CREST-Jane Goodall Science Symposium 2020

Regional Special Awards

Outstanding Project in Atmospheric Science

The Outstanding Project in Atmospheric Science, sponsored by the American Meteorological Society, awards a Certificate of Outstanding Achievement for creative scientific endeavor in the areas of atmospheric and related oceanic and hydrologic sciences. Each year the AMS publishes the names of science fair winners in the December issue of the Bulletin of the American Meteorological Society.

Jadyn Sherry, Linnea Collett	*Rate of Degradation of Student Engineered Starch Based Bio-Plastic*
Sabrina Smith	*Locating Areas of Water Pooling at West Linn High School Track and Providing Proposals for Potential Solutions*

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.

Vi Edwards	*The Impact of Educational Materials on Comfort with Inclusive Pronoun Practices in a High School Community*
Jill Brody, Teagan Sheffield	*Got Grit? Comparing Grit Level to Time Spent On and Number of Extracurricular Activities*

Most Outstanding Exhibit in Materials Science

The project that receives Most Outstanding Exhibit in Materials Science award demonstrates exceptional use of materials-related concepts and some aspect of the materials paradigm: structure - processing - properties - performance relationships. The winner of this award receives a certificate and ribbon.

Jadyn Sherry, Linnea Collett	Rate of Degradation of Student Engineered Starch Based Bio-Plastic

Mu Alpha Theta Award

The Mu Alpha Theta Award certificate is for the individual or group project that demonstrates the most challenging, original, thorough, and creative investigation of a problem involving mathematics accessible to a high school student.

Haydn Maust	*New Reduction of Order Method for Ordinary Linear Differential Equations*

NASA Earth System Science Award

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

Sonja Bengston	*Can Tetraselmis Be Used As A Plant Nutrient?*
Kendall Macdonald	*Stomatal Conductance in C3 & CAM Plants When Exposed to Ozone*

NOAA Taking the Pulse of the Planet Award

The Taking the Pulse of the Planet award honors one project 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."

Kaitlyn Rumsey	*The Role of Disturbance in Shaping Species Diversity in the Rocky Intertidal*
Tori Newton	*The Effects of Polystyrene Rafts on Algae Growth*

Naval Excellence in Science and Engineering Award

The Naval Excellence in Science and Engineering Award recognizes 4 exceptional projects. The US Navy, US Marine Corps, and 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.

Nathan Rumsey	*Image-based Indoor Localization Using a Convolutional Neural Network with Bayesian Optimization Hyperparameter Tuning*
Neel Jain	*A Low-Cost Hyper-Spectral Image-Processing System to Identify Stressed Crops for Improved Harvest Yields*
Katie Bruun	*Proving the Presence of a Concussion Via Hormone Deficiency*
Jared Wieland	*Identifying Novel Cis-Regulatory Elements in the Viral Genome of Adeno-Associated Virus (AAV) for Increased Genetic Modification Efficiency*

Ricoh Sustainable Development Award

Ricoh USA Certificate recognizes projects that demonstrate a technical innovation that offers the greatest potential for increasing our ability to grow environmentally friendly and socially responsible businesses.

Jadyn Sherry, Linnea Collett	*Rate of Degradation of Student Engineered Starch Based Bio-Plastic*
Grace Sato	*Microplastic Water Filter*

In Vitro Biology

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

Maura Schramm	*Genetic Engineering of E. coli for Potential Treatment of Sandhoff Disease and Tay-Sachs Disease*

Stockholm Junior Water Prize

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

Sabrina Smith	*Locating Areas of Water Pooling at West Linn High School Track and Providing Proposals for Potential Solutions*
Grace Sato	*Microplastic Water Filter*
Evelyne Knight, Camryn Lau	*Testing Estrogen and Phytoplankton: The Implications of Synthetic Estrogen on the Growth of Scenedesmus and Microcystis*
Addison Sobotta	*How Does the Chemical Make Up of Water Affect Diatoms?*
McKenzie Gorsuch	*Iron Fertilization Enhancing Zooxanthellae Growth*

US Air Force

The Air Force Research Laboratory is proud to support science, technology, engineering, and mathematics. This certificate, sling pack, power bank, USB memory drive, and dual USB car charger recognizes projects with Air Force applicability in science and technology.

Elijah Cirioli, Casey Culbertson	*Using Head-Mounted Stereo Cameras and Computer Vision to Improve the Spatial Awareness of the Visually Impaired*
Victoria Garcia, Jenna Goodheart	*How Sleep Patterns Affect the Recovery Process of Concussed Drosophila melanogaster*

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.

