

## Tour Information


Spend 20-30 minutes at each tour stop to learn a little about everything we do, or just visit the exhibits that interest you the most – the choice is yours!

Approximate time to visit all exhibits:  
4 hours

## Getting Around

Shuttle buses continuously loop around the Jefferson Lab campus and parking lots to connect guests to marked exhibits.

You can also walk the entire tour route; it is approximately a two-mile loop.

The Accelerator Tunnel and Experimental Halls are not handicap accessible. Exhibit locations with access by steep incline or stairs are denoted on map with . Motorized assistance vehicles will be located on the accelerator site to help transport visitors with mobility restrictions, as available.

## Selfie Stops



Look for designated **Selfie Stops** along the self-guided tour to capture memorable photos of your experience. Don't forget to tag us: **#discoverJLab** to have your photos looped into our real-time event feed.



Learn more:  
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(757) 269-7100



Jefferson Lab is managed and operated for the U.S. Department of Energy by Jefferson Science Associates, LLC, a joint venture between Southeastern Universities Research Association, Inc., and PAE.

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# 2018 OPEN HOUSE



Exploring the Nature of Matter!

# DISCOVER JEFFERSON LAB

#discoverJLab

Map and  
Information



May 19, 2018  
9 a.m. - 3 p.m.



# WHAT IS JEFFERSON LAB?

The Thomas Jefferson National Accelerator Facility is a world-leading nuclear physics research facility sponsored by the U.S. Department of Energy's Office of Science.

Research at Jefferson Lab is expanding humankind's knowledge of the universe by studying sub-atomic particles known as quarks and gluons. These building blocks of matter combine to form the protons and neutrons found in the atom's nucleus. To learn more, scientists have embarked on a journey of discovery into the heart of matter using Jefferson Lab's Continuous Electron Beam Accelerator Facility.

CEBAF acts like a giant microscope, using a highly focused beam of electrons to probe matter. It does this by propelling an electron beam at nearly the speed of light into targets located in the lab's four experimental halls.

When the beam strikes a target, these interactions are recorded and studied. These incredibly powerful electron beams and unique detector systems allows scientists to "see" things a million times smaller than an atom.

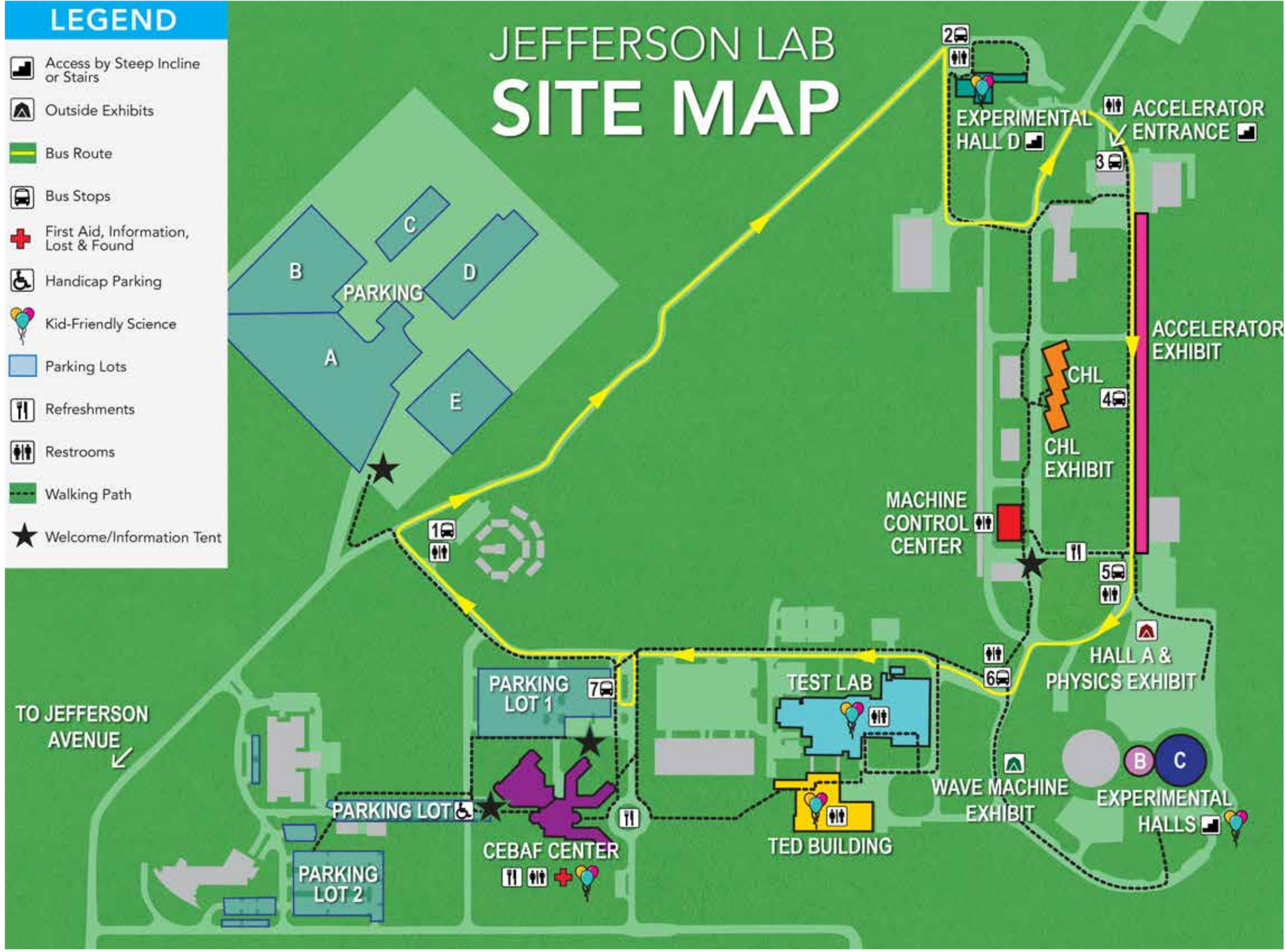
To understand the information collected during these experiments, Jefferson Lab scientists develop theoretical models and carry out sophisticated computerized simulations of the interactions. Integrating experimental results and cutting-edge theories helps scientists gain a better understanding of the building blocks of matter and the forces binding them together.



