

2022 Prince William-Manassas Regional Science and Engineering Fair Middle Division Program

Animal Sciences

Students	School	Grade	Project Title & Research Question
Nithya Kasiraman	Bull Run Middle School	8	Effect of a Guinea Pig's Memory on Its Ability to Complete a Maze Does the number of times a guinea pig navigates a maze affect how long it takes it to complete the maze each time?
Betsabe Jimenez	Gainesville Middle School	7	Super Worm Environment What is the effect of worm speed on the environment?
Anne Tessier	All Saints Catholic School	7	Musical Eggs: An Analysis on the Effect of Various Music on Egg Production in Hens How does various music affect egg production in hens?
Isabel Rojas	Porter Traditional School	7	Sound Rescue How well do fish react to different volumes of sound?
Kaydence Peterson	Graham Park Middle School	8	The Effect of Different Music Genres on Rabbits Do different types of music affect rabbits and if so, how?

Behavioral Sciences

Project #	Students	School	Grade	Project Title & Research Question
BEH-MS-1	Avery Snyder	Potomac Shores Middle School	7	How can Technology Impact Middle Schoolers' Stress Levels While Using it in the Classroom? Does utilizing technology and digital platforms as a primary source of learning and teaching have a negative impact in a middle school student's overall stress levels?
BEH-MS-2	Taylor Campbell	Bull Run Middle School	8	What is the Effect of the Amount of Sleep on a Teenager's Response Rate? What is the effect of the amount of sleep on a teenager's response rate?
BEH-MS-4	Juliana Polanco	All Saints Catholic School	7	Is Children's Test Performance Affected by Unhealthy Foods? Can unhealthy foods affect test performance?
BEH-MS-5	Sajeela Ahmad	Benton Middle School	7	The Effect of the Regularity of Playing Video Games on Reaction Times and Simple Math Skills Does the regularity of playing video games affect reaction times and simple math skills?
BEH-MS-6	Jack Sarchet	All Saints Catholic School	7	Do Video Games Really Rot Your Brain? The Effects of Video Games on IQ How is the IQ of an individual affected by playing video games?
BEH-MS-7	Stephanie Berk	Parkside Middle School	8	The Use of Social Media by Female Adolescents and Their Mothers How does the use of social media impact female adolescents and their mothers?

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BEH-MS-8	Copeland Sydney	Gainesville Middle School	7	The Effects of Person's Career Cluster on Career Cluster Test Results If the person's career cluster changes will the outcome of the test results be the career cluster that the person is in?
BEH-MS-9	Stephanie Cuprak	The Nokesville School	8	The Effect of Background Noise on Stress Levels Why are some sounds more relaxing than others?
BEH-MS-10	Erin Heim	Graham Park Middle School	6	Running Memory What exercise helps memory the best?
BEH-MS-11	Shahan Naeem	Graham Park Middle School	7	Color Craze How does color influence memory?
BEH-MS-12	Aarielle Nicholson	St. Thomas Aquinas Regional School	7	The Bouba-Kiki Effect When language first developed, was matching sounds to pictures automatic or learned?

Biochemistry

Project #	Students	School	Grade	Project Title & Research Question
BCH-MS-1	Jennifer Heilen	Reagan Middle School	8	The Effect of Catalase on the Decomposition of Hydrogen Peroxide What happens when a potato is combined with hydrogen peroxide?
BCH-MS-2	Carolyn Krafft	Parkside Middle School	6	The Effect of Different Types of Sunscreens on UV Sensitive Yeast Which broad spectrum sunscreen (mineral type vs. physical type) is most effective at protecting UV-sensitive yeast cells?
BCH-MS-3	Katherine Cadugan	St. Francis of Assisi School	8	The Effect of Spice-Chasers on Levels of Spice Tasted What drink/food counteracts spice the best?
BCH-MS-4	Bokre Samson Tan Ho Michael Obeng	Rippon Middle School	7	The Effect of Surface Temperature on a Fingerprint's Clarity How does surface temperature affect the clarity of a fingerprint?
BCH-MS-5	James Ngo Ezekiel Andrade Ikechukwu Ezekwe	Rippon Middle School	8	The Effect of Ultraviolet Light on Yeast Colonies Does UV light have an effect on yeast colonies?
BCH-MS-6	Penelope Kramer	Seton School	7	Candid Candy What is the effect of different temperatures on hardness and color depth of maple syrup candy?
BCH-MS-7	Abigail Curisinche	Gainesville Middle School	7	The Browning of Apples What is the effect of liquids on apples slices?
BCH-MS-8	Dylan Sagudan	St. Francis of Assisi School	7	The Effect of Temperature on the Freshness of Organic Fruits How does temperature affect organic fruit freshness?

