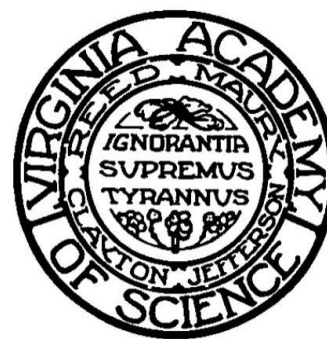
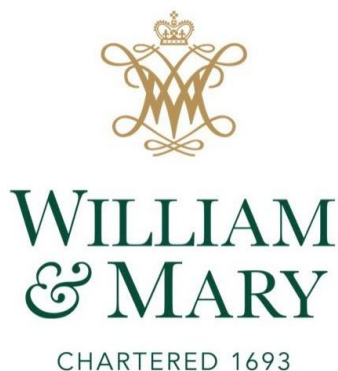


**VIRGINIA JUNIOR ACADEMY OF SCIENCE
80TH ANNUAL MEETING & RESEARCH SYMPOSIUM**

MAY 22, 2021

OFFICIAL AWARDS DOCUMENT FOR PUBLIC RELEASE

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Virginia Junior Academy of Science Committee



A Program of **The Virginia Academy of Science**

Virtual Research Symposium, hosted by
**The College of William & Mary
Williamsburg, Virginia**

Program is available on the VJAS website www.vjas.org

SECTION AWARDS

ANIMAL AND HUMAN SCIENCES (AH)

Honorable Mention	<i>Name (grade)</i>	Aahana Puri (8)
	<i>Title</i>	The Effect of Therapeutic Hypothermia and Whole-Body Vibration on the Behavioral Response of <i>Drosophila</i> Following Traumatic Brain Injury (TBI)
	<i>School</i>	George H. Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Patrick Jiminez (7)
	<i>Title</i>	Do dogs 10-15 lbs. prefer a certain type of bed?
	<i>School</i>	Gunston Middle School
Honorable Mention	<i>Name (grade)</i>	Addison Kofron (8)
	<i>Title</i>	The Effect of Color on Attraction to Food on <i>Vanessa cardui</i>
	<i>School</i>	George H. Moody Middle School
Third Place	<i>Name (grade)</i>	Nishorgo Sarkar (8)
	<i>Title</i>	The Effect of Sugar Substitute and Glucose Concentrations on HepG2 Human Liver Cancer Cells
	<i>School</i>	George H. Moody Middle School
Second Place	<i>Name (grade)</i>	Samantha Lionberger (8)
	<i>Title</i>	Effect of Liquid Fertilizer on <i>Lumbricus terrestris</i> Growth
	<i>School</i>	George H. Moody Middle School
First Place	<i>Name (grade)</i>	Rania Lateef (8)
	<i>Title</i>	Opening Up a Can Of Worms
	<i>School</i>	Louise A. Benton Middle School

BOTANY A (BOT-A)

Honorable Mention	<i>Name (grade)</i>	Julia Hudgins (10)
	<i>Title</i>	The Effect of Vitamin C on <i>Raphanus sativus</i> Plants
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Estelle He (11)
	<i>Title</i>	The Effect of Mangroves and Limestone Powder on the pH of Water
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Maria Angel Zamora (11)
	<i>Title</i>	The effect of lipid second messenger Phosphatidic Acid (PA) on Spinach (<i>Spinacia oleracea</i>) under salt stress.
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Matthew Huson (10)
	<i>Title</i>	The Allelopathic Effect of Allelochemicals such as Juglone in <i>Juglans Nigra</i> On <i>Zea Mays</i> and Glyphosate Resistant Weed <i>Amaranthus Retroflexus</i>
	<i>School</i>	Washington-Liberty High School
Second Place	<i>Name (grade)</i>	Bhavana Adhikari (11)
	<i>Title</i>	The Effect of Various Allelopathic Plants on the Suppression of <i>Taraxacum officinale</i>
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Beverly Eborn (11)
	<i>Title</i>	The Effect of Added Polyamines on <i>Glycine max</i> Responses to Drought
	<i>School</i>	Central Virginia Governor's School

BOTANY B (BOT-B)

Honorable Mention	<i>Name (grade)</i>	Nivriti Vanga (9)
	<i>Title</i>	The Effect of Magnesium Sulfate on <i>Epipremnum Aureum</i> 's Radicle Growth
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Abby Madson (12)
	<i>Title</i>	Lichen Abundance and Diversity in Cemetery Environments
	<i>School</i>	Chesapeake Bay Governor's School
Honorable Mention	<i>Name (grade)</i>	Ankita Mandal (9)
	<i>Title</i>	The Effectiveness of Natural Medicinal Essential Oils as Cleaning Products
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Angela Nguyen (11)
	<i>Title</i>	The effect of different antioxidants on the protection of free radicals in <i>Vigna radiata</i> seed germination
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	Arleigh Wagoner (11)
	<i>Title</i>	The Effect of UV-B Intensity on the Floral Pigmentation of <i>Brassica rapa</i>
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Carson Ray (9) & Daniel Han (9)
	<i>Title</i>	The Synergistic Allelopathic Effects of Extracts from Two Invasive Species on Germination and Growth of <i>R. sativus</i>
	<i>School</i>	Roanoke Valley Governor's School

CHEMICAL SCIENCES (CS)

Honorable Mention	<i>Name (grade)</i>	Sonvi Chawla (7)
	<i>Title</i>	The Effect of Different Cleaning Agents on the Removal of Purple Acrylic Paint
	<i>School</i>	George H. Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Alexander Thomas (8)
	<i>Title</i>	The Effect of SPF on Ultraviolet Exposure
	<i>School</i>	Swanson Middle School
Honorable Mention	<i>Name (grade)</i>	Myra Clark (8)
	<i>Title</i>	The Effect of the Temperature on the pH of Orange Juice
	<i>School</i>	Williamsburg Middle School
Third Place	<i>Name (grade)</i>	Ira Prakash (8)
	<i>Title</i>	The effect of various forms of analgesic medications on its solubility in simulated gastric acid
	<i>School</i>	George H. Moody Middle School
Second Place	<i>Name (grade)</i>	Julie Marco (8) & Daisy Maxwell (8)
	<i>Title</i>	The effect of the type of browning prevention method on the brownness of Red Delicious apples after 24 hours
	<i>School</i>	Swanson Middle School
First Place	<i>Name (grade)</i>	Ophelia Tulchinsky (8)
	<i>Title</i>	The Effect of the Type of Salt on the Amount of Corrosion of Steel Wires
	<i>School</i>	Dorothy Hamm Middle School

CHEMISTRY A (CHM-A)

Honorable Mention	<i>Name (grade)</i>	Ramon Dayan (10)
	<i>Title</i>	The effect of Fruit on the Alcohol level of Kombucha
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Richard Chen (9)
	<i>Title</i>	The Effects of Antifungal Agents on the CO ₂ Production of Baker's Yeast
	<i>School</i>	Washington-Liberty High School
Third Place	<i>Name (grade)</i>	Sydney Coffman (11)
	<i>Title</i>	The Effect of Genetic Pool Testing on Result Reliability
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Cherish Bland (11)
	<i>Title</i>	The Effect of Different Levels of Ammonia on Absorption of Hair Color During the Dyeing Process
	<i>School</i>	Clover Hill High School
Second Place	<i>Name (grade)</i>	Zaid Contractor (10)
	<i>Title</i>	Optimizing Direct Air Capture Through Using Infrared-Promoted Vibrational Behaviors of Greenhouse Gases: A Computationally-assisted Analysis
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Julia Brodsky (10)
	<i>Title</i>	Optimization of an Electrocoagulation System for the Removal of Polyatomic Ions from Water
	<i>School</i>	H.B. Woodlawn

