Been Selected is the Most Intelligent?	Salem County Vocational Technical School Kristen Redkoles Polk
10-ZOO-002	Tyonna Husser Insects Attraction to Different Sugar Levels in Fruit	Woodstown High School Carol Althouse
10-ZOO-003	Nicholas Bottalico Microplastics and Soil Invertebrates - Solution or Problem?	Cherry Hill High School West Brian Grillo
10-ZOO-004	Avantika Manna The Effect of Red Dye 40 on Drosophila	Souderton Area High School Karen Wolfe
10-ZOO-005	Sanya Bandekar Prevalence Patterns and Parameters in Patients with FLUTD	Germantown Academy Sarah Kesten

**PRESENTER****TITLE****SCHOOL & SPONSOR****BEHAVIORAL/SOCIAL SCIENCES**

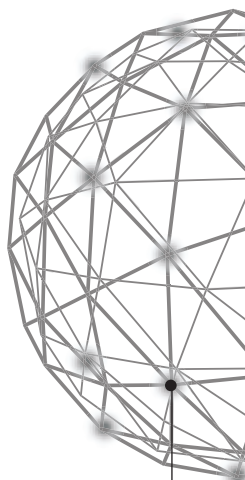
09-BEH-001	Anastasia Owens	Does Sleep Affect Academic Performance?	Cheltenham High School Russell Wolff
09-BEH-002	Sophie Dubois	Intro vs. Extrovert - Hows Their Non-Verbal Language Differ?	Souderton Area High School Karen Wolfe
09-BEH-003	Adelina Cutrona	The Age of Taste	Souderton Area High School Karen Wolfe

**BIOCHEMISTRY**

09-BCM-001	Ahjung Kim	Inducing Microalgal Lipids for Biodiesel Production	Council Rock High School North Terese Grateful
09-BCM-002	Kyle Wlazlowski	Dissolution Effects of Acetaminophen in Association with Vitamin B6	Marine Academy of Technology and Environmental Science John Wnek
09-BCM-003	Shreya Kalapatapu	Effect of Food Preservatives, Probiotics, and Cuisine on Microbiomes	Frances S. DeMasi Middle School YARD Sciences
09-BCM-004	Morgan Anthony	Baffling Berries - DNA Differences in Strawberries?	Parkland High School Kaitlin Heintzelman
09-BCM-005	Sophia Gao	Protein Structure Comparison of Epidermal Growth Factor Receptor Between X-ray Crystallography, AlphaFold and RoseTTAFold	High Technology High School Craig Queenan

**BOTANY**

09-BOT-001	Josef Hummel	How Does the Amount of Light Affect A Plant's Phototropic Response?	Botany Woodstown High School Amelia Adams
09-BOT-002	Jules Kampf	Plant pH Growth	Academy of Notre Dame de Namur Jessica Reid
09-BOT-003	Emily Eayre	The Impact of Saprophytic Fungus on Eggplant Growth and Soil Conditions	Council Rock North High School Terese Grateful
09-BOT-004	Apoorva Siragavarapu	The Effects of Nutrients on Plant Growth Shown by Hydroponics	Tamanend Middle School Erika Gamble
09-BOT-005	Sophia Dong	Is Phragmites australis a Comparable Alternative to Tree-based Paper?	Marine Academy of Technology and Environmental Science John Wnek
09-BOT-006	Jason Wang	Effects of Hydrogen Peroxide on Ocimum basilicum	Marine Academy of Technology and Environmental Science Amy Williams
09-BOT-007	Briana Ecke	Growth of Golden Oyster Mushrooms in Different Artificial Environments	Marine Academy of Technology and Environmental Science Amy Williams
09-BOT-008	Alexandra Roehl	Rate of Hydroponic Plant Growth	Cherry Hill High School East Mark Brandreth
09-BOT-009	Neeka Vojdani	The Extract Effect: An Analysis of How Utilizing Different Types of Plant-Sourced Oil in Soil Affects Plant Growth	Moorestown High School Sean Watson
09-BOT-010	Luke Hauck	Vermiponics: Invertebrate Aquaponics	Parkland High School Kaitlin Heintzelman
09-BOT-011	Harley Zdankowski	Caffeine Plant Growing	Botany Coatesville Area Intermediate High School Jamar Alston



2023 9TH GRADE ENTRIES

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
09-BOT-012	Yash Verma	Growing Plants In Microgravity Pennbrook Middle School Colleen Aiken
09-BOT-013	Yuktha Bungatavula	The Effects of Vitamins on Plant Growth Souderton Area High School Karen Wolfe
09-BOT-014	Issac Sam	Discover Chlorophyll Variety in Different Plants Using Paper Chromatography George Washington High School Anita Abraham
09-BOT-015	Kamiyah Rawl	Easier Compost Bensalem High School Samy Belbgra

## **CHEMISTRY**

09-CHM-001	Alyssa Berry	The Role of Eggs Woodstown-Pilesgrove Regional School District Stephen Ordog
09-CHM-002	Hope Gladfelter	Coca-Cola Reactions Sun Valley High School Renee Di Pietro
09-CHM-003	Emma Rocheleau	Measuring Electrolytes In Sports Drinks vs. Orange Juice Academy of Notre Dame de Namur Jessica Reid
09-CHM-004	Rory Gardner	What Factors Affect Hair Elasticity? Central Bucks East High School Judy Elinow
09-CHM-005	Liam Goodrich	Which Orange Juice Brand has the Most Vitamin C? The Pilgrim Academy Ruth Blouch
09-CHM-006	Asha Chakrabarti	Biomimicry: Replacing Fluorochemicals with Generally Recognized as Safe (GRAS) Materials - Impact of Surface Morphology and Non-Polar Additives on the Hydrophobicity of Environmentally Friendly Blood Repellant Fabrics Moorestown High School Sean Watson
09-CHM-007	Clarke Ray	The Effects of Different Oxidizers on the Performance of Hybrid Rocket Engines Parkland High School Kaitlin Heintzelman
09-CHM-008	Anisha Kundu	Chocolate Tempering and Melting Point Emmaus High School Brent Landrum
09-CHM-009	Aubree Lawrence	How to Make Invisible Ink Visible Coatesville Area Intermediate High School Jamar Alston

## **COMPUTER**

09-CMP-001	Aditya Joshi	Wordsmyth - Applying Natural Language Processing (NLP) to User Reviews to Generate Star Ratings Haverford High School Rosemary Edmiston
09-CMP-002	Khandakar Mahin	Evaluating the Accuracy of AI and Deep Learning Mechanisms in Medical Diagnosis Upper Darby High School Roseann Burns
09-CMP-003	Kavya Gounder	Hair Care: Finding Products That Work for You George School Brian Patton
09-CMP-004	Nithilan Rengapragash	LifeSavior Lenape High School Michael Condurso
09-CMP-005	Tushar Mehta	Deep Reinforcement Learning with Optimal Sensor Selection and Fusion for Autonomous Driving Parkland High School Kaitlin Heintzelman
09-CMP-006	Krish Malik	rnaNASH: An In-silico Approach to RNA Based Drug Discovery for NASH Disease with Higher Efficacy and Safety Parkland High School Kaitlin Heintzelman
09-CMP-007	Reva Bhatt	Efficient Way to Find The Root of a High Degree Polynomial Great Valley Middle School Barry Ziober
09-CMP-008	Anshul Kollur	Image Captioning with Semantic Segmentation Using Convolutional Neural Networks (CNN) and Natural Language Processing (NLP) Unionville High School Meghan Kanski
09-CMP-009	Shivam Joshi-Awasthi	Robotic Book Reader Pennfield Middle School JoEllen Paterson

PRESENTER	TITLE	SCHOOL & SPONSOR
<b>EARTH &amp; SPACE SCIENCES</b>		
09-E&S-001	Allison Lane What Techniques are the Most Accurate at Predicting the Weather?	Salem County Vocational Technical School Kristen Redkoles Polk
09-E&S-002	Elena Herpel Catastrophic Chemicals	Academy of Notre Dame de Namur Jessica Reid
09-E&S-003	Mohd Tarunno Identifying Lunar Lava Tubes Using Thermal Inertia Mapping	Upper Darby High School Roseann Burns
09-E&S-004	Rachel Kunz Growth Rate Comparison of Lactuca sativa and Phaseolus vulgaris in Regolith vs. Traditional Soil	Marine Academy of Technology and Environmental Science Amy Williams
09-E&S-005	David Vaida Trappist-1C: What Does the JWST Tell Us About Its Atmosphere?	Cherry Hill High School East Mark Brandreth
09-E&S-006	Jerry Wang Adding Kepler Data to a TESS Exoplanet Classification Model: A Novel Approach in Exoplanet Classification Utilizing Deep Learning	Parkland High School Kaitlin Heintzelman
09-E&S-007	Aum Purani Water Filtration Method on Microplastic and Chemical Contamination	Parkland High School Kaitlin Heintzelman

## ENGINEERING

09-ENG-001	Jacob Silva The Effect of Fin Angle on Rocket Altitude	Woodstown High School Stephen Ordog
09-ENG-002	Emma Allcorn How Does the Volume of an Object Effect How Far it can be Launched?	Woodstown High School Stephen Ordog
09-ENG-003	Samantha Capili Investigating Asphalt Road Temperature Differentials for Electrical Production via Thermoelectric Generators	Marine Academy of Technology and Environmental Science Amy Williams
09-ENG-004	Amogh Biradar An Arduino-Based Smart Hand Glove for Load Control and Physician Notification	Lenape Highschool Michael Condurso
09-ENG-005	Adi Khurana Cloud Enabled IoT Based Alert System for Aged, Blind & Disabled Individuals	Moorestown High School Sean Watson
09-ENG-006	Sonia Leo Low-cost Real-time Silent Communicator for Complete Quadriplegia (paralyzed) Patients	Moorestown High School Sean Watson
09-ENG-007	Aryan Kapoor Optimizing Roadside Pollution Detection by Designing a Low-Cost Smart-Sensor Device Powered by AI Mapping with Google Streetview API	Parkland High School Kaitlin Heintzelman
09-ENG-008	Milan Shah Building a Robot with Biosensors to Collect Expelled Air from Infected Animals	Conestoga Highschool Kelly Showers
09-ENG-009	Atharv Uddi Multi-robot Coordination to Complete a Task	Downingtown High School East Wendy King
09-ENG-010	Pranati Jammalamadaka Impact of Salinity Levels on Power Output of Blue Energy	Souderton Area High School Karen Wolfe
09-ENG-011	Ridhi Revalli What Insulation Works Best In Winter?	Pennfield Middle School JoEllen Paterson
09-ENG-012	Aarav Kevadia Robotic Hand for People with Arthritis	Germantown Academy Sarah Kesten
09-ENG-013	Lashae Gatling A Homemade Heart-Rate Monitor: The Testing of its Efficiency and Accuracy	Philadelphia Academy Charter High School Christine Dunne
09-ENG-014	Alvin Chen Bloomponics	Bensalem High School Samy Belbgra

