

2023 CREST-Jane Goodall Science Symposium

Hosted by Wilsonville High School

February 27, 2023 – February 28, 2023

Keynote Speaker: Nicole Day, Wilsonville High School Class of 2015, "Engineering Immune Cell Responses Using Magnetic Particles"

Regional and CREST Special Awards

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.

Grace Sato, Alan Kolesnikov, West Linn High School

Modeling the Impacts of Daikon Cover Crop Water Storage in Dry Farming

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.

Evangelee Maderos, Ava Riddle, Wilsonville High School

Methylparabens Effect on Planaria Regeneration Speed

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.

Reed Jordan, West Linn High School

The Space Net Situation

Misha Rana, West Linn High School

The Impact of Brassica Juncea Mulch on the Growth of Lettuce: A Study on Natural Weed Prevention

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.

Uma Grover, Melinda Lin, West Linn High School

What are the effects of cyanobacteria blooms on primary productivity, toxicity, and microorganisms?

Aasha Patel, Wilsonville High School

From Dust to Dirt: Increasing Productivity of Martian Soil Using Cyanobacteria

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.

Sabrina Zhang, West Linn High School

Developing an Unsupervised Machine Learning Model for Automated Analysis in Marine Soundscape using Ecoacoustic Indices

Lauren Gault, West Linn High School

The Nuts and Bolts of Encryption

Suhaani Garg, West Linn High School

A novel device for rapid detection of polycyclic aromatic hydrocarbons to increase superfund site clean-up efficiency

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."

Bella Buzzelli, West Linn High School

The Effect of Excess Nitrogen on Algae Growth

Marina Vadnais, West Linn High School

Will Portland Be the New Napa?

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.

Ajay Shah, Sam McCarty, West Linn High School

Chair's Affects on Student Learning

Elise Meikle, West Linn High School

How Has COVID-19 Affected the Development of Children Ages 5-10?

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.

Kate Kurata, Wilsonville High School

Detecting Schizophrenia in MRIs

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.

Jada Trieu, West Linn High School

Lemon Enzyme Infused Biodegradable Plastic

Sullivan Baus, William Delehant, West Linn High School

Are there Alternatives to Commercial De-icing salt?

Stockholm Junior Water Prize

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.

Henry Smith, West Linn High School

Neighborhood Water Conservation

Alexander Denney, West Linn High School

Assessing Water Quality Using Artificial Intelligence

Nicole Norman, West Linn High School

Antibiotics v. Algae

Zachary Tsai, Lukas Hahn, West Linn High School

Measuring the effectiveness of Microplastics. Trapping

Sydney Taylor, West Linn High School

The impact of Arthrospira platensis on mineral concentration and pH in fish effluent

That's Geography! Cultivating Empathy for the Earth Award

This award, sponsored by the National Geographic Society, recognizes a project that focuses on issues of oceans, land, wildlife, human history & cultures, and human ingenuity. This project brings geographic concepts and skills to life in new, non-traditional ways, and brings innovation to the space and place. This award comes with a certificate and a \$100 prize.

Sophia Gordon, Mia Garcia, Ava Katz, Wilsonville High School

Gone with a Spark, a study into the protection of our forests

US Air Force

The US Air Force Research Laboratory is proud to support science, technology, engineering, and mathematics. This certificate is awarded to three projects with Air Force applicability in science and technology. Winners will receive a certificate and some US Air Force swag.

Tara Brown, Dylan Englund, West Linn High School
Solar Jet Research Project

Caroline Nielsen, West Linn High School
CO2 Concentration in the Classroom

Jesse Hayworth, Wilsonville High School
TriM: Modular, Modern, & Multipurpose 3D-printed Aircraft

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.

Sahara Leeser, West Linn High School
Straw-based water filter

Grace James, Anna Nurmi, West Linn High School
How Different Proteins Affects Bacterial Growth

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.

Amaya Martinez, Finch Moore, West Linn High School
Biodegradable Food Safe Gloves

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.