CHEMISTRY B (CHM-B)

Honorable Mention	<i>Name (grade)</i>	Arjun Modi (9)
	<i>Title</i>	The Effect of Various Household Remedies on Neutralizing Stomach Acid
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Naomi Lindsay (10)
	<i>Title</i>	The Effect of Different Types of Sugar on the Vitamin C Concentration of Fresh-Squeezed Orange Juice
	<i>School</i>	Wakefield High School
Third Place	<i>Name (grade)</i>	Laken Evans (9)
	<i>Title</i>	The Effect of Ripening on Ascorbic Acid in <i>Capsicum annuum</i>
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	Hannah Kim (11)
	<i>Title</i>	The Effect of Cooking on Vitamin C Concentration
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Thanvi Parupati (9)
	<i>Title</i>	The Effect of the Form of Heat Resistant Product on the Heat Damage of the Hair
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Aatish Sethi (11) & Jasmine Agyepong (11)
	<i>Title</i>	A New Treatment? An Analysis of the Effect of Known Phytochemicals on SARS-CoV-2 Pathogenesis
	<i>School</i>	Governor's School@Innovation Park

ECOLOGY AND EARTH SCIENCES (EE)

Honorable Mention	<i>Name (grade)</i>	Emma Hensch (8)
	<i>Title</i>	The Effect of Public Transportation Use on Carbon Footprint per Capita
	<i>School</i>	Dorothy Hamm Middle School
Honorable Mention	<i>Name (grade)</i>	Aditya Badhryan (8)
	<i>Title</i>	The effect of different concentrations of Sucralose on the heart rate of a <i>Daphnia Magna</i>
	<i>School</i>	George H. Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Anna Mohanty (8)
	<i>Title</i>	The Effect of Electromagnetic Field Density on the Biomass of <i>Chlorella vulgaris</i>
	<i>School</i>	Williamsburg Middle School
Third Place	<i>Name (grade)</i>	Nadia Lach-Hab (7)
	<i>Title</i>	The Effect of Water Filter Design on Water Clarity
	<i>School</i>	Dorothy Hamm Middle School
Second Place	<i>Name (grade)</i>	Dylan Tallis (8)
	<i>Title</i>	The Effect of Salinity on Soybean Growth
	<i>School</i>	Thomas Jefferson Middle School
First Place	<i>Name (grade)</i>	Annabelle Van Saun (8)
	<i>Title</i>	The Effect Of Silver Nanoparticles On The Death Rate Of Adult <i>Daphnia Magna</i>
	<i>School</i>	George H. Moody Middle School

ENGINEERING A (EGR-A)

Honorable Mention	<i>Name (grade)</i>	Zachary Burgess (10)
	<i>Title</i>	The Effect of Varying the Thickness-to-Chord Ratio of an Airfoil and the Pitch of the Blades on a Wind Turbine on the Turbine's Electrical Output
	<i>School</i>	Clover Hill High School
Honorable Mention	<i>Name (grade)</i>	Mia Constantin (12) & Elizabeth Quimby (12)
	<i>Title</i>	Small Scale Vertical Farming
	<i>School</i>	Harrisonburg High School
Honorable Mention	<i>Name (grade)</i>	Eyuel Berhanu (9)
	<i>Title</i>	The Effect of 3D Printing Material on 3D Print Strength
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Richard Jones (10)
	<i>Title</i>	The Effect of Anti-aliasing Method Used on Speed of Video Output
	<i>School</i>	Clover Hill High School
Third Place	<i>Name (grade)</i>	Nitin Kanuri (11)
	<i>Title</i>	Trainable WEKA Segmentation Tool Machine Learning-Enabled Segmentation on Features of Orthopantomograms
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	Naman Agarwal (10)
	<i>Title</i>	An Indoor Farm Scouter Through Time-Based Imaging
	<i>School</i>	Patriot High School
First Place	<i>Name (grade)</i>	Brock Duma (11)
	<i>Title</i>	Whitewater Helmet STAR: Evaluating the Biomechanical Performance and Risk of Head Injury for Whitewater Helmets
	<i>School</i>	Blacksburg High School

ENGINEERING B (EGR-B)

Honorable Mention	<i>Name (grade)</i>	Teddy Liu (11)
	<i>Title</i>	Cost Effective Setup For Testing Mask Efficacy
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Grace Loos (10)
	<i>Title</i>	Automobile Window Tinting on the Transmission of Ultraviolet-A Radiation and Laterality of Skin Cancer Analysis
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Ina Lynch (11)
	<i>Title</i>	Comparing Sustainable Materials as Filters for Aqueous Dye Solution
	<i>School</i>	Central Virginia Governor's School
Third Place	<i>Name (grade)</i>	Gwyneth Liu (10)
	<i>Title</i>	Non-Invasive Enhancement of Bionic Vision for Patients of Photoreceptor Degeneration through Computer Vision Techniques
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	Laasya Konidala (10)
	<i>Title</i>	A Novel Integrative WSI-Based Framework For Breast Cancer Molecular Classification
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Chirayu Nimonkar (11)
	<i>Title</i>	The Effect of Rat Brain Phantom Construction on Mimicry of the True Brain Model
	<i>School</i>	Mills E. Godwin High School

ENGINEERING C (EGR-C)

Honorable Mention	<i>Name (grade)</i>	Taryk Saidou (11)
	<i>Title</i>	The Effect of Different Cooling Systems on the Voltage Generated of a Fixed Angle Solar Panel
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Pravalika Putalapattu (11)
	<i>Title</i>	DORC: Dynamic Operating Room Companion for Surgical Workflow Recognition
	<i>School</i>	Thomas Jefferson High School
Honorable Mention	<i>Name (grade)</i>	Andrew Tabor (11)
	<i>Title</i>	The Effect of Various Sleeve Materials on the Force Exerted and Percent Contraction of Pneumatic Artificial Muscles
	<i>School</i>	Central Virginia Governor's School
Third Place	<i>Name (grade)</i>	Jade Personna (11)
	<i>Title</i>	Using Piezoelectricity to Create a Self-Powered Calculator
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Fareed Sheriff (12)
	<i>Title</i>	ELMOPP: An Application of Graph Theory and Machine Learning to Traffic Light Coordination
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Darrah Sheehan (11) & Kimball Sheehan (12)
	<i>Title</i>	Investigation of the Tumoricidal Effects of Sonodynamic Therapy in Malignant Glioblastoma Brain Tumors
	<i>School</i>	Western Albemarle High School

ENGINEERING AND TECHNOLOGY (ET)

Honorable Mention	<i>Name (grade)</i>	Isla Wearmouth (8)
	<i>Title</i>	The Effect of the Type of Stormwater Filtration Method on Collecting Litter
	<i>School</i>	Kenmore Middle School
Honorable Mention	<i>Name (grade)</i>	Amogh Saunshimath (8)
	<i>Title</i>	The Effect of the Launch Angle on Flight Time and Flight Distance
	<i>School</i>	Short Pump Middle School
Honorable Mention	<i>Name (grade)</i>	Jarin Earle (8)
	<i>Title</i>	How a Do-It-Yourself Mindset Became the Impetus for a Homemade Smart Mirror
	<i>School</i>	Thomas Jefferson Middle School
Third Place	<i>Name (grade)</i>	Lucy Lu (7)
	<i>Title</i>	How to optimize parameters that would affect the speed of an electromagnetic train
	<i>School</i>	Ronald Reagan Middle School
Second Place	<i>Name (grade)</i>	Krish Gupta (7)
	<i>Title</i>	Herbal Low-cost Water Filters
	<i>School</i>	Swanson Middle School
First Place	<i>Name (grade)</i>	Camellia Sharma (8)
	<i>Title</i>	The Effect of Machine Learning Algorithms on Counting the Fish Population
	<i>School</i>	George Moody Middle School

