

High School Category Winners at the 2007 Intel Northwest Science Expo

Animal Sciences Sponsored by Madden Industrial Craftsmen

First Place

Exhibit number: HS-AN-021 Student: Bryndis Ingimarsdottir of Skyview High School

Project title: The Effect of Hearing Loss on the Mating Songs of Male C57BL/6 Mice

Second Place

Exhibit number: HS-AN-019 Student: Heather Daniels of Skyview High School

Project title: Pattern Recognition in *Mustela Putorius Furo*

Third Place

Exhibit number: HS-AN-033 Student: Kelsey Moore of Glencoe High School

Project title: Salmon Incubation

Honorable Mention

Exhibit number: HS-AN-029 Student: Sebastian Scofield of St. Albert Science Club

Project title: Graded Food Recruitment in *Aphaenogaster Occidentalis*

Behavioral and Social Science Sponsored by Oregon Science Teachers Association

First Place

Exhibit number: HS-BE-129 Student: Chris Canary and Ross Hansen of Wilsonville High School

Project title: Making the Transition: Predicting High School Success

Second Place

Exhibit number: HS-BE-033 Student: Krikor Gazarian of Merlo Station High School

Project title: The Effect of Glucose on Implicit Memory

Third Place

Exhibit number: HS-BE-123 Student: Patrick Dalton of La Salle High School

Project title: The Effects of Various Types of Music on Short Term Memory

Honorable Mention

Exhibit number: HS-BE-078 Student: Brennan Edwinson and Cameron Casteel of Wilsonville High School

Project title: The Association Between Athletic Activity and Academic Performance

Honorable Mention

Exhibit number: HS-BE-050 Student: Carole Mangels and Rebecca Patrick of Skyview High School

Project title: THE AFFECTS OF MEDIUM TYPE ON MEMORY RETENTION

Honorable Mention

Exhibit number: HS-BE-021 Student: Daniel Tonkovich of La Salle High School

Project title: The Effects of Light Therapy on Teenage Sleep Habits

Biochemistry Sponsored by AREVA

First Place

Exhibit number: HS-BC-006 Student: Laila Wahedi of Merlo Station High School

Project title: Insulin-like Growth Factor I Mediated Cell Proliferation Via the Insulin Receptor

Second Place

Exhibit number: HS-BC-001 Student: Rivfka Shenoy of Catlin Gabel School

Project title: Effects of Growth Conditions on Cellulase Activity in *T. Reesei*

Third Place

Exhibit number: HS-BC-011 Student: Francis Gieringer of Hillsboro High School

Project title: The effects of phosphorous in freshwater on algal growth of *Microcystis aeruginosa*

Honorable Mention

Exhibit number: HS-BC-018 Student: Nicole Panichello and Kelsey Guerins of West Linn High School

Project title: Comparing Protein Levels in Wild and Farm-Raised Salmon

Cellular and Molecular Biology Sponsored by Madden Industrial Craftsmen

First Place

Exhibit number: HS-CM-010 Student: Yufei Cao of Liberty High School

Project title: The Development of a Heterologous Expression System for Glutathione S-transferase 8

Second Place

Exhibit number: HS-CM-002 Student: Rose Clawson and Kimberly Marshall of Liberty High School

Project title: The Effects of Ethylene and Mold on the Decay Rate of Ripening Apples

Third Place

Exhibit number: HS-CM-006 Student: Dylan Page of Oregon Episcopal School

Project title: Studying the Spread of Genetically Modified Organisms in Plants: An Investigation of GMOs in Commercial Corn and Soy Products

Honorable Mention

Exhibit number: HS-CM-003 Student: Ankur Gupta of Oregon Episcopal School

Project title: Bacterial Transformation Using Different Procedures, and Finding The Most Effective Method

Chemistry Sponsored by Iota Sigma Pi

First Place

Exhibit number: HS-CH-055 Student: Matt Lee of Beaverton High School

Project title: Inverse Grätzel Solar Cells and Metallation of Polymer Porphyrin Films

Second Place

Exhibit number: HS-CH-035 Student: Sean You of Sunset High School

Project title: How number of carbons in ketones and aldehydes affect the amount of styrofoam dissolution

Third Place

Exhibit number: HS-CH-020 Student: Emma Newman of Oregon Episcopal School

Project title: The Curdling Process for Making Indian Paneer (Cheese)

Computer Science Sponsored by Intel

First Place

Exhibit number: HS-CO-021 Student: Yale Fan of Catlin Gabel School

Project title: Applications of Multi-Valued Quantum Algorithms

Second Place

Exhibit number: HS-CO-015 Student: Nicholas Ewing of Skyview High School

Project title: Online Japanese Study and Reference Center

Third Place

Exhibit number: HS-CO-022 Student: Tom Conerly of Catlin Gabel School

Project title: Using Graphics Cards for Non-Graphics Applications

Honorable Mention

Exhibit number: HS-CO-020 Student: Jacob Keller and Scott Moyer of Benson Polytechnic High School

