

The 2025 Hawaii State Science & Engineering Fair Senior (SR) Division Best in Category

SR - ANIMAL SCIENCES (ANIM)		
1ST Place	Chloe S. 'Iolani School	ANIM-103 Investigating Potential New Culturable Food Sources for Native Hawaiian Land Snails in Captive Rearing Programs
2ND Place	Noor S. Hilo High School	ANIM-101 The Impact of Cold Rearing on the Physical Fitness and Adaptability of <i>Bactrocera cucurbitae</i>
3RD Place	Logan L. 'Iolani School	ANIM-106 A Genetic Analysis of Beak Morphology in the Palila (<i>Loxioides bailleui</i>)

SR - BIOCHEMISTRY (BCHM)		
1ST Place	Austyn B. Hilo High School	BCHM-108 Investigating the Biochemical Components of <i>K. Parviflora</i> and <i>C. Caesia</i>
2ND Place	Nana H. 'Iolani School	BCHM-109 Effect of the Different Tampon Textile on <i>Lactobacillus crispatus</i>
3RD Place	Minyul K. 'Iolani School	BCHM-110 Boosting Agricultural Productivity in Hawaii: Bio-Polymer-Derived Natural Phenolic Compounds to Mitigate Climate Change-Exacerbated Phytopathogens

SR - BEHAVIORAL & SOCIAL SCIENCES (BEHA)		
1ST Place	Elle S. 'Iolani School	BEHA-112 Developing a Model Framework for Assessing Disparities in Indigenous Population Health: Evaluating the Effect of Zoning Laws on the Gut Microbiome and Cardiometabolic Health of Native Hawaiian and Pacific Islanders on O'ahu
2ND Place	Chisato T. 'Iolani School	BEHA-113 Quantifying Spatial Injustice: How American urban form and zoning policies spatialize multidimensional inequality
3RD Place	Calina-Miguela R. Mililani High School	BEHA-114 Predicting the Early Presence of Maladaptive Behaviors Using Deep Neural Network Techniques

SR - BIOMEDICAL & HEALTH SCIENCES (BMED)

1ST Place	Josie V. Kamehameha Schools, Maui	BMED-125 Molecular and Behavioral Characterization of surf1-/- Zebrafish
2ND Place	Genevieve Y. / Kalei Y. Kamehameha Schools, Kapālama	BMED-123 Identifying the Dose-Dependent Effects of Ivermectin on Different Cancer Cell Lines
3RD Place	Quinn M. Baldwin High School	BMED-124 Can Extracted Māmaki Leaf Act as a Natural UV Filter?

SR - COMPUTATIONAL BIOLOGY & BIOINFORMATICS (CBIO)

1ST Place	Lucy T. / Darwynn A. Kalāheo High School	CBIO-127 Tracking Prevalence of Intestinal Parasitic Infection Rates in Stray Felines
2ND Place	Chelsey M. King Kekaulike High School	CBIO-130 Computational Design and Mechanistic Analysis of Smart Antioxidant Nanoparticles for UV-Induced DNA Damage Prevention: A Molecular Dynamics Study
3RD Place	Charlotte K. Hawaii Preparatory Academy	CBIO-128 Hawksbill Migrations, Home-Ranges, and Inter-Nesting Areas in Connection with Environmental Factors

SR - CELLULAR & MOLECULAR BIOLOGY (CELL)

1ST Place	Kian S. University Laboratory School	CELL-132 Exploration of Marine Derived Extracts as Ethical, Sustainable, and Cost-Effective FBS Substitutes
2ND Place	Anela A. Kamehameha Schools, Maui	CELL-134 Examining Tumor Cell Expression of MHC Molecules in Heterogenous PDAC Tumor Microenvironments
3RD Place	Aiden D. Kalāheo High School	CELL-133 Chromosomes vs Hormones

SR - CHEMISTRY (CHEM)

1ST Place	Henry M. Hawaii Preparatory Academy	CHEM-135 Factors of Invasive Watermilfoil in Maine's Freshwater Lakes
2ND Place	Chanceton K. Kohala High School	CHEM-136 Take A Chance: Creating An Energy Drink

SR - EARTH & ENVIRONMENTAL SCIENCES (EAEV)

1ST Place	Travis O. Pearl City High School	EAEV-145 Raman Spectroscopic Detection of Microplastics in Fish Gills around O'ahu
2ND Place	Lauryn H. Kauai High School	EAEV-149 Evaluating the Use of Stichopus horrens (Echinodermata, Holothuroidea) as a Bioremediator
3RD Place	Dava W. University Laboratory School	EAEV-137 The Ecological Mysteries of Opheodesoma spectabilis: Seasonal Trends, Habitat Preferences, and Climate Responses

SR - ENERGY SUSTAINABLE MATERIALS & DESIGN (EGSD)

1ST Place	Jada L. Waimea High School	EGSD-153 Growing Together - Hydroponic Towers
2ND Place	Aliyah S. Aiea High School	EGSD-154 Evaluating Green Roof Solutions to Mitigate Urban Heat Islands in Hawai'i

SR - BIOMEDICAL ENGINEERING (ENBM)

1ST Place	Kainoa T. Punahou School	ENBM-156 Engineering Burkholderia thailandensis TXDOH as a Biosafe Source of Pure Diagnostic Material
2ND Place	Emi N. Kalāheo High School	ENBM-155 Automatic Inflammation Detecting Cooling Sleeve for Rheumatoid Arthritis

