



# Educator Resource Guide

REUBEN H. FLEET SCIENCE CENTER, SAN DIEGO, CALIFORNIA

2011 | 2012

# The Reuben H. Fleet Science Center

2011-2012 EDUCATOR RESOURCE GUIDE REUBEN H. FLEET SCIENCE CENTER [WWW.RHFLEET.ORG](http://WWW.RHFLEET.ORG) (619) 238-1233 ext. 806

## Our Mission

The Reuben H. Fleet Science Center seeks to inspire lifelong learning by furthering the public understanding and enjoyment of science and technology.

The Fleet Education Department seeks to develop and implement a wide array of educational and innovative programs and exhibits to promote lifelong learning and a deep appreciation of science and technology for the entire community.

As an informal education and inquiry-based institution, the Reuben H. Fleet Science Center offers a number of activities designed to immerse your students in an interactive science experience.

Educational experiences include:

- Outreach Programs
- Workshops
- Hands-on Exhibitions
- Nierman Challenger Learning Center
- IMAX® Films

IMAX® is a registered trademark of IMAX Corporation.

## Scholarships

Scholarships for many of our programs are available to schools based on financial need. Other restrictions may apply. For more information on scholarship availability, please call (619) 238-1233 ext. 806.

Scholarships are made possible thanks to generous donations from:

### FRIENDS OF THE FLEET



### THE RICE FAMILY FOUNDATION



### BOYS AND GIRLS FOUNDATION



### MACGILLIVRAY FREEMAN FILMS

### SAN DIEGO NATIONAL BANK

## Education Sponsors

Educational programs are supported in part by funding from the City of San Diego Commission for Arts and Culture, Neighborhood Reinvestment Program grants from San Diego County Supervisor Pam Slater-Price, District 3 and Community Enhancement Program grants from San Diego County Supervisors Ron Roberts, District 4 and Greg Cox, District 1. Additional support provided by Biogen Idec Foundation, Viterbi Family Foundation, ScholarShare College Savings Plan, and members of the Reuben H. Fleet Science Center.



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The Reuben H. Fleet Science Center was the first museum in Balboa Park to receive LEED (Leadership in Energy & Environmental Design) Silver Certification for Existing Buildings: Operations & Maintenance in May of 2010. LEED certification is the nation's preeminent program for the design, construction and operation of high performance, environmentally responsible green buildings.

The 'LEED Certification Mark' is a registered trademark owned by the U.S. Green Building Council and is used by permission.

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Have fun at the Fleet Science Center without the students! Kindergarten through grade 12 teachers working within a 200 mile radius of the Reuben H. Fleet Science Center are eligible for free gallery admission with one guest. School or union ID required.

Donate your body to science! Become a museum volunteer. Contact Volunteer Services at [volunteerservices@rhfleet.org](mailto:volunteerservices@rhfleet.org) or call (619) 238-1233 ext. 835 to get started.



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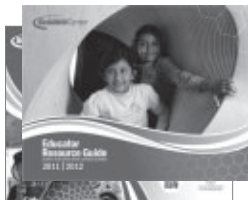


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Photo courtesy of IMAX Corporation.



### **On the Cover** Geometry Playground visits the Fleet June 11, 2011 - June 2012

Look inside to see how our Geometry Playground lessons and exhibits can complement your curriculum!

# Outreach

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## Let Us Come To You

Have our education outreach staff deliver science programs directly to your school, library, community center or other educational venue.

## Outreach Programs

In addition to the outreach programs listed on this page, all of our workshops listed on page 4 can be delivered to your school in the form of outreach programs.

### **Mighty Measurements** (1 hour) Grades Pre-K-K

Get the “long” and “short” on scientific measurements in this program designed to teach young scientists about size, quantity and scale by using the same tools and techniques scientists use to make measurements.

### **Insect Inspectors** (1.5 hours) Grades K-4

Why do some insects hop and others buzz? Explore amazing adaptations and learn about food chains in this program devoted to the incredible world of insects. A visit from a live insect ambassador is included!

### **Sound Science** (1.5 hours) Grades 1-3

Investigate the many ways of making sound and discover how it travels through different substances. Experiment with waves, explore vibrations and make an imaginative musical instrument.

### **Earth Explorations** (1.5 hours) Grades 1-3

Get up close and personal with earth science. Explore the properties of rocks, examine different types of soils and determine how weathering and erosion contribute to the Earth’s landscapes.

### **Fantastic Forces** (1.5 hours) Grades 2-5

This hands-on program introduces students to friction, forces and the laws of motion. After experimenting with parachutes, students design and build roller coasters to investigate the fundamental laws of physics.

### **Solar System 101** (1.5 hours) Grades 2-5

Learn fascinating information about our neighboring planets and discover why our solar system is so special with these out-of-this world activities.

### **Energy Explorers** (1.5 hours) Grades 3-6

What is energy? Students investigate several different forms of energy including light, sound, electricity, and chemical and thermal energy.

### **Food Webs** (1.5 hours) Grades 3-5

Take a closer look at ecosystems and determine the roles of different plants and animals. Find out how organisms interact and discover what happens when there is a break in the food chain.

