2021 Finalist Directory

ANIMAL SCIENCES

ANIM001 *Shrimply Clean: Effects of Mussels and Prawn on Water Quality*
https://projectboard.world/isef/project/51706
Trinity Skaggs, 11th; Wildwood High School, Wildwood, FL

ANIM003 *Investigation on High Twinning Rates in Cattle Using Sanger Sequencing*
https://projectboard.world/isef/project/51833
Lilly Figueroa, 10th; Mancos High School, Mancos, CO

ANIM004 *Utilization of Mechanically Simulated Kangaroo Care as a Novel Homeostatic Method to Treat Mice Carrying a Remutation of the Ppp1r13l Gene as a Model for Humans with Cardiomyopathy*
https://projectboard.world/isef/project/51789
Nathan Foo, 12th; West Shore Junior/Senior High School, Melbourne, FL

ANIM005T *Behavior Study and Development of Artificial Nest for Nurturing Assassin Bugs (Sycanus indagator Stal.) Beneficial in Biological Pest Control*
https://projectboard.world/isef/project/51803
Nonthaporn Srikha, 10th; Natthida Benjapiyaporn, 11th; Pattarapoom Tubtim, 12th; The Demonstration School of Khon Kaen University (Modindaeng), Muang Khonkaen, Khonkaen, Thailand

ANIM006 *The Survival of the Fairy: An In-Depth Survey into the Behavior and Life Cycle of the Sand Fairy Cicada, Year 3*
https://projectboard.world/isef/project/51630
Antonio Rajaratnam, 12th; Redeemer Baptist School, North Parramatta, NSW, Australia

ANIM007 *Novel Geotaxic Data Show Botanical Therapeutics Slow Parkinson's Disease in A53T and ParkinKO Models*
https://projectboard.world/isef/project/51887
Kristi Biswas, 10th; Paxon School for Advanced Studies, Jacksonville, FL

ANIM008 *The Investigation of Photobiomodulation as a Factor to Impact Physical Damage, Psychological Behavior, and Metabolic Activity Following a Traumatic Brain Injury in Drosophila melanogaster*
https://projectboard.world/isef/project/51937
Joanna Sohn, 9th; Keystone School, San Antonio, TX

ANIM009T *Experimentation on Larvicidal Activities of Acacia auriculiformis Dry Fruit Extracts on Different Life Cycle Stages of Anopheles sp, Culex sp, Chironomus sp and Clogmia sp for Showing Its Potential Ability as a Natural Sewage Treatment Agent*
https://projectboard.world/isef/project/51743
Aniruddha Das, 10th; Ramiz Akbar, 10th; Kaitha High School, Nalhati, Birbhum, West Bengal, India

ANIM010 *What an Egg-Cellent Diet!*
https://projectboard.world/isef/project/51964
Zack Dupre, 11th; South Terrebonne High School, Bourg, LA

ANIM011 *Year 4: Developing a Multiple Linear Regression Model to Predict the Specific Effects of Various Lactic Acid Bacteria Dosages on the Overall Honey Bee Gut Microbiota and Nosema ceranae Reduction*
https://projectboard.world/isef/project/51900
Varun Madan, 11th; Lake Highland Preparatory School, Orlando, FL

ANIM012 *Preferences of Varroa destructor in Controlling Brood Raised on Young and Old Bee Combs*
https://projectboard.world/isef/project/51808
Olga Scieszka, 12th; XL Liceum Ogolnoksztatcace z Oddziatami Dwujezycznymi im. Stefana Zeromskiego w Warszawie, Warsaw, Mazowieckie, Poland

ANIM013T *Lac Insect Cultivation on Local Weeds for Increasing Lac Production*
https://projectboard.world/isef/project/51818
Warakorn Thammawong, 10th; Ratchanon Metheesitthikun, 10th; Natnicha Punyainkaew, 10th; Huayso Wittayakhom Rachamangkhalaphisek, Chiang Khong, Chiang Rai, Thailand

ANIM014 *Tough Turkeys: What Effect Does Climate Change Have on the Home Range of Wild Turkeys in Northeast Minnesota?*
https://projectboard.world/isef/project/51879
Harmony Tracy, 11th; Cloquet Senior High School, Cloquet, MN

ANIM015 *The Effect of Red 40 on the Aggression of Subsequent Generations of Drosophila melanogaster*
https://projectboard.world/isef/project/51860
Isabella Sanchez, 11th; Granbury High School, Granbury, TX

ANIM016 *Factors that Affect Bird Activity and Diversity In Jefferson County in the Morning vs. the Afternoon*
https://projectboard.world/isef/project/52205
Eva Ledvina, 9th; Jefferson County International Baccalaureate, Irondale, AL

ANIM017T *Proprioceptive Treadmill with Sensors for Dogs*
https://projectboard.world/isef/project/52217
Isadora Kortz, 11th; Eduarda Farias, 10th; Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brazil

ANIM018 *"Tri-pawed": Canine Prosthesis*
https://projectboard.world/isef/project/52266
Isabel Sierra, 12th; Edgewood Junior Senior High School, Merritt Island, FL

ANIM019 *The Effect of Sugar Concentration Found in Popular Soft Drinks on Armadillidium vulgare's Innate Behavior Patterns*
https://projectboard.world/isef/project/52271
Rohini Kilaru, 12th; Lewis & Clark High School, Spokane, WA

ANIM020T *Development of Lady Beetle Cultivation for Pest Control*
https://projectboard.world/isef/project/52677
Warinyupa Ngamjarenwong, 10th; Naipaphon Kumhom, 9th; Thanakorn Silaphan, 9th; The Demonstration School of Khon Kaen University (Modindaeng), Muang Khonkaen, Khonkaen, Thailand

ANIM021T *Where Are They from? The Origin of Alien Cicada (Graptopsaltria bimaculata) in Izumi, Kagoshima, Japan*
https://projectboard.world/isef/project/52690
Riko Nakajima, 12th; Nanami Arimura, 12th; Ann Itakura, 12th; Kagoshima Prefectural Kokubu High School, Kirishima City, Kagoshima, Japan

ANIM022 *How Do Butterfly Wings Repel Water? The Relationship between Super-Hydrophobicity and the Fine Structure Common to Butterflies*
https://projectboard.world/isef/project/52692
Wakana Nakayama, 12th; Kobe University Secondary School, Kobe, Hyogo, Japan

ANIM023 *Effects of Embryological Exposure to Cortisol on Gene Expression during Tailfin Regeneration in Adult Zebrafish*
https://projectboard.world/isef/project/53000
Krish Mathur, 11th; Lakeside High School, Evans, GA

ANIM024 *Exploring the Role of Frazzled in Drosophila Neural Circuit Assembly and Foraging Behavior*
https://projectboard.world/isef/project/53435
Ying-Ru Chen, 11th; The Affiliated Senior High School of National Taiwan Normal University, Taipei City, Chinese Taipei

ANIM025 *Auto-dissemination: A Novel and Effective Tool in Mosquito Control?*
https://projectboard.world/isef/project/53455
Sarah Stutsman, 10th; Corona High School, Corona, CA

ANIM026 *What's All the Buzz? Drosophila melanogaster as a Unique Model for Addiction Disorders and Physiology After Traumatic Brain Injury (TBI)*
https://projectboard.world/isef/project/54094
Shan Lateef, 12th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

ANIM027 *Examining the Predatory Relationship Between the Invasive Green Crab (Carcinus maenas) and the Indigenous Blue Mussel (Mytilus edulis) in the Gulf of Maine*
https://projectboard.world/isef/project/54104
Bryce Jacobs, 12th; Hastings High School, Hastings-on-Hudson, NY

ANIM028 *The Physiological Effects of Turmeric and Ginger on Oxidative Stress in C. elegans*
https://projectboard.world/isef/project/54108
Serena Ahmad, 12th; Saginaw Arts and Sciences Academy, Saginaw, MI

ANIM029 *Evaluating the Intraspecific Relationship and Reciprocal Reaction Within Group Learning Shark Behavior Patterns*
https://projectboard.world/isef/project/54128
Clayton Nyiri, 12th; Bridgeport Regional Aquaculture Science and Technology Education Center, Bridgeport, CT

ANIM030 *Ishim and its Surroundings Horsefly Species Range Study with the Use of a Variety of Traps*
https://projectboard.world/isef/project/54165
Anna Gibler, 9th; Secondary School No. 7 of the City of Ishim, Ishim, Tyumen Region, Russian Federation

ANIM031T *The Mystery behind Burrowing of Mole Crickets*
https://projectboard.world/isef/project/54414
Thanyakorn Yantarasart, 11th; Teeradon Manasviyoungkul, 11th; Nanthawat Wiwatpisit, 11th; ChiangMai, ChiangMai, Thailand

ANIM032 *The Effects of Pulsed Electro-Magnetic Fields on Bovine Semen Phase II*
https://projectboard.world/isef/project/54605
Avery Miles, 10th; Doland High School, Doland, SD

ANIM033 *Seeing in a New Light: Adaptive Changes in Opsin Proteins in Antarctic Icefish*
https://projectboard.world/isef/project/54609
Ella Yoder, 10th; Research Triangle High School, Research Triangle Park, NC

ANIM034 *The Impact of Anthropogenic Effects on North American River Otter (Lontra canadensis) Behavior at Latrine Sites*
https://projectboard.world/isef/project/54613
Caroline Bayer, 12th; Dobbs Ferry High School, Dobbs Ferry, NY

ANIM035 *Jumping Spiders Perform Head Saccades During Prey Tracking*
https://projectboard.world/isef/project/54806
Nathalie Schelin, 11th; Mountain Vista Governors School, Middletown, VA

ANIM036T *Fruit Fly Frenzy: Investigating the Development of Insecticide Resistance in Drosophila melanogaster*
https://projectboard.world/isef/project/54833
Simren Samba, 12th; Fiona Kinney, 12th; Breck School, Golden Valley, MN

ANIM037 *What Affects Bird Diversity in Urban-Rural Transition Zones?*
https://projectboard.world/isef/project/54835
Braden Collard, 12th; Hellgate High School, Missoula, MT

ANIM038 *Organic and Traditionally Grown Helianthus annuus Seeds as a Protein Supplement for Grain Based Rations*
https://projectboard.world/isef/project/55047
Grace Helle, 10th; Beckman Catholic High School, Dyersville, IA

ANIM039 *Connections Between Wing Color and Color Vision Among the Monarch Butterfly and the Rare White Morph, Danaus plexippus nivosus*
https://projectboard.world/isef/project/55079
Kyri Forman, 12th; Timpanogos High School, Orem, UT

ANIM040 *Comparison of Same-Hen Yolk and Serum Antibody Levels Using the Elisa Test Following Vaccination with Typical Vaccines Used in Commercial Laying Hens*
https://projectboard.world/isef/project/55081
Jesse Shepherd, 11th; Spanish Fork High School, Spanish Fork, UT

ANIM041 *The Effect of Different Protein Supplements on the Growth of Goat Kids*
https://projectboard.world/isef/project/55222
Kelsie Avery, 9th; Northwestern High School, Kokomo, IN

ANIM042 *Effects of 20-Hydroxyecdysone and Calcium Supplemented Prednisone on the Body Length of Drosophila melanogaster*
https://projectboard.world/isef/project/55352
Jenna Cecrle, 10th; Adams Central Jr.-Sr. High School, Hastings, NE

ANIM043T *Saving Cats from Dehydration by Balancing Their Diet*
https://projectboard.world/isef/project/55355
Jaiba Tahir Ali, 11th; Laiba Fatima Kanchwala, 11th; Aga Khan Higher Secondary School, Karachi, Sindh, Pakistan

ANIM044 *The Effect of Putative Beneficial Microorganisms for Coral (pBMC) in the Prevention of Disease and Bleaching (Year Two)*
https://projectboard.world/isef/project/55691
Emily Weimer, 12th; Palm Beach Central High School, Wellington, FL

ANIM045 *Chasing Fireflies: Creating a Firefly Sanctuary to Increase the Firefly Population*
https://projectboard.world/isef/project/55708
Alexandria Harper, 9th; Riverside High School, Belle, WV

ANIM046 *Investigation on Amino Acid DL-Phenylalanine's Ability as a Cognitive Stimulant in V. costata*
https://projectboard.world/isef/project/55840
Zarrin Askari, 11th; Cibola High School, Yuma, AZ

ANIM047 *Feeding Modality and Saturation Response in the Jaws of New Zealand White Rabbits*
https://projectboard.world/isef/project/55878
Talia Thornton, 12th; Marian High School, Mishawaka, IN

ANIM048 *The Effect of EGCG on Oxidative Stress in C. elegans*
https://projectboard.world/isef/project/55895
Maiya Raghu, 12th; Syosset High School, Syosset, NY

ANIM049 *A Study of the Abundance and Diversity of Pollinators in Eureka Springs Urban Gardens and Black Bass Lake Park for Use in the Native Pollinator Conservation Effort*
https://projectboard.world/isef/project/56182
Chloe Kirk, 12th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

ANIM050 *Development of a Mobile Application that Facilitates Temperature Monitoring of the Honeybee (Apis mellifera) for Beekeeping in Rural Areas*
https://projectboard.world/isef/project/56216
Amiris GuerrÃos Toledo, 11th; The San Juan Math, Science and Technology Center, San Juan, PR

ANIM051 *Breakthroughs in Honey Bee Health: Continuous-Release Mist Diffusion of Thymol-Based Essential Oils*
https://projectboard.world/isef/project/56222
Kaitlyn Culbert, 9th; Toms River High School North, Toms River, NJ

ANIM052 *How Animals Talk: Understanding Silk Moth Communication Through Detection of Pheromones with an Electronic Nose*
https://projectboard.world/isef/project/56255
Mateus Nascimento, 11th; Brunswick High School, Brunswick, ME

ANIM053 *The Effects of the Modulation by Melatonin on the Pathogenesis of Systemic Lupus Erythematosus on Drosophila melanogaster*
https://projectboard.world/isef/project/56383
Sharon Fernandez, 9th; American Heritage School, Plantation, FL

ANIM054 *An Inventory of Forest Birds Along the ʻAiea Loop Trail, Oʻahu, Hawaiʻi*
https://projectboard.world/isef/project/56536
Kellen Apuna, 11th; Kamehameha Schools Kapalama Campus, Honolulu, HI

ANIM055 *A Comparison Between Merycoidedontodiea Skull Morphology and the Skull Morphology of Miniochoerus*
https://projectboard.world/isef/project/56537
Andrew Paget, 12th; Olathe North High School, Olathe, KS

ANIM056T *Supplementation of Lactobacillus casei Reduces Beta-amyloid Accumulation in Alzheimer Drosophila melanogaster*
https://projectboard.world/isef/project/56543
Celyn Chng, 11th; Li Ann Tay, 11th; Iing Low, 11th; Raffles Girls School (Secondary), Singapore, Singapore, Singapore

ANIM057 *Evaluating the Benefits of Selected Medicinal Herbs on the Regeneration Rate of D. dorotocephala*
https://projectboard.world/isef/project/56593
Agnes Cho, 10th; Osbourn Park High School, Manassas, VA

ANIM058 *Utilizing Hydrostatics to Describe the Paleoecology of Orthoceras, an Extinct Fossil Nautiloid*
https://projectboard.world/isef/project/56622
Ellie Vaserman, 12th; Staten Island Technical High School, Staten Island, NY

ANIM059T *Herbal Nanoparticles (Plant Crystals) and Extract- A Safe Alternative to Combat Anopheles culicifacies and Aedes aegypti*
https://projectboard.world/isef/project/56665
Marwa Al Handhali, 11th; Lamya Al Handhali, 11th; Al-Ghubra Basic Education School for Girls, Ibra, North Sharqia, Oman

ANIM060 *Predicting Knee Luxation Force for Various Gallinaceous Bird Species Using Musculoskeletal Measurements of the Leg*
https://projectboard.world/isef/project/56708
Madison Carson, 11th; Oregon Episcopal School, Portland, OR

ANIM061T *The Effect of Protease- Activated Receptors (PAR- 4) on the Fertility and Progeny of C. elegans as a Potential Therapeutic Agent for Hereditary Chronic Inflammatory Diseases*
https://projectboard.world/isef/project/56734
Vyshnavi Poruri, 11th; Swetha Velayutham, 11th; Plano East Senior High School, Plano, TX

ANIM062T   *Are your AI Cattle Having a Better Growth Rate than Your Bull Bred Calves?*
https://projectboard.world/isef/project/56762
Carissa Scheel, 9th; Avery Orth, 9th; Wessington Springs, Wessington Springs, SD

ANIM063   *Climate Change on Crocodilians: Modeling the Effects of Phenological Shifts*
https://projectboard.world/isef/project/56863
Karin Ebey, 12th; Los Alamos High School, Los Alamos, NM

ANIM064   *Compartmentalization in Lepidopteran Development: Anterior Posterior Boundary Location and Interaction in Genus Morpho*
https://projectboard.world/isef/project/56918
Margaret Mattson, 12th; Fairview High School, Boulder, CO

BIOCHEMISTRY

BCHM001   *Starch Concentrations in Different Varieties of Rice*
https://projectboard.world/isef/project/51710
Jasmin Pruthi, 11th; Haines City IB East, Lake Wales, FL

BCHM002   *Investigating the Effects of Disaccharides and Monosaccharides on the Rate of Respiration in Saccharomyces cerevisiae (S. cerevisiae)*
https://projectboard.world/isef/project/51760
Raihanah Pranggono, 12th; Glenunga International High School, Glenunga, SA, Australia

BCHM003   *Testing the Efficiency of Alternative Source of Cellulase to Break Down Cellulose from Biomass Compared to Commercial Cellulase*
https://projectboard.world/isef/project/51926
Christopher Acker, 12th; Lufkin High School, Lufkin, TX

BCHM004   *Computer-Aided Investigation of Methoctramine-ExoU Interactions*
https://projectboard.world/isef/project/51841
Mya Johnson, 12th; University School of Milwaukee, Milwaukee, WI

BCHM005   *Apoptotic Proteins*
https://projectboard.world/isef/project/51886
Fahmid Rahman, 12th; Mountain View High School, Vancouver, WA

BCHM006   *In silico Research of the Potential Role of a Number of Compound Class N-acylethanolamines as Inhibitors of E-protein Coronavirus SARS-CoV-2*
https://projectboard.world/isef/project/51930
Adam Trach, 11th; Specialized School #89th; Kyiv, Kyiv, Ukraine

BCHM007   *Molecular Dynamics Investigation of Poly [ADP-Ribose] Polymerase 1 Inhibitors as Treatment for V762A Single-Nucleotide Polymorphism Correlated with Ovarian Cancer, Lung Cancer, and Follicular Lymphoma*
https://projectboard.world/isef/project/51725
Neel Shanmugam, 11th; Texas Academy of Mathematics and Science, Denton, TX

BCHM008   *A Research on Natural Acne Ointment Based on Yam Mucin*
https://projectboard.world/isef/project/52166
Letong Jiang, 11th; No. 2 High School of East China Normal University, Shanghai, Shanghai, China

BCHM009   *The Effect of Pulsed Ultraviolet Light on the Color of Beef, Chicken, and Pork Surfaces*
https://projectboard.world/isef/project/52268
Ishaan Vyas, 11th; Northside High School, Warner Robins, GA

BCHM010   *Using Hodgkin-huxley Differential Equations to Determine the Inhibitory Effects of Potent Neurotoxins that Lead to the Damaging of Voltage-gated Channels in Mammalian Neuron Cells Leading to Multiple Sclerosis*
https://projectboard.world/isef/project/53500
Rajvi Babaria, 10th; Vista Ridge High School, Cedar Park, TX

BCHM011T *Protein Secondary Structure Assignment (SSA) by Clustering Amino Acid Residues in the Space of Topological Descriptors*
https://projectboard.world/isef/project/53514
Sagar Gupta, 11th; Sumanth Ratna, 11th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

BCHM012   *CarC SPY: Non-Invasive Early Stage Multi-Cancer Detection Using AI-based Electrochemical Biosensor to Detect Circulating Tumor Cells (CTCs)*
https://projectboard.world/isef/project/53766
Jyothikaa Ramann, 11th; Dougherty Valley High School, San Ramon, CA

BCHM013T *Managing Hyperlipidemia: Algae as Lipase Inhibitors*
https://projectboard.world/isef/project/53774
Gitali Bhanot, 11th; Sana Friedman, 11th; Oakton High School, Vienna, VA

BCHM014   *Investigating Absorption of iron(II) by Apo Lactoferrin Using pH*
https://projectboard.world/isef/project/54005
Daniel Musquiz, 11th; John B. Alexander High School, Laredo, TX

BCHM015T *Should Drinking Water Be Disinfected with Monochloramine?*
https://projectboard.world/isef/project/54822
Cam Srivastava, 10th; Logan Kusher, 11th; Spartanburg Day School, Spartanburg, SC

BCHM016   *Investigating the Biochemical Activity of Organic Curcuma caesia and Curcuma longa (Turmeric) on Neuroblastoma Cancer Cells*
https://projectboard.world/isef/project/54826
Maya Oishi, 11th; Hilo High School, Hilo, HI

BCHM017T   *Analyzing the Efficacies of Potential Inhibitors of Drug Targets Human Receptor ACE2 and Viral Replication Enzyme RdRp Against SARS-CoV-2*
https://projectboard.world/isef/project/55083
Hedy Bian, 11th; Aditya Desai, 11th; Martin Luther King High School, Riverside, CA

BCHM018   *Comparative Effects of Various Flavonoids on Biofilm Formation of S. marcescens*
https://projectboard.world/isef/project/55229
Ryan Norden, 10th; East Noble High School, Kendallville, IN

BCHM019   *Application of Bayesian Inference for the Deconvolution of Nuclear Magnetic Resonance Spectra to Assess Metabolic Alterations and Type I Diabetes Susceptibility*
https://projectboard.world/isef/project/55250
Yewon Lee, 11th; James Clemens High School, Madison, AL

BCHM020   *Identification of the Artificial Synthesis of Aromatic Amino Acid Tyrosine, Based on Pi-to-Pi* Absorbance Peaks*
https://projectboard.world/isef/project/55672
Jordyn Begay, 9th; Navajo Preparatory School, Farmington, NM

BCHM021   *The Usage of Moringa Seeds in Sewage Purification for Agriculture and Clean Energy Production*
https://projectboard.world/isef/project/55857
Fatma Elbanna, 11th; STEM School of Alexandria, Alexandria, Egypt

BCHM022   *Nitrate Levels in Non-Organic and Organic Vegetables*
https://projectboard.world/isef/project/55877
Allison Dew, 9th; Marian High School, Mishawaka, IN

BCHM023   *A Highly Selective and Sensitive Novel Biosensor Capable of Quantifying and Monitoring a Clotting Factor Elevated in Severe COVID-19 Cases*
https://projectboard.world/isef/project/55886
Jaden Yun, 10th; Phillips Exeter Academy, Exeter, NH

BCHM024   *A Novel Approach to Treating Burn Wound Infections Using Flavonoids: Exploring the Interaction between Antibiotics and Flavonoids*
https://projectboard.world/isef/project/56066
Michelle Sheikh, 12th; Arizona College Preparatory- Erie, Chandler, AZ

BCHM025   *Sargassum sp. Reductive, Polyphenol Extract Modulates D. dorotocephala Regeneration by Reduction of ROS, and Has Potential as an Anti-Inflammatory Agent*
https://projectboard.world/isef/project/56071
Julianna Lian, 11th; Florida Atlantic University High School, Boca Raton, FL

BCHM026   *Effects of Chaotropicity on the Efficacy of a DNA-Silica Adsorption Buffer*
https://projectboard.world/isef/project/56082
Justin Wang, 11th; Massachusetts Academy of Math and Science at WPI, Worcester, MA

BCHM027   *Assessment of Selected Fatty Acids in Human Breast Milk Using GC-FID*
https://projectboard.world/isef/project/56231
Tereza Jaklova, 12th; Gymnazium Aloise Jiraska v Litomysli, Litomysl, Pardubicky kraj, Czech Republic

BCHM028   *Stem Cell Behavior and Osteogenic Differentiation on Plant-Derived Scaffolds*
https://projectboard.world/isef/project/56430
Maya Butani, 11th; Moorestown High School, Moorestown, NJ

BCHM029   *Effects of Bioactive Compounds in Berry Seed Extracts on Cariogenic and Periopathogenic Bacteria*
https://projectboard.world/isef/project/56512
Giovanna Onofrietti, 12th; Toms River High School North, Toms River, NJ

BCHM030T   *Synthesis of Analogues of S-adenosyl-L-methionine for Identification of WBSCR27 Substrate*
https://projectboard.world/isef/project/56671
Mikhail Losev, 11th; Anna Milovanova, 11th; Moscow South-Eastern School Named After V.I. Chuikov, Moscow, Russian Federation

BCHM031   *How are Enzyme Reaction Rates Affected by Temperature and pH Levels?*
https://projectboard.world/isef/project/56677
Princess Jazzelle Viesca, 9th; Fa'asao Marist High School, Pago Pago, American Samoa

BCHM033   *Investigating How Temperature Affects the Rate of Decomposition of Hydrogen Peroxide in the Presence of Catalase*
https://projectboard.world/isef/project/57384
Klaara Huima, 12th; Helsingin Suomalainen Yhteiskoulu, Helsinki, Finland

BEHAVIORAL AND SOCIAL SCIENCES

BEHA001 *The Effect of Constraining Eye Movements on Learning Gains and Retention*
https://projectboard.world/isef/project/51675
Dante Martinez, 11th; Westminster Christian School, Palmetto Bay, FL

BEHA002 *ParkinSensor: Computer Vision and Ensemble Machine Learning-Based Incipient Diagnosis for Parkinson's Disease using Neuromuscular Biomarkers*
https://projectboard.world/isef/project/51840
Sidhya Peddinti, 11th; Plano East Senior High School, Plano, TX

BEHA003 *Jewish Identity Formation Processes within Reform Adolescents*
https://projectboard.world/isef/project/51806
Rachel Buksbaum, 12th; Wiregrass Ranch High School, Wesley Chapel, FL

BEHA004 *VapeSafe: Device and Multi-Factor App to Prevent Nicotine Poisoning via Real-Time Behavioral Analysis and Alternate Compound Identification*
https://projectboard.world/isef/project/51708
Divya Nori, 12th; Milton High School, Milton, GA

BEHA005 *Can We Differentiate Between Computer Generated and Human Art? Spot the Fake!*
https://projectboard.world/isef/project/51750
Alexander Van der Merwe, 10th; Paul Roos Gymnasium, Stellenbosch, Western Province, South Africa

BEHA006 *Voice Emotion Recognition with Audio Data Analysis and Machine Learning Algorithms*
https://projectboard.world/isef/project/51690
Gabriela Chavgova, 11th; Model High School of Mathematics "Akademik Kiril Popov", Plovdiv, Bulgaria

BEHA007 *Evaluating Perceptions of High School Students and Faculty on Covid-19 Forced Remote Learning via Mixed Methods Study Design for Developing Novel Pedagogies*
https://projectboard.world/isef/project/51947
Sharanya Sharma, 10th; Health Careers High School, San Antonio, TX

BEHA008T *Optimizing Students' Working Memory Capacity with Binaural Beats: An Experimental Study on SMA Negeri 28 Jakarta Students*
https://projectboard.world/isef/project/51885
Noor Naila Himam, 12th; Athifah Millati, 12th; SMA Negeri 28 Jakarta, Jakarta Selatan, DKI Jakarta, Indonesia

BEHA009T *Autest: Culturally Adapted Risk Assessment Game for Autism Spectrum Disorder*
https://projectboard.world/isef/project/51698
Aranyo Ray, 12th; Anwesha Das, 12th; Kalyani Public School, Kolkata, West Bengal, India

BEHA010 *Using Response Times to Investigate the Face Recognition Mechanism in Developmental Prosopagnosia*
https://projectboard.world/isef/project/51672
Tanvi Palsamudram, 12th; The International School of Bangalore (TISB), Bangalore, Karnataka, India

BEHA011 *SMART CUBES: Interactive Tactile and Sound Set for Blind Children*
https://projectboard.world/isef/project/51691
Aleksei Shremzer, 9th; Gymnasium #32, Nizhnekamsk, Republic of Tatarstan, Russian Federation

BEHA012 *Significant Zero: The Effect of Personality Questionnaires on Identity-Relevant Choices*
https://projectboard.world/isef/project/51899
Naci Konar-Steenberg, 11th; Saint Paul Academy and Summit School, Saint Paul, MN

BEHA013 *A Randomized Controlled Trial Evaluating the Differential Efficacy of Ginkgo biloba, Ginseng, Curcuma longa Linn. and Vinpocetine on Spatial Learning and Memory in Mice*
https://projectboard.world/isef/project/51800
Sarah Hens, 12th; Menai High School, Illawong, New South Wales, Australia

BEHA014 *How Diverse Learning Environments Impact Students' Overall Well-Being*
https://projectboard.world/isef/project/52001
Lucianna Davis, 10th; Fremont High School, Plain City, UT

BEHA015 *The Natural Occurrence of a Visual Midline Shift in the General Population*
https://projectboard.world/isef/project/51980
Eden Maxwell, 10th; Hellgate High School, Missoula, MT

BEHA016   *Anxiliary: A Novel Wearable Body Sensor Based Machine Learning System for the Detection, Tracking, and Intervention of Anxiety Disorders*
https://projectboard.world/isef/project/52000
Pranav Somani, 10th; College Park High School, The Woodlands, TX

BEHA018T   *Fear in the Age of COVID-19: The Implications of Death Counts, Tests, and Reported Metrics*
https://projectboard.world/isef/project/51979
Alinne Romero-Torres, 10th; Brenda Romero-Torres, 10th; Young Women's Leadership Academy, San Antonio, TX

BEHA019T   *Investigate the Assimilation and Contrast Effects on Color Induction with Color Discrimination Paradigm*
https://projectboard.world/isef/project/51945
Chih-Hsien Huang, 11th; Cheng-Ying Yu, 11th; Taipei First Girls High School, Taipei City, Chinese Taipei

BEHA020   *Reason and Passions in Hume's Morality*
https://projectboard.world/isef/project/51719
Lorenza Botton, 12th; Instituto Federal de Educacao, Ciencia e Tecnologia do Rio Grande do Sul - Campus Bento Goncalves, Bento Goncalves, Rio Grande do Sul, Brazil

BEHA021T   *Depression, the Great Evil of the Century: Evaluation of the Antidepressant Effect of the Macromolecule WRKY26 from Musa Paradisiaca Peel through Computer Programs*
https://projectboard.world/isef/project/51909
Artur Daniel, 12th; Ana Rossa Burato, 12th; Colegio Murialdo, Ararangua, Santa Catarina, Brazil

BEHA022T   *From the Valley of Poverty to the Valley of Opportunities: Transforming through Education*
https://projectboard.world/isef/project/51982
Larissa Daikubara, 11th; Jaqueline Campos, 11th; Instituto Federal de Educacao, Ciencia e Tecnologia de Sao Paulo, Campus Registro, Registro, Sao Paulo, Brazil

BEHA023   *Video Game Reward Systems and Their Impact on Players' Behavior in the Iterated Prisoner's Dilemma*
https://projectboard.world/isef/project/51990
Madeline Santoso, 9th; West Linn High School, West Linn, OR

BEHA024   *Don't Trip; TRIPP! The Effect of a Virtual Reality Meditation Environment on Stress and Mindfulness*
https://projectboard.world/isef/project/51794
Stefan Salaices, 11th; Colleyville Heritage High School, Colleyville, TX

BEHA025T   *The Impact of Women Flying Kites Community "Rare Angon Srikandi" to Teenager Girl's Attention on Gender Equality Education in Denpasar City*
https://projectboard.world/isef/project/52681
Kadek Januarta, 12th; Wahyu Padma Baskara, 12th; SMA Negeri 4 Denpasar, Denpasar, Bali, Indonesia

BEHA026   *Grasping Gestures: An Analysis of the Aesthetics of Dance Through the Lens of Physics and Computer Science*
https://projectboard.world/isef/project/52994
Malavika Singh, 11th; West High School, Salt Lake City, UT

BEHA027   *Mental Health during COVID-19: The Role of Knowledge and Information Sources*
https://projectboard.world/isef/project/52995
Yvonne Kim, 11th; West High School, Salt Lake City, UT

BEHA028T   *The Analysis of the Differential Impacts of Material and Social Stressors on Mental Health During the COVID-19 Pandemic*
https://projectboard.world/isef/project/54107
Raeed Kabir, 11th; Vidhi Patel, 11th; The Mississippi School for Mathematics and Science, Columbus, MS

BEHA029   *Be Better*
https://projectboard.world/isef/project/54158
Ibrahim Wahdani, 11th; Jubilee School, Amman, Jordan

BEHA030   *Identification of Co-Expressed Genes to BDNF and trk-B as Major Depressive Disorder Related Biomarkers Using Microarray Data*
https://projectboard.world/isef/project/54422
Jennifer Hu, 11th; Nikola Tesla STEM High School, Redmond, WA

BEHA031   *The Impact of Covid-19 on PTSD*
https://projectboard.world/isef/project/54485
Natalia McMorris, 11th; New Rochelle High School, New Rochelle, NY

BEHA032   *Gender Bias in Online Patient Healthcare Reviews*
https://projectboard.world/isef/project/54486
Amanda Cao, 11th; New Rochelle High School, New Rochelle, NY

BEHA033   *The Credibility of Eyewitness Memories*
https://projectboard.world/isef/project/54610
Blake Bernhardt, 11th; Wing Public School, Wing, ND

BEHA034   *FIDERE: Circular Economy App to Support Thrift Stores and Women's Associations in the South of Brazil*
https://projectboard.world/isef/project/55032
Victorya Silva, 11th; Instituto Federal de Education, Sciencia e Tecnologia do Rio Grande do Sul (IFRS) - Campus Osario, Osario, Rio Grande do Sul, Brazil

BEHA035   *Evaluating the Effects of Perinatal Fluoxetine in Mice in Response to Fear Stimuli*
https://projectboard.world/isef/project/55071
Alexander Kesin, 12th; George W. Hewlett High School, Hewlett, NY

BEHA036   *I've Got Bias on the Brain: An investigation Regarding the Relationship between an Individual's Pre-existing Bias and Their Perception*
https://projectboard.world/isef/project/55074
Kathleen Hammett, 9th; John Paul II Catholic School, Ridgeland, SC

BEHA037   *Analysis of COVID-19 Misinformation Origin and Cure Narratives*
https://projectboard.world/isef/project/55085
Anika Halappanavar, 10th; Richland High School, Richland, WA

BEHA038   *An Observational Study of Mask Usage in St. Joseph and Elkhart Counties*
https://projectboard.world/isef/project/55223
Abigail Weaver, 9th; Marian High School, Mishawaka, IN

BEHA039   *Strenuous Sequencing: Exploring the Effect of Bilingualism on Executive Functioning in the Human Brain*
https://projectboard.world/isef/project/55226
Karina Castaneda, 12th; Frankfort High School, Frankfort, IN

BEHA040T   *Silence: A Novel Method of Communication for MND and MS Patients Using Eye Movements*
https://projectboard.world/isef/project/55238
Hamzeh Arabiyat, 11th; Omar Arafeh, 11th; Jubilee School, Amman, Jordan

BEHA041T   *Smart Wallet for Blind People*
https://projectboard.world/isef/project/55239
Noor Alkhatib, 10th; Layla Alkhatib, 10th; Al-Hoffaz Academy, Amman, AlMoqablain, Jordan

BEHA042T   *Application for Screening Attention Deficit Disorder (Inattentive ADHD(ADD))*
https://projectboard.world/isef/project/55240
Zeina Al Sharaydeh, 11th; Jood Mohammed, 11th; Jubilee School, Amman, Jordan

BEHA043T   *Down Syndrome Smart Watch*
https://projectboard.world/isef/project/55241
Ahmad Al Mseidein, 9th; Emam Alsaodi, 9th; Abu Baker Al Sdeeq, Tafilah, Tafilah, Jordan

BEHA045   *Effect of an Interactive Mobile Game on the Movement in a Queue Line at an Amusement Park*
https://projectboard.world/isef/project/55263
Lauren Tocci, 12th; Pawling High School, Pawling, NY

BEHA046   *Attention Span Experiment: Do Racing Games Have Effects on Attentional Control?*
https://projectboard.world/isef/project/55267
Mazyar Azmi, 11th; Horace Mann School, Bronx, NY

BEHA047   *Statistical Analysis of Stress Level Differentiation Based on an Individual's Brain Dominant Hemisphere*
https://projectboard.world/isef/project/55271
Rakin Faruk, 12th; Albuquerque Institute for Math and Science, Albuquerque, NM

BEHA048   *Development of a Device to Improve Dysphasia in 3- to 6-Year-Old Children*
https://projectboard.world/isef/project/55319
Paola Rivera-Soto, 12th; The San Juan Math, Science and Technology Center, San Juan, PR

BEHA049 *Demistifying 'Fake News': Evaluating Media-Borne Misinformation Through the Novel Application of AI Powered Sentiment Analysis*
https://projectboard.world/isef/project/55330
Arjun Mazumdar, 12th; Bronx High School of Science, Bronx, NY

BEHA050 *A Novel Video Game Feature for Psychological Diagnosis of Generalized Anxiety Disorder in Adolescence*
https://projectboard.world/isef/project/55508
Rasha AlQahtani, 12th; Riyadh School for Boys and Girls, Riyadh, Saudi Arabia

BEHA051 *Education During a Pandemic: Exploring the Effectiveness of Synchronous versus Asynchronous E-learning from a Teacher's Perspective*
https://projectboard.world/isef/project/55675
Carly Friedman, 12th; Plainview-Old Bethpage John F. Kennedy High School, Plainview, NY

BEHA052 *Analyzing Political Polarization Through Agent-Based Modeling*
https://projectboard.world/isef/project/55847
Samuel Rosner, 11th; Albemarle High School, Charlottesville, VA

BEHA053 *An Examination of the Association Between Empathy as a Disposition and Adherence to Covid-19 Safety Guidelines*
https://projectboard.world/isef/project/55864
Mandy Feuerman, 12th; American Heritage School of Boca Delray, Delray Beach, FL

BEHA054 *Studying the Effects of Mindfulness Meditations on Teens*
https://projectboard.world/isef/project/55866
Kailani Ibanez, 10th; Henry Perrine Baldwin High School, Wailuku, HI

BEHA055 *Does Gender Affect One's Response to Frustration?*
https://projectboard.world/isef/project/55884
Adeline Norgaard, 12th; Tioga High School, Tioga, ND

BEHA056 *The Analysis of the Use of Color in Pandemic Artwork Using Digital Quantifications*
https://projectboard.world/isef/project/55899
Nethmi Withanage, 12th; Smithtown High School East, St. James, NY

BEHA057 *Seeing Through the Scan: The Impact of fMRI Evidence on Juror Satisfaction and Verdicts*
https://projectboard.world/isef/project/55904
Isabella Souza, 12th; Syosset High School, Syosset, NY

BEHA058T *The Effects of Social Conformity*
https://projectboard.world/isef/project/55921
Dustin Kraft, 12th; Tuffy Simon, 12th; Timber Lake High School, Timber Lake, SD

BEHA059 *Analyzing Eye-Movement Data to Evaluate Motor Cognition Functionality for Early Detection of Neurological Conditions Using Deep Learning*
https://projectboard.world/isef/project/55923
Aditya Mangalampalli, 11th; Mission San Jose High School, Fremont, CA

BEHA060 *Violence Against Women in Peru During the COVID-19 Pandemic*
https://projectboard.world/isef/project/56046
Ariana Arroyo Salazar, 10th; La Asuncion, Huancayo, Junin, Peru

BEHA061 *Andean Popular Participation in the Huancavelican Route for the Cause of Emancipation; Towards the Bicentenary*
https://projectboard.world/isef/project/56048
Elenith Pacheco Ramos, 11th; Javier Heraud, Churcampa, Huancavelica, Peru

BEHA062 *Level of Depression, Anxiety and Stress in Adolescents Due to the Effect of the Pandemic COVID-19 in the I.E. Victor Manuel Maurtua Parcona, ICA-2020*
https://projectboard.world/isef/project/56052
Maria Jimenez Rojas, 10th; Victor Manuel Maurtua, Parcona, Ica, Peru

BEHA063 *The Perception of Adolescents on the Effects of Social Media in their Attention Span*
https://projectboard.world/isef/project/56055
Natalia Leon-Diaz, 11th; Escuela Secundaria de la Universidad de Puerto Rico (UHS), San Juan, Puerto Rico

BEHA064 *Digital Phenotyping Autism: Investigating Objective Vocal and Movement Quantification for Characterizing Autism Severity*
https://projectboard.world/isef/project/56072
Emilin Mathew, 11th; American Heritage School, Plantation, FL

BEHA065   *High Accuracy Neural Network Based Deep Learning Solution For Non-Intrusive Early Diagnosis of Dementia*
https://projectboard.world/isef/project/56087
Kosha Upadhyay, 9th; Bellevue Senior High School, Bellevue, WA

BEHA066T   *High School Students' Psychological Difficulties in Online Learning*
https://projectboard.world/isef/project/56158
Phuc Hoang, 10th; Mai Vu, 11th; Lao Cai High School for Gifted Students, Lao Cai, Lao Cai, Viet Nam

BEHA067   *The Social and Psychological Problems that Facing Talented Involved Students in the Middle Schools*
https://projectboard.world/isef/project/56172
Gomana Mohammed, 10th; S.T.E.M. Luxor School, Luxor, Egypt

BEHA068   *Early Diagnosis of Children Developmental Delay*
https://projectboard.world/isef/project/56173
Tamara Almubiden, 9th; Alridwan Schools, Amman, Amman, Jordan

BEHA069   *Emotional Effect of Virtual Classes and the New School Schedule on High School Students*
https://projectboard.world/isef/project/56242
Ixlianis Valentin-Morales, 12th; Specialized School of Science and Mathematics Genaro Cautino Vazquez, Guayama, Puerto Rico

BEHA070   *A Multifaceted Insight into Addiction Treatment Programs in the Midwest: Identifying Factors Influencing Treatment Participation and Retention*
https://projectboard.world/isef/project/56259
Aditya Tummala, 11th; Brookings High School, Brookings, SD

BEHA071T   *FeelWrite: An Application to Improve our Mood and Mental Health*
https://projectboard.world/isef/project/56362
Pavlina Refene, 10th; Myrto Alexopoulou, 10th; Amalia Toutziaridi, 10th; Athens College, Athens, Attica, Greece

BEHA072   *Memory Treachery: How False Memories Are Formed*
https://projectboard.world/isef/project/56439
Akul Shrivastava, 9th; Little Rock Central High School, Little Rock, AR

BEHA073T   *Looking for Sema's Sound*
https://projectboard.world/isef/project/56442
Ju eun Kim, 11th; Seo Yeon Kim, 11th; SEMA Highschool, Osan-si, Kyeonggi-do, South Korea

BEHA074   *Demonstrating a Potential Causative Link Between Dendritic Degeneration and Hydrocephalus Using Par3 Conditional Knockout Mouse Models*
https://projectboard.world/isef/project/56510
Bill Zhang, 12th; Holmdel High School, Holmdel, NJ

BEHA075T   *Save Life. Be a Hero*
https://projectboard.world/isef/project/56668
Mira Issa, 11th; Malak Naimi, 11th; Alawda Secondary School for Girls, Bethlehem, Bethlehem, Palestine

BEHA076   *Relationships Between Fluid and Crystallized Intelligence and Hippocampus Subareas' Volumes: An MRI Study with Standardized Testing*
https://projectboard.world/isef/project/56673
Bru Gomez Bonilla, 12th; Institut Manuel de Cabanyes, Vilanova i la Geltru, Barcelona, Spain

BEHA077   *Analyzing Text Corpora to Determine the Emotional State of Humans*
https://projectboard.world/isef/project/56694
Paulina Wodarz, 10th; University High School, Irvine, CA

BEHA078   *Impact of Protective and Risk Factors on Adolescent Responses to COVID-19*
https://projectboard.world/isef/project/56697
Lauren Morgan, 12th; Sarasota High School, Sarasota, FL

BEHA079   *Mask Usage of New Orleans During the Pandemic SARS-CoV-2*
https://projectboard.world/isef/project/56701
Lia Bu, 12th; Isidore Newman School, New Orleans, LA

BEHA080T   *The Effects of Sleep on Optimism and Memory*
https://projectboard.world/isef/project/56707
Bethany Poirier, 12th; Estella Guerin, 11th; Franklin Academy High School, Malone, NY

BEHA081T *An Audiovisual Emotion Classification Platform Powered By Deep Neural Networks and Optimized for Individuals with Autism Spectrum Disorder*
https://projectboard.world/isef/project/56770
Alexander Lan, 10th; Arjun Barrett, 10th; The Harker School, San Jose, CA

BEHA082 *Analyzing Health Implications of Adverse Childhood Experiences (ACEs) on American Adults*
https://projectboard.world/isef/project/56840
Maieasha Rashid, 11th; Greencastle High School, Greencastle, IN

BEHA083 *The Effect of Saturated Lipid on Neurogenesis Following Acute Brain Injury*
https://projectboard.world/isef/project/56864
Ishani Ghosh, 9th; Centennial High School, Ellicott City, MD

BEHA084 *Artificial Voice Intelligence in Memory Retention; Does A.I. Anthropomorphism Impact Auditory Memory Recall?*
https://projectboard.world/isef/project/57001
Naman Doad, 10th; Oviedo High School, Oviedo, FL

BIOMEDICAL ENGINEERING

BMED001   *The Effects of Ketone Supplements on Reducing Postprandial Glucose Levels*
https://projectboard.world/isef/project/51615
Cheyenne Shirley, 11th, South Sumter High School, Bushnell, FL

