



SCHOOL
PROGRAM
GUIDE
2018 - 2019

YOUR GUIDE TO SCIENCE EXPLORATION STARTS HERE



This is not a program of your school district.
Your district does not sponsor these programs and
accepts no liability or responsibility for the programs.

Greetings, Educators!

Here at Powerhouse Science Center, we are excited to launch our second year of programming aligned with the Next Generation Science Standards (NGSS). Our hands-on labs and programs expose your students to science and engineering practices, scientific experiments, and investigative activities that are central to NGSS curriculum.

Powerhouse on-site programming is designed to be a fun and immersive day of science. Make the most of your field trip day by scheduling more than a single program or laboratory. Classes can rotate through one, two, or even three unique science experiences during a single visit to our campus. If you book a Challenger Simulation Mission in the morning, bring along a lunch to enjoy in our 13 acre nature area, and then participate in a Planetarium program in the afternoon. Have your students learn about electricity in our Charge It Up Lab and then continue to learn about the forces that shape our planet and the universe by visiting the exhibit Forces: Earth & Space exhibit for a self-guided tour.

Whether you visit us at the science center, or we deliver a program in your classroom, our goal is to introduce your students to fascinating STEM concepts in hopes that it will ignite a lifelong interest in science. For over 65 years, Powerhouse has worked closely with educators from across our region to provide opportunities for students to gain confidence and mastery of science, technology, engineering and math skills. We look forward to working with you and your students in the coming school year.

Sincerely,



Emily Anderson | Education Program Manager

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Our NEW and improved experience will launch your students into an exciting mission of space discovery! In our Challenger Learning Center, they will perform hands-on science experiments, operate robotic arms, build a probe, and support the crew from Mission Control.

Challenger Simulated Space Mission | GRADES: 5 - 8

Designed in cooperation with NASA, Challenger Missions are interactive educational programs which use the excitement of space flight simulations to inspire students. As students participate in one of two mission scenarios, they apply math, science, technology, and language arts to solve real-life challenges.

Mission fee includes classroom curriculum for pre-mission preparation, a 2 hour simulated mission for 16-32 students, and post-mission classroom activities.

All teachers attending their first Challenger Mission must attend a complimentary, half-day training workshop prior to bringing students to the program.

CHOOSE YOUR MISSION

Rendezvous With Comet Halley: Comet Halley is returning to our part of the Solar System in 2061. A team of astronauts construct a probe, plot an intercept course, and navigate the spacecraft in search of the comet. The objective is to launch the probe through the comet's tail and collect data for research.

Voyage To Mars: It is now 2076. Astronauts have occupied a research station on Mars for two years. A team journeys from Earth to replace the crew and continue exploring the Red Planet. The two teams work together to bring the spacecraft in for a successful landing, and launch probes to study the moons of Mars.

Fees: \$580 for 16-32 students per mission.

Maximum: 8 adults (including teachers and instructional aides).

What does it take to be an archaeologist? Students are immersed in an experience using tools, methodology, and techniques of archaeology as they uncover and decipher clues about the past.

GRADES: 4 - 8

Students are immersed in a hands-on, interactive archaeological project that integrates multidisciplinary skills in a realistic simulation. Classes work in teams to uncover the story of the fictional people who once inhabited a corner of the science center grounds. Students participate in an outdoor simulated archaeological dig to understand how archaeologists uncover and decipher clues about the past. Students use scientific inquiry methods to study the past while employing math, social studies, reading, geology, and art for a successful and complete archaeological investigation.

Fees: \$350 per 2 ½ hour program, maximum 34 students.

Explore science topics in a fun and memorable way through our rotating exhibits.

Self-guided tours ensure your students have a hands-on and minds-on experience!

Forces: Earth & Space | Through December 2, 2018

Forces: Earth & Space explores the science that shapes our planet, solar system, and beyond. Learn about the physics that make it possible to live on our planet. Do these same conditions exist in space? How can we develop tools to help us explore and live in space? Find out in this fun hands-on exhibit!

Expedition Science | Opens December 15, 2018

Expedition Science takes you on a journey of discovery on our planet and beyond. Use the tools of science to help better understand the world you live on, investigate the forces that shaped the Earth, and learn about prehistoric creatures that once roamed our planet. Finally, explore space, the final frontier, and learn about the amazing universe we live in.

