

**2023 Region V Science & Engineering Fair Winners.**  
**Congratulations to all students, teachers and mentors for their hard work!**

Name	School	Project Title	Special Awards
The four top-scoring First Place projects that are eligible to participate in the "judge-off" to select MA students for an all-expense paid trip the International Science & Engineering Fair. These students also advance to the MA State Science & Engineering Fair on May 5th at MIT			
Pranav Addanki	Canton High	A Novel Proteomics-Based Model for Determining the Effects of Microplastics on Disease Pathways: Using In Silico Machine Learning and In Vivo Dugesia dorotocephala Model	Sanofi Specialty Care
Yaniv Taussky	Wellesley Sr. High	Measuring Genetic Diversity and Change in a Predator Prey Relationship	National Geographic "That's Geography"
Huiyi Wen	Tabor Academy	Efficient Fog Harvesting Interface with Bio-inspired Multilayer Micro Kirigami	Sanofi Specialty Care
Evan Zhang	Dover-Sheborn Regional High	Treating COVID-19 with Machine Learning	National Grid Engineering Excellence
Additional First Place Award Winners. These students advance to the MA Science & Engineering Fair			
Anthony Lee	Milton Academy	Two Novel Approaches to and Generalizations of the German Tank Problem	Sanofi Specialty Care
HuSang Lee	Newton South High	Synthesis of Cellulose-based Hydrogel from Food Waste and Its Biomedical Applications	Regeneron Biomedical Science Award
Hayim Sims	Maimonides School	Investigating Mushrooms as a Source of Biofuel	Sanofi Specialty Care Grand Prize
Yuning Zhang	Newton Country Day School	Attack and Defense: Gender Differences in Chess Strategy Preference and Correlation with Performance	MA Region V First Place Award
Second Place Award Winners. These students advance to the MA State Science & Engineering Fair			
Justin Chen & Ben Rhodes-Kropf	Milton Academy	Revolutionizing Endangered Species Conservation: Employing Synthetic Satellite Data to Monitor and Protect Polar Bears	MA Region V Second Place Award and NASA Earth Systems Prize
Maia Donnelly	Martha's Vineyard Regional High	An Investigation Into Dugesia tigrina Planarian Regeneration Via Expression of the HBNF-1 Protein from a Novel Plasmid Using an E. coli Vector: An Attempt to Prevent Paralysis	United States Air Force
Manasa Josyula	Sharon High	Simulating Evolution Using Genetic Algorithms	Office of Naval Research
Lizzy Kfoury	Newton Country Day School	The Mortality Rates of Vanessa Cardui Butterflies When Exposed to BPA	United States Air Force
Anthony Kim	Tabor Academy	Prevention of Chlorine-Based Fog Caused by Calcium Chloride Snow Remover with Carbonate-forming Bacteria	Society of Microbiology

Aaron Li	Commonwealth School	Algorithms For Detection Of Centromeric Satellite DNAs And Circular DNAs	Society of Microbiology
Xiaozheng Liu	Tabor Academy	An all-terrain exploration robot based on centipede's structure and motion	United States Air Force
Enqi Ma	Tabor Academy	Deep Learning based Brain Tumor Radiogenomic Classification	Office of Naval Research
Marko Mano	North Quincy High	How does a Benham Disk Rotating with a Velocity of 120 to 360 RPM Affect the Darkness of the Pigment of the Fechner Color Effect, on Emmetropic Patients with Chronic Deuteranopia?	Office of Naval Research
Eleanor Rosenthal	Falmouth High	The Potential Of Cape Cod Seaweeds to Become Protein Replacements	MA Chemistry & Technology Alliance
Ellie Schlichtmann & Alivia Hennessey	Newton Country Day School	A National Study of Adolescent Girls: Perspectives on Stereotypes of Girls in Math	United States Air Force
Mirudulaa Suganathan Yamini	Quincy High	Exhibit of Invisible Radiation from Ionizing Particles through Condensation Nuclei	MA Chemistry & Technology Alliance
<b>Third Place Award Winners. These students advance to the MA State Science &amp; Engineering Fair on May 5th at MIT</b>			
Sasha Aljamal	Newton Country Day School	Comparing the Efficacy of Turmeric to Ascorbic Acid in Preventing Cell Death by Oxidative Stress in <i>Saccharomyces cerevisiae</i>	
Vidhur Busannagari & Neha Busannagari	Sharon High	A Novel Approach to Oil Spill Recovery Through Swarm Robotics	
Connie Che	North Quincy High	Testing the Durability of Different Bioplastic Formulas	
Andrew Fang	Wayland High School	A study on US Mass Shooting using data analysis and machine learning	American Psychological Association
Carina Fujimoto	Newton Country Day School	The Female Teenage Brain: Sleep Deprivation, Cognitive Fatigue and their Effect on Academic Performance Throughout the Day	
Aidan Gao	Milton Academy	Comparison of AI models in Diagnosing and Staging Lung Cancer	
Ruohan Gao	Noble and Greenough School	Predicting the Spread of the Spotted Lanternflies by Estimating the Correlated Density of <i>Ailanthus Altissima</i> using Deep Learning Enabled Satellite Images Recognition	National Oceanic & Atmospheric Administration
Kayly Gleason, Sophia Newcomb & Rhiddi Patel	Dennis-Yarmouth Regional High	Comparing tick preference for human clothes to animal fur on and off trails on Cape Cod	