BMED002   *Face Coverings: Which are Friends, and Which Are Foes?*
https://projectboard.world/isef/project/51751
Luke Meiers, 10th; West Port High School, Ocala, FL

BMED003   *The Influence of Temperature on the Concentration of Hemoglobin in Lumbricus terrestris and Eisenia fetida Erythrocruorins*
https://projectboard.world/isef/project/51814
Bianca Nicholas, 12th; Wiregrass Ranch High School, Wesley Chapel, FL

BMED004   *Using Seaweed in order to Protect Skin Cells from UV Rays*
https://projectboard.world/isef/project/51837
Jessica Borders, 10th; Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, GA

BMED005T   *Leukemia War: Rise of White Grape-Tea*
https://projectboard.world/isef/project/51704
Hoi Ching Yeung, 11th; Wai Ming Bella Lam, 11th; Ka Hei Wong, 11th; The Chinese Foundation Secondary School, Hong Kong, China, Hong Kong Special Administrative Region

BMED006   *Breakdown of Gluten Proteins Using a Newly Identified Combination of Fruit Derived Enzymes to Alleviate Symptoms of Gluten Intolerance*
https://projectboard.world/isef/project/51836
Aditi Avinash, 9th; Rock Canyon High School, Littleton, CO

BMED007   *A Review of Shiga Toxin-producing E. coli-induced Convulsions/Seizures Effects on the Expressions of Drosophila melanogaster*
https://projectboard.world/isef/project/51812
Jordan Thomas, 10th; University School of Milwaukee, Milwaukee, WI

BMED008   *NIRS: An Innovative Approach to the Diagnosis of Neonatal Seizures*
https://projectboard.world/isef/project/51729
Faik Gasimov, 10th; Baku European Lyceum, Baku, Absheron, Azerbaijan

BMED009   *Postpartum Cup: A Lifesaving Innovation for Realtime and Accurate Estimation of Obstetric Blood Loss in Postpartum Haemorrhage*
https://projectboard.world/isef/project/51666
Archit Patil, 9th; Kashinath Palod Public School, Jalgaon, Maharashtra, India

BMED010   *Face Masks: The Key into Stopping the Spread*
https://projectboard.world/isef/project/52022
Yoselin Enriquez, 11th; South Terrebonne High School, Bourg, LA

BMED011   *Comparative Analysis of Genetic Mutations and Overall Survival in Patients with Glioblastoma Multiforme: A Retrospective Cohort Study*
https://projectboard.world/isef/project/51880
Anita Zahiri, 11th; Benjamin Franklin High School, New Orleans, LA

BMED012   *Cure of Breast Cancer, Year 4: First Discovery of Target Therapy for Aggressive Hormonal Breast Cancer using Clinical Database and 3D Model*
https://projectboard.world/isef/project/51682
Christine Song, 10th; Mayo High School, Rochester, MN

BMED014   *Hyperhomocysteinemic Diet Promotes Amyloid Beta Accumulation in Brains of a Mouse Model of Alzheimer's Disease*
https://projectboard.world/isef/project/51686
Robert Kaptur, 12th; Akademeia High School, Warsaw, Mazovia, Poland

BMED015T   *Anti-inflammatory Effects of the Biflavonoid Biflata on Macrophage*
https://projectboard.world/isef/project/51943
Chian-Ruei Chen, 12th; Yun-Ting Yeh, 12th; Taipei First Girls High School, Taipei, Taiwan

BMED016 *Deciphering the Cellular Effects and Bioavailability of Moringa oleifera Leaf Extract*
https://projectboard.world/isef/project/52018
Bhavana Sridharan, 9th; Little Rock Central High School, Little Rock, AR

BMED017 *Regeneration Rates of Dugesia japonica Using Glucose Oxidase Enhanced Honey*
https://projectboard.world/isef/project/51975
Jeena Alborano, 12th; North Toole County High School, Sunburst, MT

BMED018 *Adolescent Physical Fitness Improvement Training System*
https://projectboard.world/isef/project/52161
Jiayi Zheng, 12th; Hefei No. 8 Senior High School, Hefei, Anhui, China

BMED019 *Intratumoral Heterogeneity in Gene Expression within Single Glioblastoma Tumors*
https://projectboard.world/isef/project/52201
Mayu Nakano, 10th; Indian Springs School, Indian Springs, AL

BMED020 *Effects of Prosopis glandulosa Leave Extract on Lowering the Antibiotic Resistance of Escherichia coli, Sarcina lutea, and Staphylococcus epidermidis*
https://projectboard.world/isef/project/52226
Andrea Romero, 10th; Harvest Preparatory Academy, Yuma, AZ

BMED021 *Evaluation of a Raman Spectroscopy Probe in the Diagnosis of Brain Tumors*
https://projectboard.world/isef/project/52251
Nicholas Kalkanis, 11th; Detroit Country Day School, Beverly Hills, MI

BMED022 *Schwann Cell Support as a Novel Approach to Peripheral Nervous System Demyelinating Disease: A Phase Two Study*
https://projectboard.world/isef/project/52254
Kannammai Pichappan, 11th; Bergen County Academies, Hackensack, NJ

BMED023 *Combined Artificial Intelligence and Nano-cell Internalization to Predict Cancer Aggressiveness*
https://projectboard.world/isef/project/52260
Akhilan Elangovan, 11th; Columbia-Rock Bridge Senior High School, Columbia, MO

BMED024 *Deep Neural Network Analysis of Clinical Variables Predicts Escalated ICU Care in COVID-19 Patients*
https://projectboard.world/isef/project/53474
Joyce Lu, 11th; Ardsley High School, Ardsley, NY

BMED025 *Linking Continued Exposure to E-Cigarette Vapor Constituents with Chronic Obstructive Pulmonary Disease*
https://projectboard.world/isef/project/53790
Hannah Goldenberg, 12th; Greenwich High School, Greenwich, CT

BMED026 *Testing Fabric and Mask Particle Filtration Efficacy*
https://projectboard.world/isef/project/53998
Logan Lau, 11th; Kamehameha Schools Kapalama Campus, Honolulu, HI

BMED027 *X Linked Retinitis Pigmentosa and Age-related Macular Treatment by Induced Pluripotent Stem Cells AMD / XLRP >> IPSC*
https://projectboard.world/isef/project/54111
Maria Youssef, 11th; Azza Zidan Experimental School for Languages, El fayoum, El fayoum, Egypt

BMED028T *The Bacteria Between Us: The Connection Between Classrooms, Ventilation, and Airborne Bacteria*
https://projectboard.world/isef/project/54114
Zoe Lynn, 11th; Angelina Stilwell, 12th; Veritas Christian Community School, Sierra Vista, AZ

BMED029T *4-Cryptochlorogenic Acid Positively Regulates Pigmentation via Inducing Melanoblast Specification and Melanin Synthesis in Zebrafish Embryos and B16F10 Cell*
https://projectboard.world/isef/project/54163
Lok Hei Gu, 10th; Run Ying Li, 11th; Chi Kei Lam, 10th; Escola Kao Yip, Macao, China

BMED030 *Investigating Bone Morphogenetic Protein 4 as a Potential Regulator of the Age Related Increase in Risk for Alzheimer's Disease: The Regulation of the Unfolded Protein Response and Apolipoprotein E Expression in Astrocytes*
https://projectboard.world/isef/project/54326
Sedona Kessler, 11th; Walter Payton College Preparatory High School, Chicago, IL

BMED031 *Treating Blindness: The Role of Autophagy in Diabetic Retinopathy*
https://projectboard.world/isef/project/54406
Nina Fonseca, 11th; Whitney M. Young Magnet High School, Chicago, IL

BMED032   *Epigenetic Editing of Cdk5 Leads to Sexually Dimorphic Stress Responses*
https://projectboard.world/isef/project/54410
Mia Dittrich, 12th; Byram Hills High School, Armonk, NY

BMED033   *Elucidating Mechanisms & Impacts of Age-related Alterations in Blood-CNS Barriers: A Transcriptome Study of the Aging Blood-brain Barrier & the Dry Age-related Macular Degeneration Retina*
https://projectboard.world/isef/project/54413
Luke Briody, 12th; Byram Hills High School, Armonk, NY

BMED034   *The Toxic Truth, Part 2*
https://projectboard.world/isef/project/54419
Nicole Puderbaugh, 12th; Grants High School, Grants, NM

BMED035T   *Analysis of the Correlation Between Immunogenomic Phenotype and Patient Outcomes for Prostate Cancer*
https://projectboard.world/isef/project/54487
Jason Junwen Teng, 9th; Haolin Li, 10th; Crescent School, Toronto, Ontario, Canada

BMED036   *Effect of Scoliosis on a Swimmer's Performance*
https://projectboard.world/isef/project/54491
Athalia Groelsema, 12th; Eleanor Roosevelt High School, Greenbelt, MD

BMED037T   *A Novel Efflux Pump Inhibitor Improves Chemotherapeutic Efficacy Against P-glycoprotein-expressing Glioblastoma Stem Cells*
https://projectboard.world/isef/project/54496
Sravan Kodali, 10th; Samuel Lustig, 10th; Christian Brothers Academy, Syracuse, NY

BMED038   *An Ensemble Method for Ranking Cancers to Target KIF19*
https://projectboard.world/isef/project/54513
Isabelle Balachandran, 11th; New Rochelle High School, New Rochelle, NY

BMED039   *Abnormalities of PTPN2 Increases BETA-cell Apoptosis in PP2-Beta Cells Derived from hESCs*
https://projectboard.world/isef/project/54543
Xia Saavedra, 12th; Ossining High School, Ossining, NY

BMED040   *Activation of Pregnane X Receptor for Xenobiotic Detoxification: A Novel Approach to Targeting Pollution-Related Diseases*
https://projectboard.world/isef/project/54618
Rajan Reddy, 12th; Winchester Thurston School, Pittsburgh, PA

BMED041T   *The Interesting Reality of Stress Granules Formed in Regulating Stem Cell Fate: A Step Towards Successful Personalized Medicine*
https://projectboard.world/isef/project/54810
Waleed Alsuwaidi, 12th; Adam Al-Shawagfeh, 12th; Ahmad Bin Mohammad Al-thani Secondary School, Doha, Doha, Qatar

BMED042   *Interleukin-33 Promotes Th17 Cell Clonal Expansion in the B16 Tumor Microenvironment*
https://projectboard.world/isef/project/54824
Andrew Ni, 11th; Pine-Richland High School, Gibsonia, PA

BMED043   *The Identification and Validation of Novel Targets and Pathways of Alzheimer's Disease Through Integrated System Approaches*
https://projectboard.world/isef/project/55072
Michael Zhong, 11th; Ardsley High School, Ardsley, NY

BMED044T   *How Do Various Controlled Substances Affect Daphnia magna?*
https://projectboard.world/isef/project/55073
Jacquelyn Sullivan, 10th; Jared Reuben, 11th; Hilton Head Preparatory School, Hilton Head Island, SC

BMED045   *Which Cloth Is More Effective as a Mask?*
https://projectboard.world/isef/project/55220
Sama Zahran, 9th; Eman Schools, Fishers, IN

BMED046T   *The Creation of Manganese (IV) Oxide Nanosheets as a Inexpensive and Effective Method of Measuring Blood Glucose*
https://projectboard.world/isef/project/55227
Nathan Frank, 11th; Pol Berger Romeu, 11th; Carmel High School, Carmel, IN

BMED047   *Prolonged Opioid Use After Surgery*
https://projectboard.world/isef/project/55232
Amanda Mouer, 12th; Eureka High School, Eureka, KS

BMED048   *Development of a Protocol for Simultaneously Sequencing Multiple Inherited Retinal Diseases' Founder Mutations*
https://projectboard.world/isef/project/55255
Sapir Shalom, 12th; Israel Arts and Science Academy, Jerusalem, Israel

BMED049   *The Future of Cancer Treatment: Cancer Derived Exosomes In Angiogenesis*
https://projectboard.world/isef/project/55259
Guy Rosenfarb, 12th; Shimon Ben Zvi High School, Givatayim, Israel

BMED050   *Differential Expression Analysis and Transcriptomic Characterization of Glioma Progression*
https://projectboard.world/isef/project/55264
Matthew Lee, 10th; East Brunswick High School, East Brunswick, NJ

BMED051   *Identification of Synovial Tissue Biomarkers in Late-Onset Rheumatoid Arthritis Patients*
https://projectboard.world/isef/project/55270
Shruti Tyagi, 11th; Middlesex County Academy for Allied Health and Biomedical Sciences, Woodbridge, NJ

BMED052   *Investigating Racial Disparities in Cancer by Assessing Transcriptomic and Proteomic Biomarkers in Various Carcinomas using TCGA Database and Web-based Analysis Tools*
https://projectboard.world/isef/project/55284
Brian Lei, 11th; Hunter College High School, New York, NY

BMED053   *AcuRe: Third-Generation Machine Learning Cancer Detection Model Using Nanopore Read Alignments*
https://projectboard.world/isef/project/55288
Natalia Pahlavan, 10th; Jericho High School, Jericho, NY

BMED054   *A Low-Cost Computer-Aided Lung Auscultation Apparatus and Automated Diagnosis of Respiratory Illnesses*
https://projectboard.world/isef/project/55295
Ashwika Agrawal, 10th; Cupertino High School, Cupertino, CA

BMED055   *Novel Stage Optimized Image Processing to Improve Deep Learning Driven Diagnosis of Early Stage Diabetic Retinopathy*
https://projectboard.world/isef/project/55299
Ella Yee, 9th; The Harker School, San Jose, CA

BMED056   *The Effect of Deferoxamine and Ferrostatin-1 Treatments on Total ROS in HK-2 Cells*
https://projectboard.world/isef/project/55325
Haroon Lughmani, 11th; Sylvania Northview High School, Sylvania, OH

BMED057   *Examination of Human Colon Organoids for Phenotypic Anomalies in Patients with Ulcerative Colitis*
https://projectboard.world/isef/project/55328
Ameya Saraf, 11th; William Mason High School, Mason, OH

BMED059   *Activation of Novel Autophagy Pathways to Protect Hepatocyte Injury by Chloroquine*
https://projectboard.world/isef/project/55540
Michael Gao, 10th; North Hills High School, Pittsburgh, PA

BMED060T   *Diabetes Mellitus and Alcohol*
https://projectboard.world/isef/project/55656
Anna Ghazaryan, 11th; Anna Taroyan, 12th; Ani Geghamyan, 11th; High School #118 after A. Yerznkyan, Yerevan, Yerevan, Armenia

BMED061   *Curcumin and Capsaicin Synergistically Suppress Neuroblastoma Development*
https://projectboard.world/isef/project/55670
Yifang Zha, 12th; The Wheatley School, Old Westbury, NY

BMED062T   *Marine Microalgae: Natural Nutritious Food Source for Clam Larvae (Meretrix meretrix)*
https://projectboard.world/isef/project/55704
Minh Ngo, 10th; Thu Le, 12th; Chu Van An Upper Secondary, Ha Noi, Ha Noi, Viet Nam

BMED063   *Comparing the Efficacy of Dietary Fibers vs a Sap from Acacia Tree: Gum Arabic*
https://projectboard.world/isef/project/55809
Rebeca Fernando, 11th; Jose Marti STEM Academy, Union City, NJ

BMED064   *Adiponectin and BAT: Structure and Morphology of Brown Adipose Tissue in Adiponectin Transgenic Mice*
https://projectboard.world/isef/project/55836
Nils Grimbeck, 12th; Goteborgs Hogre Samskola, Gothenburg, Vastragotalands Region, Sweden

BMED065 *Effects of Brewing Conditions on the Antioxidant Capacity of Artemisia tridentata*
https://projectboard.world/isef/project/55853
Tyneeshia Shortman, 11th; South Sevier High School, Monroe, UT

BMED066 *Correlating Sugar Consumption with Hormone Production Using Shmoo Formation in S. Cerevisiae*
https://projectboard.world/isef/project/55880
Samantha Winland, 12th; Valparaiso High School, Valparaiso, IN

BMED067 *The Role of Bone Lineage Cells During Digit Tip Regeneration in Adult Mice*
https://projectboard.world/isef/project/55898
Samantha Radinsky, 12th; Paul D. Schreiber High School, Port Washington, NY

BMED068 *Phenotypic Behavioral Expression of Different Genetic Lines of Drosophila melanogaster as Measured by the Negative Geotaxis Assay & Their Response to Lithium Chloride: A Pharmacogenomics Study*
https://projectboard.world/isef/project/55912
Arwen Fernandez O'Brien, 12th; Harrison High School, Harrison, NY

BMED069 *Butyrate: Bridging Bench to Bedside -- Bringing Hope for Better Diagnostic and Therapeutic Options for Peanut Allergies*
https://projectboard.world/isef/project/55919
Isabella Heffernan, 12th; Saint Mary Academy Bayview, Riverside, RI

BMED070 *The Effect of Ayurvedic Plant Extracts -- Mucuna pruriens and Brassica oleracea -- on the Alleviation of Motor Symptoms in PINK1 Drosophila melanogaster: A Model of Parkinson's Disease*
https://projectboard.world/isef/project/55920
Sanjana Parise, 11th; Spring Valley High School, Columbia, SC

BMED071T *Extraction and Preparation of Prebiotic from Oil Palm Polysaccharide for Application in Functional Product*
https://projectboard.world/isef/project/56061
Fatin Meesa, 11th; Narathorn Duangsodsri, 11th; Demonstration School of Prince of Songkla University, Mueang Pattani, Pattani, Thailand

BMED072T *Rapid Osteoporosis Risk Assessment: Non-invasive Detection Kit of Calcium, Phosphate and pH in Human Sweat*
https://projectboard.world/isef/project/56062
Krit Kasikpan, 12th; Korrawee Leelaadisorn, 12th; Patt Phurtivilai, 11th; Mahidol Wittayanusorn School, Nakhon Pathom, Nakhon Pathom, Thailand

BMED073 *Differential Expressions of Wnt Pathway Proteins of Colorectal Carcinoma Metastases to Liver versus Lung*
https://projectboard.world/isef/project/56073
Madeline Huberman, 11th; West Shore Junior/Senior High School, Melbourne, FL

BMED074T *Mask Up*
https://projectboard.world/isef/project/56159
Tymakoa Crockett, 10th; Kaiimilani Crockett, 10th; Woods Cross High School, Woods Cross, UT

BMED075 *Characterization of Brown Pine Needle Extract for the Treatment of Acne and Atopic Dermatitis*
https://projectboard.world/isef/project/56177
Kyoungeun Kim, 11th; Daegu Science High School, Daegu-si, South Korea

BMED076 *Investigating the Effect of the Severity of Activity-Based Anorexia in Drosophila melanogaster on the Gut Microbiome*
https://projectboard.world/isef/project/56413
Peyton Crest, 12th; Minnetonka High School, Minnetonka, MN

BMED077 *Chronic Sleep Deprivation Induces Brain Inflammation via CCR2-mediated Peripheral Monocyte Infiltration*
https://projectboard.world/isef/project/56427
Jason Wang, 11th; Germantown Academy, Fort Washington, PA

BMED078 *Single-cell Atlas of Mouse Colitis Tissue*
https://projectboard.world/isef/project/56428
Lucy Wang, 10th; Methacton High School, Eagleville, PA

BMED079 *Mitigating Digestive-related Obstructions and Other Risks Caused by Hard Particles of Stuffed Toys Through Creating a Coated Beeswax*
https://projectboard.world/isef/project/56507
Faisal Almohaish, 9th; Alkifah Academy, Al Hufuf, Eastern Province, Ahsaa, Saudi Arabia

BMED080   *Investigating Differences in DRD4 Expression in a Comparison Analysis Between Young, Old, and Alzheimer's Frontal Cortex Brain Tissues*
https://projectboard.world/isef/project/56534
Mahdere Yared, 12th; Pine Crest School, Fort Lauderdale, FL

BMED082T   *Effects of Grape Seed Extract (GSE) Consumption on Egg Production in Drosophila melanogaster Adults*
https://projectboard.world/isef/project/56725
Cassandra Hung, 11th; Maria Hromcenco, 11th; Pennsylvania Leadership Charter School - University Scholars Program, West Chester, PA

BMED084   *Dietary Protein:Carbohydrate Ratio Impacts Development and Locomotion of Drosophila melanogaster*
https://projectboard.world/isef/project/56775
Emily Hood, 11th; Brookhaven Academy, Brookhaven, MS

BMED085T   *Flours Prepared Without Gluten ''Mezky''*
https://projectboard.world/isef/project/56869
Alexia Cerezo Cruz, 9th; Laisha Vazquez Murrieta, 9th; Colegio de Estudios Cientificos y Tecnologicos del Estado de Puebla, Tecamachalco, Puebla, Mexico

BMED086T   *Hypoglycemic Gummy from Prickly Pear, Nopal, Gelatin, and Aloe as a Supplement Alternative for Type II Diabetes Mellitus*
https://projectboard.world/isef/project/56998
Aylin Mendoza Lopez, 9th; Luis Sanchez Rivera, 9th; Jezabed Gomez Flores, 9th; Annex School to the Normal High School of Teotihuacan, Estado de Mexico, Teotihuacan, Mexico

BMED087   *Impact of Medicinal Herbs on Aging and Its Implications Towards Treating Age Related Illnesses*
https://projectboard.world/isef/project/57014
Aracely Alicea, 11th; Taunton High School, Taunton, MA

BMED088T   *How Music Affects Muscle Contractions*
https://projectboard.world/isef/project/57016
Emily Shumaker, 11th; Alex Williams, 11th; Baker High School, Baker, MT

COMPUTATIONAL BIOLOGY AND BIOINFORMATICS

CBIO001   *Full versus Partial Vaccination for Meningococcal Meningitis: A Mathematical Model*
https://projectboard.world/isef/project/51726
Jemmima Schembri, 12th; Inaburra School, Bangor, New South Wales, Australia

CBIO002   *Determining the Relationship Between Cross-Cultural Interpersonal Distance Preferences and Early COVID-19 Case Frequency Using Multivariate Regression Analysis*
https://projectboard.world/isef/project/51779
Gwenyth Eichfeld, 12th; Shattuck-St. Mary's School, Faribault, MN

CBIO003   *Molecular Docking Study of the Ebolavirus Surface Glycoprotein to Develop Anti-Ebola Drug*
https://projectboard.world/isef/project/51674
Anna Beck, 10th; Coral Reef Senior High School, Miami, FL

CBIO004   *Tackling Tau: Identifying a Novel Inhibitor for the MSUT-2 Protein based on Quantum Machine Learning for the Identification of Treatments of Neurodegenerative Diseases*
https://projectboard.world/isef/project/51842
Rithvik Ganesh, 11th; Plano West Senior High School, Plano, TX

CBIO005   *An Analysis of the Regulatory Role of Small Nuclear and Nucleolar RNA Expression Pathways in the Pathogenesis of Preeclampsia*
https://projectboard.world/isef/project/51802
Cemre Kayisli, 11th; Wiregrass Ranch High School, Wesley Chapel, FL

CBIO006   *Experimental Detection System for Senile Dementia- A Novel, Systematic Approach Using Metabolomics, Bioinformatics, and Circuitry to Develop a Biosensor Through Metabolomic Electrical Resistance Analysis for Detection of Early Onset Alzheimer's*
https://projectboard.world/isef/project/51848
Priyam Kumar, 10th; Santa Gertrudis Academy High School, Kingsville, TX

CBIO007   *A Novel Computational Approach to Drug Discovery Through Drug Repositioning*
https://projectboard.world/isef/project/51895
Krithik Seela, 10th; Lake Highland Preparatory School, Orlando, FL

CBIO008   *The Genetics of Human Aging: Predicting Age and Age-Related Diseases by Deep Mining High Dimensional Biomarker Data*
https://projectboard.world/isef/project/51936
Hannah Guan, 10th; BASIS San Antonio Shavano Campus, San Antonio, TX

CBIO009T *Predicting the Likelihood of a Patient Developing Mild or Severe COVID-19 Symptoms using Machine Learning*
https://projectboard.world/isef/project/51619
Senam Anaglate, 12th; Michael Mitchell, 12th; SOS-Hermann Gmeiner International College, Tema, Greater Accra Region, Ghana

CBIO010   *ResPred: Biomarker Discovery and Antibiotic Resistance Prediction Through Machine Learning-based Genomic Analysis of Neisseria gonorrhoeae*
https://projectboard.world/isef/project/51689
Rushank Goyal, 10th; Rajeev Gandhi Higher Secondary School, Bhopal, Madhya Pradesh, India

CBIO011   *Using Artificial Intelligence to Predict Survival in Patients with Prostate Cancer*
https://projectboard.world/isef/project/51952
Shreya Chaudhary, 11th; Keystone School, San Antonio, TX

CBIO012T *Chimeric RNAs and Proteins*
https://projectboard.world/isef/project/51731
Rafsan Habibullayev, 10th; Tamilla Suleymanova, 10th; Young Talents Lyceum, Baku, Azerbaijan

CBIO013   *Machine Learning to Predict Response to Anti-PD1 in Melanoma Using Genetic Biomarkers*
https://projectboard.world/isef/project/51963
Sarah Barksdale, 12th; Episcopal School of Jacksonville, Jacksonville, FL

CBIO014T *Upsurge of the Glycolytic Pathway in Cancer: A Dynamic Network Analysis of Oncogenic Mutations in Phosphofructokinase-1*
https://projectboard.world/isef/project/51823
Sydney Peng, 12th; Johnny Yue, 11th; Mounds View High School, Arden Hills, MN

CBIO015   *Single-Cell Genomic Profiling of the Adult Human Heart and Transcriptomic Analysis of Differentially Expressed Genes (DEGs) in Myocardial Pathophysiology*
https://projectboard.world/isef/project/51925
Shanay Desai, 12th; The Mississippi School for Mathematics and Science, Columbus, MS

CBIO016   *mRNA Vaccine Sequence Design Using Discrete Optimization Techniques Applied to the SARS-CoV-2 Virus*
https://projectboard.world/isef/project/51946
Sarah Cross, 10th; Keystone School, San Antonio, TX

CBIO017   *Implementation of Time Frequency Analysis for Seizure Localization, Phase II*
https://projectboard.world/isef/project/51894
Asha Reddy, 11th; Lake Highland Preparatory School, Orlando, FL

CBIO018   *Application of EEG Signal Analysis and Machine Learning on Neonatal Seizure Prediction*
https://projectboard.world/isef/project/51862
Daye Kwon, 12th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

CBIO019   *Effect of Smoking on TGF-beta Signaling in Breast Cancer Patients*
https://projectboard.world/isef/project/51971
Maegha Tipirneni, 10th; Friendswood High School, Friendswood, TX

CBIO020   *A Novel Evolution-Based Technique for Generating Anticancer Peptides (Year 2)*
https://projectboard.world/isef/project/51912
Michael Lu, 12th; The Mississippi School for Mathematics and Science, Columbus, MS

CBIO021   *The Pattern of Age-related Height Loss: Evidence from a Study of Deep-learning Derived Phenotypes Based on Large-scale DXA Images*
https://projectboard.world/isef/project/51765
Yuhao Lu, 10th; Shanghai Experimental School, Shanghai, China

CBIO022   *An Algorithmic Approach to Simulating Human Cortical Bone Microstructure and Remodeling*
https://projectboard.world/isef/project/51849
Kalina Namikas, 10th; Baton Rouge Magnet High School, Baton Rouge, LA

CBIO023   *Determination of the Key Parameters in SIR Compartment Model for Novel Coronavirus Pneumonia Propagation*
https://projectboard.world/isef/project/52170
Jiayi Zhai, 11th; Hefei No 6 High School, Hefei City, Anhui Province, China

CBIO024   *MRI-based Diagnosis of Alzheimer's Disease Using Deep Learning with CycleGAN for Data Augmentation*
https://projectboard.world/isef/project/52212
Sunny Wang, 11th; Camas High School, Camas, WA

CBIO025   *mRNA Sequence Analysis to Determine Genes Causing Unilateral Incompatibility in S. lycopersicum and S. pennellii*
https://projectboard.world/isef/project/52218
Alexander Nelson, 11th; Nelson Home School, Tucson, AZ

CBIO026   *MULTI-DEEPNet: A Novel Weakly-Supervised Multi-Task and Multi-View Deep Learning Model for COVID-19 Diagnosis from CT Images*
https://projectboard.world/isef/project/52229
Richard Xue, 10th; Shanghai American School - Puxi Campus, Shanghai, Shanghai, China

CBIO027   *OrphaDRGL: A Novel Graph Deep Learning-based Drug Repositioning Approach for Orphan Diseases*
https://projectboard.world/isef/project/52253
Remington Kim, 10th; Bergen County Academies, Hackensack, NJ

CBIO028   *A Differential Gene Expression and Alternative Splicing Analysis of ALS-Causing Mutations*
https://projectboard.world/isef/project/52257
Cristina DeMeo, 12th; Saratoga Springs High School, Saratoga Springs, NY

CBIO029   *Unmasking the Truth: The Effects of Safety Mask Usage on the Infection and Mortality Rates of a Simulated Pathogen*
https://projectboard.world/isef/project/52265
Madison Barendse, 11th; Southeast High School, Bradenton, FL

CBIO030   *Distinctive Mutation Profiles of SARS-CoV-2 Spike Protein in Different Geographic Regions of the United States*
https://projectboard.world/isef/project/52270
Ellen Guo, 9th; Mounds View High School, Arden Hills, MN

CBIO031 *Predicting Molecular Phenotypes with Single Cell RNA Sequencing: An Assessment of Unsupervised Machine Learning Models*
https://projectboard.world/isef/project/52992
Anastasia Dunca, 11th; West High School, Salt Lake City, UT

CBIO032 *The Early Control of China's COVID-19 Pandemic and its Enlightenment*
https://projectboard.world/isef/project/53022
Ziyuan Su, 11th; Nanjing Foreign Language School, Nanjing, Jiangsu, China

CBIO033 *CanceRNA: A Computational Method for Colorectal Cancer Diagnostic Biomarker Detection and Treatment Prediction*
https://projectboard.world/isef/project/53443
Pratham Hombal, 11th; Floyd B. Buchanan High School, Clovis, CA

CBIO034 *A Deep Learning Approach to Correlating Neurodegenerative Disease, Chronic Illness, and Environmental Factors*
https://projectboard.world/isef/project/53457
Dimple Amitha Garuadapuri, 11th; Eleanor Roosevelt High School, Eastvale, CA

CBIO035 *In silico Screening and Analysis of Inhibitory, Anti-prion Ligands for Prevention of Pathogenic Prion Conversion*
https://projectboard.world/isef/project/53460
Emily Phanphongsa, 11th; Waipahu High School, Waipahu, HI

CBIO036 *Development of Transcriptomics Analysis Pipeline for mTOR Signaling in Human Cancer*
https://projectboard.world/isef/project/53471
Gabriela Holzer, 12th; Eleanor Roosevelt High School, Greenbelt, MD

CBIO037 *Refinement of SNP Mutations of Atopic Dermatitis Related Filaggrin Through Existing R Packages*
https://projectboard.world/isef/project/53501
Aniket Naravane, 11th; Lake Travis High School, Austin, TX

CBIO038 *Predicting the Risk of Other Species Susceptibility to SARS-COV-2 by Analyzing ACE2 Protein Sequences*
https://projectboard.world/isef/project/53511
Daniel Li, 11th; Hanford High School, Richland, WA

CBIO039 *Novel Evolutionary Artificial Intelligence Methods for De Novo Drug Design*
https://projectboard.world/isef/project/53777
Anish Goswami, 10th; West Linn High School, West Linn, OR

CBIO040 *Analyzing Patterns of Gene Expression in Inflamed Microglia Stimulated with a Pro-inflammatory Molecule (TNF Alpha)*
https://projectboard.world/isef/project/53781
Aditya Kalahasti, 11th; Solon High School, Solon, OH

CBIO041 *Does Brain Region Volume Change in Patients with Dementia?*
https://projectboard.world/isef/project/53785
Samyuktha Jaganathan, 10th; Ballard High School, Louisville, KY

CBIO042 *Application of K-Means and Hierarchical Agglomerative Machine Learning Algorithms to Cluster Wolbachia Genomes based on Host Organism's Phylum*
https://projectboard.world/isef/project/53791
Sean Lee, 11th; Loomis Chaffee School, Windsor, CT

CBIO043 *The Development of an Artificial Intelligence Model to Predict Weekly COVID-19 Cases Using Important Socioeconomic Variables*
https://projectboard.world/isef/project/53995
Deepro Pasha, 12th; Clovis North High School, Fresno, CA

CBIO044 *High Accuracy Classification of Myopathy Electromyography Signals Using a ResNet50 Neural Network*
https://projectboard.world/isef/project/53999
Blaise Swartwood, 11th; Mililani High School, Mililani, HI

CBIO046 *Molecular Dynamics Simulation of Novel Klebsiella pneumoniae Treatment Disrupting the Outer Membrane*
https://projectboard.world/isef/project/54119
Eleanor Jung, 10th; Mt. Carmel High School, San Diego, CA

CBIO047 *A Novel Deep Learning System for Scoliosis Assessment: Automatic Extraction of Skeletal Maturity Using Region Proposal and Compound Scaling Convolutional Neural Networks*
https://projectboard.world/isef/project/54120
Audrey Ha, 11th; Menlo-Atherton High School, Atherton, CA

CBIO048 *Accelerated Protein Evolution in Bacteria to Facilitate Environmental Adaptation: Efficient Bioinformatics Algorithms to Discover Diversity-Generating Retroelements (DGRs)*
https://projectboard.world/isef/project/54122
Anakha Ganesh, 11th; James Logan High School, Union City, CA

CBIO049 *Smartphone Capable Lightweight Convolutional Neural Network Model for Detecting COVID-19 in Chest X-rays: Addressing the Need of Resource-strapped Locations*
https://projectboard.world/isef/project/54130
Ayan Nair, 10th; Okemos High School, Okemos, MI

CBIO050 *A Helical Wheel Based Coiled Coil Prediction Algorithm and Its Application to Disease*
https://projectboard.world/isef/project/54166
Ahmet Enis Guven, 11th; Malatya Erman Ilicak Fen Lisesi, Malatya, Yesilyurt, Turkey

CBIO051 *FlyRNAi Enrichment Tool: Tissue Preferred Expression Analysis for Drosophila*
https://projectboard.world/isef/project/54411
Tiffany Chao, 11th; Blind Brook High School, Rye Brook, NY

CBIO052 *Do Bainbridge-Ropers Syndrome Causing ASXL3 Mutations Influence Transcript Stability and Exon Exclusion/Inclusion by Disrupting Exonic Splicing Enhancer Sequences?*
https://projectboard.world/isef/project/54412
Kaylee Oppenheimer, 12th; Hastings High School, Hastings-on-Hudson, NY

CBIO053 *Refined Genome-wide Prediction of Transgenerational Epimutations and an Ensemble-based Solution to the Imbalanced Class Problem in Epigenetics*
https://projectboard.world/isef/project/54433
Jason Apostol, 12th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

CBIO054 *A Novel Transformation of Genetic Information into Images for Improved Primary Cancer Classification*
https://projectboard.world/isef/project/54490
Sidra Xu, 12th; The Harker School, San Jose, CA

CBIO055T *Descriptive Epidemiology on Vestibular Schwannomas from 2004-2016*
https://projectboard.world/isef/project/54498
Kaitlyn Greppin, 11th; Kailey Takaoka, 11th; Hathaway Brown School, Shaker Heights, OH

CBIO056 *Potential Treatment Targets for Covid-19: A Virtual Screening*
https://projectboard.world/isef/project/54597
Keerthin Karthikeyan, 10th; Oxford High School, Oxford, MS

CBIO057 *Type 2 Diabetes and Ulcerative Colitis: Shared Gut Microbiome Dysbiosis, a Biomarker for Colorectal Cancer*
https://projectboard.world/isef/project/54819
Sara Kapasi, 11th; The Westminster Schools, Atlanta, GA

CBIO058 *Molecular Docking Analysis of Novel SARS-CoV-2 Inhibitors Based on Structural Homology*
https://projectboard.world/isef/project/55025
Jonah Han, 12th; Independence High School, Ashburn, VA

CBIO059 *Data Mining to Identify Therapeutic Targets for Transplant Rejection*
https://projectboard.world/isef/project/55084
Zoe Lakkis, 11th; Fox Chapel Area High School, Pittsburgh, PA

CBIO060 *Predicting Cancer Stem Cell Biomarkers with Machine Learning*
https://projectboard.world/isef/project/55086
Julia Liu, 11th; Nikola Tesla STEM High School, Redmond, WA

CBIO061 *Systematic Survey of Pathways Perturbed in Complex Diseases*
https://projectboard.world/isef/project/55219
James Yang, 10th; Carmel High School, Carmel, IN

CBIO062 *FastFold: Streamlining End-to-End Deep Learning Protein Domain Prediction on COVID-19 Mutations and Other Universal Applications*
https://projectboard.world/isef/project/55254
Tim Jing, 11th; Lynbrook High School, San Jose, CA

CBIO063 *V-BIND: Deep Geometric Transformers for SARS-CoV-2 Treatment Design*
https://projectboard.world/isef/project/55277
Ryan Park, 11th; Millburn High School, Millburn, NJ

CBIO064 *Style Transfer Augmentation: A Novel Deep Learning Approach to the Classification of Cancer Subtypes Using Genetic Status in Histopathology Images*
https://projectboard.world/isef/project/55297
Snikitha Banda, 10th; Notre Dame High School San Jose, San Jose, CA

CBIO065 *Extreme Gradient Boosted Classification and Regression Trees to Predict Outcomes in Patients with Monoclonal Gammopathies of Undetermined Significance*
https://projectboard.world/isef/project/55302
Aheli Dutta, 11th; Nikola Tesla STEM High School, Redmond, WA

CBIO066 *Determining Factors that Improve the Efficiency of Capture-Recapture*
https://projectboard.world/isef/project/55305
Alexa Sees, 12th; Avon High School, Avon, SD

CBIO067 *In silico Mapping of the 14-3-3zeta and TRAF Protein Interactions*
https://projectboard.world/isef/project/55326
Anish Gupta, 11th; Sylvania Northview High School, Sylvania, OH

CBIO068 *A Versatile Population Dynamics Model of Bacterial Resistance, Tolerance, and Persistence*
https://projectboard.world/isef/project/55343
Melissa Du, 12th; North Carolina School of Science and Mathematics, Durham, NC

CBIO069 *CRISPR Cas9 as a Possible Mechanism to Modify Influenza Viral Mutation*
https://projectboard.world/isef/project/55346
Natalia Acosta-Laboy, 11th; Colegio Rosa-Bell, Guaynabo, Guaynabo, Puerto Rico

CBIO070 *Network Biology Methods for Improved Drug Discovery in Brain Cancers*
https://projectboard.world/isef/project/55350
Shravya Anisetti, 11th; Massachusetts Academy of Math and Science at WPI, Worcester, MA

CBIO071T *Augmenting 3D, T1-Weighted, Magnetization-Prepared Rapid Acquisition with Gradient-Echo (MP-RAGE) Sequenced MRIs Through Gaussian Filters and Skull Stripping for Alzheimer's Disease Diagnosis via 3D CNNs*
https://projectboard.world/isef/project/55353
Anish Pothireddy, 12th; Ashish Pothireddy, 12th; Khoi Nguyen, 12th; Governor's School at Innovation Park, Manassas, VA

CBIO072 *In-silico Prediction of Desoxyhavannahine as a Potential Novel Inhibitor of SARS-COV-2 with Minimal Side Effects*
https://projectboard.world/isef/project/55514
Lana Abujamil, 12th; Manarat Al-Madinah National School, Madinah, Madinah, Saudi Arabia

CBIO073 *Identification of a Potential Beta-site Amyloid Precursor Protein Cleaving Enzyme-1 Inhibitor as a Disease Modifying Agent for Alzheimer's Disease*
https://projectboard.world/isef/project/55518
Mawaddah Ali, 11th; Umm Salamah, Makkah, Makkah, Saudi Arabia

CBIO074 *Computer-Based miRNA Predictions to Inhibit SARS-Cov-2 Replication*
https://projectboard.world/isef/project/55533
Laurence Liang, 12th; Marianopolis College, Westmount, Quebec, Canada

CBIO075 *A Deep Learning Approach to de novo Drug Design: Generating Multi-Target Drugs to Inhibit Amyloid-Beta with Applications in Neurodegenerative Disorders*
https://projectboard.world/isef/project/55537
Sowmya Chundi, 11th; Carmel High School, Carmel, IN

CBIO076T *Assessing the Efficacy of COVID-19 Policies Using Machine Learning*
https://projectboard.world/isef/project/55655
Andrew Yu, 11th; Aaron Wan, 12th; Mississippi School for Mathematics and Science, Columbus, MS

CBIO077 *A Game-Theoretic Model of the Resting-State Brain*
https://projectboard.world/isef/project/55674
Danielle Gruber, 12th; John L. Miller Great Neck North High School, Great Neck, NY

CBIO078T *Application of Deep Learning in Target Identification Through Determining the Mechanism of Action Given Cellular Signature Data*
https://projectboard.world/isef/project/55702
Omar Abul-Hassan, 11th; Ayush Jain, 11th; Ocean Lakes High School, Virginia Beach, VA

CBIO079   *Comparing Outcomes of COVID-19 Positive Individuals with and without Chronic Kidney Disease using Python and CoRDaCo*
https://projectboard.world/isef/project/55882
Safiya Sankari, 12th; Eman Schools, Fishers, IN

CBIO080   *Novel Prediction of Adverse Drug Reactions and Underlying Pathological Mechanisms via Hierarchical Classification*
https://projectboard.world/isef/project/55905
Catherine Kim, 12th; Jericho High School, Jericho, NY

CBIO081   *Creation of a Machine Learning App to Facilitate Pancreatic Cancer Prediction*
https://projectboard.world/isef/project/55908
Reid Fleishman, 12th; William A. Shine Great Neck South High School, Great Neck, NY

CBIO082   *CoronaXNet: Using Convolutional Neural Networks to Automate the Detection COVID-19 from Chest X-Ray Images*
https://projectboard.world/isef/project/55909
Michael Chu, 12th; Syosset High School, Syosset, NY

CBIO083   *A Novel Approach to Increase Testing with Contact Tracing Apps in COVID-19 Pandemic*
https://projectboard.world/isef/project/56053
Edrick Aponte, 12th; CROEM HS, Mayaguez, Puerto Rico, Puerto Rico

CBIO084T *EGFRNet: Transfer and Multi-task Learning Based on Graph Convolutional Network Toward Multi-target Drug Discovery Against Cancers for EGFR-Family Proteins*
https://projectboard.world/isef/project/56057
Natthakan Saengnil, 11th; Puri Virakarin, 11th; Kamnoetvidya Science Academy, Rayong, Thailand

CBIO085   *Meta-analyses to Identify Master Regulatory Elements with Potential to Induce a Pre-implantation State in Human Endometrial Cells in vitro*
https://projectboard.world/isef/project/56068
Koravit Poysungnoen, 11th; Triam Udom Suksa, Pathumwan, Bangkok, Thailand

CBIO086   *De Novo Design of Ubiquitin Substrate for Neuritic Plaque-Busting*
https://projectboard.world/isef/project/56218
Khushi Parikh, 11th; Gilbert Classical Academy, Gilbert, AZ

CBIO087   *A Study of Cas9 Protein of Mollicutes Bacteria on the Example of M.gallisepticum*
https://projectboard.world/isef/project/56244
Sofya Maksyuta, 11th; School #1553 named after V. I. Vernadskiy, Moscow, Russian Federation

CBIO088   *Automated Bias Reduction in Deep Learning Based Melanoma Diagnosis Using a Semi-Supervised Algorithm*
https://projectboard.world/isef/project/56260
Sauman Das, 10th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

CBIO089T *Quantifying Model Variation in Assessing Cardiac Function*
https://projectboard.world/isef/project/56382
Neeraj Rattehalli, 12th; Ishan Jain, 11th; Menlo-Atherton High School, Atherton, CA

CBIO090   *Determining the Optimal MRI Sequence for the Automatic Segmentation of Multiple Sclerosis Using Convolutional Encoder Networks*
https://projectboard.world/isef/project/56533
Shaurnav Ghosh, 11th; Pine Crest School, Fort Lauderdale, FL

CBIO091   *The SLED (Shelf Life Expiration Date) Tracking System: Combating Food Waste and Food Borne Illnesses from Expiration Using Machine Learning*
https://projectboard.world/isef/project/56539
Srilekha Mamidala, 9th; Garnet Valley High School, Glen Mills, PA

CBIO092   *Novel Open Time to Event (OTTE) Model for Low-cost and Long term Marine Population Abundance Estimates from Remote Underwater Video (RUV) Stations*
https://projectboard.world/isef/project/56542
Jishnu Talukdar, 12th; Anglo-Chinese School (Independent), Singapore, Singapore

CBIO093   *Through The Looking Glass: Uncovering the Molecular Mechanisms of Phytochemical Treatment for the Prevention of Age-Related Macular Degeneration*
https://projectboard.world/isef/project/56590
Rishab Samant, 10th; Vestavia Hills High School, Vestavia Hills, AL

CBIO094   *Using Machine Learning to Repurpose FDA-Approved Drugs to Treat Cancers and Inflammatory Diseases*
https://projectboard.world/isef/project/56695
Aakarsh Vermani, 11th; Westview High School, San Diego, CA

CBIO095   *QuantFold: Quantum Annealing with Turn Ancilla Encoding and Simulated Protein Folding for Drug Discovery Implications*
https://projectboard.world/isef/project/56713
Alice Liu, 11th; Boston Latin School, Boston, MA

