# CHABOT SPACE & SCIENCE CENTER

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"Cultivating lasting and meaningful relationships with our community partners and visitors has been the cornerstone of our public programs. As we look to the years ahead, we strive to further our connections in the community and cocreate programmatic experiences that will make positive and lasting impacts for youth and their families."



LIZ AUSTERMAN DIRECTOR OF VISITOR EXPERIENCE

#### PICTURED RIGHT

Visitors to the Luminous Moon Exhibit participating in the hands-on interactive learning activity station, that shows the moon phases.



# From Our Leadership

Over the past year Chabot has continued to expand our reach out to the community by offering programs and exhibits that engage and inspire learners of all ages both at the Center and beyond.

Chabot's First Fridays evening program featured a new theme every month providing hands-on activities, workshops, performances, and speakers that engaged family audiences in the arts and sciences with community partners from across the Bay Area. Our 3rd annual Tinkerfest, a member favorite, was activated with hands-on activities from over 30 partners. We celebrated the 50th Anniversary of Apollo 11 with over 1,400 visitors as we counted down to the moment they landed on the moon at 1:16pm. Our first ever BubbleFest in August, was one of the largest attended events we have had outside of a major celestial event with 2,000 visitors in one day.

In partnership with NASA Ames, Chabot presented the photography exhibit, Luminous Moon, featuring over 50 stunningly detailed, large format, high-resolution photographs, captured by lunar satellites, Chabot's astronomers, and Apollo astronauts. This in-house built exhibit also included interactives and hands-on activities led by our Galaxy Explorers.

The Galaxy Explorers have been busy this year forming the first GE Rocketry Team with the goal of building/launching a Team America Rocketry Challenge (TARC) rocket to compete in the annual competition. They have also created the Galaxy Explorer (GE) Diversity Initiative to increase the diversity of this program. We celebrated the hard work of 65 of our Galaxy Explorer's who received the Presidential Volunteer Service Award at our annual GE awards night. In the Fall, CSSC educators visited Skyline High School, introducing over 100 would be recruits to the GE program, by leading a series of workshops to role model learning activities to the teens. We are thankful for our ever-expanding community of members, volunteers, corporate partners, charitable foundations, and many families for supporting Chabot's mission through their time, dedication, and philanthropy. With your support we can continue to inspire to passion, creativity, and curiosity in our community.

Adam Tobin Executive Director / CEO

Eric Rudney Foundation Chair

Mary Ellen Tong Joint Powers Authority Board Chair

"After many months of intense planning and preparation for Explorers Camp, it was really wonderful to see our hard work pay off in the smiling faces of campers, parents, and staff. The highlight for me was watching our Science Superheroes campers show off their superhero costumes and superpowers during their end of camp showcase, a parent telling me our camp was 'truly magical,' and witnessing the bonds the camp staff made with campers and each other over the course of the summer."



NATALIE MANN CAMPS AND COMMUNITY PROGRAMS MANAGER

#### PICTURED RIGHT

Children ages six through eleven are invited to attend Chabot's Summer Camp, investigating our world and outer space through creative problem solving, skill building and outdoor exploration in the surrounding parklands through hands-on science, art, and play.



# Fiscal Year 2019 in Review October 1st, 2018–September 30th, 2019 Combined Total Revenue: \$5,735,284 Combined Total Expenses: \$5,375,505 **EXPENSES** INCOME Program & Education – 65% 26% Contributions / Grants 13% Education Programs Operations & Facility – 23% 7// 6% Memberships 21% Government Fundraising – 7% 17% Admission □ 1% Other 16% Rental Events Administration – 5%

**PICTURED** Domes housing **Leah** and **Rachel**, both refractor telescopes. **Rachel** is the largest refractor in the Western United States regularly open to the public.

## 2019 EXHIBITS Highlights



luminous moon



#### MOON ROCK EXHIBIT



COSMIC RAY



EARLY LEARNER SPACE

PROGRAMS



FESTIVAL DAYS: TINKERFEST & BUBBLEFEST

EDUCATION







APOLLO 11, **50TH ANNIVERSARY** 



LECTURES & LASERS



YOUTH DEVELOPMENT: CHAMPIONS OF SCIENCE / GALAXY EXPLORERS

ASTRONOMICAL -EVENTS



INSIGHT LANDING



**DINNER WITH** A SCIENTIST

WEEKLY FREE VIEWING



learning EVERYWHERE



ACADEMY PILOT



METEOR SHOWER



METEOR SHOWER



## EARLY LEARNER SPACE

Early in the year our team transformed the Discovery Lab exhibit hall into a space for early learners. For years, we had made moves forward in creating an environment conducive to learning for young children and watched as our audiences started to become more heavily populated with families with children under 5 years. Our team took the spirit of the Project Create exhibit and created an engaging, hands-on exhibit space that rotated themed activities and exhibits that proved very popular for families. Building on lessons learned, we will look to expand and enrich our offerings for the growing demand and provide early STEM experiences that are so critical for young learners.

