

2025 CREST-Jane Goodall Science Symposium Award Winners

Hosted by Riverside High School

February 24 – 25, 2025

Keynote Speaker: Anneli Tostar, West Linn High School class of 2011

Regional Awards Organizations

Outstanding Research in Psychology

The Outstanding Research in Psychology award, sponsored by the American Psychological Association, awards a certificate recognizing outstanding research in the category of behavioral and social sciences or any category related to psychology.

Olivia Sheng, Avani Patel, Lauren Shin

Quantifying Instant Gratification in High School Students Using Eye-Tracking and Questionnaire Data

Zoe Knighten, Isabelle Cobb, Liliana Nishan

What Does Doodling Do For Memory Recall?

Association of Women Geoscientists Award

The Award for Geoscience Excellence goes to the project which exemplifies a high standard of innovation and scientific excellence in the geosciences, and in which at least one team member is female.

Eloise Kausen

Stormwater Filter

Marina Vadnais

Sheltering Coral Reefs from Sun-Induced Stress

NASA Earth System Science Award

The NASA Earth System Science Award Certificate is given to the projects that best demonstrate insight into Earth's interconnected systems. The projects incorporate studies of the different components of Earth systems, their interactions and their evolution over time.

Marina Vadnais

Sheltering Coral Reefs from Sun-Induced Stress

Kaelyn Jones, Finn Howell

Greening the Garbage: How Bromoform could reduce landfill methane emissions

NOAA Taking the Pulse of the Planet Award

The Taking the Pulse of the Planet award honors projects selected from among all the general award categories whose research emphasizes NOAA's mission of Science, Service, and Stewardship: "To understand and predict changes in climate, weather, oceans, and coasts, to share that knowledge and information with others, and to conserve and manage coastal and marine ecosystems and resources."

Ava Milanovich

Ocean Motion to Energy

Rubi Martin

Dual Stressors: Investigating the Impact of pH and Sound Waves on the Growth Rate of Tetraselmis

Naval Excellence in Science and Engineering Award

The Naval Science and Engineering Award recognizes 4 exceptional projects. The Office of Naval Research is pleased to support the education of future scientists and engineers of America and presents each project with a \$50 gift certificate.

Elliott Frempong

Reinventing the Vision Test: Maritime Worker's Color Vision Test

Oliver Uelmen

Determining Bamboo culm density for effective sound pollution mitigation

Sai Nithya Kalavai

Developing a Zero Gravity IV Drop: Designing an Innovative IV Drip Solution to Overcome Fluid Transfer Challenges in Zero-Gravity Environments

Bryce Davis

How are Programming Languages Created?

Outstanding Science or Engineering Fair Project from the US Air Force

The US Air Force Research Laboratory is proud to support science, technology, engineering, and mathematics. This certificate is awarded to five projects with Air Force applicability in science and technology. Winners will receive a certificate and some US Air Force swag including a sling pack, Power Bank, USB Flash Memory Drive, USB Car Charger, and Official Air Force Certificate.

Jaxx Phillips

Microbial Viability in Plastic Reusable Bags Compared to Cotton Reusable Bags

Timothy Lee

Detour Ahead: Smart Fish Protection for Hydropower Dams

Jorge Rumayor Gonzalez

How extreme temperatures affect Space Solar Satellites signal strengt

Lucy Becklin

Snowstorm Disaster Relief Vehicle

Ricoh Sustainable Development Award

The Ricoh USA Certificate recognizes projects that demonstrate a technical innovation that offer great potential for increasing our ability to grow environmentally friendly and socially responsible businesses. This award comes with a certificate of congratulations.

Hayden Martuscelli, Evan Doms

Influence of Soil Depth on Mycelium Inoculation

Sydney Taylor

Reimagining "Reef-Safe" - The use of Microsporine-like Amino Acids

Stockholm

The Stockholm Junior Water Prize, sponsored by the Water Environment Federation, is awarded to the best water-related projects at the fair. These projects are aimed at enhancing the quality of life through improvement in water quality, water resource management, or water and wastewater treatment. The recipients of this award get a certificate, a free year-long membership to the WEF, and the opportunity to apply to the state level WEF competition.

Eloise Kausen

Stormwater Filter

In Vitro Biology

This award recognizes an 11th grade student project in the areas of plant or animal in vitro biology or tissue culture. A formal letter of congratulations will be sent to the winner, and publicity of the winners' achievement will be included in the society's online newsletter.

Brooklyn Carr Heuer

Counteracting the Negative Impact of Antibiotics on the Microbiome

Isla Granger

RIRE-like effect in UV sensitive yeast when paired with healthy cells

USAID

The US Agency for International Development is pleased to offer two Science Champion Award Certificates which recognize two exceptional projects that have the potential to make an impact on addressing international development challenges.

