



Careers in Science Intern Program

Annual Report

January 1 – December 31, 2020



Following the Academy's pandemic-related museum closure, our Careers in Science interns shifted from in-person learning to virtual programming in March 2020.

Thanks to generous philanthropic support, the California Academy of Sciences continues to inspire—and be inspired by—the next generation of bright young scientists and leaders through the Careers in Science internship program.

Careers in Science serves highly motivated teenagers from San Francisco in a paid internship that includes training with Academy scientists and educators over the course of two to three years. Youth develop transferable workplace skills, scientific literacy, and a sense of environmental stewardship through field research in the outdoors, collaborative work, and time spent directly engaging Academy visitors.

Since 1996, the Academy has been proud to support Bay Area students from backgrounds that are underrepresented in science, technology, engineering, and mathematics (STEM) fields to find their paths to success.

In response to COVID-19 health and safety guidelines, Careers in Science transitioned to remote programming in March 2020. In spite of the challenges inherent to this unexpected shift, our successful pivot to virtual programming ensured that we continued to support the next generation of scientists and leaders. This report features highlights from January 1, 2020 through December 31, 2020.

Removing Barriers to Access through Virtual Programming

Days before the Academy building closed to the public, Youth Programs staff made the decision to prioritize the health and safety of our interns and transition to virtual meetings. Using interactive videoconferencing and remote learning tools, our 42 Careers in Science interns seamlessly continued to investigate topics in science and sustainability, explore careers in STEM, and strengthen their science communication skills. Careers in Science program leaders quickly recognized the benefits that a virtual platform could offer in terms of equity and access—resulting in higher rates of attendance and participation, and allowing us to connect interns with STEM professionals and youth leaders across the globe. From learning Python for scientific data analysis to producing a live-streamed virtual #TeenScienceNight for an international audience, interns gained powerful skills to help them learn and communicate science in a new online era.



Careers in Science interns engaged with guest speaker Brian Reyes from the SF Department of the Environment on January 28, 2020.

Trainings and Speaker Series

Careers in Science interns attended regular trainings to increase their understanding of science concepts, enhance career awareness, and develop professional and life skills, such as creating cover letters and resumes, interviewing effectively, and managing money. Intern training topics are chosen based on youth interest; this year's topics included careers in healthcare, practices in modern agriculture, air and water quality, environmental justice, and public speaking.

During one training, interns heard from Dr. Latifat Apartira—a graduate of Careers in Science who is now a physician at Kaiser Permanente and an Assistant



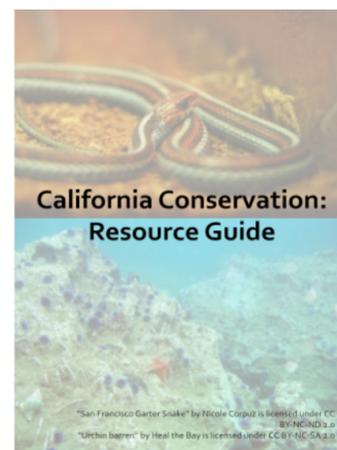
Guest speaker Dr. Latifat Apartira, a Careers in Science alumna, spoke to current interns about her pathway to a career in medicine and public health.

Clinical Professor in the Department of Epidemiology and Biostatistics at UCSF. Dr. Apartira spoke to the interns about her STEM journey, spanning her time as a Careers in Science intern to achieving a Masters in Public Health. Her experiences resonated deeply with the interns, who gained new perspectives on possible futures in STEM careers.

Special Interest Groups

Due to the extraordinary nature of the COVID-19 pandemic and Academy closures, interns were unable to engage visitors on the museum floor during most of 2020. To continue providing exceptional learning experiences and opportunities, program leaders launched Special Interest Groups (SIGs). These new SIGs allowed Level 1 interns to engage with important science and environmental issues while gaining science communication skills they normally would hone on our public floor. Designed to promote youth-led civic engagement, SIGs were facilitated by experienced Level 3 and 4 interns, who developed valuable new skills in group management, instructional design, and logistics.

