



Education Programs

Engineering

Program Type: Assembly

Lawrence Hall of Science
Berkeley

lawrencehallofscience.org

Build It! - Festival @ School Site

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: K;1st;2nd;3rd;4th;5th;6th

This festival is designed to bring out the builder in everyone. Participants quickly become junior architects exercising their design, problem-solving, and spatial skills. They construct block structures, make amazing three-dimensional polyhedral, create colorful tessellations and patterns based on Islamic designs, and use newspaper dowels to build structures (some big enough to stand in! We provide a variety of building materials to pose unique challenges to children and adults. You bring your creativity! Station instructions are available in Spanish. Adult volunteers required: At LHS 7; At your School: 14. Maximum of 150 participants per session at your school. <http://lawrencehallofscience.org/programs_for_schools/festivals>

Cost: \$905 for 2 sessions/Pi \$905/2 sessions or \$1,100/3 sessions. Additional travel fees apply to outreach programs outside of Berkeley. - 1st come, fills up; minimum 4 weeks in adv, unless pay in person or w/ credit card by phone. Call for reservation

Engineer and Invent @ School Site

lawrencehallofscience.org

Experience: Site Educator Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th

Step into the shoes of an engineer as you investigate, experiment, and develop solutions to real-world problems. Tweak the blades on a wind turbine to efficiently harness the power of the wind. Construct a working hydraulic arm to explore the strength of water-powered machines. Flip the switch on the world of electricity, as you explore circuits and bring your motorized creations to life. Build bridges, towers, or whatever you can imagine with metal, paper, or wood. Stations include: hydraulics, wind turbines, circuitry, wobble bots, bridges, Keva planks, and bionix blocks.

Cost: \$905 for 2 sessions/Pi \$905/2 sessions or \$1,100/3 sessions. Additional travel fees apply to outreach programs outside of Berkeley. - Call for reservation up to 24 hours in advance, in person, by phone or online.

Program Type: Family Science Night

Lawrence Hall of Science
Berkeley

lawrencehallofscience.org

Engineer and Invent @ School Site

lawrencehallofscience.org

Experience: Site Educator Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th

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Program Type: Field Trip

Bay Model Visitor Center Sausalito

<http://www.spn.usace.army.mil/Missions/Recreation/BayModelVisitorCenter.aspx>

3rd through 6th grade program

<http://www.spn.usace.army.mil/bmvc/teachers/educationalprogram/schoolgroups/36.html>

Experience: Site Educator Led - Interactive Exhibit

Grade Levels: 3rd;4th;5th;6th

Programs focus on watersheds, water, tide and life cycles; map scale, and geography. On a tour of the model, from the Pacific Ocean via the San Francisco Bay estuary to the Delta, students learn place names and understand the concept of scale. The concept of an estuary is discussed along with the cycle of life. Students learn about tides by visualizing actual tidal currents in the model and discussing the influence of the moon and the sun.

The model is used to explain water cycle concepts such as that of precipitation, evaporation, and condensation as they occur in the nature: from the Sierra Nevada Mountains, through the Delta, the Bay, and finally the Pacific Ocean. The importance of conserving water is emphasized. Watersheds are discussed as an integral part of the water cycle. Students view a working watershed model, and discuss the importance of water quality and the role of the watershed in maintaining good water quality.

Cost: \$FREE/Class

Free - call at least 3 weeks in advance, groups arriving later than 30 minutes may be cancelled

The Dynamic Tidal System

<http://www.spn.usace.army.mil/bmvc/teachers/educationalprogram/schoolgroups/7college.html>

Experience: Site Educator Led - Tour

Grade Levels: 7th;8th

The Dynamic Tidal System of the San Francisco Bay focuses on the hydraulic model in conjunction with environmental scientific experiments; such as salinity, dredging, diversion of water, and oil spills. These are hands-on experiments and require the students' participation.

Cost: \$FREE/Class

FREE Program - call at least 3 weeks in advance to sign up, groups arriving later than 30 minutes may be cancelled

Forces of Flight

<http://www.curiodysey.org/schools-groups/schools>

Experience: Site Educator Led - Nature Exploration

Grade Levels: 2nd;3rd;4th

How can an airplane fly? This workshop takes students through the exploration of lift, drag, thrust and gravity - all forces that impact flight. By designing and making their own airplane/glider and testing items that flutter and float, we will learn and observe directly the forces of flight.

Cost: \$7.50/Student

Admission to the park where the museum is located is \$4/car. 1 free chaperone for every 5 paid students - \$50 cancellation fee

Exploratorium

San Francisco

<http://www.exploratorium.edu>

Tinkering Studio

<http://tinkering.exploratorium.edu/about>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

A studio workshop for playful invention, investigation, and collaboration

The Tinkering Studio is an immersive, active, creative place at the Exploratorium where museum visitors can slow down, become deeply engaged in an investigation of scientific phenomena, and make something—a piece of a collaborative chain reaction—that fully represents their ideas and aesthetic.