Yvangi Jacques	Brockton Public Library	Evaluating The Effect of Sound on the Abundance of Pollinator Insects	
Amber Lan	Winsor School	Convolutional Neural Network for Identification of Benign and Malignant Breast Calcifications	
Anna Li	North Quincy High	How the Amount of Sodium Carbonate Affect the Effectiveness of Bio-Detergent on Plant-based Stains	
Junke Lin	Falmouth Academy	Comparing Marine Communities in Woods Hole and Plymouth Using Fouling Plates	
Vanston Ly	North Quincy High	The Usage of Hydrogen Peroxide to Combat Salinity Stress in Wheatgrass	
Vera Medvedeva	Millis High School	Transformation of a jellyfish GFP plasmid into Escherichia Coli bacteria using different types of detergent	
Ludovica Melodia	Newton Country Day School	A Traffic Light Model to Save Energy	
Jillian Mulvey	Newton Country Day School	Cleat-ciate: Cleats to reduce Anterior Cruciate Ligament injuries	
Anjali Reddy	Newton Country Day School	Does caffeine protect against oxidative stress in C.elegans?	
Anwita Revoori	Sharon High	Effectiveness of Bone Marrow Transplants on Acute Myeloid Leukemia (AML) Treatment	
Weijia Wang	Tabor Academy	Experiment on Formation of Hurricanes/Ocean Currents by Cold and Heat Convection	Yale Science & Engineering Association
Shelley Wei	Newton South High	An Analysis of Differentially Expressed Genes in Breast Cancer and Metastasis	
<b>Honorable Mention Winners. While these students do not advance to MSEF, we feel their projects deserve recognition.</b>			
Nora Bruinooge	St. John Paul II High School	Do Soil Nitrogen Levels Influence a Tomatoes pH?	
Yinuo Jin	Brookline High	Research on the Fin Motions of Biomimetic Underwater Robots	
Emily Lazarus	Falmouth Academy	Continued Design and Evaluation of Trough-Type Fish Ladders	
Madeline Lyons	Stoughton High	Solar Powered Bike	
Faye McGuire	Falmouth Academy	What Are the Optimal Conditions For Tidal Energy?	
Neha Raj	Dover-Sherborn Regional High	Evaluation of Feature Extraction Image Correlation Methods for the Diagnosis of Color Blindness	
Brendan Shen	Wayland High School	Protein-based photonic elements for exoplanet inhabitation	

Nevan Sujit	Needham High	Using Conductive Polymers in Microbial Fuel Cells for Dual Application in Wastewater Treatment and Sustainable Energy Generation	
Andrea Tang	Newton South High	A Laboratory-Based Analysis on Transposons and the Gene Expression of <i>Drosophila melanogaster</i>	
Alex Zhang	Milton Academy	An Examination of the Relationship between Renewable Energy Consumption and Under 5 Mortality in High-Income Countries	