Olivia Tinio	*Reproductive and Developmental Defects due to Exposure of Acrylonitrile in Drosophila*

Yale Science and Engineering Association

The Yale Science and Engineering Association sponsors a certificate and a medallion awarded to the best 11th grade computer science, engineering, physics, or chemistry project.

Nathan Rumsey	*Image-based Indoor Localization Using a Convolutional Neural Network with Bayesian Optimization Hyperparameter Tuning*
Jakob Conner	*Smart Parking Program*

Biophysics Award

The Biophysics award, sponsored by the biophysical society applies the power of physics, chemistry and math to understanding health, preventing disease, and inventing cures. The recipient of this award receives a certificate and $100.

Sophia Nielsen, Anna Nielsen	*Viability of Antigen-Antibody Reaction in Field Applications*

Oregon Environmental Health Association

The Excellence in Scientific Research in Environmental Health award, sponsored by the Oregon Environmental Health Association, recognizes a student who helps promote environmental health and safety with a certificate and $60.

Alexis Gessler	*Bacteria in Washing Machines*

USAID

The US Agency for International Development is pleased to offer one Science Champion Award Certificate to recognize an exceptional project that has the potential to make an impact on addressing international development challenges.

Sophia Nielsen, Anna Nielsen	*Viability of Antigen-Antibody Reaction in Field Applications*
Sonja Bengston	*Can Tetraselmis Be Used As A Plant Nutrient?*

CREST Special Awards

Promising Young Scientist

Casen Grant, Ethan Vedder	*Volume's Effect on Focusing*
Masha Galtseva	*Character Design: Costume or Shape?*
Onnika Hill	*Reducing The Carbon Footprint Of A Standard Boeing 747*
Tori Newton	*The Effects of Polystyrene Rafts on Algae Growth*
Cameron Paulsen, Thomas Wilber	*Coral Reef*
Ava Wu	*Effect of Aroma on Flavor of Bread*
Kiara Jia, Wen Wen Qiu	*Lemon Juice on Acne*
Ethan Cha	*Procedural Generation with Perlin Noise*
Sam Sanford	*Saving South African penguins*

Field Knowledge

Viv Kiss, Yaya Kiss	*Characterizing microplastic distribution patterns in Venerupis philippinarum gills*

Experimental Design

Varsha Karthikeyan, Gabrielle Garcia	*Testing the Effect of Escitalopram Oxalate on the Accumulation of Proteins in the Brain Modeled with Drosphila melanogaster*

Best "Analog" Project Board

Aditi Bhaskar	*Mathematical Model to Efficiently Tag Objects in ARCore Application*

Best "Digital" Project Board

Meghann Yochim, Camryn Pettenger-Willey	*Testing the Effects of Essential Oil Compounds on Drosophila Gut Microbiota and Welfare*

Best Use of Statistical Analysis

Kaitlyn Rumsey	*The Role of Disturbance in Shaping Species Diversity in the Rocky Intertidal*
Meghann Yochim, Camryn Pettenger-Willey	*Testing the Effects of Essential Oil Compounds on Drosophila Gut Microbiota and Welfare*

Most Creative Project Idea

Jesika Conner	*Reducing Perchlorates for Martian Agricultural Purposes*

Best Multi-Disciplinary Research

Dylan Nguyen	*The Elekron: Connecting Communities During Disaster*

Noteworthy Logbook

Viv Kiss, Yaya Kiss	*Characterizing microplastic distribution patterns in Venerupis philippinarum gills*

Paul Sherman Award for Enthusiasm

Eleanor Marshall	*Concentration of Vinblastine Through Light Intensity*
Kalia Rechenberg	*Finding a Better Antibiotic Through Sage and Mint Essential Oils*
Alexis Hagler	*Athlete's Motivation: Fixed or Growth Mindset*
Masha Galtseva	*Character Design: Costume or Shape?*

Green Chemistry Award

Olivia McDonald, Julia Hernandez	*Photodegradation of Cigarette Butts*

Women In Engineering

Sydney Phipps	*Oil and Water Don't Mix*

Intelligent Machines

Elijah Cirioli, Casey Culbertson	*Using Head-Mounted Stereo Cameras and Computer Vision to Improve the Spatial Awareness of the Visually Impaired*

