



2023 Prince William-Manassas Regional Science and Engineering Fair Senior Division Participants

Animal Sciences

School	Students	Project Title
Gar-Field High School	Nizar Bousselmi	Foraging or Freezing? Deer Behavior vs. Temperature
The Governor's School @ Innovation Park	Alyssa Kane Bethelle Lanquaye Chloe Musman	The Effect of Antioxidants on G6PD Deficiency and Hyperbilirubinemia in Infants
The Governor's School @ Innovation Park	Ellie Kim Fayza Mehrin Madison Nally	Feasting Fruit Flies: Evaluating the Effect of Selected Ayurvedic Plant Extracts on the Mood, Memory, and Fertility of <i>Drosophila melanogaster</i>

Behavioral & Social Sciences

School	Students	Project Title
Colgan High School	Rania Lateef	Food for Thought: Can Intermittent Fasting and Ketosis Ameliorate Dementia by Decreasing Tau Hyperphosphorylation and Neuroinflammation in <i>Drosophila melanogaster</i> ?
The Governor's School @ Innovation Park	Agnes Cho Bethel Abebe Vaishnavi Burra	The Effects of Herbal Medicine on Memory Recall of Planaria When Conditioned Against Negative Phototaxis
The Governor's School @ Innovation Park	Isha Prem Ausdin Rahman Bishesta Aryal	The Effect of Zinc, Aluminum, & Iron on the Behavior of PTL-1 <i>Caenorhabditis elegans</i> and Alzheimer's Disease

Biochemistry

School	Students	Project Title
Colgan High School	Jenna Nguyen	Modification on the Method of Pectin Isolation in Grapefruit: Effectiveness on Lowering Glycaemia Levels
The Governor's School @ Innovation Park	Michael Day Aarav Patel	The Novel Production of Organic-Based Amino Acid-Incorporated CO ₂ -Absorbing Hydrogels

Chemistry

School	Students	Project Title
Gainesville High School	Madison Nepomuceno	Bright Idea: Analyzing the Effect of Different Concentrations of Hydrogen Peroxide on the Brightness of a Chemiluminescent Reaction
Osborn Park High School	Henock Asmare Sahil Shakeel Sahil Tariq	The Effect of Acetone on the Decomposition of Plastics
Osborn Park High School	Sophie Bootwala	The Effect of Invertase on Sucrose and a Drink's Glucose Level
Seton School	Monica Hartung	The Search for the Crispy Pickle
The Governor's School @ Innovation Park	Lucien Morris Yadel Gezehagne Eduardo Mendez-Anastasio	Comparing Endothermic Reactions Utilizing Barium Hydroxide and Ammonium Chloride
The Governor's School @ Innovation Park	Chiara Petrazzuolo-Leiva Meklit Gizework	Utilization of Gold Nanoparticles in Collaboration with Magnesium Chloride and Sodium Chloride in Detecting JWH-018, C24 H23NO, by Analyzing Chemically Similar Substances via Ultraviolet-Visible Spectroscopy

Computational Biology & Bioinformatics

School	Students	Project Title
Battlefield High School	Ebru Ayyorgun	Novel 3D Linked-Data Exploration for Analysis of High-Dimensional Datasets
Gainesville High School	Zareef Said	REFRBERT: A Comprehensive Genomic Regulatory Element Forecasting Representation Based on Masked Language Modeling

Computer Science

School	Students	Project Title
Battlefield High School	Yashvir Sabharwal	NephroNet: A Novel Program for Identifying Renal Cell Carcinoma and Generating Synthetic Training Images with Convolutional Neural Networks and Diffusion Models

Colgan High School	Aayush Ghosh Ghosh	Effects of Activation Function on a Neural Networks Ability to Learn
Gainesville High School	Minghui Zhang	Best Strategy to Select an Individual Out of the Population that Maximizes Interest
Seton School	Javier Garcia	PICTIONaiRY!