EARTH AND ENVIRONMENTAL SCIENCE A (ENV-A)

Honorable Mention	<i>Name (grade)</i>	Isla Carlson (10)
	<i>Title</i>	The Effect of Air Pollution on the Efficiency of Solar Panels
	<i>School</i>	Wakefield High School
Honorable Mention	<i>Name (grade)</i>	Margaret Collins (12)
	<i>Title</i>	A Comparison of <i>Littoraria Irrorata</i> Populations Along the Rappahannock River
	<i>School</i>	Chesapeake Bay Governor's School
Third Place	<i>Name (grade)</i>	Thomas Ackleson (11)
	<i>Title</i>	Modeling <i>Oncorhynchus nerka</i> Populations Near Pebble Mine, Alaska
	<i>School</i>	Washington-Liberty High School
Third Place	<i>Name (grade)</i>	Kylie Berry (12)
	<i>Title</i>	Can 3D Printed Substrates Provide a Suitable Substrate for Fouling Organisms in the Lower Chesapeake Bay Estuary?
	<i>School</i>	Chesapeake Bay Governor's School
Second Place	<i>Name (grade)</i>	Amulya Chowdhory (11)
	<i>Title</i>	A Study on the Changes in Pollution and Turbidity Affected by Riparian Buffers of Local Lakes after Three Years
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Sydney Bakir (12)
	<i>Title</i>	Baby Got Leatherback! Anthropogenic Effects on Sea Turtle Nesting and Reproduction in North Carolina
	<i>School</i>	Chesapeake Bay Governor's School

EARTH AND ENVIRONMENTAL SCIENCE B (ENV-B)

Honorable Mention	<i>Name (grade)</i>	Amar Dunham (12)
	<i>Title</i>	Stress Levels of Mummichogs in Response to Noise
	<i>School</i>	Chesapeake Bay Governor's School
Honorable Mention	<i>Name (grade)</i>	Serena Grant (12)
	<i>Title</i>	The Effect of Biodiversity on Water and Pollution Retention
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Tamas Gal (9)
	<i>Title</i>	The effect of soil quality on the viability of earthworms
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Madison Goeke (10)
	<i>Title</i>	A Solution to Plastic Pollution: An Investigation into Microplastic Removal from Water Using Ferrofluid
	<i>School</i>	Washington-Liberty High School
Second Place	<i>Name (grade)</i>	Chelsea Hu (9)
	<i>Title</i>	Eastern Skunk Cabbages: A Natural and Sustainable Solution for Combating Bank Erosion
	<i>School</i>	BASIS Independent McLean
First Place	<i>Name (grade)</i>	Sara Holt (11)
	<i>Title</i>	The Effects of Naturally Occurring Acids on Scenedesmus sp. Population Growth
	<i>School</i>	Central Virginia Governor's School

EARTH AND ENVIRONMENTAL SCIENCE C (ENV-C)

Honorable Mention	<i>Name (grade)</i>	Madelyn Junker (12)
	<i>Title</i>	Effect of Drift of the Herbicide Dicamba on the Health of SAV in the Estuarine Environment
	<i>School</i>	Chesapeake Bay Governor's School
Honorable Mention	<i>Name (grade)</i>	Lillian Moo (10)
	<i>Title</i>	The Effect of Materials in Compost on Compost Temperature
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Eujine Kim (11)
	<i>Title</i>	The Effect of Microplastics in the Form of Glitter on Freshwater Chlorella Algae Growth and pH Levels
	<i>School</i>	Central Virginia Governor's School
Third Place	<i>Name (grade)</i>	Ella Lewis (11)
	<i>Title</i>	The Effect of Plastic on the Growth of <i>Raphanus sativus</i>
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Aryan Mhaskar (9)
	<i>Title</i>	The Effect of Different Bio-compatible Coagulants on Microplastic Extraction from Water
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Eleanor Little (10)
	<i>Title</i>	Analysis of Microbial Diversity in PCB-Contaminated Environments
	<i>School</i>	Roanoke Valley Governor's School

EARTH AND ENVIRONMENTAL SCIENCE D (ENV-D)

Honorable Mention	<i>Name (grade)</i>	Kayla Schill (12)
	<i>Title</i>	Can Man-Made Ponds Serve All of the Ecological Functions of Naturally Formed Ponds?
	<i>School</i>	Chesapeake Bay Governor's School
Honorable Mention	<i>Name (grade)</i>	Ananya Sinha (9)
	<i>Title</i>	The Effect Of Additives on Melting Ice
	<i>School</i>	Arlington Tech
Honorable Mention	<i>Name (grade)</i>	Snehitha Ravilla (10)
	<i>Title</i>	The Effect of Various Colloidal Metals on Nymphaeaceae Phytoextraction Performance
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Taylor Rice (12)
	<i>Title</i>	The Effect of Rising Water Temperature on the Respiration Rate of Mummichogs, <i>Fundulus heteroclitus</i>
	<i>School</i>	Chesapeake Bay Governor's School
Second Place	<i>Name (grade)</i>	Harriet Shapiro (9)
	<i>Title</i>	The Effect of Plant Type of a Green Roof on Internal Building Temperature
	<i>School</i>	Washington-Liberty High School
First Place	<i>Name (grade)</i>	Cameron Sharma (11)
	<i>Title</i>	The Effect of Surface Dynamics on Atmospheric Water Harvesting
	<i>School</i>	Mills E. Godwin High School

EARTH AND ENVIRONMENTAL SCIENCE E (ENV-E)

Honorable Mention	<i>Name (grade)</i>	Lanyi Stroud (9)
	<i>Title</i>	The Effect of Ventilation Method on Level of Indoor Carbon Dioxide
	<i>School</i>	Yorktown High School
Honorable Mention	<i>Name (grade)</i>	Jeffrey Wooters (11)
	<i>Title</i>	Comparing the Effectiveness of Various Sorbents at Remediating Oil Pollution
	<i>School</i>	Central Virginia Governor's School
Third Place	<i>Name (grade)</i>	Rose Yang (11)
	<i>Title</i>	The Effect of COVID-19 Quarantine Measures on AQI of 100 US Cities
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Lydia Wallace (12)
	<i>Title</i>	It's Not Easy Being Green: Examining Factors for the Growth Rate of <i>Chlorella Vulgaris</i>
	<i>School</i>	Chesapeake Bay Governor's School
Second Place	<i>Name (grade)</i>	Adam Stievater (11)
	<i>Title</i>	The Effect of Distance from I-95 on Prevalence of Epiphytic Lichen
	<i>School</i>	Washington-Liberty High School
First Place	<i>Name (grade)</i>	Lynn Tao (10)
	<i>Title</i>	The Effect of Impervious Surfaces on Steam Health: a Study of Machine Learning and Multivariate Statistical Analyses
	<i>School</i>	Thomas Jefferson High School

HUMAN BEHAVIOR (HB)

First Place

Name (grade) Zara Musa (7)
Title The Effect of Traffic Level on Number of Stress Responses
School Williamsburg Middle School

MATHEMATICS: PATTERNS AND RELATIONSHIPS (MP)

Third Place

Name (grade) Zareef Said (7)
Title The Effect Of Mail-in Voting Fraud On a Battleground State's Election Result
School Ronald Reagan Middle School

Second Place

Name (grade) Sattwik Nath (8)
Title The Effect of Poverty Percentages on Voter Turnout
School George H. Moody Middle School

First Place

Name (grade) Henry Stievater (7)
Title The Effect of School Size, Per-Pupil Expenditure, and Percent of Teachers with Advanced Degrees on SOL Pass Rates
School Swanson Middle School