In the Tinkering Studio, visitors are invited to explore a curiosity-driven exhibit, chat with a featured artist, or investigate a range of phenomena with staff artists, scientists, educators, and others by participating in a collaborative activity. A large, eclectic assortment of materials, tools, and technologies are provided for people to use as they explore and create.

Cost: \$\$7.50 - Free for Title 1

Pay on arrival with credit, cash or check, one chaperone free for every ten kids. First Wednesdays of the month FREE. (Fall: Oct-Jan student adms \$4.00; Spring Jan-June student adms \$5.50) - call ,email, or fax reservation at least 1 month in advance, for March-June call 3-4 months prior.

South Gallery - Tinkering

<http://www.exploratorium.edu/visit/south-gallery>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Think with your hands. Making things and developing ideas by hand helps us construct understanding. Slow down, settle in, and make something personally meaningful—from playful contraptions to surprising connections between mechanical systems and natural phenomena.

Cost: \$\$7.50 - Free for Title 1

Pay on arrival with credit, cash or check, one chaperone free for every ten kids. First Wednesdays of the month FREE. (Fall: Oct-Jan student adms \$4.00; Spring Jan-June student adms \$5.50) - call ,email, or fax reservation at least 1 month in advance, for March-June call 3-4 months prior.

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Earthquake Engineering

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: 3rd;4th;5th;6th;7th;8th

Students become earthquake safety engineers as they use shake tables to test the strength of their own designs of simple buildings and bridges. They discover which materials bend or break under stress, and they discuss ways to prepare for a severe earthquake in our quake-prone Bay Area.

Cost: \$\$360 for K–2 \$460 for

Includes admission to exhibits. - Call for reservation up to 24 hours in advance, in person, by phone or online.

Engineering with Wind Turbines

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: 4th;5th;6th;7th;8th

Students employ engineering practices as they tackle a targeted design challenge to optimize a wind turbine to lift a weight or generate electrical current. This experience focuses on students' defining problems, designing and evaluating solutions, and taking the time to assess, discuss, and redesign as they innovate.

Cost: \$\$460 for Grade 3+/Class
Includes admission to exhibits. -
Call for reservation up to 24 hours
in advance, in person, by phone or
online.

Engineering with Hydraulics

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: 4th;5th;6th;7th;8th

Students are introduced to engineering and properties of fluids as they envision and build a hydraulic contraption. This experience focuses on students' defining problems, designing and evaluating solutions, and taking the time to assess, discuss, and redesign their creations. Creations are recycled for the next group, but students take the experience and ideas with them.

Cost: \$\$460 for Grade 3+/Class
Includes admission to exhibits. -
Call for reservation up to 24 hours
in advance, in person, by phone or
online.

Make It Move!

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: K;1st;2nd

Students engage in problem solving as they make inventions using simple hydraulic systems. They think like engineers as they design, build, test, and redesign their models. Open-ended investigations with specialized materials and tools focus students on cause and effect relationships and inspire them to create innovative solutions.

Cost: \$\$360 for K-2/Class

The Crucible

Oakland

<http://thecrucible.org/about-us/contact-us>

field Trips

<http://thecrucible.org/youth-program/field-trips>

Experience: Site Educator Led - Arts Experience

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

The Crucible provides youth with an introduction to the industrial arts with demonstrations by artists and industry experts. These field trips support learning in areas such as mathematics, science, art, and world culture. Participants learn about the processes, tools, materials and applications of industrial arts and are inspired to make connections between arts and science. The Crucible staff works closely with educators to ensure that these kids activities are a meaningful and exciting educational experience. The field trip program is available the third Thursday of each month for one-hour tours during the hours of 9AM and 2PM. No cost to Oakland public schools. For private schools in Oakland or schools outside of Oakland, charge is \$4.00 per student. Groups must contain at least 60 youth for a field trip, and students are divided into three groups to ensure participants experience the demonstrations in small groups.

Cost: \$FREE for Oakland Pul

The Tech Museum of Innovation

San Jose

<http://www.thetech.org>

Green by Design

<http://www.thetech.org>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Be inspired to design everything with the environment in mind, so we can prevent environmental problems from happening in the first place and improve the quality of our lives. This revolutionary exhibit - designed, developed and built by The Tech - will give examples of 'green' design, address the role of design in our lives, and encourage you to make a difference.