Project title: Genetic Algorithms and The Traveling Salesman

Earth Science Sponsored by NASA

First Place

Exhibit number: HS-EA-020 Student: Simon Spencer of Cleveland High School

Project title: Detecting Tsunami Inundation using Marine Geochemical Markers

Second Place

Exhibit number: HS-EA-018 Student: Benjamin Lampert and Matthew Feltz of West Salem High School

Project title: title not submitted

Third Place

Exhibit number: HS-EA-013 Student: Tyler Anderson of Glencoe High School

Project title: Tsunami Wavebreakers

Honorable Mention

Exhibit number: HS-EA-025 Student: Laura Huck of West Linn High School

Project title: What is the origin of morphological features in lava tube caves?

Engineering: Materials and Bioengineering Sponsored by Madden Industrial Craftsmen

First Place

Exhibit number: HS-EM-005 Student: Michael Loy of Oregon Episcopal School

Project title: Analyzing the Effects of Air-Entraining Admixtures and Shrinkage-Reducing Admixtures on Concrete Properties in the Development of a New Shrinkage-Reducing Admixture

Second Place

Exhibit number: HS-EM-012 Student: Kyung-ha Lee of Oregon Episcopal School

Project title: Investigation on Etching Process for the Preparation of Dye-Sensitized Solar Cells

Third Place

Exhibit number: HS-EM-006 Student: Colin MacLean of Oregon Episcopal School

Project title: Synthesis and Characterization of a MWNT-PANI Composite

Engineering: Electrical and Mechanical Sponsored by Madden Industrial Craftsmen

First Place

Exhibit number: HS-EE-027 Student: Fei Chen and William Neiswanger of Merlo Station High School

Project title: Increased Precision, Versatility, and Control in Laser-based Surgeries through the Intersection of Superimposed Varied Frequency Lasers

Second Place

Exhibit number: HS-EE-069 Student: Dane Bennington of Wilsonville High School

Project title: Portable Airborne Landmine Detection Platform

Third Place

Exhibit number: HS-EE-013 Student: Jessica Lund and James Tanoto of Oregon Episcopal School

Project title: Comparing 535 Ru bis-TBA and Blackberry Extract to Dye-Sensitize Thin and Thick Titanium Dioxide Photoelectrochemical Cells

Honorable Mention

Exhibit number: HS-EE-060 Student: Morgan Walti of Liberty High School

Project title: Magnetic Muscle

Honorable Mention

Exhibit number: HS-EE-062 Student: Eugene Bistolas of Wilsonville High School

Project title: LED-Based Backlighting for Large Scale LCD Display Systems

Energy and Transportation Sponsored by Northwest Power and Conservation Council

First Place

Exhibit number: HS-ET-034 Student: Brian McCarthy of Liberty High School

Project title: The Development of Translucent Organic Solar Cells on FTO Glass by Interfacial Polymerization

Second Place

Exhibit number: HS-ET-003 Student: Julia Cohen, Rahael Gupta and Lia Dawley of Oregon Episcopal School

Project title: Optimization of algal culture growth parameters to obtain lipids for biodiesel mass-production

Third Place

Exhibit number: HS-ET-027 Student: Raymond Ehlers, Sean Skyllingstad and Curtis Peterson of Crescent Valley High School

Project title: Reformation of Landfill Gas for Power Production with a Fuel Cell Using Activated Charcoal

Honorable Mention

Exhibit number: HS-ET-035 Student: Alexa Carey of Curry Science Academy

Project title: Effectiveness of Cellulose-Degrading Enzyme Treatments in Alcohol Production for Bio-Energy from Noxious Weed Species

Environmental Analysis and Effects Sponsored by Madden Industrial Craftsmen

First Place

Exhibit number: HS-VA-005 Student: Jennifer Luong and Anne Seder of Oregon Episcopal School

Project title: A Study of the Effect of NO₂ on Ascorbic Acid Levels in Douglas Fir Needles Along the Columbia River Gorge

Second Place

Exhibit number: HS-VA-014 Student: Gwynneth Johnson and Anne Wolfstone of Oregon Episcopal School

Project title: Effect of Cement tile, Cedar, and Composite Roofing on the Presence of Zinc and pH in Water Runoff

Third Place

Exhibit number: HS-VA-026 Student: Jamie Canepa of Jesuit High School

Project title: The effect of increased water temperature on the growth of *Pachyclavularia violacea*

Honorable Mention

Exhibit number: HS-VA-035 Student: Brian Tang of Skyview High School

Project title: Regression modeling: a comparison of two adjacent air quality studies

Environmental Management Sponsored by Oregon Forest Resources Institute

First Place

Exhibit number: HS-VM-031 Student: Alexandra Rockoff of Columbia River High School