Anwasha Chowdhury, West Linn High School
Nutrition vs. Sustainability of Fruits

Emily Pierce, Josephine Mathews, West Linn High School
Concentration of Yarrow on Staph Infection

Anya Bollinger, West Linn High School
How The Use of Plant Based Medicine Compares to Pharmaceuticals in Treating Tachycardia

Paige Jackson, West Linn High School
Photosynthesis Is All In The Roots

Jake Sinclair, Orion Lerner, Ryan Deboni, West Linn High School
Desalination Device

Isabelle Ludemann, West Linn High School

Pet Food Feeder

Sullivan Baus, William Delehant, West Linn High School

Are there Alternatives to Commercial De-icing salt?

Henry Smith, West Linn High School

Neighborhood Water Conservation

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.

Arush Goswami, Anish Goswami, Wilsonville High School, West Linn High School

Identifying relationships between the gut microbiome and melanoma patients' responses to immunotherapy using machine learning techniques

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.

Lia Workman, Macquarie Workman, West Linn High School

Construction Waste and the Environment

Sabrina Zhang, West Linn High School

Developing an Unsupervised Machine Learning Model for Automated Analysis in Marine Soundscape using Ecoacoustic Indices

Best Use of Statistical Analysis

The Best Use of Statistical Analysis Award recognizes two projects which conveyed an exceptional understanding and interpretation of the results of their statistical analyses. The projects who receive this certificate also receive a brand-new rechargeable TI-84 Graphing calculator, which were generously donated by Texas Instruments!

Uma Grover, Melinda Lin, West Linn High School

What are the effects of cyanobacteria blooms on primary productivity, toxicity, and microorganisms?

Julia Tatsumi, Wilsonville High School

Eyebrow Instincts: Eyebrow Expression To Perceive People's True Emotions

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!

Clara Wood, Coakley Lewis, Arwen Mencke, West Linn High School

ELL's in a Local High School

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.

Katelynn Wesse, West Linn High School

Drosophila Melanogaster Anesthesia Recovery

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.

Imo Udoh, West Linn High School

Efficacy of Coliphage T4r+ treatment against antimicrobial resistant Escherichia Coli B in Drosophila Melanogaster Gut

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!

Abbie Jalili, West Linn High School

Evaluating the effect Carbon Dioxide in the Atmosphere has on seeded clouds formation and duration

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!

Sujan Vijayraj Shadrak, Wilsonville High School

ECO FRIENDLY PREPARATION AND CHARACTERIZATION OF CHITIN BASED BIOPLASTIC FROM AGARICUS BISPORUS

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!

Madeline Santoso, Kaya Hald, West Linn High School

AI Environmental Background Noise Classification for Use in Accessibility Tools

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. This award comes with a \$25 cash prize provided by an anonymous community partner!

Liam Ottum, West Linn High School

Using Electromagnets to Slow Space Debris in Orbit

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!

Aditi Bhaskar, Wilsonville High School

ASCEND: Aqueous Spectrometric Copper-Electrolytic Nutrient Detector

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.

Riley Evans, West Linn High School

The cleanliness of a Clackamas County High School

Keegan Cook, West Linn High School

Based on personality, what animal should one get

Connor Nelson, Wilsonville High School

Green Burial Research

Yubin Kim, Wilsonville High School

Data Analysis of Properties of Super-Earths

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.

Raynah Cheng, West Linn High School

Are oncogenes conserved in bacterial genomes?

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!

Sahara Leeser, West Linn High School

Straw-based water filter

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.

Sarah Sanborn, West Linn High School

Conditions for Photosynthetic Endosymbiosis: An Investigation of the Effects of Freshwater Acidification Using Hydra-Chlorella

Kate Kurata, Wilsonville High School

Detecting Schizophrenia in MRIs

Category Awards

Behavioral and Social Sciences

First Place

Annamika Konkola, West Linn High School

Beyond the Nuclear Family: A Century of Representation in Images and Text of Children's Literature

