

Virginia State Science and Engineering Fair

Animal Sciences

Honorable Mention

Marek Sundqvist	ANIM-004	The effect of Substrate Grain Size on Antlion Larvae Funnel Building Efficiency	Arlington Tech@Arlington Career Center
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Third Place

Xavier Gitre	ANIM-008	Partying Parulidae: Interspecific Social Networks of Parulidae Warblers in Active Migratory Passage	Blacksburg High
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Second Place

Isabelle Hoover	ANIM-010	Discovering the Effect of Senna alata on the Expression of Cep-1 in Caenorhabditis elegans	Governor's School at Innovation Park (high school)
Joshua Rizer	ANIM-010	Discovering the Effect of Senna alata on the Expression of Cep-1 in Caenorhabditis elegans	Governor's School at Innovation Park (high school)
Zainab Soofi	ANIM-010	Discovering the Effect of Senna alata on the Expression of Cep-1 in Caenorhabditis elegans	Governor's School at Innovation Park (high school)

First Place

Justin Kim	ANIM-012	Discovery of a Novel Physiological and Molecular Response in Coral Reefs to Hurricane-Driven Hyposalinity Cycles	Thomas Jefferson High School for Science and Technology
Nishka Shah	ANIM-012	Discovery of a Novel Physiological and Molecular Response in Coral Reefs to Hurricane-Driven Hyposalinity Cycles	Thomas Jefferson High School for Science and Technology

Virginia State Science and Engineering Fair

Behavioral and Social Sciences

Honorable Mention

Kayly Nguyen	BEHA-012	Evaluating the Validity of the Serotonin Receptor and Tyrosine Hydroxylase Enzyme Genes as PTSD Biomarkers Using Reverse Transcription qPCR in Lymnaea stagnalis	Academies of Loudoun (Leesburg)
Ryan Singh	BEHA-008	FentaNULL: A Behavior-Based Mathematical Model to Prevent Opioid Addiction	Thomas Jefferson High School for Science and Technology

Third Place

Arwa Mohamud	BEHA-010	The development of a comprehensive model of ADHD within Drosophila melanogaster that simulates both inattentive and hyperactive-impulsive presentations of ADHD	Academies of Loudoun (Leesburg)
Nathan Wizeman	BEHA-010	The development of a comprehensive model of ADHD within Drosophila melanogaster that simulates both inattentive and hyperactive-impulsive presentations of ADHD	Academies of Loudoun (Leesburg)

Second Place

Madison Nepomuceno	BEHA-007	The Extent to Which Left-Handed Individuals Out-Perform Their Right-Handed Peers: A Quasi-Experimental Design	Gainesville High School
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First Place

Alina Albeik	BEHA-009	Implications of Resveratrol on Memory Retention in Dugesia tigrina	Marshall High School
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Virginia State Science and Engineering Fair

Biomed. Sciences, Biomed. Engineering & Translational Medicine

Honorable Mention

Matthew Chu	BMED-014	The Warburg Effect: Optimum Glucose Availability on Cancer Metabolism	Chantilly High School
Thomas Duong	BMED-014	The Warburg Effect: Optimum Glucose Availability on Cancer Metabolism	Chantilly High School
Nafisah Izzat	BMED-005	Developing and Testing a Coagulative, Antimicrobial Sponge on Staphylococcus epidermidis within a Simulated Wound Cavity	Roanoke Valley Governor's School
Ayush Katpally	BMED-014	The Warburg Effect: Optimum Glucose Availability on Cancer Metabolism	Chantilly High School
Gabrielle Romeo	BMED-005	Developing and Testing a Coagulative, Antimicrobial Sponge on Staphylococcus epidermidis within a Simulated Wound Cavity	Roanoke Valley Governor's School

Third Place

Aryan Madan	BMED-018	CAD-EDT: Using Meta-Ensemble Machine Learning to Power an Application Specializing in the Early Detection of Coronary Artery Disease Using Easily Accessible Risk Factors and Cardiac Clinical Data	Roanoke Valley Governor's School
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Second Place

Kaitlin Madison	BMED-001	Investigating the Relationship of Ataxia Telangiectasia Mutated (ATM) and BRCA via the DNA Repair Pathway	Washington-Liberty High School
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First Place

Sarah Park	BMED-012	Revolutionizing Non-Invasive Blood Glucose Monitoring with AI-Powered Infrared Spectroscopy	Thomas Jefferson High School for Science and Technology
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Virginia State Science and Engineering Fair