MATHEMATICS: THEORETICAL AND MODELING (MTM)

Honorable Mention	<i>Name (grade)</i>	Jacqueline Wang (12)
	<i>Title</i>	Investigating Trends in the Multiple Ligand Activation of PPAR Gamma
	<i>School</i>	Blacksburg High School
Honorable Mention	<i>Name (grade)</i>	Mahin Atturu (11)
	<i>Title</i>	Using Transit Light Curves for Ground-Truthing the Orbital Radius and Planet Radius of Exoplanets Examined by the K2 Campaign 10 Mission
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Christopher Behre (12)
	<i>Title</i>	Using Energy Conservation to Estimate Bullet Penetration into Differing Materials
	<i>School</i>	Chesapeake Bay Governor's School
Third Place	<i>Name (grade)</i>	Samhita Vinay (11) & Keertana Yalamanchili (11)
	<i>Title</i>	Assessing the Efficacy of Various NOX Enzyme Inhibitors as Potential Treatments for Ischemic Stroke in Silico
	<i>School</i>	Thomas Jefferson High School
Second Place	<i>Name (grade)</i>	Tony Bright (10), Hamza Lateef (10) & Gabriel Ralston (10)
	<i>Title</i>	SeizureSeeker: A Novel Approach to Epileptic Seizure Detection Using Machine Learning
	<i>School</i>	Charles J. Colgan High School
First Place	<i>Name (grade)</i>	Lillian Sun (11)
	<i>Title</i>	De Novo Prediction of RNA-Protein Interactions for Discovery of Tissue-Specific Binding Sites
	<i>School</i>	Thomas Jefferson High School

MEDICINE AND HEALTH A (MDH-A)

Honorable Mention	<i>Name (grade)</i>	Maryam Elgindy (9)
	<i>Title</i>	The Effect of Public Health Policy on COVID-19 Mortality
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Jacob Bayer (9)
	<i>Title</i>	The effect of comorbidities on COVID - 19 mortality rate
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Sarah Bolles (10) & Lucy Anderson (10)
	<i>Title</i>	The Effect of Homeopathic Antifungals on Yeast CO2 Production
	<i>School</i>	Washington-Liberty High School
Third Place	<i>Name (grade)</i>	Perisa Ashar (12)
	<i>Title</i>	Discovery of Novel Extracellular Vesicle Plasma and Tumor miRNAs As Biomarkers For Lung Cancer via Next Generation Sequencing, Bioinformatics, and In-Vitro Analyses
	<i>School</i>	Maggie L. Walker Governor's School
Second Place	<i>Name (grade)</i>	Malek Ben Hammouda (9)
	<i>Title</i>	The Relationship Between Exposure to Fine Particulate Matter During Pregnancy and Preterm Births.
	<i>School</i>	Washington-Liberty High School
First Place	<i>Name (grade)</i>	Meenakshi Ambati (11)
	<i>Title</i>	Identification of Fluoxetine as a direct NLRP3 inhibitor to treat atrophic macular degeneration: Molecular modeling, mechanism, morphometry, and meta-analysis (Year 2)
	<i>School</i>	Albemarle High School

MEDICINE AND HEALTH B (MDH-B)

Honorable Mention	<i>Name (grade)</i>	Pranav Jothi (11)
	<i>Title</i>	The Correlation Between a Country's Development, Unclean Fuel Use, and Prevalence of Respiratory Disease
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Lantz Martin (11)
	<i>Title</i>	The Effect of Chemically Active Skincare Products on the Zones of Inhibition of Propionibacterium acnes
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Katerina Leedy (11)
	<i>Title</i>	Differential expression of genes associated with innate immune cell function in individuals with and without alpha-gal syndrome
	<i>School</i>	Blacksburg High School
Third Place	<i>Name (grade)</i>	Holly Hinchy (11) & Ella Bryant (11)
	<i>Title</i>	The Genetic Correlation Between Multiple Sclerosis and Various Autoimmune and Neurodegenerative Diseases
	<i>School</i>	Roanoke Valley Governor's School
Second Place	<i>Name (grade)</i>	Ashwin Johri (11)
	<i>Title</i>	The Effect of Increasing Indoor Ventilation on Artificially Generated Aerosol Particle Counts
	<i>School</i>	Collegiate School
First Place	<i>Name (grade)</i>	Iqra Ahmad (11), Keren Czyra Gonzaga (11) & Thu Thien Luong (11)
	<i>Title</i>	Using a Computational Model to Determine the Binding Ability of Selected Estrogen Derivatives to α - AND β - Type Estrogen Receptors to Prevent Amyloid- β Aggregations
	<i>School</i>	Governor's School@Innovation Park

MEDICINE AND HEALTH C (MDH-C)

Honorable Mention	<i>Name (grade)</i>	Ryann Remias (10)
	<i>Title</i>	The Effect of Different Types/Brands of Water on Avocado Root Length
	<i>School</i>	Clover Hill High School
Honorable Mention	<i>Name (grade)</i>	Anju Natarajan (11)
	<i>Title</i>	Comprehensive Computational Genomic Analysis of 1,134 Samples to Understand Genomic Alterations and Their Influence on Outcome in Colorectal Cancer: A Retrospective Study
	<i>School</i>	Collegiate School
Honorable Mention	<i>Name (grade)</i>	Leanne Ranger (11)
	<i>Title</i>	Effects of Supplemental Oxygen on the Regeneration of Planaria
	<i>School</i>	Central Virginia Governor's School.
Honorable Mention	<i>Name (grade)</i>	Elina Rastegar (11)
	<i>Title</i>	The Effect of Breast Cancer Medications on Various Body Tissues of Patients
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Maggie Matzen (10)
	<i>Title</i>	The Effect of Third-Hand Smoke (min) on the heart rate of Daphnia magna (bpm)
	<i>School</i>	Clover Hill High School
Second Place	<i>Name (grade)</i>	Pranav Ravella (11) & Swesik Ramineni (11)
	<i>Title</i>	RayGAN: Employing Generative Adversarial Networks for 3D Human Anatomy Reconstructions from Planar 2D X-Rays
	<i>School</i>	Thomas Jefferson High School
First Place	<i>Name (grade)</i>	Charles Redding (10)
	<i>Title</i>	The Effect of Children's Helmet Cost Variance (USD) on Mass Deviation (g) from Simulated Skull Impact
	<i>School</i>	Clover Hill High School

MEDICINE AND HEALTH D (MDH-D)

Honorable Mention	<i>Name (grade)</i>	Aashka Shah (9)
	<i>Title</i>	The Effect of Early Monocyte Reconstitution on CD4+ and CD8+ T Cell Populations after Allogeneic Stem Cell Transplantation
	<i>School</i>	Maggie L. Walker Governor's School
Honorable Mention	<i>Name (grade)</i>	Lauren Rylander (10)
	<i>Title</i>	Knowledge of Tissue Donation Survey Project
	<i>School</i>	Washington-Liberty High School
Honorable Mention	<i>Name (grade)</i>	Owen Tucker (12)
	<i>Title</i>	The Effect of a Musical Composition on Stress Levels in the Listener
	<i>School</i>	Ocean Lakes High School Mathematics and Science Academy
Third Place	<i>Name (grade)</i>	Annabel Tang (10)
	<i>Title</i>	Correlation of the National Institute of Health Stroke Scale (NIHSS) with Emergent Large Vessel Occlusion (ELVO) in Stroke Alert Patients - A Single-Center Experience
	<i>School</i>	Maggie L. Walker Governor's School
Second Place	<i>Name (grade)</i>	Yash Saxena (9)
	<i>Title</i>	The Effect of Using Multiple Languages on Parkinson's Disease Detection with Machine Learning
	<i>School</i>	Maggie L. Walker Governor's School
First Place	<i>Name (grade)</i>	Avery Roark (11)
	<i>Title</i>	Comparing the Antimicrobial Efficacy of Hand Sanitizers on Staphylococcus epidermidis and Escherichia coli
	<i>School</i>	Central Virginia Governor's School