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
<b>ENVIRONMENTAL</b>		
09-ENV-001	Makayla Lee Effect of Salinity on the Thermal Expansion of Water	Upper Darby High School Roseann Burns
09-ENV-002	Matthew Lo Development of Integrated Novel Hybrid Microbial Fuel Cells from Living Plants as Sustainable Energy Sources	The Episcopal Academy Matthew Memmo
09-ENV-003	Hansika Kodavali The Impact of Pine Needles on Composting	Council Rock North High School Terese Grateful
09-ENV-004	Rella Smith Edible Water Spheres	Lenape Middle School Deborah Wysocki
09-ENV-005	Juliana Panco Plastic Decomposition Using Superworms	AMSA at Johnstone Marie Donato
09-ENV-006	Aadi Deshmukh Combating Invasive Species with Artificial Intelligence	Moravian Academy Wendy Sheetz
09-ENV-007	Saisuchit Gollapudi Analyzing the Variance in Atmospheric Temperatures of the Earth Compared to Venus Using Water Temperature	Parkland High School Kaitlin Heintzeman
09-ENV-008	Aman Yelampalli Can We Stop Methane Burps From Cows?	Avon Grove Charter School Kate Richardson
09-ENV-009	Rowan Chetty Crosslinking Cinnamaldehyde with Chitosan to Develop Biodegradable Films for Food Preservation	Conestoga High School Kelly Showers
09-ENV-010	Riya Mehta Effective Bioremedies for Microplastic Pollution in Soil	Souderton Area High School Karen Wolfe
09-ENV-011	Kevin Lim How Humidity Affects Intonation of Double Bass Instrument	Upper Dublin High School Brian Palme
09-ENV-012	Devon Geist Removing Silver Nanoparticles from Pond Life	Germantown Academy Sarah Kesten
09-ENV-013	Noah Benz How Much Does Nitrogen Runoff Affect Algae Growth?	Sussex County Science Fair Lauren Hvorecny
09-ENV-014	Devi Bedford Eco Glitz	Bensalem High School Samy Belbgra
<b>MATHEMATICS</b>		
09-MTH-001	Akshay Honawar Impact of COVID-19 on Prostate Cancer Screening in the US	Council Rock High School North Stacey Gould
09-MTH-003	Duy Nguyen How Do You Determine the Evolution of a World Technology?	Egg Harbor Township Board of Education Etzel Brower
09-MTH-004	Noah Utain What Sudoku Solving Method is the Fastest?	Souderton Area High School Karen Wolfe
09-MTH-005	Steven Tunison Analyzing the Return Rates of the DOW, the DOGS, and the CATs	Germantown Academy Sarah Kestenool

PRESENTER	TITLE	SCHOOL & SPONSOR
<b>MEDICINE/HEALTH</b>		
09-MED-001	Maria Walters Hydro Flask vs. Yeti	Salem County Vocational Technical School Kristen Redkoles Polk
09-MED-002	Kiera Norton Plyometric Exercise Effect on Tennis Serve Speed	Academy of Notre Dame de Namur Jessica Reid
09-MED-003	Alan Urdabayev Comparative Analysis of Prescription Medications and Over-the-Counter Natural and Synthetic Eczema Products on Skin Microbiom	Moorestown High School YARD Sciences
09-MED-004	Lauryn Cowles Caffeine vs. Tooth Enamel	Cumberland County Technical Education Center Tyler Davenport
09-MED-005	Vedant Malik RTRad: A Novel AI-based System to Detect "Subdural Hematoma Disease Progression" That Adapts to Changing Image Data	Parkland High School Kaitlin Heintzelman
09-MED-006	Rasika Sivakumar Future of Regenerative Medicine: Cell Reprogramming Using Transcription Factors	Methacton High School Robert Helm
09-MED-007	Gabriel Meinstein Mask Effectiveness	Germantown Academy Sarah Kesten
09-MED-008	Roland Montgomery Healthy Soda Alternative	Bensalem High School Samy Belbgra

## MICROBIOLOGY

09-MIC-001	Jonathan Proud Which Mammal has the Most Contaminated Mouth?	Salem County Vocational Technical School Kristen Redkoles Polk
09-MIC-002	Sophia Helbach Will the Levels of Moisture and Lighting Affect the Amount of Time it Takes the Mold to Grow?	Salem County Vocational Technical School Kristen Redkoles Polk
09-MIC-003	Kaitlyn Khairzada How do Brine Shrimp React to Blue Light?	Salem County Vocational Technical School Kristen Redkoles Polk
09-MIC-004	Anna Mackey Phone Screens vs. Toilet Seats	Academy of Notre Dame de Namur Jessica Reid
09-MIC-005	Isabella Morgan Analysis of Water Quality Parameters and E. Coli Along Various Lakes Within Northern Ocean County, New Jersey	Marine Academy of Technology and Environmental Science John Wnek
09-MIC-006	Anish Pallod A Novel Low Cost Artificial Intelligence Microscopy Approach to Diagnose Malaria	Parkland High School Kaitlin Heintzelman
09-MIC-007	Victoria Puente Bacteriophage... A Natural Killer	Souderton Area High School Karen Wolfe
09-MIC-008	Praneel Jammalamadaka Does Neem Oil Create a Stable Environment for Bacteria	Souderton Area High School Karen Wolfe
09-MIC-009	Gracie Quigley Will it Clean?	Souderton Are High School Karen Wolfe



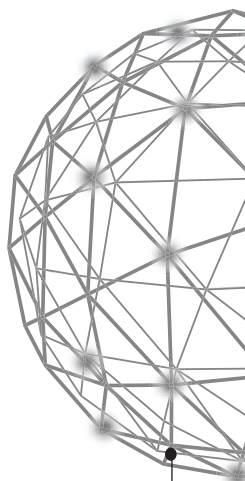
PRESENTER	TITLE	SCHOOL & SPONSOR
<b>PHYSICS</b>		
09-PHY-001	Karson Chew The Importance of Gear Ratio in Mountain Biking	Woodstown High School Amelia Adams
09-PHY-002	Lucas Fulmer Different Heights For Different Loops	Woodstown High School Stephen Ordog
09-PHY-003	Daniel Styer Flying balls	Robert Styer
09-PHY-004	Andrew Van Pelt How Different Geometric Shapes and Arrays Affect the Strength and Properties of a 3D Printed Part	Marine Academy of Technology and Environmental Sciences John Wnek
09-PHY-005	Katherine Gilchrist Twist and Twirl: How Geometry Changes How Fabrics Flow	Parkland High School Kaitlin Heintzelman
09-PHY-006	Carter Rembert Best Angles for Planetary Defense	Methacton High School Robert Helm
09-PHY-007	Aaron Jia Jia The Effect of Volume and Surface Area on Liquid Energy Balancing	Springside Chestnut Hill Academy Scott Stein
<b>ZOOLOGY</b>		
09-ZOO-001	Chloe Wnek Analysis of Environmental Conditions Between Novel Diamondback Terrapin Hatchery Designs	Marine Academy of Technology and Environmental Science John Wnek
09-ZOO-002	Violet Fischer Effects of Climate Change and Bay Acidification on Mud Dog Whelks (Nassarius Obsoletus)	Marine Academy of Technology and Environmental Science Amy Williams
09-ZOO-003	Navya Vysaraju Comparing Swarming Insects' Static Electricity to Storm Clouds	Souderton Area High School Karen Wolfe
09-ZOO-004	Cassara Yannarelli Correlative Study of Gender, Fsh Size, and Length of Spine on Venom Location and Weight Sustainability in Red Lionfish Spines	Marine Academy of Science and Technology Clare Ng



2018 ISEF participants



ISEF



<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
HS-TM-001 Maddie Morris Annabella Cox	Bathroom Bacteria	Pennsville Memorial High School Cherie Burns
HS-TM-002 Demajae White Briana Henderson	Does Chemical Fertilizer or Organic Fertilizer Have an Effect on Plant Growth?	Salem County Vocational Technical School Kristen Redkoles Polk
HS-TM-003 Nicolas Fitzpatrick Alan Luu Andy Luu	Texting vs. Calling: Comparing Reaction Time While Driving	Upper Darby High School Roseann Burns
HS-TM-004 Luke McMullen MD Nahidul Sabit	Calculating the Concentration of Sugar in Common Sugary Drinks through Spectrophotometry	Victoria Black
HS-TM-005 Muntassir Nabeel Ridwan Muntasir	Effect of Speed on Turning Radius	Upper Darby High School Roseann Burns
HS-TM-006 Kira Santos Vy Lam Jinuhangma Rai	Effects of Temperature and pH on Enzyme Catalyzed Reactions	Upper Darby High School Roseann Burns
HS-TM-007 Sahaana Rajagopalan Ria Agrawal	Effects of AgNPs on the Growth of E. Coli: A Study Examining Various Antibiotic Factors	Jennifer Toner
HS-TM-008 Cynthia Zhang Sanjana Nalavolu	The Effects of Ethanol on Dugesia Tigrina Regeneration and Reaction	The Charter School of Wilmington Jennifer Toner
HS-TM-009 Joseph Mancuso William Snyder	Investigating the Invasive Plant Advantage: What is the Difference in Insect Predation Between Native and Invasive Congeneric Honeysuckle Vines?	The Charter School of Wilmington Jennifer Toner
HS-TM-010 Arya Haridas Sydney Groves	Dobsonian Telescope	Central Bucks East High School Judy Elinow
HS-TM-011 Linna Shi Hailey Harris	Which Purification Method Works Best to Clean Water?	Central Bucks East High School Judy Elinow
HS-TM-012 Mary McAlpin Ella Ruppertsberger	Building an Artificial Pancreas	Villa Joseph Marie High School John Gentile
HS-TM-013 Julia Phillips Stephanie Temerte	What External Pollutants Can be Found in Bucks County's Natural Water Sources, and What Effects do They Have?	Central Bucks East High School Judy Elinow
HS-TM-014 My'Ariez Olano Veronica Tran Sanyii Hawkins	Effect of Changes in Diet and Temperature on Growth of Painted Lady Butterflies	Leap Academy Charter Alexandra Keefe
HS-TM-015 Zoryani Alicea Shanibed Corcino Vegevano Jazmin Biddle	The Effect of Light on Plant Growth	Leap Academy Charter Alexandra Keefe
HS-TM-016 Kenyen Benton Matthew Jenkins Leandro Angulo	Wifi Signaling Testing	Leap Academy Charter Alexandra Keefe
HS-TM-017 Caroline Flinn Lily Le Roy	Microplastic Concentration in the Molts of Limulus Polyphemus	Rumson-Fair Haven Regional High School Michael Haughwout
HS-TM-018 Nicholas Godkin Vincent Perno	Growth of a Novel Halophyte in an Integrated Aquaculture System	Marine Academy of Science and Technology Liza Baskin
HS-TM-019 Fey Alvarado Evelina Beteta	Iron Causes Sirens	Cumberland County Technical Education Center Tyler Davenport