Fees:

\$100 for 20 and fewer students

\$200 for 21-40 students

\$300 for 41-60 students

Preschool* and K-8 | Exhibit Experiences are 1 hour.

**All members of the Preschool tour group, ages 0-100, are included in the total head count. Please contact 916.674.5000 for more pricing and procedures.*

Bring your students to Sacramento's only public planetarium to learn about the universe! All shows include backyard sky-watching tips.

Our Place In Space | GRADE: K

Are other planets hot or cold? What is the Moon made of? Explore the solar system and learn about the properties of planets and moons. We will start at the Sun and work our way out to the coldest parts of our solar system and beyond to nearby star systems.

Cosmic Neighborhood | GRADES: 1 - 3

Earth orbits the Sun and that allows us to see different things at different times of the year. Join us as we discover how the sky changes from one season to the next. First, students learn which stars and planets are visible from their homes. Then, we explore our neighborhood in space, covering all major celestial objects found in our solar system.

Space Adventure | GRADES: 4 - 8

The Milky Way Galaxy is our home. From distant stars, to our own astronomical backyard, we take a look at the Milky Way and the wonders it holds. Come with us as we discover wonders both near and far.

Fees:

\$100 for 20 and fewer students

\$200 for 21-40 students

\$300 for 41-60 students

Grades K - 1 | 45 minute program

Grades 2 - 8 | 1 hour program

Investigate, experiment, find solutions....spark curiosity in your students! Engage in a lab experience that is fully aligned with Next Generation Science Standards.

BIOLOGICAL SCIENCES

Eco-Explorers | GRADES: K - 2

Explore an ecosystem! Students sharpen their observation skills in this outdoor based exploration of the science center's 13 acre campus. By keeping a field guide of what they find, students learn about the different trees and animals that make California their home, as well as, how they effect one another's survival.

Cellular Adventures | GRADES: 6 - 8

Have your students conduct an investigation to demonstrate that all living things are composed of cells. Students extract onion cells, and prepare their sample for microscope viewing by mounting, staining, and adding a coverslip. They observe the cells under the microscope while recording and sketching observations. In addition, they compare and contrast their prepared slides to human cheek cells and examine differences between plant and animal cells.

DNA: Up Close And Personal | GRADES: 6 - 8

In this introduction to biochemistry, students extract their own DNA, using cheek cells as the source. The lab begins with a discussion of the structure of a typical cell. Then, students study DNA – the very chemical structure responsible for their unique existence. The lesson culminates with students saving their own cheek cell DNA in a laboratory micro test tube.

ENGINEERING

Design Lab | GRADES: 3 - 5

Build, test, and rebuild! The Design Lab program introduces students to the engineering design cycle. Students create prototypes and models to complete hands-on design challenges. By removing the stigma of “failing” students see how failure is an important part of the problem solving-iterative process and a positive way to learn.

PHYSICAL SCIENCES

Galaxy Quest | GRADES: K - 2

Younger students experience the excitement of space travel! This simulation will have astronauts in training visit a space station in orbit around the Earth to complete scientific tests. Upon their return to our home planet students work in Mission Control to learn more about the challenges of the space environment.

Charge It Up | GRADES: 3 - 5

Students receive a fun introduction to electricity and learn what really happens when you flip on a power switch. They work with devices that convert energy from one form to another. Working with electrical circuits, students complete a series of challenges.

Fantastic Physics | GRADES: 3 - 5

Waves are not only in the ocean, but all around us. From the sound you hear, to the light you see, both sound and light travel in waves. In our new physics workshop, students test light waves using different materials and learn how to describe and measure their properties. They also use a tuning fork to investigate the relationship between waves and vibrations. Classes explore waves on a large scale model to help understand the waves we cannot see.

Remarkable Reactions! | GRADES: 3 - 5

Students perform a series of experiments and observe the fascinating changes chemicals undergo. Students will understand the basics of physical and chemical changes and will be amazed to see how some of these changes can be reversed.

Fees: \$225 per one hour lab, maximum 34 students.

Invite Powerhouse Science Center to your school. We'll ignite your student's interest in science and give them the opportunity to become active participants in their learning.