#### LUMINOUS MOON

In partnership with NASA's Ames Research Center in Mountain View, California, Chabot presented the LUMINOUS MOON exhibition from June 22 to September 8, 2019. Featuring more than 50 stunning, high-resolution images, lunar artifacts, and hands-on interactive learning activity stations, this collaborative exhibition in Astronomy Hall transported visitors to the Moon. The detailed photographs allowed visitors to explore the Moon from many unique perspectives. The vast landscapes of the Moon were provided by Oakland's own astronomers, using Chabot's telescopes, and from space, taken by NASA astronauts and NASA's Lunar Reconnaissance Orbiter, a satellite launched in 2009 to explore the lunar landscape.

#### APOLLO 16 MOON ROCK EXHIBIT

Our newest Moon rock, from the Apollo 16 Mission, is on loan to Chabot from the NASA Johnson Space Center. It was directed to Chabot by Apollo 9 Astronaut Rusty Schweickart. Learners of all ages and abilities can learn about the Moon through hands-on activities and visit our new planetarium show, Lunaverse, which explores the moon's motion and phases, lunar and solar eclipses, tides, and the Moon's origin.

## COSMIC RAY

Designed and built by Dr. David Grossman in honor of his Harvard University doctoral adviser, Harvard University Professor Karl Strauch, Department of Physics, this fascinating Cosmic Ray Spark Chamber allows visitors to see actual cosmic rays in real time made visible as they pass through this activated, see-through chamber of neon gas. The cosmic rays can be seen as mini lightning bolt-like charges. The detector was supported by Dan Miller and Roger Strauch.



#### TINKERFEST

The 3rd Annual Tinkerfest celebrated the creative and the curious. This one-day festival brought together 20 partnering organizations from the Bay Area and beyond, engaging more than 1,000 visitors of all ages in building, playing, and experimenting together. Makers, artists, and tinkerers showcased their work to the public. A hallmark area of Tinkerfest is the "take apart" zone where tinkerers can see, touch, and learn how something works by assisting in dismantling it. The event is a platform where all ages can experiment and learn together.

#### BUBBLEFEST

Our first annual Bubblefest was an entire day of hands-on bubble fun, live music, face painting, and more. Chabot visitors learned all about the science behind bubbles and saw how bubbles can change form as professional bubble artists exposed the wonders of these remarkable spheres.

## WOMEN IN STEM EVENT

In March 2019, a whole day all about women was presented at Chabot. Women scientists all over the Bay Area who are doing incredible work in STEM careers in space were invited to present their work at this important event. Visitors joined us for hands-on activities, a panel discussion, and a chance to engage with engineers, biologists, artists, and people in other fields that link with space missions.

#### APOLLO 11, 50TH ANNIVERSARY EVENT

During the Apollo program of the 1960s and '70s, NASA sent nine missions to the Moon. Six of them landed astronauts safely on the surface, the only times humans have visited another world. July 20, 2019 marked the 50th anniversary of the first humans landing on the Moon on July 20, 1969 as part of NASA's Apollo 11 lunar mission. On July 20, Chabot remembered the day of the Apollo 11 landing with a full day of Moon-related activities, including Lunar First Friday, Moon demos, the New Planetarium show, Lunaverse, an Adult Full Moon Hike and Sip, and an Adult Apollo Party in the evening.

#### LECTURES AND LASERS

Visitors wanting to experience a fun night out were invited to Chabot once a month to experience the Lectures and Lasers series. Guests listened to experts, writers, and entertainers while they delved into a new topic from rocket launches to pop astrology and everything in between. Then audiences experienced an immersive, multi-sensory music and laser light show in the planetarium.



## GALAXY EXPLORERS AND CHAMPIONS OF SCIENCE

The flagship Galaxy Explorers program provided nearly 200 high-school students with an opportunity for hands-on community and teamwork while developing authentic job skills and increasing their STEM knowledge. For Oakland Unified School Dsitrict (OUSD) middle schoolers from Title 1 schools, the Champions of Science continued a year-round program at Chabot, investigating age-appropriate topics such as earth sciences, climate education, Nanotechnology, space exploration, media production, and robotics.