Oregon State University

A one-time $2,000 scholarship

Neel Jain	*A Low-Cost Hyper-Spectral Image-Processing System to Identify Stressed Crops for Improved Harvest Yields*
Kullen Whittaker	*Microbiology, Where Cheaters Sometimes Win*

Category Awards

Behavioral and Social Sciences – Cognitive

First Place	Jill Brody, Teagan Sheffield	*Got Grit? Comparing Grit Level to Time Spent On and Number of Extracurricular Activities*
Second Place	Alexis Hagler	*Athlete's Motivation: Fixed or Growth Mindset*
Third Place	Benjamin Nieuwstraten, August Ericson	*Helping Students Manage Stress*
Honorable Mention	Juliann Ellsworth, Savannah Staten	*The Comparison of PSAT Scores Between the Factory and Proficiency Based Education Systems*

Chemistry

First Place	Jadyn Sherry, Linnea Collett	*Rate of Degradation of Student Engineered Starch Based Bio-Plastic*
Second Place	Rodayna Abdelhalim, Melody Garcia-Gonzalez	*Halting the Spread of HFMD by Inhibiting Protease 2A Using Soluble Homophthalic Createde by Running an Acid-Base Reaction*
Third Place	Shannon Groppe, Anaya Grant, Lauren Grothe	*Two-Faced Toothpaste*

Energy & Environmental Engineering

First Place	Grace Sato	*Microplastic Water Filter*
Second Place	Ben Garcia, Jackson Van Gordon	*A Solution to Increase Clean Power Production*
Third Place	Olivia McDonald, Julia Hernandez	*Photodegradation of Cigarette Butts*
Honorable Mention	Dillon Wells	*Wind Powered Cars*

Electrical and Mechanical Engineering

First Place	Jesse Hayworth	*A Look Into Ground Effect Vehicles and Their Safety*
Second Place	Dylan Nguyen	*The Elekron: Connecting Communities During Disaster*
Third Place	Michelle Quinn	*Customisable Talking Fire Alarm*
Honorable Mention	Sydney Phipps	*Oil and Water Don't Mix*

Life Sciences

First Place	Kaitlyn Rumsey	*The Role of Disturbance in Shaping Species Diversity in the Rocky Intertidal*
Second Place	Kendall Macdonald	*Stomatal Conductance in C3 & CAM Plants When Exposed to Ozone*
Third Place	Mabel Knapick, Kaitlyn Pelletier	*Pesticides vs. Zooplankton*
Honorable Mention	Payton Gault, Avery Rust	*Microplastics in Fish Gills*

Microbiology

First Place	Jared Wieland	*Identifying Novel Cis-Regulatory Elements in the Viral Genome of Adeno-Associated Virus (AAV) for Increased Genetic Modification Efficiency*
Second Place	Maura Schramm	*Genetic Engineering of E. coli for Potential Treatment of Sandhoff Disease and Tay-Sachs Disease*
Third Place	Meghann Yochim, Camryn Pettenger-Willey	*Testing the Effects of Essential Oil Compounds on Drosophila Gut Microbiota and Welfare*
Honorable Mention	Alycia Supperstein	*Could Lemongrass be a Natural Antibiotic?*

Behavioral and Social Sciences – Social

First Place	Vi Edwards	*The Impact of Educational Materials on Comfort with Inclusive Pronoun Practices in a High School Community*
Second Place	George Peykanu	*Regret as a Correctional Emotion: Is it Always Present Where it Should Be?*
Third Place	Simon Aguilar-Auld	*Barriers to Reducing Carbon Emissions Among Individuals in the Pacific Northwest*

Honorable Mention	Benjamin McClelland, Jacob McClelland, Benjamin Pinoli	*The Effect of Psychological Intervention on Plastic Consumption Habits and Concern*

Computer Sciences & Robotics

First Place	Neel Jain	*A Low-Cost Hyper-Spectral Image-Processing System to Identify Stressed Crops for Improved Harvest Yields*
Second Place	Elijah Cirioli, Casey Culbertson	*Using Head-Mounted Stereo Cameras and Computer Vision to Improve the Spatial Awareness of the Visually Impaired*
Third Place	Nathan Rumsey	*Image-based Indoor Localization Using a Convolutional Neural Network with Bayesian Optimization Hyperparameter Tuning*
Honorable Mention	Tyler Bretthauer	*Pill Identification using Image Recognition*

