

# Northern Virginia Regional Science & Engineering Fair Entries



**March 1, 2025**

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Fair Director**

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# NORTHERN VIRGINIA REGIONAL SCIENCE & ENGINEERING FAIR

March 1, 2025

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## Animal Sciences

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7 AS	100	Yarker, Iris <i>The Effect of Food on Ant Speed</i>	Hammond
7 AS	101	Baterdene, Misheel; O'Connor, Caitlin <i>Brine Shrimp: Wanted Dead or Alive (TEAM)</i>	H-B Woodlawn
8 AS	102	Matthews, Oliver <i>Does PBIS Work?</i>	George Washington
9 AS	103	Sundqvist, Marek <i>The Effect of Substrate Grain Size on Antlion Larvae Funnel Building Efficiency</i>	Arlington Tech
9 AS	104	Waggy, Charlotte <i>The Effect of Natural Repellents on Isopod Presence</i>	Arlington Tech
9 AS	105	Weber, Ryan <i>Are White-Throated Sparrows Adapting to Urban Noise?</i>	Alexandria City HS
10 AS	106	Burks, Thomas <i>Using Event-Based Cameras to Image Mouse Whiskers</i>	Alexandria City HS

**7 Total Projects in Animal Sciences**

## Behavioral and Social Sciences

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7 BE	200	Miller, Audrey; Maya Harris, Miona <i>Make, Bake, Cake: Price versus Perceived Quality (TEAM)</i>	H-B Woodlawn
8 BE	201	Brooks, Johnna-Averi <i>Listen to Your Heart: How Does Music Affect Human Emotions?</i>	Hammond
9 BE	202	Henton, Estella <i>The Color of Emotion</i>	Alexandria City HS
9 BE	203	Sexton, Morgan <i>The Effect of One's Confidence Level for Detecting AI Images on How Well They Actually Detect AI Images</i>	Arlington Tech
9 BE	204	Tarpley, Summer <i>Does Risky Behavior in Teens Predict Suicidal Ideation?</i>	H-B Woodlawn
9 BE	205	Stouffer, Audrey; Wolf, Nina <i>Is Stress Contagious? (TEAM)</i>	Alexandria City HS
10 BE	206	Shiu, Walter <i>The Effect of Different Promotional Discounts on Purchasing Rates</i>	Yorktown
10 BE	207	Hao, Alvin; Lu, Haotian; Wang, Xiaohan Sophie <i>The Influence of Human-AI Collaboration on Classroom Learning in High Schools: From the Exploratory/Exploitative Learning Perspective (TEAM)</i>	Veritas
10 BE	208	Li, Hejin; Wu, Jianing; Yan, Xinyu <i>Analysis of Changes in the Prevalence of Depression Among Adolescents and the Impact of Socioeconomic Conditions in Countries Before and After the Pandemic (TEAM)</i>	Veritas

11 BE	209	Brodsky, Anna <i>The Impact of Climate Change on Educational Outcomes: A Global Analysis</i>	H-B Woodlawn
12 BE	210	Wallin, Carson <i>The Uncanny Valley: Exploring Psychological Discomfort</i>	Yorktown

**11 Total Projects in Behavioral and Social Sciences**

## Biochemistry

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7 BI	300	Lakhani, Leela <i>What Keeps Strawberries the Freshest for the Longest?</i>	Dorothy Hamm
8 BI	301	Meyer, Evan <i>The Effect of the Variation in Species of Aquatic Plant on the Disintegration of Calcifer Shells</i>	Kenmore
9 BI	302	Gottshall, Daniel <i>The Effect of Different Biological Materials on Their Electrical Resistance</i>	Arlington Tech
9 BI	303	Thulson, Samuel <i>The Effect of Ultraviolet Radiation on DNA Quality</i>	Alexandria City HS
10 BI	304	McGlinchey, Quinn <i>Iron Absorption in Coffee, Tea, Orange Juice, and Water</i>	Alexandria City HS
10 BI	305	Pfautz, Tesla <i>The Effect of Chemical Treatments on Blue-Green Algae</i>	Washington-Liberty
10 BI	306	Thulson, Benjamin <i>Can Soft Tissue Really Be Extracted From Fossils?</i>	Alexandria City HS
11 BI	307	Hoffman, Lilah <i>The Effect of Temperature on the Reaction Rate of a Lipase-Catalyzed Reaction as Measured by Change in pH Over Time</i>	Washington-Liberty
11 BI	308	Yavuz, Arzu <i>What is the Effect of Temperature Change on Lactase Enzyme Activity Measured Through Glucose Levels?</i>	Washington-Liberty