Chemistry

Project #	Students	School	Grade	Project Title & Research Question
CH-MS-1	Livia Kouts	Reagan Middle School	8	The Effect of Different Hair Bleaches on the Strength of Hair Which hair bleaches damage hair the most?
CH-MS-2	Madison Casler	St. Francis of Assisi School	7	How Different Leavening Agents Affect the Rising of a Muffin Which leavening agent makes a muffin rise the highest?
CH-MS-3	Nassime Rahimi	Parkside Middle School	8	The Effect of Water Temperature on Luminol Efficiency How does water temperature affect luminol efficiency?
CH-MS-4	Michelle Schlien	Parkside Middle School	6	The Effect of Acidity on Steel Wool How does changing the type of acid affect the amount of rusting on steel wool?
CH-MS-5	Isabella Boles	Gainesville Middle School	7	Expanding Goo: The Effect of Household Ingredients on Slime's Viscosity What is the effect of ingredient on slime's viscosity?
CH-MS-6	Riley Devereaux	Reagan Middle School	8	Heat That Ice Cream Does the amount of methyl cellulose that I put in the ice cream solution determine how hot the ice cream will be or how long it will take to melt?
CH-MS-7	Peter Fahy	Porter Traditional School	6	The Effect of pH on Corrosion How does pH affect the corrosion of steel?
CH-MS-8	Eliab Melaku	Porter Traditional School	7	The Conduction of Electricity in Different Solutions Would the table salt solution, the baking soda solution, or the distilled water solution facilitate electrolysis the best?
CH-MS-9	Evelyn Wiederholt	St. Francis of Assisi School	8	How do Certain Materials Affect the Freezing Point of Ice Cream? How do certain materials affect the freezing point of ice cream?
CH-MS-10	Jeremiah Hogan	Potomac Shores Middle School	6	Crystal Science Does sugar dissolved in water grow crystals, and why?
CH-MS-11	Emma Thoman	Gainesville Middle School	7	To Sphere or Not to Sphere What is the effect of sodium citrate on liquids?
CH-MS-12	Isabel Cartledge	Woodbridge Middle School	6	The Science of Spherification How do you create the popping boba balls used as frozen yogurt toppings?

Computational Biology & Bioinformatics

Project #	Students	School	Grade	Project Title & Research Question
BI-MS-1	Elif Yazak	Gainesville Middle School	7	Are Your Fingerprints Inherited from Your Parents? What is the effect of the parent's fingerprint type to their child's fingerprint type?

Computer Science

Project #	Students	School	Grade	Project Title & Research Question
COMP-MS-2	Hillel Moretz	Graham Park Middle School	6	The Effect of the Learning Rate Parameter on the Accuracy of Artificial Neural Networks How is the accuracy of an Artificial Neural Network (ANN) affected by the learning rate parameter if no other parameters are changed?
COMP-MS-3	Ibrahim Alsheikh	Porter Traditional School	7	Which Social Media Platform Will Attract More Customers to Your E-commerce Site? Which social media platform will attract more customers to an e-commerce store based on an ad seen on their site?

Earth & Planetary Sciences

Project #	Students	School	Grade	Project Title & Research Question
EA-MS-1	Isabella Hernandez-Zapata	All Saints Catholic School	7	Light Crystals- The Effect of Light on Crystal Growth How does light affect crystal growth?
EA-MS-2	Madeleine Morse-Hill	Saunders Middle School	8	The Effect of Filters on Exoplanet Data What changes on exoplanet photographs are made with different filters?
EA-MS-3	Abigail Chang	Gainesville Middle School	7	The Effect of Time Keeping-Device on Accuracy What is the effect of time-keeping device on accuracy?
EA-MS-4	Emily Benack	Gainesville Middle School	7	The Effect of Water on Marble's Score on the Moh's Scale What is the effect of water on marble's score on the Moh's Scale?