**2023 TEAM PROJECTS  
9TH - 12TH GRADES**

PRESENTER	TITLE	SCHOOL & SPONSOR
HS-TM-020 Sofia Dubrovskaya Emma Valish Naydelyn Ramirez	Effects of Plant Growth-Promoting Rhizobacteria on Rapid Radish Growth	Freedom High School Graceanne Ruggiero
HS-TM-021 Brianna Melanie Suliguin Bethany Mariel Suliguin	A Comprehensive Water Quality Analysis Along the Toms River and Dillon's Creek, New Jersey	Marine Academy of Technology and Environmental Science (MATES) John Wnek
HS-TM-022 Wilson Zhang Richard Zhang	Identifying Cell RNA Sequence Biomarkers in Brain Cells for Neuro-degenerative Diagnosis	Conestoga High School Kelly Showers
HS-TM-023 Danica Bergen Nishtha Gupta	How Does the Use of Social Media Affect the Mental Health of Teens of Different Genders?	Great Valley Middle School Barry Ziober
HS-TM-024 Rohan Kapoor Jack Reichert	Implementing Ubiquitous Microalgae to Combat Carbon Emissions in Automobiles	Unionville High School Meghan Kanski
HS-TM-025 Muhan Yao Jiayi Li	The Autonomous Tracking Bionic Whale-Shark	Jared Courtney
HS-TM-026 Angelina Dennis Kenya Rawl	Entote - A Mission to Repurpose Waste	Archbishop Ryan High School Samy Belbgra
HS-TM-027 Carly Le Jessica Jestead	Styrofoam Alternatives	Bensalem High School Samy Belbgra
HS-TM-028 Alanna Walker-Kegler Dayonna Harper Atavier Green	Extracting Color	Freire Charter High School Paul Holt
HS-TM-029 Mahogany Williamson-Mccants A'yana Holloway Cianni Ortiz	Paper and Ink	Freire Charter High School Paul Holt
HS-TM-030 Devin Gibson Junyi Xin	How Substrates Impact the Velocity of Western Harvester Ants	Springside Chestnut Hill Academy Scott Stein



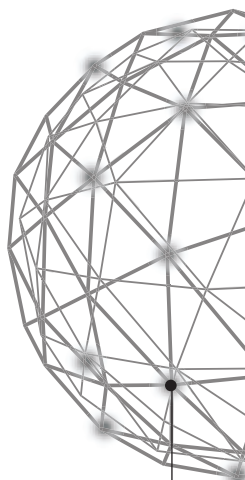
**PRESENTER TITLE SCHOOL & SPONSOR**

**BEHAVIORAL/SOCIAL SCIENCES**

MS-BEH-001	Erica Brewer	The Power of Suggestion	Quinton Township School Shane Manuel
MS-BEH-002	Alexander Thomas	How Does Gender Impact Multitasking and Performance?	Oldmans Twp. School Jason Winistorfer
MS-BEH-003	Peyton Clay	Music and Studying	Academy of Notre Dame de Namur Jessica Reid
MS-BEH-004	Anaya Mungin	Maya Never Eats Marshmallows or Nutella in Class Sections	Holy Child Academy Elisabeth Zafiris
MS-BEH-005	Mackenzie Junkin	The Detection of Photo-Edited Images	Holicong Middle School Carrie Bannon
MS-BEH-006	Kyle Meyers	The Relationship Between Handedness and Career Fields	Newtown Middle School David Curry
MS-BEH-007	Ansley Kazmarek	The Effect of Birth Order on Personality Traits	Haddonfield Friends School Rebecca Rementer
MS-BEH-008	Vedant Yadav	Impact on Attention & Reaction Time Due to Hands-free Cell Phone Conversation	William Allen Middle School Christian Heine
MS-BEH-009	Allie Garrabrant	Bias in Interpretation of Facial Expressions	Eugene A. Tighe Middle School Chelsi Crompton
MS-BEH-010	Ayra Ismail	In Archery, How Does Closing Your Non-dominant Eye Affect Your Aim?	Springhouse Middle School Jennifer Karetsky
MS-BEH-011	Shagun Dholakia	How Does an Exposure to Social Media Affect the Time Perception of Each Gender?	Springhouse Middle School Daniel Christman
MS-BEH-012	Anya Jani	What is the Effect of Mindfulness on Retention in Middle School Students?	Great Valley Middle School Barry Ziober
MS-BEH-013	Stella Barilotti	Tasting With Your Eyes!	Fernwood Avenue Middle School Jeffrey Warner
MS-BEH-014	Chaitra Chigurupati	Multitasking Mayhem	Marsh Creek Sixth Grade Center Jen Bergman
MS-BEH-015	Tessa Homa	He Looks Just Like You! Does a Baby Look Like its Parents?	Cedarbrook Middle School Beth Kenna
MS-BEH-016	Maya Herrlinger	What Would You Do: Your Classmate is Cheating!	Indian Valley Middle School Amy Craig
MS-BEH-017	Charlotte Feinberg	How Accurate Are Eyewitness Testimonies?	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-BEH-018	Winnie Knoflicek	Fears Through The Years - How Fears Change With Age	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-BEH-019	Miranda Gao	Does Local Soil Contain Dangerous Amounts of Lead?	General George A. McCall Elementary and Middle School Scott Knoflicek

**BIOCHEMISTRY**

MS-BCM-001	Camila Pelech	Tool For Identifying DNA	Quinton Township School Shane Manuel
MS-BCM-002	Emilee Howery	Is There DNA In Fruits?	Upper Pottsgrove School Danielle Taulane
MS-BCM-003	Kaileigh Morris	Weaving the Future: A Study of Novel Hydrogel Based Bioyarns	St Dorothy School Christine Cardone



**2023 6TH-7TH-8TH GRADE ENTRIES**

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-BCM-004	Nicole Boatright Sweet Home Ala-banana	Ursuline Academy Eileen Koenig
MS-BCM-005	Dillon Lind Paper "Apeel"	Newtown Middle School David Curry
MS-BCM-006	Andrew Mohl Don't Take my Curd for it - Which Fruit Makes the Best Cheese	Holland Middle School Mary Krempa
MS-BCM-007	Kora Bair Egg-cellent Substitutes	Alder Ave Middle School Jeffrey Warner
MS-BCM-008	Ayush Jalani Spike up the Energy of an MFC with a Dash of Salt	Springhouse Middle School Jennifer Karetsky
MS-BCM-009	Krishna Patel What is the Effect of Apples in Different Substances?	Springhouse Middle School Susan Stern
MS-BCM-010	Prisha Hallur Measuring the Rate of Conversion of Sucrose and Lactose into Glucose using Enzyme Invertase/Lactase	Charles F. Patton Middle School MaryJo Knauer
MS-BCM-011	Riya Shetty Are Daily Beverages Acidic & Can We Reduce The Acidity?	Great Valley Middle School Barry Ziober
MS-BCM-012	Tyler Chubb Measuring the Vitamin C in Orange Juice Brands	Fernwood Avenue Middle School Jeffrey Warner
MS-BCM-013	Yashvi Patel Feel The Burn: Be Sun Safe!	Pennbrook Middle School Colleen Aiken
MS-BCM-014	Emerson Kellie Examining Acid-Base Reactions for Longer Refrigeration of Blueberries	Wyndcroft Michael Stowell
MS-BCM-015	Gia Marro Eggciting Osmosis' The Naked Egg-Speriment	Our Lady Of Hope Regional Catholic School Jessica Abbott
MS-BCM-016	Silah Bartel Algae vs. Diesel	Meredith Christopher Leshock
MS-BCM-017	Karen Boedijono Balancing Blood Sugar with Exercise	General George A. McCall Elementary and Middle School Scott Knoflicek

## **BOTANY**

MS-BOT-001	Alexandra Kanterezhi-Gatto How Do Different pH Levels from three Substances Affect a Tomato Plant's Growth?	Intermediate East Gina Phillips
MS-BOT-002	Chloe Wnek	
MS-BOT-003	Brody Kroll Does Different Types of Animal Manure Affect the Growth Rate of a Spinach Plant?	Oldmans Twp. School Jason Winistorfer
MS-BOT-004	Ryan Dorsey Animal Manure	Elsinboro Township School Joseph Sarbello
MS-BOT-005	Conor Grohar Ivy League	St. Aloysius Academy Elizabeth Gailey
MS-BOT-006	Lily Martinez Which Water Temperature Is Best For Plant Plant Growth?	Saint Andrew School Jovani Tablezo
MS-BOT-007	Jack Herres Hydroponics vs. Traditional Plant Growth	Newtown Middle School David Curry
MS-BOT-008	Sophia LoFaso At What Concentration do Various NaCl Solutions Inhibit Seed Germination?	Holicong Middle School Carrie Bannon
MS-BOT-009	Yash Bhavsar Using Plants to Make Green Energy	William Allen Middle School YARD Sciences
MS-BOT-010	Evan Strommen The Effect of Volume on Plant Growth	Haddonfield Friends Rebecca Rementer

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-BOT-011	Nora Hopkins Do Plants Grow Taller Rightside up or or Sideways?	Ursuline Academy Eileen Koenig
MS-BOT-012	Grace Moller Flower Fued	Ursuline Academy Eileen Koenig
MS-BOT-013	Julianne Ross I'm Rooting For You!	Ursuline Academy Eileen Koenig
MS-BOT-014	Maanya Gope How Does Grey Water Affect Growth of Plants?	Springhouse Middle School Troy Minarovic
MS-BOT-015	Harshita Rajeshkumar Keerthi Effect of pH on the Growth of Lima Beans	Scott Bauer
MS-BOT-016	Robert Dickson Ebersole How Does Fertilizer Affect Plant Growth?	Owen J. Roberts Middle School Sheila Hinkley
MS-BOT-017	Vihaan Putumbaka Seeds in Space	Owen J. Roberts Middle School Sheila Hinkley
MS-BOT-018	Francis Clarici How Water From Different Sources Affects a Plants Growth	Intermediate South Jessica Kurtz
MS-BOT-019	Jeremy Evans Effect of Radiation Levels on Seed Germination and Growth	Indian Valley Middle School Amy Craig
MS-BOT-020	Siddarth Sankar How To Kill a (Invasive) Plant	Arcola Intermediate School Sharon Branca
MS-BOT-021	Neela Kitterman How Much Salt Does it Take to Kill a Plant?	Meredith Christopher Leshock
MS-BOT-022	Annalynn Navin What Light is More Beneficial for a Plant?	Our Lady of Hope Jessica Abbott
MS-BOT-023	Nicholas Gofman Does Creatine Affect Plant Growth?	Alana Bouie
MS-BOT-024	Talulah Andrews Growing in Gravity and Simulated Microgravity	General George A. McCall Elementary and Middle School Scott Knoflicek