### **9 Total Projects in Biochemistry**

## Chemistry

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6 CH	400	Hayes, Reagan; Gola, Rose; Hayes, Sloan <i>Measuring the Acidity of Different Fruits (TEAM)</i>	Swanson
7 CH	401	Downs, Samuel <i>What Is the Effect of the Type of Salt on the Loss of Mass in Meat?</i>	Dorothy Hamm
7 CH	402	Lee, Isabel <i>The Effect of the Shape of Ice on the Amount of Time It Takes to Melt</i>	Dorothy Hamm
7 CH	403	Rouland, Sophia <i>The Perfect Pop: The Effect of Juice Type on the Spherical Consistency of Popping Boba</i>	Dorothy Hamm
7 CH	404	Stuppy, Maya <i>The Effect of Different Types of Flour on the Density of a Muffin</i>	George Washington
7 CH	405	Adams Rothrock, MJ; McCormick, Cecelia; Moline, Emma <i>Which Lengthens Best, Drug Store versus High End? (TEAM)</i>	Hammond
7 CH	406	Nigal, Ayush; Chu, Theodore <i>Egg-Squisite Crystals (TEAM)</i>	Jefferson
7 CH	407	Perez-Lopez, Miriam; Strauss, Charlotte <i>Stain Removers: Do They Really Need Chemicals to Clean? (TEAM)</i>	George Washington
8 CH	408	Baker, Jaime <i>The Effect of Different Natural Antacids on the pH of Vinegar</i>	Kenmore

8 CH	409	Beckner, Cayleigh <i>The Effect of Different Types of Oils on the Melting Point of a Lipstick</i>	Swanson
8 CH	410	Brosnan, B <i>What is the Effect of Hydrochloric Acid on Different Types of Migraine Medicines?</i>	Swanson
8 CH	411	Carney, Abigail <i>Rust Oxidation Prevention in Ocean Water</i>	Dorothy Hamm
8 CH	412	Dannes, Avelyn <i>The Effect of the Type of Sunscreen on the Duration of Effectiveness</i>	Williamsburg
8 CH	413	Desai, Maliya <i>The Effect of Different Weights of Paper Cups on How Well They Insulate Heat</i>	Dorothy Hamm
8 CH	414	Grigorescu, Ana <i>The Effect of Different Cleaning Techniques on the Color of Silver</i>	Williamsburg
8 CH	415	Hengst, Vivienne <i>The Effect of the Metal Composition of Cookware on How Much Material Leaches into Boiling Water</i>	Williamsburg
8 CH	416	Minor, Aidan <i>The Effect of Different Fire Starters on Burn Time</i>	Swanson
8 CH	417	Podolsky, Hayden <i>pHeeling Sour?</i>	Hammond



8 CH	418	Roske, Quinn <i>The Effect of Electrolyte Drinks on Conductivity</i>	Swanson
8 CH	419	Shattuck, Maia <i>Out, Out Darn Spot: The Effect of Different Commercial Stain Removers on Different Types of Stains</i>	Kenmore
8 CH	420	Bagai, Saira; Ebikwo, Eden <i>The Effect of Different Amounts of Sugar and Water on Eggshells (TEAM)</i>	Dorothy Hamm
9 CH	421	Culbertson, Vincent <i>Storing Batteries at Varying Temperatures</i>	Arlington Tech
9 CH	422	Majano, Allison <i>The Effect of Whitening Toothpaste Brands on Tooth Stain Removal</i>	Washington-Liberty
9 CH	423	Park, Thomas <i>The Effect of Potential Difference on the Rate of Galvanic Corrosion</i>	Yorktown
9 CH	424	Saperstein, Margaret <i>The Effect of Colloidal Silica Concentration in a Biodegradable Gel on Flame Retardation</i>	Washington-Liberty
9 CH	425	Waziri, Maryam <i>What Melts Ice Faster, Salt, Sugar, or Sand?</i>	Alexandria City HS
10 CH	426	Barry, Fatoumata <i>Acid versus Tylenol: Which Liquid Makes It Dissolve Faster?</i>	Alexandria City HS