SR - ENVIRONMENTAL ENGINEERING (ENEV)

1ST Place	Hayden R. Mililani High School	ENEV-164 Combating Hawaii's Beach Plastic Crisis Through The Use of Custom And Open Source Pultrusion System to Transform Polyethylene Terephthalate Into 3D Printing Filament
2ND Place	Sky B. Hilo High School	ENEV-157 The Power of Practicality: Designing and Testing a Parabolic Dish System to Solar-Purify Contaminated Water
3RD Place	Christopher A. / Oliver P. 'Iolani School	ENEV-160 Biodiversity and Phytoremediative Effects of Constructed Floating Wetlands

SR - ENGINEERING TECHNOLOGY: STATISTICS AND DYNAMICS (ETSD)

1ST Place	Man Fung Z. Kalani High School	ETSD-165 Stationary Radar: Cross Section Tracking while searching VR override Tracking HVB
2ND Place	Jessica N. Pearl City High School	ETSD-168 Genki Ball Launcher
3RD Place	Andrew W. Hilo High School	ETSD-169 Testing the Differences in Compressive Strength of Simulated Lunar Regolith (Hawaiian Basalt) and Sodium Silicate Blocks when Cured in Vacuum vs. in Air

SR - MATHEMATICS (MATH)

Honorable Mention	Raphael E. 'Iolani School	MATH-172 The Boltzmann-Hamel Equations for the Dynamics of Systems on Lie Groups and Lie Algebroids
------------------------------	------------------------------	---

SR - MATERIAL SCIENCES (MATS)

1ST Place	Jace R. Mililani High School	MATS-175 Determining the Viability of Ananas comosus Fibers within Polymer-Based Composites Purposed for Medical Application
2ND Place	Emilee R. / Keilani K. / Ammon C. Kahuku High & Intermediate	MATS-174 Trial by Fire; Surviving the Flames
3RD Place	Lilikoi D. Kahuku High & Intermediate	MATS-176 Banana sap vs Rust converter

SR - MICROBIOLOGY (MCRO)

1ST Place	Luke I. Punahou School	MCRO-179 Rapid and Cost-Effective Colorimetric Detection of Methicillin-Resistant <i>Staphylococcus aureus</i> in Water via Loop-Mediated Isothermal Amplification Targeting the mecA Gene
2ND Place	Madison S. / Skye G. Radford High School	MCRO-178 Recycled Water: Development of Antibiotic-Resistant Genes
3RD Place	Andrew S. Hawaii Preparatory Academy	MCRO-181 Analyzing the microbiome of <i>Asparagopsis taxiformis</i>

SR - PHYSICS & ASTRONOMY (PHYS)

1ST Place	Kai G. Kealakehe High School	PHYS-185 Distributional Differences in Iron Equivalent Widths Among Supernova Progenitor Candidate Stars and Stable Spectral Mirrors
2ND Place	Sahana A. Kamehameha Schools, Kapālama	PHYS-184 Analyzing Muon Flux Under Altitude and Density Variation
3RD Place	Alexandra L. King Kekaulike High School	PHYS-187 Asteroid Rotation Rates - YORP Effect

SR - PLANT SCIENCES (PLNT)

1ST Place	Deborah P. 'Iolani School	PLNT-194 Reversed Genetic Research of <i>Nannochloropsis oceanica</i> for Increased Thermal Tolerance
2ND Place	Avari S. 'Iolani School	PLNT-195 Utilizing a Molecular Approach to Fungal Identification
3RD Place	Natalie C. University Laboratory School	PLNT-191 Use of eDNA for Identifying Native and Invasive Algae at the Intertidal Benches in Hawai'i

SR - ROBOTICS & INTELLIGENT MACHINES (ROBO)

1ST Place	Tahan B. Punahou School	ROBO-206 Can AI Save Our Reefs? Using CNNs to Assess and Protect Coral Health
2ND Place	Ian J. Punahou School	ROBO-207 Predicting Papaya Ripeness using Image Processing via Machine Learning
3RD Place	Aaron-James S. Waipahu High School	ROBO-205 Novel Invasive Algae Detection with MiSo Sensor Platform and Neural Networks

SR - SYSTEMS SOFTWARE (SOFT)

1ST Place	Tiffany C. Mililani High School	SOFT-211 Analyzing Lattice-Based Threshold Signature Schemes for Securing Message Authentication in Preparation for Y2Q
2ND Place	Michael Ming Fung H. 'Iolani School	SOFT-209 Using Computer Vision to Preprocess Peponocephala electra Photos and Aid in Conservation Efforts
3RD Place	Micah E. / David H. Kalāheo High School	SOFT-210 An Annual Albatross Census: Advancing Avian Conservation with Drone and AI Imaging

SR - TRANSLATIONAL MEDICINE (TMED)

1ST Place	Siddharth S. 'Iolani School	TMED-212 Exploring the Impact of A Gluten-Free Diet on the Gut Microbiome, DNA Methylation and Symptomatic Expression in Individuals with Crohn's Disease
2ND Place	Lillian T. Waiākea High School	TMED-213 Investigation of a Safer Treatment for Lung Cancer Using a Traditional Hawaiian Herb, Morinda citrifolia (Noni)