Engineering

Project #	Students	School	Grade	Project Title & Research Question
ENG-MS-1	Mazen Ben Chouikha	Reagan Middle School	7	The Effect of the Ratio of Baking Soda on How High the Reaction Is What ratio of baking soda to vinegar will create the highest reaction?
ENG-MS-2	Abel Tilahun	Porter Traditional School	8	Rubber Band Elasticity Based on Temperature Does the temperature affect the elasticity of a rubber band?
ENG-MS-3	Nachiketa Mahajan	Marsteller Middle School	7	Propeller Design for Wind Generators Which propeller design generates the most energy?
ENG-MS-4	Kara Tran	Marsteller Middle School	8	The Effect of Rollerblading on Charges Generated by Kinetic Energy Is it possible to double the amount of charges harnessed by rollerblading?

Project #	Students	School	Grade	Project Title & Research Question
ENG-MS-5	Sahil Shakeel Amadu Sesay	Rippon Middle School	7	The Effect of Altering the Design of a Beam Bridge on How Much Mass it can Bear What aspects of a bridge make it strong, and how can we implement it onto the design of a beam bridge?
ENG-MS-6	Andrew Kern	St. Francis of Assisi School	8	The Effect of Bridge Design on Bridge Strength How does the design of the bridge affect how strong the bridge is?
ENG-MS-7	Kayla Templeton	Graham Park Middle School	6	How Drag Affects Airplanes How does drag affect airplane flights?
ENG-MS-8	Clara Lee	Gainesville Middle School	7	Helping Hand What is the effect of weight on time?
ENG-MS-10	Leyla Altom	Manassas Christian School	7	The Effect of the Design of a Solar Oven on Heating a Jar of Water What is the effect of the design shape on the efficiency of the solar oven?

Environmental Science

Project #	Students	School	Grade	Project Title & Research Question
ENV-MS-1	Anaum Moniruzzoha	Reagan Middle School	7	The Effects of Different Types of Sorbents on Oil and Water How do different types of sorbents affect oil and water?
ENV-MS-2	Rosaphi Le Lauren Obeng	Rippon Middle School	7	The Effect of Motor Oil on the Rate of Photosynthesis in Hornwort Will motor oil affect the rate of photosynthesis in hornwort?
ENV-MS-3	Gwendolyn Britcher	Reagan Middle School	7	The Effect of Carbon Dioxide Levels on Temperature Does the amount of plants in an environment affect the level of carbon dioxide and temperatures in the environment?
ENV-MS-4	Ansif Kitessa	Saunders Middle School	8	The Effect of Compost Components on the Growth of the Slenderette Bean Plant Does the type of compost you use when planting have an impact on the growth of the plant?
ENV-MS-5	Ella Morris	Gainesville Middle School	7	The Effect of Graywater on Plant Growth What is the effect of graywater on plant growth?
ENV-MS-6	Jasmine Dela Vega	St. Francis of Assisi School	7	The Effect of the Type of Filter on the Cleanliness of Water How does the type of filter affect how clean the water is?
ENV-MS-8	Natasha Sharma	Porter Traditional School	8	Acid Rain, Such a Pain What is the effect of acid rain on buildings?
ENV-MS-9	Ria Rawoor	St. Francis of Assisi School	7	The Effect of Plants on Soil Erosion How do plants affect soil erosion?
ENV-MS-10	Linda Pistun	Gainesville Middle School	7	Worms for the Win: The Effects of a Polystyrene Diet on <i>Tenebrio molitor</i> Development, Subsequent Breeding Behavior, and Offspring Outcome What are the effects of a polystyrene diet on <i>Tenebrio molitor</i> development, subsequent breeding behavior, and offspring outcome?

Project #	Students	School	Grade	Project Title & Research Question
ENV-MS-11	Eleanor Bowling	Graham Park Middle School	7	The Effect of Plants on Water Erosion How does the addition of plants affect how much soil is eroded by water?
ENV-MS-12	Aashaz Ahmad Abhaya Shrestha	Rippon Middle School	8	A Comparative Evaluation of the Hyperaccumulative Abilities of Tropical Plants in Phytoremediative Removal of Heavy Metals from Soil Which of the hyperaccumulators being tested is most efficient in the phytoremediation of metals from soil?
ENV-MS-13	Vedkris Burra	Graham Park Middle School	7	The Effect of Solar Power on Water Desalination What is the Effect of Solar Power on Water Desalination?