CBIO096T   *A Non-Invasive Ear-EEG Hearing Aid to Address the Cocktail Party Problem via Cloud-Based Deep Learning*
https://projectboard.world/isef/project/56735
Govardhan Poondi, 12th; John Rho, 12th; Plano West Senior High School, Plano, TX

CBIO097   *The Dynamics of Brain Metastasis in Non-Small Cell Lung Cancer*
https://projectboard.world/isef/project/56753
Khushi Kohli, 12th; Olathe North High School, Olathe, KS

CELLULAR AND MOLECULAR BIOLOGY

CELL001   *Customized Cancer Cell Weapons: Using CRISPR dCas9 Genetic Engineering to modify MCF7 Human Breast Cancer Cells into Double Agent Treatment Vectors, Year III*
https://projectboard.world/isef/project/51707
Neil Reddy, 11th; Satellite High School, Satellite Beach, FL

CELL002T   *Extrathymic T-Cell Development in the Mesenteric Lymph Nodes of Mice*
https://projectboard.world/isef/project/51614
Sandhya Kumar, 11th; Surabhi Kumar, 11th; Lawton Chiles High School, Tallahassee, FL

CELL003   *Enzymatically Treated Cellulosic Packaging Waste Utilized to Release Fermentable Sugars for the Production of Bioethanol: A Second Year Study*
https://projectboard.world/isef/project/51720
Serenity Derousie, 11th; Ridgeview High School, Orange Park, FL

CELL004   *Assessing the Expression of Angiogenesis-Related Receptors in Endothelial Cell RNA*
https://projectboard.world/isef/project/51724
Angela Huang, 10th; Sebring High School, Sebring, FL

CELL007   *Removing Brakes of Tumor-Resident Myeloid Cells as a Novel Cancer Immunotherapy*
https://projectboard.world/isef/project/51910
Shruthi Ravichandran, 12th; Hathaway Brown School, Shaker Heights, OH

CELL008   *Examining the Effect of Fibroblast Growth Factors on Development of Mammary Gland in 3D Cultures*
https://projectboard.world/isef/project/51622
Ema Grofova, 11th; Gymnazium Matyase Lercha, Brno, Moravia, Czech Republic

CELL009   *Tolerance and Cell Viability of N-Hexanoyl-L-Homoserine Lactone within CRL-3342 Cell Line*
https://projectboard.world/isef/project/52005
Mallorie Coffee, 12th; Jackson Senior High School, Jackson, MO

CELL010   *Obtaining of Transgenic Broccoli Plants with Alpha-2B Leucocyte Interferon Gene*
https://projectboard.world/isef/project/51931
Antonina Shkrobiak, 10th; Vysheve Secondary School #1, Vyshneve, Kyiv Oblast, Ukraine

CELL011   *Characterization of Insulin-degrading Enzyme: Using Molecular Visualization Systems to Understand Substrate Recognition in Type 2 Diabetes and Alzheimer's*
https://projectboard.world/isef/project/51968
Aditi Kona, 11th; North Oldham High School, Goshen, KY

CELL012   *In Amyotrophic Lateral Sclerosis (ALS) Patient Tissue, UG Rich RNA Is Not Preferentially Soluble as Predicted*
https://projectboard.world/isef/project/51612
Karah Mayer, 11th; Tanque Verde High School, Tucson, AZ

CELL013   *Changing Region on AAV-PHP.eB Brings Negative Effects on Human AAVR Binding*
https://projectboard.world/isef/project/52177
Zhengjia Yuan, 11th; Capital Normal University High School, Beijing, Beijing, China

CELL014   *How Do Specific Mutated Genes Affect Metabolic Functioning in Prochlorococcus?*
https://projectboard.world/isef/project/52988
Aiden Pasinsky, 11th; Beehive Science and Technology Academy, Sandy, UT

CELL015   *Unmasking Tumor Heterogeneity: SOX9 Regulates EMT in a Novel High-Plasticity Cell State*
https://projectboard.world/isef/project/53001
Seton Liu, 11th; Bergen County Academies, Hackensack, NJ

CELL016   *Discovering Long-Lasting Novel Epigenetic Mechanisms Associated with Cocaine Addiction: The Role of the SWI/SNF Remodeling Complex in the Nucleus Accumbens*
https://projectboard.world/isef/project/53490
Meagan Ryan, 12th; Ossining High School, Ossining, NY

CELL017   *Talking Planimlas! Identifying Genes Associated with Coral Bioacoustics*
https://projectboard.world/isef/project/53794
Camila Rimoldi Ibanez, 12th; Sebring High School, Sebring, FL

CELL018   *Immunopeptidomics of Non-small Cell Lung Carcinomas (NSCLC) for the Discovery and Validation of Novel Peptides for Targeted Immunotherapy*
https://projectboard.world/isef/project/54103
Maya Weitzen, 12th; Sleepy Hollow High School, Sleepy Hollow, NY

CELL019   *Environmental Effects on Mitosis*
https://projectboard.world/isef/project/54416
Sofia Grossi, 12th; Veritas Christian Community School, Sierra Vista, AZ

CELL020   *Novel Mammalian Fibroblast Cell Culture Media Technique for Ultraviolet Cell Reduction*
https://projectboard.world/isef/project/54428
Jasmyn Hoeger, 11th; Beckman Catholic High School, Dyersville, IA

CELL021   *Atrazine vs. the Motor, Sensory, and Learning Behaviors of Planaria*
https://projectboard.world/isef/project/54830
Kate Quinn, 9th; duPont Manual High School, Louisville, KY

CELL022   *Does HYPE AMPylation Affect BiP Translocation to the Cell Surface?*
https://projectboard.world/isef/project/55225
Jashun Paluru, 11th; William Henry Harrison High School, West Lafayette, IN

CELL023   *Immunohistochemical Analysis Suggests a Role for Tmem131 in Thymic Epithelial Cell Differentiation*
https://projectboard.world/isef/project/55269
Hannah Park, 11th; Tenafly High School, Tenafly, NJ

CELL024   *Correlation Between Odor Composition and Neuron Response in the Olfactory Cortex of Mice*
https://projectboard.world/isef/project/55286
Gary Shteyman, 11th; Staten Island Technical High School, Staten Island, NY

CELL025   *Save Our Sons: Exploring RNAi-mediated Intragenomic Conflict in D. sim through Genetic Assays and Testis Cytology*
https://projectboard.world/isef/project/55287
Jaeah Kim, 12th; Hunter College High School, New York, NY

CELL026   *Synergy of Treatment: Therapeutic Vulnerabilities in Small Cell Lung Cancer*
https://projectboard.world/isef/project/55289
Miah Margiano, 10th; Saint Anthony's High School, Melville, NY

CELL027   *Utilizing Alloferon Peptide to Improve Growth Performance and Survival Rate of Mealworms (Tenebrio molitor) in Mass-Scale Insect Farming*
https://projectboard.world/isef/project/55307
David Shon, 11th; Portsmouth Abbey School, Portsmouth, RI

CELL028   *Averrhoa carambola in the Oxidative Stress of Caenorhabditis elegans*
https://projectboard.world/isef/project/55315
Angelys Rivera-Hernandez, 12th; Centro Residencial de Oportunidades Educativas de Villalba, Villalba, PR

CELL029   *Obtaining Highly Purified 3a NS5A Protein of Hepatitis C Virus*
https://projectboard.world/isef/project/55332
Woojoo Kim, 11th; Wayland High School, Wayland, MA

CELL030   *The Effect of IL-22 Stimulation on Paneth Cell Granule Morphology and Epithelial Cell Proliferation*
https://projectboard.world/isef/project/55848
Neil Mehta, 12th; Ward Melville High School, East Setauket, NY

CELL031   *Single-cell RNA Sequencing Analysis of Human Neural Grafts Revealed Unexpected Cell Type Underlying the Genetic Risk of Parkinson's Disease*
https://projectboard.world/isef/project/55922
Susan (Yingshan) Wang, 11th; Episcopal High School, Alexandria, VA

CELL032   *Detecting Differential Transcription Factor Binding Using Single-Cell Sequencing*
https://projectboard.world/isef/project/56078
John Lin, 12th; Boston Latin School, Boston, MA

CELL033   *The Impact of Disrupted Circadian Rhythms on Learning and Short-Term Memory on a Drosophila melanogaster Model of Alzheimer's Disease*
https://projectboard.world/isef/project/56168
Cara Mulcahey, 12th; Saint Mark's School, Southborough, MA

CELL034   *A Novel Method for Measuring Cell Permeability as a Number of Viable Pores Using Spectroscopy and Pore Relaint Antibiotics*
https://projectboard.world/isef/project/56169
Bailey Tischer, 11th; San Tan Charter School, Gilbert, AZ

CELL035   *Identification and Analysis of Key Candidate Genes and Pathways in Lung Adenocarcinoma by Integrated Bioinformatics*
https://projectboard.world/isef/project/56513
Prateek Gupta, 11th; American Heritage School, Plantation, FL

CELL036   *Saccharomyces cerevisiae as a Model Organism to Study Hog1 and Mammalian Homologous P38 Pathway*
https://projectboard.world/isef/project/56675
Andrea Cami Bonet, 12th; Escola Mare de Deu de la Salut, Sabadell, Barcelona, Spain

CELL037   *The Neuro-Protective Role of Select Transcription Factors in a PINK1 Loss-of-Function Based Model of Neurodegeneration in Drosophila melanogaster*
https://projectboard.world/isef/project/56709
Parisa Vaziri, 12th; Plano East Senior High School, Plano, TX

CELL038   *Discovery of Novel Dual Phosphatase Kinase Regulating Pyocyanin Secretion in Pseudomonas aeruginosa*
https://projectboard.world/isef/project/56712
Riju Dey, 11th; Shorewood High School, Shorewood, WI

CELL039   *Rewiring PAM Specificity of SpdCas9 for Gene Repression*
https://projectboard.world/isef/project/56904
Michelle Li, 10th; North Oconee High School, Bogart, GA

CHEMISTRY

CHEM001 *Biodegradable Plastics Made from Waste Biomethane*
https://projectboard.world/isef/project/51838
Kevin Sun, 10th; Jasper High School, Plano, TX

CHEM002 *Do Oranges Gain or Lose Vitamin C After Being Picked?*
https://projectboard.world/isef/project/51617
Savannah Stephens, 10th; South Sumter High School, Bushnell, FL

CHEM003 *Artificial Photosystems : New Approach to the Synthesis of Boron-Doped Carbon Material from Plastic Wastes for Solar Energy Conversion Applications*
https://projectboard.world/isef/project/51645
Mehmet Cekuc, 12th; Kartal Anadolu Imam Hatip High School, Istanbul, Turkey

CHEM004 *Removing Permanent Marker*
https://projectboard.world/isef/project/51702
Laura Towner, 10th; Georgia College Early College, Milledgeville, GA

CHEM005 *Threitol Oligomers: Microbe-based Demulsifiers for Oil Extraction*
https://projectboard.world/isef/project/51673
Tianyu Dong, 11th; Northview High School, Johns Creek, GA

CHEM006 *Determining the Rate Law of Crystal Violet and Sodium Hydroxide using Alternative Methods*
https://projectboard.world/isef/project/51745
Yiting Shen, 12th; Kambala School, Rose Bay, NSW, Australia

CHEM007 *Thrown, But Will It Break Down? - A Study of the Correlation of the pH of Soil and Its Effect on the Rate at which Biodegradable Materials Decompose and the Application of the Findings of this Experiment in Landfills*
https://projectboard.world/isef/project/51761
Hadia Bizhan, 9th; Lyneham High School, Lyneham, ACT, Australia

CHEM008 *Photocatalysis Degradation of Oil-Polluted Water Enhancement via Pickering Emulsion Stabilized by TiO2*
https://projectboard.world/isef/project/51749
Mingyi Zhang, 12th; The Experimental High School Attached to Beijing Normal University, Beijing, Beijing, China

CHEM009T *Zwitterionic Nanogel Grafted Polymer Porous Membrane for Emulsified Oil/Water Separation*
https://projectboard.world/isef/project/51889
Jingze Fang, 12th; Ziye Xiao, 12th; Yu Ren, 12th; Suzhou No.10 High School of Jiangsu Province, Suzhou, Jiangsu, China

CHEM010 *Algae-Based Sol-Gel Technology: A Novel Approach to the Bioremediation of Wastewater*
https://projectboard.world/isef/project/51831
Vivian Chinoda, 12th; Queen Elizabeth Girls' High School, Harare, Zimbabwe

CHEM011 *Keep Our Water Away from FOG*
https://projectboard.world/isef/project/51967
Zhi-Wei Zeng, 12th; Zeng Homeschool, Katy, TX

CHEM012 *Novel Synthesis of Important Pharmaceutical Compounds using Visible Light and a Photocatalyst*
https://projectboard.world/isef/project/51974
Jason Zhang, 12th; The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, KY

CHEM013 *A Combination of nNeem and Clove in the Form of Cream Against Tetraponera rufonigra*
https://projectboard.world/isef/project/51680
Yu Zhe Chu, 10th; Chung Ling High School Penang, Georgetown, Penang, Malaysia

CHEM014 *Phase II: Towards the Total Synthesis of the Leishmanicidal Lindbergin E for the Development of an Enantioselective Phloroglucinol-Derived Polyketide Synthesis*
https://projectboard.world/isef/project/52016
Elijah Jones, 12th; Jackson Senior High School, Jackson, MO

CHEM015 *Towards the Total Synthesis of the TRAIL-Resistance-Overcoming Cytotoxic Pannokin D for the Development of New Anticancer Pharmaceuticals and a Novel Regioselective Diprenylated Chromone-Derived Flavonoid Synthesis*
https://projectboard.world/isef/project/51991
Hiren Parekh, 11th; Saxony Lutheran High School, Jackson, MO

CHEM016T *A Pentiptycene-Anthracene Hybrid Smart Fluorescent Material*
https://projectboard.world/isef/project/51942
Jeannine Lee, 11th; Catriona Wu, 11th; Taipei First Girls High School, Taipei, Taiwan

CHEM017 *Synthesis & Characterization of Phosphorus/Nitrogen Co-Doped Carbonized Waste Cigarette Filters: Application as Textile Dye Adsorbents & Oxygen Reduction Electrocatalysts*
https://projectboard.world/isef/project/52008
Zane Alsebai, 11th; Little Rock Central High School, Little Rock, AR

CHEM018 *A Novel Approach for Nuclear Waste Curation: A Manganese and Uranium Coupled Biogeochemical Cycle*
https://projectboard.world/isef/project/52019
Dev Rishi Udata, 11th; Jesuit High School, Portland, OR

CHEM019 *Pressure-Driven C-H Activation through Non-Bonding Anagostic Interactions for Petroleum Hydrocarbon Transformation*
https://projectboard.world/isef/project/51746
Carly Yang, 11th; Texas Academy of Mathematics and Science, Denton, TX

CHEM020 *The Feasibility of the Extraction of (2E)-3-phenylprop-2-enal from Cinnamomum cassia Bark Using Water and Aqueous Ethanol as Solvents in Distillation*
https://projectboard.world/isef/project/52221
Aaron Trinh, 12th; Canyon del Oro High School, Oro Valley, AZ

CHEM021T *CASH-LOCK: A Way to Find Out What You Are Wearing*
https://projectboard.world/isef/project/52684
Bibiana Dellavalle, 12th; Alberto Racerro, 12th; Elisa Destro, 12th; Istituto Superiore Ascanio Sobrero, Casale Monferrato, Italy

CHEM022T *Improvement of Hydrolysis Efficiency of Cellulose Using Ionic Liquids for Efficient Bioethanol Production*
https://projectboard.world/isef/project/52694
Yuri Muto, 12th; Kazuki Toida, 12th; Nanami Kanzaki, 12th; Aichi Prefectural Ichinomiya Senior High School, Ichinomiya-City, Aichi-Pref., Japan

CHEM023 *Structural Determination of a Bioinspired Perchlorate Reduction Catalyst Through Chemical Modeling*
https://projectboard.world/isef/project/53456
Eric Bi, 11th; Martin Luther King High School, Riverside, CA

CHEM024 *The Effect of the Mass of Sodium Bicarbonate on Endothermic Reactions*
https://projectboard.world/isef/project/53507
Kiara Fenn, 10th; Fairfax High School, Fairfax, VA

CHEM025 *New Methods for Computing the Configurational Entropy of Deeply Supercooled Liquids with the Potential Energy Landscape*
https://projectboard.world/isef/project/53513
Kaien Yang, 12th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

CHEM026T *Determination of Optimal Conditions for Hydrogenolysis of Sulfur Compounds to Improve Efficiency of Jet Fuel Production*
https://projectboard.world/isef/project/53518
Alexander Shliakhturov, 10th; Zakhar Balandin, 10th; State School "Lyceum #86", Yaroslavl, Yaroslavl, Yaroslavskaya Oblast, Russian Federation

CHEM027 *Gelatinization and Hysteresis of Organic Compounds to Create Edible Shelf Stable Adhesives*
https://projectboard.world/isef/project/53778
Ryan McGinnis, 11th; West Geauga High School, Chesterland, OH

CHEM028T *Structurally Modified Chlorophyll a as a Natural-Based Pigment for Dye-Sensitized Solar Cells*
https://projectboard.world/isef/project/54020
Suphawit Promkhot, 11th; Settanan Suangburanakul, 11th; Sapol Maison, 11th; Kamnoetvidya Science Academy, Rayong, Thailand

CHEM029 *Removal of Microplastics from Watery Environments with 3D Printed Wax Filters*
https://projectboard.world/isef/project/54116
George Hasnah, 10th; Cabrillo Marine Aquarium, San Pedro, CA

CHEM030T *Separation and Nondestructive Identification of Solid Particles by NeFeB Permanent Magnets with Microgravity: Towaed "Solid-State Version Chromatography"*
https://projectboard.world/isef/project/54194
Keita Maishi, 12th; Yuichirou Okuno, 12th; Mai Fujitani, 11th; Kasugaoka Senior High School of Osaka Prefecture, Ibarakishi, Osaka, Japan

CHEM031T   *High Efficiency Adsorption of Methane Using Modified Activated Carbon and Modified Clinoptilolite*
https://projectboard.world/isef/project/54273
Fares Qtaishat, 11th; Sarah Abdallah, 11th; Jubilee School, Amman, Jordan

CHEM032   *Honey's Effect on Watercolor, Acrylic, and Oil Paint*
https://projectboard.world/isef/project/54420
Jacie Boelhower, 10th; Adams Central Jr.-Sr. High School, Hastings, NE

CHEM033T   *A Perovskite Crystal Structure Prediction and Screening System Using Complex Machine Learning Methods*
https://projectboard.world/isef/project/54425
Smriti Somasundaram, 11th; Sathvik Nallamalli, 12th; Olympia High School, Olympia, WA

CHEM034   *Detection of Nitrogen Levels in Sample Using Novel, Accessible, Cost Effective, Accurate, Safe, Simple, Reusable Method*
https://projectboard.world/isef/project/54499
Aditi Bhaskar, 10th, Wilsonville High School, Wilsonville, OR

CHEM035   *A New Method for the Selective Synthesis of Indirubins*
https://projectboard.world/isef/project/54587
Shun Tanaka, 9th; Fuzoku Middle School Attaced to Naruto University of Education, Tokushima City, Tokushima, Japan

CHEM036   *Rare-Earth-Free Silicon-Based Organic Molecules for Solid-State Lighting Applications*
https://projectboard.world/isef/project/54602
Lisa Zhang, 11th; Providence High School, Charlotte, NC

CHEM038   *Creating and Testing New Polymers to Remove the Environmental Toxin PFOA from Water*
https://projectboard.world/isef/project/54827
Andrew Lipton, 11th; Lafayette Jefferson High School, Lafayette, IN

CHEM039   *How Do Different Natural Dyes React with Variations in Fabric and pH?*
https://projectboard.world/isef/project/54837
Grace Moeller, 11th; Lake Crystal Wellcome Memorial, Lake Crystal, MN

CHEM040   *Staphylococcus aureus Biofilm Dispersion: Computationally Analyzing Interactions between Nattokinase Binding-Partners via a Novel Stacked Generalization Machine Learning Approach*
https://projectboard.world/isef/project/55056
Raghav Sriram, 10th; Carmel High School, Carmel, IN

CHEM041T   *Valorification Potential of Wormwood (Artemisia absinthium L.) for the Preparation of the Broad-Spectrum "HOPE" Spray*
https://projectboard.world/isef/project/55149
Prepelita Mihaela, 12th; Marius Vrabie, 12th; Theoretical Lyceum Ion Creanga-Ungheni, Ungheni, Republic of Moldova, Republic of Moldova

CHEM042   *Novel Ultra-Low-Density Nickel Aerogel*
https://projectboard.world/isef/project/55257
Omer Eyal, 12th; The Hebrew University Secondary School, Jerusalem, Israel

CHEM043T   *Development of a Novel Machine Learning Algorithm in Biomolecules and Drugs for Measuring Molecular Surface Area: Applications in Long QT Syndrome and Neurodegenerative Diseases*
https://projectboard.world/isef/project/55279
Shawn Lokshin, 11th; Nouraldeen Ibrahim, 11th; Staten Island Technical High School, Staten Island, NY

CHEM044   *All-Stretchable Electrodes: Experiments on Non-industrial Manufacturing*
https://projectboard.world/isef/project/55310
Stepan Portnov, 11th; Higher School of Economics Lyceum, Moscow, Moscow, Russian Federation

CHEM045T   *H2O as a Method of Sustainable Fuel for a Bus*
https://projectboard.world/isef/project/55314
Yadiel Tirado-Laboy, 12th; Genesis Lopez-Aviles, 12th; Centro Residencial de Oportunidades Educativas de Ceiba, Ceiba, Ceiba, Puerto Rico

CHEM046   *Strong Electric Field Electroosmosis: Physical Principles and Measurements in the Strongly Nonlinear Regime*
https://projectboard.world/isef/project/55423
Natalia Ionescu, 11th; Mihai Viteazul National College, Bucharest, Bucharest, Romania

CHEM047T   *Aspects Regarding Electrochemical Actuation*
https://projectboard.world/isef/project/55424
Eva Savin, 12th; Alexandru Chivulescu, 12th; Mihai Viteazul National College, Bucharest, Bucharest, Romania

CHEM048   *Tunable NiFe-LDH Electrocatalyst Synthesis via Benzyl Alcohol Solvation for Enhanced Water-splitting*
https://projectboard.world/isef/project/55506
Abdullah AlGhamdi, 11th; Alhussan Private School, Dammam, Eastern Province, Saudi Arabia

CHEM049   *The Use of Activated Carbon Prepared from Tires Waste Filled with Nano Zinc and Nano Molybdenum to Remove Sulfur from Petroleum Products*
https://projectboard.world/isef/project/55510
Laura AlAmiri, 12th; AlBassam Schools, Dammam, Saudi Arabia

CHEM050   *Sulfur Dioxide Quantification: Improvements to the Classical Ripper Titration Using Colorimetric Analysis*
https://projectboard.world/isef/project/55683
Sarah Mackel, 12th; International School of Luxembourg, Luxembourg, Luxembourg, Luxembourg

CHEM051   *Silica-Supported Perovskite Oxides for Low Temperature Carbon Dioxide Conversion*
https://projectboard.world/isef/project/55688
Anya Patidar, 11th; C. Leon King High School, Tampa, FL

CHEM052T   *Optimize Peptide Polybia-MP1 as Potential Anticancer Agents*
https://projectboard.world/isef/project/55705
Anh Mai, 10th; Tam Do, 10th; Lam Son High School for the Gifted, Thanh Hoa, Viet Nam

CHEM053   *Evaluating the Efficacy of Repurposed and Modified Traditional Eastern Medicinal Compounds on Coronavirus Family Specific Target Structures*
https://projectboard.world/isef/project/55906
Brian Lee, 12th; Plainview-Old Bethpage John F. Kennedy High School, Plainview, NY

CHEM054   *Simulation of Solar-Powered Capacitive Deionization (CDI) for the Removal of Bacteria, Viruses, and Heavy Metals from Water*
https://projectboard.world/isef/project/55910
Sanjna Kedia, 12th; Manhasset High School, Manhasset, NY

CHEM055   *Reuse CO2 in Cement Industry to Decrease Its Effect as Greenhouse Gas as well as Using the Waste from Marble Cutting and Steel Slag instead of Polluting the Environment*
https://projectboard.world/isef/project/56042
Zyad Emad, 11th; Red Sea STEM, Hurgada, Egypt

CHEM056T   *Development of Multi-sensor Paper-Based Test Kit for Heavy Metal Detection*
https://projectboard.world/isef/project/56058
Thiti Thaloengboonsiri, 11th; Dawit Boonyakitnotai, 11th; Kijjakarn Namsawangrungrueng, 11th; Kamnoetvidya Science Academy, Rayong, Thailand

CHEM057   *Synthesis, Characterization and in vitro Cytotoxicity of Tunable Sized Chemo-PTT Combination Nanomedicines for Cancer Therapy*
https://projectboard.world/isef/project/56064
Amna Khan, 11th; Little Rock Central High School, Little Rock, AR

CHEM058   *The Effect of pH on Dye Degradation by Titanium (IV) Dioxide Nanoparticles*
https://projectboard.world/isef/project/56181
Soumya Chauhan, 11th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

CHEM059   *Diffusion Mechanism of Pu+3 in Sedimentary Repository Conditions: Ab Initio Molecular Dynamics Study*
https://projectboard.world/isef/project/56223
Becca Barbera, 11th; Cathedral High School, Hamilton, Ontario, Canada

CHEM060   *Local Strontium Ranelate Delivery Systems*
https://projectboard.world/isef/project/56239
Samanta Cvetkova, 11th; Nereta Janis Jaunsudrabins' High School, Nereta, Aizkraukle district, Latvia

CHEM061   *Fabrication of Napthalimide Point-of-Care (POC) Chemosensor Using InkJet Printing on Cellulose Paper for Determination of Uric Acid (UA) in Synthetic Urine and Aqueous Solution of Grain Samples, and Chromium Metal (Cr) in Drinking Water*
https://projectboard.world/isef/project/56358
Vedant Karalkar, 11th; Eastside High School, Gainesville, FL

CHEM062T   *Invention of a Novel Detection Kit Based on Thiourea Doped Cellulose for Antibacterial Film's Validity*
https://projectboard.world/isef/project/56372
Adam Roberge, 12th; Hyunjun Chang, 12th; Cheongshim International Academy, Seoul, South Korea

CHEM063 *Column Purification of Hawaiian Grown Mamaki Tea Extracts and Investigation of Associated Compound Stability in Simulated Intestinal and Gastric Fluids*
https://projectboard.world/isef/project/56377
Alanna Sun, 10th; Waiakea High School, Hilo, HI

CHEM064T *A Novel Metal-Ligand Complex System Based on Uric Acid Ligands and Its Application on Gout Early Detection*
https://projectboard.world/isef/project/56381
Min Jae Kim, 12th; Yeonsu Kang, 12th; Cheongshim International Academy, Seoul, South Korea

CHEM065T *A Study on the Production of Kit to Detect Nickel Ion in Waste Water Using Luminol*
https://projectboard.world/isef/project/56444
Yehyun Hwang, 11th; Se Ryeon Kim, 11th; Min jung Kim, 11th; Incheon Jinsan Science High School, Incheon, South Korea

CHEM066 *Graphene Cyclodextrin Nanosheets as a Potential Corrosion Inhibitor for Oil and Gas Pipelines*
https://projectboard.world/isef/project/56449
Dana AL Rogaiti, 10th; AL Bassam-IGCSE, Dammam, Eastern, Saudi Arabia

CHEM067 *Novel Coating of Porous Cu as Heat Pipe for Thermal Management*
https://projectboard.world/isef/project/56540
Lingbo Shen, 12th; National Junior College, Singapore, Singapore, Singapore

CHEM068T *Intricate Study of Hydrothermally-synthesized Hexagonal K2W4O13 Nanowires for the Adsorption and Photodegradation of Organic Dyes and Heavy Metal Ions*
https://projectboard.world/isef/project/56544
Shanley Ho, 11th; Dillion Lim, 11th; Bryan Lee Chong Han, 11th; Hwa Chong Institution, Singapore, Singapore, Singapore

CHEM069 *Investigating the Efficiency of Carpobrotus edulis, Kelp, and Walnut Shell Bioethanol in Comparison to Corn Ethanol Using Percent Yield and Mass Fractionation*
https://projectboard.world/isef/project/56618
Alexis MacAvoy, 10th; San Mateo High School, San Mateo, CA

CHEM070 *Syntesis of S-Adenosyl-L-homocysteine Analogs for Structural Studies of Methyltransferases*
https://projectboard.world/isef/project/56672
Ratislav Ozhiganov, 11th; Moscow South-Eastern School Named After V. I. Chuikov, Moscow, Russian Federation

CHEM071 *Hydrothermal Synthesis of Copper Sulphide Nanoparticles, Analysis of Their Physical-Chemical Properties and Cytotoxicity in vitro*
https://projectboard.world/isef/project/56838
Kacper Pajak, 12th; III LO im. Adama Mickiewicza, Katowice, Slaskie, Poland

CHEM072 *Developing A High Protein Vegan Meal Replacement*
https://projectboard.world/isef/project/56874
Vaidehi Rathod, 11th; Chattanooga School for the Arts and Sciences, Chattanooga, TN

EARTH AND ENVIRONMENTAL SCIENCES

EAEV001   *The Effect of pH on RNA Absorption and Liberation on Mineral Surfaces*
https://projectboard.world/isef/project/51741
Sarah Nolan, 12th; Brigidine College Randwick, Randwick, NSW, Australia

EAEV002   *Rethinking Our Roads: The Ability of Porous Concrete to Reduce Surface Runoff of Tire Wear Particles (TWP)*
https://projectboard.world/isef/project/51736
Mason Sufnarski, 11th; Marvin Ridge High School, Waxhaw, NC

EAEV003   *A Novel Deep Learning Model for Estimating Tropical Cyclone Intensity from Satellite Images*
https://projectboard.world/isef/project/51637
Sunny You, 9th; Miami Palmetto Senior High School, Pinecrest, FL

EAEV004   *Utilization of Manihot esculenta Peels, Used Coffee Grounds, and Eggshells from Gallus gallus to Create Biodegradable Polymers*
https://projectboard.world/isef/project/51681
Camille Duma, 9th; Vanguard High School, Ocala, FL

EAEV005   *Demonstrating D. pulex as Environmental Buffers to Acetylcholinesterase Inhibitors on H. littoralis*
https://projectboard.world/isef/project/51817
Jordan Harrow, 12th; Episcopal School of Jacksonville, Jacksonville, FL

EAEV006   *The Luch-2 Lava Cave in the Zvezda Crater, Tolbachik Volcanic Complex, Kamchatka Peninsula*
https://projectboard.world/isef/project/51658
Vlada Shevchenko, 9th; The Specialized Educational Scientific Center on Physics, Mathematics, Chemistry and Biology of Novosibirsk State University, Novosibirsk, Novosibirsk Oblast, Russian Federation

EAEV007T   *An Investigation into Salix fragilis and the Subsequent Environmental Impacts of Its Introduction to the Tasmanian Landscape*
https://projectboard.world/isef/project/51758
Caitlin Marr, 10th; Emily Walter, 10th; St. Mary's College, Hobart, Tasmania, Australia

EAEV008   *Developing a User-Friendly System for Predicting Harmful Levels of Marine Biotoxins*
https://projectboard.world/isef/project/51928
Lila Schweinfurth, 12th; Oregon Episcopal School, Portland, OR

EAEV009   *Earthquake Magnitude and b Value Prediction Model using Extreme Learning Machine*
https://projectboard.world/isef/project/51676
Gunbir Baveja, 11th; Delhi Public School, Dwarka, Delhi, India

EAEV010   *The Creation and Practical Application of Industry Standards Water Analysis via PXRF*
https://projectboard.world/isef/project/51958
Julia Kagiliery, 12th; Episcopal School of Jacksonville, Jacksonville, FL

EAEV011   *Study on Protein Precipitation Methods of Wastewater in Sweet Potato Food Processing*
https://projectboard.world/isef/project/51906
Jinyi Xu, 11th; No. 2 High School of East China Normal University, Shanghai, Shanghai, China

EAEV012   *Climate Clock: A Window of Hope — Our Most Critical Time Window to Take Bold, Transformative Action to Protect Our Climate for All Generations*
https://projectboard.world/isef/project/51856
Marlvern Chimbwanda, 12th; Mufakose 1 High School, Mufakose, Harare, Zimbabwe

EAEV013   *Environmental Impact of Batteries on Animal and Human Health Through Soil and Groundwater Contamination*
https://projectboard.world/isef/project/52003
McKayla Tingey, 12th; Weber High School, Pleasant View, UT

EAEV014   *Comparative Analysis of the Effectiveness of Cetyl Alcohol (Hexadecan-1-ol) and Shade Balls in Preventing Evaporation of Water*
https://projectboard.world/isef/project/52004
Alyse Radle, 9th; North Ogden Junior High, North Ogden, UT

EAEV015   *Coagulation Flocculation Sedimentation Filtration of Microplastics*
https://projectboard.world/isef/project/51757
Amy King, 9th; Burns Science and Technology Charter School, Oak Hill, FL

EAEV016   *Analyzing In-situ Environmental Impacts on Long Term Durability, Cohesivity, and Viability Sodium Alginate Immobilized Chlorella vulgaris Bioremediation Units (A Novel Third Year Study)*
https://projectboard.world/isef/project/51820
Morgan Barnes, 10th; Canterbury School, Fort Myers, FL

EAEV017   *The Effect of CAFO Proximity on Water Quality of Inland Recreational Lakes in Southwest Michigan*
https://projectboard.world/isef/project/51881
Richard Usdin, 12th; Benjamin Franklin High School, New Orleans, LA

EAEV018   *Reinforced Lignin Foams with Higher Adsorption Capabilities*
https://projectboard.world/isef/project/51810
Jessica Yan, 11th; The Mississippi School for Mathematics and Science, Columbus, MS

EAEV019   *The Hurricane Engine: Identifying the Correlation Between Ocean Eddies and the Development and Intensification of Hurricanes*
https://projectboard.world/isef/project/51927
Michelle Arguello, 11th; James Pace High School, Brownsville, TX

EAEV020   *Rotation of Inner Eyewall within Double-Eyewall Typhoons*
https://projectboard.world/isef/project/51986
Yi-Sin Tsang, 12th; The Affiliated Senior High School of National Taiwan Normal University, Taipei City, Chinese Taipei

EAEV021   *Water Energy Usage*
https://projectboard.world/isef/project/52013
Joseph Young, 9th; Moutain Pine High School, Mountain Pine, AR

EAEV022   *Quantifying Soybean CO2 Exchange with Chlorophyll Content*
https://projectboard.world/isef/project/52010
Cameron Holder, 10th; Nettleton High School, Jonesboro, AR

EAEV023   *Plant Based Water Purification*
https://projectboard.world/isef/project/52017
Tarini Eswaran, 9th; Little Rock Central High School, Little Rock, AR

EAEV024T   *Hidden Signals in Paleoclimate Records: Investigating the Importance of the Sun to Earth's Climate*
https://projectboard.world/isef/project/51788
Lauren Egaas, 12th; Annalie Haralson, 12th; Maddie Fox, 12th; Monarch High School, Louisville, CO

EAEV025   *A Novel Model of Microplastics Pollution for Terrestrial Environments in Drosophila melanogaster*
https://projectboard.world/isef/project/5196   1
Stephan Lindenthal, 11th; Saint Edward's School, Vero Beach, FL

EAEV026   *Microplastic Contamination in Montana's Mountains*
https://projectboard.world/isef/project/51976
Claire Bucklin, 9th; North Toole County High School, Sunburst, MT

EAEV027   *Effects of Elevated Temperatures on the Photodegradation of Pyrethroid Insecticides on Vegetable Leaves*
https://projectboard.world/isef/project/52164
Yixiao Yang, 11th; The Experimental High School Attached to Beijing Normal University, Beijing, Beijing, China

EAEV028   *Green Infrastructure Impacts on Carbon Cycling: Evaluating Changes in Soil Microbial Composition and Function*
https://projectboard.world/isef/project/52223
Isabel Ross, 11th; Cienega High School, Vail, AZ

EAEV029T   *Developing a Free Energy Parameter Model for the Prediction and Mapping of the Uptake of Hazardous Organic Pollutants by Plant Cuticle Membranes*
https://projectboard.world/isef/project/52231
Jennifer Huang, 12th; Shrika Eddula, 12th; Texas Academy of Mathematics and Science, Denton, TX

EAEV030   *Which Is the Best Spotted Lanternfly Trap?*
https://projectboard.world/isef/project/52235
Samuel Koda, 10th; Hershey High School, Hershey, PA

EAEV031   *Analysis of Potential Groundwater Availability Using Euclidean Distance in Yogyakarta Suburban City*
https://projectboard.world/isef/project/52678
Valencio Sahasika Kusumadyas, 11th; SMA Negeri 3 Yogyakarta, Yogyakarta, D.I. Yogyakarta, Indonesia

EAEV032 *How Do We Save Our Lives? Discovery of Realistic Evacuation Issues and a Proposal of New Solution*
https://projectboard.world/isef/project/52687
Koya Takahashi, 11th; Tosa High School, Kochi, Kochi, Japan

EAEV033 *Locking Down: The COVID-19 Pandemic and Air Pollution in Salt Lake City*
https://projectboard.world/isef/project/52997
Caleb Grow, 12th; Jordan High School, Sandy, UT

EAEV034 *Analysis of Plastic Pellet Distribution in the Environment Using Citizen Science Nurdle Patrol Data and Batch Identification to Differentiate Spills*
https://projectboard.world/isef/project/53006
Melanie Quan, 12th; Las Lomas High School, Walnut Creek, CA

EAEV035 *Seasonal Abundances of Macroinvertebrate Orders in an Intermittent Ozark Headwater Stream*
https://projectboard.world/isef/project/53011
Echo Mitchell, 10th; Rural Special High School, Fox, AR

EAEV036 *Quantifying Volume of the Dana Glacier Using Field Measurements and 3D Modeling*
https://projectboard.world/isef/project/53450
Ellery McQuilkin, 11th; Lee Vining High School, Lee Vining, CA

EAEV037 *Identifying Climate Change Refugia for Hawaii's Vulnerable Endemic Species with a Spatial-Temporal Model in GIS*
https://projectboard.world/isef/project/53475
Kai Mottley, 11th; Kauai High School, Lihue, HI

EAEV038 *Year-Long Salinization of Groundwater and Surface Waters of Hudson River Watersheds due to Chronic Road Salt Application*
https://projectboard.world/isef/project/53489
Nicole Camilliere, 12th; Ossining High School, Ossining, NY

EAEV039 *Larvicidal "Trojan-horse": Experimentally Developing a Novel Low-Cost and Eco-Friendly Mosquito Vector Control Treatment*
https://projectboard.world/isef/project/53502
Aseel Rawashdeh, 11th; L C Anderson High School, Austin, TX

EAEV040 *Eastern Skunk Cabbages: A Natural and Sustainable Solution for Combating Bank Erosion*
https://projectboard.world/isef/project/53772
Chelsea Hu, 9th; BASIS Independent McLean, McLean, VA

EAEV041 *Delineation of Capture Zones for Springs in Southern Great Basin Based on Modeling Results and Geochemical Data*
https://projectboard.world/isef/project/53784
Anya Zhang, 11th; Ed W. Clark High School, Las Vegas, NV

EAEV042 *Analyzing the Effects of Spruce Beetles on Aquatic Ecosystems through Macroinvertebrate and Water Quality Sampling in Conejos County, Colorado*
https://projectboard.world/isef/project/53789
Camille Rawinski, 11th, Monte Vista High School, Monte Vista, CO

EAEV043T *Identification of Microplastics in Baby Fish Tuna (Euthynnus affinis) in Manis Market Purwokerto*
https://projectboard.world/isef/project/53993
Edenia Larisa, 11th; Amira Syifa, 11th; Al Irsyad Al Islamiyyah Senior High School Purwokerto, Purwokerto, Central Java, Indonesia

EAEV044 *Analysis of Microbial Diversity in PCB-Contaminated Environments*
https://projectboard.world/isef/project/54007
Eleanor Little, 10th; Roanoke Valley Governor's School for Science and Technology, Roanoke, VA

EAEV045T *A New Approach To Ecology: Using Machine Learning to Predict the Spread of Invasive Species*
https://projectboard.world/isef/project/54096
Ayaan Bargeer, 11th; Avi Bagchi, 11th; Shaker High School, Latham, NY

EAEV046T *A Profile of Heavy Metal Contamination in Lower Hudson Valley Tributaries*
https://projectboard.world/isef/project/54097
Jack Dougherty, 12th; Daniel Dusevic, 12th; Pelham Memorial High School, Pelham, NY

EAEV047 *Street Trees: An Analysis of Undergrounding Power Lines in the Northeastern Suburbs*
https://projectboard.world/isef/project/5409   9
Lucia Lavallee, 12th; Pelham Memorial High School, Pelham, NY

EAEV048   *Determining Effective Locations of Seagrass to Prevent Coastal Erosion*
https://projectboard.world/isef/project/54100
Brett Bober, 12th; Pelham Memorial High School, Pelham, NY

EAEV049   *Polar Vortex and Long-Duration Events: Climate Change in the U.S. and Canada*
https://projectboard.world/isef/project/54115
Jason Wang, 10th; Walnut High School, Walnut, CA

EAEV050T   *Modifying the Activity of Hydrogenase and Carbonic Anhydrase Enzymes in Chaetomorpha to Mitigate Ocean Acidification*
https://projectboard.world/isef/project/54121
Christopher Kwok, 10th; Nicholas Kwok, 10th; Sequoia High School, Redwood City, CA

EAEV051   *Utilization of Spirulina for Phytoremediation of Cadmium Pollution in Waterways*
https://projectboard.world/isef/project/54126
Rithik Bhushan, 9th; Monterey High School, Monterey, CA

EAEV052   *The Great Lakes Nonmetal Concentrations: Potential Causes of Harmful Algal Blooms*
https://projectboard.world/isef/project/54131
Katherine McCarthy, 12th; Saginaw Arts and Sciences Academy, Saginaw, MI

EAEV053   *An Analysis of Agricultural Tile Drainage and the Impact of Crop Residue Retention*
https://projectboard.world/isef/project/54132
Gavin Kratcha, 9th; Hankinson Public School, Hankinson, ND

EAEV055   *Per- and Polyfluoroalkyl Substances (PFAS) Uptake in Plants*
https://projectboard.world/isef/project/54407
Emma Noble, 10th; Eureka High School, Eureka, KS

EAEV056   *The Impact of Root Depth in Regards to Carbon Dioxide Absorption in Brassica Rapa Subspecies Pekinensis Plants*
https://projectboard.world/isef/project/54415
Rhea Choudhary, 9th; Pulaski Academy, Little Rock, AR

EAEV057   *Path Dependence of Atlantic Meridional Overturning Circulation Weakening: A Geostrophic Shear Approach*
https://projectboard.world/isef/project/5442   3
Yuchen Li, 11th; Nikola Tesla STEM High School, Redmond, WA

EAEV058   *New Estimates of Nitrogen Fixation on Early Earth*
https://projectboard.world/isef/project/54426
Madeline Christensen, 12th; Bellarmine Preparatory School, Tacoma, WA

EAEV059   *UVClean or SODISgusting: Comparing the Effectiveness and Efficiency of an Ultra-Violet C (UVC) Sanitizer Box and the Solar Water Disinfection (SODIS) Method*
https://projectboard.world/isef/project/54429
Kiersten Knobbe, 10th; Guthrie Center High School, Guthrie Center, IA

EAEV060   *Predicting Harmful Algal Blooms in Green Valley Lake Using a Machine Learning Model*
https://projectboard.world/isef/project/54430
Claire Gu, 10th; Valley High School, West Des Moines, IA

EAEV061   *An Accessible, Low Cost Tool for Citizen Scientists: Using Remote Sensing Techniques to Predict Fire Damage Propensity*
https://projectboard.world/isef/project/54438
Vedant Janapaty, 9th; Silver Creek High School, San Jose, CA

EAEV062   *Detection of Arsenic Contamination Using Satellite Imagery and Machine Learning*
https://projectboard.world/isef/project/54488
Ayush Agrawal, 11th; Canyon Crest Academy, San Diego, CA

EAEV063   *Aero2Aqua: A Novel Bioinspired Atmospheric Water Harvester*
https://projectboard.world/isef/project/54501
Cameron Sharma, 11th; Mills E. Godwin High School, Henrico, VA

EAEV064   *Assessing and Predicting Wildfire Severity in California Based on Relationships Between Wildfires and Drought Using Machine Learning*
https://projectboard.world/isef/project/54599
Angela Chen, 10th; William G. Enloe High School, Raleigh, NC

EAEV065   *Examining the Effects of Marine Microplastics on Porifera Microbial Filtration*
https://projectboard.world/isef/project/54617
Natalie McGee, 11th; Mt. Lebanon High School, Pittsburgh, PA

EAEV066   *Galleria mellonella Biodegradation of Polyethylene by Digestion*
https://projectboard.world/isef/project/54622
Mireya Ramirez, 11th; North Gwinnett High School, Suwanee, GA

EAEV067T   *Remote Monitoring System for Swimming Pools Water Quality (IOT)*
https://projectboard.world/isef/project/54811
Ahmad Makableh, 12th; Mohammed Alshaibi, 12th; Ahmad Bin Hanbal Secondary School, Doha, Qatar

EAEV068   *The Effects of Different Turbine Blade Shapes on the Output of Hydroelectric Power*
https://projectboard.world/isef/project/54828
Sydney Hefty, 12th; DeKalb High School, Waterloo, IN

EAEV069   *Rapid Intensification of Hurricanes in the Atlantic Basin*
https://projectboard.world/isef/project/55024
Cameron Carter, 12th; Ocean Lakes High School, Virginia Beach, VA