Project title: The Effect of Skyview Factor on Heat Retention in Urban Canyons

Second Place

Exhibit number: HS-VM-016 Student: Noel Nelson of Grant Union High School

Project title: The Effect of Disturbance upon Hydrophobic Soil

Third Place

Exhibit number: HS-VM-035 Student: Kacie Dean of Wilsonville High School

Project title: Degradation of Monofilament versus Fluorocarbon Fishing Tippet

Mathematical Sciences Sponsored by AREVA

First Place

Exhibit number: HS-MA-013 Student: Avi Levy of West Linn High School

Project title: Results in geometric inequalities

Second Place

Exhibit number: HS-MA-002 Student: Prachi Pai of Merlo Station High School

Project title: Mathematical Determinism in the Creative Process of Musical Composition

Third Place

Exhibit number: HS-MA-001 Student: Matthew Broussard and Jacob Rawson of Merlo Station High School

Project title: The Derevation of a Non-Euclidean Line Based on the Rules for Geometric Construction in the Poincaré Disk

Medicine and Health Sciences Sponsored by Oregon Health and Sciences University

First Place

Exhibit number: HS-ME-007 Student: Patrick Chen of Oregon Episcopal School

Project title: Lysosomal Dysfunction in Retinal Pigment Epithelia Cells (RPE), the pathogenesis of Age Related Macular Degeneration?

Second Place

Exhibit number: HS-ME-034 Student: Max McKinnon of Lakeview High School

Project title: A Novel Method for Determining VO2 Max

Third Place

Exhibit number: HS-ME-021 Student: Galym Imanbayev of Lake Oswego High School

Project title: 2D Speckle Tracking Strain Analysis Compared with Sonomicrometry in a New in Vitro Pig Heart Model

Honorable Mention

Exhibit number: HS-ME-037 Student: Michelle Pengshung of Benson Polytechnic High School

Project title: The Role of NOD2 in a Mouse Model of Uveitis

Honorable Mention

Exhibit number: HS-ME-043 Student: Lisa Kirkemo and Katie Carnahan of West Linn High School

Project title: How age affects the ability to hear high-frequency sound

Microbiology Sponsored by Academy of General Dentistry

First Place

Exhibit number: HS-MI-022 Student: Jing Chen of Benson Polytechnic High School
Project title: Inhibiting the Growth of Staphylococcus aureus with Elderberry Extract

Second Place

Exhibit number: HS-MI-011 Student: Jeremy Carp of Oregon Episcopal School
Project title: The Effects of Ag Nano-Particles on The Growth of Escherichia coli in High and Low Protein Liquids

Third Place

Exhibit number: HS-MI-010 Student: Keenan Ferar, Lauren Eyler and Colin Platt of Oregon Episcopal School
Project title: Competition: A microbiological and ecological solution to minimizing wine fault caused by B. bruxellensis

Honorable Mention

Exhibit number: HS-MI-015 Student: Emma Jeffries of Columbia River High School
Project title: The Effect of Sunscreen and Other Barriers on Preventing UV Damage to E. coli

Physics and Astronomy Sponsored by AREVA

First Place

Exhibit number: HS-PH-054 Student: Rachael Nelson of West Salem High School

Project title: Exhaust Plume Analysis of BHT-200 Hall Effect Thrusters: Finding Plasma Potential by Method of Emissive Probe

Second Place

Exhibit number: HS-PH-057 Student: Edward Nguyen of Southridge High School

Project title: Detection of Helium-3 and High Energy Neutrons in an Inertial Electrostatic Confinement Reactor

Third Place

Exhibit number: HS-PH-061 Student: Anugraha Rajendran of Tualatin High School

Project title: Nonlinearities in Car Springs

Honorable Mention

Exhibit number: HS-PH-070 Student: Lucas Hill of Wilsonville High School

Project title: The effect of geometric wingshape on aerodynamic properties

Plant Sciences Sponsored by Oregon Science Teachers Association

First Place

Exhibit number: HS-PL-035 Student: Dana Hong of Columbia River High School

Project title: The Effect of the Length and Drying Period of Reed Canarygrass Rhizomes on the Re-germination of Reed Canarygrass

Second Place

Exhibit number: HS-PL-069 Student: Michael Bernert of West Linn High School

Project title: Medium Optimization for *A. palmatum* in vitro

Third Place

Exhibit number: HS-PL-003 Student: Laurie Fletcher of Curry Science Academy

Project title: A Comparison of the Flammability of Southwestern Oregon Woody Plants and the Effectiveness of Zeolite as a Fire Retardant

Honorable Mention

Exhibit number: HS-PL-037 Student: Amanda Henderson of Clackamas High School

Project title: Leaf Morphological Plasticity Response to Water Availability in the *Piriqueta caroliniana* Complex