Cell, Molecular and Computational Biology & Biochemistry

Honorable Mention

John Eckman	CELL-011	Investigating the Impacts of Ailanthone on Plant Growth	Gar-Field High School
Arav Srivastava	CELL-018	Classification of Breast Cancer Tumor Types Using Convolutional Neural Networks	Grafton High

Third Place

Aashritha Penumudi	CELL-015	Exploring the Structural Basis of Ribosome Stalling by Arresting Peptides	Thomas Jefferson High School for Science and Technology
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Second Place

Tesla Pfautz	CELL-001	The Effect of Chemical Treatments on Blue-Green Algae	Washington-Liberty High School
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First Place

Molly Hawkins	CELL-016	The Effect of Propolis on Levodopa-Induced Dyskinesia in a Drosophila Model of Parkinson's Disease	Woodson High School
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Virginia State Science and Engineering Fair

Chemistry

Honorable Mention

Andrew Funk	CHEM-016	Aerogel as a Water Purifier: A Continuation	Governor's School at Innovation Park (high school)
Sofia Wojcik	CHEM-016	Aerogel as a Water Purifier: A Continuation	Governor's School at Innovation Park (high school)

Third Place

Madison Lee	CHEM-013	Refining Sodium Hypochlorite Safety Guidelines for Cutting Boards	Oakton High School
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Second Place

Kylie Duke	CHEM-003	Testing Various Surface Modification Techniques on the Adherence of Silver Nanoparticles to Clothing	Roanoke Valley Governor's School
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First Place

Margaret Saperstein	CHEM-004	The Effect of Colloidal Silica Concentration in a Biodegradable Gel on Fire Retardation	Washington-Liberty High School
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Virginia State Science and Engineering Fair

Earth and Environmental Sciences

Honorable Mention

Veronica Vitko	EAEV-011	A Strategy for Flood Mitigation and Urban Resilience by Assessing the Effectiveness of Retention and Detention Ponds: A Case Study in Norfolk, VA	Albemarle High
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Third Place

Charlotte Phillips	EAEV-009	Investigating Microplastic Trapping Efficiency of Coral Reef Regrowth Structures in Simulated Ocean Currents in the Presence of Modeled <i>Acropora cervicornis</i>	Southwest Virginia Governor's School (Dublin)
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Second Place

Aashritha Paluru	EAEV-027	Creating Coral Nurseries using Additive Manufacturing and Testing the Effects on Green Star Polyps as an Alternate Approach to Coral Reef Restoration	Academies of Loudoun (Leesburg)
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First Place

Brett Smith	EAEV-004	A General Analysis on the Effects of Invasive Earthworms on Soil Microbiomes in Virginia	Roanoke Valley Governor's School
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Virginia State Science and Engineering Fair

Engineering Technology & Sustainable Design

Honorable Mention

Jacob Stewart	ETSD-005	Automatic Pill Dispenser	Roanoke Valley Governor's School
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Third Place

Victor Cho	ETSD-015	HeadSmart: An IoT solution in preventing Traumatic Brain Injury in Sports	Langley High School
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Second Place

Bennett Huang	ETSD-017	AI-Powered Optimization of Methyl Jasmonate-Induced Defense for Precise Pest Control	Langley High School
Jason Pan	ETSD-017	AI-Powered Optimization of Methyl Jasmonate-Induced Defense for Precise Pest Control	Langley High School

First Place

Hannah Jansen	ETSD-011	Parametric Optimization of Propeller Guards for Enhanced Hydrodynamic Performance and Acoustic Profile of Underwater Vehicles	Governor's School at Innovation Park (high school)
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Virginia State Science and Engineering Fair

Materials Science

Honorable Mention

Paul Ratiu	MATS-010	Utilizing 3D Printed Tenor Saxophone Neck and Bell Attachments to Modify Sound Output and Further 3D Printing Acoustic Research	Academies of Loudoun (Leesburg)
Alexandria Swenson	MATS-003	Mechanical and Aesthetic Properties of Alginate-Based Yarn and its Commercial Counterparts	Southwest Virginia Governor's for Science, Mathematics, and Technology

Third Place

Rushil Kukreja	MATS-011	Smart Photovoltaic-Integrated Electrochromic Window for Solar Energy Harvesting and Light Pollution Mitigation	Thomas Jefferson High School for Science and Technology
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Second Place

Timothy Tu	MATS-008	Compression Behavior and Resistance of Strut Based Lattice Structure Designs	Marshall High School
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First Place