### **Water Works** (1.5 hours) Grades 4-6

Students explore how water shapes the land, learn about the water cycle, investigate local watersheds and devise ways to assist with water conservation.

### **Forensic Detectives** (1.5 hours) Grades 4-6

In this “mysterious” program, students use chemistry, geology and physics to piece together evidence and crack the case. They learn how to classify mysterious powders, identify minerals, calculate the pH of soils and perform chromatography to separate pigments.

### **DNA Decoded** (1.5 hours) Grades 6-8

Students learn how DNA makes us unique and how it can be used to solve crimes. Students extract DNA to take home and simulate the process of DNA fingerprinting.

### **Superhero Genetics** (1.5 hours) Grades 6-8

Genes play an important role in the makeup of all living things. In this humorous approach to genetics, students will use superheroes to discover the fundamental aspects of heredity including alleles, dominance, phenotypes, genotypes and mutations.

## Schedule

Monday – Friday

Programs must be scheduled two weeks in advance.

Weekend programs available with advance notice. Daytime outreach programs are scheduled in two-hour blocks to allow for set-up and breakdown times.

## Price

\$150.00 for single program

\$225.00 for double program of the same title

Prices subject to change without notice.

Maximum of 34 students. Payment must be received two weeks in advance.

A mileage fee will be applied for schools located more than 30 miles each way from the Fleet Science Center.



# Family Science Night

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## Family Science Night

Let us bring our science expertise to your school event! Family Science Night brings children, parents and teachers together for hands-on science experiences in a fun atmosphere. These highly engaging events are held at your educational facility and provide standards-based science investigations for students and their families. Bilingual materials provided.

### What the Fleet provides for Family Science Night:

- Materials for 10 interactive science investigations
- 2 trained Fleet educators to provide support throughout the event
- 45-minute training for teachers and adult volunteers prior to event

### What your school provides for Family Science Night:

- 12 adult volunteers to facilitate activities
- 11 tables (10 for the activities and 1 for sign-in)
- A large open space, such as a cafeteria or multi-purpose room

### Choose from the following themes:

#### Behind the Magic (1.5 hours) Grades K-6

You won't believe your eyes as you uncover the science behind some favorite magic tricks. Parents and children work together to use magnetism, chemistry, optics, gravity,

density and more to create seemingly impossible science tricks and illusions.

#### Fantastic Physics (1.5 hours) Grades K-8

Discover how fun physics can be in this program designed to teach parents and children how science affects their everyday lives. Using hands-on investigations, participants explore a variety of scientific concepts including air pressure, gravity, buoyancy, electricity, magnetism, motion, sound and light.

#### Amazing Space (1.5 hours) Grades K-8

Participants explore hands-on activities based upon stars, galaxies, constellations, the solar system, planets, moons, asteroids, comets and space travel.

#### Go Green! (1.5 hours) Grades 4-8

Find out how to make the planet a better place to live! Participants explore environmental science through hands-on activities related to climate change, alternative energy, conservation, ocean ecosystems and much more.

#### Geometry with a Twist

(1.5 hours) Grades K-8

Experience geometry in whole new way! Participants will use their minds and bodies to explore real world examples of geometrical concepts including angles, tessellations, spatial reasoning, symmetry, scale and much more.

#### Bioscience Bonanza

(1.5 hours) Grades 6-8

Students and their families explore cells, heredity, vision, organ systems, biochemistry, DNA, biotechnology and more in this hands-on exploration of the living world.

#### Schedule

Times are flexible and must be scheduled two weeks in advance.

#### Price

\$625.00

Prices subject to change without notice. Maximum of 300 participants. Payment must be received two weeks in advance.

A mileage fee will be charged for schools located more than 30 miles each way from the Fleet Science Center.

More information on outreach programs, including how they meet California Education Standards, can be found at:

[www.rhfleet.org/education](http://www.rhfleet.org/education).

The Fleet Science Center would like to thank the Motorola Foundation for their support of educational outreach programs and funding of the Fleet's hybrid outreach vehicle.

# Workshops

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## Come To Our Classroom

Help make your field trip to the Fleet one your students won't forget by scheduling an entertaining and educational workshop with hands-on activities designed to inspire the scientist in us all.

## Workshops

In addition to the workshops below, all of our outreach programs are available as on-site workshops in the Fleet's Learning Labs. See page 2 for additional program titles. For more information on how these workshops meet California Education Standards, please visit [www.rhfleet.org/education](http://www.rhfleet.org/education).

### Float or Sink?

(1 hour) Pre-K (Ages 4-5 only)

Does a bowling ball float? Students make predictions, test ideas and observe outcomes as they explore the world of floating and sinking objects.

### Making Sense of It All

(1.5 hour) Kindergarten

Ugh! What's that smell? Students will hear, see, smell, taste and touch their way through this multi-sensory workshop.

### Habitats (1.5 hours) Grades K-3

Students sharpen their observation skills while exploring the plants and animals that live in different habitats. They'll even design a habitat for live critters.

### Weather Watchers (1.5 hours) Grade 1

Students take on the role of meteorologists to discover what makes the weather. They'll explore why weather changes and then create instruments to measure it.

