

2023 Lehigh Valley Science & Engineering Research Fair

2023 Results

GRADE	PLACE	Del Val?	NAME	PROJECT NAME
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**A ♦ next to the name indicates promotion to Delaware Valley Science Fair. Details regarding Del Val will be emailed soon.*

BEHAVIORAL

7	1st Place	♦	Ayra Ismail	In archery, how does closing your non-dominant eye affect your aim?
8	1st Place	♦	Shagun Dholakia	How does an exposure to social media affect the time perception of each gender?
8	2nd Place		Safiya Saif	Does typing notes or writing notes help commit study material to memory better?
8	3rd Place		Olivia Lennert	How Does Color Affect Memory?
10	1st Place	♦	Emma Bluske	Can we invoke particular brainwave frequencies using various sensory inputs?
12	1st Place	♦	Samantha Gurski	Chewing Gum Effects on the Human Brain

BIOCHEMISTRY

7	1st Place	♦	Ayush Jalani	Spike up the Energy of an MFC with a Dash of Salt
8	1st Place	♦	Krishna Patel	What is the effect of apples in different substances?
9	1st Place	♦	Morgan Anthony	Baffling Berries - DNA Differences in Strawberries?
10	1st Place	♦	Gloria Klees	The effectiveness of homemade sunscreens
11	1st Place	♦	Rayna Malhotra	Year Two: siRNA-Based Gene Silencing on the Extracellular Matrix of Abdominal Aortic Aneurysms with Simulation Modeling
12	1st Place	♦	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

BOTANY

7	1st Place	♦	Maanya Gope	How does grey water affect the growth of plants?
7	2nd Place		Noelle Carson	Natural Sunlight vs. Artificial Light
7	3rd Place		Varsha Magaji	Sprouting of Mung Beans
8	1st Place	♦	Harshita Rajeshkumar Keerthi	Effect of pH on the Growth of Lima Beans
8	2nd Place		Zainab Jaffer	What is the effect of adding compost to soil to grow red kidney beans?
9	1st Place	♦	Luke Hauck	Vermiponics: Invertebrate Aquaponics
11	1st Place	♦	Mia Mariano	The Effects of Juglone on Trichome Production in Brassica rapa
12	1st Place	♦	Jenna Freeman	Effects of Allelochemicals on Soil Microbia & Plant Fitness

CHEMISTRY

6	1st Place	♦	Clotilde Toso	How Do Different Food Wrappings Affect the Browning of Lettuce ?
6	2nd Place		Chloe Balshi	Testing Lip Balm Recipes
6	3rd Place		Sophia Chen	What is the effect of substituting for fat in a cake recipe?
7	1st Place	♦	Bhuvan Barker	What is the affect of vinegar on different minerals and rocks

7	2nd Place		Sania Kadhiwala	Evaluating the Effectiveness of Water Filtration.
7	3rd Place		Mahi Patel	How does the type of mineral/compound affect how fast ice will melt?
8	1st Place	◆	Sophia Nauman	Which particle form of carbon filters water more efficiently?
8	2nd Place		Ken Zeng	Effects of temperature on the breakdown of Ascorbic Acid (Vitamin C).
8	3rd Place		Guhan Sureshkumar	Ionic Movements in Electrochemistry
8	Honorable Mention		Diya Patel	Do different types of salt affect the amount of rust on metal?
9	1st Place	◆	Clarke Ray	The Effects of Different Oxidizers on the Performance of Hybrid Rocket Engines
9	2nd Place	◆	Anisha Kundu	Chocolate Tempering and Melting Point
10	1st Place	◆	Adarsh Narayanan	Which metal corrodes the quickest?
11	1st Place	◆	Rishab Yanala	Optimization of Photovoltaic Performance of an Dye-Sensitized Solar Cell with Zn Doped TiO ₂ Nanoparticles

COMPUTER

6	1st Place	◆	Landon Sheatsley	DIY Computer vs. Pre-Built Computer
7	1st Place	◆	Areesha Mariyam	Detecting Apple Quality Using Computer Vision
7	2nd Place		Sachin Rajkumar	A Computational Solution for Possible Detection
9	1st Place	◆	Tushar Mehta	Deep Reinforcement Learning with Optimal Sensor Selection and Fusion for Autonomous Driving
9	2nd Place	◆	Krish Malik	maNASH: An in-silico approach to RNA based drug discovery for NASH disease with higher efficacy and safety
9	3rd Place	◆	Jerry Wang	Exploring the Addition of Non-domain Specific Transit Data in TESS Exoplanet Transit Classification with Deep Learning
11	1st Place	◆	Antony Tomy	Utilizing Deep Convolutional Generative Adversarial Networks for Skin Lesion Classification
11	2nd Place	◆	Ryan Paul	A Low Cost and Open Source Microcontroller-Based Solution for the Visually Impaired

EARTH

7	1st Place	◆	Aaditri Suresh	A Model for a Sustainable Life Support System in a Martian Regolith Environment
8	1st Place	◆	Rohan Yanala	An Eco Friendly Solution To Rebuild Soil After a Forest Fire
9	1st Place	◆	Aum Purani	Water Filtration Method on Microplastic and Chemical Contamination
11	1st Place	◆	Shashwat Sharma	Dual Axis Solar Tracking Panel to Deter Seasonal Output Decrease

