



# K–12 STEM Education and Outreach

Science, technology, engineering, and mathematics (STEM) outreach is vital to the nation's development of future scientists, engineers, and innovators. As the US Department of Energy's (DOE's) largest multiprogram science and energy laboratory, Oak Ridge National Laboratory (ORNL) is committed to serving the public as a valued partner in educational initiatives to promote and expand STEM experiences for the next generation. ORNL offers students, educators, and community members a variety of learning opportunities that correspond to the Laboratory's distinct areas of scientific research. Educational outreach efforts are aligned to engage children today with the workforce needs of tomorrow.

## Internship and Research Experiences

Educational programs at ORNL offer participants the opportunity to learn from world-class scientists while using the Laboratory's unique resources, encouraging the pursuit of careers in STEM and supporting fields. ORNL and the Oak Ridge Institute for Science and Education cooperate to offer numerous internship and research opportunities to high school students.

- Appalachian Regional Commission/ORNL Summer Math Science Technology Institute—Provides a short-term hands-on research experience for small groups of high school students and STEM teachers from the Appalachian Region. The program highlights the critical value of ORNL and its science resources.
- Oak Ridge High School Math Thesis Program—Provides math focused internships to participating students.
- Next Generation STEM Internship Program—Affords rising high school juniors, seniors, and recent graduates from surrounding counties the opportunity to participate in STEM projects with researchers at ORNL.

## School and Community Events

ORNL proudly partners with many schools and community groups in the surrounding area in a variety of events, including school STEM nights, science fairs, career fairs, and teacher professional development. Hands-on activities and demonstrations allow students and community members to gain an understanding of the concepts that fuel scientific research. Employee volunteers visit regional schools for events such as Scientist in the Classroom, Hour of Code, and National Engineers Week. In FY 2022, employee volunteers shared their passion for science with over 6,000 students at school and community events.

**ORNL staff connect with students to promote awareness of STEM-related career opportunities.**



# SAGE Camp

Science Accelerating Girls' Engagement in STEM (SAGE) is a summer camp for high schoolers hosted by ORNL scientists and engineers to introduce STEM careers. SAGE aims to foster innovation, grow the STEM community, and empower students to explore a wide range of possibilities for their future. Camp activities include job shadowing, hands-on projects, professional development, and career talks.



## Student Tours

ORNL welcomes middle and high school student groups for a unique field trip experience. At the Laboratory, the scientific concepts students learn about in the classroom are applied every day to solve the 21st century's scientific challenges. Students tour some of ORNL's historic, scientific, and engineering facilities; discover the innovative research that occurs onsite; and meet STEM professionals.

## Traveling Science Fair

ORNL's Traveling Science Fair provides guests of all ages the opportunity to learn more about science and the importance of research conducted at ORNL. Students enter carnival-style interactive mobile exhibits that describe various fields of research and areas of future job opportunities. *Become a Neutron, Extreme Science, Get into Green, Tiny Atoms...Big Science, What's Your Problem, and Mission Support* exhibits provide participants with interactive experiences centered around ORNL's diverse areas of research. Since its inception in 2014, the Traveling Science Fair has hosted students from 15 local school districts and 4 states, including virtual events in 2020 and 2021.

## Programs Supported by ORNL

- **For Inspiration and Recognition of Science & Technology (FIRST) Lego League (FLL):** FLL is a mentor-based research and robotics program designed to help 9- to-14-year-old students become science and technology leaders and well-rounded contributors to society. ORNL provides \$5,000 annually toward FLL of East Tennessee events.
- **FIRST Robotics:** FIRST Robotics is an international program that brings together teams of high school students to build robots for an international competition. Since 2013, UT-Battelle has provided more than \$300,000 to area teams from 19 high schools. It is a proud sponsor of the Smoky Mountain Regional Competition..
- **National Science Bowl:** DOE's Science Bowl is a nationwide academic competition that tests students' knowledge in all areas of science and mathematics. In 2022, UT-Battelle proudly sponsored regional competitions.
- **STEM Scouts:** STEM Scouts, a coed program of the Boy Scouts of America, is a national after-school STEM education program developed by former ORNL employees and piloted in East Tennessee by the Great Smoky Mountain Council of the Boy Scouts. UT-Battelle has been a major sponsor of STEM Scouts in the Knoxville area since its beginning in 2014. At the end of 2022, ORNL was the charter organization for over 30 STEM labs.

• ORNL STEM outreach endeavors reached more than 39,000 students in FY 2022



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