Second Place

Jenna Campbell, Megan Whitt, Mia Williams, Wilsonville High School

Bilateral and Cross Lateral Stimulation

Third Place

Francisca Brevis, West Linn High School

Food Waste in Local Public High Schools

Honorable Mention

Julia Tatsumi, Wilsonville High School

Eyebrow Instincts: Eyebrow Expression To Perceive People's True Emotions

Bioengineering and Materials Science

First Place

Sujan Vijayraj Shadrak, Wilsonville High School

ECO FRIENDLY PREPARATION AND CHARACTERIZATION OF CHITIN BASED BIOPLASTIC FROM AGARICUS BISPORUS

Second Place

Charlie An, Simone Del Carlo, West Linn High School

Extracting Phenolic Compound, Ellagic Acid, from Himalayan Blackberries to Create a Non-Toxic, Limited Waste, Fire Retardant

Third Place

Amaya Martinez, Finch Moore, West Linn High School

Biodegradable Food Safe Gloves

Honorable Mention

Jada Trieu, West Linn High School

Lemon Enzyme Infused Biodegradable Plastic

Computer Sciences and Robotics

First Place

Arush Goswami, Anish Goswami, Wilsonville High School, West Linn High School

Identifying relationships between the gut microbiome and melanoma patients' responses to immunotherapy using machine learning techniques

Second Place

Sabrina Zhang, West Linn High School

Developing an Unsupervised Machine Learning Model for Automated Analysis in Marine Soundscape using Ecoacoustic Indices

Third Place

Madeline Santoso, Kaya Hald, West Linn High School

AI Environmental Background Noise Classification for Use in Accessibility Tools

Honorable Mention

Lauren Gault, West Linn High School

The Nuts and Bolts of Encryption

Electrical and Mechanical Engineering

First Place

Aditi Bhaskar, Wilsonville High School

ASCEND: Aqueous Spectrometric Copper-Electrolytic Nutrient Detector

Second Place

Suhaani Garg, West Linn High School

A novel device for rapid detection of polycyclic aromatic hydrocarbons to increase superfund site clean-up efficiency

Third Place

Jesse Hayworth, Wilsonville High School

TriM: Modular, Modern, & Multipurpose 3D-printed Aircraft

Honorable Mention

Isabelle Ludemann, West Linn High School

Pet Food Feeder

Energy and Environmental Engineering

First Place

Cooper Jordan, West Linn High School

Backyard Blank Spot: An Ecological Data Map of Camassia Natural Preserve

Second Place

Abbie Jalili, West Linn High School

Evaluating the effect Carbon Dioxide in the Atmosphere has on seeded clouds formation and duration

Third Place

Rodney Sclater, Lydia Eddington, Ashlynn Atack, West Linn High School

Artificial Chimney for Vaux's Swifts

Honorable Mention

Sahara Leeser, West Linn High School

Straw-based water filter

Life Science

First Place

Sarah Sanborn, West Linn High School

Conditions for Photosynthetic Endosymbiosis: An Investigation of the Effects of Freshwater Acidification Using Hydra-Chlorella

Second Place

Grace Sato, Alan Kolesnikov, West Linn High School

Modeling the Impacts of Daikon Cover Crop Water Storage in Dry Farming

Third Place

Aasha Patel, Wilsonville High School

From Dust to Dirt: Increasing Productivity of Martian Soil Using Cyanobacteria

Honorable Mention

Haley Ray Newbore, Emmeline Staten, West Linn High School

Increasing the resistance of Poaceae to Drought Stress using Arbuscular Mycorrhizal Fungi Mutualism

First Place

Brooklyn Carr Heuer, West Linn High School

How do food additives affect beneficial gut bacteria?

