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Boise students earn top honors at Western Idaho science fair

BOISE, Idaho (March 1, 2022) — Student projects from Boise High School and Timberline High School earned Best in Fair at the 2022 Western Idaho Science and Engineering Fair, and one from Treasure Valley Math and Science Center garnered Fair Runner Up. They were among 34 projects that 40 students from six Treasure Valley schools presented at the sixth annual event, which the Idaho STEM Action Center staged Feb. 25 at Boise State University.

Best in Fair winners

“Identification of Potential Inhibitors of Severe Acute Respiratory Syndrome Coronavirus 2 Envelope Protein Ion Channel Activity Using Machine Learning Techniques” by Boise High School junior Wency Suo earned one of two Best in Fair awards. In addition, she earned a Category Gold award and the Bearden Award for Women in Computer Science. The latter award, which also includes a \$500 cash prize, is funded by longtime Idaho resident Elizabeth “Betsy” Bearden for the female or team of females whose research exemplifies high standards of innovation in creating solutions with computer science. Suo earned several other special awards, including first place from the Idaho Academy of Science & Engineering (which includes a \$75 cash prize) and the Office of Naval Research Award. Last year she also earned Best in Fair and the Bearden Award.

Timberline High School junior Luke Bousfield and senior James Liu garnered the other Best in Fair award for their project, “Novel Machine Learning Algorithms to Efficiently Approximate the Shortest Vector Problem in Post-Quantum Cryptography.” They also earned Best in Category in Physical Science, Engineering, and Computer Science, as well as a Category Gold award and several special awards, including second place from the Idaho Academy of Science & Engineering (which includes a \$50 cash prize), the Mu Alpha Theta Award, and a Genius Olympiad Award.

On top of serious bragging rights, the Best in Fair winners will represent Idaho at the Regeneron International Science and Engineering Fair in May. The winning teams from each region and their mentors earn all-expense-paid trips to attend and compete in the event in Atlanta May 7-13.

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Fair Runner Up

Treasure Valley Math and Science Center freshmen Amulya Tanikella and Kiana Mohammadi earned Fair Runner Up for their project “Antibiotic Resistant Bacteria in Agricultural Waste Water Compared to River Water Samples.” They also won Best in Category in Earth, Environmental, and Plant Sciences, a Category Gold award, and several special awards, including the Cross Charitable Foundation Environmental Sciences Award (which includes a \$500 cash prize), the NOAA Taking the Pulse of the Planet Award, a Stockholm Junior Water Prize, a USAID Certificate from the US Agency for International Development, and a Genius Olympiad Award.

Four strands, many awards

Students in ninth through 12th grades throughout Western Idaho were eligible to submit entries in four categories: Animal, Biomedical, and Microbiological Sciences; Behavioral and Social Sciences; Earth, Environmental, and Plant Sciences; and Physical Sciences, Engineering, and Computer Science.

Emmett High School and Idaho Virtual Academy students captured the two remaining Best in Category awards:

- “How Does Temperature and the Amount of Dissolved Oxygen Affect a Crayfish’s Ability to Filter Blood?” by Emmett High School junior Emma Myers earned a Best in Category in Animal, Biomedical, and Microbiological Sciences, a Category Gold award, and several special awards, including the Regeneron Biomedical Science Award (which includes a \$500 cash prize), a Stockholm Junior Water Prize, the National Geographic That’s Geography – Cultivating Empathy for the Earth Award, and an American Meteorological Society Certificate of Outstanding Achievement.
- “The Effect of Weight on Idaho Teenagers’ Perceptions of Intelligence” by Idaho Virtual Academy junior Lyric Mitchell earned a Best in Category in Behavioral and Social Sciences, a Category Gold award, and several special awards, including third place from the Idaho Academy of Science & Engineering (which includes a \$25 cash prize) and the American Psychological Association Award.

Judges honored two more projects with Category Gold awards: “Bacteria and Fungi’s Correlation to Sports,” an Animal, Biomedical, and Microbiological Sciences entry by Emmett High School senior Beth Johnson; and “How Does the Soil Organic Carbon Sequestration Efficiency of Rubber Rabbitbrush (*Ericameria nauseosa*) Compare to that of Cheatgrass (*Bromus tectorum*)?,” an Earth, Environmental, and Plant Sciences entry by Idaho Virtual Academy senior Skyler Barzee.

