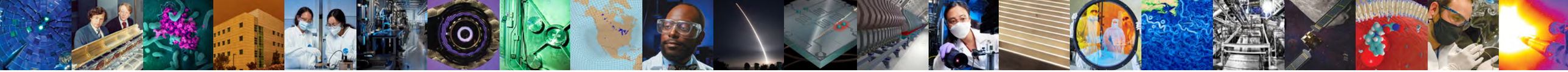

COMMUNITY CONNECTIONS

Partnering with our neighbors through science education and charitable giving

LLNL debuted a new virtual Discovery Center. Online visitors can click on an item in the visual display to learn more about a topic.

THE LABORATORY IS AN ACTIVE member of local communities, offering a wide variety of programs to enhance science, technology, engineering, and mathematics (STEM) education. Outreach extends beyond the classroom—each year LLNL staff and LLNS donate more than $3 million to local nonprofits, while hundreds of employees donate their time to local service agencies. During the pandemic, LLNL's vital community connections have been kept firmly in place largely through virtual interactions.

REACHING TEACHERS AND STUDENTS

The Laboratory debuted an all-new virtual Discovery Center, providing an interactive experience for visitors to learn about LLNL and its missions. In addition, nearly 500 high school students attended virtual National Ignition Facility (NIF) tours and the Laboratory's Scientist in the Classroom program. LLNL also conducted other virtual programs to help local teachers improve and broaden their STEM education offerings. For example, a Livermore computer scientist staged for 1,200 students two virtual Magic of STEM performances. Modesto teachers arranged these science-based magic shows in partnership with the city's State Theater and the local school district.

Magic of STEM

DATA SCIENCE EVENTS AND CHALLENGES

Coinciding with International Women's Day on March 8, LLNL's fourth Women in Data Science (WiDS) regional event attracted dozens of Livermore and regional data scientists to engage with speakers and panelists. They joined breakout sessions for networking, mentoring, and discussion of opportunities and challenges unique to women in the field. LLNL's event was one of more than 200 WiDS events organized in 60-plus countries. They were held in conjunction with a Stanford University conference featuring prominent women data scientists from around the world.

The Laboratory's third annual Data Science Challenge brought together students from the University of California at Merced with LLNL mentors in a virtual setting to discuss how machine learning can be used to tackle real-world scientific problems. Three times a week for three weeks, participants completed exercises and assignments, attended seminars, took virtual tours of the Laboratory, and worked on deep-learning models with their peers. This year's theme was "Astronomy for Planetary Defense" and focused on how machine learning could improve the identification of near-Earth objects such as asteroids, before they become threats to the planet.

THE LABORATORY GOES TO SCHOOL

Throughout FY 2021, LLNL worked directly with Livermore area schools to continue promoting science education and technical skills for students. In a collaboration between the Laboratory, the Livermore Lab Foundation, and the Livermore Valley Joint Unified School District, 25 high school girls met with former and current LLNL women scientists in the first-ever Girls Who Code–"Big" program. Over four days, students met for two hours after school with panelists to learn about high-performance computing through presentations, live demonstrations, exercises, and other group activities. Another program, MathCounts, drew 100 Livermore middle school students to help improve their math and problem-solving skills. In April, machinists at the Laboratory hosted a virtual Manufacturing Workshop for a group of 15 high school students. This after-school program helped participants learn about career paths in NIF target fabrication, additive manufacturing, optics, and many other fields. From December 2020 through March 2021, a total of 100 students from seven local high schools attended virtual meetings to shadow various LLNL experts in their jobs and learn more about high-performance computing, data science, web development, additive manufacturing, micro and nanotechnology, and bioengineering.

A SUMMER OF SCIENCE

While schools were out of session, the Laboratory provided exciting opportunities for budding scientists to learn more about STEM fields and contribute to ongoing research projects. More than 600 college undergraduate and graduate students completed LLNL summer internships in FY 2021 through virtual interactions with mentors and various web-based learning activities. In June, 19 middle school students were introduced to robotics during the 8th Grade Tech Workshop and given programming instruction in Python and Blockly. After a year's hiatus, the Biotech Summer Experience returned in July 2021 to bring 29 local high school students together virtually for two weeks of immersion in biotechnology and bioinformatics. Students took a deep dive into the DNA of duckweed, a promising new source of biofuel.

In April, machinists at the Laboratory hosted a virtual Manufacturing Workshop for a group of high school students.

LIVERMORIUM PARK

In December 2020, then Director William Goldstein broke ground on Livermorium Park alongside Livermore Mayor John Marchand and NNSA Livermore Field Office Deputy Manager Peter Rodrick. Located in downtown Livermore, the park is named in honor of element 116, Livermorium, which was discovered by Laboratory scientists and collaborators. The park will feature a five-foot-diameter floating granite sphere, representing the nucleus of a Livermorium atom. Seven orbitals will be populated with 116 electrons—20 of which will be illuminated to represent the element calcium. To create Livermorium, which only exists for 61 milliseconds before decaying, calcium atoms are accelerated to one-tenth the speed of light and collide with a cesium target.

HOME CAMPAIGN AND COMMUNITY GIFTS

Laboratory employees and LLNS raised more than $3.6 million in the 2021 HOME (Helping Others More Effectively) campaign. The charitable drive benefits community and nonprofit agencies in the Tri-Valley, San Joaquin Valley, and greater San Francisco Bay Area. Employees pledged more than $2.6 million, while LLNS contributed $1 million in matching funds. In December, LLNS announced the recipients of the 2021 Community Gift Program, with funds totaling $200,000. Many of the awards serve children in the Tri-Valley area as well as Contra Costa, San Francisco, and San Joaquin counties, with a focus on literacy, STEM education, and cultural arts. Other recipients target their charitable efforts toward children, families, senior citizens, and individuals in need of assistance.

SCIENCE ON SATURDAY

One of the Laboratory's longest-standing public programs continued in 2021 in a virtual format. A series of Science on Saturday virtual events took place in February 2021 under the theme "Combating COVID-19." Accomplished Laboratory researchers spoke to more than 600 middle and high school students about molecular diagnostics, swabs, ventilators, antibodies, and technological countermeasures to the virus.