Second Place

Imo Udoh, West Linn High School

Efficacy of Coliphage T4r+ treatment against antimicrobial resistant Escherichia Coli B in Drosophila Melanogaster Gut

Third Place

Anthony Herrera-Alonzo, Henri Villeneuve, Soren Tucker, Wilsonville High School

Inhibiting Bacterial Quorum Sensing Through the use of Phytochemicals

Honorable Mention

Grace Haack, Lillian Kempton, Wilsonville High School

Natural Treatments for Staphylococcus epidermidis

Medicine and Health Sciences

First Place

Ayushi Mallick, West Linn High School

Analysis of snRNA-seq Datasets Identifies Cell Type Changes of Depression Gene Markers in Parkinson's Patients

Second Place

Rhianna Patel, Katie Olson, West Linn High School

The Effect of Different Extracts on the Development of Hyperpigmentation, Which Can Lead to Melanoma With the Use of Bananas

Third Place

Ashton Guvenir, West Linn High School

p62 levels in male vs female mice suffering memory loss due to decreased folliculin in the hippocampus

Honorable Mention

Paetyn Rector, West Linn High School

Hearing Capabilities in the Work Environment

Environmental and Earth Sciences

First Place

Uma Grover, Melinda Lin, West Linn High School

What are the effects of cyanobacteria blooms on primary productivity, toxicity, and microorganisms?

Second Place

Caroline Nielsen, West Linn High School

CO2 Concentration in the Classroom

Third Place

Misha Rana, West Linn High School

The Impact of Brassica Juncea Mulch on the Growth of Lettuce: A Study on Natural Weed Prevention

Honorable Mention

Sydney Taylor, West Linn High School

The impact of Arthrospira platensis on mineral concentration and pH in fish effluent

Physics and Astronomy

First Place

Tara Brown, Dylan Englund, West Linn High School

Solar Jet Research Project

Second Place

Ronak Sameer-Asita, Paul Liu, Wilsonville High School

Noise & Drag Reduction System Rearview Mirror Cap

Third Place

Oaklyn Hill, Wilsonville High School

Examining Propeller Placement for Optimized Efficiency on Commercial Aircrafts

Advancing to the Northwest Science Expo

The state-level science fair, the Northwest Science Expo will take place at Portland State University on April 3rd, 2023.

Charlie An

Ashlynn Atack

Aditi Bhaskar

Anya Bollinger

Francisca Brevis

Tara Brown

Bella Buzzelli

Jenna Campbell

Brooklyn Carr Heuer

Anwasha Chowdhury

Simone Del Carlo

Lydia Eddington

Dylan Englund

Riley Evans

Mia Garcia

Suhaani Garg

Lauren Gault

Sophia Gordon

Anish Goswami

Arush Goswami

Ashton Guvenir

Uma Grover

Grace Haack

Kaya Hald

Jesse Hayworth

Anthony Herrera-Alonzo

Oaklyn Hill

Paige Jackson

Abbie Jalili

Cooper Jordan

Ava Katz

Lilian Kempton

Yubin Kim

Alan Kolesnikov

Annamika Konkola

Sahara Leeser

Melinda Lin

Paul Liu

Isabelle Ludemann

Evangelee Maderos

Annika Martin

Ayushi Mallick

Rubi Martin

Amaya Martinez

Elise Meikle

Finch Moore

Caroline Nielsen

Katie Olson

Aasha Patel

Rhianna Patel

Misha Rana

Haley Ray Newbore

Paetyn Rector

Ava Riddle

Ronak Sameer-Asita

Sarah Sanborn

Madeline Santoso

Grace Sato

Rodney Sclater

Emmeline Staten

Julia Tatsumi

Sydney Taylor

Jada Trieu

Soren Tucker

Imo Udoh

Marina Vadnais

Sujan Shadrak

Henri Villeneuve

Katelynn Wesse

Megan Whitt

Mia Williams

Sabrina Zhang

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 13, 2023 - Fri, May 19, 2023 in Dallas, Texas

Arush Goswami, Anish Goswami, Wilsonville High School, West Linn High School

Identifying relationships between the gut microbiome and melanoma patients' responses to immunotherapy using machine learning techniques

Uma Grover, Melinda Lin, West Linn High School

What are the effects of cyanobacteria blooms on primary productivity, toxicity, and microorganisms?

Annamika Konkola, West Linn High School

Beyond the Nuclear Family: A Century of Representation in Images and Text of Children's Literature

Aditi Bhaskar, Wilsonville High School

ASCEND: Aqueous Spectrometric Copper-Electrolytic Nutrient Detector