### Simple Machines (1.5 hours) Grade 2

In this inventive workshop students encounter simple machines in everyday life and learn how they work. They use levers, wheels, screws, pulleys and more to solve tasks and create gadgets.

### Sensational Solar System

(1.5 hours) Grade 3

Shrink down into our "pinhead solar system," find the current location of the planets and learn the phases of the moon!

### Electric Avenue (1.5 hours) Grade 4

Use an inquiry-based approach to understand the relationship between electricity and magnetism. Shocking experiments illuminate this challenging subject.

### Geology Rocks! (1.5 hours) Grade 4

Junior rock hounds hone their observation and interpretation skills while exploring the rock cycle and its relationship to the formation and classification of rocks.

### Body Works (1.5 hours) Grade 5

Explore the "ins and outs" of the digestive and circulatory systems. Students discover exactly what happens to the hamburgers they had for lunch and how hard their hearts must work to keep them moving.

### Chemistry Concepts (1.5 hours) Grade 5

Take an intimate look at the indicators of a chemical change in this inquiry-based investigation of the properties of matter.

### Solar Science (1.5 hours) Grade 6

Explore the fundamentals of radiant energy. Students learn how the sun heats the Earth and then compete in a solar design challenge. A great complement to our exhibition "**So WATT! An Illuminating Look at Energy.**"

### Discovering DNA (1.5 hours) Grade 7

What do broccoli, bacteria and humans have in common? Learn all about the "blueprint" for life in this interactive workshop. Extract DNA from plant material and take home a sample!

### Forces in Action (1.5 hours) Grade 8

Have fun with physics in this fast-paced workshop. Using roller coasters, parachutes and pendulums, students explore motion, unbalanced forces, friction, velocity and more.

## Schedule

Monday–Friday  
September–June  
9:30 – 11:00 a.m. or 12:00 – 1:30 p.m.

## Price

\$150.00 per workshop (25 students or less)  
Each additional student: \$6  
Gallery admission included.

Prices subject to change without notice.  
Maximum of 34 students and 8 adults.

## Discovery Labs

Want a more in-depth exploration of our current exhibitions and films? Designed to complement select exhibits and films, these new 45-minute labs further investigate subjects such as earth science, habitats and life cycles. Visit our Web site for additional themes relating to upcoming exhibits.

### Geometry Playground Discovery Labs

#### The Art of Geometry (45 min.) Grades K–3

What do honeycombs, tile floors, and stained glass windows have to do with geometry? Plenty! In this interdisciplinary lab, students will uncover the hidden shapes and patterns in nature and architecture. They'll also learn about the properties of geometric shapes by creating their own tessellations and circular designs.

#### A Fresh Perspective (45 min.) Grades 3–6

How can a gigantic elephant look tiny and a tiny ant look gigantic? It all has to do with

perspective. Students will exercise their spatial intuition throughout this eye-opening class. They'll discover how to represent three-dimensional objects on a two-dimensional surface, explore how shapes seem to rotate based on the point of view, and explore polyhedra from the inside out.

#### Puzzling Polygons (45 min.) Grades 3–6

Geometry doesn't need to be perplexing! Students will use their brains and bodies to explore the properties of polygons and polyhedra in this innovative lab. They'll get up and moving to explore angles and then dim the lights to examine geometric shadows and Schlegel diagrams. They'll wrap up their investigations by making geometric bubbles.

#### **NEW!** Black Holes Discovery Labs

\*Available February 4 through April 29 only

#### Stars in the Sky (45 min.) Grades 1–3

The sky is the limit in this stellar workshop. Students will explore our own Milky Way galaxy and take a closer look at the stars that make up our night sky. They will discover why some stars appear brighter than others and learn how astronomers use telescopes to identify different stars.

#### Voyage to a Black Hole (45 min.) Grades 4–6

Journey into deep space to learn about the most mysterious objects in the universe. Students will explore the chemistry and life cycle of stars while discovering how black holes form. They will also

investigate the size, scale, and location of black holes in the Milky Way galaxy.

#### IMAX Film Discovery Labs ADVENTURES IN WILD CALIFORNIA

(45 min.) Grades 4–6

Get a closer look at California's wildest places while exploring the waves, forces and currents that shape these unique landscapes. Read the film description on page 10.

#### AMAZING JOURNEYS (45 min.) Grades K–4

Take a voyage around the planet while exploring life cycles, migration and seasons. Read the film description on page 11.

#### UNDER THE SEA (45 min.) Grades K–6

Dive into an exploration of the undersea world. Learn about food webs, ocean chemistry and habitats. Read the film description on page 12.

Call Client Services at (619) 238-1233 ext. 806 to ask if a Discovery Lab has been developed for your favorite IMAX film.

## Schedule

Monday – Friday

## Times

9:30 a.m., 10:45 a.m., 12:00 p.m. and 1:15 p.m.

## Price

Additional \$2.00 per student with gallery or film purchase. Prices subject to change without notice. Maximum of 34 students and 8 adults. Advance registration is required.

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# Exhibit Galleries

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## Home School Classes

We've made it easier for home school students to participate in our Discovery Labs. Select from dates, themes and grade levels below.