Grace Haack

Home Remedies vs. Staph E. A study of natural remedies against Staphylococcus epidermidis

Neve Del Carlo, Katie Crim

Development of Biodegradable Packaging from Natural Polymers to Reduce Plastic Waste

Metric System: Best Use of the SI

The Best Use of the Metric System award, sponsored by the US Metric Association, is a certificate to recognize the project that has used metric measures and expresses those measures consistently and correctly.

Shubhi Kumar

Inhibition of Fusarium using Yeast

Will Lively

Escherichia Coli Adaptation to Increased Kanamycin Concentrations

Yale Science and Engineering Association

The Yale Science and Engineering Association sponsors an award which goes to the best 11th grade project in science, engineering, technology, and/or mathematics. This award comes with a certificate and a medallion.

Sahara Leeson

Impedance Characterization of Undoped and Graphene-Doped Nanostructural ZnO Sensors Under Varying O₂ Concentrations

CREST Special Awards

Best Project Display

The Best Project Display award goes to two exceptional displays which drew the judges in and were organized and comprehensive. A \$25 prize, provided by generous anonymous donors, and a certificate are awarded to one exceptional analog board and one exceptional digital board.

Nicole Norman, Viktoria Norman

Bugs on a Buzz

Romi Rozenhaimer

African Wild Dog Fur Patterns and Their Correlation With Their Degree of Relatedness

Noteworthy Logbook

This award goes to the project who utilized their logbook in a meaningful way. Their logbook documented their thought process through all phases of the project, used notes, research, sketches, data, and more, and kept track of experimentation and results in an organized way. This award comes with \$25 and a certificate, thanks to support from anonymous community donors!

Lily Vu

Variable Concentrations of an Ammonia-Based Fertilizer on Microgreens

Green Chemistry Award

The Green Chemistry award recognizes a project that has addressed the area of sustainable chemistry with emphasis on reducing chemical waste or remediating hazardous substances. The winner will receive \$25 and a certificate, made possible by an anonymous community donor!

Neve Del Carlo, Katie Crim

Development of Biodegradable Packaging from Natural Polymers to Reduce Plastic Waste

Promising Young Scientist

This award goes to the 9th grade students who presented thoughtful, well-conducted experiments that show promise of greater things to come. Each project that receives this award wins \$25, made possible thanks to generous support from community members.

Rakhee Braunstein, Adelyn Pixton

Phenology and how it affect our local trees

Ella Candrian

Turning Plant Debris into Paper to Reduce Deforestation

Brianna Chen

Glutamate-Induced Behavioral Changes in Drosophila melanogaster: A Model for Human Neuropsychiatric Disorders

Jacqueline Esqueda

The Effects People's Peers Have On Their Academic Performance

Jakub Goll

Project Magnetohydrodynamic Drive

Nathaniel Dixon

The Effect of Iron Content on the Specific Heat Capacity of a "Sand Battery"

Ananya Ilanchelian

The Impact of Heat Stress on Olfactory Function in Vanessa Cardui Butterflies

Chassa Watkins, Eleanor Hydes, Alex Glynn

Wormholes

Andrii Vasylenko

A Low-Compute ARC-AGI Algorithm

Field Knowledge

This award goes to the students who indicate the best understanding of their topic and who related their work to other research in the field. This award comes with a \$25 prize provided by an anonymous community partner!

Sara Henry

The Effects of miR28, miR148a, and miR152 Knockout in EBV+ B-cells

Experimental Design

A certificate and a \$25 prize, provided by a generous anonymous community donor, goes to the project which demonstrates the best practices of experimental design.

Delilah Leusch, Maryam Al-Medyadi

Genetic Mosaicism in Diamond-BlackFan Anemia: Navigating the Growth Impacts of Different Ratios of Healthy and DBA-like Cells

Most Creative Project Idea

The Most Creative Project award goes to a project that takes a unique approach to solve a scientific or technical problem, makes use of readily available materials to collect data or address a need, and demonstrates originality of thought. This award comes with a \$25 cash prize provided by an anonymous community partner!

Cayden Whisman

An approach to Recycle & Repurpose 3D Filament Scrap at WHS

Intelligent Machines

The Intelligent Machines award recognizes a student who visually and verbally convey how their project, involving intelligent machines or artificial intelligence, will improve the human experience. This award comes with a \$50 prize, provided by an anonymous community partner!