MICROBIOLOGY AND CELL BIOLOGY A (MCB-A)

Honorable Mention	<i>Name (grade)</i>	Harrish Ganesh (11)
	<i>Title</i>	The Analysis of the Viral Transmission between the HIV-1 Envelope Glycoprotein and the Lymphocyte Receptor Integrin $\alpha 4\beta 7$
	<i>School</i>	Thomas Jefferson High School
Third Place	<i>Name (grade)</i>	Ryan Beck (11)
	<i>Title</i>	Effects of 5G Compatible Broadband Waves on Average Change in Color of <i>Saccharomyces cerevisiae</i>
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Ella Cohen (9)
	<i>Title</i>	The Effect of Temperature on Concentration of Sugar After 10 Days in the <i>Musa acuminata</i>
	<i>School</i>	Washington-Liberty High School
Second Place	<i>Name (grade)</i>	Katelyn Collett (12)
	<i>Title</i>	Diversity of Arctic Ice Bacteria in Relation to Position and Distance From the Shore
	<i>School</i>	Southwest Virginia Governor's School
First Place	<i>Name (grade)</i>	Brooke Coleman (11)
	<i>Title</i>	The Comparison Between Different Straw Materials to Determine Which Material Grows the Most Bacterial Colonies
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Diana Kirilov (12)
	<i>Title</i>	Testing the Effectiveness of Different Supplements on the Breaking Down of Lactose in Whole Milk
	<i>School</i>	Mills E. Godwin High School

MICROBIOLOGY AND CELL BIOLOGY B (MCB-B)

Honorable Mention	<i>Name (grade)</i>	Mihir Pokhriyal (9)
	<i>Title</i>	The Effect of Lyophilization on Rates of <i>Saccharomyces cerevisiae</i> Proliferation
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Avirat Raj (11)
	<i>Title</i>	The Effect of Water-Soluble Vitamins on <i>Saccharomyces Cerevisiae</i> Survival Rate
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Hannah Loos (9)
	<i>Title</i>	The Effect of Medicinal Plant Concentrates on <i>Saccharomyces cerevisiae</i>
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Reagan Morford (11)
	<i>Title</i>	The Effect of Transition Metals on Gram-negative and Gram-positive Bacterial Growth
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Leem Taha (11)
	<i>Title</i>	The Effect of Turbidity on the Reproduction of <i>Culex pipien</i> Mosquitos
	<i>School</i>	Mills E. Godwin High School
First Place	<i>Name (grade)</i>	Monona Zhou (9)
	<i>Title</i>	The Effect of Coronavirus Species on the Binding Strength to a Neutralizing Antibody
	<i>School</i>	Mills E. Godwin High School

PHYSICAL SCIENCE AND ASTRONOMY (PA)

Honorable Mention	<i>Name (grade)</i>	Sanaya Bothra (7)
	<i>Title</i>	The Effect of Different Materials on the Absorption of Sound
	<i>School</i>	George H. Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Abhinav Gitta (7)
	<i>Title</i>	The Effect of Resistance of Different Types of Metals on Electrical Conductivity
	<i>School</i>	George H. Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Livia Kouts (7)
	<i>Title</i>	The Effect of Different Materials on the Volume of Sound
	<i>School</i>	Ronald Reagan Middle School
Third Place	<i>Name (grade)</i>	Tess Vithoukas (7)
	<i>Title</i>	The Effect of Different Materials on Reduction of EMF Radiation
	<i>School</i>	George H. Moody Middle School
Second Place	<i>Name (grade)</i>	Aleksander Kurgan (7)
	<i>Title</i>	Multiphonics on Euphonium: Solving the Mystery of the Third Note
	<i>School</i>	George H. Moody Middle School
First Place	<i>Name (grade)</i>	Dorothy Hwang (7) & Theodore Hwang (7)
	<i>Title</i>	How Does the Type of Current at Different Voltages Affect Electromagnetic Force?
	<i>School</i>	Gunston Middle School

PHYSICS AND ASTRONOMY (PHY)

Honorable Mention	<i>Name (grade)</i>	Jillian Nylund (11)
	<i>Title</i>	The Effect of Grain Size on Temperature in the Protoplanetary Disk IM Lup
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Madeline Cheatham (10)
	<i>Title</i>	The Effect of Different Parts of the Foot On Distance a Soccer Ball Travels
	<i>School</i>	Clover Hill High School
Honorable Mention	<i>Name (grade)</i>	Kaylyn Quinh Nguyen (11) & Simran Patibanda (11)
	<i>Title</i>	The Connection Between Spiral Galaxies and Asymmetry: Analyzing Quadrupole Multipole Asymmetry in Spiral Galaxies and its Relation to other Galactic Characteristics
	<i>School</i>	Governor's School@Innovation Park
Third Place	<i>Name (grade)</i>	Anvita Korrapati (11)
	<i>Title</i>	The Effect of Coronal Mass Ejection Acceleration (km/s^2) In Relevance of Earth's Orbital Position on Gamma Ray Dose Equivalent Rate (nSv/H) in Virginia
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	William Graf (11)
	<i>Title</i>	Is the Solar System an Outlier? Exoplanetary Orbital Eccentricity and Its Relation to Mass and the Count of Planets
	<i>School</i>	Thomas Jefferson High School
First Place	<i>Name (grade)</i>	Sam Watchman (9)
	<i>Title</i>	The Effect of Constellation on Radio Signal Received at 21cm
	<i>School</i>	Arlington Tech

PLANT SCIENCES AND MICROBIOLOGY (PM)

Honorable Mention	<i>Name (grade)</i>	Jaya Shah (8)
	<i>Title</i>	The Effect of Legumes on the Germination of <i>Lactuca Sativa</i>
	<i>School</i>	Williamsburg Middle School
Honorable Mention	<i>Name (grade)</i>	Alice Zhang (8)
	<i>Title</i>	The inhibitive effect of Palmolive dish soap concentration on bacteria growth
	<i>School</i>	George Moody Middle School
Honorable Mention	<i>Name (grade)</i>	Aditya Banerjee (7)
	<i>Title</i>	The Effect Of Houseplants On Indoor Air Quality
	<i>School</i>	George Moody Middle School
Third Place	<i>Name (grade)</i>	Lucy Yoder (8)
	<i>Title</i>	The Effect of Continuous Light on <i>Helianthus Annuus</i>
	<i>School</i>	Sabot at Stony Point
Second Place	<i>Name (grade)</i>	Cameron Joyce (8)
	<i>Title</i>	The Effect of Radiofrequency Radiation During <i>Phaseolus vulgaris</i> Seed Germination on Subsequent Plant Growth
	<i>School</i>	George Moody Middle School
First Place	<i>Name (grade)</i>	Deepanshi Kumar (7)
	<i>Title</i>	The Effect of Tea Leaves (<i>Camellia Sinensis</i>) on Pea Plant (<i>Pisum Sativum</i>) Germination Time
	<i>School</i>	George Moody Middle School

PSYCHOLOGY A (PSY-A)