10 CH	427	Calam, Ethan <i>The Effect of Solutes on the Freezing Point of Water</i>	Wakefield
10 CH	428	Flashberg, Natalie <i>The Effect of the Quantity of Eggs on the Cross-Sectional Height of Cupcakes</i>	Washington-Liberty
10 CH	429	Knepper, Abigail <i>The Effect of Different Cooking Methods on the Depletion of Vitamin C in Vegetables</i>	Washington-Liberty
10 CH	430	Parker, Jayce <i>The Natural Way</i>	Alexandria City HS
10 CH	431	Parment, William <i>The Type of Nut with the Most Calories</i>	Wakefield
10 CH	432	Wang, Yihe; Tang, Botao <i>Optimization of Surface Hydrophilicity and Hydrophobicity of Digital Microfluidic Chips and Its Applications (TEAM)</i>	Veritas
11 CH	433	Weber, Jackson <i>The Effect of Energy Drink Brand on Accuracy of Reported Caffeine Content</i>	Yorktown
11 CH	434	Wan, Hamo; Lu, Mirabelle; Mao, Zehang <i>Study on the Performance of Machine Learning-Assisted Nanocomposite Dielectrics (TEAM)</i>	Veritas

**35 Total Projects in Chemistry**

## Engineering

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7 EN	500	Lao, Naomi <i>The Effects of Architecture on Airflow</i>	Kenmore
7 EN	501	Hsu, Amelia; Hart, Laura <i>The Effect of Filtration Material on Filtrate Recovered in Water (TEAM)</i>	Dorothy Hamm
7 EN	502	Komlodi, Lea; Grignon, Elspeth; Thompson, Lilia <i>The Effect of Different Materials on the Cleanliness of Water (TEAM)</i>	Jefferson
7 EN	503	Van Duyn, Ben; Van Lare, Julian <i>Need for Speed (TEAM)</i>	H-B Woodlawn
8 EN	504	Atewologun, Corsen <i>Wind versus Heat: Which Can Charge a Phone Faster?</i>	Jefferson
8 EN	505	Cocuzzi, Sophia <i>How Does Arch Curvature Affect Load Carrying Capacity?</i>	Kenmore
8 EN	506	Horowitz, Helena <i>The Effect of the Distance from the Highway on Sound Wall Effectiveness</i>	Gunston
8 EN	507	Lashley, Addison <i>Solar Panels: Do More Lumens Affect the Amount of Time It Takes to Charge a Cell Phone?</i>	Gunston
8 EN	508	Leighton, Arden <i>The Effect of Water on the Strength of Polylactic Acid (PLA)</i>	Williamsburg

8 EN	509	McNally, Lucy <i>The Effect of the Type of Sea Wall on Milliliters of Water Splashed Over the Structure</i>	Swanson
8 EN	510	Sibley, Kayla <i>The Effect of Different Machine Learning Models on the Ability to Predict Market Success of a Book Using Cover Art</i>	Kenmore
8 EN	511	Smith, Edward <i>The Effect of the Type of Insulation on How Long It Holds Heat</i>	Dorothy Hamm
8 EN	512	Sylwester, Garrett <i>The Effect of the Amount of Fuel Used in a Rocket Launch on the Rocket's Heat Plume</i>	Gunston
8 EN	513	Talbot, Grayson <i>How Does Altitude Affect the Performance of a High Altitude Weather Balloon?</i>	Dorothy Hamm
9 EN	514	Gravelle, Jameson <i>The Effect of Materials on Capacitance</i>	Arlington Tech
9 EN	515	Heredia, Paul <i>The Effect of the Design of Tail Fin on Aerodynamics of a Rocket</i>	Arlington Tech
9 EN	516	Madha, Mahasin <i>Wind Turbines</i>	Alexandria City HS
9 EN	517	O'Neil-Vira, Ishaan <i>The Effect of Flywheel Size on a Lego Vacuum Machine</i>	Alexandria City HS