## JEFFERSON LAB FACTS

- Jefferson Lab's accelerator operates at temperatures colder than deep space!
- One third of the Nuclear Physics Ph.D.s awarded in the U.S. are a result of work conducted at Jefferson Lab.
- Nearly 2,500 magnets in 81 varieties focus and steer the electron beam in the CEBAF tunnel and range in size from a few inches to three yards and weigh as much as five tons.
- Nearly 1,600 scientists from around the world conduct experiments at Jefferson Lab.
- More than 750 people are employed at the lab, with a daily site population (staff, contractors, visiting researchers, students) of more than 1,000.
- A \$338 million upgrade to Jefferson Lab's Continuous Electron Beam Accelerator Facility was completed in 2017, tripling the beam energy of CEBAF and adding new research capabilities.
- Today, our Experimental Halls collect 45 terabytes of data per day, the equivalent of more than 150,000,000 books, and we expect to more than double this rate for Fall 2018 and beyond.
- More than 10,000 cubic yards of concrete were used in the construction of the Hall D complex, enough to fill 1000 cement trucks!





# SCIENCE FOR KIDS LOCATIONS



- CEBAF Center Atrium
- Test Lab
- TED Building
- Experimental Hall B
- Experimental Hall C
- Experimental Hall D

## Look for the Balloon Icons!

Children under 16 must be accompanied by an adult at all times.

# FOOD



A variety of on-the-go food options, desserts and non-alcoholic drinks are available for purchase at the below locations.

## CEBAF Center Quark Café:

Prepackaged sandwiches, snacks and desserts

## Bus Stop #5, Accelerator Row:

American Cuisine food trucks

## Bus Stop #7, CEBAF Center Circle:

Multi-Cultural Cuisine food trucks

# RESTROOMS



Outdoor portable restrooms are available at Bus Stops #1, #2, #3, #5 and #6. The remainder of the restrooms are indoors as labeled.

# EXHIBITS

## ACCELERATOR TUNNEL



See the six-ton, 27-foot long superconducting cryomodules used to speed the electron beam, and the powerful magnets used to focus and steer it.

## CEBAF CENTER



This is the place for STEM activities!

- Visit our Data Center to learn how we use our super computers for science, while keeping them safe with cyber security.
- Learn about advancing efforts to bring an Electron-Ion Collider from concept to reality.
- Immerse yourself in a variety of scientific fields, with exhibits provided by partner research organizations, universities and the Department of Energy.
- Discover science ‘magic’ you can do at home with featured hands-on activities presented by the lab’s Science Education department.
- Watch liquid nitrogen demonstrations in the auditorium every hour on the hour from 10 a.m.–2 p.m. Appropriate for kids of all ages.
- Come meet with our HR team to discuss how you can contribute to amazing discoveries at Jefferson Lab.

## CENTRAL HELIUM LIQUEFIER (CHL)

Peek inside our accelerator’s refrigeration plant to see the equipment that can cool things within a few degrees of absolute zero—colder than space!

## EXPERIMENTAL HALL A & PHYSICS EXHIBIT

Talk with lab researchers, engineers and technicians about their efforts in Hall A, and get your hands-on science fix with more interactive demos and displays from local universities.

## EXPERIMENTAL HALL B



View the unique detector systems in Hall B. Talk with the scientists, engineers and technicians who designed, built and run these systems to find out how Hall B can collect terabytes of data per day.

## EXPERIMENTAL HALL C



View the enormous detector systems in Hall C. Talk with the scientists, engineers and technicians who designed, built and run these behemoths and find out what they are learning.

## EXPERIMENTAL HALL D



Walk through Hall D’s Counting House and into the hall itself. Learn how the research in Hall D may help answer the question: Why is one quark never seen alone?

## MACHINE CONTROL CENTER



Visit the nerve center for the lab’s Continuous Electron Beam Accelerator Facility (CEBAF), where operators monitor and control several hundred thousand signals. Learn how we accelerate electrons. Pick the brain of an accelerator physicist at Ask a Scientist.

## TED BUILDING



See how companies are using technologies licensed from Jefferson Lab to improve and create new products to benefit the public. Learn about bright ideas that are enabling world-class research in the accelerator and experimental halls.

## TEST LAB



The Test Lab is where Jefferson Lab conducts world-class research and development for accelerator components. Fire an accelerator, learn about making a superconducting accelerator module and witness superconductivity at work.

## WAVE MACHINE

Set your own waves in motion on an enormous working wave machine that uses dual catenary lines under 500 pounds of tension to resonantly transfer energy from one end to the other.