Materials Science

Project #	Students	School	Grade	Project Title & Research Question
MAS-MS-1	Peter Harvill	All Saints Catholic School	7	Chill Out How do different types of fabric affect temperature conservation?
MAS-MS-2	Hailey Amaya Halima Chaudry	Rippon Middle School	8	The Effect of a Liquid's Density on the Pitch of Sound Does density create a higher or lower pitch?
MAS-MS-3	Breydon Pomeroy	All Saints Catholic School	7	The Effect of Battery Voltage on the Brightness of a Circuit Tester How does battery voltage affect brightness on a circuit tester?
MAS-MS-4	Ava Repoli	Gainesville Middle School	7	The Effect of Different Rust Inhibitors on the Amount of Rust on Steel Nails What is the effect of different rust inhibitors on the amount of rust on steel nails?
MAS-MS-5	Anna Remsen	Gainesville Middle School	7	The Effect of Exposure to Sunlight on Plastic Bag Strength What is the effect of exposure to sunlight on plastic bag strength?
MAS-MS-6	Shaan Patel	Porter Traditional School	7	Temperature Change of Different Household Blankets What is the best heat-retaining household blanket?
MAS-MS-7	Lillian Grace Branco Allison Skipper	Porter Traditional School	7	An Analysis of the Effectiveness of Various Mask Types at Containing Germs What type of mask is most effective for holding germs in?
MAS-MS-8	Arianna Rodriguez	Graham Park Middle School	8	What's Poppin'? Which brand of popcorn pops the most pieces?
MAS-MS-9	Sofia Sandoval	Graham Park Middle School	7	The Effect of Bleach on Fabrics When Left on for Three Days What is the reaction of three different types of fabric when left in bleach for three days?
MAS-MS-11	Kayleigh Lancaster	Manassas Christian School	7	The Effect of Dog Collars on the Force of a Walking Dog What is the effect of dog collars on the force of a walking dog?
MAS-MS-12	Kailynn Denney	Manassas Christian School	7	The Effect of Different Soaps on Removing Germs What is the effect of different soaps on removing germs?

Mathematics

Project #	Students	School	Grade	Project Title & Research Question
MAT-MS-1	Zareef Said	Reagan Middle School	8	The Effect of Mathematically Significant Numbers on the Mutation of the COVID-19 Genome Over Time Since mathematically significant numbers can be found in nature, are they encoded in actual genes?
MAT-MS-2	Grant Blackmer	Potomac Shores Middle School	8	What Demographic Statistic Best Predicts a Person's Political Views? What demographic statistic best predicts a person's political views?
MAT-MS-3	Caden Bartlebaugh	Gainesville Middle School	7	Battle of the Home Field What is the effect of playing at home on winning percentage?

Medicine & Health Sciences

Project #	Students	School	Grade	Project Title & Research Question
MED-MS-1	Nikki Alemzadeh	Benton Middle School	8	The Effect of Different Smoothies on Glucose Level What is the sugar content in different "healthy" drinks?
MED-MS-2	Ahmad Basim Alemy	Gainesville Middle School	7	Does the Number of Sutures Affect the Amount of Weight They Can Hold? Do the number of sutures affect the amount of weight that they can hold onto?
MED-MS-3	Eden Oldenburg	Benton Middle School	8	The Effect of Gravity on Height How does gravity impact human height?
MED-HS-4	Sayed Sadat	Graham Park Middle School	7	The Effect of Video Games on the Body How do video games affect heart rate?
MED-MS-5	Edward Craig	Graham Park Middle School	8	The Effect of Orange Juice and Sports Drinks on Replenishing Electrolytes Is orange juice or sports drinks better for replenishing electrolytes?

Microbiology

Project #	Students	School	Grade	Project Title & Research Question
MCB-MS-1	Sara Moussav	Benton Middle School	7	The Effect of Mask Wearing Duration on Bacterial Growth How does the amount of time a mask is worn affect the growth of bacteria on a mask?
MCB-MS-2	Andrew Lee	Reagan Middle School	7	The Effect of Dropping Different Types of Food on Different Types of Surfaces What types of surfaces impact the number of bacteria present on varying moisture-rich foods?
MCB-MS-3	Athena Westbrook	Bull Run Middle School	7	What is the Effect of Ultraviolet Waves on Yeast Colony Growth? What is the effect of ultraviolet waves on yeast colony growth?
MCB-MS-5	Isabelle Gerona	St. Francis of Assisi School	7	The Effect of Water Stagnation on Bacterial Growth How does water flow affect bacterial growth?