SIG summer 2020 topics included biomimicry, environmental justice, and California conservation. Fall topics addressed wildfires, racism in scientific communication, and fast fashion. Interns created videos, interactive games, and digital media to teach other teens about these topics at #TeenScienceNight 2020, and also presented and shared lessons with their peers at the Bay Area Science Festival and through the KQED Youth Media Challenge.



The California Conservation SIG created a Resource Guide for all #TeenScienceNight participants.



The Environmental Justice SIG created a 'Zine' focusing on Environmental Justice efforts in the Bay Area.

Project Groups

Project Groups are semester-long opportunities for small groups of Level 2 and 3 interns to work one-on-one with Academy professionals to develop workforce skills and deepen their knowledge and engagement in a STEM field.

Climate Data Project Group—Interns collaborated with Dr. Gentemann and Dr. Reyes-Garcia of the Farallon Institute to study the effects of marine heat waves on the Pacific mole crab population of the northern California coast. Interns learned Python for data analysis and created an original scientific poster to present their findings at the virtual American Geophysical Union 2020 conference as part of Stanford's *Bright STaRS* program.

Botany Project Group—Interns assisted Dr. Manuel Luján Anzola in researching plant diversity in *Cycas calcicola* specimens. Evidence gathered from their work could support the division of this cycad into two separate subspecies. Interns also analyzed drone footage from Dr. Luján's field research area in Australia to estimate the number of cycad individuals and other population demographics.

LiMPETS Project Group—LiMPETS is a citizen science program that monitors the coastal ecosystems of California and helps youth develop a scientific understanding of the ocean. The National Parks Service has partnered with the City of San Francisco and the US Army Corps of Engineers on plans for a large scale beach nourishment project at Ocean Beach. Careers in Science interns worked with Rebecca Soloway and Dr. Rosemary Romero of the Greater Farallones Association to determine whether LiMPETS data could provide baseline information for the renourishment project.

#TeenScienceNight Project Group—Because of the global health pandemic, our 8th annual Teen Science Night

was held for the first time virtually over Zoom and live-streamed on YouTube. Interns conceptualized, planned, and coordinated all of the logistics, communications, and marketing efforts that go into creating a large scale, virtual event. More than 500 youth from 19 states and 10 countries attended. This was also the first year that some #TSN programs were presented live in both English and Spanish.

"I am so proud of our project group being able to adapt to all of the changes in the world. We delivered an event that was easily accessible and addressed the social justice change in the world."

"I learned the skill of adaptability and of being a team leader while working in the #TSN Project Group. I learned how to think on the fly and how to communicate with others to make a successful end product. I also learned how to reach out to others."



Mentorships

Mentorships are a semester-long opportunity for Level 3 Careers in Science interns to work directly with an Academy professional to deepen their knowledge and engagement in a STEM-related field. Mentorships provide an authentic work experience for youth, and support scientific endeavors and the Academy's mission.

Steinhart Aquarium Mentorship, Rays, Rainforest, and Horticulture

Interns Virgyl, Jackson, and Enkhush were mentored by Steinhart Aquarium biologists Spencer Rennerfedt and Logan Babkes. They were tasked with caring for living plants in Osher Rainforest and the *Giants of Land and*

Sea exhibit, and performing daily care, husbandry, and habitat maintenance for animals on the first floor of Osher Rainforest.

After their mentorship went remote, these three interns took the opportunity to interview their mentors to learn more about their career pathways and explore topics within the field of animal husbandry. Following these interviews, interns led an interactive group discussion with their peers about the importance of native plants and the ethics of keeping animals in zoos and aquaria.



IBSS Mentorship, Microbiology



Under the guidance of Dr. Panpim Thongsripong—Postdoctoral Fellow at the Academy—Level 3 interns Na'im and Ivonne researched viral genetic sequences found in *Culex nigripalpus* mosquitoes collected in central Thailand. Findings from this project are being incorporated into Dr. Thongrispong's

phylogenetics work, adding to the viral tree of life and supporting and informing future projects.