Bioengineering & Materials Science

First Place	Katarina Pejcinovic	*Improvement and Characterization of Novel Energy-Efficient and Adaptable Bioplastic*
Second Place	Ahmed Zaidan	*Blood Pressure Watch*
Third Place	Krista Golgotiu, Ellen Horn	*An Ethical Way to Sparkle*
Honorable Mention	Melania Kitsis	*A Better Bag: Banana Leaves*

Environmental and Earth Sciences

First Place	Evelyne Knight, Camryn Lau	*Testing Estrogen and Phytoplankton: The Implications of Synthetic Estrogen on the Growth of Scenedesmus and Microcystis*
Second Place	Sonja Bengston	*Can Tetraselmis Be Used As A Plant Nutrient?*
Third Place	Viv Kiss, Yaya Kiss	*Characterizing microplastic distribution patterns in Venerupis philippinarum gills*
Honorable Mention	Alice Kang, Lauren Hurley	*The Effect of Light Pollution On the Physical Behaviors of Daphnia magna*

Medicine and Health Sciences

First Place	Katie Bruun	*Proving the Presence of a Concussion Via Hormone Deficiency*
Second Place	Varsha Karthikeyan, Gabrielle Garcia	*Testing the Effect of Escitalopram Oxalate on the Accumulation of Proteins in the Brain Modeled with Drosphila melanogaster*
Third Place	Ashley Chon, Yusef Siddiqui	*Analyzing Patient Outview On The Classification of Tumor Suppressant Cells in Pancreatic Ductal*

		Adenocarcinoma, Generated by XGBoost Machine Learning Algorithms
Honorable Mention	Koharu Sakiyama	*Genetically encoding Sortase A in Tumor Lines to Track Cell Surface Labeling by Extracellular Vesicles*

Physics & Mathematics

First Place	Kyle Jensen	*Mpemba Effect: Can Hot Water Freeze Before Cold Water?*
Second Place	Aditi Bhaskar	*Mathematical Model to Efficiently Tag Objects in ARCore Application*
Third Place	Cooper Berggren, Cade Holland	*The Effect of Water Exposure on Golf Balls*
Honorable Mention	Rhea Grover, Natalie Cha	*Analyzing the microbial communities of wine grapes*

Proceeding to the state fair – the Northwest Science Expo

Exhibit Number	Student Name	Title
HS-CG-0029	Jill Brody, Teagan Sheffield	Got Grit? Comparing Grit Level to Time Spent On and Number of Extracurricular Activities
HS-CG-0035	Alexis Hagler	Athlete's Motivation: Fixed or Growth Mindset
HS-CH-0020	Rodayna Abdelhalim, Melody Garcia-Gonzalez	Halting the Spread of HFMD by Inhibiting Protease 2A Using Soluble Homophthalic Createde by Running an Acid-Base Reaction
HS-CH-0021	Shannon Groppe, Anaya Grant, Lauren Grothe	Two-Faced Toothpaste
HS-CH-0053	Jadyn Sherry, Linnea Collett	Rate of Degradation of Student Engineered Starch Based Bio-Plastic
HS-CO-0013	Elijah Cirioli, Casey Culbertson	Using Head-Mounted Stereo Cameras and Computer Vision to Improve the Spatial Awareness of the Visually Impaired
HS-CO-0014	Nathan Rumsey	Image-based Indoor Localization Using a Convolutional Neural Network with Bayesian Optimization Hyperparameter Tuning
HS-CO-0015	Tyler Bretthauer	Pill Identification using Image Recognition
HS-CO-0028	Neel Jain	A Low-Cost Hyper-Spectral Image-Processing System to Identify Stressed Crops for Improved Harvest Yields
HS-EB-0005	Melania Kitsis	A Better Bag: Banana Leaves
HS-EB-0006	Krista Golgotiu, Ellen Horn	An Ethical Way to Sparkle
HS-EB-0007	Katarina Pejcinovic	Improvement and Characterization of Novel Energy-Efficient and Adaptable Bioplastic
HS-EB-0016	Ahmed Zaidan	Blood Pressure Watch
HS-EE-0004	Sydney Phipps	Oil and Water Don't Mix
HS-EE-0006	Jesse Hayworth	A Look Into Ground Effect Vehicles and Their Safety
HS-EE-0008	Dylan Nguyen	The Elekron: Connecting Communities During Disaster
HS-EE-0018	Michelle Quinn	Customisable Talking Fire Alarm
HS-EN-0022	Ben Garcia, Jackson Van Gordon	A Solution to Increase Clean Power Production
HS-EN-0023	Sabrina Smith	Locating Areas of Water Pooling at West Linn High School Track and Providing Proposals for Potential Solutions
HS-EN-0024	Grace Sato	Microplastic Water Filter
HS-EN-0032	Olivia McDonald, Julia Hernandez	Photodegradation of Cigarette Butts
HS-EN-0052	Dillon Wells	Wind Powered Cars