### Monday, October 10:

The Art of Geometry (Grades 1-3)

9:30 – 10:15 a.m.

A Fresh Perspective (Grades 4-6)

10:45 – 11:30 a.m.

### Monday, February 6:

Stars in the Sky (Grades 1-3)

9:30 – 10:15 a.m.

Voyage to a Black Hole (Grades 4-6)

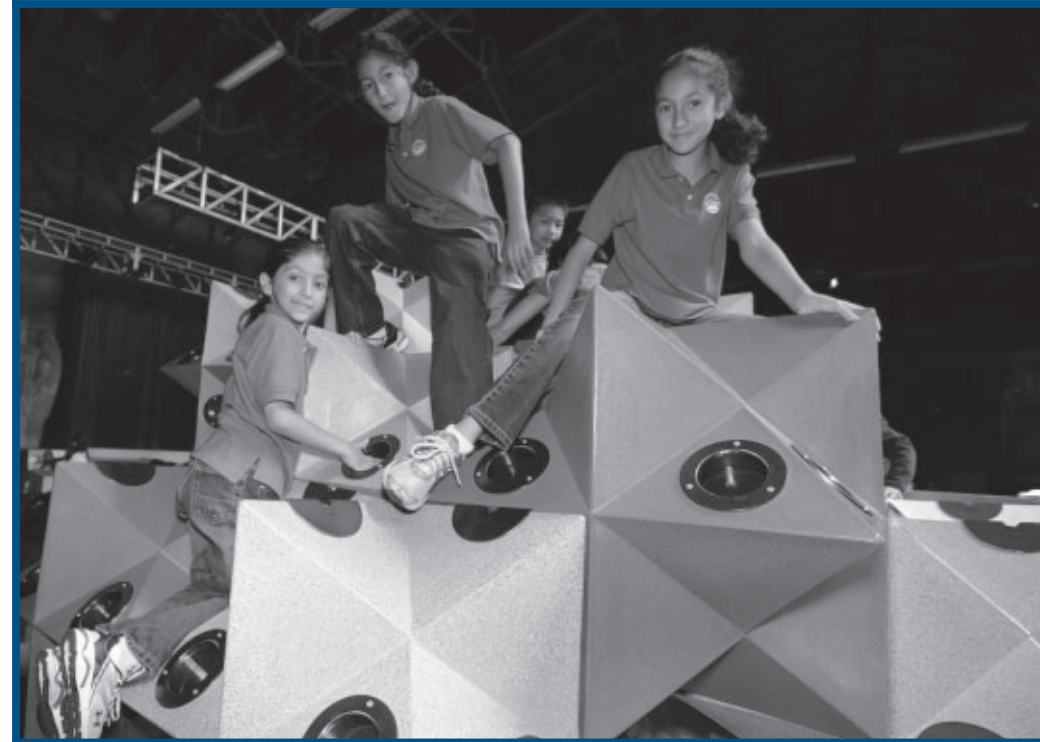
10:45 – 11:30 a.m.

## Price

\$7.00 per student

Advance registration is required. Discovery Lab fee includes gallery admission for students only. Prices subject to change without notice.

To learn how the exhibits meet California Education Standards, visit [www.rhfleet.org/education](http://www.rhfleet.org/education).



## Exhibit Galleries

### Look! Touch! Listen! Do!

Our seven interactive exhibit galleries, featuring more than 100 hands-on exhibits, are specially designed to encourage experimentation and are included in every field trip. Students love field trips to our exhibit galleries because they know they're going to have fun. Teachers love field trips because they know students gain irreplaceable first-hand experience with core science concepts.

## Traveling Exhibitions

### **NEW!** Geometry Playground

June 11, 2011 – June 2012

Throw your entire body into a whimsical exploration of math at the new "Geometry Playground" exhibition. Exhilarating hands-on exhibits will have students playing a goofy game of hopscotch, climbing a structure of giant multi-sided shapes, crawling through corkscrew tunnels and creating geometric works of art, all while exploring the patterns, angles,



arcs and shapes that make up the most visual branch of math. There are more than 20 thrilling hands-on exhibits to explore.

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“Geometry Playground” is a traveling exhibition, produced by the world-famous Exploratorium in San Francisco. The exhibition is made possible by a generous grant from the Viterbi Family Foundation with additional support from San Diego County Community Enhancement Program grants from San Diego County Supervisors Ron Roberts and Pam Slater-Price.

## **NEW!** Identity: An Exhibition of You

June 25, 2011 – September 25, 2011

Hair color, sense of humor, friends — what are you made of? At “Identity” explore your unique physical, psychological, and social identities with a series of hands-on interactive experiences. See what you would look like as a member of the opposite sex or a different race. Discover how science is providing new insights into the ways you think about your personal identity.

Throughout this exhibition, you’ll have the opportunity to consider how multidimensional you are and how both your physical and personal traits are shaped by genetics, the way your brain works, and the impact of the environment and people around you.

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“Identity” was designed and developed by The Franklin Institute of Philadelphia for the Science Museum Exhibit Collaborative.