9 EN	518	Slapar, Charlotte <i>The Effect of Truss Bridge Design on Weight Bearing Capacity</i>	Arlington Tech
9 EN	519	Soronzonbold, Orgil <i>The Effect of Weight on Piezoelectric Electricity Output</i>	Washington-Liberty
9 EN	520	Dementi, Kye; Silva, Christian-Delfin <i>Which Airfoil Produces the Most Lift? (TEAM)</i>	Alexandria City HS
9 EN	521	Gunter, June; Munipalla, Megha <i>Magnets for Motion: Designing a Speed Control System Using Magnets (TEAM)</i>	Alexandria City HS
10 EN	522	Berger, Owen <i>Effects of Epilam Use in Watchmaking</i>	Arlington Tech
10 EN	523	Brooke, Josephine <i>Bubble It Up</i>	Yorktown
10 EN	524	Clemence, Idris <i>Space Sprouts</i>	Alexandria City HS
10 EN	525	Hurst, Mark <i>Effect of Blade Angle on Power Production</i>	Yorktown
10 EN	526	Ostrowski, Devin <i>The Effect of Different Materials on Magnetic Fields</i>	Arlington Tech

10 EN	527	Tarpley, Michael <i>Robotic Arm Using Arduinos and Servo Motors</i>	H-B Woodlawn
10 EN	528	Vasisht, Janak <i>Disrupting Renewable Energy With AI</i>	H-B Woodlawn

**29 Total Projects in Engineering**

## Environmental and Earth Sciences

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6 EV	600	Levene, Hannah <i>The Effect of Filter Materials on the Turbidity of Water</i>	Kenmore
6 EV	601	Lim, Jilliane <i>Save the Earth with Compost</i>	Patrick Henry
7 EV	602	Caffrey, Luke <i>Are "Flushable Wipes" Actually Flushable?</i>	Gunston
7 EV	603	Mellen, Connor <i>What Are the Effects of Worms on Mushroom Growth?</i>	Hammond
7 EV	604	Pearson, Amelia <i>What Are Cost-Effective and Efficient Ways of Filtering Polluted Water?</i>	Swanson
7 EV	605	Villwock, Eliana <i>The Effect of the Environment on the Water Quality In It</i>	Williamsburg
8 EV	606	Capiaux, Flora <i>The Effect of Polluted Water on the Health of Buckwheat and French Radishes</i>	Kenmore
8 EV	607	Choi, Olivia <i>The Effect of School versus Urban Location on the Amount of Lead in Soil in Arlington and Pennsylvania</i>	Dorothy Hamm
8 EV	608	Cordova, Rossybell <i>The Effect of Greenhouse Gasses on the Temperature of Air</i>	Kenmore

8 EV	609	Fern, Harper <i>Digging Deeper: The Effect of Type of Soil Environment on Amount of Microorganisms</i>	Kenmore
8 EV	610	Ganzorig, Aranz <i>The Effect of Sand Particle Size on Phosphorus Removal in Water Filtration</i>	Swanson
8 EV	611	Troost, Danny <i>The Effect of Solar Energy on Different Types of Solar Panels</i>	Swanson
8 EV	612	Zee, Rebecca <i>The Effect of Cadmium Selenide Quantum Dot Diameter on Photocatalytic Water Purification Efficiency</i>	Kenmore
8 EV	613	Barad, Tara; Goel, Shivani <i>Investigation of Water Quality in Donaldson Run, a Tributary of the Potomac River (TEAM)</i>	Dorothy Hamm
8 EV	614	Chowdhury, Fathimah; Chitalkar, Saeed; Hossain, Anusha <i>The Effect of Differences Between the Properties of Biodegradable and Nonbiodegradable Plastics on the Environment (TEAM)</i>	Jefferson
8 EV	615	Kelley, McKenzie; D'Amico, Alessandra <i>Purifying Salt Water Using Thermal Desalination (TEAM)</i>	Swanson
9 EV	616	Do, Lan-Madeleine <i>The Effect of Water Barriers on Water Damage and Erosion</i>	Arlington Tech
9 EV	617	Ghosh, Sid <i>The Effect of the Type of Algae on the Change in Water Quality Through Phycoremediation</i>	Yorktown