## **CHEMISTRY**

MS-CHM-001	Morgan Fogg Color Be Gone!	Lower Alloway Creek School Megan Strang
MS-CHM-002	Kenya Steward Light It Up	Elsinboro Township School Joseph Sarbello
MS-CHM-003	Gloria Naab What Is the Best Temperature and Liquid to Grow Orbeez?	St. Dorothy Christine Cardone
MS-CHM-004	Sophia Pavone Laundry or Landfill	St. Andrew School Jovani Tablezo
MS-CHM-005	Taylor Aiello The Day I Dyed	Ursuline Academy Eileen Koenig
MS-CHM-006	Marah Ayotte Ink Race!	Ursuline Academy Eileen Koenig
MS-CHM-007	Clark Farrington Make It and Break It	Classical Conversations Kelly Farrington
MS-CHM-008	Sophia Leone How Does the Type of Cocoa Bean Affect the Six Polymorphs of Chocolate?	Holicong Middle School Carrie Bannon
MS-CHM-009	Owen Soheily Enzyme Catalase Reactions: What Affects Their Rates?	Toms River Intermediate East Gina Phillips
MS-CHM-010	Allison Gahm Why Wine About Stains?	Tara Palma
MS-CHM-011	Maya Malik Butter Cookies	Ursuline Academy Eileen Koenig

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-CHM-012	Eduardo Gomez Blowing Up	James Backman
MS-CHM-013	Arlen Martinez Eruption	James Backman
MS-CHM-014	Clotilde Toso How Do Different Food Wrappings Affect the Browning of Lettuce ?	Moravian Academy Middle School JoAnne Daniels
MS-CHM-015	Bhuvan Barker What is the Affect of Vinegar on Different Minerals and Rocks	Springhouse Middle School Daniel Christman
MS-CHM-016	Sophia Nauman Which Particle Form of Carbon Filters Water More Efficiently?	Scott Bauer
MS-CHM-017	Charles Smith Popping Boba! How Does the Amount of Calcium Chloride Used Affect the Size of the Boba?	Fernwood Avenue Middle School Jeffrey Warner
MS-CHM-018	Diya Vimal Kumar Tired of the Chemicals in Your Shampoo? Say Hello to Homemade Shampoo	Lionville Middle School Mary Elvin
MS-CHM-019	Jack Joyce It will Melt	SS Simon and Jude School Jacqueline Dryfoos
MS-CHM-020	Levi Yinger Witch Black Paint has the Most Light Absorption?	Wyndcroft Michael Stowell
MS-CHM-021	Joshua Owens So Many Species of Wood, but Which Would Make the Best Bow?	Cedarbrook Middle School Beth Kenna
MS-CHM-022	Elliot Bennett Melting Madness	Meredith Christopher Leshock
MS-CHM-023	Lillian Sweeney Balloon Experiment	Our Lady of Hope Jessica Abbott
MS-CHM-024	Nazyia Kahey-Davis Making and Testing My Own pH Paper	Universal Vare Charter School Alyson Iovacchini
MS-CHM-025	Daniel Thomas Racing Marbles to Measure Viscosity	General George A. McCall Elementary and Middle School Scott Knoflicek

## **COMPUTER**

MS-CMP-001	Jackson Perry How Do Different Materials Affect a Wifi Signal Strength?	Oldmans Twp. School Jason Winistorfer
MS-CMP-002	Soham Gupta Comparing the Efficiency and Utility of Different Programming Languages When Doing a Simple Task	Holicong Middle School Carrie Bannon
MS-CMP-003	Vishwa Narayanan Random Number Generator	Holland Middle School Mary Krempa
MS-CMP-004	Desmond Shields How Easily Can Your Password Be Compromised?	
MS-CMP-005	Brian Wang Can AI-generated Content Be Detected by AI?	The Independence School Jessie Copeland
MS-CMP-006	Julian Murcia Switch it Up!	Alder Avenue Middle School Jeffrey Warner
MS-CMP-007	Landon Sheatsley DIY Computer vs. Pre-Built Computer	Moravian Academy Middle School JoAnne Daniels
MS-CMP-008	Areesha Mariyam Detecting Apple Quality Using Computer Vision	Springhouse Middle School Troy Minarovic
MS-CMP-009	Aaryan Nagaria Can an Ultrasonic Sensor be Used to Help People with Peripheral Visual Impairments?	Toms River Intermediate North Katie Keller
MS-CMP-010	Reid Gassler A System for Enhancing Videos to Provide a Computer Viewer with a Better Perception of Sloped Terrain	Avon Grove Charter School Kate Richardson

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-CMP-011	Om Gagrani Ray of Light (Video Game for Visually Impaired & Sighted Players)	Great Valley Middle School Barry Ziober
MS-CMP-012	Reid Blamey The Affect of Graphics Cards on Computer Science	Arcola Intermediate School Sharon Branca
MS-CMP-013	Matthew Gabriel Whose Passwords are More Secure, Humans' or Robots'?	Indian Valley Middle School Amy Craig
MS-CMP-014	Kingsley Huang What Materials Can Block a Wi-Fi Signal?	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-CMP-015	Donovan Macfieldlane City Planning Using Sim City	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-CMP-016	Kushagra Goel	

## **CONSUMER SCIENCE**

MS-CON-001	Luke Kroll Which Knife Sharpening Method Produces the Sharpest Edge on a Chef Knife?	Oldmans Twp. School Jason Winistorfer
MS-CON-002	Taylor Chisarik What Brand of Container Best Prevents Oxidation in Fruit?	Woodstown Middle School Don Dunner
MS-CON-003	Laina Mamaluy Leak Free Guarantee	St. Andrew School Jovani Tablezo
MS-CON-004	Aidan Zwilling Soak It Up?	Holy Child Academy Elisabeth Zafiriz
MS-CON-005	Kiran Sticker How do Different Shampoos Affect Colored Hair?	Holicong Middle School Robert Meletti
MS-CON-006	Sania Alikhan Optimizing Cookie Sheets	Rosa International Middle School Bruce Krohn
MS-CON-007	Gabe Hutnick The Effect of Personality Type on Font Choice	Haddonfield Friends School Rebecca Rementer
MS-CON-008	Reagan Randall How Big is your Boba?	Ursuline Academy Eileen Koenig
MS-CON-009	Lei Martinez How do Different Disinfectant Sprays Affect the Amount of Germs Left?	Alder Avenue Middle School Jeffrey Warner
MS-CON-010	Yasmin Cruz The Absorbency Test	CKristi Lancaster
MS-CON-011	Antanett Glass Strongest Bond	James Backman
MS-CON-012	Brielle Taluba Cleaner Crew	Fernwood Avenue Middle School Jeffrey Warner
MS-CON-013	Brooke Watson Does Price Affect the Number of Leftover Kernels in a Bag of Microwave Popcorn?	East Coventry Elementary Keeley White
MS-CON-014	Aimal Ahmad Bleach vs. Different Hair Types	Indian Valley Middle School Amy Craig
MS-CON-015	Cole Powers "Vowel" Language: Letter Ratios and Wordle Success Rates	Cedarbrook Middle School Beth Kenna
MS-CON-016	Rachel Madden What is the Effect of Sugary Drinks on Teeth?	Alana Bouie
MS-CON-017	Margot Sepe The Skinny on Moisturizers: Which Works Best to Keep Skin Moist?	General George A. McCall Elementary and Middle School Scott Knoflicek



PRESENTER	TITLE	SCHOOL & SPONSOR
<b>EARTH &amp; SPACE SCIENCES</b>		
MS-E&S-001	Flora Morris Making Waves	Bishop McHugh Regional Catholic School Diane Bruesehoff
MS-E&S-002	Mateo Dorado How Does Soil Affect the pH of Water?	Elsinboro Township School Joseph Sarbello
MS-E&S-003	Piper Batley Solids and Liquids	Alloway Township School Jamie Munyon
MS-E&S-004	Darcy McCullough Modeling Darcy's Law: Does Water Flow More Freely Through Sand, Soil, or Gravel?	Newtown Middle School David Curry
MS-E&S-005	Matthew Thomas Can Plants Grow in Martian Soil?	Holicong MS Carrie Bannon
MS-E&S-006	Franklin Lopez Density	James Backman
MS-E&S-007	Aaditri Suresh A Model for a Sustainable Life Support System in a Martian Regolith Environment	Springhouse Middle School Jennifer Karetsky
MS-E&S-008	Rohan Yanala An Eco Friendly Solution to Rebuild Soil After a Forest Fire	Springhouse Middle School Susan Stern
MS-E&S-009	Avni Dhargalkar Space in Color	Charles F. Patton Middle School MaryJo Knauer
MS-E&S-010	Kriti Khubchandani Soil Erosion	Erin Flexner
MS-E&S-011	Giana Sinclair Crystallization Measurization	Fernwood Avenue Middle School Jeffrey Warner
MS-E&S-012	Haasini Matta Fertilizers Affecting Waterways	Indian Valley Middle School Amy Craig
MS-E&S-013	Luke Huang What Method of Terraforming is Best at Preventing Erosion?	Indian Valley Middle School Amy Craig
MS-E&S-014	John Crumlish Geodes	Our Lady of Hope Jessica Abbott
MS-E&S-015	Vivian Poon Does the Warmth of the Sea Make Stronger Hurricanes?	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-E&S-016	Lucas Lian Growing a Soil Menagerie	General George A. McCall Elementary and Middle School Scott Knoflicek



<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
<b>ENGINEERING</b>		
MS-ENG-001	Willow Pressler Powered by the Sun	Pressler Home School Hope Pressler
MS-ENG-002	Landon Thomas Does the Length of a Mousetrap Car Affect the Distance Traveled?	Elsinboro Township School Joseph Sarbello
MS-ENG-003	Chase Russell Rubber Band Elasticity	Elsinboro Joseph Sarbello
MS-ENG-004	Danielle Davenport What Materials Work Best for Paper Circuits	Saint Dorothy Christine Cardone
MS-ENG-005	Riley Carroll The Real Heels	Immaculate Heart of Mary School Nichol Carroll
MS-ENG-006	Aisling Donahue Does the Distance Between the Brackets on a Building Affect its Strength?	Immaculate Heart of Mary School Nichol Carroll
MS-ENG-007	Mark Lavery Should Old Elevators be Replaced?	Holicong Middle School Carrie Bannon
MS-ENG-008	Karolina Luchko How Does the Material of a Pointe Shoe Affect the Durability?	Holicong Middle School Robert Meletti
MS-ENG-009	Nolan Youssef 3D-Printed Model: A Potentially Useful Tool for Kidney Transplantation	
MS-ENG-010	Peyton Wollaston Marble Roller Coaster: What is a Safe Height for a Marble to Successfully Loop the Loop?	Natalie Fleming
MS-ENG-011	Elis Hindle Engineering Paper Airplanes	Kristi Lancaster
MS-ENG-012	Alexander Martiniez Marble Machine	James Backman
MS-ENG-013	Kaustubh Kashalkar What is the Effect of Fixing Different Links on the Four Bar Mechanism?	Springhouse Middle School Daniel Christman
MS-ENG-014	Gaurav Perugu Tireless Tides: A More Efficient Source of Energy	Scott Bauer
MS-ENG-015	Jeffrey Lux Pushing on Air - Propeller Design options	Charles F. Patton Middle School MaryJo Knauer
MS-ENG-016	Joseph Dunn IV Preventing Explosions and Fires with Automated, Smart Gas Detection and Shut-Off System	Yvonne Sotiropoulos
MS-ENG-017	Julia Lemon The Rocket Went to Space!	Fernwood Avenue Middle School Jeffrey Warner
MS-ENG-018	Jeffrey Fan Smart, Self-Adjusting Solar Panels	Arcola Intermediate School Sharon Branca
MS-ENG-019	Emma Bousquet Testing Layers of Winter Insulation	Patrice Hermann
MS-ENG-020	Andrew Berfi-Asibey Designing An Electric-Free Generator that Powers a Wind Turbine	Universal Vare Charter School Alyson Iovacchini
MS-ENG-021	Qamora Jenkins Designing & Testing Lead Powered Light Bulbs	Universal Vare Charter School Alyson Iovacchini
MS-ENG-022	August Poirot Mouse Trap Car	Alana Bouie
MS-ENG-023	Miette Lau Hydraulic Press	General George A. McCall Elementary and Middle School Scott Knoflicek