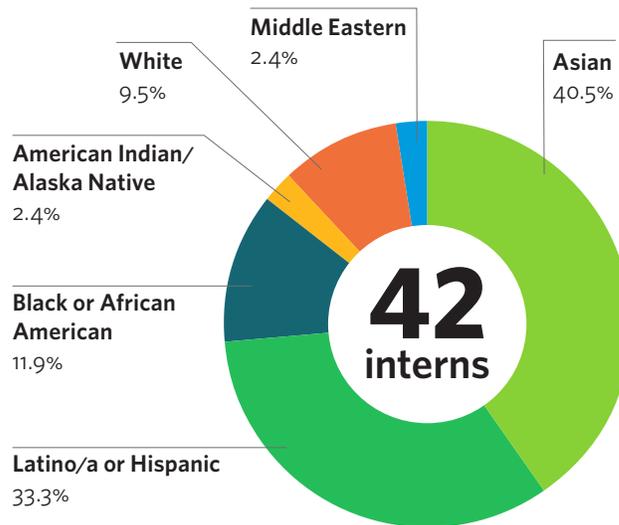
Morrison Planetarium Mentorship

Under the guidance of Josh Roberts—Supervisor of Planetarium Programs—Level 3 interns Esmeralda and Lupe conceptualized, developed, and presented original, immersive planetarium shows for their peers. Esmeralda highlighted the names and stories of constellations from the traditions of Indigenous peoples of modern-day Mexico. She sought support from her grandmother, who is a native Nahuatl speaker. Lupe created a show focused on the universe and dark matter.



Participant Demographics

In 2020, Careers in Science served 42 high school interns, who participated in an average of 150 hours of work each.



Leadership Council

The Academy is committed to providing leadership opportunities that empower youth to grow personally and professionally. Leadership Council is composed of experienced Careers in Science interns who have demonstrated the knowledge, skills, and commitment to take on more advanced responsibilities and serve as role models for their peers. In 2020, Leadership Council members facilitated Special Interest Groups, developed program strategy, and interviewed youth candidates for the intern cohort that joined the program in June 2020.

College Attendance

To prepare youth for college, the Careers in Science program facilitated a College 101 workshop for all interns, including a training with Lorian Martinez—Partnership Manager for My Path—to support interns' financial literacy and economic mobility as they begin their journey towards college. Interns also attended a combination of in-person and virtual college tours throughout the year. We are happy to report that all seven interns who graduated from high school in 2020 were accepted to college in the fall. This group was accepted by 21 public and private universities and one community college, with scholarships collectively totaling more than \$32,000 for their first year.

Student Spotlights

Emma, a Level 2 intern, expanded on her work with the Climate Data Project Group in an interview with IMPACT—an interdisciplinary team that works to further NASA’s missions and experiments by encouraging the use of Earth observation data by a broader user community.



“Even if you’re not someone who is interested in science, but still someone who goes to the beach, then you should be passionate about Marine Heat Waves (MHW) because if this rate of temperature increase continues, then the entire ecosystem will be disrupted which will change the way the beach and its ecosystem look and function. Because temperature is such an important factor for marine life living in certain ecosystems, MHWs can often change the habitat range of certain species which can greatly affect the overall biodiversity of its ecosystem.”

— Emma, Level 2 Intern

In response to the COVID-19 pandemic, Level 2 intern Viva launched a program called Youth in Pre Med to inspire other students to enter medical fields. Her new program hosts local doctors and medical students from Stanford University who give virtual presentations about their careers in the medical field. She also provides students with advice that she gleaned from Careers in Science training about college applications, interviews, and public speaking skills.

Youth in Pre Med has supported more than 230 students from over 20 U.S. cities as well as international students in Canada and South Africa.

“I wanted to start my program to inspire students and give them the resources to go into the field of medicine so that in the future we can be the spark of hope that society sees during times of hardships.”

— Viva, Level 2 Intern

Thank You for Your Partnership

In Interns’ Own Words

“I was very shy when I first came to this program but because of the friendliness of my colleagues and the work we do here, I have become more confident over time. Now I can even walk to a visitor and engage them in my presentation. I never thought that I would confidently initiate a conversation with strangers in that way.”

— Connie, Level 3 Intern

“I am so very thankful to have gotten the chance to be a Careers in Science intern and to have learned so much through exhibits, peers, and mentors. I am looking forward to another fantastic semester!”

— Ivonne, Level 3 Intern