Incredible Insects | GRADES: K - 1

Insects can be found all over the planet; in the rainforest, in caves, and in our backyards. At four different stations students learn how to identify basic insect body parts, observe examples of real insects of all shapes and sizes from habitats around the world, and get up-close and personal with living insects!

Rocks | GRADES: 2 - 3

Students are presented with an exciting introduction to the three rock types. They learn about rock formations and properties using an extensive museum collection of rocks and crystals. Four stations are set up for hands-on exploration.

Fossils | GRADES: 2 - 3

Fossils provide evidence about the types of plants and animals that lived long ago. We focus on dinosaurs and set up five hands-on stations with real fossils and replicas. Students learn that fossils are mineral replacements, preserved remains, or traces of organisms that lived in the past. Some of the real fossils include amber with insect inclusions, dinosaur stomach stones, coprolite, fern imprint, and triceratops bones. (Replicas of dinosaur claws, teeth, eggs and many more!)

Dynamic Earth | GRADES: 4 - 6

Learn about the structure and origin of Planet Earth. Starting with the crust, students explore the formation and properties of the rock types using our specimens. Continental Drift and Plate Tectonics theories are discussed to give students an understanding of how our planet has changed. Students rotate through five hands-on exploration stations (three rock, one crystal, and one fossil). *Grade 6 includes a cross section of the Earth's interior to explain location of tectonic plates.*

Fees:

\$175 for single program presentation

\$350 for two presentations (same topic)

\$500 for three presentations (same topic)

\$25 Mileage Fee for schools located 25-49 miles from Science Center

\$50 Mileage Fee for schools located over 50 miles from Science Center

Grades K - 1 | 45 minute program

Grades 2 - 6 | 1 hour program

One class is allowed per presentation. Classes may not be combined and additional students cannot join presentations. A fee of 50% of the total program cost will be invoiced to your school if classes are combined or additional students join a presentation.

SCHEDULING

To schedule a program, please call 916.674.5000. Our scheduling specialist will work with you to determine a date and time for your preferred program. School name, address, and phone number are required at time of booking. You will be sent an invoice after you have made your reservation.

DEPOSIT & PAYMENT

A 50% deposit of the total program fees is due 60 days after making your reservation. Final payment is required at least 14 days prior to your scheduled program date. Payments not received within the required time may result in the cancellation of your reservation and a late fee. Send a single check, made payable to Powerhouse Science Center, with a copy of your invoice. Please do not send individual checks or cash from students/parents for payment.

Send payment to:

Powerhouse Science Center
3615 Auburn Boulevard
Sacramento, CA 95821

All major credit cards are accepted for payment -- in person or over the phone. A late fee of \$25 will be charged for past due accounts.

CANCELLATIONS & RESCHEDULING

Cancellations and rescheduling must be done at least 60 days prior to your original program date to avoid a cancellation/date change fee. A fee of \$25 will be charged for cancellations and program date changes made 31 - 60 days prior to the original program date. A fee of \$50 will be charged for any change within 30 days prior to the original program date.

Groups that have made reservations and do not cancel their program and/or fail to show up for their scheduled program will forfeit their deposit. We recommend confirming your reservation at least two weeks prior to your visit.

TEACHERS & CHAPERONES

Teachers and chaperones are required for all science center programs and tours at a ratio of one adult to every six students. Teachers are counted in this one to six ratio. These adult chaperones are included as part of your program fee. Additional adults are allowed, as space permits, at \$5 per adult -- payable at the time of your visit. Please do not bring individual payments for additional adults. We request you make a single payment for additional adults to Guest Services at check-in. Students must be accompanied and supervised by an adult at all times during their visit. Siblings are not allowed in any programs.

FOOD & DRINK

No food or drinks are allowed inside the science center.

We have shaded outdoor picnic tables that you are welcome to use for lunch and snack breaks. The science center does not have any covered or indoor lunch/snack facilities.

CHECK-IN PROCEDURE

The lead teacher should check-in with Guest Services, located inside the main entrance of the science center. Have the total head count for your group -- including all students, teachers and chaperones. Any additional fees will be collected at that time.

Your group will be directed to the appropriate location for your program. Please arrive approximately 15 minutes before your scheduled program to allow for students to use the restrooms.

Ready to book your program?

Give us a call today at 916.674.5000!



3615 Auburn Blvd., Sacramento, CA 95821
916.674.5000 • powerhousesc.org