

On October 26, 2022, the General Atomics Sciences Education Foundation announced awards of \$76,500 in funding to 11 organizations and programs to improve K-12 STEM education.

1. \$15,000 to Elementary Institute of Science for their Girls Take Flight program

Funding will support the participation of 10 female high school students in the practicum phase of Girls Take Flight. The practicum comprises 180 hours of learning to build, program, and fly drones and preparation for the Part 107 Remote Pilot Certification Test. A grant will be used specifically towards instructional and transportation costs, and miscellaneous supplies. Girls Take Flight initially introduces the UAS industry to over 100 female high school students. Twenty of these girls will be selected to participate in a week-long drone camp where they will build skills in coding, building, and operating small drones. The students also learn about career opportunities in the USA industry, specifically focusing on women in engineering and aeronautics. Of these 20 girls, ten are selected for the final phase of the program, the practicum. The target population is female high school students that attend a Title I school, in the low-income, ethnically diverse neighborhoods of Southeastern San Diego, City Heights, and Paradise Hills. The program provides girls with regular career exploration opportunities led by diverse female STEM professionals. These women share their knowledge, personal stories, and challenges to inspire girls' interest and ongoing engagement in STEM. A virtual presentation was provided by General Atomics engineers, scientists from the Jet Propulsion Laboratory, and the Drone Project, from Our Genetic Legacy.

2. \$10,000 to STEM-ED Inc. for their Aerospace Robotics Competition program

STEM-ED Inc.'s Aerospace Robotics Competition (ARC) is starting its inaugural 2022-2023 season in San Diego, which culminates in a one-day event where all teams compete against each other. The objective of this program is to provide an accessible, affordable, and relevant robotics competition for students interested in learning about quadcopter drones. The 2022-2023 season's target participation is 20 teams, with approximately 5 students each, reaching a total of 100 students, with potential for further future growth. The target demographic is all students, regardless of background or skill levels. The program has special interest in supporting underrepresented students who do not currently have access to similar programs. The goal of ARC is to provide hands-on opportunities for students to design, build, program, and fly aerospace systems. This is an extremely accessible program to students from all backgrounds, is affordable, is highly relevant as an aerospace focused program. Students will learn about quadcopter drone design, programming, teamwork, and presentation skills, as well as mechanical, electrical, and computer engineering. The program costs an average of \$1000 per team to participate, which is far less than other major high school robotics competitions such as FIRST. Financial plans and scholarships are available as needed.

The local program will be managed by GA employee Kelsey Hite.

3. \$1,000 to Los Angeles County Science and Engineering Fair for 2023 Fair

Funding will cover operating expenses, award prizes, and offer fee waivers to schools receiving Title 1 funding or having a student population of over 80% underrepresented minorities in science. The LACSEF operates an annual science and engineering fair, designed to expose participants and the general community to science and engineering through a science fair competition, hands-on activities and workshops, and an interactive exhibition that is open to the public. The LACEF also conducts teacher workshops to assist them in implementing more hands-on inquiry-based science and design-thinking based engineering instruction, something that is at the heart of the Next Generation Science Standards (NGSS). This annual competition has been held each of the last 72 years. In 2019, the year before the outbreak of the COVID pandemic, 887 participating students from 124 schools participated in the event. It is estimated that over 3,000 students in the Los Angeles County area are impacted by the event, as

students compete in school science fairs that feed into the fair. In 2022, the ethnic/cultural breakdown of participants was 31.9% Asian/Pacific Islander, 22.3% Caucasian, 18.1% Latino/Hispanic, 4.7% African American, 0.9% Native American, and 22.1% who preferred not to state.

4. \$8,000 to Innovations for Learning to support the TutorMate program at GA

Funding will support the implementation of the TutorMate program at GA&A. Funding will support 2 rooms at up to 12 GA tutors per room. Each GA tutor tutors an at-risk first grade student for 30 minutes per week from their work location using their computer and phone. Funds are used to support Innovations for Learning/TutorMate staff and to purchase TutorMate computers used by the schools for this program.