HS-LS-0026	Mabel Knapick, Kaitlyn Pelletier	Pesticides vs. Zooplankton
HS-LS-0027	Payton Gault, Avery Rust	Microplastics in Fish Gills
HS-LS-0028	Kaitlyn Rumsey	The Role of Disturbance in Shaping Species Diversity in the Rocky Intertidal
HS-LS-0029	Kendall Macdonald	Stomatal Conductance in C3 & CAM Plants When Exposed to Ozone
HS-ME-0010	Varsha Karthikeyan, Gabrielle Garcia	Testing the Effect of Escitalopram Oxalate on the Accumulation of Proteins in the Brain Modeled with Drosphila melanogaster
HS-ME-0011	Sophia Nielsen, Anna Nielsen	Viability of Antigen-Antibody Reaction in Field Applications
HS-ME-0019	Koharu Sakiyama	Genetically encoding Sortase A in Tumor Lines to Track Cell Surface Labeling by Extracellular Vesicles
HS-ME-0021	Katie Bruun	Proving the Presence of a Concussion Via Hormone Deficiency
HS-ME-0046	Ashley Chon, Yusef Siddiqui	Analyzing Patient Outview On The Classification of Tumor Suppressant Cells in Pancreatic Ductal Adenocarcinoma, Generated by XGBoost Machine Learning Algorithms
HS-MI-0013	Maura Schramm	Genetic Engineering of E. coli for Potential Treatment of Sandhoff Disease and Tay-Sachs Disease
HS-MI-0018	Jared Wieland	Identifying Novel Cis-Regulatory Elements in the Viral Genome of Adeno-Associated Virus (AAV) for Increased Genetic Modification Efficiency
HS-MI-0023	Alexis Gessler	Bacteria in Washing Machines
HS-MI-0039	Meghann Yochim, Camryn Pettenger-Willey	Testing the Effects of Essential Oil Compounds on Drosophila Gut Microbiota and Welfare
HS-PI-0005	Cooper Berggren, Cade Holland	The Effect of Water Exposure on Golf Balls
HS-PI-0007	Kyle Jensen	Mpemba Effect: Can Hot Water Freeze Before Cold Water?
HS-PI-0013	Aditi Bhaskar	Mathematical Model to Efficiently Tag Objects in ARCore Application
HS-SP-0022	George Peykanu	Regret as a Correctional Emotion: Is it Always Present Where it Should Be?
HS-SP-0029	Simon Aguilar-Auld	Barriers to Reducing Carbon Emissions Among Individuals in the Pacific Northwest
HS-SP-0038	Vi Edwards	The Impact of Educational Materials on Comfort with Inclusive Pronoun Practices in a High School Community
HS-VE-0021	Evelyne Knight, Camryn Lau	Testing Estrogen and Phytoplankton: The Implications of Synthetic Estrogen on the Growth of Scenedesmus and Microcystis
HS-VE-0022	Sonja Bengston	Can Tetraselmis Be Used As A Plant Nutrient?
HS-VE-0023	Viv Kiss, Yaya Kiss	Characterizing microplastic distribution patterns in Venerupis philippinarum gills
HS-VE-0028	Alice Kang, Lauren Hurley	The Effect of Light Pollution On the Physical Behaviors of Daphnia magna

Observers for the Regeneron International Science and Engineering Fair

Kaitlyn Rumsey	The Role of Disturbance in Shaping Species Diversity in the Rocky Intertidal
Aditi Bhaskar	Mathematical Model to Efficiently Tag Objects in ARCore Application

Best of Fair – selected to compete at the Regeneron International Science and Engineering Fair

Katarina Pejcinovic	Improvement and Characterization of Novel Energy-Efficient and Adaptable Bioplastic
Elijah Cirioli, Casey Culbertson	Using Head-Mounted Stereo Cameras and Computer Vision to Improve the Spatial Awareness of the Visually Impaired
Neel Jain	A Low-Cost Hyper-Spectral Image-Processing System to Identify Stressed Crops for Improved Harvest Yields
Jared Wieland	Identifying Novel Cis-Regulatory Elements in the Viral Genome of Adeno-Associated Virus (AAV) for Increased Genetic Modification Efficiency