PRESENTER	TITLE	SCHOOL & SPONSOR
<b>ENVIRONMENTAL</b>		
MS-ENV-001	Lily Norman How do Different Liquids Affect the Growth of Plants	Woodstown Middle School Don Dunner
MS-ENV-002	Madison Johnson Do Different Liquids Affect Algae Growth?	Elsinboro Township School Joseph Sarbello
MS-ENV-003	Avery Welsh Growing Your Dreams	Academy of Notre Dame de Namur Jessica Reid
MS-ENV-004	Avi Abrol Electric Soil Moisture Sensor	Newtown Middle School David Curry
MS-ENV-005	Aarav Shinde Water Filtration	Holicong Middle School Carrie Bannon
MS-ENV-006	Molly Massa Let it Grow	William Allen Middle School Christian Heine
MS-ENV-007	Leonardo Male The Effect of Lime on Ocean Acidity	Haddonfield Friends School. Rebecca Rementer
MS-ENV-008	Mayumi Andrews Papermaking With Leaves and Peanut Shells	E.R. Johnstone Middle School Marie Donato
MS-ENV-009	Melanie Jimenez Water Filter	James Backman
MS-ENV-010	Adwik Banerjee Soapy Slope: Acute Toxicity of Daphnia magna to Common Detergents	Springhouse Middle School Jennifer Karetsky
MS-ENV-011	Raya Sampath How Effective are Magnets to Clean Oil Spills?	Springhouse Middle School Susan Stern
MS-ENV-012	Pranavi Jonnalagadda Using Solar Power to Harvest Drinking Water from Air	Great Valley Middle School Barry Ziober
MS-ENV-013	Atharv Rajesh Biodegradable Packing Material From from Agrowaste	Lionville Middle School Mary Elvin
MS-ENV-014	Hafsah Hameedi Can Ocean Water Grow Plants?	Patrice Hermann
MS-ENV-015	Condoleezza Oyesola What is the Effect of Water Filtration on Drinkability?	Indian Crest Middle School Melissa Carnahan
MS-ENV-016	Brynn Durst Don't Cry Over Spilled Oil	Meredith Christopher Leshock
MS-ENV-017	Isabel Shull What Water Purification Method Eliminates Bacteria?	Alana Bouie

## MATHEMATICS

MS-MTH-001	Chloe Kohnke Sink or Float	Lower Alloways Creek Megan Strang
MS-MTH-002	Katelynn Dordell How Does a Person's Genetics Affect Their Chances of Getting an Autoimmune Disease?	Oldmans Twp. School Jason Winistorfer
MS-MTH-003	Tiago Ferreira Estimating the Impact of YouTube Advertising on Movie Box Office	Main Line Classical Academy Danielle Nagelberg
MS-MTH-004	Jerry Cheng How do Different Properties of Liquid Affect the Angle of a Laser Pointer?	Holicong Middle School Robert Meletti
MS-MTH-005	Aanika Oka Fractal Creation	Lenape Middle School Deborah Wysocki
MS-MTH-006	Aark Bhagat	
MS-MTH-007	Kavya Patel Multiple Choice: Is Your Guess As Good As the Rest?	Galloway Township Middle School Stefanie Tripician

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-MTH-008	Yuriel Tapia Ball Bounce	James Backman
MS-MTH-009	Graciela Perez Rubber Band	James Backman
MS-MTH-010	Varshini Kommireddy Pascal's Triangle: Concept and Applications	Moravian Academy JoAnne Daniels
MS-MTH-011	James Baird IV Florida Hurricanes	Downingtown Middle School Wendy King
MS-MTH-012	Yash Ghayal How Does the Configuration and Quantity of Dice Affect Rolling a Sum of at Least 18?	Manalapan-Englishtown Middle School Marie Behnke
MS-MTH-013	Cormac Lake What is the Best Way for a Beginner to Solve a Rubick's Cube?	Wyndcroft Michael Stowell
MS-MTH-014	Dylan Wu What is the Strategy to Win a Game of Chopsticks?	Indian Valley Middle School Amy Craig
MS-MTH-015	Alexander Wu Fantastic Foam	Meredith Christopher Leshock
MS-MTH-016	Jaelynn Hives Multitasking: Brain Gain or Brain Drain	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-MTH-017	Vivian Ma Using an Inclinator to Measure Height (or Altitude)	General George A. McCall Elementary and Middle School Scott Knoflicek

## **MEDICINE/HEALTH**

MS-MED-001	Samantha Christian How do Skin Care Products Affect Our Skin?	Oldmans Twp. School Jason Winistorfer
MS-MED-002	Alice Bowser Sports Drinks and Blood Pressure	Woodstown Middle School Don Dunner
MS-MED-003	Hayden Bierling A Battle of the Senses	St. Andrew School Jovani Tablezo
MS-MED-004	Paolo Morales Tuning In	St Aloysius Academy Elizabeth Gailey
MS-MED-005	Alexander Dube Electrolytes in Drinks	Immaculate Heart Of Mary Catholic Elementary School Nichol Carroll
MS-MED-006	Cecelia Hayes How do Scents Effect Sleep Quantity and and Quality?	Holicong Middle School Robert Meletti
MS-MED-007	Jack Reilley How do Different Teas Affect Sleep?	Holicong Middle School Robert Meletti
MS-MED-008	Ananya Relia Effect of Sugary Drinks on Gut Microbiome	Frances S. DeMasi Middle School YARD Sciences
MS-MED-009	Moez Iftikhar How Does Temperature Affect Typing Speed and Accuracy?	Alder Avenue Middle School Jeffrey Warner
MS-MED-010	Jacob Edwards How Well Do Different Types of Helmets Protect the Brain?	Springhouse Middle School Susan Stern
MS-MED-011	Ksenya Wong Science of Spherification	Great Valley Middle School Barry Ziober
MS-MED-012	Declan McGrath Tar Troubles	SS Simon and Jude School Jacqueline Dryfoos
MS-MED-013	Maddie McAleer Your Eyes Tell All: How Old is Your Peripheral Vision?	Fernwood Avenue Middle School Jeffrey Warner
MS-MED-014	Vedanth Iyengar Health Effects of E-Cigarettes	Pennfield Middle School JoEllen Paterson

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-MED-015	Noelle Ryan Sweet Dreams: Age on Dream Recall	Cedarbrook Middle School Beth Kenna
MS-MED-016	Giancarlo Vernacchio Which Drink Stains Your Teeth The Most?	Our Lady of Hope Jessica Abbott
MS-MED-017	Ellie Pak Pedigree Analysis: A Family Tree of Traits	St. Peter's School Jenny Soriano
MS-MED-018	Alex Lam The Science Behind Dizziness	General George A. McCall Elementary and Middle School Scott Knoflicek

## **MICROBIOLOGY**

MS-MIC-001	Logan Pace Which Kind of Food Aids the Growth of Bacteria the Most?	Oldmans Twp. School Jason Winistorfer
MS-MIC-002	Delaney Abel Measuring Algae	Upper Pottsgrove School Danielle Taulane
MS-MIC-003	Kieran Bieter Can Prebiotics Help Probiotics Resist Resist Antibiotics?	Saint Dorothy School Christine Cardone
MS-MIC-004	Nieve Morrison Do You Know How Much Bacteria is Around You?	Academy of Notre Dame de Namur Jessica Reid
MS-MIC-005	Joseph Dube Mold in the Basement	Immaculate Heart of Mary School Nichol Carroll
MS-MIC-006	Dalen Ibragimov How do Certain Variables Affect Mushroom Growth?	Holicong Middle School Carrie Bannon
MS-MIC-007	Vanessa Martino Glow in the Dark Bread? How the Green Fluorescent Protein Can Alter Yeast	Lenape Middle School Deborah Wysocki
MS-MIC-008	Khushi Khurana Effects of Alcohol Content and Storage Temperature in Hand Sanitizer to Prevent Microbial Growth	William Allen Middle School Christian Heine
MS-MIC-009	Alexa Lopez Cell Food Absorption	James Backman
MS-MIC-010	Lilah Wilkes That's Gross... The Dirtiest Surface in the Middle School	OJRMS Sheila Hinkley



*Student tour of DuPont*

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-MIC-011	Tessa D'Alessandris Where Are The Germs Hiding In My School?	Smithville Elementary School Jill Fernandez
MS-MIC-012	Ashae Branch-Huston What Duration of UV-C Exposure Will Kill the Most Bacteria?	Cedarbrook Middle School Beth Kenna
MS-MIC-013	Cameron Cauffman Algae: Our Clean Energy Source?	Arcola Intermediate School Sharon Branca
MS-MIC-014	Addison McColligan On Wednesdays We Wear Pink Lipstick	Alder Avenue Middle School Jeffrey Warner
MS-MIC-015	Blake Burke Got Germs?	Our Lady of Hope Jessica Abbott
MS-MIC-016	Isobel Owens To Eat or Not to Eat	Alana Bouie
MS-MIC-017	Gery Chen-Yan How Do Food Preservatives Affect the Growth of Microorganisms?	General George A. McCall Elementary and Middle School Scott Knoflicek