5. \$5,000 to Alpine Education Foundation for Wheel of Experts program

Funding will support the 2022-2023 Wheel of Experts Enhanced STEAM Education Program in the K-8 Alpine Unified School District. 1/3 of students are under-served, 31% qualify as low income, 33% are first in family to attend college, and 32% are LatinX/Native American/African American. The district is distant from other San Diego districts so warrants consideration. Each grade level receives 28 weeks of hands-on labs or experiments designed to Next Generation Science Standards (NGSS) to enhance the classroom curriculum being taught: 1,500 45-minute classes/labs each with an attendance of 20-25 students. As students progress in the program year-to-year, the curriculum becomes more advanced and allows the student to explore different STEAM opportunities in preparation for their life skills and adult lives – whether college bound or not. The curriculum includes science, technology, engineering, arts, music, mathematics, coding, robotics, gardening/aquaponics.

6. \$5,000 to Science Delivered to support the It's Elementary program

Funding will provide hands-on science education for students in grades K-5 at underserved elementary schools as part of the It's Elementary program. The 4 targeted elementary schools are about 90% low-income and are majority African American and LatinX. The 2022-2023 school year will be the 8th year of hands-on science and STEM programming for young learners. This funding will provide 28 in-classroom hands-on science and STEM lessons. The funding will additionally provide materials and supplies to 15 classrooms to support hands-on science and STEM as part of the regular curriculum. Labs are provided to elementary school classrooms and include supplies that remain in the classroom for further hands-on lessons. Students in It's Elementary receive up to six visits a year. Lessons align to their grade level content standards. The number of schools is small to ensure students receive science lessons year-after-year which nurtures a science-positive culture. In the 2022-2023 school year, lessons will be focused on building spatial skills in addition to science-focused lessons.

7. \$6,500 to Biocom California Institute to support the Life Science XP Science Bridge program

Funding will support facilitation and management of the Life Science XP Science Bridge program (delivering career panels, teacher training, virtual tours, in-person teacher tours at companies, and more) to underserved schools, as well as assist in the purchase of the materials used by the students to build the kits. Life Science XP ScienceBridge is a multifaceted program that delivers hands on science labs and lessons to undeserved schools across San Diego County, impacting ~10,000 students with these hands-on kits/lessons, as well as provide connections to local life science professionals in the form of Virtual Career Panels, and teacher professional development. These students take part in three key LSXP ScienceBridge lessons, which are all standards-aligned, real-world lab experiences. an additional 250 students from local high schools (Castle Park High School, Mira Mesa High School, Sweetwater High School, and Helix Charter High School) serve as "LSXP ScienceBridge Biomanufacturing Interns" –gaining invaluable experience and skills in this important and growing field. These students build each of the kits

that are then sent off to the schools enrolled in the program. LSXP Science Bridge programming employs specific strategies to address issues of inclusion: it increases the opportunities to interact with professionals, changes the image of STEM, provides youth with positive, diverse STEM role models, and provides experiences to encourage students to stay involved in STEM/life sciences and to pursue careers in these fields.

8. \$3,000 to Olivewood Gardens and Learning Center for their Children's Garden Science and Nutrition Education Program

Funding would support the Children's Garden Science and Nutrition Education Program for the 2022-2023 school year. They use garden-based nutrition education to teach scientific literacy and environmental awareness, while encouraging visitors to explore the interrelationships between a quality diet, sustainable agriculture, and healthy living. Olivewood serves the communities of National City, CA and San Diego's South Region. National City is historically under-resourced, low-income, and a community of color and more than 70% of elementary school students qualify for free/reduced lunch. Olivewood provides STEM garden-based educational experiences at Olivewood and school garden for 4,700 National School District (NSD) students. This program builds on a 12-year partnership with NSD to support standards-based learning by uplifting gardens as essential places for learning, and for life skill building related to growing food, preparing healthy meals, and connecting with nature. The Program offers Standards-based experiential STEM, environmental and nutrition science programming to youth from all 10 NSD elementary schools. Students participate in hands-on learning that teaches about renewable resources and water conservation, the science of food production, composting and the role of decomposers, ecosystems, and the impact of climate change, and utilizing food in creative ways to minimize waste.

