

Los Alamos National Laboratory STEM Education Activities



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The Laboratory has a stake in STEM education in New Mexico

Overview

- Strong projected hiring needs at the Laboratory (around 1000 hires this year)
- High-demand opportunities at the Laboratory require STEM skills including IT professionals, and mechanical and electrical engineers and technicians
- 41% of current employees were born in New Mexico
- STEM jobs predicted to grow at faster rate in New Mexico than non-STEM jobs (8% to 6%), with STEM workers earning 26% more than their non-STEM counterparts.



Laboratory Director Terry Wallace takes part in the Hour of Code event, talking to sixth-grade students about the importance of computer coding.

The Laboratory and other employers have high-paying jobs for New Mexicans in STEM careers

We are working with other STEM employers, nonprofits and educators to create a statewide STEM Coalition

STEM Coalition

Still in its infancy, the vision is to create an organization that would:

- Educate students, parents and communities about the opportunities in STEM-H jobs now and in the future
- Advocate for changes that strengthen our education system and build a STEM-H workforce
- Create a clearinghouse for current STEM-H activities and providers. Encourage collaboration among STEM-H providers.



Santa Fe Indian School students watch a demonstration from a Lab researcher as a part of the STEM Mentoring Café program.

The Laboratory wants to play a strong leadership role in STEM education

We are working with regional colleges to identify and meet future workforce needs

Regional workforce

- **Developing a joint plan that covers the Laboratory's and Northern New Mexico's projected workforce needs long-term**
 - High-demand opportunities at the Laboratory (2020 projections):
 - Mechanical engineers and technicians
 - Electrical engineers and technicians
 - Computer scientists and IT professionals
 - Cyber security specialists
 - Radiation protection professionals and radiation control technicians
 - Safety basis and criticality safety engineers
- **Identifying and satisfying immediate Laboratory workforce needs**
 - Two-year associate's Radiological Control Technician training program at Northern New Mexico College, Santa Fe Community College, and UNM Los Alamos
 - Support for Environmental Technician Training program at Santa Fe Community College



Lab internships and LAESF Scholarships provide a pipeline to employment, and support educational opportunities for New Mexico students

Scholarships and internships

- So far in 2018, 139 Northern New Mexico students have received \$712,000 from the Los Alamos Employees Scholarship Fund (LAESF)
- This year's drive raised more than \$400,000 from Laboratory employees, with LANS contributing a further \$250,000
- In the 2017/2018 school year the Laboratory provided internships for almost 1800 students
- 45% of the interns were from New Mexico high schools, colleges and universities



Veronica Trujillo from Velarde is a 2018 recipient of a LAESF scholarship. A graduate of Española Valley High School, she's starting at NMSU in August, studying electrical engineering.

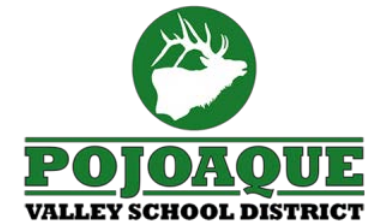
36% of current full-time Lab employees were previously students at the Laboratory



Regional Partnership School integrates professional development for current and incoming 4th-8th grade teachers

Regional Partnership School

- Regional Partnership School program with Laboratory, Pojoaque Valley School District and New Mexico Highlands University supports pre-service and in-service training to build capacity and improve student performance
- Builds on 17 years of Laboratory's Math and Science Academy's teacher professional development expertise
- Based on national best practice professional development school approach, it serves as model of innovation for NM educators and policy makers
- Math Teacher Leader Network established to engage regional educators in the work of the partnership school



The first partnership in the state between a school district, a university and a major employer

Partnership with Bradbury Science Museum Association to give underserved students access to Bradbury Science Museum

BSMA program

- Bradbury Science Museum Association (BSMA) is the official nonprofit partner of the Laboratory's Bradbury Science Museum
- Partnership with Museum, BSMA and Los Alamos National Bank pays for transportation for trips to museum for schools with high proportion of low-income students
- Museum educators conduct demonstrations and lead activities during the visits

2,200 Northern New Mexico students have visited the museum through the program over last 2 school years

Students from Lybrook Elementary in Rio Arriba County during their visit to the Bradbury Science Museum through the BSMA transportation program.



In 2017 the Laboratory supported 37 regional K-20 STEM education programs

- The Laboratory's 2017 Back to School drive provided 1000 backpacks with school supplies to public school districts and tribal schools for the start of the school year
- Expanding Your Horizons: around 500 5th-8th grade girls take part in workshops and science activities led by female Los Alamos scientists
- Hour of Code: more than 65 Laboratory employees taught computer science classes at more than 20 area schools.
- STEM Mentoring Café: more than 100 8th-graders from Santa Fe Indian School received mentoring and took part in hands-on science activities in this day-long event
- Other programs supported include: RoboRave, the Electric Car Challenge, Future Cities, DOE Science Bowl

K-12 STEM programs



Summer Physics Camp for Young Women: the Laboratory provides the opportunity for 20 high school women from across the region to participate in a free, two-week physics summer camp at Pojoaque Valley High School. Participants learn from female professionals working in STEM professions, and visit Laboratory facilities.

The Laboratory is committed to STEM education in New Mexico

Conclusion

- The Laboratory needs a pipeline of New Mexicans trained in science, technology, engineering and math
- It is important to the Laboratory to build partnerships with the State, school districts and nonprofit entities to further STEM education
- Los Alamos will continue to support STEM education in New Mexico with time, talent and resources



Competitors from the Española YMCA Teen Center compete at the 2018 RoboRAVE International event in Albuquerque. The Center is supported by Los Alamos National Laboratory.