EAEV070   *Assessing Grass Water Use Efficiency Through Smartphone Imaging and ImageJ Analysis*
https://projectboard.world/isef/project/55041
Aniyah Shen, 10th; University High School, Irvine, CA

EAEV071   *Dendrochronological Data Analysis to Measure Climate Sensitivity and to Develop Paleoclimate Reconstructions*
https://projectboard.world/isef/project/55043
Shreya Khullar, 11th; West High School, Iowa City, IA

EAEV072   *The Effect of Biochar on Phosphorus Leaching in Chicken Manure*
https://projectboard.world/isef/project/55063
Breanna Vaughan, 10th; Central City High School, Central City, NE

EAEV073   *Determining the Natural Microbial Flora Found on the Stem Surfaces of Aquatic Plants and Their Connection to Water Filtration*
https://projectboard.world/isef/project/55077
Madelyn Kirklin, 9th; Live Oak Classical School, Waco, TX

EAEV074   *Leachate-Filtering Efficacy of Varied Liners*
https://projectboard.world/isef/project/55082
Marta Pambukhchyan, 10th; Crescenta Valley High School, La Crescenta, CA

EAEV075   *Effect of Organic Materials Review Institute-Certified Bacillus thuringiensis Bio-insecticide on Daphnia magna Swimming Behavior*
https://projectboard.world/isef/project/55230
Madeline Phuong, 10th; Homestead Senior High School, Fort Wayne, IN

EAEV076   *Using Machine Learning to Improve Numerical Weather Prediction*
https://projectboard.world/isef/project/55243
Conor Casey, 12th; Pobalscoil Inbhear Sceine, Kenmare, Kerry, Ireland

EAEV077   *Environmental Conservation: Calculation of Irregular Surface Area Utilizing the Monte Carlo Method and the Law of Large Numbers*
https://projectboard.world/isef/project/55247
Jaeyoung Lee, 12th; Auburn High School, Auburn, AL

EAEV078   *Is It Possible to Create a Self-sufficient Solar Powered Filtration System to Reduce Coral Bleaching Using Natural Resources (Year 3)?*
https://projectboard.world/isef/project/55272
Marisol Enguidanos, 9th; Niceville High School, Niceville, FL

EAEV079   *Zooplankton Studies in Lentic Ecosystems: Phase V - Cyclomorphosis*
https://projectboard.world/isef/project/5527   3
Ashton Ryan, 11th; Rochester High School, Rochester, IL

EAEV080   *Predicting the Extent of Late Seasonal Wildfires in Washington Using the Correlation Between the Standardized Precipitation Index and Burned Area Data*
https://projectboard.world/isef/project/55301
Saketh Dhulipalla, 11th; Nikola Tesla STEM High School, Redmond, WA

EAEV081T *Phenotypic Analysis on Trichoptera Larvae Behavior to Assess a Stream Quality and Changes in Flow*
https://projectboard.world/isef/project/55313
Lorraine Rosario Pizarro, 11th; Rubén Rosario Pizarro, 11th; Colegio Rosa-Bell, Guaynabo, Guaynabo, Puerto Rico

EAEV082 *Design and Creation of an Artificial CaCo3 Porous Reef Prototype as a Support Structure for the Adaptation Capacity of the Marine Ecosystem*
https://projectboard.world/isef/project/55318
Claudia Renta Ortiz, 11th; Escuela Especializada en Ciencias, Matematicas y Tecnologia, Caguas, Puerto Rico

EAEV083 *A Consumer Internet-of-Things Device for On-Site and Regional Earthquake Early Warning*
https://projectboard.world/isef/project/55321
Vivien He, 11th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

EAEV084 *Manure to Energy*
https://projectboard.world/isef/project/55331
Brooke Vachal, 9th; Tioga High School, Tioga, ND

EAEV085 *The Effect of ZnO Nanoparticles on Arabidopsis Growth in Elevated CO2*
https://projectboard.world/isef/project/55337
Talia Smith, 11th; Massachusetts Academy of Math and Science at WPI, Worcester, MA

EAEV087 *Removing Chromium (VI) from Contaminated Water Using a Low-Cost Chitosan Coated Diatomaceous Earth*
https://projectboard.world/isef/project/55653
Johan DeMessie, 10th; William Mason High School, Mason, OH

EAEV088 *Detection of Coliforms in Adam's Canyon Watershed*
https://projectboard.world/isef/project/55682
Thanaphone Shields, 9th; West Point Junior High School, West Point, UT

EAEV089T *The Degradation of Polystyrene (Styrofoam) by Tenebrio Beetles and Their Larvae*
https://projectboard.world/isef/project/55686
Nevan Hanford, 11th; Aahana Dugar, 11th; Blake Enwiller, 11th; Arizona College Preparatory- Erie, Chandler, AZ

EAEV090 *Predictive Modeling of Tropical Cyclone Rapid Intensification by Analyzing Convective Patterns with Convolutional Neural Networks, Year Four*
https://projectboard.world/isef/project/55693
Alexander LaFortune, 12th; Satellite High School, Satellite Beach, FL

EAEV091 *Removing Harmful Nitrates from Bodies of Fresh Water Through Biosorption*
https://projectboard.world/isef/project/55694
William Berry IV, 10th; Oxford High School, Oxford, MS

EAEV092 *Using Bivalve Mollusks to Detect Water Contaminates*
https://projectboard.world/isef/project/55699
Joshua Rennekamp, 12th; Conestoga Valley Senior High School, Lancaster, PA

EAEV093 *The Burning Effects of Sunscreen on Coral Algae (Zooxanthellae)*
https://projectboard.world/isef/project/55700
Adrie Earl, 11th; Success Academy DSU, St. George, UT

EAEV094 *Development of a Zeolite Composite Material for the Simultaneous Removal of Pharmaceuticals, Personal Care Products (PPCPs), and Perfluorinated Alkyl Substances (PFAS) in Water Treatment*
https://projectboard.world/isef/project/55701
James Licato, 12th; Washington-Lee High School, Arlington, VA

EAEV095 *The Environmental Impact of Clothing: A Comparative Study Between Cotton and Lyocell from an Environmental, Economical and Quality Perspective*
https://projectboard.world/isef/project/55838
Liv Nilsson Rapping, 12th; Vagga Gymnasieskolan, Karlshamn, Blekinge, Sweden

EAEV096 *Abrupt Change in Ice Loss Rate of Alaska's Glaciers Observed from GRACE and GRACE-FO Data*
https://projectboard.world/isef/project/55850
Junsung Lee, 10th; Logan High School, Logan, UT

EAEV097 *Minimum Slope Required for Liquefaction Induced Lateral Ground Displacement to Occur in a Confined Soil Mass Subject to a Simulated Seismic Shock*
https://projectboard.world/isef/project/55851
Rosemary Yahne, 11th; Northern Utah Acadamy for Math, Engineering and Science, Layton, UT

EAEV098   *Enhancement of Binary Geothermal Power Plants by Using Nanoparticles and It's Application in Egypt*
https://projectboard.world/isef/project/55862
Yasmin Hegy, 11th; Kafrawy Language School, New Damietta, Damietta, Egypt

EAEV099   *Math Model on the Effect of Deforestation and Anthropization on the Transmission Rates of Bat-Related Diseases*
https://projectboard.world/isef/project/55867
Sharlene Faye Manlongat, 12th; Niles North High School, Skokie, IL

EAEV100   *Spatial Pattern and Correlation Analysis to Understand the Relationship of City Structure on the Urban Heat Island (UHI) Intensity Across the US*
https://projectboard.world/isef/project/55875
Ridhima Singh, 10th; Farragut High School, Knoxville, TN

EAEV101   *Aquatic Habitat Nitrate Levels on Long Island: The Effect of High Nitrate Levels on Anuran Species Abundance*
https://projectboard.world/isef/project/55901
Ashley Roth, 12th; Lynbrook Senior High School, Lynbrook, NY

EAEV102   *Harnessing Deep Learning to Assess Coral Reef Health Through Crowd-sourced Efforts*
https://projectboard.world/isef/project/55902
Rithika Narayan, 12th; Elwood John Glenn High School, Elwood, NY

EAEV103   *Analyzing Water Contaminants Through Image Processing of Chlorophyll-a*
https://projectboard.world/isef/project/55913
Angela Mao, 12th; Syosset High School, Syosset, NY

EAEV105   *Functional Roles of Mysis and Amphipods Between Lake Basins Faced by Two Different Stressors: Zebra Mussels and Cyanobacteria Blooms*
https://projectboard.world/isef/project/56029
Hiba Ali, 11th; South Burlington High School, South Burlington, VT

EAEV106T   *GLAS: A Global Landslide Analytics System*
https://projectboard.world/isef/project/56032
Ishaan Javali, 11th; Shrey Joshi, 11th; Plano East Senior High School, Plano, TX

EAEV107   *Identifying Invertebrate Fossils in the Field Utilizing Machine Learning with a Novel 3D Augmentation Approach*
https://projectboard.world/isef/project/56077
Christian Nichols, 11th; Brockton High School, Brockton, MA

EAEV108T   *What Underwater Sounds Does a Small Boat Make and Do the Dominant Frequencies in the Noise Coincide With Fish Calls?*
https://projectboard.world/isef/project/56215
Kajsa Norman, 12th; Harriet Kallberg, 12th; Lugnetgymnasiet, Falun, Dalarna, Sweden

EAEV109T   *Operation and Verification of Weather Prediction System for Marine Vessels Using NOAA Polar Orbit Satellites*
https://projectboard.world/isef/project/56241
Hajin Woo, 12th; Hyeokju Song, 12th; Geunhee Park, 12th; Kyeongbuk Science High School, Pohang, Gyeongsangbuk-do, South Korea

EAEV110   *Developing a 3D Trajectory Modeling System to Predict Ocean Floor Microplastic Aggregation Using a Voxel-Based Neural Network Approach*
https://projectboard.world/isef/project/56254
Anna Du, 9th; Phillips Academy, Andover, MA

EAEV111T   *Forest Guard: An Integrated Sensor cum AI-based Fire-prone Area Mapping and Early Forest Fire Detection System with Real-time Fire Tracking and Prediction of the Direction of Spread through a Mobile User-app Interface*
https://projectboard.world/isef/project/56361
Utkarsh Mittal, 11th; Rudransh Agnihotri, 11th; Birla Vidya Niketan, New Delhi, Delhi, India

EAEV112T   *A Novel Approach to Bio-Friendly Microplastic Extraction with Ascidians*
https://projectboard.world/isef/project/56363
Yuntong Li, 11th; Rowan Ross, 11th; Burnaby North Secondary School, Burnaby, British Columbia, Canada

EAEV113   *Predicting Mechanisms of Flood Vulnerability for Southeast Asia Using Statistical Percolation Theory*
https://projectboard.world/isef/project/56367
Caroline Huang, 10th; Abbey Park High School, Oakville, Ontario, Canada

EAEV114   *Soil Farms: A New Approach to Cropland Restoration*
https://projectboard.world/isef/project/56414
Emma Kratcha, 11th; Hankinson Public School, Hankinson, ND

EAEV115   *A Novel and Low-cost Microfluidic-based C. elegans Electrotaxis Assay for Screening of Toxic Chemicals in Water*
https://projectboard.world/isef/project/56420
Neha Gupta,11th, Westdale Secondary School, Hamilton, Ontario, Canada

EAEV116T   *Secretion of Microplastics on the Seafloor*
https://projectboard.world/isef/project/56438
Lily Sikorski, 12th; Alexa VanSuch, 12th; Sarasota High School, Sarasota, FL

EAEV117T   *The Production of Bioplastics Using Persimmon Pruned Branches*
https://projectboard.world/isef/project/56440
Minseong Kim, 11th; HeeGyu Son, 11th; Gyunho Kim, 11th; Masan Yongma High School, Masan, Gyeongsangnam-do, South Korea

EAEV118   *The Dynamics of Vegetation of the Re-cultivated and Eco-Restored Anthropogenically-Altered Landscapes in Krasnoye Settlement and in Its Vicinity (the Nenets Autonomous Area, 2016-2020)*
https://projectboard.world/isef/project/56516
Anastasia Soboleva, 10th; Krasnovskaya Secondary School, Krasnoye, Nenets Autonomous Okrug, Russian Federation

EAEV120T   *Effect of Lemna minor on Caffeine Levels in Freshwater Ecosystems*
https://projectboard.world/isef/project/56705
Kenna Anderson, 10th; Emily Mitchell, 10th; Flathead High School, Kalispell, MT

EAEV121T   *A Third Year Study on the Bioremediation of Tetracycline Polluted Soils: How Antibiotic Resistance Can Reduce Antibiotic Pollution in the Environment and a Solution to Antibiotic Pollution-Related Crop Failure*
https://projectboard.world/isef/project/56710
Sriya Teerdhala, 11th; Sanjana Hiremath, 11th; Plano East Senior High School, Plano, TX

EAEV123   *The Environmental Effect on Aquatic Ecosystems of Run-Off From Wildfires Where Fire Retardant Slurry Was Used*
https://projectboard.world/isef/project/56744
Rachel Christensen, 12th; Evergreen Senior High School, Evergreen, CO

EAEV124T   *Progression of Sea Star Wasting Syndrome on the Oregon Coast*
https://projectboard.world/isef/project/56842
Sophia Nielsen, 12th; Anna Nielsen, 12th; West Linn High School, West Linn, OR

EAEV125   *Using Machine Learning to Combat Air Pollution by Forecasting Tropospheric Ozone Levels*
https://projectboard.world/isef/project/56862
Eliana Juarez, 10th; V. Sue Cleveland High School, Rio Rancho, NM

EAEV126T   *Biodegradable Film Based on Banana Peel, Cornstarch and Glycerin*
https://projectboard.world/isef/project/56995
Daniel Rodriguez, 11th; Dannai Rojas, 11th; Colegio de Estudios Cientificos y Tecnologicos del Estado de Puebla Plantel Magdalena, Acajete, Puebla, Mexico

EAEV128   *A Novel Low-Cost Filtration System for Removing Arsenic and Improving Health in Rural Populations*
https://projectboard.world/isef/project/57124
Ishraq Haque, 12th; Academic Magnet High School, North Charleston, SC

EMBEDDED SYSTEMS

EBED001   *VR But Better: Using Geomagnetic Fields, Bodily Electric Fields, and Pressure Distributions in VR*
https://projectboard.world/isef/project/51683
Yashua Evans, 12th; The Academy for Advanced Studies, McDonough, GA

EBED002T   *Poly-open LIDAR: Fast and High Resolution Adaptive LIDAR with original Multi-Opening Polygon Mirror System*
https://projectboard.world/isef/project/51644
Haluk Akbulut, 12th; Emre Akman, 12th; Ankara Fen Lisesi, Ankara, Turkey

EBED003   *A Novel Mask Insert to Reduce Habitual Particle Transmission*
https://projectboard.world/isef/project/51798
Tyler Burt, 12th; Wheat Ridge Senior High School, Wheat Ridge, CO

EBED004T   *Vanilla Breeding Smart Detector Gun*
https://projectboard.world/isef/project/51884
Ni Putu Budiani, 11th; I Gusti Ngurah Adi Pratama, 11th; SMA Negeri Bali Mandara, Buleleng, Bali, Indonesia

EBED005T   *SPYGLASS: Eye-controlled Camera Glasses*
https://projectboard.world/isef/project/51825
Levi Mellin, 12th; Nikolas Liepins, 12th; Saint Paul Academy and Summit School, Saint Paul, MN

EBED006   *Machine Learning-Optimized Filters for Wireless, Low-Error Networks*
https://projectboard.world/isef/project/51994
Cary Xiao, 12th; Alabama School of Mathematics and Science, Mobile, AL

EBED007   *Intelligent Infusion Detection and Accompanying System for Children*
https://projectboard.world/isef/project/52198
Chuqi Hu, 11th; Xian Gao Xin No 1 High School, Xi'an, Shannxi, China

EBED008   *Smart Caretaker: A Health Band to Assist in the Care of Alzheimer's Patients*
https://projectboard.world/isef/project/52206
Zoya Khan, 9th; Cheyenne Central High School, Cheyenne, WY

EBED009   *No CoViD Past This Point: Non-Contact Vital-sign Detection*
https://projectboard.world/isef/project/53467
Lana Lubecke, 12th; Kalani High School, Honolulu, HI

EBED010T   *Project Mashiro: Synthetic Aperture Radar Imaging with Inertial Sensor Fusion Using Custom FMCW Hardware and Extensible DSP*
https://projectboard.world/isef/project/53496
Tim Solberg, 11th; Pranav Sehgal, 11th; Beaverton Academy of Science and Engineering, Hillsboro, OR

EBED011   *Polaris: A Radiation Source Location Visualization System using Gamma-Geometry Calculation*
https://projectboard.world/isef/project/53499
Pun Siripun, 10th; Oregon Episcopal School, Portland, OR

EBED012   *A New Paradigm for the Visually Impaired Spectrum based on a LiDAR System*
https://projectboard.world/isef/project/53532
Nethra Krishnan, 11th; Plano West Senior High School, Plano, TX

EBED013   *A Crash and an Airbag: Creating a Algorithm for an External Airbag System*
https://projectboard.world/isef/project/53796
Abhinav Malkoochi, 10th; Jasper High School, Plano, TX

EBED014   *A Novel AI-Based GPS Anti-spoofing System with Subspace Differential Direction-of-Arrival Estimation and Deep Learning Against Dynamic Spoofers*
https://projectboard.world/isef/project/54001
Milidu Jayaweera, 11th; La Cueva High School, Albuquerque, NM

EBED015   *"Raksha": System for Prevention of Electrocution and the Hazardous Effects of Short Circuits*
https://projectboard.world/isef/project/54586
Efraem Joji, 12th; Devamatha CMI Public School, Thrissur, Kerala State, India

EBED016T *Sensor Notification System for Tail-Light Failure*
https://projectboard.world/isef/project/54589
Wesley McDowell, 12th; Elijah Muncher, 12th; Hewitt Trussville High School, Trussville, AL

EBED017 *Developing a New, Lightweight, Hands-Free Personal Safety System for Female Runners*
https://projectboard.world/isef/project/54615
Lisa Sebastian, 12th; Bethel High School, Tipp City, OH

EBED018 *A Non-invasive Electromyographic Interface for Hand Gesture Recognition with Active Noise Suppression Using a Combined Biosignal Processing Algorithm*
https://projectboard.world/isef/project/54621
Vadim Sannikov, 11th; Andrey Melnichenko Centre for the Development of Children's Creativity in Science and Engineering at the Kuzbass State Technical University, Kemerovo, Kemerovo, Russian Federation

EBED019 *Preventing Hot Car Deaths by Monitoring CO2 and Temperature Levels to Alert Parents and Affect a Series of Life Saving Interventions in the Car*
https://projectboard.world/isef/project/54838
John Madland, 10th; South Salem High School, Salem, OR

EBED020 *Preventing Elevated Indoor Carbon Dioxide Levels Using an Arduino Based IoT System*
https://projectboard.world/isef/project/55274
Aditi Talegaonkar, 11th; duPont Manual High School, Louisville, KY

EBED021 *Clozer: Brings You Closer to Your Loved Ones*
https://projectboard.world/isef/project/55291
Ali Raza, 12th; Aga Khan Higher Secondary School, Karachi, Sindh, Pakistan

EBED022 *Computing at the Speed of Light: Development of a 2-bit Multi-modal Photonic Integrated Circuit (PIC) for Highly Computational Tasks*
https://projectboard.world/isef/project/55327
Mihai Crisan, 11th; Upper Arlington High School, Upper Arlington, OH

EBED023 *Increasing the Power Efficiency for Communication Between IoT Devices Using Source and Channel Coding*
https://projectboard.world/isef/project/55515
Hussain AlSaif, 11th; Rowad Alkhaleej International School, Dammam, Eastern Province, Saudi Arabia

EBED024T *Differentiation of Scents and Gases Using Neural Network*
https://projectboard.world/isef/project/55530
Karen Aleksanyan, 12th; Davit Gyulamiryan, 12th; Robert Simonyan, 12th; Quantum College, Yerevan, Yerevan, Armenia

EBED025 *Hide and Seek Help: Improved Key-Finder System for Visually Impaired People*
https://projectboard.world/isef/project/55532
Maria Bayder, 9th; West Island College, Dollard-Des Ormeaux, Quebec, Canada

EBED026 *An Autonomous Wildfire Detection and Containment System*
https://projectboard.world/isef/project/55677
Margaret Gates, 12th; Wantagh High School, Wantagh, NY

EBED027 *Implementing the OSTEC System for COVID Detection by Measuring Oxygen Saturation in Blood and Body Temperature and Sending Data to a Database in the Cloud in the Chalhuanca District*
https://projectboard.world/isef/project/56050
Estrella Esquivel Romero, 9th; High Performance College of Apurimac, Chalhuanca, Apurimac, Peru

EBED028 *Smart Parkinson's Strap: To Dynamically Detect and Mitigate the Tremors of Parkinson's Patients*
https://projectboard.world/isef/project/56160
Anushka Sridhar, 9th; Plano East Senior High School, Plano, TX

EBED029 *Using RFID to Enhance a 2-Piece Puzzle*
https://projectboard.world/isef/project/56357
Sydney Curran, 10th; Lane Technical College Prep High School, Chicago, IL

EBED030 *Off Target: Improving the Electrical Sabre*
https://projectboard.world/isef/project/56425
Charlotte Landman, 9th; Brentwood High School, Brentwood, TN

EBED031 *Designing and Building a Custom Phased Array Network Using Software-Defined Radio*
https://projectboard.world/isef/project/56617
Roy Gross, 10th; Henry M. Gunn High School, Palo Alto, CA

EBED032   *WI-C.A.R.E: Wifi Computer-Assisted Remote Eldercare, Year 2*
https://projectboard.world/isef/project/56702
Shreshth Shrivastava, 9th; Eden Prairie High School, Eden Prairie, MN

EBED033   *Readily Implementable Fall Detection System for the Elderly using Thermal Image Segmentation and Convolutional Neural Networks*
https://projectboard.world/isef/project/56738
Vetri Vel, 12th; Bangor High School, Bangor, ME

EBED034   *Assistive Tongue Operated Mouse*
https://projectboard.world/isef/project/56745
Saad Zahid, 9th; PakTurk International Schools and Colleges- Lahore, Lahore, Punjab, Pakistan

EBED035T   *Smart Phone Speaks Hand Movements*
https://projectboard.world/isef/project/56871
Ali Salah, 12th; Ahmad Salah, 12th; Alkhader Secondary School for Boys, Bethlehem, Bethlehem, Palestine

ENERGY: SUSTAINABLE MATERIALS AND DESIGN

EGSD001   *Utilizing Eukaryotic Saccharomyces cerevisiae as an Electricigen in Both Pure & Co-Culture in the Anode of a Microbial Fuel Cell*
https://projectboard.world/isef/project/51828
Jasmine Bryan, 12th; Madison County High School, Madison, FL

EGSD002T   *Recovery of Lithium and Cobalt from Waste Li-ion Batteries with a Newly Developed Method*
https://projectboard.world/isef/project/51643
Beliz Kargi, 12th; Zeynep Bayindir, 11th; TED Antalya Collage Foundation Private High School, Antalya, Muratpasa, Turkey

EGSD003   *Investigation of Spectral Response and Efficiency of Boron and Nitrogen-doped Diamond-like Carbon as the Top Junction in Multijunction Silicon Solar Cells*
https://projectboard.world/isef/project/51744
Feridun Balaban, 12th; Malatya Bilim ve Sanat Merkezi, Malatya, Malatya, Turkey

EGSD004   *Designing and Testing a Novel 25% Degree of Reaction Steam Turbine*
https://projectboard.world/isef/project/51652
Benjamin York, 9th; Creekside High School, Saint Johns, FL

EGSD005   *Modulating Surface Reconstruction of Nickel Cobalt Phosphide by Iron Incorporation Enhancing ORR/OER for Hybrid Sodium−air Battery*
https://projectboard.world/isef/project/51712
Jeremy Hu, 12th; Pui Ching Middle School, Macao, Macao, China, Macao Special Administrative Region

EGSD006   *Development of Optimum Design Parameters for an Algae Based Martian Oxygen Production System*
https://projectboard.world/isef/project/51898
Kara Gaiser, 11th; Oregon Episcopal School, Portland, OR

EGSD007   *The Profitable Catalytic Converter: Making a Converter that Stops the Emission of a Greenhouse Gas to Make a Fuel*
https://projectboard.world/isef/project/51830
Shammah Tayengwa, 11th; Queen Elizabeth Girls' High School, Harare, Zimbabwe

EGSD008   *Waste Heat Recovery Cooking Pot*
https://projectboard.world/isef/project/51846
Tanaka Chirara, 10th; ZRP High School, Harare, Zimbabwe

EGSD009   *The Use of Fluorescent Proteins GFP and EBFP2-BFP for Enhanced Solar Energy Production Through the Usage of Magnifiers*
https://projectboard.world/isef/project/51992
Ainsley McCollum, 12th; Joel E. Ferris High School, Spokane, WA

EGSD010   *An Algorithm to Estimate Lithium-Ion Battery Lifetime*
https://projectboard.world/isef/project/51977
Andrew Park, 11th; The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, KY

EGSD011   *Bio-Power*
https://projectboard.world/isef/project/51973
Sohan Kureti, 9th; Harmony School of Advancement, Houston, TX

EGSD012   *Toward Designing an Omni-directional Vertical Axle Wind Turbine*
https://projectboard.world/isef/project/51983
Ting-Ru Chen, 12th; Taipei First Girls High School, Taipei, Taiwan

EGSD013   *Preparation of Ionic Liquids Modified Cathode Catalysts for PEMFC*
https://projectboard.world/isef/project/52152
Guo Li, 11th; Beijing No. 166 High School, Beijing, China

EGSD014   *Making a Saguaro H.A.W.T. (Horizontal Axis Wind Turbine)*
https://projectboard.world/isef/project/52224
Amanda Whalen, 12th; Veritas Christian Community School, Sierra Vista, AZ

EGSD015   *Engineering Multi-Enzyme Whole-Cell Biocatalysts for Biofuel Production*
https://projectboard.world/isef/project/52255
Margaret Yang, 11th; Cranbrook Kingswood School, Bloomfield Hills, MI

EGSD016T   *Photochemical Hydrogen Production Using Tea Leaf Residue and Iron Ions*
https://projectboard.world/isef/project/52691
Hibiki Tanaka, 11th; Ryo Mochizuki, 11th; Rio Tanimoto, 11th; Shizuoka Kita High School, Shizuoka-City, Shizuoka-Pref., Japan

EGSD017T   *Obtainment of Briquettes Made of Coffee Husk as an Alternative of Heat Energy to the Use of Coal*
https://projectboard.world/isef/project/53012
Ana Garcia, 11th; Santiago Vallejo, 12th; Juan Soto Marulanda, 11th; Institucion Educativa Colegio Loyola para la Ciencia y a Innovacion, Medellin, Antioquia, Colombia

EGSD018   *Replacing Lithium-ion Batteries with Graphene Based Supercapacitors*
https://projectboard.world/isef/project/53441
Maya Tovar, 11th; Sierra High School, Tollhouse, CA

EGSD019   *An Ocean Distillery for Distilled Water Run on Hydroelectric Power*
https://projectboard.world/isef/project/53466
Desirae Jeffers, 12th; Kailua High School, Kailua, HI

EGSD020   *Developing a Wearable Triboelectric Nanogenerator to Sustainably Power Biosensors*
https://projectboard.world/isef/project/53503
Armaan Srireddy, 10th; Westwood High School, Austin, TX

EGSD021   *Modeling of Ion Uptake to Understand Molecular Level Interactions of Pyrrole/Nafion and Aniline/Nafion Bipolar Membranes for Fuel Cell Use*
https://projectboard.world/isef/project/53510
Nikhita Bontha, 11th; Hanford High School, Richland, WA

EGSD022   *E-waste Derived Copper-based Catalysts Derived Toward Carbon-Neutral Electrochemical CO2 Reduction*
https://projectboard.world/isef/project/53516
Juntao Wu, 11th; Shanghai High School, Shanghai, Shanghai, China

EGSD023T   *Automated Hydrogen Generator for Perspective Fuel Cell*
https://projectboard.world/isef/project/53742
Rostomi Nioradze, 11th; Nikoloz Tavdishvili, 12th; Cervantes Gymnasium AIA-GESS, Tbilisi, Georgia

EGSD024   *Synthesizing Renewable Energy from Water Using Sunlight*
https://projectboard.world/isef/project/53788
Chinmay Jayanty, 11th; Sargent High School, Monte Vista, CO

EGSD025   *Efficiency of Laser-Induced HB11 Fusion Reaction Under Varying Methods of Kilotesla Magnetic Confinement*
https://projectboard.world/isef/project/54000
Ethan Dunsworth, 12th; Wentzville Holt High School, Wentzville, MO

EGSD026T   *Osiris: The Study and Evaluation of Piezoelectric Effect as a Renewable, Clean Electric Energy Source Through an Energy Harvesting Footsteps-Powered Platform*
https://projectboard.world/isef/project/54421
Isabella Rodriguez, 11th; Franklin Lopez, 11th; Academia Interamericana de Panama sede Cerro Viento, Panama City, Panama, Panama

EGSD027   *The Computational and Experimental Study of Cellulose in Ionic Liquids and Water for Finding an Optimal Solvent for Biofuel Production*
https://projectboard.world/isef/project/54493
Nicholas Boyer, 12th; North Carolina School of Science and Mathematics, Durham, NC

EGSD028   *Optimizing Nannochloropsis Growing Conditions for Biodiesel Production Through Analysis of Lipid Content*
https://projectboard.world/isef/project/54606
Steven Liu, 11th; Shady Side Academy, Pittsburgh, PA

EGSD029   *Using Piezoelectricity to Create a Self-Powered Calculator*
https://projectboard.world/isef/project/54625
Jade Personna, 11th; Central Virginia Governor's School for Science and Technology, Lynchburg, VA

EGSD030   *Portable Self Powered Generator that Uses Magnetic Induction to Generate Electricity*
https://projectboard.world/isef/project/54627
Adrian Machingura, 12th; Mother Touch High School, Harare, Harare Province, Zimbabwe

EGSD031T *Smart and Robust Nanocomposite Fibers for Self-Powering Electronic Devices*
https://projectboard.world/isef/project/54813
Abdullah Al-Janahi, 11th; Abdullah Al-Nasr, 11th; Qatar Science and Technology Secondary School for Boys, Doha, Ain Khalid, Qatar

EGSD032 *Spira Aer: A Novel Hurricane-Inspired Logarithmic Spiral Fan Design for HVAC System Applications*
https://projectboard.world/isef/project/54814
Jordan Prawira, 9th; Mountain House High School, Mountain House, CA

EGSD033 *Pathway to a Sustainable Future: Economic and Technical Feasibility of a Hydrothermal Carbonization (HTC) Processing Plant*
https://projectboard.world/isef/project/54834
Kyla Fung, 11th; Minnetonka High School, Minnetonka, MN

EGSD034 *Characterizing the Electrical and Thermal Performance of a Circular Exhaust Pipe Thermoelectric Generator*
https://projectboard.world/isef/project/54836
Taehee Um, 12th; Oviedo High School, Oviedo, FL

EGSD035 *Generating Renewable Power by Harvesting Energy in Rainfall*
https://projectboard.world/isef/project/55059
Pranay Midha, 11th; duPont Manual High School, Louisville, KY

EGSD036 *Can Juneau Sustain a Complete Transition to Green Technology?*
https://projectboard.world/isef/project/55246
Annabella Williams, 11th; Thunder Mountain High School, Juneau, AK

EGSD037 *Future Generation Batteries: Solid State Batteries*
https://projectboard.world/isef/project/55256
Ariel Gat, 12th; Tamar Ariel (Shapira) School, Netanya, Tel Aviv District, Israel

EGSD038 *Use of Anaerobic Biodigestion to Produce Energy, Reduce the Amount of Waste Generated, and Eliminate the Emission of Greenhouse Gases in Agricultural Projects*
https://projectboard.world/isef/project/55312
Mirelys Santana-Rivera, 12th; Centro Residencial de Oportunidades Educativas de Ceiba, Ceiba, Ceiba, Puerto Rico

EGSD039 *Generating an Electrical Power System from a Static Bicycle*
https://projectboard.world/isef/project/55317
Sebastian Negron-Collazo, 12th; Centro Residencial de Oportunidades Educativas de Villalba, Villalba, PR

EGSD040 *Advanced Synthesis of Potent Photocapacitor Based on Novel 3D-Hierirachical BiVO4 and Self-Synthesized Carbon*
https://projectboard.world/isef/project/55500
Mansour Al Marzooqi, 11th; Riyadh School for Boys and Girls, Riyadh, Saudi Arabia

EGSD041 *Cost-effective Green Hydrogen Production: Single-step Synthesis of Nickel Cobaltite Nanostructures Electrode*
https://projectboard.world/isef/project/55509
Abdullah AlShangiti, 12th; Riyadh School for Boys and Girls, Riyadh, Saudi Arabia

EGSD042T *Microbial Fuel Cells in Water*
https://projectboard.world/isef/project/55534
Farah Abdelkader, 11th; Alaa Gaballah, 11th; Maadi STEM School for Girls, Cairo, Egypt

EGSD043T *Solar Park with Photovoltaic 3D-printed Trees: Technology Allies with Nature*
https://projectboard.world/isef/project/55658
Charikleia Moraitaki, 11th; Maria-Eleni Batatoudi, 11th; Athens College, Athens, Attica, Greece

EGSD044 *Harvesting Energy from Everyday Movements by Developing a Two-Dimensional MXene-Based Triboelectric Nanogenerator*
https://projectboard.world/isef/project/55665
Naeim Mahjouri, 10th; Auburn High School, Auburn, AL

EGSD045 *The Effect of Ground Composition on the Efficiency of Solar Pavers*
https://projectboard.world/isef/project/55697
Lilly Heilshorn, 12th; Hempfield High School, Landisville, PA

EGSD046 *Size Optimization of Gold Nanoparticles Functionalized on PEMFC Interfaces to Increase Power Efficiency*
https://projectboard.world/isef/project/55907
Benjamin Sherman, 11th; George W. Hewlett High School, Hewlett, NY

EGSD047   *Wind Turbine Blades: Cleaner Materials for Cleaner Energy*
https://projectboard.world/isef/project/56161
Ethan Johnston, 12th; Timber Lake High School, Timber Lake, SD

EGSD048   *Enhancing the Efficiency of Solar Steam Turbine by Adding a Thermoelectrical Generator for Renewable Clean Energy Generation*
https://projectboard.world/isef/project/56214
Anas Arafat, 11th; Riyadh School for Boys and Girls, Riyadh, Saudi Arabia

EGSD049T   *Microwave Irradiation with Submerged Ultrasonication: A Novel Lignocellulosic Pretreatment Method*
https://projectboard.world/isef/project/56366
Julia Seymour, 12th; Rylan Donohoe, 12th; Saint Ignatius of Loyola Catholic Secondary School, Oakville, Ontario, Canada

EGSD050   *Study on the Electric-potential Properties of Nanotubes Using Computational Simulations*
https://projectboard.world/isef/project/56374
Byounghyun Lee, 10th; North London Collegiate School Jeju, Seogwipo-si, Jeju-do, South Korea

EGSD051   *Harnessing Household Water Potential*
https://projectboard.world/isef/project/56431
Wyatt Manthey, 11th; North Toole County High School, Sunburst, MT

EGSD052   *Novel Perovskite-based Photo-rechargeable Supercapacitor*
https://projectboard.world/isef/project/56448
Tala Al-Qahtani, 11th; KFUPM Schools, Dhahran, Eastern Province, Saudi Arabia

EGSD053   *The Cleanest Energy: Microbial Fuel Cells*
https://projectboard.world/isef/project/56674
Marti Cousillas, 12th; Institut de Vilafant, Vilafant, Girona, Spain

EGSD054   *Shaping the Future of Wind Energy: An Investigation of the Most Productive Blade Design for Horizontal Axis Wind Turbines*
https://projectboard.world/isef/project/56740
Sydney Stamps, 12th; Thomas Jefferson Independent Day School, Joplin, MO

EGSD055   *Experimenting with the Radiative Cooling Effect to Generate Electricity from the Night Sky*
https://projectboard.world/isef/project/57123
Julia Warnock, 11th; PSD Global Academy, Fort Collins, CO

BIOMEDICAL ENGINEERING

ENBM001T *ARTHETA-0: An Innovative, Affordable Approach to the Onsite, Rapid 3D Printing of Artery Stents, Parameterized to Fit Individual Patients' Needs*
https://projectboard.world/isef/project/51763
Connor Mitchell, 11th; Prabuddha Ghosh Dastidar, 11th; North Carolina School of Science and Mathematics, Durham, NC

ENBM002 *Non-invasive Blood Glucose Level Monitoring*
https://projectboard.world/isef/project/51777
Hritik Mitha, 12th; Bryanston High School, Johannesburg, Gauteng, South Africa

ENBM003 *A Mathematically Generated Bessel Function Based Ultrasonic Waveform Tractor Beam for Optimizing Blood Circulation*
https://projectboard.world/isef/project/51649
Isabela Perdomo, 12th; MAST at FIU Biscayne Bay Campus, North Miami, FL

ENBM004 *Happy Feet: A Low-Cost Smart Shoe Utilizing Temperature, Pressure, Humidity, and Alcohol Levels to Detect and Monitor Common Foot Problems*
https://projectboard.world/isef/project/51843
Vishnu Vasudev, 10th; Liberty High School, Frisco, TX

ENBM005 *Application of 3D-Bioprinting and Electromagnetic Field for the Development of Bioartificial Bone from Stem Cell-Laden Bioink Incorporating Sepiolite and Eggshell*
https://projectboard.world/isef/project/51659
Tan Elcin, 12th; Ted Ankara College Foundation Private High School, Ankara, Golbasi, Turkey

ENBM006 *Development of an Improved High Intensity Off-Grid Phototherapy System to Provide Treatment in Remote Regions of the World*
https://projectboard.world/isef/project/51795
Haylee Darling, 12th; Forest High School, Ocala, FL

ENBM007T *Automated UVC Sanitizing of Money*
https://projectboard.world/isef/project/51839
Timothy Nguyen, 10th; Roshan Saigal, 10th; Nathaniel Morgan, 10th; Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, GA

ENBM008 *Autonomously Tracking Organisms at Microscopic Resolution in 3D*
https://projectboard.world/isef/project/51623
Priya Soneji, 12th; Milton High School, Milton, GA

ENBM009 *Muscle Controlled Exoskeleton*
https://projectboard.world/isef/project/51705
Sebastian Kouchakjy, 12th; Orange Park High School, Orange Park, FL

ENBM010T *The Design of Microfluidic Pump (MFP) for Medical Field*
https://projectboard.world/isef/project/51642
Sila Karakusoglu, 12th; Lara Yucebas, 12th; Cakabey Schools, IZMIR, Turkey

ENBM011 *Biomaterial Fabrication Technique: Using Decellularized Plants as Perfusable Engineering Scaffolds*
https://projectboard.world/isef/project/51809
Kaitlyn Dunn, 11th; Tavares High School, Tavares, FL

ENBM012 *Cold Capping for Chemotherapy Patients*
https://projectboard.world/isef/project/51821
Safi Wheeldon, 12th; Wenona School, North Sydney, NSW, Australia

ENBM013 *Max Health: A Smart Textile Biosensor System for Remote Health Monitoring and Anomaly Detection*
https://projectboard.world/isef/project/51811
Ibrahim Al-Akash, 12th; Veterans Memorial High School, Corpus Christi, TX

ENBM014 *The Giraffe Walker*
https://projectboard.world/isef/project/51766
Rebecca Paratz, 9th; LabRats Science Club, Wantirna, VIC, Australia

ENBM015 *Wearable Electrochemical Sweat Sensor for Patients with Chronic Kidney Disease, Year II*
https://projectboard.world/isef/project/51935
Suran Somawardana, 11th; BASIS San Antonio Shavano Campus, San Antonio, TX

ENBM016   *StethoDoc: Screening for Lung Disorders with an Augmented Reality Guided Smart Stethoscope*
https://projectboard.world/isef/project/51665
Aria Vikram, 11th; National Public School, Indiranagar, Bangalore, Karnataka, India

ENBM017T   *How Can Vibration Detection Used to Determine Joint Health Monitoring?*
https://projectboard.world/isef/project/51709
Deonte Hambrick, 12th; Rodney Clark, 12th; Martha Ellen Stilwell School of the Arts, Jonesboro, GA

ENBM018   *A Novel Approach to the Comparative Analysis of Natural Polymer-based Biomimetic Neural Scaffolds: Using the Taxic Response of Fungal Mycelium to Model Cell Response and Repair in Peripheral Nerve Gap Injuries such as the Medulla spinalis in Paraplegics*
https://projectboard.world/isef/project/51854
Michelle Barnes, 10th; Canterbury School, Fort Myers, FL

ENBM019   *Regenerative Treatment of Stress Urinary Incontinence by Allogenic Macrophage Therapy*
https://projectboard.world/isef/project/51853
Snigdha Cingireddi, 11th; Hathaway Brown School, Shaker Heights, OH

ENBM020   *Development and Optimization of a 3D Clinostat to Simulate Microgravity*
https://projectboard.world/isef/project/51920
Joseph Clary, 12th; Caddo Parish Magnet High School, Shreveport, LA

ENBM021   *JTremor3D: A Wearable Tremor Profiling Device for Patients with Parkinson's Disease*
https://projectboard.world/isef/project/51667
Jui Keskar, 9th; The Orchid School, Pune, Maharashtra, India

ENBM022   *Developing a Cost-Effective Visual Aid Device to Mitigate the Effects of Retinitis Pigmentosa*
https://projectboard.world/isef/project/51997
Ganesh Venu, 10th; Friendswood High School, Friendswood, TX

ENBM023T   *Stroke Rehabilitation Using Artificial Intelligence K.A.K.I (Kinesthetic Augmented Kinematic Inference)*
https://projectboard.world/isef/project/51653
Sheng Ze Yeoh, 9th; Saan Cern Yong, 10th; Sekolah Menengah Kebangsaan Katholik, Petaling Jaya, Selangor, Malaysia

ENBM024T   *Oxilium : Olfactory Examination Procedure of Detecting Cancer Cells Based on the Smell of Honey Bees*
https://projectboard.world/isef/project/51801
Dorian Zarna, 12th; Wiktor Kus, 12th; IX Liceum Ogolnoksztalcace imienia Tadeusza Nowakowskiego z Oddzialami Dwujezycznymi, IB World School 2988, Bydgoszcz, Kujawsko-Pomorskie, Poland

ENBM026T   *Study of Microbiological Structures with the Purpose of Creating MEMS Actuators with Various Applications in Medicine*
https://projectboard.world/isef/project/51778
Robin Bucur-Portase, 11th; Andreea Sovei, 11th; Mihai Viteazul National College, Bucharest, Bucharest, Romania

ENBM027T   *Wise Hands: Tonic-Clonic Epileptic Crisis Alert Device*
https://projectboard.world/isef/project/51648
Andressa Franca, 12th; Isabella Bauer, 12th; Fundacao Escola Tecnica Liberato Salzano Vieira da Cunha, Novo Hamburgo, Rio Grande do Sul, Brazil

ENBM028   *Dual Mode Soft Wrist-Fingers Exoskeleton for Hand Rehabilitation and Assistance: Novel Soft Wrists, Optimized Soft Fingers, Multi-functional Rehabilitation*
https://projectboard.world/isef/project/52146
Keyu Wan, 11th; Shanghai Pinghe Bilingual School, Shanghai, China

ENBM029   *A Novel, Multifunctional Tracheal Tube Based on Directive Sound Wave Monitoring Technique*
https://projectboard.world/isef/project/52151
Yuqian Zhang, 12th; The Affiliated High School of South China Normal University, Guangzhou, Guangdong, China

ENBM030   *Processing of Sensory Information from a Bio-Inspired Flexible Artificial Skin Using a Kohonen Artificial Neural Network*
https://projectboard.world/isef/project/52204
Catherine Kung, 11th; Indian Springs School, Indian Springs, AL

ENBM031   *Customized 3D Printing of Live Cells for Novel Bio-circuitry*
https://projectboard.world/isef/project/52210
Emily Scrupps, 11th; Odessa High School, Odessa, WA

ENBM032   *Fabrication of a Bioprinted Scaffold Cuff: Implications for Tissue Engineering of an Implantable Organ*
https://projectboard.world/isef/project/52219
Ethan Lee, 12th; University High School, Tucson, AZ

ENBM033T *Test of Gross Motor Development: Evaluation through AI Image Processing and Wearable Sensors*
https://projectboard.world/isef/project/52230
Emma Li, 11th; Sophie Li, 10th; Shanghai High School International Division, Shanghai, China

ENBM034 *A Step Towards Solving Foot Pain: A Novel Shoe with Customizable Magnetic Levitation to Reduce Ground Reaction Forces through Pronation-Targeted Computer Vision Pose Estimation, Year 3*
https://projectboard.world/isef/project/52237
Dev Lochan, 12th; Cumberland Valley High School, Mechanicsburg, PA

ENBM035 *Employing Adversarial Machine Learning and Computer Audition for Smartphone-Based Real-Time Arrhythmia Classification in Heart Sounds*
https://projectboard.world/isef/project/52238
Aditya Kendre, 12th; Cumberland Valley High School, Mechanicsburg, PA

ENBM036 *XRCT-Net: Development of a Novel Sparse View Deep Learning Framework for Safer, Cheaper, and More Accessible CT Imaging*
https://projectboard.world/isef/project/52241
Siddharth Bharthulwar, 12th; Fairview High School, Boulder, CO