## Ongoing Exhibitions

### Cellular Journey

Through this exhibition, developed by the Fleet Science Center and made possible by a grant from the Life Technologies Foundation, students will expand their knowledge and appreciation of human cell biology, the importance of stem cells, and the potential impact of stem cells on medical research in the fields of regenerative and personalized medicine. They will be able to explore the unseen world of human cell biology, learn about what cells do, and even examine real life human tissue samples under a microscope. Plus, see what the layout and functions of a typical stem cell research lab looks like and explore some of the real life techniques scientists use in the lab when working with stem cells.

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The “Cellular Journey” exhibition is made possible by the Life Technologies Foundation.

### Block Busters!

Build free-form structures with thousands of wooden KEVA (Knowledge-Exploration-Visual Arts) planks; no glue or connectors necessary. They can be stacked in an infinite number of ways which might look as unstable as a house of cards but can be surprisingly stable no matter how large the structure (and it can get quite large!)

Your students will think like an engineer and build like an architect with KEVA planks. The

National Association for the Education of Young Children emphasizes that block play helps young children learn across many academic subjects, from vocabulary building, to sorting and grouping math skills, to experiments with gravity, balance and geometry. Be sure to visit this exhibition and take the “Block Busters” challenge!

### So WATT! An Illuminating Look at Energy

Energy is all around us! There are many ways to convert energy into electricity, used for everything from lighting our homes to powering computers and appliances. Explore some of the ways energy is generated and learn why the Reuben H. Fleet Science Center is on the cutting edge of electricity production.

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“So WATT! An Illuminating Look at Energy” is made possible by grants from San Diego Gas & Electric and Shell Trading with additional support from the Kenneth T. and Eileen L. Norris Foundation.

### Origins in Space: Spin-offs in Science & Technology

Do you know what tennis rackets are made of? This photographic exhibition, created by the Fleet Science Center, presents scientific accomplishments and technological spin-offs that have resulted from NASA missions. It also features the latest images from the Hubble Space Telescope and other exploration missions downloaded daily from NASA and presented on a large plasma screen.

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# Exhibit Galleries

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## **Kid City** (5 and under)

From conveyer belts and cranes to air chutes and grocery stores, young visitors (infants through age five) work, create, play and learn as they experience wonders of the everyday working world within this fun and interactive space. The “Kid City” gallery features experiences with cars and fire trucks as well as the popular Ball Wall and Little Learner’s Lab. Bilingual!

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The “Kid City” gallery is made possible by generous gifts and grants from the Donald C. and Elizabeth M. Dickinson Foundation, the Nierman Family Fund at the San Diego Jewish Community Foundation, an Anonymous Donor, the Mandell Weiss Charitable Trust, and a sponsorship from ScholarShare College Savings Plan.

## **Aging for All Ages**

This exhibition, created by the Reuben H. Fleet Science Center, is a 1,200 square foot exhibition designed for...well, all ages! Groups learn about wellness and healthy lifestyle choices through fun and engaging interactive exhibits. See what you might look like at age 70 with the face-morphing exhibit or peer into a microscope and look at the differences between old and young tissue samples.

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This exhibition is funded by a grant and ongoing support from MetLife Foundation Partnership for Lifelong Learning. Additional ongoing support provided by Aging & Independence Services, a division of the County of San Diego’s Health and Human Services Agency.

## **Gallery of Illusions and Perceptions**

This permanent exhibition leaves you wondering if you can believe what you see...and feel. Designed to explore how your senses of sight and touch work, this exhibition challenges you to discover how mind and body work together by observing the world around you.

## **San Diego’s Water: From Source to Tap**

This timely exhibition explores water distribution and conservation in San Diego County. Interactive elements include an opportunity for visitors to view the sources of San Diego’s water and the methods of delivering and processing this vital resource.

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This exhibition is supported by The City of San Diego Water Department and the County of San Diego Water Authority, with additional funding from the Hans & Margaret Doe Charitable Trust and San Diego Gas & Electric.

## **Exploration Bar**

Visit our interactive experiment area upstairs to get your hands on science topics including electricity, air pressure, gears and motion. Pull up a chair and explore at your own pace while asking questions and making discoveries. Check schedule upon arrival.

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The Exploration Bar is made possible by The San Diego Foundation’s Weingart-Price Fund with additional support from The Pratt Memorial Fund.

## **New Exhibitions In 2012!**

### **Black Holes: Space Warps & Time Twists**

February 4, 2012 – April 29, 2012

This out-of-this world exhibition explores what we know, don’t know, and think we know about one of the world’s greatest space mysteries—black holes. These regions in space, sometimes only a few kilometers across, have gravity so powerful that light cannot escape and matter drawn into them is lost forever. Einstein imagined black holes but doubted they could exist in nature. Today evidence suggests they are quite common. “Black Holes: Space Warps & Time Twists” is designed like a space mission. Visitors are briefed, issued a Black Holes Explorer ID Card, and then sent on a journey to the edge of these strange phenomena to discover how the latest research is turning science fiction into fact, challenging our notions of space and time in the process.

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**Exhibits are created and updated regularly.  
Check availability when making reservations.**



# Nierman Challenger Learning Center

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## Take the ultimate field trip!

