

**2022 Region V Science & Engineering Fair Winners    Congratulations to all students and teachers for their hard work.**

**The three First Place Projects who are eligible to participate in the ISEF Judge-Off**

Alivia Hennessey & Ellie Schlichtmann	Newton Country Day School	Adolescent Perspectives on Stereotypes of Girls in Math
Cameron Dunn	Boston College High School	Effects of Copper Sulfate Exposure on the Nervous System of the <i>Hirudo verbana</i> Leech
Ashley Xu	Winsor School	Discovering Rare Neutral Carbon Absorbers in Intergalactic Medium Using Machine Learning

**Additional First Place Projects (will advance to MSEF Fair)**

Julia Chen	North Quincy High	Effects of Fertilizers on Bean Seed Germination
Hsiang-En Liu	Tabor Academy	Effect of Isopropyl Alcohol on the Prolongation of Surgical Mask's Lifespan during COVID-19
Jue Wang	Milton Academy	Design and Fabrication of a Flapping-Wing robot based on Slider-Crank Mechanism
Sophia He	Newton Country Day School	Paper Preservation with Diatomaceous Earth
Aixin Liang	North Quincy High	H <sub>2</sub> O Magnetization: Fact or Myth?

**Second Place Projects (will advance to MSEF Fair)**

Neha Raj	Dover-Sherborn Regional High	Are the CDC Handwashing Guidelines Effective?
Julietta Marzot	Falmouth Academy	Studying Deepsea Fungi in Sediments to Determine Antibiotic Production
Pranav Addanki	Canton High	A Novel, Noninvasive, and Inexpensive Model for Defining the Epileptogenic Zones in Drug-Resistant Epilepsy (DRE): Using In Silico Machine Learning Model and In Vivo <i>Dugesia dorotocephala</i> Model
Christian Nichols	Brockton High	Creating a More Efficient Method to Locate <i>Malaclemys terrapins</i> and their Nests Utilizing Machine Learning and 3D Augmentation Technology

Lan Hai	Milton Academy	A Novel Design of an Autonomous Sailboat with Optimum Path Planning in Upwind Conditions
Neha Busannagari & Vidhur Busannagari	Sharon High	OilSwarm
Aksel Jensen	Falmouth High	Toxicity of Road Runoff Entering the Waquoit Bay Estuarine System
Maia Donnelly	Martha's Vineyard Regional High	An Investigation Into the Effect of Activated Charcoal and Hydrogen Peroxide on Polluted Water Samples at Different Time Intervals
Haopeng Xie	Tabor Academy	SCNN: A Hand Skeletal Landmark CNN Model for Hand Flexor Tendon Injury Recovery Supervision System
Rohit Paradkar	Newton South High	A Comparative Study of Radiomic and Connectomic Approaches to Classification of IDH Status and 1p/19q Codeletion in Lower-Grade Gliomas
Yishu Yu	Dana Hall School	Building Knowledge Graphs to Assist Scientists Understand COVID-19 Concepts
Gus McGuire	Falmouth Academy	Modeling the Sea Breeze Effect and Comparing to Local Weather Data
Sophia Venetis	Falmouth Academy	The Effects of Various Vitamins on the Tissue Regeneration of Nematostella vectensis
<b>Third Place Projects (will advance to MSEF Fair)</b>		
Riley Ashok & Palak Yadav	Medway High	Effects of Construction Materials on WiFi Speed and Strength
Justin Chen	Milton Academy	Analyzing the Impacts of the COVID-19 Pandemic on Mental Health using Reddit Comments
Sana Dhillon	Ursuline Academy	In -Silico Antibiotic Resistance Prediction using an off the shelf tool to guide Antimicrobial Therapy using Probiotic strain Lactobacillus rhamnosus ATCC 53103
Ben Gulmann	Falmouth Academy	Assessing the Distribution of Asian Shore Crabs on Woodneck Beach
Yvangi Jacques	Brockton Public Library	Evaluating Piezoelectricity as a Source of Energy for Mobile Device Charging
Tom Huang	Wellesley Sr High	A Novel Nano-Analysis Method for PFAS in Water Sources
Chinmay Kalakonda & Anwita Revoori	Sharon High	Bioinformatic Identification of Key Candidate Biomarkers in Pancreatic Ductal Adenocarcinoma (PDAC)

Charles Wang	Noble And Greenough School	Association between Physical Activity and Sedentary Behavior with Depressive Symptoms among High School Students in the US
Shengying Zhao	Newton South High	Forecasting Coke's Price by Combination Semi-parametric Regression Model
Gabriella Hernandez	Newton Country Day School	The Effect of Household Fertilizers and Compost on Algal Production and Dissolved Oxygen Levels in Stagnant Waters
Victoria Berry	North Quincy High	The Best Material For Prosthetic Legs Based On Durability, Weight, Speed, Balance, And Comfort
Jessica Berberi	North Quincy High	The Effects of Chlorella Vulgaris and Saccharomyces Cerevisiae on the Bioremediation Rates of Freshwater, Saltwater, Runoff, and Estuary Water Environments
Evan Freedman	Falmouth Academy	Therapeutic treatment of bleaching in the coral species <i>A. poculata</i>
Kevin Wang	Roxbury Latin School	DisiMiR: Predicting Pathogenic miRNAs using Network Influence and miRNA Conservation
Anjali Reddy	Newton Country Day School	Potential Combination treatment for Bacterial-Fungal Coinfections
Daniel Nguyen	Hanover High	The Application of Machine Learning in Accessible 3D-Printable Prosthetic Hands
Maya DeSisto & Lizzy Kfoury	Newton Country Day School	The Effects of Bisphenol A on Vanessa Cardui Butterflies Development
Molly Pulit	St. John Paul II High School	The effect of diet on mealworm metabolism and carbon dioxide output
<b>Honorable Mention Projects (<i>do not</i> advance to MSEF Fair)</b>		
Shiyan Lu	North Quincy High	Water Purification
Seo Young Lee	Milton Academy	Early Diagnosis and Prevention of Cardiovascular Diseases Using Dietary Control to Limit Gut Firmicutes
John Fu	Milton Academy	Evaluation of Oxytocin's Effect on Anxiety in Mice by Machine-Learning Assisted Behavioral Analysis
Theodore Luu	Weston High	Building a Decentralized Application on Arbitrum, a Layer 2 Optimistic Rollup on the Ethereum Blockchain
Emily Lazarus	Falmouth Academy	Designing and Evaluating Improvements to Denil-Type Fish Ladders

Mirudulaa Suginathan Yamini	Quincy High	Automated Glucose Level Simulator
Anthony Kim	Tabor Academy	Development of Eco-friendly Deicer Using the Macropore Scaffold Structure of Oyster Shell Waste
Ruohan Gao	Noble And Greenough School	Determine critical lung cancer molecular markers from gigapixel whole slide HE stains images via weakly-supervised learning
Andrew Dementiev & Matthew Hua	Needham High	Taking Advantage of Pre-Existing Agricultural Infrastructure and Global Food Waste to Reverse The Effects of Climate Change Using Dehydration
Vanston Ly	North Quincy High	The Growth of Wheatgrass ( <i>Triticum aestivum</i> ) in Varying Saline Conditions