Cost: \$\$5 or Free to Title 1 sc

IDEA House

<http://www.thetech.org>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Cultivate your inner inventor at IDEA House. IDEA House is a highly interactive program space offering a range of activities that encourages idea generation and innovation in your daily life.

Cost: \$\$5 or Free to Title 1 sc
Includes visit to OMNIMAX theater. \$50 per class non-refundable deposit required w/in two weeks of receiving your confirmation. - Reservations are first come first serve. The Tech prefers that you use their on-line reservation form at www.thetech.org

Physics of Rollercoasters

<http://www.thetech.org>

Experience: Site Educator Led - Lab Experience

Grade Levels: 2nd;3rd;4th;5th;6th;7th;8th

Students design their own roller coasters to learn how engineers prototype and build machines. They also explore kinetic and potential energy, friction and Newton's 1st and 2nd Laws of Motion.

Cost: \$\$250 per lab (\$125 for

Invention at Play

<http://www.thetech.org>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

Explore the playful side of invention and the inventive side of play. Tinker in the Invention Playhouse and peruse artifacts and real stories to see how play fosters creativity in real inventors. Unleash your inner child in Invention at Play! Explore and discover the differences and similarities between the ways children and adults play and the creative processes used by innovators in science and technology.

Cost: \$\$5 or Free to Title 1 sc

Engineering for Earthquakes - Lab

<http://www.thetech.org>

Experience: Site Educator Led - Lab Experience

Grade Levels: 5th;6th;7th;8th

Students learn about earthquakes and engineering principals, then design and construct seismically sound buildings that they put to the test on a shake table simulating seismic waves

Cost: \$\$250 per lab (\$125 for Maximum of 32 students and 1 chaperone per class - Reservations are first come first serve. The Tech prefers that you use their on-line reservation form at www.thetech.org

The Tech Challenge Gallery

<http://www.thetech.org>

Experience: Teacher Led - Interactive Exhibit

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th

opens June 2010 -- The Tech Challenge is a program with a long tradition at The Tech Museum - beginning back in 1988. Once a year, fifth through twelfth graders gather at The Tech Museum for a day-long event in which they compete in teams with devices they have built to solve real-world problems. In the true Spirit of Silicon Valley, these teams are given the opportunity to create solutions, test their devices, sometimes fail, try again and learn during the process.

Cost: \$\$5 or Free to Title 1 sc

Program Type: In-Class Program

CuriOdyssey
San Mateo

<http://www.curiodyssey.org/>

Forces of Flight

<http://www.curiodyssey.org/schools-groups/schools>

Experience: Site Educator Led - Nature Exploration

Grade Levels: 2nd;3rd;4th

How can an airplane fly? This workshop takes students through the exploration of lift, drag, thrust and gravity - all forces that impact flight. By designing and making their own airplane/glider and testing items that flutter and float, we will learn and observe directly the forces of flight.

Cost: \$7.50/Student

Admission to the park where the museum is located is \$4/car. 1 free chaperone for every 5 paid students - \$50 cancellation fee

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Berkeley

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Earthquake Engineering Workshop @ School Site

lawrencehallofscience.org

Experience: Site Educator Led - Lab Experience

Grade Levels: 3rd;4th;5th;6th;7th;8th

Students become earthquake safety engineers as they use shake tables to test the strength of their own designs of simple buildings and bridges. They discover which materials bend or break under stress, and they discuss ways to prepare for a severe earthquake in our quake-prone Bay Area.

Cost: \$550 for two sessions.

\$550 for two sessions

\$720 for three sessions

Additional travel fees apply - Call for reservation up to 24 hours in advance, in person, by phone or online.

Program Type: Temporary Exhibit

Bay Model Visitor Center

Sausalito

<http://www.spn.usace.army.mil/Missions/Recreation/BayModelVisitorCenter.aspx>

The Bridge Builders - Constructing the New Bay Bridge East Span – A **Cost:** \$FREE/Student

http://www.spn.usace.army.mil/bmvc/bmjourney/calendar/bi_monthly/front.html

Experience: Teacher Led - Arts Experience

Grade Levels: K;1st;2nd;3rd;4th;5th;6th;7th;8th;9th;10th;11th;12th;PK

(January 27–March 7, 2015) - A Solo Exhibition of Photographs by Joseph A. Blum
Joseph A. Blum presents an exhibition featuring color photographs that give viewers an all-access look at the making of the new East Span of the San Francisco-Oakland Bay Bridge. Joe Blum has been hard at work on the Bay Bridge's newly constructed eastern span, but his tools look a bit different than those of the men and women who surround him – his tools are a 35 mm Nikon camera, and occasionally a large format Pentax camera. Blum has been dutifully documenting the construction process from the foundations all the way through the opening in September 2013, and continuing with the demolition of the old East Span that is now underway.