



[www.ornl.gov/sciencefair](http://www.ornl.gov/sciencefair)

The ORNL Traveling Science Fair gives guests of all ages the chance to learn more about science and the importance of research being done at Oak Ridge National Laboratory. Students interact with carnival-style exhibits that showcase various fields of research and areas of future job opportunities.



## *Get Into Green*

Learn about the importance of microbes, Earth's most abundant life form, and the roles they play in the environment and human health. Interact with materials used in 3D printing/additive manufacturing processes including vials of ground wood poplar and pellets of poplar, flax fiber, bamboo, carbon fiber, coal extractions, metal powders, filaments, and magnets. Discover how connected and autonomous vehicles communicate with

signals driven by mathematical equations. Displays use a real-world scenario to show how a vehicle would communicate to know when to slow down, merge, turn and avoid obstacles so that traffic remains at a steady flow.



## *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 guided 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.



## *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.



## 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. 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!



## Mission Support

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, skilled trades staff, laboratory protection, 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.



## What's Your Problem?

Find out how researchers harness the power of today's supercomputers to solve some of the world's most challenging scientific problems. 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 time that highlights three of ORNL's most powerful and historically significant supercomputers—Phoenix, Jaguar, and Summit. Explore the

"future room," where you will compete against a computer in a timed game to discover the importance of artificial intelligence. Finish your visit by joining our PARtI (Parallel Architecture Test Implementation) for a hands-on activity that lets you add and subtract computer processors to control the speed at which a small simulated universe completes calculations.



 **OAK RIDGE**  
National Laboratory

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