Honorable Mention	<i>Name (grade)</i>	Kelsey Henry (12)
	<i>Title</i>	Ethnicity and Education: Do Gifted Programs Get a Passing Grade?
	<i>School</i>	Chesapeake Bay Governor's School
Honorable Mention	<i>Name (grade)</i>	Eric Kauppi (11)
	<i>Title</i>	Effect of Social Isolation During the COVID-19 Quarantine on General Mental Health
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Kate Devitt (11)
	<i>Title</i>	The Comparison of Online Learning Strategies on Information Retention
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Cameron Gilmore (12)
	<i>Title</i>	Organizational Safety Culture: Exploring Differences Between English & Spanish Workers
	<i>School</i>	Blacksburg High School
Second Place	<i>Name (grade)</i>	Sarah Blair (11)
	<i>Title</i>	The Effects of Classroom Environment on Average Student Participation in a Group Discussion
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Madison Lilly (12)
	<i>Title</i>	Influence of Virginia State Sentencing Guidelines on Jury Recommended Maximum Sentences
	<i>School</i>	Southwest Virginia Governor's School

PSYCHOLOGY B (PSY-B)

Honorable Mention	<i>Name (grade)</i>	Jade Riddle (11)
	<i>Title</i>	Generational Differences in the Perception of Diabetes Mellitus
	<i>School</i>	Southwest Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Ella Wesolowski (11)
	<i>Title</i>	Relationships Between Screen Time and Anxiety and Depression in High School Students
	<i>School</i>	Central Virginia Governor's School
Honorable Mention	<i>Name (grade)</i>	Elliott Putnam (11)
	<i>Title</i>	The effect of weekly practice time on a violinist's ability to sight read
	<i>School</i>	Central Virginia Governor's School
Third Place	<i>Name (grade)</i>	Amanda Powell (11)
	<i>Title</i>	The Effect of Hours of Sleep on Creativity Test Scores
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Lauren Vossen (11)
	<i>Title</i>	The Effect of Increased Blue Light Exposure on Sleep Quality
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Alex Taylor (11)
	<i>Title</i>	The Effects of Reading, Listening, and Dual-Modalities on the Comprehension of Different Passages Among High School Students
	<i>School</i>	Central Virginia Governor's School

STATISTICAL ANALYSIS AND INFERENCES (SAI)

Honorable Mention	<i>Name (grade)</i>	Eric Xie (12)
	<i>Title</i>	Classification of Neurons by Activation Stages using an Artificial Neural Network
	<i>School</i>	Blacksburg High School
Honorable Mention	<i>Name (grade)</i>	Ellen Habteyonas (12)
	<i>Title</i>	Access to High Quality Child Care Centers in Rural Countries in Different Virginian Regions
	<i>School</i>	Blacksburg High School
Honorable Mention	<i>Name (grade)</i>	Colin Berry (11)
	<i>Title</i>	The Impact of Penalties, Population Density, and Partisanship on Compliance with Stay-at-Home Orders During COVID-19
	<i>School</i>	Yorktown High School
Third Place	<i>Name (grade)</i>	Bethany Duncan (11)
	<i>Title</i>	The Effect of Virginia State Budget Allocation on Rates of Incarceration and Recidivism
	<i>School</i>	Central Virginia Governor's School
Second Place	<i>Name (grade)</i>	Ashwitha Surabhi (11)
	<i>Title</i>	Development of a Machine Learning Algorithm to Detect Amyotrophic Lateral Sclerosis(ALS) in Patients
	<i>School</i>	Thomas Jefferson High School
First Place	<i>Name (grade)</i>	Ambica Sharma (10)
	<i>Title</i>	The Effect of Algorithm Based Neural Network Machine Learning on the Projection of the Basis and Progression of Alzheimer's Disease
	<i>School</i>	Washington-Liberty High School

ZOOLOGY (ZOO)

Honorable Mention	<i>Name (grade)</i>	Varun Yeri (9)
	<i>Title</i>	The Effect of Different Foods on Fruit Fly Preference
	<i>School</i>	Mills E. Godwin High School
Honorable Mention	<i>Name (grade)</i>	Alicia Carvalho (11) & Liala Sofi (12)
	<i>Title</i>	Investigation of Bio-printed Hydrogels for Purification of <i>Danio rerio</i> Habitats During Embryonic Development
	<i>School</i>	Roanoke Valley Governor's School
Honorable Mention	<i>Name (grade)</i>	Uyen Nhi Tran (12)
	<i>Title</i>	Using the Embryonic <i>Danio rerio</i> Stress Response System to Investigate the Toxicity of Metal Oxide Nanoparticles
	<i>School</i>	Roanoke Valley Governor's School
Honorable Mention	<i>Name (grade)</i>	Shreel Golwala (9)
	<i>Title</i>	The Effect of Agricultural Pesticides on <i>Daphnia magna</i>
	<i>School</i>	Mills E. Godwin High School
Third Place	<i>Name (grade)</i>	Mrunal Kute (11)
	<i>Title</i>	Analyzing Blue Light on <i>Dugesia tigrina</i> Regeneration to Model Human Epidermal Growth Processes
	<i>School</i>	Mills E. Godwin High School
Second Place	<i>Name (grade)</i>	Julie Fitzgerald
	<i>Title</i>	The Effect of Ultraviolet Radiation on the Survival and Hatch Rates of <i>Artemia salina</i>
	<i>School</i>	Central Virginia Governor's School
First Place	<i>Name (grade)</i>	Shan Lateef (12)
	<i>Title</i>	What's All the Buzz? <i>Drosophila melanogaster</i> as a Unique Model for Addiction Disorders and Physiology after Traumatic Brain Injury (TBI)
	<i>School</i>	Thomas Jefferson High School

FIRST PLACE CATEGORY-SECTION AWARDS

These awards are given to the best papers, as determined by either the Section Judges or, if multiple sections, by a group of Honor Judges.

VAS BOTANY AWARD

The award is given by the Botany Section of the Virginia Academy of Science, to the best paper on a botanical subject.

Name (grade) Beverly Eborn (11)

Title The Effect of Added Polyamines on Glycine max Responses to Drought

School Central Virginia Governor's School

Name (grade) Carson Ray (9) & Daniel Han (9)

Title The Synergistic Allelopathic Effects of Extracts from Two Invasive Species on Germination and Growth of *R. sativus*

School Roanoke Valley Governor's School

RODNEY C. BERRY CHEMISTRY AWARD

The Rodney C. Berry Chemistry Award is given for the paper that evidences the most significant contribution in the field of chemistry.

Name (grade) Julia Brodsky (10)

Title Optimization of an Electrocoagulation System for the Removal of Polyatomic Ions from Water

School H.B. Woodlawn

Name (grade) Thanvi Parupati (9)

Title The Effect of the Form of Heat Resistant Product on the Heat Damage of the Hair

School Mills E. Godwin High School

WILLIAM W. BERRY ENGINEERING AWARD

This award is given by Dominion Energy in honor of Mr. William W. Berry who was a past Chairman of the Board of Virginia Power.

Name (grade) Brock Duma (11)
Title Whitewater Helmet STAR: Evaluating the Biomechanical Performance and Risk of Head Injury for Whitewater Helmets
School Blacksburg High School

Name (grade) Chirayu Nimonkar (11)
Title The Effect of Rat Brain Phantom Construction on Mimicry of the True Brain Model
School Mills E. Godwin High School

Name (grade) Darrah Sheehan (11) & Kimball Sheehan (12)
Title Investigation of the Tumoricidal Effects of Sonodynamic Therapy in Malignant Glioblastoma Brain Tumors
School Western Albemarle High School

ANN M. HANCOCK CELLULAR BIOLOGY AWARD

This award is given to the best paper in cellular biology and is presented in memory of Anne M. Hancock who retired from Patrick Henry High School in Hanover County and who gave many years of service to the Jr. Academy not only by teaching but also serving on the Jr. Academy Committee.