Adithya Pillai	MATS-009	EcoForge: A Novel Sustainable Geopolymer Alternative to Concrete, Optimized with Machine Learning for Strength and Pollution Mitigation	Langley High School
Lang Xiong	MATS-009	EcoForge: A Novel Sustainable Geopolymer Alternative to Concrete, Optimized with Machine Learning for Strength and Pollution Mitigation	Langley High School

Virginia State Science and Engineering Fair

Microbiology

Honorable Mention

Leo Chang	MCRO-002	Galleria mellonella as a Proxy for the Human Immune Response: Allium sativum's Effectiveness against Enterobacter cloacae	Central Virginia Governor's School/Jefferson Forest High School
Natan Girma	MCRO-008	The Effect of Artificial Sweeteners on Escherichia Coli in the Gut Microbiome	Governor's School at Innovation Park (high school)
Bilal Khan	MCRO-008	The Effect of Artificial Sweeteners on Escherichia Coli in the Gut Microbiome	Governor's School at Innovation Park (high school)
Naman Patel	MCRO-008	The Effect of Artificial Sweeteners on Escherichia Coli in the Gut Microbiome	Governor's School at Innovation Park (high school)
Michelle Zhou	MCRO-012	The Effectiveness of Mycorrhizal Inoculated Soybean Plants on Phytoremediation	Jamestown High

Third Place

Raimee Sykes	MCRO-004	The UV-Protective Ability of Mycosporine-like Amino Acids on Survival and Telomere Length in Saccharomyces cerevisiae	Roanoke Valley Governor's School
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Second Place

Aislinn Luong	MCRO-010	In Vitro Interactions of Amphotericin B and Manogepix against C. neoformans	Marshall High School
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First Place

Noah Allyn	MCRO-001	The Role of DNA Repair Systems in Antibiotic Resistance Acquisition: Using CRISPR-Cas9 to Compare HDR and MMEJ in Escherichia coli K-12	Washington-Liberty High School
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Virginia State Science and Engineering Fair

Physics, Math and Astronomy

Honorable Mention

Anuj Dahal	PHYS-009	A Design and Development of Rocket Nozzles for High-Pressure Atmospheres	Governor's School at Innovation Park (high school)
Kevin DiMattina	PHYS-009	A Design and Development of Rocket Nozzles for High-Pressure Atmospheres	Governor's School at Innovation Park (high school)
Oguzkhan Kutlan	PHYS-009	A Design and Development of Rocket Nozzles for High-Pressure Atmospheres	Governor's School at Innovation Park (high school)
Declan Leighton	PHYS-001	The Analysis of the Effect of Input Power on the Efficiency of a Magnetoplasmadynamic Thruster Using Magnetic Deflection and Phosphor Screen Photon Emission	Yorktown High

Third Place

Minh Nguyen	PHYS-005	Optimizing Meta-Atoms for Large Scale Metalenses	Blacksburg High
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Second Place

Shane Bright	PHYS-003	Exploring Continuous Wave Laser-Generated Combustion Spectroscopy: developing a cost-effective metal identification system	Central Virginia Governor's School/Jefferson Forest High School
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First Place

Nikhil Krishna	PHYS-013	A Comprehensive Machine Learning Paradigm for Space Debris Surveillance: An Integrated Triple Model Framework for Identification, Orbital Prediction, and Collision Risk Evaluation	Thomas Jefferson High School for Science and Technology
Nived Nandakumar	PHYS-013	A Comprehensive Machine Learning Paradigm for Space Debris Surveillance: An Integrated Triple Model Framework for Identification, Orbital Prediction, and Collision Risk Evaluation	Thomas Jefferson High School for Science and Technology

Virginia State Science and Engineering Fair

Plant Science

Third Place

Katelyn Luu	PLNT-005	Ex-vivo Air-layering of Ficus carica, a Novel Approach to Fig Propagation	Cosby High
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Second Place

Meera Raichura	PLNT-004	Rooting for Positive Thinking: How Magnets Affect Root Growth	Roanoke Valley Governor's School
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First Place

Stella Hong	PLNT-008	Plant Waste to Nanoparticles: A Green Solution to Combat Fungi Fusarium	Madison High School
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Virginia State Science and Engineering Fair

Robotics, Software & Embedded Systems

Honorable Mention

Samyuktha Manda	ROBO-013	Detecting Ransomware Communication with Command and Control (C&C) Servers Using Machine Learning	Freedom High
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Third Place