Earth & Planetary Sciences

School	Students	Project Title
The Governor's School @ Innovation Park	Hamza Lateef	Mapping Changes in Particulate Pollution and Plant Health in the Indian Sub-Continent during the COVID-19 Pandemic

Engineering

School	Students	Project Title
Osborn Park High School	Aiden Goto	The Effect of Truss Designs on Bridge Strength
Patriot High School	Hannah Jansen	The Effect of Propeller Design on Underwater Remotely-Operated Vehicle Speed
Seton School	Joseph Benin	Aeroelectricity of the Future!

Environmental Sciences

School	Students	Project Title
Battlefield High School	Sidak Singh	An Overlooked Aspect of Wastewater Treatment: Analyzing the Capacity of Various Sanitary Wipes to Dissolve in Distilled Water
Osborn Park High School	Abhaya Shrestha Ali Mirza Amadu Sesay	The Effect of Different Noise Barriers on Noise Pollution
The Governor's School @ Innovation Park	Eleanore Rhodes Mikayla Carter	The Effects of Industrialization on Environmental Factors in Prince William County, VA

Materials Sciences

School	Students	Project Title
Seton School	Joseph Goodman	Attack of the Antiseptics and Disinfectants

The Governor's School @ Innovation Park	Lani Lin-Kissick Hanna Aklil	The Creation of Longer-Lasting Concrete: An Analysis on the Infusion of Bacteria and Aggregates into Cement Concrete to Increase Durability at Varying Temperatures by Examining Substances Following Water Absorption
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Mathematics

School	Students	Project Title
The Governor's School @ Innovation Park	Celia Calabria Brett Barton	Determining the Relationship Between Golden Ratio Proportions and Galaxy Types

Medicine & Health Sciences

School	Students	Project Title
The Governor's School @ Innovation Park	Milania Dehring Krish Seth	<i>Dugesia dorotocephala</i> as a Novel Animal Model to Replicate Abstinence-Related Withdrawal Symptoms After Prenatal Nicotine Exposure in Neonates
The Governor's School @ Innovation Park	Raeanne Ferrer Layla Moussavi Lyla Browne	Modeling the Effect of Hyperglycemia on Fertility of <i>Caenorhabditis elegans</i>

Microbiology

School	Students	Project Title
Seton School	Christina Witter	Bold Mold
The Governor's School @ Innovation Park	Maanini Lakshmanan Anisha Ramakrishnan Gabriella La Cour	Exploring a Novel Combination of Enterobactin and <i>Lactobacillus acidophilus</i> in an Iron-Rich Environment to Increase Absorption of Ferric Ions

Physics

School	Students	Project Title
Seton School	Andrew Atkinson	Windpower! What is the Effect of Blade Pitch Angle on Electrical Output of a Vertical-Axis Wind Turbine?
The Governor's School @ Innovation Park	Anna Nelson Shailen Sifer	Recycled Polyethylene as a Cosmic Radiation Shield

Plant Sciences

School	Students	Project Title
Gar-Field High School	Elizabeth Eckman	Sweet Death: The Effect of the Concentration of Glyphosate on <i>Lonicera japonica</i> Vitality
Osborn Park High School	Belva Fianko	The Effect of Temperature on the Stomata of a Flowering Plant
The Governor's School @ Innovation Park	Manreet Cheema Alahna Moreno Laiba Siddique	The Effect of Arbuscular Mycorrhizal Fungi on Perennial Ryegrass and Flax Microgreens Grown in Soil with Varying Concentrations of Microplastics
The Governor's School @ Innovation Park	Ibtihaz Sparsha Braxton McDaniel Yassine Lahbabi	Mosses' Capability of Filtering Heavy Metals from Water

Robotics & Intelligent Machines

School	Students	Project Title
Osborn Park High School	Kira McIntosh Aman Amara	Autonomous Solar Panel De-Duster