ENBM037 *Using Polarized Light to Measure Blood Glucose Levels Non-invasively*
https://projectboard.world/isef/project/52246
Adam Lapinski, 11th; duPont Manual High School, Louisville, KY

ENBM038 *Can a Glove Prevent a Heart Attack?*
https://projectboard.world/isef/project/52248
Akshith Pulgam, 11th; Pioneer High School, Ann Arbor, MI

ENBM039T *Non-contact Continuous Cardiovascular Monitoring System*
https://projectboard.world/isef/project/52252
Jonathan Chen, 10th; Ethan Chen, 11th; Angela Xu, 11th; Troy High School, Troy, MI

ENBM040 *Interpretable Automation of Pulmonary Embolism Diagnosis*
https://projectboard.world/isef/project/53009
Nisha Balaji, 12th; Dougherty Valley High School, San Ramon, CA

ENBM041 *Accessible Correlative Diagnostic Solution for Multi-Organ Dysfunction Caused by SARS-CoV-2: The Future of Home-Based, AI-Enabled Telemedicine*
https://projectboard.world/isef/project/53447
Gatik Trivedi, 9th; Dougherty Valley High School, San Ramon, CA

ENBM042 *The Synthesis of Au-Fe3O4 Nanoparticles for the Purpose of Nonenzymatic Dopamine Sensing*
https://projectboard.world/isef/project/53472
Jillian Bernabe, 12th; Camdenton High School, Camdenton, MO

ENBM043 *CODONIFY: A Recurrent-Neural-Network-based Codon Optimization Tool to Improve Protein Expression Towards Efficient Vaccine Manufacturing*
https://projectboard.world/isef/project/53493
Rishab Jain, 10th; Westview High School, Portland, OR

ENBM044 *An Ultra-Low Cost, Brain-Controlled Transhumeral Prosthesis Operated via a Novel EEG/Gesture-Based Approach*
https://projectboard.world/isef/project/53505
Benjamin Choi, 11th; The Potomac School, McLean, VA

ENBM045 *Biomedical Engineering: Coronary Artery Disease and the Design Process of Medical Implants and Devices*
https://projectboard.world/isef/project/53786
Alara Berkmen, 11th; Seabury Hall Upper School, Makawao, HI

ENBM046 *Building a Low Cost Hearing Device with User Customized Frequency Response for the Hearing Impaired*
https://projectboard.world/isef/project/54123
Elizabeth Koh, 10th; Dublin High School, Dublin, CA

ENBM047 *Designing, Prototyping and Testing a Novel Urinary Catheter with Tesla Valves and a Microporous Membrane*
https://projectboard.world/isef/project/54127
Ishaan Brar, 12th; Stockdale High School, Bakersfield, CA

ENBM048T *Creating a Haptic 4D Model along with Machine Learning Analysis by Developing a Non-invasive Pressure Mapping Method to Screen Genital Skin Cancer*
https://projectboard.world/isef/project/54267
Aasimm Khan, 11th; Sidharth Jain, 11th; Jamnabai Narsee International School, Mumbai, Maharashtra, India

ENBM049 *The Effects of Scaling on Muscle Force Production in Biological Machines*
https://projectboard.world/isef/project/54427
Tessa Schwartz, 12th; Byram Hills High School, Armonk, NY

ENBM050 *Vest One: A Hidden Markov Machine Learning Model Enabled Vest to Support Independent & Safe Living Among Older Adults*
https://projectboard.world/isef/project/54432
Amogh Kashyap, 10th; Urbana High School, Ijamsville, MD

ENBM051 *A New Treatment Option for Congenital Heart Defects, Phase 2*
https://projectboard.world/isef/project/54593
Justin Reinhart, 10th; Guthrie Center High School, Guthrie Center, IA

ENBM052 *WAV: A Novel Subvocalization Interpretation Device*
https://projectboard.world/isef/project/54594
Anjan Sesetty, 10th; Poolesville High School, Poolesville, MD

ENBM053 *Immunoinformatic Design and Evaluation of a Multi-Epitope Peptide Vaccine Targeting SARS-CoV-2 Structural and Nonstructural Antigens*
https://projectboard.world/isef/project/54601
Berk Yalcinkaya, 11th; Forsyth Country Day School, Lewisville, NC

ENBM054 *SpeakUp: A Machine Learning-Based Speech Aid to Enable Real-Time Silent Communication for the Paralyzed by Translating Neuromuscular EMG Signals to Speech*
https://projectboard.world/isef/project/54831
Varun Chandrashekhar, 11th; duPont Manual High School, Louisville, KY

ENBM055 *System for Inertial Data Collection and Data Visualization for Individualized Medicine with Focus on Parkinson's Disease*
https://projectboard.world/isef/project/55035
Wanghley Soares Martins, 12th; Instituto Federal de Educacao, Ciencia e Tecnologia de Brasilia - Campus Brasilia, Brasilia, Distrito Federal, Brazil

ENBM056T *Specs: A Wearable Smart Device for Dementia Patients*
https://projectboard.world/isef/project/55151
Conor Bradshaw, 11th; David Hughes, 11th; Dara Newsome, 11th; Mercy Secondary School, Mounthawk, Tralee, Kerry, Ireland

ENBM057 *Making an Inexpensive Bionic Hand Prosthesis Using Additive Technologies*
https://projectboard.world/isef/project/55154
Vladislav Medvedev, 10th; Lyceum #1, Bratsk, Irkutsk region, Russian Federation

ENBM058T *SFAD: Spoiled Food and Allergy Detector*
https://projectboard.world/isef/project/55236
Salma Al-Shaghnobi, 9th; Jana Al-alaween, 9th; Bunat Alghad Academy, Amman, Jordan

ENBM059 *Image Analysis of Rehabilitating Patients' Exercise to Measure and Improve Recovery*
https://projectboard.world/isef/project/55242
Caoimhin O'Leary, 11th; Ardscoil na Mara, Tramore, Waterford, Ireland

ENBM060 *Scalable Track, Trace, and Isolate Solution for Pandemic Contagion and Risk Management*
https://projectboard.world/isef/project/55251
Neha Singhal, 10th; James Clemens High School, Madison, AL

ENBM061 *Personalized Implantable Scaffolds for Wound Treatment and Management*
https://projectboard.world/isef/project/55252
Ashwin Prabhakar, 10th; Bob Jones High School, Madison, AL

ENBM062 *Revolutionizing Computer Vision Algorithms in Cancer Pathology: The Use of Comprehensive Toolkits to Overcome Machine Learning Obstacles in the Digital Pathology Field*
https://projectboard.world/isef/project/55278
Benjamin Chan, 12th; Bronx High School of Science, Bronx, NY

ENBM063 *Functionalized Biosensor for Tissue Plasminogen Activator (tPA) Detection*
https://projectboard.world/isef/project/55316
Paolina Morales-Lopez, 12th; Escuela Superior Dr. Juan Jose Maunez Pimentel, Naguabo, Puerto Rico

ENBM064 *Development of Biomimetic Biopolymers for Healing Early Osteoarthritis*
https://projectboard.world/isef/project/55324
Angelina Mao, 12th; Norman North High School, Norman, OK

ENBM065T *Design and Development of an Alert Prototype to Assist People with Simple Motor Seizures Events Using Triaxial Micro-sensors*
https://projectboard.world/isef/project/55345
Savdiel Ducret, 11th; Endrick Garcia - Torres, 11th; Colegio Rosa-Bell, Guaynabo, Guaynabo, Puerto Rico

ENBM066 *The Brace Cap: An Orthodontic Bracket Covering Ligature Tie*
https://projectboard.world/isef/project/55351
Sudiksha Singhal, 10th; Red River High School, Grand Forks, ND

ENBM067T *Dosimetric Verification of Cancer Patient's Treatment Plan Using Antropomorphic, 3D-Printed Phantom*
https://projectboard.world/isef/project/55417
Kacper Waluk, 12th; Jakub Pietrzak, 12th; XVIII Liceum Ogolnoksztalcace im. Jana Zamoyskiego, Warsaw, Mazowieckie, Poland

ENBM068T *Designing Bionic Mechanisms Inspired by the Legs of Insects*
https://projectboard.world/isef/project/55421
Eric Drutu-Danciu, 12th; Mihai Mitrea, 12th; International Computer High School of Bucharest, Bucharest, Romania

ENBM069 *Enhancing Communication and Music Sensory Perception for the Hearing Impaired Through Haptic Feedback in an Improved Tactile Glove*
https://projectboard.world/isef/project/55524
Ruby Rajab, 12th; Manarat Al-Riyadh, Riyadh, Saudi Arabia

ENBM070T *Medical Sensor*
https://projectboard.world/isef/project/55657
Saif Abd El-Fattah, 11th; Omar Sharaf, 11th; 6 of October STEM Egypt School, Giza, Egypt

ENBM071 *Device for Analysing Coughing Patterns to Diagnose and Monitor Asthmatic Patients*
https://projectboard.world/isef/project/55684
Elias Fizesan, 11th; St. Paul's School, London, Barnes, United Kingdom

ENBM072T *Manual Function Rehabilitation Device for Post-Stroke Patients*
https://projectboard.world/isef/project/55709
Man Huynh, 11th; Khoi Mai, 11th; Le Hong Phong High School for the Gifted, Ho Chi Minh, Viet Nam

ENBM073 *Transforming Telemedicine: Engineering Thermoelectric Health Check System*
https://projectboard.world/isef/project/55810
Ashita Birla, 10th; Dr. Ronald E. McNair Academic High School, Jersey City, NJ

ENBM074 *Predicting Mutation Status and Recurrence Free Survival in Non-Small Cell Lung Cancer: A Hierarchical CT Radiomics – Deep Learning Approach*
https://projectboard.world/isef/project/55813
Divek Patel, 11th; Hackley School, Tarrytown, NY

ENBM075 *Wearable Risk Indicator via Sugar Tracking (WRIST): A Novel, Wearable, Non-Invasive Glucose Monitoring System via Quantitative Spectroscopy Analysis*
https://projectboard.world/isef/project/55842
Roshan Pillai, 12th; BASIS Scottsdale, Scottsdale, AZ

ENBM076 *The Fabrication and Optimization of an Integrated Microfluidic Test Strip for Prothrombin INR Testing*
https://projectboard.world/isef/project/55843
Firas Qureshi, 11th; Yorba Linda High School, Yorba Linda, CA

ENBM077 *FallWatch: A Novel Approach for Through-Wall Fall Detection in Real-Time for the Elderly Using Artificial Intelligence*
https://projectboard.world/isef/project/55874
Aditya Chebrolu, 11th; Independence High School, Frisco, TX

ENBM078 *MRgRT and Delta Radiomics: Early Prediction of Survival in Pancreatic Cancer*
https://projectboard.world/isef/project/55916
Alice Chen, 12th; Jericho High School, Jericho, NY

ENBM079 *New Design of a Biomechanical Prototype of an Obstetric Delivery Table*
https://projectboard.world/isef/project/56056
Beatriz Fuentes, 11th; University Gardens High School, San Juan, Puerto Rico

ENBM080 *Finger Biometrics with Applications in Psychiatry*
https://projectboard.world/isef/project/56085
Iulia Costache, 12th; Colegiul National "Spiru Haret", Bucharest, Romania

ENBM081 *SIMON Smart Deaf Speaker Device*
https://projectboard.world/isef/project/56156
Sandy Anwar, 11th; Pioneer Integrated Schools, Cairo, Cairo, Egypt

ENBM082 *Recombinant expression of NT-2Rep-CT spider silk minispidroin*
https://projectboard.world/isef/project/56180
Marta Vecziedina, 11th; Riga State 3rd Gymnasium, Riga, Riga, Latvia

ENBM083 *EyesDrive: A Novel, Non-invasive, Brain-Computer Interface for Paralysis Sufferers*
https://projectboard.world/isef/project/56234
Federico Runco, 12th; Istituto Superiore Ascanio Sobrero, Casale Monferrato, Italy

ENBM084 *A Low-Cost Approach to EEG based Mind-Controlled Prosthetic Arm Using Brain-Computer Interface*
https://projectboard.world/isef/project/56263
Madhushalini Balaji, 9th; James Clemens High School, Madison, AL

ENBM085 *Engineering a Clinical Force Measuring Walker for Patients with Restricted Upper Extremity Weight Bearing*
https://projectboard.world/isef/project/56353
Ansel LaPier, 11th; Central Valley High School, Spokane Valley, WA

ENBM086 *Using Deep Learning to Categorize Abnormal Respiratory Sounds*
https://projectboard.world/isef/project/56354
Ishani Tarkar, 9th; duPont Manual High School, Louisville, KY

ENBM087T *The Power of Twisted Strings: A Portable Elbow CPM Machine with Twisted String Actuator*
https://projectboard.world/isef/project/56369
Doyoon Kim, 12th; Joonseo Kim, 12th; Jaewoo Park, 12th; Incheon Academy of Science and Arts, Incheon, Incheon, South Korea

ENBM088T *Improving the Accuracy of the FSR Insole Sensor by Inserting Intermediate Layer Material (Which Can Diagnose Parkinson's Disease)*
https://projectboard.world/isef/project/56370
Gyugwang Lee, 12th; Nayeon Kim, 12th; Moosung Kim, 12th; Incheon Academy of Science and Arts, Incheon, Incheon, South Korea

ENBM089 *Using 3D Printing to Engineer a Microcentrifuge for Open-Source Research*
https://projectboard.world/isef/project/56378
Keegan Teal, 12th; Barrington High School, Barrington, IL

ENBM090 *Optimizing the Holter Diagnostic Process Using a Real-time, Machine Learning-Powered, Ambulatory Event Monitor*
https://projectboard.world/isef/project/56380
Ronald Lin, 10th; International School of Beaverton, Beaverton, OR

ENBM091 *The Effect of Rat Brain Phantom Construction on Mimicry of the True Brain Model*
https://projectboard.world/isef/project/56418
Chirayu Nimonkar, 11th; Mills E. Godwin High School, Henrico, VA

ENBM092T *Medical Car*
https://projectboard.world/isef/project/56422
Hazem Alsawalqah, 10th; Diya'a Alhaq Al-Shabatat, 10th; King Abdullah II School for Excellence, At-Tafilah, At-Tafilah, Jordan

ENBM093 *Novel Fully MRI Compatible Nonmagnetic and Dielectric Pneumatic Servo Motor for MRI Guided Surgical Robotics*
https://projectboard.world/isef/project/56426
Leo Wylonis, 11th; Conestoga High School, Berwyn, PA

ENBM094 *The Future of Prosthetics: Making Prosthetics with More Capabilities at a Lower Cost*
https://projectboard.world/isef/project/56437
Connor Lee, 11th; Iolani School, Honolulu, HI

ENBM095T *Wearable Ringer Device Using Static Load Spring*
https://projectboard.world/isef/project/56443
Woojin Jeong, 12th; Jeongbin Park, 12th; Sejong Academy of Science and Arts, Sejong, Chungcheong, South Korea

ENBM096 *Using Electrical Stimulation to Provide Reliable Haptic Feedback in Virtual Object Classification Tasks*
https://projectboard.world/isef/project/56532
Sierra Stocker, 12th; Pine Crest School, Fort Lauderdale, FL

ENBM097 *Wearable Strain Sensors with Silver Nanowires for Health Monitoring*
https://projectboard.world/isef/project/56588
Huiyan Huang, 12th; Hwa Chong Institution, Singapore, Singapore, Singapore

ENBM098 *A Novel 3D Printed Ventilator for COVID-19*
https://projectboard.world/isef/project/56615
Harjaisal Brar, 9th; Stockdale High School, Bakersfield, CA

ENBM099 *Early Diagnosis of Parkinsonism via a Smartphone Application*
https://projectboard.world/isef/project/56679
Matthew Anderson, 11th; Cherry Creek High School, Greenwood Village, CO

ENBM100 *An Innovative Microcontroller-Driven Illumination System to Correct Moderate to Severe Color Vision Deficiency*
https://projectboard.world/isef/project/56715
Vladimir Mamchik, 10th; Jesuit High School, Portland, OR

ENBM101 *The Influence of Conductivity and Mechanical Properties on the Neurogenic Differentiation of Dental Pulp Stem Cells*
https://projectboard.world/isef/project/56754
Samuel Liu, 12th; Olathe North High School, Olathe, KS

ENBM103T *Measuring Blood Glucose Level by Acetone Concentration in Exhaled Air*
https://projectboard.world/isef/project/56845
Salma Al-Amr, 11th; Noor Almasri, 11th; Jubilee School, Amman, Jordan

ENBM104T *Size Adjustable Prosthetic Forearm*
https://projectboard.world/isef/project/56872
Ryan Lee, 11th; Yoo Younggun, 12th; Vincent Carpio-Torres, 12th; New Mexico Military Institute, Roswell, NM

ENBM105 *Using Fluorescence Imaging to Investigate the Organisation of Human Brain Organoids*
https://projectboard.world/isef/project/56910
Nathalie Weibel, 12th; University of Zurich, Zurich, Switzerland

ENBM106 *Smart Prosthetic Hand Helper*
https://projectboard.world/isef/project/56965
Mohammad Alzoubi, 11th; Alramtha Secondery School, Irbid, Jordan

ENVIRONMENTAL ENGINEERING

ENEV001 *Separating Microplastics from Beach Sand Using a Fluidized Air Bed*
https://projectboard.world/isef/project/51799
Sean Brooks, 11th; Pine Creek High School, Colorado Springs, CO

ENEV002 *An Efficient and Cost-Effective Cooling System for Nuclear Power Plants*
https://projectboard.world/isef/project/52020
Zoe Diederich, 11th; Maritime and Science Technology Academy, Miami, FL

ENEV003 *A Novel Carbon Dioxide Filtration Device Utilizing Calcium hydroxide and Chlorophyta to Remediate the Impact of Global Climate Change on Aquatic Ecosystems*
https://projectboard.world/isef/project/51716
Ashlyn Milford, 11th; Cascia Hall Preparatory School, Tulsa, OK

ENEV004 *Substituting Plastic*
https://projectboard.world/isef/project/51616
Michael Vick, 11th; Wildwood High School, Wildwood, FL

ENEV005 *Using a Positive Charged Media to Remove Different Heavy Metal Ions from Contaminated Water Samples*
https://projectboard.world/isef/project/51718
Claire Han, 11th; Pensacola High School, Pensacola, FL

ENEV006 *Sustainable Habitats for Crassostrea virginica*
https://projectboard.world/isef/project/51650
Emily White, 10th; McIntosh High School, Peachtree City, GA

ENEV007 *Use of Tenebrio molitor in Plastic Biodegradation*
https://projectboard.world/isef/project/51775
Dylan Burkey, 10th; Rockdale Magnet School for Science and Technology, Conyers, GA

ENEV008 *The Application of Mycoremediation Upon Cigarette Filter Waste*
https://projectboard.world/isef/project/52021
Nylah Ductan, 11th; Rockdale Magnet School for Science and Technology, Conyers, GA

ENEV009 *An Investigation into the Removal of Dyes and Plastic Microfibers from Wastewater*
https://projectboard.world/isef/project/51805
Anna Wang, 11th; West High School, Madison, WI

ENEV010T *Project TetreNet: Augmenting Wildfire Mitigation With Rapid-Scale Deployment of Low-Cost Nanosatellite Networks Driven By Computer Vision Analysis*
https://projectboard.world/isef/project/51827
Rohan Chimalapati, 12th; Sarvesh Sathish, 11th; Abhinav Bichal, 12th; Lebanon Trail High School, Frisco, TX

ENEV011 *Something in the Water: Creating an Origami Microfluidic Device for Developing Communities*
https://projectboard.world/isef/project/51915
Alden Kruse, 12th; Schullandheim Homeschool, Colorado Springs, CO

ENEV012T *Safe Disposal of Sanitary Napkins (Mensuburner)*
https://projectboard.world/isef/project/51713
Kritika Singh, 11th; Harshita Bhandari, 11th; Presentation Public School, Jugial, Punjab, India

ENEV013T *Home Based Portable Water Purifier: A Water Quality Enhancement System*
https://projectboard.world/isef/project/51834
Macfaden Munyoro, 12th; Panashe Muzite, 12th; Nyatsime College, Harare, Harare, Zimbabwe

ENEV014 *Post-pyrolysis Processing of Mixed Polymeric Waste to Obtain Useful Organic Raw Materials*
https://projectboard.world/isef/project/51941
Nikita Korzienko, 11th; Andrey Melnichenko Foundation Center for the Development of Children's Creativity in Science and Engineering (Novomoskovsk), Novomoskovsk, Tula, Russian Federation

ENEV015 *Development and Implementation of a Bio-based Filter to Mitigate the Effusion of Harmful Pollutants from Internal Combustion Engines and Combustion Processes*
https://projectboard.world/isef/project/51249
Jonathan Walker, 11th; Rutherford High School, Panama City, FL

ENEV016   *Colonizing Bryophytes Used as a Post-Wildfire Ecosystem Stabilization Treatment in Montana*
https://projectboard.world/isef/project/51981
Claire Downing, 12th; Helena High School, Helena, MT

ENEV017   *Rewriting the Industry: A Novel Approach to 100% Biodegradable Ink Production and Recyclability*
https://projectboard.world/isef/project/51940
Kiera Fehr, 10th; Henry Clay High School, Lexington, KY

ENEV018   *Where the Rubber Meets the Road: The Development of an Innovative, Reusable, and Energy-Efficient Filter for Microplastics Created Through Tire Wear*
https://projectboard.world/isef/project/51852
Jennifer Oettinger, 12th; Mayo High School, Rochester, MN

ENEV019   *An Automated Differentiation Method of Recyclable Textiles via Hyperspectral Imaging*
https://projectboard.world/isef/project/51966
Zoe Yu, 10th; College Park High School, The Woodlands, TX

ENEV020   *Method of Bacterial Cellulose Production from Plant Waste Substrates*
https://projectboard.world/isef/project/51950
Olena Klimova, 11th; Mariupol Technical Lyceum, Mariupol, Ukraine

ENEV021   *Wastewater Treatment: The Use of Mealworm Gut Bacteria (Tenebrio molitor) to Isolate and Identify Bacteria that can Biodegrade Polystyrene*
https://projectboard.world/isef/project/51913
Rowan Rock, 10th; Cloquet Senior High School, Cloquet, MN

ENEV022   *The Use of Different Concentrations of Tannic Acid Powder, St. Louis River Water, and Non-resistant Staphylococcus aureus on the Bioremediation of Motor Oil Contaminated Aquatic Systems*
https://projectboard.world/isef/project/51896
Emily Sapyta, 10th, Cloquet Senior High School, Cloquet, MN

ENEV023   *Filter-Free Air Filtration System Based on Nano Steam Technology*
https://projectboard.world/isef/project/52149
Ruixi Zhang, 11th; Guangzhou No.16 Middle School, Guangzhou, Guangdong, China

ENEV024   *Research on Aquaponics System Based on Artificial Intelligence*
https://projectboard.world/isef/project/52156
Runmin Wang, 11th; Beijing 101 Middle School, Beijing, Beijing, China

ENEV025   *Enhancing Effectiveness of Medical Equipment for Filtrating and Sterilizing Aerosol*
https://projectboard.world/isef/project/52158
Zhiyu Cao, 11th; The Affiliated High School of South China Normal University, Guangzhou, Guangdong, China

ENEV026   *Dye Removal with GO Reinforced Nanocomposite MOFs*
https://projectboard.world/isef/project/52202
Amitis Moradkhani, 11th; Indian Springs School, Indian Springs, AL

ENEV027   *Degradation of Bioplastics from Biomass Sources Used as an Alternative for Plastic Products*
https://projectboard.world/isef/project/52209
Anna Armstrong, 11th; Joel E. Ferris High School, Spokane, WA

ENEV028   *Removing Carbon Dioxide from Coal Exhaust via an Olivine and Sodium Hydroxide Filter*
https://projectboard.world/isef/project/52216
Teaghan Knox, 11th; Bend Science Station, Bend, OR

ENEV029   *A Comparison of Domestic Dryer Contributions to Previous Domestic Washer Data of Microplastic Fiber Emissions in Waste Water Generated from Synthetic Textiles*
https://projectboard.world/isef/project/52243
Heidi Kinsey, 11th; Fort Myers High School, Fort Myers, FL

ENEV030   *The Utilization of Bambusa vulgaris Biochar to Address Runoff Contamination Following Intense Forest Fires*
https://projectboard.world/isef/project/52244
Rachel Forgas, 12th; Wiregrass Ranch High School, Wesley Chapel, FL

ENEV031   *Recycling Household Plastics for Use in 3D Printing Applications*
https://projectboard.world/isef/project/52258
Nathan Muszynski, 12th; Liberty High School, Hillsboro, OR

ENEV032T *Designing an Autonomous Solar Powered Robot Capable of Filtering out Excess Phosphorus and Nitrogen from Waterways to Naturalize the Process of Eutrophication*
https://projectboard.world/isef/project/52259
Abdullah Saidi, 10th; Mohammed Omer, 10th; Al-Amal School, Fridley, MN

ENEV033T *Synthesis of GO-CS (Graphene Oxide-Chitosan) Microparticle Composite as Pb (II), Zn (II), and Mn (II) Adsorbent*
https://projectboard.world/isef/project/52682
Steven Holme, 12th; Christian Novianto, 12th; Regina Pacis High School, Bogor, West Java, Indonesia

ENEV034T *The Use of Peat in Eliminating Environmental Pollution from Bodies of Water*
https://projectboard.world/isef/project/53433
Henri Pihelgas, 12th; Ats Laansalu, 12th; Tallinna Mustamae Gumnaasium, Tallinn, Harju County, Estonia

ENEV035 *Deer Alert: A System to Reduce Deer-Related Crashes Using Motion Sensors in Areas with High Deer Traffic*
https://projectboard.world/isef/project/53470
Lauren Labows, 10th; Dr. James A. Forrest Career And Technology Center, Leonardtown, MD

ENEV036 *The Investigation of the Limitations of Toxic Dye Biosorption by Pyracantha coccinea*
https://projectboard.world/isef/project/53519
Idil Buyukgolcigezli, 11th; Bilkent Erzurum Laboratory School, Erzurum, Turkey

ENEV037 *Development of a Combinatory Filtration System for Pollution and Virus Abatement*
https://projectboard.world/isef/project/53521
Ishika Nag, 10th; Oviedo High School, Oviedo, FL

ENEV038T *Conserving Water through the Recycling and Filtering of Greywater through a Domestic System*
https://projectboard.world/isef/project/53528
Caleb Cochran, 12th; Bryce Goodin, 12th; Colton McCullough, 12th; Bartlesville High School, Bartlesville, OK

ENEV039 *Acetobacter Xylinum & the Development of an Alternative Biodegradable Textile*
https://projectboard.world/isef/project/53531
Ciara Mitchell, 12th; Brookwood High School, Snellville, GA

ENEV040T *A Practical Alginate-based Synthetic Differentially Permeable Membrane for Metal Ions Separation*
https://projectboard.world/isef/project/53764
Chiu Ming Kwan, 11th; Mingxin Liu, 11th; Ka Pui Ngan, 11th; King's College, Hong Kong, China, Hong Kong Special Administrative Region

ENEV041 *Design of a Fe3O4/Bentonite/Graphite Coated Polyurethane Sponge for Economical and Eco-Friendly Oil Spill Recovery*
https://projectboard.world/isef/project/53997
Autumn Kim, 12th; Greenwich High School, Greenwich, CT

ENEV042 *Exhausted: Reducing Pollution from Vehicle Emissions (Year 3)*
https://projectboard.world/isef/project/54006
Michael Trees, 10th; Trees Family Home School, San Angelo, TX

ENEV043 *Optimization of Sorption of Porous Materials*
https://projectboard.world/isef/project/54009
Anastasia Shenkova, 11th; The Advanced Education Science Center Kolmogorov Boarding School of the Moscow State University, Moscow, Moscow Region, Russian Federation

ENEV044 *Efficacy of Algae Phytoremediation vs. Sand Filtration of Bisphenol-a Solution*
https://projectboard.world/isef/project/54106
Miah Hoppens, 12th; Ogallala High School, Ogallala, NE

ENEV045 *Smart Green Organic Farm*
https://projectboard.world/isef/project/54160
Saja Obeidat, 12th; Um-Alsummaq Southern Secondary School, Amman, Jordan

ENEV046T *A New Concept of Packaging- Solving the Problem of Excessive Plastic*
https://projectboard.world/isef/project/54162
Helen Ngie, 10th; Weng Hei Lau, 10th; Chi Mei Lam, 10th; The Affiliated School of the University of Macao, Macao, China, Macao Special Administrative Region

ENEV047 *NEREID: Microplastic Detector Using Laser Microscopy and Image Processing Powered by the Raspberry Pi*
https://projectboard.world/isef/project/54434
Kyle Tianshi, 9th; The Cambridge School, San Diego, CA

ENEV048   *Identifying Natural Flocculating Proteins for Affordable Anti-Microbial Sand Filters*
https://projectboard.world/isef/project/54492
Sahil Azad, 12th; North Carolina School of Science and Mathematics, Durham, NC

ENEV049T   *A Robot Ultrasonic Pest Repellent*
https://projectboard.world/isef/project/54538
Wafa' Eslam AlHayek, 11th; Mohammad Yahya Hammoudeh, 11th; Jubilee School, Amman, Jordan

ENEV050T   *Bags to Bridges: A Use For Polythene Plastic Bags*
https://projectboard.world/isef/project/54590
Joseph Schmidt, 10th; Manuel Castillo, 10th; Veritas Christian Community School, Sierra Vista, AZ

ENEV051   *Development of Filter Embedded with Silver Nanoparticles for Water Sanitation*
https://projectboard.world/isef/project/54595
Skylar Nguyen, 12th; The Mississippi School for Mathematics and Science, Columbus, MS

ENEV052T   *Designing a Bioplastic Material to Replace Polystyrene and Polypropylene in Single-Use Hard Plastics that Rapidly Degrades in Landfill, Freshwater, and Saltwater Environments*
https://projectboard.world/isef/project/54603
Lauren Zuravel, 9th; Kaitlyn Zuravel, 11th; Terry Sanford High School, Fayetteville, NC

ENEV053T   *Water Filtration Systems: Re-engineered*
https://projectboard.world/isef/project/54604
Jessica Perez, 11th; Thomas Ramirez, 11th; Americas High School, El Paso, TX

ENEV054   *Innovative Climate Change Emissions Reduction: The Cargo Ship Flettner Rotor Centrifugal Vortex Exhaust Scrubber*
https://projectboard.world/isef/project/54607
Charlotte Lenore Michaluk, 9th; Hopewell Valley Central High School, Pennington, NJ

ENEV055T   *Using Zophobas morio to Build a Biodigester for Polymers Decomposition*
https://projectboard.world/isef/project/55029
Katrina Medeiros Viana, 11th; Alaide Silva, 11th; Antonio Golncalves do Vale, 11th; Escola de Ensino Medio Joaquim de Figueiredo Correia, Iracema, Ceara, Brazil

ENEV056   *Automated Water Analysis: A Water Drone Developed with Microcontrollers*
https://projectboard.world/isef/project/55034
Rafaela Curcio, 12th; ETEC Benedito Storani, Jundiai, Sao Paulo, Brazil

ENEV057T   *Robotic Development for Cleaning Coastlines: Coastline Cleanliness*
https://projectboard.world/isef/project/55067
Yakina Sika-Amoah, 9th; Theodore Simon, 9th; Syracuse Academy of Science, Syracuse, NY

ENEV058   *Treatment of Simulated Acid Mine Drainage with Desulfovibrio Desulfuricans*
https://projectboard.world/isef/project/55342
Jack Hlavka, 11th; Saint Paul Academy and Summit School, Saint Paul, MN

ENEV059   *A Novel All-In-One Membrane for Microplastics Removal, Oil-Water Separation, and Organic Dyes Photodegradation in Wastewater*
https://projectboard.world/isef/project/55516
Ahmed AlBadrani, 12th; Ibn Al-Nafees High School, Yanbu RCY, Alamdina, Saudi Arabia

ENEV060   *Green Chemistry for Plastic Waste Circulations and Its Application*
https://projectboard.world/isef/project/55519
Layan AlHamashi, 12th; The First Secondary School in Hail, Hail, Central Province, Saudi Arabia

ENEV061   *Efficient Visible Light Removal of Organic Pollutants in Water Using Novel Synthesis of g-C3N4-CdS Nanocomposite by Pulsed Laser Ablation in Liquid*
https://projectboard.world/isef/project/55521
Norah AlHarbi, 11th; University Schools, Dhahran, Eastern Province, Saudi Arabia

ENEV062   *Design a Multi-functional Smart Chimney to Eliminate the Byproducts of Combustion Processes and Reduce Global Warming by Using Innovative Technologies*
https://projectboard.world/isef/project/55522
Nada Alhajri, 10th; The Third High School in Abha, Abha, Asir, Saudi Arabia

ENEV063   *COD Decrement, Water Forever*
https://projectboard.world/isef/project/55535
Mohamed Abdelrazek, 11th; Obour STEM School, Obour, Kalubya, Egypt

ENEV064 *Storm Drain Oil Filtration Device with a Flexible Tyvek Material Container*
https://projectboard.world/isef/project/55667
Kate Deering, 9th; IDEA Homeschool, Anchorage, AK

ENEV065 *The Optimization of Desalination and Ion-Removal Rate Through the Engineering of Novel Turbulent Modular Designs in an Electrodialysis System*
https://projectboard.world/isef/project/55678
Julius Yoh, 12th; Manhasset High School, Manhasset, NY

ENEV066T *EcoAir: Biochar Low-cost Portable Purifier for Indoor Pollution*
https://projectboard.world/isef/project/55859
Chloe Laplanche, 10th; Noah Bigio, 10th; Nathalia Succar, 10th; Union School Haiti, Petionville, Port-au-Prince, Haiti

ENEV067 *Smart Electrical Device for Contamination Detection and Drinking Water Quality Monitoring*
https://projectboard.world/isef/project/55860
Omar Elbehiry, 12th; Abo Bakr Elsdeek Secondary School, New Damietta, Damietta, Egypt

ENEV068 *Artificial Neural Network Modeling of Harmful Algal Blooms in Lake Okeechobee*
https://projectboard.world/isef/project/55865
Ashesh Amatya, 11th; Alexander W. Dreyfoos School of the Arts, West Palm Beach, FL

ENEV069 *Testing and Comparing the Emissions of a Small Engine Running on Ethanol Versus Gasoline*
https://projectboard.world/isef/project/55885
John Horangic, 11th; Bishop Brady High School, Concord, NH

ENEV070 *Research on the Resourceization of Jellyfish Gelatin Using Its Adhesive Component*
https://projectboard.world/isef/project/56045
June-Hue Koo, 12th; Sejong Science High School, Seoul, South Korea

ENEV071 *Coffee Pulp Ecoboards in the High Yurinaki Annex - 2020*
https://projectboard.world/isef/project/56049
Alexandra Lima Quispe, 12th; Jorge Basadre, Perene, Junin, Peru

ENEV072 *CEC, pH, Electric Conductivity and ESP Study in Sodic Loam Clay Soils*
https://projectboard.world/isef/project/56051
Maira Cruz Ore, 11th; High Performance College of Apurimac, Chalhuanca, Apurimac, Peru

ENEV073T *High Efficiency Wet Scrubbing System Utilizing Impeller*
https://projectboard.world/isef/project/56174
Seung Chan Lee, 12th; Jooyoung Lee, 12th; Hyunjae Cheon, 12th; Korea Science Academy of KAIST, Busan, Busan, South Korea

ENEV074 *Rethinking Food Waste: Optimizing the Food Bank Supply Chain to Tackle Food Waste and Food Insecurity*
https://projectboard.world/isef/project/56217
Xenia Zhao, 12th; Hamilton High School, Chandler, AZ

ENEV075T *Healir: An Innovative Smart and Intelligent Air Filter*
https://projectboard.world/isef/project/56233
Matteo Grondona, 12th; Martina Rattini, 12th; Edward Burns, 11th; I.I.S A.Maserati, Voghera, Pavia, Italy

ENEV076 *A Study on Eco-friendly Removal Method of Plastic Cup Printing Ink*
https://projectboard.world/isef/project/56240
SeungHyeon Noh, 12th; Yeosu High School, Yeosu-si, Jeollanam-do, South Korea

ENEV077T *Research on Hydrophobicity and Lipophilicity of Wood Decomposed by Brown Rot Fungi and Its Potential Application as an Oil Absorbent*
https://projectboard.world/isef/project/56371
Sunmin Lee, 11th; Sanghyun Na, 12th; Seoul International School, Seoul, Gyunggi-Do, South Korea

ENEV078 *Testing the Waters: Engineering an Innovative Method of Water Health Analysis, Year II*
https://projectboard.world/isef/project/56432
John Cardwell, 12th; Breck School, Golden Valley, MN

ENEV079 *Applications of Carbon Nanotube Based Sorbents for Removal of Arsenic from Polluted Well Water*
https://projectboard.world/isef/project/56433
Linh Nguyen, 12th; Deering High School, Portland, ME

ENEV080T *Managing Oysters to Maintain Our Islands (MOMI)*
https://projectboard.world/isef/project/56436
David Torres, 12th; Ethan Hui, 12th; Andrew Dawson, 12th; Iolani School, Honolulu, HI

ENEV081 *The Impact of Various Liquids on the Mobility and Energy Absorption of a Rotating Solar Tracker*
https://projectboard.world/isef/project/56538
Demetrius Bush, 12th; Olathe North High School, Olathe, KS

ENEV082 *The Dispersion of Micron-Sized Aerosolized Particles Under Variable Air Environments: Implications in Respiratory Disease Transmission*
https://projectboard.world/isef/project/56620
Max Watchmaker, 10th; University School of Milwaukee, Milwaukee, WI

ENEV083T *Employing Artificial Intelligence to Protect the Ras AL Hadd Turtle Reserve*
https://projectboard.world/isef/project/56664
Laila AlMukhaiti, 11th; Sheyam Al-Ghailani, 11th; Lubaba Bint Al-Harith, Sur, South Sharqiyah, Oman

ENEV085T *Kombucha Microbial Cellulose: the Sustainable Alternative to Paper Industry*
https://projectboard.world/isef/project/56739
Pedro Gefaell, 12th; Guillermo Canosa, 12th; Colegio Retamar, Pozuelo de Alarcon, Madrid, Spain

ENEV086 *Compostable Flame-resistant Hydrophilic Psyllium Paper with Strengthening Fibers of Banana and Paddy Husk*
https://projectboard.world/isef/project/56746
Maya Sohail, 9th; Pak Turk Maarif International Schools and Colleges, Karachi, Sindh, Pakistan

ENEV087 *Protecting Critical Aquatic Ecology with Deep Learning*
https://projectboard.world/isef/project/56749
Aesha Shah, 10th; Northview High School, Johns Creek, GA

ENEV088 *Nature Breathe: Natural Plant Material HVAC Filter for Nanoparticle Filtration*
https://projectboard.world/isef/project/56769
Benjamin Varos, 9th; Taos Academy Charter School, Taos, NM

ENEV089 *Produced Water Treatment and Reuse to Mitigate the Environmental Impact of Oil and Gas Production*
https://projectboard.world/isef/project/56848
Haoyu Wang, 10th; Centennial High School, Las Cruces, NM

ENGINEERING MECHANICS

ENMC001   *The CycleHub – A Prototype For The Future Of Cycling*
https://projectboard.world/isef/project/51639
Liam Davies, 12th; Gosford High School, Gosford, NSW, Australia

ENMC002   *Staying Dry: Notification System for Incontinence Underwear*
https://projectboard.world/isef/project/51618
Rebekah Dorminy, 12th; Sola Fide Home School, McDonough, GA

ENMC003   *ThembaBot: Mine Surveying Robot*
https://projectboard.world/isef/project/51772
Muhammed Hassen, 11th; Greenside High School, Johannesburg, Gauteng, South Africa

ENMC004   *Proposal of an Electro-Mechanical System to Reduce the Fatality of Car Underride Crashes*
https://projectboard.world/isef/project/51742
Kerem Bayhan, 11th; Izmit Bilim ve Sanat Merkezi, Izmit, Kocaeli, Turkey

ENMC005   *Recycling Plastic for 3d Printing*
https://projectboard.world/isef/project/51754
Cayden Shaffer, 11th; Whitewater High School, Fayetteville, GA

ENMC006T   *Portable Method of Detecting Oncoming Fires*
https://projectboard.world/isef/project/51700
Kristina Yu, 10th; Anika Mathur, 10th; Gwinnett School of Mathematics, Science, and Technology, Lawrenceville, GA

ENMC007   *A Robotic System for Temperature Scanning and Sanitizing*
https://projectboard.world/isef/project/51804
Suhaan Singh, 11th; Saint Dominic's Newcastle, Newcastle, Kwa-Zulu Natal, South Africa

ENMC008T   *Method for Reducing Carbon Emissions from Small Two-Stroke Engines*
https://projectboard.world/isef/project/51773
Luke Foye, 12th; Aidan Blenker, 12th; Muskego High School, Muskego, WI

ENMC009   *Hydroloop II: Magnetohydrodynamic Loop*
https://projectboard.world/isef/project/51740
Ken Yaguchi, 11th; Hector J. Garcia Early College High School, Laredo, TX

ENMC010   *SafeBuild: Risk-Based Analysis of Overhead Electric Distribution Facilities*
https://projectboard.world/isef/project/51722
Jennifer Lew, 11th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

ENMC011   *Autonomous Surveillance UAV*
https://projectboard.world/isef/project/51807
Tate Schrock, 11th; Arickaree School, Anton, CO

ENMC012T   *An Analysis and Optimization of Double Parallelogram Lifting Mechanism*
https://projectboard.world/isef/project/51660
Keng Hang Tang, 10th; Su Fong, 11th; Hei I Lei, 12th; Pui Ching Middle School, Macao, Macao, China, Macao Special Administrative Region

ENMC013   *New Method for Measuring the Viscosity of Liquids*
https://projectboard.world/isef/project/51621
Matvei Kuznetsov, 11th; State School "Lyceum #86", Yaroslavl, Yaroslavl, Yaroslavskaya Oblast, Russian Federation

ENMC014T   *Platform for Omnidirectional Traffic*
https://projectboard.world/isef/project/51715
Mikhail Satleykin, 11th; Pavel Kuznetsov, 11th; Advanced Educational Scientific Centre, A.N.Kolmogorov Boarding School, Moscow, Moscow, Russian Federation

ENMC015   *How Does the Number of Blades on a Wind Turbine Affect Its Power Output?*
https://projectboard.world/isef/project/51753
Mitchel Masters, 9th; Lake Crystal Wellcome Memorial, Lake Crystal, MN

ENMC016   *The Effect of Wrapping Space on Pressure Required for Bending in Fiber Reinforced Soft Actuators*
https://projectboard.world/isef/project/51924
Natalie Janzaruk, 10th; Notre Dame Academy, Park Hills, KY

ENMC017   *The Utilization of Dimples to Reduce Wind Load on Parabolic Structures*
https://projectboard.world/isef/project/51934
Jay Chavakula, 12th; Canterbury School, Fort Myers, FL

ENMC018   *Theoretical Simulation and Practical Fabrication of a Novel Vertical Axis Fan*
https://projectboard.world/isef/project/51767
Muyao Li, 11th; No. 2 High School of East China Normal University, Shanghai, Shanghai, China

ENMC019   *Reduction of Tsunami Impacts on Coastal Inhabitants and Infrastructure by Armoring Shorelines Using Hydrodynamics*
https://projectboard.world/isef/project/51995
Dakota Perry, 9th; WP Davidson High School, Mobile, AL

ENMC020T   *Designing an Aerospike Nozzle*
https://projectboard.world/isef/project/51965
Logan Murray, 12th; Max Oberg, 12th; College Park High School, The Woodlands, TX

ENMC021   *Improving Print Quality, Precision and Repeatability of Open Source MSLA 3D Printer*
https://projectboard.world/isef/project/51632
Adam Schuppler, 11th; Gymnazium a SOS Plasy, Plasy, Plzensky kraj, Czech Republic

ENMC022T   *Ferro-Oil Capsule (Encapsulated Recycle Oil with Ferric Oxide for Self-Healing Potholes)*
https://projectboard.world/isef/project/51655
Nik Nurfarahana Tengku Rosman, 11th; Nur Hazwani Sahira Mohd Nissham, 11th; Nurul Fayyadhah Ahmad Zainudin, 11th; Sekolah Menengah Kebangsaan Kubang Bemban, Pasir Mas, Kelantan, Malaysia

ENMC023   *Optimization of Navigating Intersections: A Research Project on Navigating Hallway Intersections During a Pandemic*
https://projectboard.world/isef/project/51721
Chandni Jain, 12th; Peachtree Ridge High School, Suwanee, GA

ENMC024T   *Autonomous Hybrid Drone System for Human Rescue*
https://projectboard.world/isef/project/51752
Franciszek Mikolajczyk, 11th; Zygmunt Skowronek, 10th; Ludwik Skowronek, 12th; V Liceum Ogolnoksztalcace im. Augusta Witkowskiego, Krakow, Malopolskie, Poland

ENMC025   *Using Semi Flexible and Deformable Bionic Crawler Robot to Adapt Complicated Terrains*
https://projectboard.world/isef/project/52148
Jiarong Sheng, 10th; Shanghai Pinghe Bilingual School, Shanghai, China

ENMC026   *The Underwater Magic Carpet: A Movable Underwater Platform Based on Bionic Cownose Ray*
https://projectboard.world/isef/project/52155
Tianqi Dai, 11th; Beijing No. 4 High School, Beijing, Beijing, China

ENMC027T   *Biomedical Imaging with DVD OPU*
https://projectboard.world/isef/project/53002
Imaad Syed, 12th; Aaban Syed, 11th; North County High School, Glen Burnie, MD