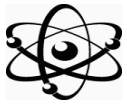
Matthew Li	ROBO-005	MobyGlobal: Real-Time Whale Detection Network Powered by a Custom CNN and 3D-Printed Buoys	Academies of Loudoun (Leesburg)
Taha Rawjani	ROBO-005	MobyGlobal: Real-Time Whale Detection Network Powered by a Custom CNN and 3D-Printed Buoys	Academies of Loudoun (Leesburg)

Second Place

Ian Yu	ROBO-009	A novel approach to Martian obstacle detection through ultrasonic transducers	Blacksburg High
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First Place

Anush Devkar	ROBO-010	BrailleSense: A Modular, Low-Cost Solution for Accessible Braille Displays	Thomas Jefferson High School for Science and Technology
Ansh Malhotra	ROBO-010	BrailleSense: A Modular, Low-Cost Solution for Accessible Braille Displays	Thomas Jefferson High School for Science and Technology



American Psychological Association

For outstanding research in psychology in the category of behavioral and social science or any category related to psychology (e.g., animal sciences, biomedical and health sciences, translational medical science).

Project	Grade	Title
BEHA-009 Marshall High School Albeik, Alina	11	Implications of Resveratrol on Memory Retention in <i>Dugesia tigrina</i>



Association for Women Geoscientists

To a female student whose project exemplifies high standards of innovativeness and scientific excellence in the geosciences.

Project	Grade	Title
EAEV-019	11	Diel Vertical Migration of Copepods in Altered Ecosystems: A Predictive Framework for Weir-Impacted Waterways
Centreville High School		
Troup, Jessica		



NASA Earth System Science Award

Recognizes an outstanding project related to earth system science.

Project	Grade	Title
EAEV-027	12	Creating Coral Nurseries using Additive Manufacturing and Testing the Effects on Green Star Polyps as an Alternate Approach to Coral Reef Restoration
		Academies of Loudoun (Leesburg)
		Paluru, Aashritha



National Oceanic and Atmospheric Administration (NOAA)

Awards 1 outstanding project emphasizing NOAA-related science.

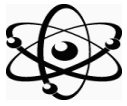
Project	Grade	Title
EAEV-011	11	A Strategy for Flood Mitigation and Urban Resilience by Assessing the Effectiveness of Retention and Detention Ponds: A Case Study in Norfolk, VA
Albemarle High Vitko, Veronica		



Ricoh USA, Inc.

Awards 1 certificate to one individual or team, whose outstanding project addresses social and environmental challenges and a meaningful solution for a more sustainable future

Project	Grade	Title
EAEV-004	12	A General Analysis on the Effects of Invasive Earthworms on Soil Microbiomes in Virginia
		Roanoke Valley Governor's School
		Smith, Brett



Society for In Vitro Biology

Awards 1 certificate to a high school junior in the category of plant or animal in vitro biology or tissue culture.

Project	Grade	Title
EAEV-017	11	The Efficiency of Microbial Fuel Cells in Producing Electricity in Differing Environmental Conditions
Governor's School at Innovation Park (high school)		
Gebeyehu, Samuel	Olabode, Victor	Olabode, Victoria



U.S. Metric Association

Awards 1 certificate to the student whose project involves a significant amount of quantitative measurement, and which best use the SI metric system for those measurements.

Project	Grade	Title
MATS-009	11	EcoForge: A Novel Sustainable Geopolymer Alternative to Concrete, Optimized with Machine Learning for Strength and Pollution Mitigation
Langley High School Pillai, Adithya		Xiong, Lang



U.S. Stockholm Junior Water Prize

Awards certificates to the top 3 most outstanding water-related research projects. Projects are assessed based on six criteria: relevance, creativity, methodology, subject knowledge, practical skill, and presentation.

Project	Grade	Title
EAEV-002	11	Directed Evolution Enhances the Activity of Polyethylene Terephthalate (PET) Degrading Enzymes
Veritas Collegiate Academy		
Huang, Tianxiao	Wu, Chenfan	Xu, Yuesi
EAEV-008	11	The Effect of Varying Magnetic Field Intensities on the Solubility of CaCO ₃ in PEX Pipe Systems
Southwest Virginia Governor's School (Dublin)		
Cruz, Jarib		



Yale Science and Engineering Association

Awards a certificate and medallion to the most outstanding 11th grade student exhibiting in the areas of Computer Science, Engineering, Physics or Chemistry.