Name (grade) Monona Zhou (9)
Title The Effect of Coronavirus Species on the Binding Strength to a Neutralizing Antibody
School Mills E. Godwin High School

MATHEMATICS AWARD

The Mathematics Award is given for the paper that evidences the most significant contribution in the field of Mathematics.

Name (grade) Lillian Sun (11)
Title De Novo Prediction of RNA-Protein Interactions for Discovery of Tissue-Specific Binding Sites
School Thomas Jefferson High School

STATISTICS AWARD

The Statistics Award is given for the paper that evidences the most significant contribution in the field of Statistics.

Name (grade) Ambica Sharma (10)
Title The Effect of Algorithm Based Neural Network Machine Learning on the Projection of the Basis and Progression of Alzheimer's Disease
School Washington-Liberty High School

VABE ZOOLOGY AWARD

This award is presented by the Virginia Association of Biology Educators and is given for outstanding research in the Zoology section.

Name (grade) Shan Lateef (12)
Title What's All the Buzz? *Drosophila melanogaster* as a Unique Model for Addiction Disorders and Physiology after Traumatic Brain Injury (TBI)
School Thomas Jefferson High School

SPECIAL INTEREST AWARDS & SCHOLARSHIPS

Students apply for these awards and they are evaluated by a special panels of judges from the awarding bodies and/or group of special judges. If any awards are not given, we did not receive any applications meeting the standards of the award.

CANCER RESEARCH AWARD

These awards are to recognize outstanding science papers related to cancer research. These awards are provided by the American Cancer Society.

Name (grade) Lillian Sun (11)
Title De Novo Prediction of RNA-Protein Interactions for Discovery of Tissue-Specific Binding Sites
School Thomas Jefferson High School

Name (grade) Anju Natarajan (11)
Title Comprehensive Computational Genomic Analysis of 1,134 Samples to Understand Genomic Alterations and Their Influence on Outcome in Colorectal Cancer: A Retrospective Study
School Collegiate School

Name (grade) Laasya Konidala (10)
Title A Novel Integrative WSI-Based Framework For Breast Cancer Molecular Classification
School Mills E. Godwin High School

DR. AND MRS. PRESTON H. LEAKE AWARD IN APPLIED CHEMISTRY

The Dr. and Mrs. Preston H. Leake Award in Applied Chemistry is given to the author of a research paper which best exemplifies how chemicals, chemical principles, or chemistry have been used, are used, or might be used to enhance or even to save life.

Name (grade) Nishaanth Mulpuru (11)
Title The Effect of Different Pesticides Containing Heavy Metals on the Transpiration Rate of “*Vigna unguiculata*”
School Mills E. Godwin High School

ROSCOE HUGHES GENETICS AWARD

The Roscoe Hughes Award is given for the best paper in the field of Genetics.

Name (grade) London Paige (12)
Title Investigating Alternatives to Conventional Chronic Kidney Disease Treatment Through Analysis of Differential Gene Expression
School Roanoke Valley Governor’s School

DR. SMITH SHADOMY INFECTIOUS DISEASES AWARD

This award is given to commemorate Dr. Smith Shadomy by the Virginia Chapter of the National Foundation for Infectious Diseases to the paper that evidences outstanding research in the field of infectious diseases.

Name (grade) Aatish Sethi (11) & Jasmine Agyepong (11)
Title A New Treatment? An Analysis of the Effect of Known Phytochemicals on SARS-CoV-2 Pathogenesis
School Governor's School@Innovation Park

SPELEOLOGICAL SOCIETY AWARD

Given by the Richmond Area Speleological Society for outstanding research addressing karst or topics related to speleology (bats, caves, carbonate geology, paleoenvironments, limestone fossils, sinkholes, etc).

No Award This Year/No eligible applicants

VIRGINIA MUSEUM OF NATURAL HISTORY (VMNH) AWARD

This award is presented by the Friends of the Virginia Museum of Natural History in recognition of a significant contribution in the study and interpretation of Virginia's Natural Heritage.

Name (grade) Abby Madson (12)
Title Lichen Abundance and Diversity in Cemetery Environments
School Chesapeake Bay Governor's School

VIRGINIA SEA GRANT COLLEGE PROGRAM AWARD

This award is given by the Virginia Sea Grant College Program for outstanding marine or coastal research.

Name (grade) Margaret Collins (12)
Title A Comparison of *Littoraria Irrorata* Populations Along the Rappahannock River
School Chesapeake Bay Governor's School

GAMMA SIGMA DELTA AWARD

The Gamma Sigma Delta Award is presented by the Virginia Tech Chapter of the Honor Society of Agriculture. This award is given in recognition of excellence in research dealing with application of new technologies and/or concepts in agriculture forestry, or veterinary medicine.

Name (grade) Mia Constantin (12) & Elizabeth Quimby (12)
Title Small Scale Vertical Farming
School Harrisonburg High School

BETHEL HIGH SCHOOL SCHOLARSHIP

Bethel High School Scholarship - This \$1,000 Scholarship Award comes from the interest earned from a \$10,000 endowment contributed by the students of Bethel High School, Hampton, Va., over a two year period. This award is based on both the student's presentation and paper.

Name (grade) Lillian Sun (11)
Title De Novo Prediction of RNA-Protein Interactions for Discovery of Tissue-Specific Binding Sites
School Thomas Jefferson High School

HENRY W. MACKENZIE ENVIRONMENTAL SCHOLARSHIP (VEE)

Henry W. MacKenzie Environmental Scholarship - This \$5,000 scholarship will be awarded to the student whose paper evidences the most significant contribution in the field of Environmental Science dealing with the James River Basin and Chesapeake Bay. The Virginia Environmental Endowment and VJAS offer this scholarship in tribute to the outstanding and generous services of Judge Henry W. MacKenzie, Jr., one of the founding directors, who has a great interest in the James River and the Chesapeake Bay.

Name (grade) Lynn Tao (10)
Title The Effect of Impervious Surfaces on Steam Health: a Study of Machine Learning and Multivariate Statistical Analyses
School Thomas Jefferson High School

FRANCES AND SYDNEY LEWIS ENVIRONMENTAL SCHOLARSHIP (VEE)

Frances and Sydney Lewis Environmental Scholarship: A \$5,000 scholarship for the best effort by a student in grades 9 to 12 in the field of environmental science. This scholarship is in the name of Frances and Sydney Lewis and is given by the Virginia Environmental Endowment.

Name (grade) Ella Lewis (11)
Title The Effect of Plastic on the Growth of *Raphanus sativus*
School Central Virginia Governor's School

VJAS MIDDLE SCHOOL HONOR AWARDS

These are the highest awards that the Virginia Junior Academy of Science presents.
Special panels of honor judges evaluate the projects and determine the awards.

DOROTHY KNOWLTON AWARD

This award is given to the Middle School student presenting the best paper in the life sciences. It is presented in honor of Dorothy Knowlton, the former Science Coordinator of Arlington County, who was instrumental in advancing experimental design within the science curriculum.

Name (grade) Annabelle Van Saun (8)
Title The Effect Of Silver Nanoparticles On The Death Rate Of Adult *Daphnia Magna*
School George H. Moody Middle School

JOYCE K. PETERSON AWARD

This award is given to the Middle School student presenting the best paper in the physical sciences. It is presented in honor of Mrs. Joyce K. Peterson who has been an outstanding teacher in the Arlington County Schools.

Name (grade) Camellia Sharma (8)
Title The Effect of Machine Learning Algorithms on Counting the Fish Population
School George Moody Middle School

OUTSTANDING EIGHTH GRADE RESEARCH PROJECT, Grade 8

Given to the eight grade student or team presenting the best project. Grade 8 only.