Physics

Project #	Students	School	Grade	Project Title & Research Question
PHY-MS-1	Evelyn Rennolds	All Saints Catholic School	7	Flying Tees What is the effect of the length of golf tees on golf ball driving distance?
PHY-MS-2	Dashiell West	Bull Run Middle School	8	Ionizing Radiation from Common Household Elements Observed in a Cloud Chamber What common household element gives off the most ionizing radiation visible in a cloud chamber?
PHY-MS-3	Lucy Lu	Reagan Middle School	8	Does the "Perpetual" Water Wheel Really Exist? Can this so-called "perpetual" water wheel really spin perpetually?
PHY-MS-4	Abigail Osei Payten Burdick	Rippon Middle School	8	The Effect Varying Air Pressures Have on the Distance a Volleyball Travels Will varying air pressures affect the distance a volleyball travels in meters?
PHY-MS-5	Michael Oppong	Rippon Middle School	8	The Effect of Helium on Soccer Balls How does helium affect soccer balls?
PHY-MS-6	William Woznack	Parkside Middle School	8	The Effect of Electromagnet Material on Magnetic Field Distance What is the effect of electromagnet material on magnetic field distance?
PHY-MS-7	Lucas Theissen	All Saints Catholic School	7	Super Sonic - The Effect of Aerodynamics on a Paper Airplane's Flight Time and Distance Traveled How does the design of a paper airplane affect the flight time and distance traveled?
PHY-MS-8	Aoife Haggerty	Seton School	7	Winds of Change What is the effect of different shaped propellers on the maximum number of weight a windmill can lift?
PHY-MS-9	Michael Seubert	Graham Park Middle School	8	Hot and Cold Currents: The Effect of Different Preparing Methods on a Potato's Electrical Current Which way of preparing a potato generates the most electrical current?
PHY-MS-10	Alexander Haines	Parkside Middle School	8	The Effect of Weight Distribution on the Speed of a Boat How does weight distribution affect the speed of boat?
PHY-MS-11	Nathaniel Templeton	Graham Park Middle School	8	The Effect of Heat on Different Insulation Materials What type of insulation works best to prevent heat from radiating through?
PHY-MS-12	Nathaniel Salley	St. Francis of Assisi School	7	The Effect of Adding Coils to an Electromagnet: The Path of Magnetomotive Force How does the number of coils affect the strength of an electromagnet?

Project #	Students	School	Grade	Project Title & Research Question
PHY-MS-13	Jackson Pace	St. Francis of Assisi School	8	The Effect of Different Gases on the Flight of a Soccer Ball How does the type of gas in a soccer ball affect the distance it will go?
PHY-MS-14	Kathryn Atkinson	Seton School	7	Landslides! What is the Effect of Surfaces on the Angle of Repose? What is the effect of surfaces on the angle of repose?

Plant Sciences

Project #	Students	School	Grade	Project Title & Research Question
PLT-MS-1	Maahir Data Hasibullah Habibi	Porter Traditional School	6	Artificial Light vs. Sunlight: Effects on Plant Growth Do plants grow better in artificial light or sunlight?
PLT-MS-2	Olivia Martin	Benton Middle School	7	The Impact of Caffeine on Mung Bean Plant Growth How does increasing caffeine affect mung bean plant growth?
PLT-MS-3	Avery Dickens Peyton Turek	Bull Run Middle School	8	The Effect of Different Types of Water on the Growth of Dwarf Sungold Sunflower Plants What is the effect of different types of water on Dwarf Sungold sunflower plant growth?
PLT-MS-4	Supriya Tamang	Rippon Middle School	8	The Effect of Scraps on Plants Growth How does the type of scrap affect the plant's growth?
PLT-MS-5	Nikhil Patil	Gainesville Middle School	7	The Effect of Type of Fertilizer on Radish Plant Growth Which type of fertilizer will boost a radish plant's growth the best?
PLT-MS-6	Jeremiah Boasmanboon	St. Francis of Assisi School	8	The Effect of Different Types of Water on Bean Plants How do different types of water affect bean plant growth?
PLT-MS-7	Noah Bayard	St. Francis of Assisi School	8	The Effect of Gatorade on Bean Plants How does Gatorade affect plant growth?
PLT-MS-8	Natalie Vanslette	Graham Park Middle School	6	Sugar and Vinegar for Flower Power How do sugar and apple cider vinegar affect the life span of cut flowers?
PLT-MS-9	Violet Villareale	Graham Park Middle School	6	The Effect of Caffeine on Radish Plants How do different amounts of caffeine effect the growth of radish plants?

Robotics

Project #	Students	School	Grade	Project Title & Research Question
ROBO-MS-1	Rashean Jackson	Gainesville Middle School	7	Outdoor Material and Bots What's the effect of material on bot speed?