9 EV	618	Guttridge, Ari <i>The Effect of Different Materials in Aquifers on the Efficiency and Effectiveness of Water Filtration</i>	Arlington Tech
9 EV	619	Leaning, Alexandra <i>Precipitation and Pollution: Analyzing Water Quality Before and After Rain Using Digital and Manual Measurement Modalities</i>	Wakefield
9 EV	620	McGeorge, Tyler <i>The Effect of Water Filtration Method on the Amount of Contaminants Removed</i>	Yorktown
9 EV	621	Wells, Cassidy <i>The Effect of Different Color Wavelengths on the Power Output of Different Solar Cells</i>	Yorktown
9 EV	622	Zanni, Celia <i>The Effect of the Type of Hydrogel on the Amount of Water Absorbed</i>	Yorktown
10 EV	623	Butzer, Allison <i>Which Material Can Clean Up an Oil Spill Most Effectively?</i>	Washington-Liberty
10 EV	624	Klein, Florence <i>Wacky Water Filtration</i>	Alexandria City HS
10 EV	625	Mitzen, Julia <i>Heat Conduction and Retention of Metals</i>	Wakefield
10 EV	626	Mulder, Malena <i>Comparison of Print Methods on Image Fading Due to UV Light Exposure</i>	Alexandria City HS

10 EV	627	Ondias-Souna, Oyane <i>Portable Water Filter To Be Used in Refugee Camps</i>	Washington-Liberty
10 EV	628	Ruiz Castro, Davian <i>(C6H10O5)<sub>n</sub> Cellulose</i>	Alexandria City HS
10 EV	629	Schofield, Caroline <i>Biodegradable Hydrogels and Water Conservation</i>	Alexandria City HS
10 EV	630	Martin, Maya; Latifi, Mursal <i>How Do Different Straws Biodegrade Over Time? (TEAM)</i>	Alexandria City HS
10 EV	631	Zee, Rachel; Rahman, Sumra <i>The Effect of Fertilizers with Different NPK Levels on Eutrophication (TEAM)</i>	Wakefield
11 EV	632	Ackleson, Emma <i>Comparing the Carbon Sequestration of Algae and Diatom Phytoplankton in a Replicated Epipelagic Environment Under Simulated Climate Change Conditions</i>	Washington-Liberty
11 EV	633	Fiorino, Anthony <i>The Effect of Liquid Medium Aeration on the Decolorization of Crystal Violet by <i>Trametes versicolor</i></i>	Washington-Liberty
11 EV	634	Mukhtar, Ayah <i>Solar Energy: The Effectiveness of Solar Powered Water Desalination</i>	Wakefield
11 EV	635	Torg, Carrie <i>Hidden Contaminants: Quantifying Microplastics in Common Proteins</i>	H-B Woodlawn

11 EV	636	Qadir, Zaineab; Hardwick, Katie <i>Hydrogen from Sunlight: Creating Clean Fuel with Artificial Photosynthesis (TEAM)</i>	Yorktown
11 EV	637	Xu, Yuesi; Huang, Tianxiao; Wu, Chenfan <i>Directed Evolution Enhances the Activity of Polyethylene Terephthalate (PET) Degrading Enzymes (TEAM)</i>	Veritas