Aarush Palve

Predicting Wildfires with Machine Learning

Educator's Award

The Educator Award is awarded to the project which aimed to help students, teachers, schools, or other educational entities improve or investigate some aspect of the school experience. This award comes with a certificate and \$25, thanks to anonymous community partners!

Cadence Cox

The Mint Myth

Technology in Medicine Award

This award goes to the project which used a multidisciplinary approach to solving a medical problem that involves the use of circuits, computer science, prostheses, or assistive technology. This award comes with a certificate and a \$25 prize, thanks to our generous anonymous community partners.

Beatrice Gilfix, Henry Felsted

Affordable Assistive Prosthetics for Finger Mobility

Ethical Medical Model Award

The Ethical Medical Model award goes to a project which focused on the ethical selection and use of non-human models for medicine, in the fields of environmental health, environmental chemistry and toxicology, pharmacological development and evaluation, and food and water protection. This award comes with a certificate and a \$25 prize, made possible by our generous anonymous community partners.

Finley Springer

Can lavender and sandalwood reduce heart rate of daphnia?

Paul Sherman Award

This award commemorates Paul Sherman, whom we lost to cancer in 2005. During his 24-year career at West Linn High School, he started both the Advanced Biology class and the boys' varsity soccer program. Although Paul felt he was not a natural teacher, his effort and creativity and driving, sustaining enthusiasm for science fooled them all. Paul was an honored teacher but that meant much less to him than sharing his love of learning with his students. He was known for doing special extra things like dressing up as various famous scientists who came and delivered "guest" lectures (and staying in character all day!), telling a joke of the day, leaping around the classroom demonstrating molecular action, and also always urging his students to have family time. The students who receive the Paul Sherman award Student exhibit passion and enthusiasm for their project and scientific and/or engineering research. The winners receive a \$25 gift card to Powell's Books.

Two Orteiz

Addicted To The Scroll: The Effect Of Social Media On The Adolescent Brain

Audrey Reiner

Fighting Acne: A Study on the Effectiveness of Treatment Products

Paetyn Rector

A Silent Solution: Designing an Environmental Monitoring System for Deaf Individuals

Gabi Rutherford

Bird Species Richness Along the Willamette River

Best Use of Statistical Analysis

The Best Use of Statistical Analysis Award recognizes five projects which conveyed an exceptional understanding and interpretation of the results of their statistical analyses. four projects who receive this certificate also receive a free, four-year subscription to the online TI-84 Graphing calculator. The top prize wins a free, rechargeable graphing calculator. These were generously donated by Texas Instruments!

Annamika Konkola

Eusocial Intelligence: Ant Social Immunity Behavior as a Model for Pandemic Response

Julia Tatsumi

COVID 19: The Sensory Thief

Lilian Tatsumi

COVID 19: The Sensory Thief

Noor Alfar

Analyzing zones of inhibition from Lavender, Rosemary, and Oregano on Corynebacterium xerosis

Olivia Sheng, Avani Patel, Lauren Shin

Quantifying Instant Gratification in High School Students Using Eye-Tracking and Questionnaire Data

Extra Special Awards

Best Multi-Disciplinary Research Award

The Best Multi-Disciplinary Research Award is given to a project that demonstrates outstanding achievement combining 2 or more distinct scientific/engineering disciplines, synthesizing these different perspectives to provide a more whole-system approach to a problem. The project that receives this award wins a certificate and a \$125 prize, thanks to an anonymous community member.

Annamika Konkola

Eusocial Intelligence: Ant Social Immunity Behavior as a Model for Pandemic Response

Women in Engineering Award

The Women in Engineering Award is given to a project that demonstrates excellence in applied engineering in any field by a female student. This award comes with a certificate and a \$125 prize – we'd like to extend special thanks to the anonymous community partners who made this possible!

Anvi Singh

Advancing Opioid Overdose Intervention: Formulating Novel Spray-Dried Naloxone Microparticles for Pulmonary Delivery

Regeneron Biomedical Science Award

This project, from within the biomedical and health sciences, exemplifies The Regeneron Way. The Regeneron way says, "Lead with science, take on big ideas, make it happen, be great together, and do what's right." This award comes with a certificate and a \$375 prize.

Francisca Brevis

Rising Thermometers, Rising Threats: How Temperature Affects Influenza Dynamics

Oregon State University (\$2000, one time)

The Oregon State University scholarship is a one-time \$2,000 general scholarship awarded to two exceptional projects in any category.