ENGINEERING

7	1st Place	◆	Kaustubh Kashalkar	What is the Effect of Fixing Different Links on the Four Bar Mechanism?
7	2nd Place		Olivia Esteban	How does the orientation and dimension of wood affect it's holding capacity of weight.
7	3rd Place		Mohid Mirza	What is the effect of different brands of plastic wrap on its ability to collect moisture?
8	1st Place	◆	Gaurav Perugu	Tireless Tides: A More Efficient Source of Energy
9	1st Place	◆	Aryan Kapoor	Designing a Low-Cost Land Pollution Sensor for Land Rovers to Identify Areas of High Pollution Concentration
10	1st Place	◆	Brandon Cai	Creating a Low Cost 2D LiDAR Based 3D Scan to Detect Potholes Hazardous for Blind or Visually Impaired People
11	1st Place	◆	Sooraj Tharumia	Digital Eyes: A Computer Vision Assisted Probing Cane for the Visually Impaired

ENVIRONMENTAL

7	1st Place	◆	Adwik Banerjee	Soapy Slope: Acute Toxicity of Daphnia magna to common detergents.
7	2nd Place		Veda Gandhi	Future of Freshwater: Using a Directional Solvent to Desalinate Seawater

7	3rd Place		SEAN JEON	Effects of Microplastics in Daphnia magna (Water Flea) in Freshwater
7	Honorable Mention		Vibha Borkar	What type of paper (recycled paper, regular paper, or construction paper) has the fastest rate of decomposition?
8	1st Place	◆	Raya Sampath	How effective are magnets to clean oil spills ?
8	2nd Place		Vivian Xu	The Efficacy of Natural Materials for Absorbing Motor Oil Spills on Water
9	1st Place	◆	Aadi Deshmukh	Combating Invasive Species With Artificial Intelligence
9	2nd Place	◆	Saisuchit Gollapudi	Analyzing the Variance in Atmospheric Temperatures of the Earth Compared to Venus Using Water Temperature
10	1st Place	◆	Priya Mancheril	How Different Household Materials are Impacted by Thirdhand Smoke
10	2nd Place	◆	Jillian Halm	The Effectiveness of Different Sorbents on Oil Spill Remediation
10	3rd Place	◆	Brian Yang	How does the unique geology of the Lehigh Valley impact radon levels
10	Honorable Mention		Aashka Sevak	Investigation on homemade filters: amount of activated carbon to the cleanliness of water.
11	1st Place	◆	Andrew Bosco	The Effects of Turbidity on Fish Bait Choice
11	2nd Place	◆	Eric Jin	Monitoring and Analyzing Water Quality Data from Rivers in the Lehigh Valley
12	1st Place	◆	Abigail Duyssen	The Effects of Deer Population on Stream Coliform Counts

MATH

6	1st Place	◆	Varshini Kommireddy	Pascal's Triangle: Concept and Applications
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MEDICINE and HEALTH

8	1st Place	◆	Jacob Edwards	The limitations of Helmets
9	1st Place	◆	Vedant Malik	RTRad: A Novel AI-based system to detect "Subdural Hematoma Disease Progression" that adapts to changing image data
11	1st Place	◆	Blake Kornafel	Effects of Caffeine and Sucrose on Daphnia Heart Rate

MICROBIOLOGY

9	1st Place	◆	Anish Pallod	A Novel Low Cost Artificial Intelligence Microscopy Approach to Diagnose Malaria
11	1st Place	◆	Alyvia Herman	Effects of Glucose on MRSA Growth on Surface of an Antibacterial Envelope
12	1st Place	◆	Benjamin Pfefer	How lactase activity can be a biomarker for prokaryotes in the gut microbiome
12	2nd Place	◆	Annabelle Gormont	The Effects of Microplastics on E. coli

PHYSICS

6	1st Place	◆	Aiza Akbar	Which architectural design can withstand the effects of a hurricane best?
7	1st Place	◆	Lucas Yang	The Interference Patterns of Light Waves
7	2nd Place		Derek Yao	Impact of Cooling Media Specific Heat on Modern-Day Electronics
7	3rd Place		Aditya Ghalsasi	What is the effect of rising temperature on the speed of sound?/ Can we hear Global Warming?
7	Honorable Mention		Jade Salazar	How does the temperature of a tennis ball affect the height of its bounce?
7	Honorable Mention		Purvi Veerisetty	How does a structure of a bridge affects the amount of weight it can hold?
8	1st Place	◆	Anthony Wang	How does Temperature affect Batteries?
8	2nd Place		Jayden Yao	What common materials are most effective in soundproofing?
8	3rd Place		Shreemay Shah	How do different temperature environments affect the efficacy and properties of different magnets?
8	Honorable Mention		Hridhaan Kshirsagar	Solar Powered Oven

9	1st Place	◆	Katherine Gilchrist	Twist and Twirl: How Geometry Changes How Fabrics Flow
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TEAM

10	1st Place	◆	Sofia Dubrovskaya	Effects of Plant Growth-Promoting Rhizobacteria on Rapid Radish Growth
				Team Member #2 Emma Valish
				Team Member #3 Naydelyn Ramirez

ZOO

7	1st Place	◆	Tyler Iyengar	Snap Decisions: Crayfish Substrate Preferences in Ponds vs. Streams
7	2nd Place		Sushal Boddeda	The Effect of Caffeine on Heart Beat Using Daphnia Magna
8	1st Place	◆	Akshaya Guduru	Daphnia in Sweeteners
11	1st Place	◆	Hannah Halm	Effects of Caffeine on the Heart Rate of Daphnia magna
11	2nd Place	◆	Drew Craven	The Effects of Natural Repellents on Ants