**38 Total Projects in Environmental and Earth Sciences**

## Mathematics and Computer Science

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7 MC	700	Sarkar, Ayan <i>AI Detectability in Writing</i>	Hammond
8 MC	701	Russell, Nolan; Wagnon, Tim <i>The Effects of Data Age on Accuracy of a Predictive Model (TEAM)</i>	Swanson
9 MC	702	Kuoh, Michael <i>The Effect of Seasonal Conditions on the Effective Reproduction Number of COVID-19 in Maryland</i>	Yorktown
9 MC	703	Seyran, Zeynep <i>eZphython (c), a Higher Level Programming Language, on the Relationship Between the User and Microcontroller</i>	Washington-Liberty
10 MC	704	Clarke, Tess <i>Using Machine Learning to Diagnose Breast Cancer</i>	Alexandria City HS
10 MC	705	Cohen, Gabriel <i>Binary Classification of Human and AI-Generated Music Using a Convolutional Neural Network</i>	Yorktown
10 MC	706	Hazari, Jasmin <i>Effect of Low-Resource Languages on Automatic Speech Recognition Pre-Trained Datasets</i>	Washington-Liberty
10 MC	707	Sirak, Sam <i>TumorRiskEdu: A Machine Learning-Based Application for Brain Tumor Detection and Education</i>	Alexandria City HS
10 MC	708	Yimer, Sabrina <i>Utilizing a Random Forest Model for Glaucoma Diagnosis Through Gene Expression Profiling</i>	Washington-Liberty

11 MC	709	Lach-Hab, Nadia <i>Mathematical Interpretations and Diagnoses of EEG Seizure Data: Highly Accurate Mathematical Model for Automated Diagnosis of Pediatric Seizures from EEG Data</i>	Washington-Liberty
11 MC	710	O'Reilly, Brendan <i>An Investigation of Discretization of Differentiable Scalar Fields as a Means of Procedural Generation Without Artifacts</i>	Yorktown
11 MC	711	Elmagraby, Mya; Khalifa, Tarek <i>Creating a Tool That Transcribes and Summarizes Lectures into an Adaptable Notes Format (TEAM)</i>	Washington-Liberty
12 MC	712	Shi, Ziyi; Li, Meipan; Peng, Ho Ming Tim <i>Anti-Aging Effect of WGx-50: A Comprehensive Experimental and Theoretical Study (TEAM)</i>	Veritas

**13 Total Projects in Mathematics and Computer Science**

## Medical and Health Sciences

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7 ME	800	Wagman, Garrett <i>How Do Different Beverages Affect Tooth Enamel Simulators?</i>	George Washington
8 ME	801	Arul Palaniraj, Vishnuvardhini <i>The Effect of Radioactive Iodine Treatment for Thyroid Cancer on the Risk of Second Primary Malignancies</i>	Jefferson
8 ME	802	Caparas, Paige <i>The Effect of Various Treatments on Managing the Progression of Childhood Myopia (Nearsightedness)</i>	Williamsburg
8 ME	803	Chen, Avery <i>How Different Factors Increase Cancer Risks: Smoking and Genetics on Scratch</i>	Dorothy Hamm
8 ME	804	Eberhart, Jr., Darien <i>Unmasking the Unhealthy Fats: Their Role in Liver Disease</i>	Jefferson
9 ME	805	Carpenter, Kylie <i>The Effect of Moisturizer on the Shrinkage of Jell-O</i>	Yorktown
9 ME	806	Jolly, Avaani <i>The Effect of Cleaning Techniques on Food Allergy Presence</i>	Yorktown
10 ME	807	Fitzgerald, Maya <i>Radiation Separation: The Effects of SPF Level and Sunscreen Type on UV Radiation</i>	Alexandria City HS
10 ME	808	Fan, Jerry Jiayu; van Linden, Maria <i>One-pot Assay for Rapid Detection of Hepatitis B Virus by Combining RPA and CRISPR/Cas12 in Saliva (TEAM)</i>	Veritas

11 ME	809	Madison, Kaitlin <i>Investigating the Relationship of Ataxia Telangiectasia Mutated (ATM) and BRCA via the DNA Repair Pathway</i>	Washington-Liberty
11 ME	810	Uddin, Maqsuda <i>The Effect of Photonic Stimulus Duration on Retinal Image Persistence and Neural Adaptation in Visual Perception Mechanisms</i>	Wakefield
11 ME	811	Zhang, Lingyue Joyce; Du, Qingyou <i>Portable Multi-Target Detection for Colorectal Cancer (CRC) via ncRNA and cfDNA (PMT-CRC) (TEAM)</i>	Veritas
12 ME	812	Chopra, Naya <i>Targeting CEACAM-1 Using Small Molecules to Develop Novel Cancer Immunotherapies</i>	H-B Woodlawn
12 ME	813	Mohanty, Anna <i>RNA Knot: Topological-Based Prediction of Proviral DNA Expression</i>	Washington-Liberty