## **PHYSICS**

MS-PHY-001	Dugan Tunney Does the Speed of a Magnet Traveling Through a Coil Affect the Amount of Current Induced in the Coil?	Toms River Intermediate North Katie Keller
MS-PHY-002	Rylee Doerr Bat Debate	Elsinboro Township School Joseph Sarbello
MS-PHY-003	Brian Hannah Which Broad Head has the Most Penetration?	Upper Pottsgrove Danielle Taulane
MS-PHY-004	Sophia Kehoe Hot vs. Cold	Holy Child Academy Elisabeth Zafiris
MS-PHY-005	Grace Nasr Electrify Your Painting	Gregory Klucznik
MS-PHY-006	Kiera Dozor How Does Wing Shape Effect the Lift of an Airplane?	Holicong Middle School Robert Meletti
MS-PHY-007	Neya Sathiya Ganesh How Does Density Affect the Speed of Light?	Newtown Middle School David Curry
MS-PHY-008	Brayden Murphy The Effects Different Hockey Sticks have on the Velocity of a Hockey Ball	Toms River Intermediate South Jessica Kurtz
MS-PHY-009	Jenna Moskowitz Friction: Fact or Fiction?	
MS-PHY-010	Thomas Solitro The Gravity of the Situation: Using Circular Motion to Generate Artificial Gravity	William Allen Middle School Christian Heine
MS-PHY-011	Lacie Thompson	
MS-PHY-012	Demetra Kyranakis Keeping it Cool	Ursuline Academy Eileen Koenig
MS-PHY-013	Eliana Lawrence The Doppler Effect	Immaculate Heart of Mary School Nichol Carroll
MS-PHY-014	Anderson Perez Garcia Pendulum Length	Kristi Lancaster
MS-PHY-015	Karla Trinidad Solar Cooker	James Backman
MS-PHY-016	Aiza Akbar Which Architectural Design can Withstand the Effects of a Hurricane Best?	Moravian Academy Middle School JoAnne Daniels
MS-PHY-017	Lucas Yang The Interference Patterns of Light Waves	Springhouse Middle School Daniel Christman

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-PHY-018	Anthony Wang How Does Temperature Affect Batteries?	Springhouse Middle School Daniel Christman
MS-PHY-019	Paridhi Jain Ionizing Particles	Charles F. Patton Middle School MaryJo Knauer
MS-PHY-020	Srijith Vinay Solar vs. Battery Powered Model Cars	Owen J. Roberts Middle School Sheila Hinkley
MS-PHY-021	Grace Byard Musical Plants: Classical Music Affects Beanplant Growth	Cedarbrook Middle School Beth Kenna
MS-PHY-022	Johnny Raisch Is Bigger Better? Paper Size and Airplanes	Cedarbrook Middle School Beth Kenna
MS-PHY-023	Isaac Proekt Burning Bulbs	Meredith Christopher Leshock
MS-PHY-024	Siena Ripatrazone Egg-xilerating Egg Floating!	Meredith Christopher Leshock
MS-PHY-025	Satiyana Marrero Looking at Background Radiation Through a Cloud Chamber (Watching Nuclear Particles)	General George A. McCall Elementary and Middle School Scott Knoflicek
MS-PHY-026	Sophie Kalish-Schur The Speed of Liquid	Zachary Minken

## **ZOOLOGY**

MS-ZOO-001	Alanis James What Food Do Birds Prefer to Eat?	Quinton Township School Shane Manuel
MS-ZOO-002	Emilee Kehr How Does Sleep Affect A Cats' Weight?	Oldmans Twp. School Jason Winistorfer
MS-ZOO-003	Nicholas Davidson Hows It Growing Planaria	Saint Andrew School Jovani Tablezo
MS-ZOO-004	Caroline Coen Hungry Hungry Worms	Ursuline Academy Eileen Koenig
MS-ZOO-005	Dennis Parkhomchuk How do Salt Licks Affect the Behavior of Sheep?	Holicong Middle School Carrie Bannon
MS-ZOO-006	Savannah Ryan How Music Affects Horses Heart Rate	Holicong Middle School Carrie Bannon
MS-ZOO-007	Tyler Iyengar Snap Decisions: Crayfish Substrate Preferences in Ponds vs. Streams	Emmaus High School Brent Landrum
MS-ZOO-008	Akshaya Guduru Daphnia in Sweeteners	Orefield Middle School Brian Holtzhafer
MS-ZOO-009	Ellie McDonald How Weather Patterns Affect Birds	Charles F. Patton Middle School MaryJo Knauer
MS-ZOO-010	Alexandra Hernon Natural Way or Toxic Way	Fernwood Avenue Middle School Jeffrey Warner
MS-ZOO-011	Atharva Singh Regeneration in Planaria	Great Valley Middle School Barry Ziober
MS-ZOO-012	Ava Gentile The Fast and the Scaliest	Fernwood Avenue Middle School Jeffrey Warner
MS-ZOO-013	Lillian Lorenc The Effect of Seasons on Bird Seed Consumption	Indian Valley Middle School Amy Craig
MS-ZOO-014	Noah Leigh What Signs do Crickets Show to Different Temperatures?	Wyndcroft Michael Stowell

<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-ZOO-015	Clara Milch Guinea Pigs: The Eating Machines	Meredith Christopher Leshock
MS-ZOO-016	Parker Pine The Race To Taste	Meredith Christopher Leshock
MS-ZOO-017	Gabriel Blome Cat Food Favorites	Monique Coval
MS-ZOO-018	Eugene Koesmadjie Which Soil Type Do Earthworms Like Best?	General George A. McCall Elementary and Middle School Scott Knoflicek

## **TEAM PROJECTS**

MS-TM-001	Kendall Young Layce Erdner Maya Pio Oil or Not?	Lower Alloway Creek School Megan Strang
MS-TM-002	Avery Newkirk Diana Nesterneko Hailey Ricketts Strawberries vs. Mold	Quinton Township School Shane Manuel
MS-TM-003	Lilly Sigelman Helene Gormley A Growing Problem: How Hormones Affect Plant Health	Main Line Classical Academy Danielle Nagelberg
MS-TM-004	Diya Iyer Adi Iyer Are We Made to Multi-Task?	Anita Singh
MS-TM-005	Chloe Engelsiepen Allison Guiteras Water Quality in Delaware Ponds Compared to Population and Land Use	Fred Fifer III Middle School Neisha Coursey
MS-TM-006	Vedic Mukherjee Ayan Agrawal AIS (Automatic Irrigation System)	Charter School of Wilmington Jennifer Toner
MS-TM-007	Satvik Bandaru Noah Sciortino How Bridge Types Affect the Weight Held	Sol Feinstone Elementary School Laura Panettieri
MS-TM-008	Katherine Myers Anna Saucier Where Do Germs Like to Grow at Our School?	Saint Andrew Catholic School Tracy Boedewig
MS-TM-009	Nolan Judge Bryce Judge The Effects of Different Sided Wind Catchers on Air Temperature	Toms River Intermediate South Jessica Kurtz
MS-TM-010	Lucy Ho Emmabelle Nguyen Nusaibah Nawar Cleanse the Best	Sovereign Avenue School Dione Tsoplakis
MS-TM-011	Ashley Merida Tatiana Lopez Extracting DNA	James Backman
MS-TM-012	Charlene Medina Estrella Susana Robledo Cruz Which Oil Works Best For Lava Lamps?	Chelsea Heights School Paul Polinski



<b>PRESENTER</b>	<b>TITLE</b>	<b>SCHOOL &amp; SPONSOR</b>
MS-TM-013	Miraan Jhaveri Arnav Tandon Acidic or Basic?	Lionville Middle School Mary Elvin
MS-TM-014	Regan Brady Noellia Cruz Paint vs. Carpet - Who Will Win?	Alyssa Polselli
MS-TM-015	Arianna Hernandez-Jimenez Adriana Prak Jenny Li Can Plants Stop Soil Erosion?	Universal Vare Charter School Alyson Iovacchini
MS-TM-016	Blaise Grasso Christopher Schulz Does Whitening Toothpaste Work?	Our Lady of Hope Jessica Abbott
MS-TM-017	Ariana Kramer Eislin Davis Crystal Clear	Meredith Christopher Leshock



*PECO building*

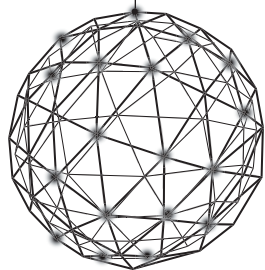
**DIRECTOR OF JUDGING** John Disston

**DIRECTOR OF SPECIAL AWARDS** Mary-Rita Bonner

**FAIR COORDINATORS**

12th Grade Fair	Helen Gieske and Rob Schroeder
11th Grade Fair	Sue Mecouch and Mary Boeni
10th Grade Fair	Melody Leithold and Phil Rittenhouse
9th Grade Fair	Roger Mecouch and Bob Fleck
6th - 8th Grade Fair	Harry Anselmo
Team Fairs	Valerie Denny
Medals	Dick Close
Special Awards	Mary-Rita Bonner

**2023 SCIENCE FAIR JUDGES**



Aisha Abdul-Wakeel	USDA/Agricultural Research Service
Gregory Adam	Merck
Judie Adey	Rowan College at Burlington County
Nancy Agnew	NSWCPD
Mitul Ajmera	Constellation
Richard Alexander	Kelly
Allison Alexander	Nemours
Kenneth Allendoerfer	Federal Aviation Administration
Salar Alsardary	St. Joseph's University
Zainab Amiji	Merck
Armen Amirian	Gemological Institute of America
Ajeya Anand	Infinera
Frank Arlotta	RF PRODUCTS, INC.
Cheryl Armstrong	US Department of Agriculture
Richard Ashby	United States Department of Agriculture
Stephanie Austin-Johnson	Community College of Philadelphia
Eric Bailey	Celanese
Nirmala Baireddy	Merck & Co
Margaret Baker	
Kristi Ballard	Merck
Arindam Banerjee	Lehigh University
Subhasree Basu	Janssen, R&D Division of Johnson and Johnson
Subhra Basuthakur	Penn Medicine
Evan Beauvilliers	DuPont
William Belanger	Retired
Ngozi Bell	Horizon's Global - Clinical Trials Support
Barbara Bendl	Retired
Michael Bennett	Alliance Pharmaceuticals
Peter Berthold	
Sanjeev Bhardwaj	Janssen Biotherapeutics
Neha Bhat	Janssen Pharmaceuticals
Arinjita Bhattacharyya	Merck
Rachael Blackstone	Janssen Pharmaceuticals
Sarah Blosch	DuPont Polymer Products
Bobby Boonyaratanakornkit	PTC Therapeutics
Martin Brandt	GlaxoSmithKline
Charlene Brisbane	Teva Pharmaceutical
Etzel Brower	Egg Harbor Township Board of Education
Malcolm Burgess	Retired
James Burke	None- Retired
Karley Bussow	Johnson & Johnson (Janssen)
Linda Cairnes	Center for Aquatic Sciences
Lauren Calvanese	Teva Pharmaceuticals
Gossett Campbell	GlaxoSmithKline