Check out our newly updated 21st century Nierman Challenger Learning Center. With fresh graphics, state-of-the-art displays and flexible mission scenarios, our Challenger experience is even better than ever! The realistic Mission Control mock-up and 21st century Space Station introduce students to the teamwork, technology and drama involved in space travel. All missions meet State Standards and State Framework for grades 3-12. Visit [www.rhfleet.org/education](http://www.rhfleet.org/education) for more information.

## SPACE STATION

Closely mirroring the work of astronauts in orbit, your astronaut team will perform science experiments on-board our futuristic space station simulator and communicate the results to their colleagues in the mission control simulator. Astronauts may monitor and test life support systems, work in the clean room to build and launch a scientific space probe, or use the isolation station robots to analyze extraterrestrial samples.

## MISSION CONTROL

Our realistic, high-tech mission control simulator allows students to use computer consoles and video screens to monitor and direct a simulated space mission. While conducting research relevant to their mission scenario, students build effective communication, coordination and decision-making skills.



## Challenger Mission Scenarios



### Micronauts

Grades 3-4

Students in grades 3-4 can join our flight directors for a unique mission simulation! Each Micronauts program includes a one hour Mini Discovery Mission

and a one hour Extra "Venue" Activity that addresses the themes of physical science and technology. On each Mini Discovery Mission, young astronauts are part of an elite team of scientists, engineers & mathematicians on the International Space Station. Traveling 230 miles above the Earth's surface, they conduct up to 10 different hands-on activities such as testing the insulating properties of materials, classifying rocks,

investigating objects under a microscope and exploring the planets in our solar system.



### Return to the Moon

Grades 5 and up

The year is 2015. For the first time since Apollo 17 in 1972, a crew of astronauts is returning to the Moon.

Their goals are to establish a permanent base to make

further lunar observations, study the feasibility of creating a self-sustaining lunar settlement and serve as a stepping stone for future manned planetary exploration. Navigating their way into lunar orbit, students launch a probe and analyze a variety of data to select a landing site for the S.S. Phoenix spacecraft.

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# IMAX Films

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## Voyage to Mars

Grades 5 and up  
Voyage to Mars in the year 2076 to replace a crew stationed on the Martian surface at Chryse Station –a permanent research base.

In addition to continuing research, the students will calculate trajectories for entering and exiting Martian orbit and launch two probes to the Martian moons Phobos and Deimos. Stunning video images narrated by the Challenger flight staff teach students some amazing facts about the fascinating geographic features of Mars.

## How to Reserve your Challenger Mission

- Carefully read the information about the Nierman Challenger Learning Center on pages 9-10.
- Choose a mission, date and time, along with alternate dates.
- Schedule a teacher prep at least one month before your visit. These are available on the second Wednesday and Saturday of each month.

## Teacher Prep Mandatory

Teachers new to the Challenger Learning Center are required to attend a Teacher Prep training session—preferably at least one month prior to their students' mission. The objectives of the

Teacher Prep are to familiarize teachers with Challenger Learning Center procedures, help teachers maximize the learning experience for their students during the mission and provide teachers with resources for incorporating the mission into their curriculum. Educational materials will be provided.

## Schedule

Monday – Friday  
9:00 – 11:00 a.m. or 12:00 – 2:00 p.m.

## Price

\$395.00 per mission; September–June  
\$295.00 per mission; July–August  
\$30.00 for teacher prep and materials

Prices subject to change without notice.  
Gallery admission included. Minimum of 16 students. Maximum of 36 students.

## IMAX FILMS

Featuring a virtually seamless 76-foot tilted, Nanoseam™ dome screen, the Eugene Heikoff and Marilyn Jacobs Heikoff Dome Theater functions both as Southern California's only IMAX Dome Theater and the largest planetarium in the state. Completely filling viewers' peripheral vision, the hemispheric screen immerses you in the action and creates the illusion of being suspended in space.

## IMAX Film Schedule Change

Instead of a fixed film schedule this year, YOU call the shots! Select a film and date range for your visit. Then call a Client Services representative to identify the best match for your needs. Films will be shown at 9:45 and 10:45 a.m. Reservations of fifty or more students lock in a film, date and time. Book your field trip now!

\*Look for new Planetarium shows in 2012. Check [www.rhfleet.org](http://www.rhfleet.org) for the latest shows to use with your curriculum!

## ADVENTURES IN WILD CALIFORNIA (GRADES K–3)

Celebrate California's natural wonders and unique culture! Heart-pounding imagery recreates experiences of California's furthest edges that few will ever have first-hand. (Available in Spanish.)

*Pair this film with a NEW Discovery Lab. See page 5 for more details.*

## AFRICA: THE SERENGETI (GRADES 4–12)

Join the Great Migration and journey across the Serengeti plains with over 1.5 million animals, including wildebeest, zebras, giraffes, elephants, monkeys and more.

## ALASKA (GRADES 4–12)

Explore the harsh conditions, unique majesty and unequalled beauty of the 49th state.





### **EVEREST (GRADES 4–12)**

Experience the dramatic story of a team of climbers who found hope, strength and triumph in the wake of tragedy on the world's highest mountain.