ENMC028T   *Project Aeolus: Modernizing and Automating Drone Fleets*
https://projectboard.world/isef/project/53003
Ryan Wans, 10th; Jack Woods, 10th; South River High School, Edgewater, MD

ENMC029   *Getting into the Swing of Things*
https://projectboard.world/isef/project/53004
Rygel Tristen Yance, 11th; Chesapeake Science Point Public Charter School, Hanover, MD

ENMC030T   *Improving Autonomous Underwater Vehicle (AUV) Glider Efficiency: Wingspan*
https://projectboard.world/isef/project/53461
Lauren Suzuki, 11th; Antonio Velasco, 11th; Pearl City High School, Pearl City, HI

ENMC031   *Propeller Shroud Design: Testing the Effectiveness of Different Cambers*
https://projectboard.world/isef/project/53486
Jack Saito, 11th; James B. Castle High School, Kaneohe, HI

ENMC032   *A Novel Computer Simulation of a Deployable Parachute System with Aerial Detachment of the Cabin for Commercial Airplane Crashes, Year Two*
https://projectboard.world/isef/project/53520
Vivek Sandrapaty, 10th; West Port High School, Ocala, FL

ENMC033   *In situ Resource Utilization of Martian Regolith for Construction, Year Four*
https://projectboard.world/isef/project/53522
Isabella Weiner, 12th; Holy Trinity Episcopal Academy, Melbourne, FL

ENMC034   *Stable Shores: An Experimental Set-Up to Test Economical Alternatives to Conventional Coastal Erosion Control*
https://projectboard.world/isef/project/53534
Ved Ganesh, 10th; Dulles High School, Sugar Land, TX

ENMC035   *Proverse Yaw Characteristics of a Powered Blended Wing Body Aircraft of a Novel Design and Manufacture*
https://projectboard.world/isef/project/53765
Ethan Wong, 11th; Arcadia High School, Arcadia, CA

ENMC036   *Supporting a Wing with Hexagons to Make It Lighter*
https://projectboard.world/isef/project/53782
Alexander Kmetko, 11th; University School, Chagrin Falls, OH

ENMC037   *Making a Remote-controllable Mars Rover with the Main Functions of the Real Rovers*
https://projectboard.world/isef/project/53992
Matyas Rozsavolgyi, 12th; Perintparti Szo-Fogado Szombathelyi Waldorf Ovoda, Altalanos Iskola, Gimnazium es Alapfoku Muveszeti Iskola, Szombathely, Vas, Hungary

ENMC038   *Creating a One-Thousand Dollar Supercomputer*
https://projectboard.world/isef/project/54092
Bronte Stump, 10th; Spring Mills High School, Martinsburg, WV

ENMC039   *Increasing Aerofoil Lift via Artificial Amplification of the Coanda Effect Using Heat*
https://projectboard.world/isef/project/54129
Timothy Drinkall, 12th; Greenwich High School, Greenwich, CT

ENMC040   *SPIDER: Surface Probe Interplanetary Drill Exploring Regolith*
https://projectboard.world/isef/project/54431
Charlotte Hively, 12th; Urbana High School, Ijamsville, MD

ENMC041   *Retrofitting of a Creality Ender 3 to Allow for 5 Axis Motions*
https://projectboard.world/isef/project/54497
Owen Emerich, 11th; Burnt Hills-Ballston Lake High School, Burnt Hills, NY

ENMC042T   *Queue Control System*
https://projectboard.world/isef/project/54584
Gigi Gugunava, 11th; Nia Norakidze, 10th; Dimitri Gulua, 12th; St. Alexi Shushania's School-Gymnazium, Senaki, Samegrelo Zemo-Svaneti, Georgia

ENMC043   *Aircraft Redesigned: A Biomimicry Approach*
https://projectboard.world/isef/project/54598
Fawaz Ahmad, 12th; Oxford High School, Oxford, MS

ENMC044T   *CPS - Custom Printed Submarine: A Community Based Approach to Designing Unmanned Underwater Vehicle Systems Using 3D Printing and Widely Available Production Methods*
https://projectboard.world/isef/project/54620
Filip Bulawa, 12th; Piotr Domanowski, 12th; Marcin Hnat, 12th; I Liceum Ogolnoksztalcace Dwujezyczne im. Edwarda Dembowskiego w Gliwicach, Gliwice, Slaskie, Poland

ENMC045   *A Self-Replicating 3D Printer*
https://projectboard.world/isef/project/54805
Brian Minnick, 12th; Academies of Loudoun, Leesburg, VA

ENMC046   *Beneficiation of Clayey Soils Using Aggregate Blending and Cement Stabilization*
https://projectboard.world/isef/project/55028
Adam Guthrie, 12th; Timpview High School, Provo, UT

ENMC047   *Mitigating Stresses to Migrating Ichthyoids Caused by Man-Made Obstructions*
https://projectboard.world/isef/project/55053
Seth Tuma, 10th; Idaho Virtual Academy, Meridian, ID

ENMC049T   *Engineering an Environmentally Friendly 3D-Printed Rocket Engine*
https://projectboard.world/isef/project/55076
John Lewis, 12th; Caleb Chakmakjian, 12th; Live Oak Classical School, Waco, TX

ENMC050 *Testing the Effectiveness of Wind-Resistant Construction Designs in Residential Settings*
https://projectboard.world/isef/project/55228
Christopher Schweitzer, 9th; DeKalb High School, Waterloo, IN

ENMC051 *Space Junk: Cleaning Up Orbital Debris While Saving Rocket Fuel*
https://projectboard.world/isef/project/55233
Julius Neumann, 10th; Manhattan High School, Manhattan, KS

ENMC052 *Supercapacitor Assisted Hybrid Electric Vehicle Powertrain and Power Selection Using Fuzzy Rule-Based Algorithm*
https://projectboard.world/isef/project/55248
Brayden Noh, 12th; Auburn High School, Auburn, AL

ENMC053 *Design and Implementation of a Quadcopter Flight Controller with Non-uniform Hardware to Cater for Third-World Supply-Chain Issues*
https://projectboard.world/isef/project/55290
Muhammad Muazzam Salman, 11th; Lahore American School, Lahore, Punjab, Pakistan

ENMC054T *Study Comparison: Avalanche Snow Probes versus Conventional Snow Pit in Determining Avalanche Danger*
https://projectboard.world/isef/project/55304
Luke Jouflas, 12th; Henry Jacobson, 12th; Bellarmine Preparatory School, Tacoma, WA

ENMC055 *Improving the Aerodynamic Efficiency and Decreasing the Drag Coefficient of an F1 in Schools Race Car Based on Further Evaluation of Aerodynamic Principles and Designs*
https://projectboard.world/isef/project/55335
Ao Gai, 11th; Deerfield Academy, Deerfield, MA

ENMC056T *Rotating Weekly Pill Dispenser*
https://projectboard.world/isef/project/55354
Sydney Vokus, 11th; Kierstyn Stanley, 12th; Roanoke Valley Governor's School for Science and Technology, Roanoke, VA

ENMC057 *Just Passing Through: Use of Hemispheric Sensing with Trajectory Prediction for Satellites to Mechanically Dodge Small Space Debris*
https://projectboard.world/isef/project/55671
McKenna Collins, 12th; Albuquerque Institute for Math and Science, Albuquerque, NM

ENMC058 *A Robotics Assistive Device Application in Minimizing Manibus Tremors in Persons Afflicted with Bradykinesia: Phase V*
https://projectboard.world/isef/project/55680
Shaylee Stanger, 11th; Clearfield High School, Clearfield, UT

ENMC059 *Creation of a Highly Efficient Surface ROV Invoking Cylindrical Solar Panels, Year 5*
https://projectboard.world/isef/project/55687
Steven Vokoun, 12th; South Fork High School, Stuart, FL

ENMC060T *Robotic Arms for Paralyzed Arms*
https://projectboard.world/isef/project/55710
Linh Pham, 11th; An Nguyen, 11th; Han Thuyen High School, Bac Ninh, Viet Nam

ENMC061 *Cleaning Clip Applying the Principle of Acoustic Levitation*
https://projectboard.world/isef/project/55871
Seung won Lee, 12th; Yeosu High School, Yeosu-si, Jeollanam-do, South Korea

ENMC062 *SAFEARM*
https://projectboard.world/isef/project/55872
JeongHun Im, 9th; Posan Middle School, Daegu, Dalsung, South Korea

ENMC063 *Hay Waste: The Financial Impact Due to Poor Design*
https://projectboard.world/isef/project/55883
Matthias Hefty, 9th; DeKalb High School, Waterloo, IN

ENMC064 *Facile and Green Assembly of a Novel Photovoltaic Array Cooling Mechanism: A Study Preventing Hot Spot Damage Using a Sealed Liquid Cooling Unit within a Hydrophobic Encasement*
https://projectboard.world/isef/project/56063
Landon Runion-Driskel, 12th; Little Rock Central High School, Little Rock, AR

ENMC065 *The Development of a Low-Cost Open-Source Underwater Remotely Operated Vehicle for Coral Mapping*
https://projectboard.world/isef/project/56083
Guilherme Beyruti Suranyi, 12th; Colegio Santa Cruz, Sao Paulo, Sao Paulo, Brazil

ENMC066 *The Engineering and Construction of a Large-Capacity CNC Router for Inexpensive Computerized Manufacturing*
https://projectboard.world/isef/project/56164
Holden Rice, 10th; Conrad Weiser High School, Robesonia, PA

ENMC067T *Developing the Technology for a Combat Drone*
https://projectboard.world/isef/project/56166
Daniel Kim, 9th; Andres Iturregui, 9th; Los Alamos High School, Los Alamos, NM

ENMC068 *A Novel Approach to Utilizing Collapsible Origami Structures in Weight Bearing Applications*
https://projectboard.world/isef/project/56219
Ashutosh Kandala, 11th; Irvine High School, Irvine, CA

ENMC069 *Effect of Geometric Manipulation on the Main Combustion Chamber of a Full- Flow Staged Rocket Engine*
https://projectboard.world/isef/project/56379
Joseph Cinquemani, 12th; Niles Township West High School, Skokie, IL

ENMC070T *A.L.M.E. Assistive Lifting Machine for Elders: Engineering a Solution to Fall-Recovery-Related Injuries in Seniors and Caregivers*
https://projectboard.world/isef/project/56384
George Richards, 12th; William Sweeney, 12th; Breck School, Golden Valley, MN

ENMC071T *Underwater Vehicle " Poseidon"*
https://projectboard.world/isef/project/56447
Gerard Ismagilov, 9th; Pavel Smolin, 11th; Lyceum #31, Chelyabinsk, Chelyabinsk Oblast, Russian Federation

ENMC072 *Implementation of Novel Semi-Supervised Machine Learning Model into Autonomous Irrigation Network Optimized for Power Self-Sufficiency*
https://projectboard.world/isef/project/56515
Arya Tschand, 12th; High Technology High School, Lincroft, NJ

ENMC073 *Engineering a Program to Locate Intruders Inside a Building by Comparing Recorded Audio to Predicted Decibel Levels from Computer Simulations*
https://projectboard.world/isef/project/56592
Nathaniel Abrams, 10th; Hilton Head Preparatory School, Hilton Head Island, SC

ENMC074 *Transferring Bodies Movements to a Computer*
https://projectboard.world/isef/project/56667
Nada Abuissa, 12th; Slafeet Girls Secondary School, Salfeet, Salfeet, Palestine

ENMC075 *Using Programming to Create Images into Tactile 3D Objects*
https://projectboard.world/isef/project/56678
Nick Turk, 9th; Good Hope Country Day School, Kingshill, United States Virgin Islands

ENMC076 *A Predictive Model for Prevention of Hydroplaning Related Car Crashes Using Piezoelectric Sensors and Autoencoder Neural Networks*
https://projectboard.world/isef/project/56716
Ishan Ahluwalia, 9th; Jesuit High School, Portland, OR

ENMC077T *Automatic Basketball Return Chute that uses Color Tracking to Rebound the Ball to the Player as they Move around the Court*
https://projectboard.world/isef/project/56759
Elijah Plattner, 11th; Wills Kookogey, 11th; The Academy Tutorial, Hermitage, TN

ENMC078T *The Smart Electric Pressing Iron*
https://projectboard.world/isef/project/56847
Jimisola Balogun, 11th; Isaac Olufunminiyi, 11th; Doregos Private Academy, Lagos, West Africa, Nigeria

ENMC079 *Development of a Rotor with Improved Aerodynamics to Propel a Quadcopter - Design and Manufacture According to the Laws of the Propeller Theory by Betz and Schmitz*
https://projectboard.world/isef/project/56870
Max Schaldach, 12th; Freies Gymnasium Zurich, Zurich, Switzerland

ENMC080T *You're Hot Then You're Cold*
https://projectboard.world/isef/project/57017
Crawford Fuzzell, 12th; Kenzie Madrid, 12th; Northwest Technology Center, Fairview, OK

MATHEMATICS

MATH001   *College Football Playoff Expansion: A Statistical Analysis via Monte Carlo Simulation*
https://projectboard.world/isef/project/51687
Jeffrey Xue, 11th; F. W. Buchholz High School, Gainesville, FL

MATH002   *Novel Methods for Shape Classification, Analysis, and Synthesis Using the Isoperimetric Profile and Mathematical Morphology*
https://projectboard.world/isef/project/51737
Dev Chheda, 12th; Ardrey Kell High School, Charlotte, NC

MATH003   *The Arbelos in Three-Dimensional Space and the Archimedean Spheres*
https://projectboard.world/isef/project/51662
Bilgenaz Altiparmak, 12th; Izmir Ozel Ege Lisesi, Izmir, Bornova, Turkey

MATH004   *An innovative Conversion from Decimal to Gray Code: Inspired by Chinese Rings*
https://projectboard.world/isef/project/51671
Tsz Tung Tsei, 12th; Maryknoll Fathers' School, Hong Kong, China, Hong Kong Special Administrative Region

MATH005   *On Geometry of Central Extension of Klein Bottle Group*
https://projectboard.world/isef/project/51661
Oleg Chistov, 10th; School 564, St. Petersburg, Russian Federation

MATH006   *Commutator Lengths of Free Group Orbits and Their Squares*
https://projectboard.world/isef/project/51625
Lev Mukoseev, 10th; School 564, St. Petersburg, Russian Federation

MATH007   *New Classes of Finitely Separable Finitely Generated Commutative Rings*
https://projectboard.world/isef/project/51624
Elkhan Kachabekov, 11th; School 564, St. Petersburg, Russian Federation

MATH008   *Investigations in Topdrops*
https://projectboard.world/isef/project/51728
Nathan Krause, 11th; Park Christian School, Moorhead, MN

MATH009   *Ranking of the Vertices in a Weighted Graph*
https://projectboard.world/isef/project/51678
Anna Mihalkova, 12th; Sofia High School of Mathematics, Sofia, Bulgaria

MATH010   *Cracking the Infinite Shuffle: Solving the Kimberling Sequence Problem*
https://projectboard.world/isef/project/51669
Niranjan Baskaran, 11th; Gateway International School, Chennai, Tamil Nadu, India

MATH011   *Enumeration of Polygon Dissections with Prescribed Conditions*
https://projectboard.world/isef/project/51987
Tzu-Hsuan Chiu, 11th; Taipei First Girls High School, Taipei, Taiwan

MATH012   *Turning Grids into Forests*
https://projectboard.world/isef/project/51985
Ting-Yun Su, 11th; Taipei Municipal Jianguo High School, Taipei City, Chinese Taipei

MATH013   *Generalized Solution of the Fibonacci Problem*
https://projectboard.world/isef/project/51695
Nikita Poplevin, 9th; Municipal School #1, Severomorsk, Murmansk Region, Russian Federation

MATH014   *Solving Some of the Algebraic Equations Using Trigonometry*
https://projectboard.world/isef/project/51734
Rafig Gasimov, 11th; The Modern Educational Complex in Honour of Heydar Aliyev, Baku, Nasimi region, Azerbaijan

MATH015   *The Contraharmonic Mean: Connections, Relations to Number Theory, Possible Generalizations*
https://projectboard.world/isef/project/51692
Sara Hargitai, 12th; Godolloi Reformatus Liceum Gimnazium, Godollo, Hungary

MATH016   *Simple Closed Geodesic Lines on Catalan Solids*
https://projectboard.world/isef/project/51696
Stepan Akinshin, 11th; Moscow South-Eastern School Named After V. I. Chuikov, Moscow, Russian Federation

MATH017   *Negative Binomial Regression to Model Dengue Cases Using Weather Factors*
https://projectboard.world/isef/project/51996
Sanuja Manage, 10th; College Park High School, The Woodlands, TX

MATH018   *Origami Knots*
https://projectboard.world/isef/project/51901
Nhi Dao, 10th; Caddo Parish Magnet High School, Shreveport, LA

MATH019   *Classification of Small Orthomodular Posets in Quantum Logic through Clique Structures of Dacey Graphs*
https://projectboard.world/isef/project/52006
Gregory Li, 12th; Alabama School of Mathematics and Science, Mobile, AL

MATH020   *Specialized Digital Signatures Based on the Paillier Cryptosystem*
https://projectboard.world/isef/project/51988
Valentyna Zinkova, 11th; Technic Lyceum of NTUU "KPI", Kyiv, Kyiv, Ukraine

MATH021   *A Linear Constraints Based Mathematical Model for Optimizing the Production Plan of a Mask Factory*
https://projectboard.world/isef/project/52153
Tingxi Zhang, 11th; The Affiliated High School of South China Normal University, Guangzhou, Guangdong, China

MATH022   *Period-3 Point of Generalized Tent Mapping: Orbit Type and Stability Analysis*
https://projectboard.world/isef/project/52174
Yi Shuai, 12th; Huayang High School, Chengdu, Sichuan, China

MATH023   *Modeling COVID-19: Simulating the Effects of Waning Immunity Using a New Multi-Compartment Epidemiological Model*
https://projectboard.world/isef/project/52232
Shoshana Elgart, 9th; Blacksburg High School, Blacksburg, VA

MATH024   *The Mathematical Analysis of Claude Monet's Impressionistic Masterwork —Haystack*
https://projectboard.world/isef/project/52263
Ziyue Jiang, 11th; Beijing No. 8 High School, Beijing, Beijing, China

MATH025   *An Expansion of "Buffon's Needle" to Higher Dimensions: Computational Theory of Probability Using Figures and Its Application to Geometry*
https://projectboard.world/isef/project/52693
Haruki Sato, 12th; Nara Women's University Secondary School, Nara-City, Nara-Pref., Japan

MATH026   *Analyzing the Accuracy of Pre-lockdown Daily Covid-19 Reports Using Benford's law*
https://projectboard.world/isef/project/53468
Yeabkal Abeje, 10th; Eleanor Roosevelt High School, Greenbelt, MD

MATH027   *Diophantus Equations and Partially Ordered Sets*
https://projectboard.world/isef/project/54269
Addea Gupta, 12th; Sanskriti School, New Delhi, Delhi, India

MATH028   *Analyzing Computer Generated Collatz-type Fractals (Phase 2)*
https://projectboard.world/isef/project/54328
Hector Lugaro, 11th; CROEM High School, Mayaguez, Puerto Rico

MATH029T *Domain Specific Language for Differential Equations with Scott-Strachey Semantics*
https://projectboard.world/isef/project/54329
Jan-Paul Ramos, 12th; Benjamin Philippe, 12th; University Gardens High School, San Juan, Puerto Rico

MATH031   *The Structure of the Positive Monoid of Integer-Valued Polynomials Evaluated at an Algebraic Number*
https://projectboard.world/isef/project/54591
Andrei Mandelshtam, 12th; University High School, Irvine, CA

MATH034   *Lebesgue Measure Preserving Thompson's Monoid*
https://projectboard.world/isef/project/55265
William Li, 12th; Delbarton School, Morristown, NJ

MATH035   *Quadratization of ODEs: Monomial vs. Non-Monomial*
https://projectboard.world/isef/project/55283
Foyez Alauddin, 12th; Trinity School, New York, NY

MATH036   *Proposal for an Algorithm for Finding the Crossing Number of a Graph*
https://projectboard.world/isef/project/55491
Olcay Oransoy, 11th; Izmir Bahcesehir College 50. Year Science and Technology High School, Izmir, Izmir, Turkey

MATH037   *Generalizing Kirchhoff Laws for Signed Graphs*
https://projectboard.world/isef/project/55654
Peter Ye, 11th; Catlin Gabel School, Portland, OR

MATH038   *Braid Theory and Classification of Periodic Orbits of the Three-Body Problem*
https://projectboard.world/isef/project/55666
Adelina Kildeeva, 11th; School #17, Shchyolkovo, Moscow Oblast, Russian Federation

MATH039T   *Stimulating Mathematical Thinking Through the System of Geometric Exercises and Games Designed by Scratch Programming*
https://projectboard.world/isef/project/55706
Khoa Huynh, 9th; Chau Le, 9th; Nguyen Tri Phuong Lower Secondary School, Hue, Thua Thien Hue, Viet Nam

MATH040   *A Novel Approach to Estimate the Number of Asteroids in Different Belts Using Weighted Regression*
https://projectboard.world/isef/project/55834
Chloe Zhan, 9th; Hamilton High School, Chandler, AZ

MATH041   *Robinson-Schensted Correspondence and Standard Young Tableaux*
https://projectboard.world/isef/project/55837
Clara Ekback, 12th; Berzeliusskolan, Linkoping, Ostergotland, Sweden

MATH042   *Dynamic Paired Comparison Prediction Using Modified Elo Ratings*
https://projectboard.world/isef/project/55849
Julien Grijalva, 11th, Northern Utah Acadamy for Math, Engineering and Science, Layton, UT

MATH044T   *Using Advanced Predictive Modeling in a Nontraditional Discipline - The NFL Draft*
https://projectboard.world/isef/project/56251
Christopher Walker, 11th; Nathan Rachwalski, 11th; Henry W. Grady High School, Atlanta, GA

MATH045   *A Novel and Efficient Method of Persistent Homology to Detect and Remove Topological Errors in Triangle Mesh Data*
https://projectboard.world/isef/project/56359
Alexander Zhang, 11th; Lynbrook High School, San Jose, CA

MATH046T   *Analytical Solutions of Compartmental Epidemic Models and Their Application to Parameter Estimation*
https://projectboard.world/isef/project/56421
Yaduvir Harhangi, 11th; Marton Goz, 11th; Synge Street CBS, Dublin, Leinster, Ireland

MATH047   *Ramanujan Congruences for Tangent Numbers*
https://projectboard.world/isef/project/56575
Medet Jumadildayev, 10th; Nazarbayev Intellectual School of Physics and Math, Almaty, Kazakhstan

MATH048   *Classification of Tight Contact Structures on a Solid Torus*
https://projectboard.world/isef/project/56616
Jessica Zhang, 12th; Proof School, San Francisco, CA

MATH049   *Arithmetic and Algebraic Methods for Solving Multiplicative Quadratic Congruences*
https://projectboard.world/isef/project/56670
Dmitry Sukhotin, 11th; Higher School of Economics Lyceum, Moscow, Moscow, Russian Federation

MATH050   *Perfect Triangle Research and Exploration of Expansion to Four Dimensions with Using Code Design*
https://projectboard.world/isef/project/56839
Geonheung Jang, 12th; Chung-Buk Science High School, Cheongju-Si, Chungcheongbukdo, South Korea

MATH051T   *Curve Optimization Using Curvature Based Models with Calculus of Variations*
https://projectboard.world/isef/project/56841
Hyunjun Cho, 12th; Dohyeon Kim, 12th; Hyungwon Han, 12th; Korea Science Academy of KAIST, Busan, Busan, South Korea

MATH052   *Understanding the Four Color Theorem and Attempts to Prove It*
https://projectboard.world/isef/project/57383
Alexander Liedtka, 12th; Ressun Lukio IB World School, Kalevankatu 8-10th; Helsinki, Finland

MATERIALS SCIENCE

MATS001T   *Testing the Safety and Viability of a Cross-linked Starch-Based Bioplastic in Food Packaging and Food Industry Applications*
https://projectboard.world/isef/project/51739
Erin Coulon, 12th; Peyton Carter, 12th; Cascia Hall Preparatory School, Tulsa, OK

MATS002   *Investigating the Relationship Between Carburising Time and Case Depth in Steel Case Hardened by Pack Carburising, Gas Carbonitriding and Cyaniding Techniques*
https://projectboard.world/isef/project/51638
Conrad Petrovic, 12th; Broughton Anglican College, Menangle Park, NSW, Australia

MATS003   *The Hitchhiker's Guide to the Periodic Table: Which Superhard Inorganic Compounds Are Missing the Market?*
https://projectboard.world/isef/project/51732
Emin Khalifayev, 11th; Educational Complex 132-134, Baku, Absheron, Azerbaijan

MATS004   *Scalable and Sustainable Synthesis of a Novel, Bio-Based Polyurethane Foam System Incorporating Industrial Byproducts and Waste*
https://projectboard.world/isef/project/51978
Sohi Patel, 10th; College Park High School, The Woodlands, TX

MATS005   *Unique Sensor for Radiation Detection Applications*
https://projectboard.world/isef/project/51717
Sahilkrishna Vazhathodiyil, 11th; BVM Global Bollineni Hillside, Chennai, Tamilnadu, India

MATS007T   *The Development of Helicoid-Shaped Model for Increasing Flow Rate of Removing Blood Clots in Medical Treatments*
https://projectboard.world/isef/project/51747
Pittinun Harnsingkun, 12th; Patcharapol Rujipornpong, 12th; Nonthanat Wetthayanon, 12th; Princess Chulabhorn Science High School Phetchaburi, Cha-Am, Phetchaburi, Thailand

MATS008   *Construction of Thermal Conductivity Measurement Platform Based on 3-Omega Method*
https://projectboard.world/isef/project/51769
Rundong Zhou, 11th; Chongqing Bashu Secondary School, Chongqing, Chongqing, China

MATS009   *Development of Biodegradable Packaging Foam Type From Different Starches, Phase II*
https://projectboard.world/isef/project/52009
Amanda Becker, 10th; Colegio Estadual Jardim Porto Alegre, Toledo, Brazil

MATS010   *Nanotechnology Biobased on the Petiole of (Mauritia flexuosa) for Application in Sustainable Design*
https://projectboard.world/isef/project/52012
Ana Beatriz Silva, 11th; Centro Educacional ArteCeb, Imperatriz, Maranhao, Brazil

MATS011   *The Analysis of Chitosan in Reducing the Initial Burst Effect in Electrospun Nanofiber-Based Drug Delivery Systems (DDS)*
https://projectboard.world/isef/project/51791
Sunehra Chowdhury, 11th; Colleyville Heritage High School, Colleyville, TX

MATS012   *Utilization of a Polystyrene-Dense Metal Matrix to Reduce Radiation Exposure and Weight Characteristics*
https://projectboard.world/isef/project/52208
Seamus Bercher, 12th; Greybull High School, Greybull, WY

MATS014T   *Comprehensive Analysis of Biomaterial for Medical Implementation*
https://projectboard.world/isef/project/53459
Ava Bailey, 12th; Madeline Lombard, 12th; Rockdale Magnet School for Science and Technology, Conyers, GA

MATS015   *Synthesizing c-Si3N4 from Extreme Temperature and Pressure Conditions*
https://projectboard.world/isef/project/53464
Jeyan Francis Cornelio, 12th; Waipahu High School, Waipahu, HI

MATS016   *First-Principles Characterization of a Novel Chromium Doped Vanadyl-Oxide Based Cathode for Higher Energy and Efficiency Lithium-ion Batteries*
https://projectboard.world/isef/project/53492
Vedanth Iyer, 12th; Sunset High School, Portland, OR

MATS017T   *Testing the Tensile Strength of Student Engineered Starch-Based Bioplastic*
https://projectboard.world/isef/project/53776
Linnea Collett, 12th; Jadyn Sherry, 12th; Wilsonville High School, Wilsonville, OR

MATS018   *The Effects of Lattice Structure on SLA 3D Printed Piezoelectric PVDF*
https://projectboard.world/isef/project/53797
Ethan Zentner, 10th; Nicolet High School, Glendale, WI

MATS019   *Synthesis and Analysis of Graphene and Carbon Quantum Dots (CQDs) Composites Based on Epoxy Matrix*
https://projectboard.world/isef/project/53994
Mochamad Raharjo, 12th; MAN 2 Kudus, Kabupaten Kudus, Central Java, Indonesia

MATS020   *A Liquid-Liquid Extraction to Purify Magnetite Nanoparticles*
https://projectboard.world/isef/project/54003
Isaac Huber, 10th; Eldorado High School, Albuquerque, NM

MATS021T   *Supramolecular Aggregation and Fusion of Lysosomes for Improving Cellular Defense Against Bacteria*
https://projectboard.world/isef/project/54164
Hong U Fong, 11th; Sap Tou Lao, 11th; Pui Ching Middle School, Macao, Macao, China,
Macao Special Administrative Region

MATS022   *Anisotropy and Angles: A Novel Approach to Thermoelectric Energy*
https://projectboard.world/isef/project/54489
Charlotte MacAvoy, 9th; San Mateo High School, San Mateo, CA

MATS023T   *The Fabrication of Nano Sensor Technology to Detect Blood Glucose Levels in the Breath of Diabetic Patient*
https://projectboard.world/isef/project/54808
Noor Al Thani, 11th; Sama Ayoub, 12th; Qatar Academy Senior School, Doha, Al-Rayyan, Qatar

MATS024   *Polymeric Nanocomposite Coatings for the Corrosion Protection of Steels*
https://projectboard.world/isef/project/54812
Anfal Al-Sulaiti, 11th; Zubaida Secondary School for Girls, Al-Doha, Al-Doha, Qatar

MATS025   *Cyclo.Plas 2: A Dual Focus Development as Alternative Materials to Plastic by Upcycling Fish Scale Waste Components*
https://projectboard.world/isef/project/54816
Jacqueline Prawira, 11th; Mountain House High School, Mountain House, CA

MATS026T   *Synthesis of Carbon Quantum Dots and How Their Characteristics Allow for the Detection of Metal Impurities in Water*
https://projectboard.world/isef/project/54832
Ryan Varney, 12th; Benjamin Mcnamee, 12th; Belfry High School, Belfry, KY

MATS027T   *Evaluation of the Repellent Potential of Noni (Morinda citrifolia) Fruit Extract Applied in Food Packaging to Inhibit Weevils (Sitophilus spp. and Tribolium castaneum)*
https://projectboard.world/isef/project/55031
Joao Ramos Sidronio dos Santos, 12th; Igor Bruno, 12th; Diego Soares Ribeiro, 10th; Escola do SESI Aparecida do Taboado, Aparecida do Taboado, Mato Grosso do Sul, Brazil

MATS028   *Mechanical Properties of Crayfish Claws: Getting Inspiration from Nature*
https://projectboard.world/isef/project/55057
Kunal Chawla, 9th; West Lafayette Junior/Senior High School, West Lafayette, IN

MATS029T   *On-Demand Release of Drug from Magnetic Nanoparticle-Loaded Alginate Beads*
https://projectboard.world/isef/project/55155
Minh Vu, 10th; Minh Nguyen, 10th; Nguyen Tat Thanh Lower and Upper Secondary School, Hanoi, Viet Nam

MATS030T   *Magnetite Nanoparticles Coated with Oleic Acid for Removal of Toxic Elements*
https://projectboard.world/isef/project/55234
Farah AlZaatreh, 11th; Nagham AlHourani, 11th; King Abdullah II School for Excellence - Maddaba, Maddaba, Jordan

MATS031T   *An Experimental Approach to Construct an Organic Slab*
https://projectboard.world/isef/project/55292
Maha Khan, 11th; Umme Barira, 11th; PakTurk International Schools and Colleges, Gulshan-e-Iqbal Girls Campus, Karachi, Sindh, Pakistan

MATS032   *A Novel Hard/Soft Spinel Ferrite Nanocomposite as Potential Electrode Material for a Supercapacitor*
https://projectboard.world/isef/project/55503
Dana AlDahmash, 12th; AlBassam Schools, Dammam, Saudi Arabia

MATS033   *Novel Approach to Enhance Oil Recovery Using Superhydrophobic/Oleophilic Self-Cleaning PP/MWCNT/WO3 Material*
https://projectboard.world/isef/project/55505
Jana AlSinan, 9th; Dhahran Ahliyya School, Dammam, Eastern Province, Saudi Arabia

MATS034   *Fabrication of Self-charging Supercapacitor Using LASER-assisted Self-synthesized Carbon Quantum Dots*
https://projectboard.world/isef/project/55507
Arwa Niyazi, 12th; University Schools, Dhahran, Eastern Province, Saudi Arabia

MATS035   *Investigation and Design of Two-Dimensional Nanomaterial Biosensors for Breath-Based COVID-19 Detection Using Density Functional Theory*
https://projectboard.world/isef/project/55711
Stephen Xia, 10th; The Harker School, San Jose, CA

MATS036   *Spectral and Waveform Properties of 3D-Printed Violins and How to Improve Upon Them*
https://projectboard.world/isef/project/55713
Colin Daugherty, 10th; South River High School, Edgewater, MD

MATS037T   *InnovaStrip: Fast, Comprehensive, Small-Volume Blood Diagnostics via an Algorithm for Handheld Analysis of Rapidly Solidified Drops into Thin Films*
https://projectboard.world/isef/project/55833
Nikhil Suresh, 12th; Thilina Balasooriya, 11th; Wesley Peng, 11th; BASIS Scottsdale, Scottsdale, AZ

MATS038   *Surface Modifications of Cellulose Acetate Film for the Applications of Face Shields*
https://projectboard.world/isef/project/56030
Sunwoo Lee, 11th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

MATS039   *Manganese Nanoparticle Synthesis Using Various Capping Agents and the Effects of Nanoparticles on Raphanus Sativus: A Second Year Study*
https://projectboard.world/isef/project/56031
Taytum Stratton, 10th; Canyon View High School, Cedar City, UT

MATS040   *The Difference in Performance Between Sintered and Unsintered Ultra High Molecular Weight Polyethylene Runner Base*
https://projectboard.world/isef/project/56036
Maria Torgerson, 12th; Bozeman High School, Bozeman, MT

MATS041   *Study on Exceptional Hydrogen Storage in High Entropy Alloys*
https://projectboard.world/isef/project/56043
Jihye Heo, 11th; Seoul International School, Seoul, Gyunggi-Do, South Korea

MATS042   *Optimization of Pressure Sensitive Adhesive Properties Through Incorporation of Moisture-Absorbing Particles*
https://projectboard.world/isef/project/56221
Lina Huang, 11th; Phillips Exeter Academy, Exeter, NH

MATS043   *Magnetic control of arbitrarily shaped objects with Gallium-Based Transitional Ferrofluid*
https://projectboard.world/isef/project/56355
Jiashu Cheng, 11th; Culver Academies, Culver, IN

MATS044T   *A Study on the Improvement of Contact Angle and Anti-Condensation Performance by Nano-Coating Treatment of Metal Surfaces*
https://projectboard.world/isef/project/56368
Dongmin Kim, 12th; Hyunwoo Bae, 12th; Dongmin Sim, 12th; Incheon Jinsan Science High School, Incheon, South Korea

MATS045   *Targeted Core-Shell Nanoassembly Composed of a Mesoporous Silica Core, Liposome Shell, and GE11 Peptide as a Drug Delivery Nanocarrier*
https://projectboard.world/isef/project/56375
Kailyn Grant, 11th; Bob Jones High School, Madison, AL

MATS046   *Developing a Flexible, Stretchable, and Conductible*

Polyurethane/Liquid Metal Composite for Future Electronics
https://projectboard.world/isef/project/56491
Kasey Xu, 10th; St. John's School, Upper Tumon, Guam

MATS047   *Enhancing the Competence of the Artificial Stone*
https://projectboard.world/isef/project/56666
Saif Jabari, 12th; Al Hussein Bin Ali Secondary School, Hebron, Hebron, Palestine

MATS048   *Engineering an Invasive Algae and Taro Based Bioplastic*
https://projectboard.world/isef/project/56699
Kelly Mukai, 12th; Iolani School, Honolulu, HI

MATS049   *Carbon Dioxide Conversion to Hydrocarbon Fuel Utilizing Metal Catalyst*
https://projectboard.world/isef/project/56711
Christopher Huh, 11th; Westwood High School, Austin, TX

MATS050   *Year Two: Digital Light Processing Printing of Hierarchical Porous Carbon for Environmental Remediation and Water Desalination*
https://projectboard.world/isef/project/56748
Howard Hua, 12th; Wheeler High School, Marietta, GA

MATS051   *Controlled Release of Statin Drugs Via Hydrogel Implants*
https://projectboard.world/isef/project/56757
Naisha Chowdhury, 11th; Pleasant View School, Memphis, TN

MICROBIOLOGY

MCRO001T *Bacteriophages in a Fight against Serratia marcescens*
https://projectboard.world/isef/project/51694
Kaja Zupanic, 11th; Misa Pintaric, 11th; Srednja Gradbena Sola in Gimnazija Maribor II Gimnazija Maribor, Maribor, Stajerska, Slovenia

MCRO002 *Generating a Non-toxic, Multi-pathway Targeted Cocktail Treatment Composed of N-Acetylcysteine, Carvacrol, and DNase to Inhibit Pseudomonas Biofilm Proliferation in vitro*
https://projectboard.world/isef/project/51844
Shriya Bhat, 10th; Plano East Senior High School, Plano, TX

MCRO003 *Sugar and Spice, Aren't They Nice? Is Garlic, Ginger, Cinnamon, or Honey More Effective than Antibiotics against Bacteria?*
https://projectboard.world/isef/project/51248
Kadie Mariano, 9th; Wildwood High School, Wildwood, FL

MCRO004 *Acne Medication Against E. coli*
https://projectboard.world/isef/project/51703
Tiffani McClain, 9th; Jasper County High School, Monticello, GA

MCRO005T *Prophylactic and Therapeutic Roles of Glycyrrhiza glabra in the Prevention and Treatment of COVID19*
https://projectboard.world/isef/project/51684
Abhishek Kona, 11th; Abhinav Kona, 11th; George Walton Comprehensive High School, Marietta, GA

MCRO006T *Applications of Silver Nanoparticles to Flooring*
https://projectboard.world/isef/project/51685
Cindy Pinedo, 12th; Mehreen Sabah, 12th; Paulding County High School, Dallas, GA

MCRO008 *A Multi-Factor Study Deriving a Comprehensive Evaluation of Natural Antibiotic Hybrids Bound to Novel Nanoreactors in an Inorganic Model of an Enterococcus faecalis Infected Jejunum Cross-Analyzed through Static Biofilm Production and Quorum Sensing (Year 5)*
https://projectboard.world/isef/project/51787
Om Patel, 11th; Eau Gallie High School, Melbourne, FL

MCRO009 *Potential Probiotic Therapy of Inhibitory Commensal S. epidermidis on Decolonization/Treatment of MRSA and C. acnes and Their Infections*
https://projectboard.world/isef/project/51888
Vincent Xin, 11th; Shanghai American School - Puxi Campus, Shanghai, Shanghai, China

MCRO010 *Prevention of Healthcare Associated Infections using Antibacterial Boron Carbonitride Nanoparticle Coating on Medical Devices*
https://projectboard.world/isef/project/51790
Varsha Naga, 11th; Winter Springs High School, Winter Springs, FL

MCRO011 *The Surprise in the Slime: Sulfate-Reducing Bacteria and Iron-Related Bacteria in Public-Use Fountain Biofilms in Hot Springs National Park*
https://projectboard.world/isef/project/51857
Alyssandra Navarro, 12th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

MCRO012 *Testing the Antibacterial Effectiveness of Yunnan Baiyao, Propolis, Turmeric, and Tea Tree Oil on the Growth of Escherichia coli (E. coli) and Bacillus subtilis in Comparison to Antibiotics on an Agar Plate*
https://projectboard.world/isef/project/51851
Vanessa Kinley, 10th; Bonita Springs High School, Bonita Springs, FL

MCRO013 *The Discovery, Analysis, and Characterization of Novel Mycobacteriophage PetiteSangsue*
https://projectboard.world/isef/project/51993
Samirah Salifu, 11th; The Carol Martin Gatton Academy of Mathematics and Science in Kentucky, Bowling Green, KY

MCRO014 *Exploring the Mechanism of Bacterium in Tumor Therapy: Comparison of Immuno-activity of Lipopolysaccharide from Salmonella enterica and Salmonella typhimurium*
https://projectboard.world/isef/project/52165
Mingjiu Zhao, 11th; Shanghai Foreign Language School Affiliated to SISU, Shanghai, China

MCRO015 *Effects of Pseudoxanthomonas Combined with Other Beneficial Bacteria Against Pepper Fusarium Wilt*
https://projectboard.world/isef/project/52169
Yuhang Shen, 11th; Beijing No. 4 High School, Beijing, Beijing, China

MCRO017   *Viral Abundance in Terrestrial Cyanobacteria Differs as a Function of Host Ecology*
https://projectboard.world/isef/project/52225
Esha Mathur, 12th; University High School, Tucson, AZ

MCRO018   *Diversity of Arctic Ice Bacteria in Relation to Position and Distance from the Shore*
https://projectboard.world/isef/project/52233
Katelyn Collett, 12th; Southwest Virginia Governor's School, Pulaski, VA

MCRO019T   *Algae Facade Technology in Improving Air Quality and Building Health: Analysis of Microclimate and Growth of Aspergillus sp*
https://projectboard.world/isef/project/52679
Muhammad Algifari, 12th; Ridzik Daniel, 11th; SMA Sukma Bangsa Lhokseumawe, Lhokseumawe, Aceh, Indonesia

MCRO020   *Evaluating Cinnamaldehyde as an Antibacterial Agent in a Produce Wash for Leafy Greens*
https://projectboard.world/isef/project/53473
Allison Drennan, 11th; Lebanon High School, Lebanon, MO

MCRO021   *The Premises of Applying Computational Algorithms to Enhance Microbiological Studies Through Stimulation of Laplacian of Gaussian (LoG) Kernels*
https://projectboard.world/isef/project/53787
Audrey Meadows, 11th; Martin Luther King High School, Riverside, CA

MCRO022T   *The Relationship Between Fe Availability and the Capacity of CO_2 Sequestration by Tretaselmis chuii*
https://projectboard.world/isef/project/53798
Diogo Heleno, 12th; Joana Couto, 12th; Beatriz Fernandes, 12th; Escola Secundaria Engenheiro Acacio Calazans Duarte, Marinha Grande, Leiria, Portugal

MCRO024   *Comparison of Nickel Chelator to Current Standard Triple Antibiotic Therapy to Treat Helicobacter pylori Infection*
https://projectboard.world/isef/project/54109
Meena Ramadugu, 11th; John F. Kennedy High School, Cedar Rapids, IA

MCRO026   *Bioprospects Capable of Inhibiting the Proliferation of Pathogens (fungi) Affecting Musa acuminata x Musa balbissiana*
https://projectboard.world/isef/project/54330
Mireilys Rodriguez-Reyes, 12th; Specialized School of Science and Mathematics Genaro Cautino Vazquez, Guayama, Puerto Rico

MCRO027   *mRNA-based Vaccine for the Prevention of Yellow Fever*
https://projectboard.world/isef/project/54405
Maya Joshi, 10th; Walter Payton College Preparatory High School, Chicago, IL

MCRO028   *The Effect of Coronavirus Species on the Binding Strength to a Neutralizing Antibody*
https://projectboard.world/isef/project/54500
Monona Zhou, 9th; Mills E. Godwin High School, Henrico, VA

MCRO029   *How Does Endophytic Bacteria Affect the Growth of Plant Pathogenic Fungi?*
https://projectboard.world/isef/project/54592
Madison Adkins, 10th; Lincoln Park Academy, Fort Pierce, FL

MCRO030   *Isolation of Enterobacter aerogenes and Micrococcus luteus Bacteriophages from Environmental Sample*
https://projectboard.world/isef/project/54611
Nathaniel Jobe, 12th; San Juan College High School, Farmington, NM

MCRO031   *PCR Pandemonium: A Study of Thermophilic Bacteria DNA Polymerases and Their Application in PCR*
https://projectboard.world/isef/project/54807
Sierra Lutz, 12th; Farmington High School, Farmington, UT

MCRO033   *Structural Deduction and Environmental Analysis of Novel Tirofiban and Coumarin Derivatives Originating from the Endophytic Isolate FM1005 (Xylaria sp.)*
https://projectboard.world/isef/project/54825
Lela DeVine, 12th; Waiakea High School, Hilo, HI

MCRO034   *Fungitoxic Potential of Different Plant Extracts on the in vitro Development of the Fungus that Causes Anthracnose in Banana Fruits, Phase IV*
https://projectboard.world/isef/project/55030
Ana Carolina Goncalves Selva, 12th; Colegio Estadual Jardim Porto Alegre, Toledo, Brazil

MCRO035   *Smiglacide-C: A Novel Antibacterial Saponin from Annona muricata*
https://projectboard.world/isef/project/55037
Dheiksha Jayasankar, 11th; Sir Winston Churchill Secondary School, St. Catharines, Ontario, Canada

MCRO036 *Efficacy of Antimicrobial Polylactic Acid Plastic Food Storage Films*
https://projectboard.world/isef/project/55044
Libby Knipper, 10th; Beckman Catholic High School, Dyersville, IA

MCRO037 *Comparative Inhibition of E. coli Growth by Commercial and Homemade Hand Sanitizers*
https://projectboard.world/isef/project/55051
Jessica Douglass, 12th; Emmett High School, Emmett, ID

MCRO038 *A Comparison of Bacterial Contamination of Nine Public Surfaces*
https://projectboard.world/isef/project/55054
Lindsey Holtom, 11th; Hillcrest High School, Ammon, ID