Ava Brill

Harnessing Adaptive Resilience of Symbiotic Zooxanthellae: Enhancing Tolerance to Ocean Acidification and Diuron in Coral Ecosystems, with Future Potential for Genetic Optimization and Directed Evolution

Paige Jackson

Using Weeds with Rhizobium Fungi to Rehabilitate Poor Soil with Composted Nutrients

BorgWarner - Best Execution of the Design Process

This award recognizes the best execution of the design process as determined by local engineers at the firm BorgWarner PDS Portland and they specifically wanted to honor a spectacular student who worked in the field of Energy and Environmental Engineering and one in the field of Electrical and Mechanical Engineering.

Natalie Olson

An "Extra Hand": Portable Robotic Hand on Wheels

Duncan Duffield

Revolutionizing Energy: Advancing Energy Storage with Graphene

Category Awards

Behavioral and Social Sciences

First Place

Olivia Sheng, Avani Patel, Lauren Shin

Quantifying Instant Gratification in High School Students Using Eye-Tracking and Questionnaire Data

Second Place

Arwen Mencke, Clara Wood, Kiera Kuehn

Multitasking: Brain Drain or Brain Boost?

Third Place

Abbie Wu, Georgia Santoso

How Does Gamification Affect Teenagers' Risk Taking Tendencies

Honorable Mention

Garrett Boreham-Doyle

What Do Adults Think About Genetically Modified Foods?

Helena Vadnais

Does 'More' Representation Equal 'Good' Representation?: A Content Analysis of LGBTQ+ Characters In Hollywood Films, 2010 to 2024

Bioengineering & Materials Science

First Place

Anvi Singh

Advancing Opioid Overdose Intervention: Formulating Novel Spray-Dried Naloxone Microparticles for Pulmonary Delivery

Second Place

Suhaani Garg

AAVehicle: Novel Adeno-Associated Virus via AAP Domain Shuffling for Enhanced Capsid Formation and Gene Therapy as Treatment for Genetic Disorders

Third Place

Megan Whitt, Mia Williams

Biomimetic Hydrogel Heart Valve: Engineering a Novel Solution to Combat Infective Endocarditis

Honorable Mention

Sahara Leeser

Impedance Characterization of Undoped and Graphene-Doped Nanostructural ZnO Sensors Under Varying O₂ Concentrations

Computer Sciences & Robotics

First Place

Arush Goswami

De Novo Protein Design for Enhanced Energy Capture in Biohybrid Solar Cells

Second Place

Anshu Mukherjee

ML-Based Decision Support Tool to Reduce Diagnostic Delay in IBD Using Exposomic Risk Factors

Third Place

Sujan Shadrak

Leveraging AI for Early Detection and Diagnosis of Anxiety and Depression

Honorable Mention

Sabrina Zhang

Type 2 Diabetes and Accelerated Cellular Aging: A Mechanistic Approach to Mortality Risk Prediction

Electrical and Mechanical Engineering

First Place

Liam Ottum, Sai Kalavai

Developing an Integrated DNA Data Storage System Utilizing Hybrid Plant Sequencing and Microcontroller-Driven Nucleotide Decoding

Second Place

Siddharth Sundaram

Constructing a Variable Stiffness Magnetic Spring System

Third Place

Sai Nithya Kalavai

Developing a Zero Gravity IV Drop: Designing an Innovative IV Drip Solution to Overcome Fluid Transfer Challenges in Zero-Gravity Environments

Honorable Mention

Callen Molander

The Never Fail Alarm Clock

Energy & Environmental Engineering

First Place

Aasha Patel

Bright Solutions: Cost-Optimized Photobioreactor for Sustainable Agriculture and Laboratory Applications

Second Place

Lily Vu

Variable Concentrations of an Ammonia-Based Fertilizer on Microgreens

Third Place

Addison Arakelian

Carbon Dioxide Sequestering Microalgae Biochamber- Chlorophyll a Analysis

Honorable Mention

Duncan Duffield

Revolutionizing Energy: Advancing Energy Storage with Graphene

Environmental and Earth Sciences

First Place

Niyati Bhaskar

A Balancing Act of Bacteria and Blooms

Second Place

Kaelyn Jones, Finn Howell

Greening the Garbage: How Bromoform could reduce landfill methane emissions

Third Place

Ava Brill

Harnessing Adaptive Resilience of Symbiotic Zooxanthellae: Enhancing Tolerance to Ocean Acidification and Diuron in Coral Ecosystems, with Future Potential for Genetic Optimization and Directed Evolution

Honorable Mention

Riley Swakon

Regenerative Farming and Soil Carbon: The Keys to Restoring The American Agriculture System

Microbiology

First Place

Zachary Santoso

Identifying Mediterranean Oak Borer using Novel Convolutional Neural Network Fungi Classification

Second Place

Brooklyn Carr Heuer

Counteracting the Negative Impact of Antibiotics on the Microbiome

Third Place

Sara Henry

The Effects of miR28, miR148a, and miR152 Knockout in EBV+ B-cells

Honorable Mention

Kendrick Wong

Exploring Natural Solutions: Garlic, Onion, and Honey as Potential Replacements for Nephrotoxic Antibiotics in Bone Grafts.