### **FORCES OF NATURE (GRADES 4–12)**

Showcasing the awesome spectacle of earthquakes, volcanoes and severe storms, this film follows scientists as they go on ground-breaking quests to understand how these natural disasters are triggered. (Available in Spanish.)

### **GRAND CANYON ADVENTURE: River at Risk (GRADES 4–12)**

Take an exhilarating river-rafting adventure down the Colorado River on a critical mission of water conservation and river restoration.

### **HUBBLE (GRADES 3–12)**

Featuring stunning imagery of distant galaxies, planets and the birth of stars, *HUBBLE* showcases NASA's last mission to service one of history's most important observatories. (Available in Spanish.)

### **THE HUMAN BODY (GRADES 4–6)**

Get an astonishing look at the daily biological processes that go on in our own bodies without our control and often without our notice. (Available in Spanish.)

### **JOURNEY INTO AMAZING CAVES (GRADES 4–12)**

Intrepid filmmakers and cavers bring back unprecedented footage from remote ice caves, underwater caves and terrestrial caves.

### **AMAZING JOURNEYS (GRADES K–12)**

Witness the most mysterious, spectacular and amusing migrations on the planet, from zebras in Africa to monarch butterflies in Mexico. (Available in Spanish.)

*Pair this film with a Discovery Lab. See page 5 for more details.*

### **BEARS (GRADES 4–12)**

Dare to come closer to polar bears, black bears and half-ton grizzlies in their natural habitats. (Available in Spanish.)

### **BORN TO BE WILD (GRADES K–12)**

From the rainforests of Borneo to the Kenyan savannah, follow two teams of experts as they rescue, rehabilitate and return orangutans and elephants back to the wild.

### **BUGS! (GRADES K–3)**

Enter the magical, miniscule world of a butterfly and a praying mantis, and meet their bizarre and beautiful buggy friends. (Available in Spanish.)

### **CORAL REEF ADVENTURE (GRADES K–12)**

Soar over the volcanic peaks of Tahiti, dive 350 feet to explore deep corals off the shore of Fiji and swim among hundreds of sharks in the canyons of the Rangiroa atoll.

### **COSMIC VOYAGE (GRADES 4–12)**

Mixing exciting computer animation with cutting edge science, *COSMIC VOYAGE* provides a sweeping view of the universe across some 42 orders of magnitude and explores some of the greatest scientific theories.

### **DOLPHINS (GRADES K–12)**

This Academy Award-nominated film invites viewers to take the plunge with dolphins, from the dazzling coral reefs of the Bahamas to the windswept seas of Patagonia.

*cont. on page 12*

# IMAX Films

2011-2012 EDUCATOR RESOURCE GUIDE REUBEN H. FLEET SCIENCE CENTER [WWW.RHFLEET.ORG](http://WWW.RHFLEET.ORG) (619) 238-1233 ext. 806

## **LEWIS & CLARK: Great Journey West**

(GRADES 4–5)

This film follows Lewis and Clark’s grueling 8,000 mile expedition through prairies, forests and river rapids, as they document plant and animal specimens, and meet with Native American tribes at the turn of the 19th century. (Available in Spanish.)

## **THE LIVING SEA (GRADES 4–12)**

Featuring locations around the world, this film celebrates the beauty, power and importance of the ocean.

## **MUMMIES: Secrets of the Pharaohs**

(GRADES 4–12)

Follow explorers and scientists as they piece together the archeological and genetic clues of Egyptian mummies, bringing to life the fascinating and mysterious world of the pharaohs. (Available in Spanish.)

## **MYSTERIES OF EGYPT (GRADES 4–12)**

Set against the wondrous backdrop of the sweeping Nile and the majestic Giza pyramids, this film takes the viewer on an engaging journey through the Land of the Pharaohs.

## **MYSTERY OF THE NILE (GRADES 4–12)**

Encounter dangerous rapids, hippos and crocodiles, as well as the beauty of ancient cultures from Ethiopia to Egypt, as you travel the world’s longest river. (Available in Spanish.)

## **SEA MONSTERS: A Prehistoric Adventure**

(GRADES 2–12)

Become submerged in an 80 million-year-old scientific mystery to uncover the secrets of the most bizarre and

ferocious creatures to ever inhabit Earth’s oceans. (Available in Spanish.)

## **STORMCHASERS (GRADES 3–12)**

Experience monsoons, hurricanes and tornadoes around the planet with scientists in seeking to predict these phenomena.

## **TORNADO ALLEY (GRADES 4–12)**

See the first IMAX feature solely about tornadoes: the people they attract, the scientists who study them and the awesome spectacle they create. (Available in Spanish.)

## **UNDER THE SEA (GRADES 2–12)**

Experience face-to-face encounters with some of the most mysterious and stunning creatures of the sea in the most exotic and isolated locations on Earth, including southern Australia and Papua New Guinea. (Available in Spanish.)

*Pair this film with a Discovery Lab. See page 5 for more details.*

## **WHALES (GRADES 3–12)**

Meet blue whales, orca, white whales and dolphins while following humpbacks traveling thousands of miles from the frigid coast of Alaska to the warm waters of Hawaii.