Jose Campos Sanchez	Alliance Pharma	Brian Gilbert	Self
Joseph Capobianco	USDA-ARS	Michael Glaser	GlaxoSmithKline
Joe Carrara	USDA Agricultural Research Service	Steven Gorman	Alliance Pharma, Inc
Jennifer Cassidy	USDA ARS ERRC	Elsa Gorre	Janssen R&D
Yong Chen		Peter Gorycki	GlaxoSmithKline
Narayan Cheruvu	Pfizer Inc	Kelly Gough	Jazz Pharmaceuticals
Patrick Chestnut	Rowan University/Inspira Health Network/The Children's Hospital Children's Hospital of Philadelphia	Joseph Grant	Dow Chemical
		John Gray	Janssen Pharmaceuticals, Johnson and Johnson
Michelle Chiu	Bawman LLC	Alexander Grimwade	Retired
Baw Chng	Jazz Pharmaceuticals	Emily Gruver	Alliance Pharma
Tasha Clark	Retired	Boying Guo	
Randolph Cleaver	GlaxoSmithKline	Manita Guragain	United States Department of Agriculture
Jim Clemens	DuPont	Andy Halsey	Teva Pharmaceuticals R&D
Gregory Cleveland	Retired	Mark Hansen	Chemours
Richard Close	GlaxoSmithKline	Jamie Hansen	Teva Pharmaceuticals
Nestor Concha		Brian Harrison	Merck & Co.
Rob Corey	Retired	Aubrey Hazlett	Jazz Pharmaceuticals
Stephen Cottrell	West Pharmaceutical Services, Inc.	Edwin Hein	Lifescan
Fred Cowdery	Alliance Pharma Inc.	Jason Heindl	Rowan University
Luke Creamer	USDA ARS ERRC	Wade Heller	USDA
Nicole Cross	West Pharmaceutical Services	Matthew Henry	Glaxosmithkline
Michael Cross	GlaxoSmithKline	Kristina Hibbeln	Merck & Co.
Zhiyi Cui	Federal Aviation Administration	Allison Hice	Naval Surface Warfare Center Philadelphia Division
Holly Cyrus	Teva Pharmaceuticals	Aimee Hillegas	GlaxoSmithKline
Natalee Danko	Retired	Simon Hinke	Janssen Pharmaceutical Companies of Johnson & Johnson
Alexander David	None	Makayla Holt	Naval Surface Warfare Center
Ruben David	Retired in 2015 from Elsinboro Twp School	David Horvath	PNC Bank
John Davis	National Weather Service	Steve Houdeshel	Retired
	self employed	Bob Hranek	Arcfield
Robert Deal	Retired from Amtrak, July 24, 2020.	Ping Hu	Johnson and Johnson
Dianna Deeney		Chenguang Huang	
Mark DeLizio	Retired	David Huber	US Navy/Office of Naval Research
Yuelin Deng	Exelon	Michael Hutchinson	Janssen
Victor Diener	Constellation	Cheng-An Hwang	ERRC-ARS-USDA
Joseph DiPlacido	Self	Lydia Hwang	Incyte
Mark DiRado	Traffic Planning and Design, Inc.	Rachel Jackson	Janssen
Kenneth Donaldson	FMC Corporation	Steven Jacobs	Janssen
Jake Dong	Johnson & Johnson/ Janssen Pharmaceuticals	Uldrick Jean	Constellation
Anthony Dougherty	retired	Nadita Jewnandan	
Pravin Dubey	Janssen R&D, CVM	Tony Jin	USDA Eastern Regional Research Center
Karen Duffy		Sarah Johnson	National Weather Service (National Oceanic and Atmospheric Administration)
Bob Eaves		Marshall Jones	Van Horn, Metz Co. & Coatings for Industry
Makhosi Edmondson	USDA	Gee Joseph	DuPont
James Eggers	PJM	Vijay Juneja	USDA-ARS-ERRC
Anais El	Retired from Lockheed Martin	Soorya Kabekkodu	International Centre for Diffraction Data
Xuetong Fan	Jazz Pharma	Dongwoo Kang	Teva Pharmaceuticals
Zhenyu Fan	Merck	Bruce Karpe	Retired
Barbara Faust	TF Technologies, Inc.	Kumar Babu Kautharapu	Teva Pharmaceuticals
Debra Feldman	USDA	Andrew Kelliher	Constellation
Taisiia Feoktistova	Lockheed Martin	Ashley Kennedy	Delaware Department of Natural Resources and Environmental Control
Thomas Finley	Saint Joseph's University	Lew Killmer	Retired
Jenni Firrman	Lockheed Martin	Kate Kilpatrick	Joule/System One - embedded at Janssen Pharmaceuticals
Greg Fonder	Department of Agriculture - USDA-ARS	Rachel Kimble	Teva Pharmaceuticals
Brian Forster	Exelon	Lewis Kinter	GLP Scientific Consulting
Thomas Gans	Janssen		
Valerie Garcia-Negron	Constellation Energy		
Rajesh Geevarghese			
Madeline Gelb			
Cliff Gibson			

Alan Kober	retired	Latha Nair	Johnson & Johnson
Stefan Kolata	Jazz Pharmaceuticals	Chris Nally	
Rachelle Kosoff	Janssen	John Nase	Nase Dental Group and Dental Forensic Services of Indian Valley
Deborah Kovacs		Rasika Nawimanager	Teva Pharmaceuticals
Natasha Kozlyuk	Johnson and Johnson	Malcolm Newman	Drexel University
Phil Krasney	Teva Pharmaceuticals	Dalyna Ngo	
Ethel Krasney	BridgeBio	Liza Ngo	Janssen
Gary Kribbs	AEON Geoscience, Inc	Hoa Nguyen	DuPont
William Kullmann	retired	Steven Nicotra	Janssen Pharmaceuticals
Roger Lacy	Retired, from The Boeing Company	Barbara Nyland	DuPont
Chakradhar Lagishetty		Jeffrey Obrecht, PG	Rummel Klepper & Kahl (RK&K)
James Lan	FMC	Thomas Obrien	Munzing
Renee Latona	USDA-ARS-ERRC	Alan Olzinski	GlaxoSmithKline
Ben Lavallee	WL Gore and Associates	Stacy L. Onofrietti	OPDA, MC
Vivek Paul Lawrence	Deloitte Consulting LLC	Angie Osoria	USDA-ARS-ERRC
J. Grant Lawton	W. L. Gore and Associates	Alisa Otteni	Exelon PECO
Justine Lee	Janssen Research & Development - Johnson & Johnson	Karma Pace	Harrisburg University.
Rongwei Lei	West pharmaceutical Services, Inc	Swati Lakshmi Palghat	Lehigh Valley Health Network
Michael Lembo	CertainTeed LLC	George Paoli	USDA-ARS-Eastern Regional Research Ctr.
Joe Leondi	GlaxoSmithKline	Ami Patel	Boyd's Consultants
Wen Li	Pfizer	Vishwa Patel	Merck
Gerald Liebling	Lockheed Martin - retired	Goral Patel	
Li Liu	Teva pharmaceuticals	Pujita Pathak	Janssen
Zhiwei Liu	Rowan University	John Patrick	Johnson and Johnson
Yun Liu	Teva Pharmaceuticals	Helene Paxton	Rowan college
Alyssa Long	Merck Sharp & Dohme LLC	Ted Petley	Johnson and Johnson
Ryan Long	Alliance Pharma	Jia Yao Phuah	Merck
Dennis Ludwig	Retired	Mark Player	Janssen
Nathan Mackouse	Alliance Pharma	Marc Pochet	Lockheed Martin
Sarita Maheshwari	Accenture	Steven Pomerantz	Janssen Research and Development
Frank Maloney	Villanova University	Wilson Poon	WL Gore & Associates, Inc.
Slobodanka (Dina) Manceva	Teva Pharmaceuticals Inc	Michael Powell	United States Department of Agriculture - Agricultural Research
Jennifer Marshall	Merck	Jennifer Prestipino	Thermo Fisher Scientific
Stephen Mastro	US Navy	Alfred Prisco	Lanxess
Luke Mastrorilli	W.L. Gore & Associates, Inc.	Roochir Purani	IBM
Kristy Matulevich	Harcum College	Suren Rajakaruna	
William Maule	GlaxoSmithKline	Annapoorani Ramiah	Dr. George Paoli
Patrick McCullagh	DePuy Synthes, Johnson & Johnson	Prasad Ramnath	Oracle
Lindsay McKeever	USDA- ARS	Stephanie Rayhon	Janssen
Fred McLaren	Valley Forge Military College	Ramachandra Reddy	Janssen
Michelle McMullin	FIRST	Mary Reinthal	Dupont
Christopher Menna	Menna Engineers & Associates	Michael Rhodes	NextGen Federal Systems
Karsten Menzel	Merck	Mark Richmond	Chemours
Kelly Messner	DuPont	James Richvalsky	Lockheed Martin
Dennis Metrick	Retired	Jeff Rohrbeck	General Systems & Software, Inc. (Self)
Brian Meyer	Merck & Co., Inc. West Point, PA	Chris Rood, P.E.	AECOM
Michael Meyering	Merck & Co., Inc.	Bruce Rosenbaum	Retired
Gerard Michaud	Retired	Jonathan Roth	Retired
Karen Milkiewicz	Teva Pharmaceuticals	Dianne Rothstein	Retired
Seth Miller	Janssen R&D (J&J)	Kelsey Rule	Quaker Houghton
Amanda Miller	USDA ARS	Joshua Rusbult	Janssen R&D
Marshal Miller	Northampton Community College	Stephanie Rusbult	Cancer Support Community
Dimple Modi	GlaxoSmithKline	Jennifer Ryan	Greater Philadelphia
Halimatu S. Mohammed		Carilyn Salmi	Merck
Jamonica Moore	FMC Corporation	Phyllis Salzman	Janssen
Jim Moskowitz	self employed	Lani San Mateo	Retired
Sudarsan Mukhopadhyay	USDA		Janssen Research and Development
Mary Myers			

Punam Sandhu	Jazz Pharmaceuticals
Aileen Sargent	Chester County Head Start
Clarence Sasso	Self Employed
Muhunthan Sathiosatham	The Dow
Jason Saul	Dynamic Conveyors & Automation
Marilyn Schneider	The United Methodist Church
Rajashree Seetamraju	Honeywell
David Seitman	None
Vedangi Shah	Merck
Andrew Shah	Dow Chemical
Stacie Shaner	Janssen
Craig Shaner	DuPont
Pawan Sharma	Thomas Jefferson University
Shilpa Shastry	IBM
Lynn Shay	Chamberlain University
Stacy Sherman	
Grace Shi	Constellation
Philip Shilane	Dell Technologies
Dana Shuey	Incyte Corporation
Michael Siegel	Retired
Scott Sifford	Retired
Justin Sillner	
Anita Singh	Temple
Mercer Sisson	Self
Edward Skuchas	Retired
Christopher Smalley	Retired
Gerard Smith	
Lauren Smith	Janssen (Johnson & Johnson)
Erin Solomon	Howard Hughes Medical Institute
Eirini Spilioti	Gehring-Montgomery
Taylor Spoon	GlaxoSmithKline
Kari St.Laurent	NOAA
Ryan Stoklosa	USDA Agricultural Research Service
Sven Strnad	Retired
Stephen Strom	Northampton Community College
Jennifer Stuckey	Sitecore, Inc
William Studt	Retired from Sanofi Aventis Pharma
Robert Studt	Johnson & Johnson
Nicole Sullivan	Merck
Breann Swan	Teva Pharmaceuticals
Ray Sweet	Retired
Daniel Sylawa	Phoenix Contact USA, Inc.
Gary Szatkowski	Self-employed
Peter Tancini	DuPont