MCRO039 *Effect of Bacteria and Fungal Interactions on Mosquito Egg Hatching*
https://projectboard.world/isef/project/55055
Jadyn Henry, 12th; Southeastern Junior/Senior High School, Augusta, IL

MCRO040 *Cross-species Transmission of Drosophila melanogaster Nora Virus in Other Drosophila Species and Effect on Geotaxis*
https://projectboard.world/isef/project/55062
Ella Buhlke, 11th; Central City High School, Central City, NE

MCRO041 *Avian Paramyxovirus Serotype 4 (APMV-4) Promotes Greater Rates of Apoptotic Cell Death & Stimulated Immune Responses in Malignant Melanoma and Relapse Cancers with Respects to Newcastle Disease Virus (NDV): The Characterization of a Novel Oncolytic Virus*
https://projectboard.world/isef/project/55069
Christopher Alexander, 12th; Elmont Memorial Junior-Senior High School, Elmont, NY

MCRO042 *Recombinant Bacteria Capable of Expressing Type I Collagen Proteins*
https://projectboard.world/isef/project/55075
Simon Bickford, 12th; Roncalli High School, Aberdeen, SD

MCRO043 *Distinguishing Bacterial Motion Quantitatively: A Diagnostic Method for Intestinal Disease*
https://projectboard.world/isef/project/55285
Neha Mani, 12th; Hunter College High School, New York, NY

MCRO044 *The Anti Eczemal (Anti Fungal) Oil : A Herbal Medical Cure to Eczema*
https://projectboard.world/isef/project/55293
Syed Sibtey Hasan, 10th; Sultan Mahomed Shah Aga Khan School, Karachi, Sindh, Pakistan

MCRO045 *Probiotics in the Fight Against Stony Coral Tissue Loss Disease*
https://projectboard.world/isef/project/55306
Anabella Platt, 9th; Hilton Head Preparatory School, Hilton Head Island, SC

MCRO046 *FD028: A Bifunctional HIV-1 Inactivator Acts Before Host Cell Entry*
https://projectboard.world/isef/project/55676
Giselle Rasquinha, 12th; Syosset High School, Syosset, NY

MCRO048 *Testing the Extent of Synergistic Anti-biofilm Activity of Galla chinensis and Potentially Adjuvant Chemicals on Escherichia coli Biofilm Formation and Reformed Biofilm*
https://projectboard.world/isef/project/55845
Angelina Ning, 11th; American Heritage School of Boca Delray, Delray Beach, FL

MCRO049 *Creating Highly Efficient Auxin-Producing Soil Bacteria to Promote Crop Growth*
https://projectboard.world/isef/project/55873
Gary Zhan, 11th; Logan High School, Logan, UT

MCRO050 *Dissecting the Black Walnut*
https://projectboard.world/isef/project/55887
Alexia Munson, 9th; Grants High School, Grants, NM

MCRO051 *Characterizing the Role of PA2803 Protein in Antibiotic Resistance in Bacteria*
https://projectboard.world/isef/project/55917
Anna Khanov, 11th; Stillwater High School, Stillwater, OK

MCRO052 *The Effect of Natural Antimicrobials on Ampicillin Resistant E.coli and E.coli K12*
https://projectboard.world/isef/project/56081
Kayla Parrett, 11th; Taunton High School, Taunton, MA

MCRO053 *Presence of Wolbachia in Wild Adult Lycorma delicatula*
https://projectboard.world/isef/project/56157
Erin Horack, 12th; Conrad Weiser High School, Robesonia, PA

MCRO054T *Enhancement of Flavor and Taste by Fermenting Coffee Beans with Six Mixed Microbes from Traditional Korean Liquors*
https://projectboard.world/isef/project/56178
Saeng Myong Cho, 12th; Sung Jun Lim, 12th; Sae Rom Pak, 12th; Chung-Buk Science High School, Cheongju-Si, Chungcheongbukdo, South Korea

MCRO055 *Anti-VOCs and Antimicrobial Activity of Natural Palm Waste Cellulose Fibers/ZnO Nanoparticles Biocomposite for Use in Face Masks: The GBV99*
https://projectboard.world/isef/project/56213
Lama AlQahtani, 11th; AlBassam Schools, Dammam, Saudi Arabia

MCRO056 *Short-Chain Fatty Acid Production: Predictive Functional and Genomic Analysis of the Microbiota in Crohn's Disease for Novel Plasmid-Based Therapy*
https://projectboard.world/isef/project/56412
Alice Khomski, 11th; Boston University Academy, Boston, MA

MCRO057 *Romaine Calm: Using a Phage-Enzyme Combination to Treat E. coli Contamination in Produce*
https://projectboard.world/isef/project/56417
William Hummel, 11th; Brookings High School, Brookings, SD

MCRO058 *Evaluation of Phosphatase Genes in Aspergillus fumigatus for Viability as Novel Therapeutic Targets, Year Two*
https://projectboard.world/isef/project/56423
Emily Dean, 12th; Woodstock Union High School Middle School, Woodstock, VT

MCRO059 *Plasmids of Curtobacterium: a Nexus of Carbohydrate Utilization Genes*
https://projectboard.world/isef/project/56619
Pranav Moudgalya, 11th; University High School, Irvine, CA

MCRO060 *Structural Changes of the SARS CoV-2 Spike Protein in Varying Salt Concentrations*
https://projectboard.world/isef/project/56621
Amy Feng, 11th; Pittsford Sutherland High School, Pittsford, NY

MCRO061 *How Effective are Expired Antibiotics in Killing Escherichia coli?*
https://projectboard.world/isef/project/56682
Gabrielle Gayapa, 9th; South Pacific Academy, Pago Pago, American Samoa

MCRO062 *In vitro Evaluation of a Herbal Bionematicide and Its Effect on the Management of Nematodes in Solanum iycoperiscum*
https://projectboard.world/isef/project/56696
Shloke Patel, 10th; Hillsborough High School, Tampa, FL

MCRO064T *Effect of Aquaspirillum itersonii and Aquaspirillum serpens on Duckweed*
https://projectboard.world/isef/project/56767
Brian Mills, 12th; Maggie Hopkins, 11th; St. Clair High School, St.Clair, MO

MCRO065T *EX-BAC: The Extraction of Chitin and Chitosan from the Waste of Shrimp Shells and Potato Peels Mix with TiO2 as an Eco-friendly and Effective Bacteriostatic Agent*
https://projectboard.world/isef/project/56813
Eugene Lim, 11th; Daniel Yi Heng Leong, 11th; Chung Ling High School Penang, Georgetown, Penang, Malaysia

MCRO067 *To Dye or Not to Die: Bacterial Mutagenicity and Carcinogenesis*
https://projectboard.world/isef/project/57002
Tahlor Johnson, 12th; The Governor French Academy, Belleville, IL

PHYSICS AND ASTRONOMY

PHYS001   *Underwater Golf: An Evaluation of the Effects of Organized Surface Irregularities on the Hydrodynamic Efficiency of Underwater Projectiles*
https://projectboard.world/isef/project/51714
Gustavo Toledo, 12th; Edgewood Junior Senior High School, Merritt Island, FL

PHYS002   *Visualization of Three-Dimensional Aerospike Nozzle Flow Using Schlieren Photography*
https://projectboard.world/isef/project/51651
Melanie Deville, 11th; Westminster Christian School, Palmetto Bay, FL

PHYS003   *The Use of an Inkjet Printer to Dispense Chlorophyll Photosynthetic Dye onto the Cell Substrate to Aid the Creation of the Cell*
https://projectboard.world/isef/project/51813
Sydney Feldbush, 11th; West Shore Junior/Senior High School, Melbourne, FL

PHYS004   *Optimization of Phased Array Antenna Systems for 3D Surfaces*
https://projectboard.world/isef/project/51755
Akash Anand, 11th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

PHYS005   *A General Vector Theory of the Dynamics of a Rapidly Rotating Top*
https://projectboard.world/isef/project/51816
Alexander Gray, 12th; Barker College, Sydney, New South Wales, Australia

PHYS006   *Mapping the Extent of Neutral Hydrogen Cloud Near Sagittarius A* at 1420 MHz*
https://projectboard.world/isef/project/51917
Elizabeth Sundheim, 12th; Berthoud High School, Berthoud, CO

PHYS007   *Visual Appearance of Extended Objects in Special Relativity*
https://projectboard.world/isef/project/51764
Utkarsh Bajaj, 12th; DPS International, New Delhi, Delhi, India

PHYS008   *Investigating Chaotic Convection Using a Lorenz Water Wheel and a Model of the Lorenz Attractors in R*
https://projectboard.world/isef/project/51916
Kathryn Kummel, 12th; William J. Palmer High School, Colorado Springs, CO

PHYS009   *Improving the Dipole Trap: The Way to Ultracold Gas*
https://projectboard.world/isef/project/51626
Dmitrii Khitrin, 12th; Lyceum #40, Nizhny Novgorod, Nizhny Novgorod Region, Russian Federation

PHYS010   *Detection and Characterization of Astronomical Dwarfs using CatWISE*
https://projectboard.world/isef/project/51918
Tarun Kota, 11th; Eastview High School, Apple Valley, MN

PHYS011   *Analyzing the Impact of Drafting in Cross Country Skiing with Computational Fluid Dynamics*
https://projectboard.world/isef/project/51826
Austin Hunter, 12th; Minnetonka High School, Minnetonka, MN

PHYS012   *Radio Emissions of Anomalous X-ray Pulsars*
https://projectboard.world/isef/project/51923
Leon Garcia, 10th; Corvallis High School, Corvallis, OR

PHYS013   *A Multifunctional Hamiltonian Mechanics Simulator and Some of Its Application Examples*
https://projectboard.world/isef/project/51748
Youqiu Zhan, 11th; High School Affiliated to Shanghai Jiao Tong University, Shanghai, Shanghai, China

PHYS014   *Non-linear Dynamics of Confined Leidenfrost Droplet: A Video-based Analysis*
https://projectboard.world/isef/project/51762
Tianrui Wu, 12th; Hangzhou Foreign Languages School, Hangzhou, Zhejiang, China

PHYS015   *The Effects of Mass and Grade on Cycling Effort*
https://projectboard.world/isef/project/51999
Lucas Staten, 9th; Bonneville High School, Washington Terrace, UT

PHYS016   *Modeling Type Ia Supernovae Hydrodynamics Using Walking Droplets*
https://projectboard.world/isef/project/51797
Rafael de Farias, 12th; Lubbock High School, Lubbock, TX

PHYS017   *Dynamic Contact Angle Measurements of Superhydrophobicity in Dip-Coated Face Masks to Minimize Exposure to COVID-19 Sized Nanoparticles*
https://projectboard.world/isef/project/51855
Annika Vaidyanathan, 11th; Winter Springs High School, Winter Springs, FL

PHYS018   *Finding the Optimal Water Fraction for Maximum Launch Height of Compressed-Air Bottle Rockets*
https://projectboard.world/isef/project/52002
Emma King, 10th; Bartlesville High School, Bartlesville, OK

PHYS019   *A Laser Spot as a Line Thermal Gradient Sensor for Non-Equilibrium Complexes*
https://projectboard.world/isef/project/51984
Yu-You Luo, 11th; National Chiayi Senior High School, Chiayi City, Taiwan

PHYS020   *Investigation of Self-Oscillations in Hydrodynamic Systems*
https://projectboard.world/isef/project/51951
Viktor Ulanov, 11th; Dnipro Lyceum of Information Technologies at DNU, Dnipro, Dnipropetrovsk Oblast, Ukraine

PHYS021   *Computing the Atmospheric Mass Loss of Exoplanets from Stellar Wind of Main Sequence Stars*
https://projectboard.world/isef/project/51902
Ashini Modi, 11th; Caddo Parish Magnet High School, Shreveport, LA

PHYS022   *Why Do Beginners Produce Noise Instead of Music When They Play Musical Instruments? —Taking Erhu for Example*
https://projectboard.world/isef/project/52147
Wanjia Fu, 11th; Shanghai Foreign Language School Affiliated to SISU, Shanghai, China

PHYS023   *Quantum Cosmology: An Exploration of the Origins of the Universe and Quantum Physics*
https://projectboard.world/isef/project/52240
Komal Kaur, 11th; Chino Hills High School, Chino Hills, CA

PHYS024T   *Mechanism of Supernumerary Rainbows*
https://projectboard.world/isef/project/52689
Takuto Murata, 11th; Kenta Mizuyoshi, 11th; Saitama Prefectural Yono High School, Saitama, Saitama, Japan

PHYS025T   *Performance Evaluation of a Supercomputer Made from Discarded PCs*
https://projectboard.world/isef/project/52695
Toshifumi Komatu, 11th; Kosuke Oya, 11th; Yasutaka Tokumaru, 11th; Makuhari Senior High School, Chiba, Chiba, Japan

PHYS026T   *Designing Cups to Adjustable to the Changing Temperatures of Viscous Liquids*
https://projectboard.world/isef/project/52696
Mana Kawano, 12th; Motoka Nagata, 12th; Hiroshima University High School, Hiroshima, Japan

PHYS027   *Mapping Dark Matter Signals*
https://projectboard.world/isef/project/53487
Kenta Sakamoto, 11th; President Theodore Roosevelt High School, Honolulu, HI

PHYS028   *Quantum Machine Learning Simulation of Higgs Boson Charge Parity Symmetry Violation*
https://projectboard.world/isef/project/53497
Lane Braun, 12th; Beaverton Academy of Science and Engineering, Hillsboro, OR

PHYS029   *Predicting the Impact of Stellar Kinematics and Dynamics on Habitability in the Milky Way*
https://projectboard.world/isef/project/53504
Camille Chiu, 12th; College Station High School, College Station, TX

PHYS030T   *Modeling Coronal Faraday Rotation of Radiation from Extragalactic Radio Sources*
https://projectboard.world/isef/project/53773
Vance Kreider, 12th; Aditi Chandrashekar, 12th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

PHYS031T   *A Mathematically Driven Physical Analysis into Exoplanet Detection Confirmation Surveys Using Bayesian Inferential Statistics, Machine Learning/Linear Algebra Sklearn and TensorFlow Techniques, the BATMAN Python Programming Library, 3D Printing Techniques*
https://projectboard.world/isef/project/53779
Ethan Chandra, 11th; Pratham Babaria, 11th; Harmony School of Endeavor, Austin, TX

PHYS032   *A Novel Method for Identifying Kepler Exoplanet Habitability Using Python-Based Analysis of Standardized Transit Light Curves and Calculated Parameter Values*
https://projectboard.world/isef/project/53783
Michelle Park, 11th; Solon High School, Solon, OH

PHYS033   *Study of the Statistical Effect of Data Whitening and Anomalous Behaviour in Gravitational Wave Events*
https://projectboard.world/isef/project/53792
Joao Dinis Alvares, 12th; Escola Secundaria Dona Maria II, Braga, Portugal

PHYS034T   *Radio Watching: Modelling of Radio Wave Fire Detection*
https://projectboard.world/isef/project/53793
Andre Ribeiro, 12th; Larissa Andrade, 12th; Agrupamento de Escolas Clara de Resende, Porto, Norte, Portugal

PHYS035   *Musical Harmony and Dissonance: The Mathematical Quantification and Analysis of Two-Note Intervals on the Piano*
https://projectboard.world/isef/project/53795
Maxwell Tsai, 10th; Oregon Episcopal School, Portland, OR

PHYS036   *The Effect of a Paper Airplane's Wing Shape on the Distance the Paper Airplane Can Fly*
https://projectboard.world/isef/project/54091
Makaylee Haynes, 9th; Hedgesville High School, Hedgesville, WV

PHYS037   *Data-Driven Approaches to Pulsar Glitch Triggers, Evolution, and Universality*
https://projectboard.world/isef/project/54093
Christine Ye, 11th; Eastlake High School, Sammamish, WA

PHYS038   *Evolution of the Cat's Eye Nebula Revealed Through Morpho-Kinematic and Hydrodynamic Modeling*
https://projectboard.world/isef/project/54117
Ryan Clairmont, 11th; Canyon Crest Academy, San Diego, CA

PHYS039   *The Age of the Coma Ber Cluster Constrained Using Amateur Data*
https://projectboard.world/isef/project/54118
Andrew Li, 10th; Canyon Crest Academy, San Diego, CA

PHYS040   *Earthquakes in the Inner Ear: A Novel Finite Element Simulation Modelling the Mechanism of the Basilar Membrane & Hair Cells*
https://projectboard.world/isef/project/54125
Hannah Shu, 10th; Carmel High School, Carmel-By-The-Sea, CA

PHYS041   *Alive Rover Wheel*
https://projectboard.world/isef/project/54159
AbdelRahman AlHroob, 11th; Jubilee School, Amman, Jordan

PHYS042T   *Measurement of Film Thickness of Antibubble Using Interference of Transmitted Light*
https://projectboard.world/isef/project/54193
Yui Tokimoto, 12th; Chika Enomoto, 12th; National Institute of Technology, Tsuyama College, Tsuyama City, Okayama, Japan

PHYS043   *The Effect of Annealing on Cluster Formation*
https://projectboard.world/isef/project/54408
James Gonzalez, 11th; duPont Manual High School, Louisville, KY

PHYS044T   *Go With the Flow*
https://projectboard.world/isef/project/54821
Brody Leisinger, 11th; Madeline Knox, 11th; Highmore Harrold, Highmore, SD

PHYS045   *Identification of Albedo Variegations on Asteroid Surfaces Through Comparisons Between Optical and Infrared Datasets*
https://projectboard.world/isef/project/55027
Jack Nowinski, 11th; Academies of Loudoun, Leesburg, VA

PHYS046   *An Investigation of a Dark Sector Interaction Model to Solve the Hubble Tension*
https://projectboard.world/isef/project/55038
Angela Zhou, 11th; Magee Secondary School, Vancouver, British Columbia, Canada

PHYS047   *Periodicity Felicity: Identification of Binary Black Hole Candidates through Robust Light Curve Analysis*
https://projectboard.world/isef/project/55060
Rohan Ojha, 11th; Montgomery Blair High School, Silver Spring, MD

PHYS048   *Search for Bennu-like Main Belt Asteroids*
https://projectboard.world/isef/project/55258
Ariel Priel, 11th; Yeshivat Bnei Akiva Givat Shmuel, Givat Shmuel, Central District, Israel

PHYS049T   *Crater Correlations: A Morphological Analysis on Lunar and Mercurian Simple Impact Craters*
https://projectboard.world/isef/project/55282
Michelle Wu, 11th; Jasmine Palma, 11th; Townsend Harris High School, Flushing, NY

PHYS050   *The Fast and Inconspicuous: New Near Earth Asteroids Discovered Using Deep Learning and Synthetic Data Are Fainter and Move Faster than Those Previously Discovered*
https://projectboard.world/isef/project/55298
Franklin Wang, 11th; Palo Alto Senior High School, Palo Alto, CA

PHYS051   *Blood Glucose Monitoring Using a Biosensor Based on Porous Silicon (pSi).*
https://projectboard.world/isef/project/55308
Vladimir Sidorov, 11th; Municipal School #148, Samara, Samara Oblast, Russian Federation

PHYS052T   *The Research of the Dynamics of Charged Particles in a Quadrupole Paul Trap*
https://projectboard.world/isef/project/55309
Leonid Shmyrkov, 12th; Kirill Klimeshov, 11th; University Lyceum No. 1511th; Moscow, Moscow, Russian Federation

PHYS053   *Spatial Distribution of Known Exoplanets and Potentially Habitable Exoplanets within 100- Light Years from Earth*
https://projectboard.world/isef/project/55311
Mirelys Mendez-Pons, 12th; Escuela Superior Josefa Velez Bauza, Penuelas, PR

PHYS054   *Optimal Measurement of Field Properties with Quantum Sensor Networks*
https://projectboard.world/isef/project/55341
Timothy Qian, 12th; Montgomery Blair High School, Silver Spring, MD

PHYS055   *Study of Ultraviolet Light on Graphene Oxide/Nitrocellulose Films for Surface Protection*
https://projectboard.world/isef/project/55504
Sultanah AlEssa, 11th; AlBassam Schools, Dammam, Saudi Arabia

PHYS056   *Stained Barriers Influence on InGaAsN Quantum Well Laser Diodes*
https://projectboard.world/isef/project/55527
Hussam Ashour, 12th; Dar Althikr Private School, Jeddah, Mecca, Saudi Arabia

PHYS057   *A New Model to Explore the Quarks' Inner Structure in the Proton State Using the 3D Isotropic Harmonic Oscillator*
https://projectboard.world/isef/project/55528
Lana AlAbbasi, 12th; 18th Secondary School, Jeddah, Western Region, Saudi Arabia

PHYS058   *The Science of Rocketry*
https://projectboard.world/isef/project/55538
William Hejtmanek, 9th; Milnor High School, Milnor, ND

PHYS059T   *Transportation of the Future: How the Variance of Diamagnetic Properties Apply to Transportation*
https://projectboard.world/isef/project/55681
Joshua Hilbig, 10th; Jaci Moss, 10th; Woods Cross High School, Woods Cross, UT

PHYS060   *EXoplanet ConfIrmaTIoN throuGh transits (EXCITING): Determining False Positives for Exoplanet Candidates*
https://projectboard.world/isef/project/55844
Haedam Im, 11th; University High School, Irvine, CA

PHYS061   *Jetting into the Future: Calculating Outlet Air Velocity to Optimize Convergent Nozzle Design for Subsonic Exhaust Flow Efficiency Through Wind Tunnel Testing with Laminar Flow*
https://projectboard.world/isef/project/55868
Matthew Alcantara, 10th; Carmel High School, Carmel, IN

PHYS062   *Analyzing the Photometry of Star Cluster Messier 39: Creation of Color Magnitude Diagram, Age Calculation, and Distance Measurement*
https://projectboard.world/isef/project/55897
Kathryn Postiglione, 12th; Lynbrook Senior High School, Lynbrook, NY

PHYS063   *Analyzing Historical Polarization and Orbit Data from Relativistic Heavy Ion Collider (RHIC) Runs*
https://projectboard.world/isef/project/55911
Taylor Fox, 12th; Manhasset High School, Manhasset, NY

PHYS064   *Direct Energy Conversion in a Portable, High-Energy Quantum-Nuclear Reactor Based on Electrohydrodynamic Power Cell Dynamics*
https://projectboard.world/isef/project/56038
Aakash Sunkari, 12th; North Attleboro High School, North Attleboro, MA

PHYS065T   *Mathematical Analysis of an Effective Negative Mass Rocket Propulsion System Along a Linear Trajectory to Mars*
https://projectboard.world/isef/project/56065
Medha Tambe, 11th; Taneesha Kapadia, 11th; Hamilton High School, Chandler, AZ

PHYS066   *Development of New Theory for Superior Mirage and Fata Morgana Mirage*
https://projectboard.world/isef/project/56067
Kamonsap Sapmee, 12th; Benjamarachutit School, Mueng Nakon Si Thammarat, Nakhon Si Thammarat, Thailand

PHYS067   *Effect of Surface Deformations on the Hydraulic Jump*
https://projectboard.world/isef/project/56075
Emily Hauser, 12th; Evanston Township High School, Evanston, IL

PHYS068   *Density Functional Theory Calculation of Electronic Structure of Fe-N-C, Fe-O-C, Fe-P-C, Fe-S-C Single-Atom Catalysts Systems*
https://projectboard.world/isef/project/56079
Jianglu Ping, 10th; Northfield Mount Hermon School, Gill, MA

PHYS069T   *A Learning Tool that Can Explain the Principle of Equation of Time*
https://projectboard.world/isef/project/56235
SangHyun Ju, 12th; Jun Hyeok Park, 12th; Sehun Lim, 12th; Daejeon Science High School, Daejeon, Daejeon, South Korea

PHYS070T   *Manufacture of Diffraction Grating Spectroscope and Development of Automatic Spectrum Analysis System*
https://projectboard.world/isef/project/56236
Yunseo Lee, 12th; Sejong Park, 12th; Uicheol Park, 12th; Kyeongbuk Science High School, Pohang, Gyeongsangbuk-do, South Korea

PHYS071   *Aw, Snap: Testing Wood Laminates*
https://projectboard.world/isef/project/56416
Dennis van Hoesel, 10th; Rome Free Academy, Rome, NY

PHYS072   *A Population of Planetary Systems on Aligned Orbits with Wide Binary Companions*
https://projectboard.world/isef/project/56424
Sam Christian, 12th; Liberal Arts and Science Academy, Austin, TX

PHYS073   *The Study of the Effect of Topspin on the Trajectory of a New Tennis Ball*
https://projectboard.world/isef/project/56429
Jue Gong, 10th; High Technology High School, Lincroft, NJ

PHYS074   *A Direct Impact of Astrophysics on Astronauts' Exposure/Humans Presence in Low Earth Orbit*
https://projectboard.world/isef/project/56434
Susana Cuadra, 10th; St. Joseph's Academy, Baton Rouge, LA

PHYS075   *Determining the Detectability of Planets Transiting Stars of Extragalactic Origin*
https://projectboard.world/isef/project/56435
Stephanie Yoshida, 12th; Punahou School, Honolulu, HI

PHYS076T   *Real Orbital Implementation of Visual Binary Through an Analysis of the Orbital Elements*
https://projectboard.world/isef/project/56446
Myoungbo Shim, 12th; Do Gyun Han, 12th; Joon Soo Lee, 12th; Incheon Jinsan Science High School, Incheon, South Korea

PHYS077   *Optimizing Astrophotgraphy and Image Analysis of the Orion Nebula, Milky Way Stars, and the Moon in Guam*
https://projectboard.world/isef/project/56514
Enqi Yang, 11th; Harvest Christian Academy, Mongmong Toto Mai, Guam

PHYS078   *Formulation and Implementation of a Support Vector Machine on D-Wave's Quantum Annealer*
https://projectboard.world/isef/project/56680
Carla Caro Villanova, 12th; Aula Escola Europea, Barcelona, Catalunya, Spain

PHYS079T   *Nondestructive Analysis of Geological Sites Through Muon Transmission Imaging*
https://projectboard.world/isef/project/57132
Anthony Lestone, 12th; Phillip Ionkov, 11th; Los Alamos High School, Los Alamos, NM

PLANT SCIENCES

PLNT001   *Image Analysis of Herbivory and Leaf Area of Infected and Uninfected Invasive Air Potato Leaves*
https://projectboard.world/isef/project/51711
Noah Peracciny, 10th; Lakeland Christian School, Lakeland, FL

PLNT002   *Variation in Flammability of Flora in the Sydney Sandstone Vegetation Community*
https://projectboard.world/isef/project/51756
Maja Dalby-Ball Olson, 12th; Barrenjoey High School, Avalon, NSW, Australia

PLNT003   *In silico Genome-wide Study of NAC Gene Family in Brassica juncea (L.) for the Prediction of Abiotic-stress Responsive Genes*
https://projectboard.world/isef/project/51670
Shivam Rawat, 12th; Jaycees Public School, Rudrapur, Uttarakhand, India

PLNT004   *The Effectiveness of Pontederia cordata in the Phytoremediation of Copper Sulfate*
https://projectboard.world/isef/project/51972
Cindy Shen, 9th; College Park High School, The Woodlands, TX

PLNT005   *Evaluation of In-Ground Irrigation Systems on Homeowner's Lawns*
https://projectboard.world/isef/project/51922
Michael (Mac) Chaloupka, 11th; Christ the King Cathedral School, Lubbock, TX

PLNT006   *The Effect of Soil Composition on Competition between Native and Invasive Plants*
https://projectboard.world/isef/project/51861
Cameryn Berryhill, 11th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

PLNT007   *The Role of Phytochromes in Regulation of Auxin Transporter Expression in Hypocotyls of Solanum lycopersicum L.*
https://projectboard.world/isef/project/51629
Anna Hyskova, 12th; Gymnazium J. A. Komenskeho a Jazykova skola s pravem statni jazykove zkousky Uhersky Brod, Uhersky Brod, Czech Republic

PLNT008T   *Garlic and Ginger Combined Crude Extract as a Novel, Cost-Effective and Eco-Friendly Locust Repellent*
https://projectboard.world/isef/project/51656
Bo Wei Lai, 11th; Chuen Keat Tan, 11th; Chung Ling High School Penang, Georgetown, Penang, Malaysia

PLNT009T   *Imitation of Fig Wasp Pollination: An Innovation for Efficient Production of Cluster Fig (Ficus racemosa)*
https://projectboard.world/isef/project/51664
Teerateep Boonlert, 11th; Kornkanok Promruk, 11th; Karit Keereekaew, 11th; Damrongratsongkroh School, Muangchiangrai, Chiangrai, Thailand

PLNT010   *Using Phytoaccumulation to End Mineral Deficiencies*
https://projectboard.world/isef/project/51932
Emelyn Beaster, 10th; East High School, Duluth, MN

PLNT011   *The Effect of Mycorrhizae Inoculant on Plant Growth*
https://projectboard.world/isef/project/52014
Jordynn Michael, 12th; Gresham High School, Gresham, OR

PLNT012   *Development of a Novel AI Drought-Stress Assessment (AIDA) Model in Bell Pepper (Capsicum annuum) Plants Using a Custom-Built Robotic RGB + Infrared (IR) Camera*
https://projectboard.world/isef/project/53442
John Benedict Estrada, 10th; Clovis North High School, Fresno, CA

PLNT013T   *The Relationship Between Sweetness and Internode Feature of Sugarcane*
https://projectboard.world/isef/project/54011
Rutsiripol Putsorn, 12th; Kowit Sukchai, 12th; Panchanok Leela, 12th; Princess Chulabhorn Science High School Phetchaburi, Cha-Am, Phetchaburi, Thailand

PLNT014   *How Do Various Pesticides Affect Soil Health and Plant Development?*
https://projectboard.world/isef/project/54016
Sophia Landry, 12th; Isidore Newman School, New Orleans, LA

PLNT015   *Engineering a Modified Brewbaker and Kwack Medium for Cucurbita pepo*
https://projectboard.world/isef/project/54095
Joseph Reamsnyder, 12th; Hilltop High School, West Unity, OH

PLNT016   *When Two Problems Meet: Analysis and Prediction of the Spread of Invasive Plant Species in Relation to the Changing Environment*
https://projectboard.world/isef/project/54417
Sarah Cao, 11th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

PLNT017   *Speed of Photosynthesis in Relation to Surface Area*
https://projectboard.world/isef/project/54436
Bryce Krohnfeldt, 10th; Estero High School, Estero, FL

PLNT018   *The Effect of Added Polyamines on Glycine max Responses to Drought*
https://projectboard.world/isef/project/54596
Beverly Eborn, 11th; Central Virginia Governor's School for Science and Technology, Lynchburg, VA

PLNT019   *Rhizofiltration Potential of Cyanocobalamin in Lactuca sativa var. Capitata to Increase B12 Concentration*
https://projectboard.world/isef/project/54614
Jacob Zajkowski, 12th; Anthony Wayne High School, Whitehouse, OH

PLNT020T   *Hydrogel Sensors for the Agricultural Applications*
https://projectboard.world/isef/project/54809
Tamim Alrashid, 12th; Yousef Al-Mahmoud, 12th; Qatar Banking School for Boys, Doha, Doha, Qatar

PLNT021   *Identification and Characterization of a Gene Controlling Tomato Growth and Branching*
https://projectboard.world/isef/project/54817
Ayesha Mahfuz, 11th; Vista del Lago High School, Folsom, CA

PLNT022   *The Effects of Various Disinfection Agents on the Germination of Phaseolus vulgaris*
https://projectboard.world/isef/project/54820
Andrew Grine, 10th; Coronado High School, El Paso, TX

PLNT023T   *Alternative Technology for Crop Improvement and Potentiation of Secondary Metabolites in Coriander Plants Through Dunaliella Salina Biomass Incorporated in Bioplastic Films, Phase II*
https://projectboard.world/isef/project/55036
Nicole Melo de Almeida, 12th; Yasmin Barreto Teles Fonseca, 12th; Escola Djalma Pessoa - Sesi Bahia, Salvador, Bahia, Brazil

PLNT024   *Mushrooms Wear Sand Grains for Survival: A Strategy of Marasmiellus mesosporus on Beach*
https://projectboard.world/isef/project/55039
Shohei Wada, 12th; Kobe Gakuin Unniversity High School, Kobe-shi, Hyogo, Japan

PLNT025   *Multinutrient Biofortification of Microgreens for Human Health*
https://projectboard.world/isef/project/55042
Lilian Crawford, 11th; Lincoln Park Academy, Fort Pierce, FL

PLNT026   *Manipulation of the Novel hsp23.8::ZmCLA4 Gene Construction to Avoid Leaf Hyponasty (Upward Leaf Bending) Caused by Heat Stress*
https://projectboard.world/isef/project/55049
Nicole Xiao, 11th; Moscow High School, Moscow, ID

PLNT027T   *A Comparison of Growth in Solanum iycopersicum and Brassica oleracea Planted in Aquaponic and Hydroponic Systems*
https://projectboard.world/isef/project/55050
Camden Barger, 11th; Bailey Vanderwall, 11th; Grangeville High School, Grangeville, ID

PLNT028T   *Public Perception and Accuracy of GMO Labels in the Southwest Michigan Area*
https://projectboard.world/isef/project/55061
Alyssa Park, 11th; Katherine Opria, 11th; Kalamazoo Area Mathematics and Science Center, Kalamazoo, MI

PLNT029   *Conducting Research for the Benefit of Agriculture: Separating Phaseolus vulgaris Seeds into Groups*
https://projectboard.world/isef/project/55078
Abbigail Matthews, 9th; West Point Junior High School, West Point, UT

PLNT030T   *Hybrid Autonomous Living System*
https://projectboard.world/isef/project/55150
Luca Giuliani, 12th; Matteo Bigi, 12th; Joao Sinigardi, 12th; Istituto Superiore "Enrico Fermi", Mantova, Mantova, Italy

PLNT031   *The Reduction of Tumors on Glycine max Through the Application of Sulforapahane*
https://projectboard.world/isef/project/5522   1
Aubrey Evilsizer, 10th; Northwestern High School, Kokomo, IN

PLNT032T *The Effects of Increased CO2, Soil Acidification, and Drought on Aperture, Density, and Potential Conductance Index of Stomata Demonstrated by Buckwheat Plants (Fagopyrum esculentum) and Pea-plants (Pisum sativum)*
https://projectboard.world/isef/project/55280
Kayla Wang, 11th; Behruz Mahmudov, 11th; Forest Hills High School, Queens, NY

PLNT033 *Effective Use of Krypton and Argon Pumping Model KAP in Controlling Temperature in Plant Greenhouse*
https://projectboard.world/isef/project/55529
Shatha AlAhmadi, 12th; The 24th Secondary School at Madinah-marrat, Madinah, Madinah, Saudi Arabia

PLNT034 *The Effect of Elevated CO2 and Nitrogen Deposition on Constitutive and Induced Phenolic Levels in Pole Bean (Phaseolus vulgaris)*
https://projectboard.world/isef/project/55669
Malee Davis, 12th; Kalamazoo Area Mathematics and Science Center, Kalamazoo, MI

PLNT035T *Lipopolysaccharide (LPS) and Galactose Induce Cell Death in Prothallial Cells of Gametophytes of Ceratopteris richardii*
https://projectboard.world/isef/project/55673
Blake Lippman, 12th; Tyler Bissoondial, 10th; George W. Hewlett High School, Hewlett, NY

PLNT036 *Tropicalization of Temperate Ecosystems: How Climate Change Can Influence*
https://projectboard.world/isef/project/55695
Regan Williams, 10th; John T Hoggard High School, Wilmington, NC

PLNT037 *A Novel Assay to Quantitatively Detect Bacterial Endotoxin by Harnessing PAMP-Triggered Immunity of FRK1-LUC Arabidopsis thaliana*
https://projectboard.world/isef/project/55714
Aravind Krishnan, 12th; Hillsborough High School, Hillsborough, NJ

PLNT038 *A Study of the Effect of Alcoholic and Aqueous Extract of Salvia officinalis on the Disease of the Plant Fungus Fusarium*
https://projectboard.world/isef/project/55846
Juman AlHarbi, 11th; Mother of Believers Aisha, May Allah be Pleased with the Talented, Buraydah, Al-Qassim, Saudi Arabia

PLNT039 *Effects of Hydroponic Growth on Antioxidant Levels of Lactuca sativa*
https://projectboard.world/isef/project/55852
Beth Robinson, 9th; South Sevier High School, Monroe, UT

PLNT040 *The Power of Plants: Comparing the Antifungal Effects of Different Forms of Ocimum basilicum (sweet basil) Against Aspergillus niger*
https://projectboard.world/isef/project/55879
Mary Biggs, 12th; Valparaiso High School, Valparaiso, IN

PLNT041T *Lemna minor Fertilizer as an Alternative to Commercial Fertilizer for the Growth and Runoff Quality of Glycine max*
https://projectboard.world/isef/project/56034
Brynn McGrail, 0; Caylee Combs, 12th; Rutherford B. Hayes High School, Delaware, OH

PLNT042 *Minimizing Food Waste Using a Nature-Derived Coating - An Innovative Step Towards Addressing Global Food Security*
https://projectboard.world/isef/project/56074
Laboni Santra, 12th; Oviedo High School, Oviedo, FL

PLNT043 *Dissolved Oxygen Augmentation Effects on the Hydroponic Cultivation of Eruca sativa in a NFT System*
https://projectboard.world/isef/project/56250
Nicole Stover, 11th; Samuel W. Wolfson High School, Jacksonville, FL

PLNT044T *Use of Manihot esculenta as an Alternative for Phytoremediation of Soil*
https://projectboard.world/isef/project/56409
Amanda Aviles de Leon, 10th; Daniela Rodriguez-Veguilla, 10th; The School of San Juan, San Juan, PR

PLNT045 *The Investigation of the Effects of Excess Boron on the Root Growth of Arabidopsis thaliana and Schrenkiella parvula*
https://projectboard.world/isef/project/56411
Katherine Winchester, 10th; St. Joseph's Academy, Baton Rouge, LA

PLNT046T *Research on the Antibacterial Activity of Jeju Seaside Lichen*
https://projectboard.world/isef/project/56445
Yewon Jwa, 11th; Yujin Kim, 11th; Yuna Seo, 11th; Namnyeong High School, Jeju, South Korea

PLNT047   *Preventing Pseudococcidae Infestation by Strategical Plant Placement Based Upon the Photosynthates, Alcohol Content, and Acidity Level of Solanum melongena, Abelmoschus esculentus Citrofortunella microcarpa, and Origanum vulgare*
https://projectboard.world/isef/project/56490
Anica Camacho, 11th; Academy of Our Lady of Guam, Hagatna, Guam

PLNT048   *Determining the Effects of Moringa oleifera Leaves on the Growth and Yield of Solanum melongena*
https://projectboard.world/isef/project/56681
Pearl Eunice Munoz, 11th; Fa'asao Marist High School, Pago Pago, American Samoa

PLNT049   *Improving Sustainable Agriculture Through Computer Generated Leaf Angle Measurements*
https://projectboard.world/isef/project/56704
Daniel Wamsley, 9th; Timber Ridge Scholars, Pacific, MO

PLNT050   *The Effects of Exogenously Applied L-Tryptophan on the Nodulation and Overall Development of Soybeans Grown in Acidic Soil*
https://projectboard.world/isef/project/56726
Joonwoo Park, 9th; Athens High School, The Plains, OH

PLNT051   *The Longevity of Plant-Based Bioremediation in Water: An Investigation on the Longevity of the Flocculating Capabilities of Moringa oleifera Lam. Seed Extracts in Water Purification*
https://projectboard.world/isef/project/56867
Zach Vazhekatt, 12th; Coppell High School, Coppell, TX

PLNT052   *Manifestations and the Evolutionary Background of the Fibonacci Sequence and the Golden Ratio in Plants*
https://projectboard.world/isef/project/57385
Sisu Kiuru, 11th; Classical High School in Tampere, Tampere, Finland

ROBOTICS AND INTELLIGENT MACHINES

ROBO001   *RoboBall*
https://projectboard.world/isef/project/51768
Hannah Jones, 12th; St Columba Anglican School, Port Macquarie, New South Wales, Australia

ROBO002   *SUMRO (Symmetric Upper-limb Mapping Robotic Prosthesis)*
https://projectboard.world/isef/project/51693
Dilay Dal, 12th; Ozel Enka Mesleki ve Teknik Anadolu Lisesi, Dilovasi, Kocaeli, Turkey

ROBO003   *DocAide: A Collaborative AI Medical Assistant Using Novel Autonomous Learning*
https://projectboard.world/isef/project/51850
Harshal Bharatia, 11th; Plano Senior High School, Plano, TX

ROBO004   *Convolutional Neural Network Approaches for Smartphone-Based Rapid Detection of Tomato Diseases Supporting Mitigation of Unwarranted Pesticide Usage*
https://projectboard.world/isef/project/51613
Sruthi Sentil, 10th; James Rickards High School, Tallahassee, FL

ROBO005   *3D Depth Mapping Vision System Worthy of an Extraterrestrial*
https://projectboard.world/isef/project/51668
Marc van Zyl, 10th; McIntosh High School, Peachtree City, GA

ROBO006   *Magnetically-Powered Multi-Segment Degradable Microswimmer*
https://projectboard.world/isef/project/51640
Michael Sun, 11th; King George V School, Hong Kong, Hong Kong, China, Hong Kong Special Administrative Region

ROBO007   *COVID-19 Chest X-ray Images: Lung Segmentation and Diagnosis Using Neural Networks*
https://projectboard.world/isef/project/51697
Alan Zhang, 12th; Chinese International School, Hong Kong, China, Hong Kong Special Administrative Region

ROBO008T   *A Self-Adaptive Intelligent Inspection System for Polar Palaeoenvironment Research*
https://projectboard.world/isef/project/51727
Maggie Xie, 11th; Chi Weng Fong, 11th; Hou Hei Lam, 11th; The Affiliated School of the University of Macao, Macao, China, Macao Special Administrative Region

ROBO009   *Novel Implementation of Deep Learning for Breast Cancer Detection Using Convolutional Neural Networks and Transfer Learning*
https://projectboard.world/isef/project/51770
Buwei Chen, 11th; University School of Milwaukee, Milwaukee, WI

ROBO010   *Army Bot*
https://projectboard.world/isef/project/51733
Mahammad Abbasli, 9th; Lyceum Named after Academician Zarifa Aliyeva, Baku, Azerbaijan

ROBO011   *Limited Query Black-box Adversarial Attacks in the Real World*
https://projectboard.world/isef/project/51636
Hristo Todorov, 11th; High School of Mathematics and Natural Sciences "Professor Emanuil Ivanov", Kyustendil, Bulgaria

ROBO012   *Optimizing Human Feedback in Reward Modelling*
https://projectboard.world/isef/project/51628
Chioma Opara, 11th; Nigerian Tulip International Colleges, Abuja, Abuja, Nigeria

ROBO013   *Generating Police Sketches Using a Generative Machine Learning Algorithm*
https://projectboard.world/isef/project/51635
Jangwon Seo, 12th; SOS-Hermann Gmeiner International College, Tema, Greater Accra Region, Ghana

ROBO014   *Neural Abstract Reasoner*
https://projectboard.world/isef/project/51647
Victor Kolev, 12th; Sofia High School of Mathematics, Sofia, Bulgaria

ROBO015   *Novel Architectures for the Artificial Neural Network: Implementation of Virtual Neurotransmitters*
https://projectboard.world/isef/project/51938
Nikhil Iyer, 11th; Edgewood Junior Senior High School, Merritt Island, FL

ROBO016   *The Role of Income in Hospital Pricing: Using Regression Models to Predict Hospital Markup*
https://projectboard.world/isef/project/51897
Frances McConnell, 11th; Oregon Episcopal School, Portland, OR

ROBO017   *Cross-Age Face Recognition Based on Deep Neural Network with Multi-Stage Feature Decomposition*
https://projectboard.world/isef/project/51822
Xinyun Jiang, 12th; Hangzhou Foreign Languages School, Hangzhou, Zhejiang, China

ROBO018T   *An Improved Method for the Stable Transmission of Quantitative Information through Human Skin, Characterized by Low Error Rates and Long-term Reliability*
https://projectboard.world/isef/project/51611
Aleksandr Savin, 12th; Kirill Ovsyannikov, 10th; The Andrey Melnichenko Foundation "Heirs of Polzunov" Centre for the Development of Children's Creativity in Science and Engineering, Barnaul, Altai Krai, Russian Federation

ROBO019   *Using A Novel Semi-Supervised Machine Learning Method to Improve Image-based Lung Cancer Diagnostic Algorithms*
https://projectboard.world/isef/project/51883
Alexander Wang, 11th; Trinity Preparatory School, Winter Park, FL

ROBO020T   *Hot Car Life Alarm*
https://projectboard.world/isef/project/51819
Brett Steele, 12th; Dylan Bracey, 11th; Jesuit High School, New Orleans, LA

ROBO021   *Submergible Robotic System Used to Clean Calm Bodies of Water*
https://projectboard.world/isef/project/51969
Benjamin Gracia, 12th; James Pace High School, Brownsville, TX

ROBO022   *Non-invasive Autonomous Anemia Screening Using Conjunctival Images*
https://projectboard.world/isef/project/51998
I-Ning Tsai, 11th; Taipei Municipal Zhongshan Girls High School, Taipei City, Chinese Taipei

ROBO023   *A Web Application for Skin Diseases Classification with a Small Dataset Using Deep Learning*
https://projectboard.world/isef/project/51847
Waranthorn Chansawang, 12th; Princess Chulabhon Science High School Pathumthani, Ladlumkaew, Pathumthani, Thailand