**14 Total Projects in Medical and Health Sciences**

## Microbiology

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9 MI	900	Baba, Nina <i>The Effect of Different Plant Extracts on the Growth of Escherichia coli</i>	Washington-Liberty
9 MI	901	Chudiwale, Arya <i>The Effect of Natural Compounds on the Growth of Escherichia coli Strain 12 as a Model for Cancer Cell Suppression</i>	Washington-Liberty
9 MI	902	Fuelling, Addison <i>The Effect of the Type of Vinegar Used to Make Oxymel on Staphylococcus epidermidis Growth</i>	Washington-Liberty
10 MI	903	Abdelbagi, Amna <i>The Effect of the Distance of the UV Radiation on Saccharomyces cerevisiae Growth</i>	Yorktown
10 MI	904	Desai, Suhani <i>The Effect of UV Light Wavelength on Escherichia coli K-12 Growth</i>	Yorktown
10 MI	905	Elfar, Jada <i>Which High School Bathroom Stall is the Dirtiest?</i>	Washington-Liberty
10 MI	906	Hengst, Sadie <i>The Effect of Different Natural Prebiotic Foods on Bacillus subtilis</i>	Washington-Liberty
10 MI	907	Lyons, Momoka; Thomas, Morgan <i>The Effect of Wet and Dry Foods on Bacteria Transfer (TEAM)</i>	Washington-Liberty
11 MI	908	Allyn, Noah <i>The Role of DNA Repair Systems in Antibiotic Resistance Acquisition: Using CRISPR-Cas9 to Compare HDR and MMEJ in Escherichia coli K-12</i>	Washington-Liberty

### **9 Total Projects in Microbiology**



## Physics and Astronomy

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6 PH	1000	Gross, Thomas <i>The Effect of Density on Radiation Blocking Capabilities</i>	Gunston
6 PH	1001	Moore, Mihret <i>Ball versus Texture</i>	Patrick Henry
6 PH	1002	Zelenovic, Alec <i>Better Bats, Better Hits: What Material Matters in High-Flying Performance?</i>	Gunston
7 PH	1003	Carpenter, Kara <i>The Effect of the Color of Fabric on the Amount of Ultraviolet Light Absorbed</i>	Williamsburg
7 PH	1004	Carstens, Kaeli <i>Stay Tuned</i>	George Washington
7 PH	1005	Gamache, Brielle <i>The Effect of Draw Weights on an Arrow's Speed</i>	Dorothy Hamm
7 PH	1006	McClinch, Evaleen <i>The Effect of Thickness of Body Protector on Force of Impact</i>	Williamsburg
7 PH	1007	McQuillan, Gabriela <i>The Effect of the Type of Flooring on the Loudness of the Tap Shoe</i>	Williamsburg
7 PH	1008	Rahman, Tasnia <i>The Effects of Different Wavelengths of Light on the Interference Pattern of the Double-Slit Experiment</i>	Hammond

7 PH	1009	Thuma, Aidan <i>What Is the Effect of Different Types of Surfaces on How Fast a Puck Moves?</i>	Williamsburg
7 PH	1010	Garcia, Ethan; Remus, William <i>The Effect of the Solute in Water on Its Ability to be Supercooled (TEAM)</i>	Gunston
8 PH	1011	Ayalew, Maedot <i>The Effect of Solar Magnetic Flux and Spatiotemporal Interplanetary Magnetic Field Variations on Space Weather Prediction Accuracy</i>	Kenmore
8 PH	1012	Butler, Helen <i>The Effect of Counterweight Mass on Trebuchet Projectile Distance</i>	Swanson
8 PH	1013	Hirst, Anders <i>The Effect of Temperature on Magnetism</i>	Gunston
8 PH	1014	Rathod, Ishaan <i>The Effect of Speed on Electric Voltage Produced by Cars</i>	Swanson
8 PH	1015	Wondimagegn, Beza <i>Cosmic Impact</i>	Hammond
9 PH	1016	Gallagher, James <i>The Effect of Wind Speed on Water Temperature</i>	Yorktown
9 PH	1017	Herrick, Sam <i>The Effect of Temperature on the Strength of a Magnetic Field</i>	Yorktown