Laura Tanenbaum  
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Krista Tatasciore  
Stan Telson  
Fred Thompson  
Kary Thompson  
Leslie Tintle  
Jane Toscano  
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Zach Traverse  
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Diane Valentin  
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Lai-Ming Yung  
Ann Zeleniak  
Weiqing Zeng  
Devin Zhang  
Luna Zhang  
Tammy Zingaro  
Stephanie Zublick

Johnson & Johnson/Janssen  
Eurofins Professional Scientific Solutions  
Greene Tweed  
Thermo Fisher Scientific

Retired  
Janssen  
Sanborn, Head, & Associates Inc.  
Merck  
Veranova

Merck  
Drexel University  
Abington School District,  
Abington Senior High School  
The Unami Group LLC  
USDA  
Saint Joseph's University  
Vanguard / Drexel / Bucks Comm. College  
Janssen Pharmaceuticals  
Johnson and Johnson  
Datwyler Pharma Packaging Intl  
Retired  
Retired  
Langan Engineering  
Retired

William Penn Foundation  
Janssen R&D/ Johnson & Johnson  
Janssen R&D  
Merck & Co., Inc.  
GlaxoSmithKline  
Jazz Pharmaceuticals  
AgroFresh, Inc.  
Jazz Pharmaceuticals  
GlaxoSmithKline  
Image Analysis Group  
Naval Surface Warfare Center  
Philadelphia Division  
McMahon Associates  
Janssen R&D  
Temple University Medical School  
Lehigh University  
Janssen Research & Development  
Janssen  
Janssen  
IFF  
Alliance Pharma Co  
Dupont  
Janssen Pharmaceuticals  
Quaker Houghton



**TEACHER**

Jessica Abbott  
 Anita Abraham  
 Amelia Adams  
 Colleen Aiken  
 Jamar Alston  
 Carol Althouse  
 Claudia Angle  
 Jennifer Anthony  
 James Backman  
 Carrie Bannon  
 Liza Baskin  
 Amit Basu  
 Scott Bauer  
 Richard Becker  
 Marie Behnke  
 Samy Belbgra  
 Jen Bergman  
 Victoria Black  
 Ruth Blouch  
 Tracy Boedewig  
 Maria Bolner  
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 Etzel Brower  
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 Christine Cardone  
 Melissa Carnahan  
 Nichol Carroll  
 Daniel Christman  
 Michael Conurso  
 Jessie Copeland  
 Neisha Coursey  
 Jared Courtney  
 Monique Coval  
 Amy Craig  
 Chelsi Crompton  
 David Curry  
 JoAnne Daniels  
 Tyler Davenport  
 Marie Donato  
 Jessica Douglass  
 Jacqueline Dryfoos  
 Christine Dunne  
 Don Dunner  
 Dawn Edelman  
 Rosemary Edmiston  
 Hoda Ehsan  
 Judy Elinow  
 Dina Ellsworth  
 Mary Elvin  
 Kelly Farrington  
 Madeline Fenner  
 Jill Fernandez  
 James Finley

**SCHOOL**

Our Lady of Hope  
 George Washington High School  
 Woodstown High School  
 Pennbrook Middle School  
 Coatesville Area Intermediate High School  
 Woodstown High School  
 Bridgeton High School  
 Westtown School

Holicong Middle School  
 Marine Academy of Science and Technology  
 Carver Engineering and Science

Lower Moreland High School  
 Manalapan Englishtown Middle School  
 Bensalem High School  
 Marsh Creek 6th Grade Center

The Pilgrim Academy  
 Saint Andrew Catholic School  
 West Chester East High School

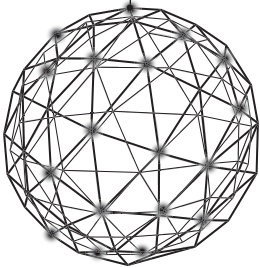
Arcola Intermediate School  
 Cherry Hill High School East  
 Egg Harbor Township Board of Education  
 Bishop McHugh Regional Catholic School  
 Pennsville Middle School  
 Upper Darby High School  
 Saint Dorothy Grade School  
 Indian Crest Middle School  
 Immaculate Heart of Mary School  
 Springhouse Middle School  
 Lenape Highschool  
 The Independence School  
 Fred Fifer III Middle School

Indian Valley Middle School  
 Eugene A. Tighe Middle School  
 Newtown Middle School  
 Moravian Academy  
 Cumberland County Technical Education Center  
 AMSA at Johnstone  
 Tower Hill School  
 SS Simon and Jude school  
 Philadelphia Academy Charter High School  
 Woodstown Middle Schools  
 Upper Dublin High School  
 Haverford High School

Central Bucks East High School  
 High Technology High School  
 Lionville Middle School  
 Classical Conversations

Galloway Township Middle School  
 Northeast High School

**SPONSORING TEACHERS  
 AND SCHOOLS**



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Natalie Fleming  
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 Brenda Frost  
 Elizabeth Gailey  
 Erika Gamble  
 John Gentile  
 Christine Girtain  
 Stacey Gould  
 Terese Grateful  
 Brian Grillo  
 Robert Hachtman  
 Sharon Hartranft  
 Michael Haughwout  
  
 Samantha Haughwout  
 Mark Hayden  
 Christian Heine  
 Kaitlin Heintzelman  
 Robert Helm  
 Robert Herbstritt  
 Patrice Hermann  
 Kassandra High  
 Sheila Hinkley  
 Paul Holt  
 Brian Holtzhafer  
 Alyssa Hull  
 Ashley Hyde  
 Alyson Iovacchini  
 Meghan Kanski  
 Jennifer Karetsky  
 Alexandra Keefe  
 Katie Keller  
 Jason Kelsey

**SCHOOL**

Garnet Valley High School  
 St Aloysius Academy  
 Tamanend Middle School  
 Villa Joseph Marie High School  
 Toms River High School North  
 Council Rock High School North  
 Council Rock High School North  
 Cherry Hill High School West  
 Bangor Area High School  
 Archbishop Wood  
 Rumson-Fair Haven  
 Regional Highschool  
 Biotechnology High School  
 Central Bucks East High School  
 William Allen Middle School  
 Parkland High School  
 Methacton High School  
 Central High School  
  
 Collegium Charter School  
 Owen J. Roberts High School  
 Freire Charter High School  
 Orefield Middle School  
 Sanford School  
 St. Andrew's School  
 Universal Vare Charter School  
 Unionville High School  
 Springhouses Middle School  
 Leap Academy Charter  
 Toms River Intermediate North  
 Marine Academy of Technology and  
 Environmental Science

**TEACHER**

Beth Kenna  
 Molly Kenny  
 Sarah Kesten  
 Wendy King  
 Gregory Klucznik  
 MaryJo Knauer  
 Scott Knoflicek  
 Eileen Koenig  
 James Kolter  
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 Kristi Lancaster  
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 Melody J. Leithold  
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 Erik Levin  
 Diane Liddington  
 Joanne Lilliendahl  
 Arthur Maiman  
 Shane Manuel  
 Robert Meletti  
 Matthew Memmo  
 Troy Minarovic  
 Emily Minbiole  
 Zachary Minken  
 Megan Mohl  
 Michael Morgan  
 Jamie Munyon  
 Danielle Nagelberg  
 Clare Ng

**SCHOOL**

Cedarbrook Middle School  
 Villa Joseph Marie High School  
 Germantown Academy  
 Downingtown Middle School  
  
 Charles F Patton Middle School  
 General George A. McCall School  
 Ursuline Academy  
  
 Coatesville Area Senior High School  
 Holland Middle School  
 Rosa International Middle School  
 Toms River Intermediate South  
 Lacey Township High School  
  
 Emmaus High School  
 North Penn High School  
 Meredith  
 Manalapan High School  
 Central Bucks High School West  
 Upper Dublin High School  
 Jack M. Barrack Hebrew Academy  
 Quinton Township School  
 Holicong Middle School  
 Episcopal Academy  
 Springhouse Middle School  
  
 J. R. Masterman School  
 Council Rock South High School  
 Upper Dublin High School  
 Alloway Township School  
 Main Line Classical Academy  
 The Marine Academy of Science  
 and Technology



**TEACHER****SCHOOL**

Anton Ocepek  
 Stephen Ordog  
 Tara Palma  
 Brian Palme  
 Laura Panettieri  
 Dirk Parker  
 JoEllen Paterson  
 Brian Patton  
 Eual Phillips  
 Gina Phillips  
 Renee Di Pietro  
 Paul Polinski  
 Kristen Redkoles Polk

Christine Poll  
 Alyssa Polselli  
 Daniel Powers  
 Hope Pressler  
 David Price  
 Craig Queenan  
 Yajamana Ramu  
 Jessica Reid  
 Rebecca Rementer  
 Kate Richardson  
 Graceanne Ruggiero  
 Joseph Sarbello  
 Joe Sheenan  
 Wendy Sheetz  
 Kelly Showers  
 Anita Singh

Downingtown STEM Academy  
 Woodstown High School

Upper Dublin High School  
 Sol Feinstone Elementary School

Pennfield Middle School  
 George School  
 Hill-Freedman World Academy  
 Intermediate East  
 Sun Valley High School  
 Chelsea Heights School  
 Salem County Vocational  
 Technical School  
 Villa Joseph Marie High School

Harriton High School  
 Home School  
 Upper Dublin High School  
 High Technology High School  
 Yard Sciences  
 Academy of Notre Dame de Namur  
 Haddonfield Friends School  
 Avon Grove Charter School  
 Freedom High School  
 Elsinboro Township School  
 Villa Joseph Marie High School  
 Moravian Academy Upper School  
 Conestoga Highschool

**TEACHER****SCHOOL**

Jenny Soriano  
 Yvonne Sotiropoulos  
 Roxanne Spencer  
 Scott Stein  
 Susan Stern  
 Michael Stowell  
 Megan Strang  
 Robert Styer  
 Jamie Swanson  
 Jovani Tablezo  
 Danielle Taulane  
 Jennifer Toner  
 Stefanie Tripician  
 Dione Tsoplakis  
 Lakshmi Vaddi  
 Jeffrey Warner  
 Sean Watson  
 Keeley White  
 Amy Williams

Jason Winistorfer  
 John Wnek

Karen Wolfe  
 Russel Wolff  
 Deborah Wysocki  
 Elisabeth Zafirris  
 Ann Zalasky  
 Barry Ziober

St. Peters School

Ranney School  
 Springside Chestnut Hill Academy  
 Springhouse Middle School  
 Wyndcroft  
 Lower Alloway Creek School

Pennsbury High School  
 Saint Andrew School  
 Upper Pottsgrove School  
 Charter School of Wilmington  
 Galloway Township Middle School  
 Sovereign Avenue School  
 Avon Grove High School  
 Alder Avenue Middle School  
 Moorestown High School  
 East Coventry Elementary School  
 Marine Academy of Technology and  
 Environmental Science (MATES)  
 Oldmans Township School  
 Marine Academy of Technology and  
 Environmental Sciences  
 Souderton Area High School  
 Cheltenham High School  
 Lenape Middle School  
 Holy Child Academy  
 Springside Chestnut Hill Academy  
 Great Valley Middle School



*DuPont Excellence in Teaching awardees*