ROBO024   *The Keeper*
https://projectboard.world/isef/project/51892
Blessings Ncube, 12th; Plumtree High School, Plumtree, Matabeleland South, Zimbabwe

ROBO025   *An Investigation in Precipitation Prediction with Machine Learning*
https://projectboard.world/isef/project/52015
Emma Seidel, 12th; Alabama School of Fine Arts, Birmingham, AL

ROBO026   *Heuristic Oncological Prognosis Evaluator (HOPE): A Novel Approach Implementing a Deep Learning Convolutional Neural Network Framework to Detect Brain Cancer, Breast Cancer, Colorectal Cancer, and Lung Cancer*
https://projectboard.world/isef/project/52011
Anu Iyer, 10th; Little Rock Central High School, Little Rock, AR

ROBO027   *The Mind of Pixels: Video Aesthetic Feature Analysis Based on Graph Representation of Pixel Block Relations*
https://projectboard.world/isef/project/51904
Xiru Hou, 11th; The High School Affiliated to Renmin University of China, Beijing, Beijing, China

ROBO028   *Home Support System for ALS Patients Based on the Internet of Things*
https://projectboard.world/isef/project/51908
Jiayun Liu, 11th; QuanZhou No.5 High School, Quanzhou, Fujian, China

ROBO029   *Golf Swing Correction Based on Deep Learning Body Posture Recognition*
https://projectboard.world/isef/project/52160
Gaoyue Sun, 11th; The High School Affiliated to Renmin University of China, Beijing, Beijing, China

ROBO030   *Mean Green Recycling Machine: Robotic-Assisted Recycling Using Neural Networks*
https://projectboard.world/isef/project/52215
Jacob Zhao, 12th; Bend Science Station, Bend, OR

ROBO031   *NextCare: An Intelligent System for the Early Diagnosis and Remote Monitoring of Parkinson's Disease Using Machine Learning, Signal Processing and a 3D Printed Wearable Device*
https://projectboard.world/isef/project/52245
Shreyas Kar, 11th; duPont Manual High School, Louisville, KY

ROBO032   *Smart Robot to Purify, Humidify, and Disinfect the Air for Even Distribution*
https://projectboard.world/isef/project/52250
Mikul Saravanan, 10th; Cranbrook Kingswood School, Bloomfield Hills, MI

ROBO033   *Dilated Silhouette Convolutional Neural Network: A Novel Deep Learning Framework for Real-time Human Action Recognition*
https://projectboard.world/isef/project/52256
Michelle Hua, 10th; Cranbrook Kingswood School, Bloomfield Hills, MI

ROBO034   *Use of Collaborative Robotics in Mass Production of Freehand Components*
https://projectboard.world/isef/project/52998
Nathaniel Loveless, 10th; West High School, Salt Lake City, UT

ROBO035   *Utilizing AI to Reduce the Risk of SIDS*
https://projectboard.world/isef/project/53488
Natalie Kuo, 10th; Henry J. Kaiser High School, Honolulu, HI

ROBO036   *Effective Object Detection Neural Network on an Autonomous Robotics Platform Applied on TPU and Other Systems*
https://projectboard.world/isef/project/54010
Jakub Gal, 12th; Stredna Priemyselna Skola Strojnicka a elektrotechnicka, Nitra, Nitra, Nitra, Slovakia

ROBO037T   *Assistive Glasses for the Vision Impaired: Continuation*
https://projectboard.world/isef/project/54012
Okan Baykal, 12th; Tankut Cekic, 12th; Izmir Ozel Ege Lisesi, Izmir, Bornova, Turkey

ROBO038   *COV-AID: An Efficient and Interpretable Machine Learning Ensemble for COVID-19 Diagnosis, Prognosis, Abnormality Localization, and Severity Assessment*
https://projectboard.world/isef/project/54013
Aksh Garg, 12th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

ROBO039   *Engineering a Robot Arm with Computer Vision and Simulated Grabbing for Manipulation of Objects*
https://projectboard.world/isef/project/54014
George Delong, 11th; Episcopal School of Jacksonville, Jacksonville, FL

ROBO040   *Utilizing Machine Learning to Identify Metastatic Tissue in Histopathologic Scans of Lymph Node Sections*
https://projectboard.world/isef/project/54015
Siddharth Kini, 9th; Crooms Academy of Information Technology, Sanford, FL

ROBO041   *Improving Alzheimer's Disease Diagnosis Using AI-Based Artificial Neural Networks*
https://projectboard.world/isef/project/54018
Chandra Suda, 9th; Bentonville High School, Bentonville, AR

ROBO042   *Lung Segmentation in Chest X-rays with Res-CR-Net*
https://projectboard.world/isef/project/54435
Sinan Lal, 11th; Port Huron Northern High School, Port Huron, MI

ROBO043   *Developing a Novel Autonomous Robot for Cleaning Oil Spills in Water*
https://projectboard.world/isef/project/54623
Varun Hariprasad, 10th; Paul Laurence Dunbar High School, Lexington, KY

ROBO044   *BrCaVision: Predicting Breast Cancer Prognosis by Detecting Mitosis, Identifying Histological Tumor Subtypes, and Scoring HER2 in Whole Slide Tissue Images Using Deep Learning*
https://projectboard.world/isef/project/54624
Dheepthi Mohanraj, 11th; North Carolina School of Science and Mathematics, Durham, NC

ROBO045   *Uncovering of Aged Sanskrit/Devanagari Documents Utilizing Generative Adversarial Networks and Tomography to Multidimensionally Reconstruct Missing Elements*
https://projectboard.world/isef/project/55026
Srivatsa Krishnamurthy, 11th; Rock Ridge High School, Ashburn, VA

ROBO046   *Efficient Music Genre Classification with Deep Convolutional Neural Networks*
https://projectboard.world/isef/project/55052
Wency Suo, 10th; Boise High School, Boise, ID

ROBO047   *Neuroromorphic Computing: Simulating the Brain's Visual Cortex for a Faster, More Effecient Computer*
https://projectboard.world/isef/project/55068
Robert Strauss, 11th; Los Alamos High School, Los Alamos, NM

ROBO048   *Computational Design of Optimal Machine Learning Algorithm for Cancer Detection in Histopathologic & PET Scans*
https://projectboard.world/isef/project/55231
Aisha Kokan, 11th; University High School of Indiana, Carmel, IN

ROBO049   *FyreWatch: Deep Learning for Accurate Wildfire Environmental Conditions Detection*
https://projectboard.world/isef/project/55244
Gurik Mangat, 11th; Semiahmoo Secondary School, Surrey, British Columbia, Canada

ROBO050T   *N.I.M.P.H.A. (Neural Network Interface for Monitoring Plants via Hybrid Aircraft)*
https://projectboard.world/isef/project/55245
Nicola Bormolini, 12th; Matteo Girelli, 12th; Istituto Rainerum - Salesiani Don Bosco, Bolzano, Bolzano, Italy

ROBO051   *ComposeGAN: A Conditional GAN Approach to Symbolic Music Style Transfer*
https://projectboard.world/isef/project/55303
Conan Lu, 11th; Redmond High School, Redmond, WA

ROBO052   *A Biologically Inspired Game Theoretic Adversarial Training Method*
https://projectboard.world/isef/project/55340
Simon Lee, 10th; Whittle School And Studios, Washington, DC

ROBO053   *Diagnosis of COVID-19 Using Deep Learning and Data Augmentation from Chest CT-Scan Images*
https://projectboard.world/isef/project/55525
Raghad Alasiri, 11th; The Third High School in Abha, Abha, Asir, Saudi Arabia

ROBO054T   *Smart Irrigation*
https://projectboard.world/isef/project/55659
Christelle Jean, 11th; Tanoah Marcelin, 11th; Isabelle Jean, 11th; Institution du Sacre-Coeur de Turgeau, Port-au-Prince, Ouest, Haiti

ROBO055   *HemaVision: A Deep Learning and Computer Vision-Based Mobile Screening System for Rapid, Inexpensive, and Automated Diagnosis of Hematological Diseases*
https://projectboard.world/isef/project/55685
Ella Wang, 11th; BASIS Chandler, Chandler, AZ

ROBO056   *A Novel Approach to Citrus Disease Management: Leveraging Computer Vision, Machine Learning and Convolutional Neural Networks*
https://projectboard.world/isef/project/55692
Arko Ghosh, 11th; C. Leon King High School, Tampa, FL

ROBO057   *Phytoplankton Detection Using Machine Learning and a Mobile Application*
https://projectboard.world/isef/project/55707
Jordan Janakievski, 12th; Bellarmine Preparatory School, Tacoma, WA

ROBO058   *An AI-aided Solution to Open-angle Glaucoma Screening in Developing and Rural Countries*
https://projectboard.world/isef/project/55712
Jiacheng Dang, 12th; Iolani School, Honolulu, HI

ROBO059   *Detecting Microbial Contaminants in Water Using Artificial Intelligence and Deep Learning Algorithms in order to Prevent the Spread of Waterborne Illnesses*
https://projectboard.world/isef/project/55841
Anshul Verma, 11th; Hamilton High School, Chandler, AZ

ROBO060   *Using Convolutional Neural Networks (CNN) Image Recognition to Program the Artificially Learned C3BO: Cancer Blood Oncologist*
https://projectboard.world/isef/project/55854
Leonardo de Farias, 10th; Lubbock High School, Lubbock, TX

ROBO061   *Jarvis: A Robotic Companion*
https://projectboard.world/isef/project/55856
Jackson Moody, 11th; L&N STEM Academy, Knoxville, TN

ROBO062   *Hard Mission Robot*
https://projectboard.world/isef/project/55858
Abd Elrahman Draz, 11th; Future International Schools Sadat City Branch, Sadat City, El Sadat, Egypt

ROBO063   *PedGUARD: Pedestrian's Guiding Utility - Avoid Road Danger*
https://projectboard.world/isef/project/55861
Jaewoong Jeong, 12th; Chadwick International School, Incheon, South Korea

ROBO064   *Improved Classification and Prediction of Head and Neck Squamous Cell Carcinomas*
Using a Novel Generative Adversarial Network Model
https://projectboard.world/isef/project/55863
Ashwin Parthasarathy, 11th; American Heritage School of Boca Delray, Delray Beach, FL

ROBO066   *PanCan Diagnosed (a miRNA Approach): Using Feature Selection, Ensemble Algorithms, and Interpretability for the Early Diagnosis and Personalized Medicine of Pancreatic Cancer*
https://projectboard.world/isef/project/55881
Siya Goel, 11th; West Lafayette Junior/Senior High School, West Lafayette, IN

ROBO067   *CET-CNN: Modular Hierarchical Image Classification Using Conditional-Execution Tree CNNs*
https://projectboard.world/isef/project/55900
Ethan Horowitz, 12th; Manhasset High School, Manhasset, NY

ROBO068   *Assessing the Impact of Robust Stochastic Operators on Q-learning Efficiency in an OpenAI Gym Environment with a Large Observation Space*
https://projectboard.world/isef/project/55914
Henry Demarest, 12th; Irvington High School, Irvington, NY

ROBO069   *Partially Speaker-Dependent Automatic Speech Recognition Using Deep Neural Networks*
https://projectboard.world/isef/project/55918
Christopher Li, 11th; Spring Valley High School, Columbia, SC

ROBO070   *Automated Recognition of Autism Based on Visual Analysis with Artificial Intelligence Techniques*
https://projectboard.world/isef/project/56028
Alice Guo, 11th; Morgantown High School, Morgantown, WV

ROBO071   *HealthDrone: An Autonomous, Offline Medical UAV For Advanced Biometric Collection and Analysis Using Deep Learning*
https://projectboard.world/isef/project/56035
Nithin Naikar, 9th; Olentangy Liberty High School, Powell, OH

ROBO072T   *Karyogram for the Primary Diagnosis of Human Chromosomal Abnormalities*
https://projectboard.world/isef/project/56060
Siwasit Saengnikun, 11th; Kiartisak Seangarthan, 11th; Princess Chulabhorn Science High School Mukdahan, Mukdahan, Thailand

ROBO073   *Computationally Light Tree Species Classification Using RGB Bark Images*
https://projectboard.world/isef/project/56243
Longji Chen, 12th; Alabama School of Fine Arts, Birmingham, AL

ROBO074   *Automated Tracking of the Muscle Tendon Junction Using Modern Deep Learning*
https://projectboard.world/isef/project/56356
Hassam Uddin, 12th; Niles North High School, Skokie, IL

ROBO075   *CoMET: A Novel Graph-based Machine Learning System for Predicting Topological Features of Dynamic Covert Networks with Applications in Counterterrorism*
https://projectboard.world/isef/project/56365
Paarth Tara, 11th; North Carolina School of Science and Mathematics, Durham, NC

ROBO076T   *Omni-wheel Based Circular Orbit Flight Simulator for G-Force Generation*
https://projectboard.world/isef/project/56373
Seungwon Yoo, 10th; Hyun Woo Kim, 10th; North London Collegiate School Jeju, Seogwipo-si, Jeju-do, South Korea

ROBO077   *A Novel Integrative WSI-Based Deep Learning Framework For Breast Cancer IMS Classification*
https://projectboard.world/isef/project/56419
Laasya Konidala, 10th; Mills E. Godwin High School, Henrico, VA

ROBO078   *SPOTNET: A Novel End-to-End Algorithm that Utilizes Convolutional Neural Networks to Recognize Potholes in Two-Dimensional Monocular Images*
https://projectboard.world/isef/project/56511
Riya Sikand, 9th; Ranney School, Tinton Falls, NJ

ROBO079   *FS HIVE MRK 12: An Autonomous Swarm Robotics Fire Suppression System*
https://projectboard.world/isef/project/56531
Joseph Saturnino, 12th; Bishop Ryan Catholic Secondary School, Hannon, Ontario, Canada

ROBO080	*Liar Liar Pants on Fire: A Computer Vision Approach to Deception Detection*
https://projectboard.world/isef/project/56541
Nathaniel Xin Rui Tan, 12th; Raffles Institution, Singapore, Singapore, Singapore

ROBO081	*Machine Perception: How Robots Navigate and Map the World*
https://projectboard.world/isef/project/56589
Patrick Turricelli, 12th; Liceo Rinaldo Corso, Correggio, Italy

ROBO082	*Autonomous COVID-19 Screening Using Deep Learning and Low-cost Thermal Imaging*
https://projectboard.world/isef/project/56591
Yash Prabhu, 10th; North Penn Senior High School, Lansdale, PA

ROBO083	*Motherhood Guide*
https://projectboard.world/isef/project/56669
Layali Khatib, 10th; Um Dar and Alkhuljan Girls Secondary Girls School, Jenin, Palestine, Palestine

ROBO084	*Fusing LiDAR and Camera Data for Advanced Context Recognition in Autonomous Navigation Sensory Systems Through Multidimensional Deep Neural Network Architectures*
https://projectboard.world/isef/project/56684
Emily Zhang, 11th; Cherry Creek High School, Greenwood Village, CO

ROBO085	*Visual Sign Language Translator*
https://projectboard.world/isef/project/56747
Ilyas Umurbekov, 12th; Nazarbayev Intellectual School of Physics and Mathematics in Kokshetau, Kokshetau, Aqmola Region, Kazakhstan

ROBO086	*Language Recognition With Machine Learning*
https://projectboard.world/isef/project/56755
Isaac Muth, 10th; Mandan High School, Mandan, ND

ROBO087	*Development of a Robotic System for Installing Various Devices*
https://projectboard.world/isef/project/56766
Vsevolod Shkodskikh, 11th; Lyceum 11 of Chelyabinsk, Chelyabinsk, Chelyabinskaya Oblast, Russian Federation

ROBO088	*A Fall Detection and Prevention Shoe for the Elderly and Balance Impaired*
https://projectboard.world/isef/project/56776
Anna Rosner, 10th; Albemarle High School, Charlottesville, VA

ROBO089T	*SoundScape: Real-Time 3D Sound Localization and Classification with Sensory Substitution for the Deaf and Hard of Hearing*
https://projectboard.world/isef/project/56777
Raffu Khondaker, 12th; Eugene Choi, 11th; Irfan Nafi, 11th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

ROBO090	*Developing a Fish Image Classification System for Mouse Creek, Cleveland, TN using Machine Learning*
https://projectboard.world/isef/project/56865
Rishi Soni, 11th; Cleveland High School, Cleveland, TN

SYSTEMS SOFTWARE

SOFT001   *Breaking the Substitution Cipher: Coding an Automatic Cipher Solver*
https://projectboard.world/isef/project/51677
Jasa Knap, 12th; Gimnazija Bezigrad, Ljubljana, Slovenia

SOFT002T   *Utilizing the Heuristic A* Search Algorithm to Determine the Shortest Path Between Locations on a Floorplan*
https://projectboard.world/isef/project/51699
Avaye Dawadi, 11th; Sooriya Senthilkumar, 11th; Alexander Jovanovic, 11th; Chamblee Charter High School, Chamblee, GA

SOFT003T   *MRyze: A Web Application that Analyzes MR Images to Detect and Segmentate Brain Tumor For Both Doctors and Patients*
https://projectboard.world/isef/project/51641
Eren Ekrem Kallikci, 12th; Huseyin Kucukturan, 11th; Antalya Bilim ve Sanat Merkezi, Antalya, Kepez, Turkey

SOFT004   *Search for Algorithmic Errors in the Program Code Using Machine Learning Methods*
https://projectboard.world/isef/project/51634
Dmitrii Vasilchenko, 11th; Lyceum 1533 of Information Technologies, Moscow, Russian Federation, Russian Federation

SOFT005   *Software Package for the Analysis of Spectra of Substances for Low-field Low-resolution NMR Spectrometers*
https://projectboard.world/isef/project/51679
Vladimir Kirilenko, 11th; Vorobyovy Gory School, Moscow, Russian Federation

SOFT006   *Towards a Greener AI: Structured Pruning of Convolutional Neural Networks at Initialization*
https://projectboard.world/isef/project/51776
Sydney Faux, 11th; Pace Academy, Atlanta, GA

SOFT007T   *Creation and Application of Virtual Laboratory in Teaching*
https://projectboard.world/isef/project/51735
Ilkin Samedov, 10th; Ali Akberzade, 10th; High School #260, Baku, Baku, Azerbaijan

SOFT008   *Heimdall: Detecting Malicious Behavior in USB Mass Storage Devices*
https://projectboard.world/isef/project/51631
Ivan Zlatanov, 12th; National Trade and Banking High School, Sofia, Sofia, Bulgaria

SOFT009   *Natural Language Processing of Job Loss Related Tweets During the Pandemic*
https://projectboard.world/isef/project/51815
Benjamin Chen, 12th; Paul Laurence Dunbar High School, Lexington, KY

SOFT010   *CDD Model: A Cylinder Detector and Dewarper*
https://projectboard.world/isef/project/51890
Haoyun Qin, 11th; Shanghai Foreign Language School Affiliated to SISU, Shanghai, China

SOFT011   *Wavenote: Smart Notepad for Musicians*
https://projectboard.world/isef/project/51633
Fedor Sedov, 11th; School #1329th; Moscow, Moscow, Russian Federation

SOFT012   *Development of an AI-Powered Powered Facial-cue Control Module*
https://projectboard.world/isef/project/51620
Daniel Shen, 11th; William G. Enloe High School, Raleigh, NC

SOFT013   *A Novel Method of Creating Block Ciphers Provably Immune to Linear and Differential Cryptanalysis*
https://projectboard.world/isef/project/51738
Szymon Perlicki, 9th; Szkola Podstawowa nr 28 im. Generala Leopolda Okulickiego we Wroclawiu, Wroclaw, Wojewodztwo Dolnoslaskie, Poland

SOFT014T   *SandSpace*
https://projectboard.world/isef/project/51627
Jorge Miguel Fernandes Correia, 12th; Bruno Dylan Pinto Ferreira, 12th; Nuno de Figueiredo Brito e Castro, 12th; Escola Secundaria Dr. Serafim Leite, Sao Joao da Madeira, Portugal

SOFT015   *Designing a Flex Sensor-Based Posture Trainer and Determining Its Effect on Sedentary Posture*
https://projectboard.world/isef/project/51882
Grace Crifasi, 11th; Saint Joseph's Academy, Baton Rouge, LA

SOFT016   *A Hash Algorithm for Directory Tree*
https://projectboard.world/isef/project/52154
Linzhou Jiang, 12th; Chengdu No. 7 High School, Chengdu, Sichuan, China

SOFT017   *Magic-Beijing-Mirror: Facilitating Beijing Opera via a Real-Time Interactive Opera Making up System*
https://projectboard.world/isef/project/52157
Shirui Gao, 10th; Beijing No. 2 Middle School, Beijing, China

SOFT018   *A Two-Step Approach to Effectively Find Analogies in Knowledge Graphs*
https://projectboard.world/isef/project/52167
Xuerui He, 11th; No. 2 High School of East China Normal University, Shanghai, Shanghai, China

SOFT019   *An Intelligent Assistive Human Emotion Recognition and Adjustment System*
https://projectboard.world/isef/project/52227
Yixiu Li, 11th; Shanghai SMIC Private School, Shanghai, Shanghai, China

SOFT020   *Optimizing the Keyboard Layout Using Genetic Algorithms and a Heuristic Approach*
https://projectboard.world/isef/project/52239
Matthew Fogel, 12th; Yucaipa High School, Yucaipa, CA

SOFT021   *3D Memory Bank: Memory Visualization Application with Open 3D Creation Software*
https://projectboard.world/isef/project/52680
Muhammad Rafif, 11th; SMA Negeri 2 Depok, Depok, Jawa Barat, Indonesia

SOFT022   *Supporting People Working with Disabled People Towards an Inclusive Society*
https://projectboard.world/isef/project/52688
Keidai Toyoshima, 12th; Senior High School at Komaba, University of Tsukuba, Setagaya-ku, Tokyo, Japan

SOFT023   *Quantifying Census Tract Level COVID-19 Vulnerability and Risk Using Computational Methods*
https://projectboard.world/isef/project/53453
Varun Srivastava, 10th; Redlands High School, Redlands, CA

SOFT024   *DORC: Dynamic Operating Room Companion for Gallbladder Removal Surgery Workflow Verification*
https://projectboard.world/isef/project/53509
Pravalika Putalapattu, 11th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

SOFT025   *Rip Current Detection: An Orientation-aware Machine Learning Approach*
https://projectboard.world/isef/project/53991
Boglarka Ecsedi, 12th; Istvan Bocskai Secondary Grammar School in Hajduboszormeny, Hajduboszormeny, Hajdu-Bihar, Hungary

SOFT026   *Coding for Music Education*
https://projectboard.world/isef/project/54004
Marlea Martens, 11th; Elko High School, Elko, NV

SOFT027   *StockSy: A Stock Prediction and Analysis Toolkit Using Nonparametric Regression*
https://projectboard.world/isef/project/54017
Daniel Yamakov, 12th; College Park High School, The Woodlands, TX

SOFT028T   *Systematic Web-based Assessment of Medical Records and Mammography Image for Breast Cancer Likelihood Prediction*
https://projectboard.world/isef/project/54112
Sona Salsabila, 12th; Azizah Rahma, 12th; SMA Negeri 1 Yogyakarta, Yogyakarta, D.I. Yogyakarta, Indonesia

SOFT029T   *A Web Application to Examine the Environmental Impact of Consumer Textiles and Provide Climate-conscious Recommendations*
https://projectboard.world/isef/project/54585
Siva Reddy Bandi, 9th; Anish Ganesh, 11th; Silver Oaks International School - Hyderabad, Hyderabad, Telangana, India

SOFT030   *Enabling High-Accuracy Human Activity Recognition with Fine-Grained Indoor Localization*
https://projectboard.world/isef/project/54619
Arvind Seshan, 10th; Fox Chapel Area High School, Pittsburgh, PA

SOFT031   *Lucia: Creating Performance-Focused Web Applications*
https://projectboard.world/isef/project/54626
Aiden Bai, 10th; Camas High School, Camas, WA

SOFT033   *Development of Immersive Technologies Applied to Astrobiology Teaching*
https://projectboard.world/isef/project/55033
Henrique Amorim, 12th; Colegio Dante Alighieri, Sao Paulo, Sao Paulo, Brazil

SOFT034T   *Augmenting Under-Researched Medical Domains with an Intuitive Querying System on Resourceful Crowd-Collected Data*
https://projectboard.world/isef/project/55152
Madalina Griza, 11th; Ana Vizitiv, 11th; Theoretical High School " Orizont, Durlesti ", Chiainau, Republic of Moldova

SOFT035   *Automated Conjecturing in Continued Fractions*
https://projectboard.world/isef/project/55261
Yahel Manor, 12th; Leo Baeck Education Center, Haifa, Israel, Israel

SOFT036T   *Improving Upon Quantum Cryptography Protocols Using Entanglement and Quantum Signatures*
https://projectboard.world/isef/project/55268
Ansh Sharma, 12th; Rohan Kulkarni, 12th; West Windor-Plainsboro High School South, West Windsor Township, NJ

SOFT037   *vAssist: A Device for the Visually Impaired to Improve In-Store Shopping Using Computer Vision and AI-enabled Routing*
https://projectboard.world/isef/project/55294
Shrinandan Narayanan, 11th; Cupertino High School, Cupertino, CA

SOFT038T   *Towards Malware Classifiers Robust to Adversarial Malware*
https://projectboard.world/isef/project/55296
Mihir Baviskar, 12th; Andy Phung, 10th; Suryabhan Mohapatra, 11th; Independence High School, San Jose, CA

SOFT039   *Safe Woman: Creation and Development of an Innovative Mobile Application for the Safety of Women*
https://projectboard.world/isef/project/55320
Alejandra Garcia - Baez, 12th; The San Juan Math, Science and Technology Center, San Juan, Puerto Rico

SOFT040   *Analysis of Public's Concerns on Covid-19 Using Twitter Posts*
https://projectboard.world/isef/project/55323
Maxim Khanov, 11th; Stillwater High School, Stillwater, OK

SOFT042T   *PACK It In, PACK It Out: An Experimental File Compression Method*
https://projectboard.world/isef/project/55349
Joseph Cestone, 12th; Kevindeep Dhesi, 12th; Ridgeview High School, Bakersfield, CA

SOFT043T   *Utilizing Computer Vision and Machine Learning Systems to Develop an Algorithm Helping Physically Disabled People to Use Computer*
https://projectboard.world/isef/project/55536
Gasser Galal, 0; Mostafa Abdelmohymen, 12th; Elnasr Boys' School, Alexandria, Egypt

SOFT044   *Attributing State-backed Information Operations on Twitter through Machine Learning*
https://projectboard.world/isef/project/55679
James Connor, 12th; Northport High School, Northport, NY

SOFT045   *MediGraph: A Novel Clinical Assistant from Automated Biomedical Literature Extraction and Knowledge Graphs*
https://projectboard.world/isef/project/55807
Jordan Levett, 12th, Vanier College, Saint-Laurent, Quebec, Canada

SOFT046   *Using Artificial Intelligence and Algorithms for Natural Language Processing to Analyze the Emotions of Gender in Literature and Songs*
https://projectboard.world/isef/project/55835
Alice Heiman, 11th; Viktor Rydbergs Gymnasium Odenplan, Stockholm, Sweden

SOFT047   *Emergency Disaster Framework: Utilizing Textual Analysis to Estimate Daily COVID Patients*
https://projectboard.world/isef/project/55870
Taeuk Kang, 11th; Korea International School, Jeju Campus, Seogwipo-si, Jeju-do, South Korea

SOFT048   *Identification of Correlated Qubit Errors for Quantum Computing Error Correction*
https://projectboard.world/isef/project/55915
Peyton Schales, 11th; Ardsley High School, Ardsley, NY

SOFT049   *qGenerator: A Novel Way to Create Qudit Quantum Error Correction Codes*
https://projectboard.world/isef/project/56069
Arun Moorthy, 10th; BASIS Scottsdale, Scottsdale, AZ

SOFT050   *Development of Procedurally Generated Game from Scratch Elenova*
https://projectboard.world/isef/project/56225
Daniel Tefr, 12th; Gymnazium Aloise Jiraska v Litomysli, Litomysl, Pardubicky kraj, Czech Republic

SOFT051   *Visualizing Fractals with Three Dimensional Turtle*
https://projectboard.world/isef/project/56376
William Smith, 11th; Arkansas School for Mathematics, Sciences and the Arts, Hot Springs, AR

SOFT052   *Intra-procedural Prostate MRI Registration: A Data-efficient Siamese Neural Network (SNN) Design*
https://projectboard.world/isef/project/56415
Alexander Lyons, 12th; Columbia Grammar and Preparatory School, New York City, NY

SOFT053T   *Remote Learning Reminding Buddy (RLRB): Class Schedule, Attendance, Homework Management App. for Distance Learning*
https://projectboard.world/isef/project/56441
Dong Hyun Kim, 10th; SuWan Kim, 10th; Joon Sung An, 10th; Hyundai Senior High School, Seoul, Seoul, South Korea

SOFT054T   *Entropy in Evolutionary Algorithms - Statistical Mechanics Bearing Insight into Evolution*
https://projectboard.world/isef/project/56861
Aengus McGuinness, 10th; Lucas Blakeslee, 10th; Santa Fe High School, Santa Fe, NM

SOFT055   *Enterprise Scale Inventory Optimization: Building a Modern Web Application to Improve Inventory and Supply Chain Optimization by Incorporating Advanced Analysis and Business Intelligence into Existing Techniques with a Cohesive, User-friendly Solution.*
https://projectboard.world/isef/project/56901
Thomas Vielmetti, 11th; Nicolet High School, Glendale, WI

TRANSLATIONAL MEDICAL SCIENCE

TMED001   *Unmasking the Truth: Factors Impacting the Monitoring of Temporal Temperatures*
https://projectboard.world/isef/project/51829
Kinley Eyring, 11th; Yuma High School, Yuma, CO

TMED002   *Connection ICU: A Novel Mobile Application to Prevent Delirium in the Intensive Care Unit*
https://projectboard.world/isef/project/51933
Ava Steger, 10th; Rocky Mountain High School, Fort Collins, CO

TMED003   *Diagnosing the Stage of COVID-19 using Machine Learning on Breath Sounds*
https://projectboard.world/isef/project/51663
Chinmayi Ramasubramanian, 9th; Sri Kumaran Children's Home - CBSE, Bangalore, Karnataka, India

TMED004   *ADiag: Graph Theory and Deep Learning Based Diagnosis of Alzheimer's Disease*
https://projectboard.world/isef/project/51688
Vishnu Sampathkumar, 11th; National Public School, Indiranagar, Bangalore, Karnataka, India

TMED005   *An Active Role for Machine Learning in the Diagnosis of Cardiac Arrhythmias, Year Two*
https://projectboard.world/isef/project/51919
Quentin Hughes, 11th; Minnetonka High School, Minnetonka, MN

TMED006   *A Pharmacokinetic/Pharmacodynamic Analysis of delta-9-Tetrahydrocannabinol and Cannabidiol*
https://projectboard.world/isef/project/51858
Cooper Hanley, 12th; Monarch High School, Louisville, CO

TMED007   *The cGAS-STING Pathway in Rhabdomyosarcoma and Osteosarcoma*
https://projectboard.world/isef/project/51832
Anjali Dhanekula, 11th; Hathaway Brown School, Shaker Heights, OH

TMED008   *The Spread of Macroscopic Droplets from a Simulated Cough with and without the Use of Masks or Barriers*
https://projectboard.world/isef/project/51859
Atreyus Bhavsar, 11th; The Blake School, Minneapolis, MN

TMED009   *Human iPSC-Derived Cardiomyocyte Model Reveals the Transcriptomic Bases
of SARS-CoV-2 Infection Induced Myocardial Injury*
https://projectboard.world/isef/project/51960
Kashish Kumar, 11th; Science Academy of South Texas, Mercedes, TX

TMED010T   *Developmental Neurotoxicity of Artificial Sweeteners and Ethanol in Danio rerio Embryos*
https://projectboard.world/isef/project/51959
Rianna Trevino, 11th; Gaddiel Garcia, 11th; Homer Hanna High School, Brownsville, TX

TMED011T   *Plectra Gold: Herbal Honey Formulation as an Effective Relief for Common Respiratory Diseases such as Flu, Cough
and Sore Throat*
https://projectboard.world/isef/project/51654
Mahisha Kaur Dalvendar Singh, 10th; Abhirami Ramachandran, 10th; Kanimolee Saminatha Kumaran, 9th; Sekolah
Menengah Kebangsaan Jalan Empat, Bandar Baru Bangi, Selangor, Malaysia

TMED012T   *Evaluation of Gherkin's (Cucumis anguria L.) Bioactive Potential Against Non-communicable Chronic Diseases*
https://projectboard.world/isef/project/51646
Andre Avellar, 12th; Victoria Santos, 12th; Instituto Federal de Educacao, Ciencia e Tecnologia do Rio de Janeiro,
Rio de Janeiro, RJ, Brazil

TMED013T   *Using Post-Illumination Pupil Response as a Novel Biomarker for Parkinson's Disease*
https://projectboard.world/isef/project/51723
Brianna Chan, 11th; Allen Chau, 11th; Texas Academy of Mathematics and Science, Denton, TX

TMED014   *A Hopeful SSc Drug: Immune Regulation of Astragalus (Huangqi) in the Treatment of Systemic Scleroderma (SSc)*
https://projectboard.world/isef/project/52197
Yexin Li, 11th; Shanghai Foreign Language School Affiliated to SISU, Shanghai, China

TMED015   *A Novel Machine Learning Based Identification Tool (ELECT) for Early Colorectal Cancer Detection through Advanced
Microbiome Composition Analysis*
https://projectboard.world/isef/project/52213
Alan Ma, 10th; Jesuit High School, Portland, OR

TMED016 *Sputum-Based mRNA-Targeting Probes in Lung Cancer: A Noninvasive Early Diagnostic Tool*
https://projectboard.world/isef/project/52247
Diya Ramesh, 10th; International Academy, Bloomfield Hills, MI

TMED017 *Investigating Differential Gene Regulation in the PBMC of Obese Adolescents*
https://projectboard.world/isef/project/52249
Pooja Kannappan, 11th; Bloomfield Hills High School, Bloomfield Hills, MI

TMED018 *Effects of Cannabidiol Exposure on Cortisol Levels in Danio rerio Embryos with Heat Induced Stress*
https://projectboard.world/isef/project/52264
Reese Titensor, 12th; Rock Canyon High School, Littleton, CO

TMED019T *An Atypical Cure for Atopic Dermatitis: Investigating the Effects of L-Histidine on Filaggrin Expression*
https://projectboard.world/isef/project/53430
Chaejeong Hyun, 12th; Ivan Lee, 12th; Concordia International School Shanghai, Shanghai, Pudong, China

TMED020 *A Novel Hybrid Deep Learning Model to Predict Acute Kidney Injury Using Patient Record Data and Ultrasound Kidney Images*
https://projectboard.world/isef/project/53448
Sophia Shi, 11th; Dougherty Valley High School, San Ramon, CA

TMED021 *Developing an Opioid Painkiller Alternative Using the Epigenetic Correlation Between the Nav1 VGSC Family and miRNAs 30b & 182*
https://projectboard.world/isef/project/53477
Audrey Gunawan, 12th; West Bloomfield High School, West Bloomfield, MI

TMED022 *PANDwriting: An Accessible Parkinson's and Alzheimer's Novel Diagnostic Framework Using Vision-Based Handwriting Kinematic Analysis and Machine Learning*
https://projectboard.world/isef/project/53512
Ron Nachum, 11th; Thomas Jefferson High School for Science and Technology, Alexandria, VA

TMED024 *A-EYE: Utilizing Multistage Neural Networks and Landmark Localization for Fundus ImageDisease Detection*
https://projectboard.world/isef/project/53775
Thomas Chia, 11th; Chantilly High School, Chantilly, VA

TMED025 *The Effects of the COVID-19 Pandemic and Vaccine Knowledge on Vaccine Hesitancy in Adolescents*
https://projectboard.world/isef/project/53780
Claire English, 11th; Mentor High School, Mentor, OH

TMED026 *Colorimetric Smartphone-Based Detection of Salivary SOD2 on Photonic Opal Structures for the Rapid Diagnosis of Hepatocellular Carcinoma*
https://projectboard.world/isef/project/53996
Halla Clausi, 12th; Greenwich High School, Greenwich, CT

TMED027 *Minimizing Surface-Initiated Thrombogenesis in COVID-19 Patients Using the Fibronectin-Derived Peptide P12*
https://projectboard.world/isef/project/54105
Jang Choe, 11th; Ed W. Clark High School, Las Vegas, NV

TMED028 *Rapid, Noninvasive, Fluorescence-Based Detection for Elevated Levels of Nitric Oxide in Exhaled Breath, as a Marker for Hazardous PM2.5 Exposure*
https://projectboard.world/isef/project/54110
Ambika Grover, 10th; Greenwich High School, Greenwich, CT

TMED029 *In silico High Throughput Identification of Novel Alpha-Synuclein Aggregation Inhibitors for Parkinson's Disease Treatments*
https://projectboard.world/isef/project/54418
Amrutha Srivatsav, 11th; Palos Verdes Peninsula High School, Rolling Hills Estates, CA

TMED030 *Assessing the Effectiveness of the Hericium erinaceus Extract as Acetylcholinesterase Inhibitors*
https://projectboard.world/isef/project/54494
Chayse Chandler, 12th; North Carolina School of Science and Mathematics, Durham, NC

TMED031 *Using Automated Infant Posture Recognition to Reduce SIDS Risk*
https://projectboard.world/isef/project/54600
Isha Narang, 10th; Ardrey Kell High School, Charlotte, NC

TMED032 *Apply Machine Learning to Identify Unique Patient Clusters and Associated Key Biomarkers in Rheumatoid Arthritis Developing a Point of Care Test with a Multi Biomarker Panel for RA Patient Classification and Disease Progression*
https://projectboard.world/isef/project/55023
Gabriella Lui, 11th; Newport Senior High School, Bellevue, WA

TMED033 *OCULI: Smartphone-based Screening Application and Low-Cost Lens that Identifies the Risk for Cataracts*
https://projectboard.world/isef/project/55048
Shaivi Shah, 11th; Tesoro High School, Las Flores, CA

TMED034 *Mechanisms Responsible for the Greater Therapeutic Efficacy of Cardiac Mesenchymal Cells Cultured at Physiologic Oxygen Tension in Mice with Heart Failure Caused by Myocardial Infarction*
https://projectboard.world/isef/project/55058
Robi Bolli, 11th; duPont Manual High School, Louisville, KY

TMED035 *Testing the Use of Phage Andhra at Five pH Levels to Treat Skin Infections Caused by Three Strains of the Bacteria Staphylococcus epidermidis and Identifying Strains with the CRISPR-Cas9 System*
https://projectboard.world/isef/project/55080
Summer Moulder, 11th; Pleasant Grove High School, Pleasant Grove, UT

TMED036T *Liver Disease Artificial Intelligence Diagnosis through Fingernails*
https://projectboard.world/isef/project/55237
Mohammad Ghanem, 11th; Suhaib Al-Fawara, 11th; Jubilee School, Amman, Jordan

TMED037 *Diagnosing and Classifying Aphasia: Employing Deep Learning to Accelerate Recovery in Aphasic Stroke Victims*
https://projectboard.world/isef/project/55253
Marek Pinto, 12th; Santa Teresa High School, San Jose, CA

TMED038 *The Effect of Over-the-Head Listening Devices on Noise-Induced Hearing Loss (NIHL)*
https://projectboard.world/isef/project/55275
Vedika Venkataramanan, 9th; duPont Manual High School, Louisville, KY

TMED039 *Addressing the Need for Remote Patient Monitoring Applications*
https://projectboard.world/isef/project/55276
Dylan Li, 12th; Paul Laurence Dunbar High School, Lexington, KY

TMED040 *Determining the Prognostic Value of the DNA Methylation of the GYPC, NME1, and SLIT2 Genes in Human Lung Adenocarcinoma*
https://projectboard.world/isef/project/55300
Uma Paul, 11th; Nikola Tesla STEM High School, Redmond, WA

TMED041 *Development of an Innovative Alternative Model for Teratogenicity Testing: Effect of Hypervitaminosis A in Regenerating Planaria*
https://projectboard.world/isef/project/55338
Eva Bennet, 9th; Hopkinton High School, Hopkinton, MA

TMED042 *How Effective Are Face Masks?*
https://projectboard.world/isef/project/55344
Lindsey Vachal, 11th; Tioga High School, Tioga, ND

TMED043 *An Application to Monitor Freezing of Gait in Parkinson's Disease*
https://projectboard.world/isef/project/55347
Nitya Ayyagari, 11th; Amador Valley High School, Pleasanton, CA

TMED044 *Photobiomodulation by High Power Pulsed Nd:YAG Laser as a Novel Approach for the Treatment of Colorectal Cancer*
https://projectboard.world/isef/project/55511
Juwain Assahafi, 12th; Umm Salamah, Makkah, Makkah, Saudi Arabia

TMED045 *Development of Monodispersed Hollow Silica Nanospheres Loaded with 5-Fluorouracil to Enhance the Drug Delivery on Breast Cancer Cell Line MCF-7*
https://projectboard.world/isef/project/55513
Lena AlQahtani, 9th; AL Bassam-IGCSE, Dammam, Eastern, Saudi Arabia

TMED046 *Improving Image Contrast in MRI 7T for Early Diagnosis and Disease Detection*
https://projectboard.world/isef/project/55526
Asaad Basamad, 12th; Qurtuba High School, Jeddah, Western, Saudi Arabia

TMED047 *TeleAEye: Low-Cost Automated Eye Disease Diagnosis Using a Novel Smartphone Fundus Camera With AI*
https://projectboard.world/isef/project/55531
Tienlan Sun, 11th; Eric Hamber Secondary School, Vancouver, British Columbia, Canada

TMED048 *A Machine Learning Based Diagnostic Tool for the Early Detection of Colorectal Cancer*
https://projectboard.world/isef/project/55668
Abihith Kothapalli, 12th; Blue Valley West High School, Overland Park, KS

TMED049   *Determining the Effect of a Disulfiram Copper Complex on Drug Resistance Through Deletion of ALDH1 in Metastatic Breast Cancer Cells (A Three Year Study)*
https://projectboard.world/isef/project/55690
Diane Altidor, 12th; Palm Beach Central High School, Wellington, FL

TMED050   *Identification of Fluoxetine as a Direct NLRP3 Inhibitor to Treat Atrophic Macular Degeneration: Molecular Modeling, Mechanism, Morphometry, and Meta-analysis (Year 2)*
https://projectboard.world/isef/project/55703
Meenakshi Ambati, 11th; Albemarle High School, Charlottesville, VA

TMED051   *Direct Inhibition of NF-kB Subunits by 9-chloro-8-(hexyloxy)-2H-chromeno[2,3-d] pyrimidine-2,4(3H)-dione (IT-848)*
https://projectboard.world/isef/project/55903
Janice Rateshwar, 11th; Jericho High School, Jericho, NY

TMED052   *ImmunoNet: A Novel in-silico Platform to Personalize Immunotherapy for Breast Cancer Treatment*
https://projectboard.world/isef/project/56070
Arjun Moorthy, 12th; BASIS Scottsdale, Scottsdale, AZ

TMED053T   *ProteCount: An AI-Based Reader for Rapid Protein Quantification*
https://projectboard.world/isef/project/56086
Sridatta Teerdhala, 12th; Sameer Parameshwar, 12th; Venu Poruri, 12th; Plano East Senior High School, Plano, TX

TMED054T   *Mom Care*
https://projectboard.world/isef/project/56212
Steven Adel, 12th; Abdel- Rahman Mahmoud, 12th; S.T.E.M. Luxor School, Luxor, Egypt

TMED055   *Formulating a Gene Signature for Diagnosis of Autoimmune and Infectious Diseases*
https://projectboard.world/isef/project/56220
Riya Gupta, 11th; Saratoga High School, Saratoga, CA

TMED056   *Kawasak.AI: A Robust Deep Ensemble Network with Joint Detection for Differential Diagnosis of Kawasaki Disease*
https://projectboard.world/isef/project/56360
Ellen Xu, 10th; Del Norte High School, San Diego, CA

TMED057   *Phase II: Predicting Early Onset Alzheimer's with Wearable Technology*
https://projectboard.world/isef/project/56410
Shristi Sharma, 12th; Maharishi School of the Age of Enlightenment, Fairfield, IA

TMED058   *Combating Alzheimer's Disease: An Exploration of Resveratrol Treatment and Early Disease Detection Using Drosophila melanogaster and Machine Learning*
https://projectboard.world/isef/project/56509
Elizabeth Chun, 12th; Ardsley High School, Ardsley, NY

TMED059   *Identification of a Novel Anticancer Pathway in a Traditional Hawaiian Herb*
https://projectboard.world/isef/project/56535
Rachel Tao, 10th; Waiakea High School, Hilo, HI

TMED060T   *Use as Directed*
https://projectboard.world/isef/project/56736
Caiden Belile, 9th; Alora Kroh, 9th; Mandan High School, Mandan, ND

TMED062   *Using SUMO Proteases (SENPS) as a Potential Cancer Biomarker for Future Drug Therapies*
https://projectboard.world/isef/project/56907
Nyla Powell, 11th; Baltimore Polytechnic Institute, Baltimore, MD

TMED063T   *Fiscus Exasperata Vahl: A Therapeutic Approach to Hypertension and Diabetes*
https://projectboard.world/isef/project/56927
Colette Eyemonu, 11th; Oluseyi Olufunminiyi, 10th; Doregos Private Academy, Lagos, West Africa, Nigeria

TMED064   *Identification of Predictive Biomarkers Against Cancer with Sparse Neural Networks*
https://projectboard.world/isef/project/57133
Minnie Liang, 10th; West Lafayette Junior/Senior High School, West Lafayette, IN