9 PH	1018	Shaw, Ryan <i>The Effect of Density and Stiffness on the Spread of Sound Through Different Mediums</i>	Washington-Liberty
9 PH	1019	Wilson, Alex <i>The Effect of the Type of Fin on the Height a Rocket Travels</i>	Yorktown
9 PH	1020	Vajjhala, Kavya; Hutchinson, Genevieve <i>Satellite Science: The Effect of Speed on Satellite Trajectory (TEAM)</i>	Alexandria City HS
10 PH	1021	Barua, Preontee <i>What is the Effect of Varying Magnetic Field Shapes on Magnetism?</i>	Wakefield
10 PH	1022	Chinoy, Eric <i>The Effect of Shell Shape on the Speed of an RC Car</i>	Yorktown
10 PH	1023	Mathew, Nicholas <i>The Effect of Color on the Absorption of Radiant Energy</i>	Washington-Liberty
10 PH	1024	Shewchuk, Abigail <i>"Hide and Go Stealth"</i>	Alexandria City HS
11 PH	1025	Leighton, Declan <i>The Analysis of the Effect of Input Power on the Efficiency of a Magnetoplasmadynamic Thruster Using Magnetic Deflection and Phosphor Screen Emission</i>	Yorktown

**26 Total Projects in Physics and Astronomy**

## Plant Sciences

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6 PS	1100	Co, Juna; Mahoney, Mallory <i>Rainbow Plants (TEAM)</i>	Patrick Henry
6 PS	1101	Dihn, Nhi; Ahmadzai, Hajira <i>Growth of a Plant Depending On Its Liquid (TEAM)</i>	Patrick Henry
7 PS	1102	Birdsall, Lillianna <i>The Effect of the Type of Natural Fertilizer on the Height of the Lima Bean Plant</i>	Williamsburg
7 PS	1103	Fuenmayor, Christopher <i>The Sound of Growth: Exploring the Effect of Music on Plants</i>	Gunston
7 PS	1104	Scanlon, Harper <i>Which Type of Flower Changes Most from Dye?</i>	Jefferson-Houston
8 PS	1105	Hirschfield, Leyla <i>The Effect of the Amount of Table Salt in Water on the Height of Radish Plants</i>	Kenmore
8 PS	1106	Metwaly, Alaa <i>The Effect of Salinity on Arugula</i>	Jefferson
8 PS	1107	Szeto, Michael <i>The Effect of Hornwort (<i>Ceratophyllum demersum</i>) on the Absorption of Nitrates from Organic and Synthetic Fertilizers in Water</i>	Jefferson
8 PS	1108	Tran, Y-Lan <i>The Effect of the Type of Greywater on the Height of a Plant</i>	Williamsburg

8 PS	1109	Williams, John <i>The Effect of Light Color on Plant Growth</i>	Swanson
8 PS	1110	Stern, Charlotte; Salerno, Ella <i>The Growth Is Shocking: The Effect of Electroculture on Plant Growth (TEAM)</i>	George Washington
9 PS	1111	Camey Gomez, Sarai <i>The Effect of Fertilizers on Plant Survival During a Drought</i>	Arlington Tech
9 PS	1112	Karlton, James <i>The Effect of Nicotine on Plant Growth</i>	Arlington Tech
10 PS	1113	Lehn, Rachel <i>The Effect of pH on African Violet Root Growth</i>	Wakefield
10 PS	1114	Lester, Siena <i>Boiling Point Revival</i>	Alexandria City HS
10 PS	1115	Shoffner, Sophia <i>The Effect of the Plant Type on Root Height When Placed in a Microgravitational Environment</i>	Washington-Liberty
10 PS	1116	Vargas, Jennifer <i>Growth of Tomato Plants with Fertilizers</i>	Alexandria City HS
10 PS	1117	Dalton, Arthur; Tesfai, Essam <i>The Future of Sustainable Agriculture: Hydroponics and Beyond (TEAM)</i>	Alexandria City HS

**18 Total Projects in Plant Sciences**