

OAK RIDGE NATIONAL LABORATORY

Traveling SCIENCE FAIR

The ORNL Science Fair provides guests of all ages the opportunity to learn more about science and the importance of research being done at Oak Ridge National Laboratory. Students enter carnival-style interactive trailers that describe various fields of research and areas of future job opportunities.

www.ornl.gov/sciencefair



Become a Neutron

Explore the subatomic world of neutrons and discover their role in breakthrough research. Enter the path of the Spallation Neutron Source's linear accelerator as an ion, speed down the accelerator track, and hit a liquid mercury target with such force that neutrons are knocked off, or spalled, in every direction. These neutrons are directed toward instruments where researchers place materials in the path of the neutron beam. The neutron beam is like a large microscope, allowing researchers to study details about the nature of materials from metals to micelles to metallic glass magnets.



Extreme Science

Learn how researchers explore the biggest and smallest systems in the universe! Watch a star explode, peer into the depths of a black hole, and learn how the sun works. Then pass through a portal to explore how elements cooked up inside of stars are studied and manipulated. How are batteries made? What are nanomaterials and what can they do for us? How can we "sniff" out traces of chemicals? How do we use chemistry to make more slippery oil? Learn the answers to these questions and more and how researchers combine physics, chemistry, and materials science to better understand the universe and make our world a better place! Big and small, we explore it all!



Get into Green

Take a walk through a rainforest and explore plant life and the hidden world of soil while surrounded by the sounds of birds. Step in front of an infrared camera to discover how heat is dispersed and how solar-generated electricity can be used and stored even on a cloudy day. Learn how source material is transformed to produce incredibly strong carbon fiber and other composite materials ready for a 3D printer. And before you go, grab your smart phone to explore the fuel efficiency of electric and E85 cars, as well as the environmental impact of fuels.



Tiny Atoms...Big Science

Learn how nuclear research at ORNL is used to detect international nuclear threats, provide cancer treatments through medical isotopes, improve nuclear reactors through modeling and simulation, and develop new technologies that can produce clean, reliable energy for future generations. Use hands-on exhibits and interactive displays to better understand the importance of nuclear energy, how it is being used to improve our lives, and ORNL's role in this exciting field of research.



What's Your Problem?

Learn about the power of today's supercomputers and how they are used to solve many of the biggest scientific challenges facing researchers. Use your imagination as you enter the mirrored "infinity room" to answer the question, "What would you do if there were more of you?" Learn the basics of parallel computing by taking a virtual walk through Titan, the nation's most powerful supercomputer. While inside Titan, you will see how parallel computing is like building a house—to get a job done efficiently, workers must carry out different tasks at the same time. You will also get the chance to operate Tiny Titan, a very small version of ORNL's actual supercomputer. Today's supercomputers provide solutions to the world's biggest challenges!



Supporting Research

No one can do it alone—including researchers at a world-class national laboratory like ORNL. Learn how specialists including engineers, health physicists, industrial hygienists, firefighters, medical professionals, computer programmers, and environmental scientists support the research mission. Discover how ORNL's support staff plays a critical role in keeping researchers and the environment safe and facilities running smoothly.



Contact: Leigha Humphries, humphrieslm@ornl.gov, 865-241-9309