BSU’s College of Engineering presented Idaho Virtual Academy senior Samantha Payne with a \$1,000 scholarship for her project “The Development of AI that Can Interpret Sign Language.”

Idaho Virtual Academy senior Zoe Smith earned the Lewis Award for Engineering (which includes a \$250 cash prize) for her project “Microgravity Microgreens – Developing a Growth Chamber for Sprouts in Space.” She also earned a Category Silver Award and the U.S. Air Force Award.

The STEM Action Center presented 11 other projects with Category Silver awards and an additional nine special awards from the American Meteorological Society, ASM Materials Education Foundation, Association for Women Geoscientists, NASA, Ricoh, the Society for In Vitro Biology, the Stockholm International Water Institute, the U.S. Metric Association, and the Yale Science and Engineering Association.

Idaho Virtual Academy earned the Top School award. The award is calculated based on total projects and total category awards, including Silver, Gold, Best in Category, and Best in Fair. Science teacher Janna Privette coached Idaho Virtual Academy’s participants, which earned one of the four Best in Category awards, two of the seven Category Golds, and two of the 12 Category Silvers. Privette was named WISEF’s top-performing educator.

A group of local experts from an array of STEM-related fields served as judges.

One of three regional fairs

WISEF is one of three regional science fairs the STEM Action Center stages statewide each spring. Idaho State University is hosting the Eastern Idaho Science and Engineering Fair in Pocatello March 4, and the Coeur d’Alene Resort is hosting the Northern Idaho Science and Engineering Fair March 11. The Best of Fair winners from those events will join the top WISEF prizewinners at the international science fair courtesy of the STEM Action Center.

The STEM Action Center is presenting the 2022 Idaho Science and Engineering Fairs in partnership with the NASA Idaho Space Grant Consortium, Micron, Battelle Energy Alliance, Cross Charitable Foundation, Idaho Central Credit Union, Sahai Family Foundation Inc., POWER Foundation, Idaho Power, Cradlepoint, Lewis Corporation, Elizabeth Bearden, Nutrien, Regeneron, and Society for Science.

Ensuring economic prosperity

According to STEM Action Center executive director Dr. Kaitlin Maguire, competitions like these are important to the state’s future, offering students opportunities to engage in original research projects aligned with their interests and meet and learn with other motivated students in their area.

“The quality of the research that Idaho students present each year never ceases to amaze me,” Dr. Maguire said. “The experience students gained by participating — by thinking creatively about real-world problems, seeking solutions, and explaining their findings succinctly — will prove invaluable when they enter the workforce.”

She said STEM jobs in Idaho are projected to grow 15.4 percent by 2030, outpacing the national average of STEM job growth at 10 percent.

“STEM jobs are broad and include careers in healthcare, engineering, software development, and agriculture, and STEM jobs pay nearly twice as much as non-STEM jobs,” Dr. Maguire said. “Moreover, STEM education builds knowledge and skills that are important to the future of Idaho, because it help students develop creative thinking, problem solving, innovation, and collaboration skills. These are skills that Idaho employers want and are needed to solve tomorrow’s problems.”

About the Idaho STEM Action Center

The Idaho STEM Action Center was created in 2015 because Idaho citizens are not entering the STEM pipeline fast enough to meet current and future Idaho workforce needs. Its goals are to increase access to STEM opportunities, align education and workforce needs, and amplify awareness of STEM throughout Idaho. The organization is working with industry, government, educators, and students to develop new resources and support high-quality professional-development opportunities to foster a STEM-educated workforce that ensures Idaho’s continued economic prosperity.

Visit STEM.idaho.gov for more information, and visit <https://STEM.idaho.gov/support-us/foundation> to make a tax-deductible donation to the Idaho STEM Action Center Foundation, a 501(c)(3) nonprofit organization, to enhance the investment the state has made in Idaho’s STEM community. Contributions provide greater access to STEM camps for children, student competitions, and many other life-shaping programs.

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