Project	Grade	Title
MCRO-001	11	The Role of DNA Repair Systems in Antibiotic Resistance Acquisition: Using CRISPR-Cas9 to Compare HDR and MMEJ in Escherichia coli K-12
Washington-Liberty High School		
Allyn, Noah		



Leidos Award for Excellence in Computational Science

Leidos is a scientific, engineering and technology applications company that solves problems of vital importance in national security, health and engineering. Leidos is proud to offer monetary awards in the fields of Microbiology, Physics/Astronomy, Applied Science and Computational Science.

Project	Grade	Title
BMED-011	12	BrainSync: Advanced Neural Decoding With Functional MRI and EEG for Reconstruction of Visual Perception in Neurological States Battlefield High School Sabharwal, Yashvir
PHYS-005	12	Optimizing Meta-Atoms for Large Scale Metalenses Blacksburg High Nguyen, Minh
PHYS-016	11	Error and Efficiency of Fractional Numerical Integrators Governor's School for Science and Technology Mason, Marcus
ROBO-013	12	Detecting Ransomware Communication with Command and Control (C&C) Servers Using Machine Learning Freedom High Manda, Samyuktha



Mark Licata Award for Biotechnology

The Award provides cash prizes to the high school students with the top three (3) rated projects in bioscience fields at the Fair. The Mark Licata Award for Biotechnology focuses on the use of cellular and , molecular processes rather than chemical synthesis; to solve problems or develop products, plus other key areas of industry focus, such as bioinformatics, biodefense, biofuels, agricultural bio and industrial/environmental biotechnology.

Project	Grade	Title
BMED-005	12	Developing and Testing a Coagulative, Antimicrobial Sponge on Staphylococcus epidermidis within a Simulated Wound Cavity
		Roanoke Valley Governor's School
		Izzat, Nafisah Romeo, Gabrielle
BMED-012	10	Revolutionizing Non-Invasive Blood Glucose Monitoring with AI-Powered Infrared Spectroscopy
		Thomas Jefferson High School for Science and Technology
		Park, Sarah
ETSD-005	12	Automatic Pill Dispenser
		Roanoke Valley Governor's School
		Stewart, Jacob



Virginia Section of the American Water Works Association

The Virginia Section of the American Water Works Association (VAAWWA) is an international nonprofit scientific and educational society dedicated to the improvement of drinking water quality and supply. VAAWWA will present 3 monetary awards (1st-\$500, 2nd-\$200, 3rd-\$100) together with certificates. Criteria: Projects must be related to water, but special consideration will be given to projects addressing drinking water issues.

Project	Grade	Title
EAEV-003	12	The Study of Kombucha-Grown SCOBY as an Alternative Living Ultrafiltration Membrane for Water
		Roanoke Valley Governor's School Eaton, Josephine
EAEV-006	10	Recycling Grey Water: Growing Raphanus sativus with Filtered Solutions
		Roanoke Valley Governor's School Dickerson, Ella
EAEV-012	11	Micro-Magnetism: Developing a Self-Recycling System for Affordable Microplastic Removal in Drinking Water
		Mountain Vista Governor's School Heller, Mia



Leidos 2025 Young Virginia STEM Research Award

Leidos is a scientific, engineering and technology applications company that solves problems of vital importance in national security, health and engineering. Leidos is proud to offer monetary awards in the fields of Microbiology, Physics/Astronomy, Applied Science and Computational Science.

Project	Grade	Title
ETSD-011	12	Parametric Optimization of Propeller Guards for Enhanced Hydrodynamic Performance and Acoustic Profile of Underwater Vehicles
		Governor's School at Innovation Park (high school)
		Jansen, Hannah



Regeneron Biomedical Science Award

This award will provide an award and a certificate to an exceptional student scientist or team of scientists who not only demonstrates an impressive command of biomedical science and research but also embodies Regeneron's core values and behaviors, known as The Regeneron Way,

Project	Grade	Title
BMED-005	12	Developing and Testing a Coagulative, Antimicrobial Sponge on Staphylococcus epidermidis within a Simulated Wound Cavity
Roanoke Valley Governor's School		
Izzat, Nafisah		Romeo, Gabrielle



American Society for Non-Destructive Testing - Old Dominion Section

The student demonstrates an understanding of the testing, measurements, and physical principles involved to evaluate structural weakness, corrosion, and cracks, among other flaws, in materials for safety and quality control.

Project	Grade	Title
MATS-002	11	Effects of Coatings on the Ultrasonic Testing of Welds on Structural Steel
		Southwest Virginia Governor's for Science, Mathematics, and Technology (Dublin)
		Pratt, Lydia