Name (grade) Camellia Sharma (8)
Title The Effect of Machine Learning Algorithms on Counting the Fish Population
School George Moody Middle School

VJAS GRAND MIDDLE SCHOOL AWARD, Grades 7--8

Given to the middle school student or team presenting the best project. Grades 7-8.

Name (grade) Annabelle Van Saun (8)
Title The Effect Of Silver Nanoparticles On The Death Rate Of Adult *Daphnia Magna*
School George H. Moody Middle School

VJAS HIGH SCHOOL HONOR AWARDS

These are the highest awards that the Virginia Junior Academy of Science presents.
Special panels of honor judges evaluate the projects and determine the awards.

CATESBY JONES AWARD, Grade 12

This award is given to the 12th grade senior student whose paper evidences the most significant contribution to science.

Name (grade) Shan Lateef (12)
Title What's All the Buzz? *Drosophila melanogaster* as a Unique Model for Addiction Disorders and Physiology after Traumatic Brain Injury (TBI)
School Thomas Jefferson High School

VJAS GRAND HIGH SCHOOL AWARD, Grades 9-12

The top research project by an individual or team of students in grades 9-12.

Name (grade) Shan Lateef (12)
Title What's All the Buzz? *Drosophila melanogaster* as a Unique Model for Addiction Disorders and Physiology after Traumatic Brain Injury (TBI)
School Thomas Jefferson High School

VJAS DELEGATES TO AJAS, GRADES 9-11

A panel of honor judges selects the honorees from among the students (grades 9-11) who won first place in a senior high section.

Attendance at American Junior Academy of Science (AJAS):

Winners are given a certificate and an invitation to represent VJAS at the annual meeting of the American Junior Academy of Science (AJAS) and to present at a poster session. Students who represent the Commonwealth of Virginia are required to attend all activities and house with the students (if applicable).

When VJAS/VAS finances permit, cash awards are given to each individual or a team to help defray expenses. The cash award will be the same for an individual or team, so if a team is selected they will need to determine who will represent the team, or provide local funding for the other team members. The top four papers are ranked by the judges and VAS/VJAS will provide cash awards in this order when VAS/VJAS finances permit. VAS/VJAS will attempt to fully cover the expenses of the winners followed by the alternates.

Winner	<i>Name (grade)</i>	Meenakshi Ambati (11)
	<i>Title</i>	Identification of Fluoxetine as a direct NLRP3 inhibitor to treat atrophic macular degeneration: Molecular modeling, mechanism, morphometry, and meta-analysis (Year 2)
	<i>School</i>	Albemarle High School
Winner	<i>Name (grade)</i>	Cameron Sharma (11)
	<i>Title</i>	The Effect of Surface Dynamics on Atmospheric Water Harvesting
	<i>School</i>	Mills E. Godwin High School
Alternate	<i>Name (grade)</i>	Lynn Tao (10)
	<i>Title</i>	The Effect of Impervious Surfaces on Steam Health: a Study of Machine Learning and Multivariate Statistical Analyses
	<i>School</i>	Thomas Jefferson High School
Alternate	<i>Name (grade)</i>	Brock Duma (11)
	<i>Title</i>	Whitewater Helmet STAR: Evaluating the Biomechanical Performance and Risk of Head Injury for Whitewater Helmets
	<i>School</i>	Blacksburg High School

ERTLE THOMPSON MEMORIAL ENDOWMENT AWARD

The Ertle Thompson Memorial Endowment Award is established to honor Dr. Ertle Thompson, a long-term leader of VJAS and a former president of the VAS. When financial circumstances allow, these awards will be presented annually to the winners selected as the VJAS Delegates to the AJAS. The purpose of the funds is to help support attendance at the annual meeting of the American Association for the Advancement of Science and the American Junior Academy of Science.

Winner *Name (grade)* Meenakshi Ambati (11)
Identification of Fluoxetine as a direct NLRP3 inhibitor to treat atrophic macular degeneration: Molecular modeling, mechanism, morphometry, and meta-analysis
Title (Year 2)
School Albemarle High School

Winner *Name (grade)* Cameron Sharma (11)
Title The Effect of Surface Dynamics on Atmospheric Water Harvesting
School Mills E. Godwin High School

DR. R. DEAN DECKER HONORARIUM AWARD

The Dr. R. Dean Decker Honorarium award this year of \$500 each is to go to the teacher/sponsor of the two top student winners of the AJAS trip. The monies can be used at the discretion of the recipients as long as it is related to the attendance at the AJAS meeting. Guidelines and procedures for the recipients will follow later.

Winner Dr. Bradley Gelfand

Winner Heather Martin

AWARDS FOR SPONSORS

The VJAS Committee recognizes and presents these awards for teachers & sponsors.

THE FRANKLIN D. KIZER DISTINGUISHED SERVICE AWARD

This award recognizes the exceptional contributions to VJAS of a STEM teacher.

Name(s) Dr. Michael J. Wolyniak
Hampden-Sydney College

THE FRANKLIN D. KIZER SCIENCE TEACHER OF TOMORROW AWARD

This award recognizes an outstanding Virginia science teacher and provides an opportunity for professional development through attendance at the annual VAST meeting.

Name(s) Elizabeth Wood
Washington-Liberty High School

OUTSTANDING SERVICE AWARDS

The VJAS Committee recognizes and presents these awards for outstanding service.

VJAS SCIENTIFIC COMMUNITY OF EXCELLENCE AWARD

A special recognition presented to a scientific community/group, for exceptionally outstanding commitment of volunteering, participation, and service to advance the mission of VJAS.

Name(s) Virginia Department of Environmental Quality (DEQ)

VAS HONORARY MEMBERSHIP

This award which includes one year's membership in the Virginia Academy of Science including a subscription to the *Virginia Journal of Science* is awarded for outstanding service to the Junior Academy and the VJAS Committee.

Name(s) Shan Lateef

VAS AWARD FOR DEDICATED SERVICE TO VJAS

The support of VAS makes all of this possible, In addition to several awards that have already been given by VAS, this award recognizes past VJAS officer or VJAS member who has continued to provide support as volunteer to the Junior Academy even after completion of high school.

Name(s) < NONE >

VJAS DISTINGUISHED SERVICE AWARD

A special certificate is presented to a person for exceptionally outstanding service to the VJAS and public recognition is given at the Research Symposium. This is the most prestigious award that the VJAS Committee gives.

Name(s) Dr. Joshua Erlich
The College of William & Mary

VJAS STUDENT OFFICER COMMITTEE

2020-2021 Student Officers, outgoing students for recognition

VJAS President.....	Shan Lateef Thomas Jefferson High School
VJAS Vice President.....	Karly Ramnani Mills E. Godwin High School
VJAS Secretary.....	Harrish Ganesh Thomas Jefferson High School
VJAS Editor-in-Chief.....	Arman Lateef Charles J. Colgan High School
VJAS Communication Liaison.....	Laasya Konidala Mills E. Godwin High School
VJAS Communication Liaison.....	Andrew Qi Central Virginia Governor's School
Officer Alumni.....	Kayla Holston

2021-2022 Student Officers, Inducted on May 22, 2021

Co-Presidents	Harrish Ganesh Thomas Jefferson High School Arman Lateef Colgan High School
Vice - President	Charlotte Cunningham Washington Liberty High School
Secretary	Laasya Konidala Mills E Godwin High School
Communications Liaison	Ashwin Johri Collegiate School
Co Editors-in-Chief VJAS VOICE	Eujine Kim Central Virginia Governor's School Corinna Peachey Massanutten Regional Governor's School
VJAS Student Advisory Committee	Yash Saxena, Nitya Kumar, Akul Miriyala, Caroline Klotz, Chirayu Nimonkar, Pranav Jothi, Lillian Sun

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