Shubhi Kumar

Inhibition of Fusarium using Yeast

Life Sciences

First Place

Sydney Taylor

Reimagining "Reef-Safe" - The use of Microsporine-like Amino Acids

Second Place

Annamika Konkola

Eusocial Intelligence: Ant Social Immunity Behavior as a Model for Pandemic Response

Third Place

Paige Jackson

Using Weeds with Rhizobium Fungi to Rehabilitate Poor Soil with Composted Nutrients

Honorable Mention

Val Bonner

Determining the significance of color to male fruit flies

Medicine and Health Sciences

First Place

Delilah Leusch, Maryam Al-Medyadi

Genetic Mosaicism in Diamond-BlackFan Anemia: Navigating the Growth Impacts of Different Ratios of Healthy and DBA-like Cells

Second Place

Fiona Jarneberg

Planarian Worms & the Optic Nerve

Third Place

Henry Weisensee

Cardio-Regenesis

Elliana Siegel-Kittrell, Kesavi Rossington

How melatonin supplementation effects the natural production of melatonin

Honorable Mention

Maggie Weber

Could Your Shampoo Be Causing Hair Damage?

Matthew Tence

The influence of Immersion Duration and Tissue Type on Optical Tissue Transparency Induced by Tartrazine

Physics and Astronomy

First Place

Annika Martin

Quantifying AGN Feedback in High-Redshift Quasars: A Multi-Wavelength Spectroscopic Approach to Outflow Kinematics

Second Place

Lauren Gault, Ruby Deng

The Future of Trapped Ion Quantum Computing

Third Place

Theo Johnson

A Rediscovery of Umbral Calculus

Honorable Mention

Maizy Benston, Morgan Farnand, Percy Pritchard

Perception of Theories on the Cold Spot

Advancing to the Northwest Science Expo

The top 30% of projects from our science have been selected to advance to the state-level science fair. This event will take place on April 11, 2025 at Portland State University.

Olivia Sheng, Avani Patel,
Lauren Shin
Arwen Mencke, Clara Wood,
Kiera Kuehn
Anvi Singh
Suhaani Garg
Megan Whitt, Mia Williams
Sahara Leaser
Arush Goswami
Anshu Mukherjee
Sujan Shadrak
Sabrina Zhang
Liam Ottum, Sai Kalavai
Siddharth Sundaram
Sai Nithya Kalavai
Callen Molander
Aasha Patel
Lily Vu
Addison Arakelian

Duncan Duffield
Niyati Bhaskar
Kaelyn Jones, Finn Howell
Ava Brill
Riley Swakon
Zachary Santoso
Brooklyn Carr Heuer
Sara Henry
Kendrick Wong
Shubhi Kumar
Sydney Taylor
Annamika Konkola
Paige Jackson
Delilah Leusch, Maryam Al-
Medyadi
Fiona Jarneberg
Henry Weisensee
Elliana Siegel-Kittrell, Kesavi
Rossington

Annika Martin
Lauren Gault, Ruby Deng
Eloise Kausen
Marina Vadnais
Grace Haack
Aarush Palve
Paetyn Rector
Julia Tatsumi, Lilian Tatsumi
Noor Alfar
Abbie Wu, Georgia Santoso
Garrett Boreham-Doyle
Helena Vadnais
William (Val) Bonner
Francisca Brevis
Maggie Weber
Matthew Tence
Gabi Rutherford
Romi Rozenhaimer

Advancing to the Regeneron International Science and Engineering Fair

Representing the West Linn-Wilsonville School District on the International Stage, to compete with 1,500 students from more than 80 countries, these four projects represent the best of Fair. ISEF will take place May 11-16, 2025 in Columbus, Ohio

Arush Goswami

De Novo Protein Design for Enhanced Energy Capture in Biohybrid Solar Cells

Annika Martin

Quantifying AGN Feedback in High-Redshift Quasars: A Multi-Wavelength Spectroscopic Approach to Outflow Kinematics

Suhaani Garg

AAVehicle: Novel Adeno-Associated Virus via AAP Domain Shuffling for Enhanced Capsid Formation and Gene Therapy as Treatment for Genetic Disorders

Anvi Singh

Advancing Opioid Overdose Intervention: Formulating Novel Spray-Dried Naloxone Microparticles for Pulmonary Delivery