## **YELLOWSTONE (GRADES 4–12)**

Enjoy the spectacular beauty, dramatic geothermal activity and unique wildlife of Yellowstone National Park, including a sunrise over the Grand Tetons and a trip inside Old Faithful.

## **Choosing an IMAX Film Presentation**

- Read the film descriptions and grade level recommendations on pages 11-12. Refer to our Web site at [www.rhfleet.org/education](http://www.rhfleet.org/education) for additional information on how these films meet California Education Standards. Additional titles may be available. Please ask a Client Services representative for more information.
- Make your film selection and call (619) 238-1233 ext. 806 to identify potential dates for your visit. Please have a few time frames in mind. Reservations are not accepted for the first Monday or Tuesday of each month.
- Most presentations can be captioned and provisions can be made for your sign language interpreters as well. Please notify the Education Department at least two weeks in advance if arrangements need to be made.
- Some films may be available in Spanish. Restrictions apply. Call (619) 238-1233 ext. 806 for details.

### **Schedule**

Monday–Friday	
September–June:	July–August:
9:45 a.m. and 10:45 a.m.	9:45 a.m.

### **Price**

\$7.00 per person  
\$1,800.00 for buyout (310 people max)  
One-hour visit to exhibit galleries included.  
Films last approximately one hour.  
Film titles and dates are subject to availability.

\*Prices subject to change without notice.

Call 619-238-1233 ext. 806 for the latest pricing information.



## Reservations | Transportation | Chaperones | Orientation | Lunches

### How to Make a Reservation

Online reservations can be made at [www.rhfleet.org/fieldtripreservations](http://www.rhfleet.org/fieldtripreservations). We encourage you to use this convenient Web service or call the Client Services Department at (619) 238-1233 ext. 806.

When making a reservation, please provide an estimated count of students and chaperones. If these numbers change, notify the Client Services Department. Reservations are not guaranteed until confirmed.

Tentative reservations or date holds are not accepted. If you have not received confirmation within seven days of booking, please contact the Client Services Department at (619) 238-1233 ext. 806 or [clientservices@rhfleet.org](mailto:clientservices@rhfleet.org).

Other rules, policies, procedures and restrictions apply and will be sent to you with your confirmation. It is important to read these materials carefully before your visit as cancellation fees apply.

Educators are encouraged to make their own reservations. Please be sure that permission for the field trip has been obtained before calling.

Group sales for our public IMAX shows are available at an additional cost. All groups of 15 or more must make a reservation at least 2 weeks in advance. We cannot guarantee space for groups without a reservation. Please call (619) 238-1233 ext. 806 to make a reservation.

### Transportation

Each group visiting the Fleet Science Center is responsible for making travel arrangements to and from our location. Please be sure to schedule a bus for your group immediately after making your reservation with us.

If you need assistance, we recommend contacting San Diego Metropolitan Transit System (MTS). MTS provides discounts for advance group bookings. Visit MTS at [www.sdmts.com](http://www.sdmts.com) for more information.

### Chaperones

We require 1 adult chaperone per 10 students for 2nd grade and up, and 1 adult chaperone per 5 students for pre-K through 1st grade. Required adults are free. Adults beyond the required number must pay admission.

### Check-In & Orientation

Groups are required to check-in no later than 15 minutes prior to their first scheduled program and must pay in full at that time. No other discounts, coupons, vouchers or passes may be used in conjunction with the education program prices.

Your group will be given an orientation upon arrival. For the safety and enjoyment of everyone visiting the Fleet, we kindly ask that your group follow the rules. We reserve the right to remove any individual or group not in compliance with reasonable standards of behavior.

### Lunches

Food, beverages, candy and gum are not to be consumed in the Exhibit Galleries or Heikoff Dome Theater. The Reuben H. Fleet Science Center provides indoor shelving for storage of lunch sacks and backpacks. These are available on a first-come, first-served basis. Use of these shelves is at your own risk. We recommended students do not bring electronics or other items that will be left unattended.

**There are no facilities located inside the museum for students to eat their lunch. Schools should plan to enjoy their lunch in Balboa Park.**

Galactic Lunch Sacks are available for purchase in advance from Galileo's Café. These are \$7.00 per person and include:

*1/2 turkey, ham or vegetarian sandwich  
chips, granola bar, raisins or apple slices (choose 2)  
bottled water, milk, juice box or canned soda*

To place an order, please call the Special Events Coordinator at (619) 685-5728.

### Fleet Grab Bags

Students can purchase a Fleet grab bag from the North Star Science Store for \$6.00. Contents of the grab bags are specially selected and correlate to current Fleet exhibitions. Please place these orders in advance by calling (619) 685-5724.

Teachers also receive a 10% discount for individual purchases at the North Star Science Store.



The Fleet Inquiry Institute is home to teacher professional development here at the Fleet. Contact **T3@rhfleet.org** to find out how you can get involved!

### Teacher Preview Fall 2011

Get a behind-the-scenes look at the Fleet Science Center your students love to visit and learn how to make your field trips more meaningful!



Scan QR-Code with your smart phone to learn more about our Education programs



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