## DINNER WITH A SCIENTIST

Chabot hosted the "Dinner with a Scientist" event once again with great aplomb! Working with our partner, the Oakland Unified School District (OUSD), Chabot brought together local scientists, teachers, and students to celebrate science at this unique event that allows teachers and students direct access to scientists. This award-winning event takes place each school year and features scientists and STEM leaders from a variety of disciplines. Over the course of three evenings, 567 OUSD students and teachers met researchers, university professors, engineers, doctors, veterinarians, and even forensic scientists.

## LEARNING EVERYWHERE

Chabot's Learning Everywhere Initiative, supported by a multi-year grant from the Institute of Museum and Library Services, re-envisions our Science Center as a hub in a connected STEM learning ecosystem. It brings together community partnerships from a variety of informal and formal organizations to open opportunities to listen closely to children and families, work together to identify needs, and create impactful programming that sparks excitement in underrepresented communities in Oakland. In 2019 we provided services to over 1,100 Bay Area children and teens, quality after school and evening experiences at the Boys and Girls Club of Oakland, and at local libraries and schools in the first year pilot program.

## ACADEMY PILOT

The Chabot Academy is an on-going innovative collaboration between the Chabot Space & Science Center, and The Oakland Unified School District. The pilot program invited all the middle school students and their teachers from Hillcrest Elementary School to Chabot in the Fall to use Chabot one day a week as their learning site for one semester. This innovative program focuses on three major themes: science literacy, how science works, and learning about learning. All programs integrate the Next Generation Science Standards, with an emphasis on Science and Engineering Practices. The interdisciplinary curriculum of the Academy incorporates the history and societal dimensions of science, mathematical applications, writing in the content area, art, and physical education. The goal is to deepen science learning for middle school students through repeated access and exposure to museum quality resources and surrounding parks.

# Astronomical

"After 20 years of being a Chabot astronomer and science volunteer, I still enjoy the rewards and satisfaction of educating the public about science and the universe. It is wonderful to hear the excited exclamations of adult visitors who see Saturn for the first time through one of our telescopes. They are amazed to see with their own eyes that Saturn is really there, and it really looks like the photos they've seen. It's also amazing to be peppered with astronomy questions from groups of Scouts after they've seen one of our planetarium shows. Science literacy begins with science experience, and experiencing science is what Chabot is all about."

**GERALD MCKEEGAN** STAFF ASTRONOMER

## INSIGHT LANDING

InSight touched down on Mars at 11:52:59 a.m. PT on Nov. 26, 2018. The lander plunged through the thin Martian atmosphere, heatshield first, and used a parachute to slow down. It fired its retrorockets to slowly descend to the surface of Mars, and land on the smooth plains of Elysium Planitia.

InSight's goal is to study the interior of Mars and take the planet's vital signs, its pulse, and temperature. But InSight is more than a Mars mission—it is a terrestrial planet explorer that will open a window into the processes that shaped the rocky planets of the inner solar system, including Earth, more than four billion years ago.

#### WEEKLY FREE VIEWINGS

The Center continues its tradition of offering free, weather-dependent Observatory viewing on Friday and Saturday evenings, inspiring more than 10,000 visitors during the year. The Asteroid Search Program, conducted by Chabot and East Bay Astronomical society astronomers, continues to observe and track Near Earth Objects - asteroids and comets that cross Earth's orbit - and report findings to the International Astronomical Union's Minor Planet Center. Chabot's telescopes are the only research-quality telescopes west of the Mississippi open to the general public for regular viewing.

## GEMINIDS METEOR SHOWER

Thursday evening into early Friday morning in December 2018, visitors headed up to Chabot to get away from the light pollution for the best viewing opportunity of the Geminids meteor shower. Starting at dusk, spectators were able to spot between 50 and 100 meteors per hour, with the show peaking around 2 a.m. Astronomers were present on-site to answer questions.

#### PERSEIDS METEOR SHOWER

Visitors witnessed the Perseid meteor shower in August of 2019 from our Redwood Observation Deck and were dazzled as they watched the annual trip through our atmosphere light up the night sky. Our astronomers were on hand to answer questions and provide commentary.

"Our high school volunteers, the Galaxy Explorers, come from all over the Bay Area to Chabot for a variety of reasons. However, there are common threads-they want to develop public speaking skills, increase their scientific knowledge, connect with scientists and researchers in the area, and figure out where they are going in life. It is an honor to be able to be a mentor, a guide, and a hype-squad for this talented group of students. My role is to connect the students to the things they care about and showcase their work in an authentic way. This program has thankfully provided these opportunities to over 4,000 students over the last 20 years."



DAN STANTON YOUTH DEVELOPMENT MANAGER

PICTURED RIGHT

High School Galaxy Explorer Interns and Volunteers develop and present science demonstrations on the floor of Chabot, engaging our visitors of all ages in STEM topics.



## Chabot Space & Science Center Thanks Our Community of Supporters

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