9. \$3,000 to The New Children's Museum to support the Innovators Lab STEAM Makerspace

Funding would support the Innovators Lab STEAM Makerspace. The Lab helps children explore the creative process at the intersection of art, design, and STEM; and offers programming, equipment, and materials that may be inaccessible and/or unaffordable for many students. The Innovators Lab is among the first makerspaces in the nation to provide access to equipment and programming specifically for children ages 6-13 within the context of a contemporary art space. The Foundation's funds will support equipment, tools and materials needed for the Innovators Lab, as well as wages for the staff members. A third of visitors came for free/at deep discounts through community access initiatives. Most of these visitors are from low-to-moderate income families, including students from Title 1 schools. Visitors reflect the diversity of San Diego: 34% Hispanic/Latino, 6% Black/African American. In 2021, the Innovators Lab and its companion drop-in area directly impacted over 144,000 participants on-site through their STEAM offerings.

10. \$10,000 to Links Foundation to support their participation in their Links to STEM program

The Links to STEM program is now in its ninth year, serving thirty-five African American and LatinX students in the 4th through 8th grades – 19 girls and 16 boys. The program is open to all underrepresented students. Students attend over twenty elementary and middle schools throughout San Diego. In March 2022 the program's students attending the five-day 48th NSBE Convention in Anaheim, CA met with college representatives and STEM related companies during the convention. Through this experience they were exposed to STEM opportunities and able to envision what could be for each of them. In addition, as noted above, during the convention the students competed in the robotics and MathCounts competitions. The students are already preparing to again compete in these competitions given their amazing performances last year, the first time they attended a NSBE Convention. The students are engaged in computer programming and robotics starting in the 4th grade. In

2021 the Links to STEM program was expanded to include introduction of algebra to students beginning in the 4th grade; in 2022 rocketry was added to the program. The 49th National Society of Black Engineer (NSBE) Convention will be held in March 2023 in Kansas City, Missouri. The cost is prohibitive to take all students in the Program. Instead, the plan is to take the 10 students on the robotics team and 3 chaperones. The requested funds will defray the cost of attending and competing at the 49th NSBE Convention.

11. \$10,000 to Greater San Diego Science and Engineering Fair to support the 2023 Fair

Funding will help allay costs for maintaining this charity year round (storage, mailbox, insurance, book keeping, tax preparation, supplies, website, transaction fees, etc.) and running the GSDSEF 2023, including \$17k for software licenses and custom development, giving out awards to students (\$40k in 2022) and funding their participation in the International Science and Engineering Fair (\$22k) (in addition to food gift cards to students and judges, postage costs, award ceremony photo booth, banners, t-shirts). 500-600 students to expected to participate in the 2023 in-person fair, from 50-60 schools, grades 6- 12. These students will represent the entire spectrum of diversity across all public, private, parochial, and potential home schools. The GSDSEF, now in its 69th year, is the largest and only STEM event of its kind in San Diego and Imperial Counties. This event has promoted science to all 7th-12th grade students in San Diego and Imperial counties, going on over 69 years. Over the years the GSDSEF has propelled thousands of students into STEM studies and careers, ranging from Astronomy to Zoology. The GSDSEF strives to not only promote scientific literacy and interest in the fields of science to the students, but also provide students with a valuable hands-on experience.

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Since 1995, the [General Atomics Sciences Education Foundation](#) has provided support for K-12 STEM education projects and has given over \$912,000 to science education non-profit agencies in San Diego and other locations to improve elementary, middle, and high school STEM, with a focus on traditionally underserved students.

The Foundation also supports STEM outreach for GA&A employees via the [GASSSS](#) (GA Scientists/Engineers Supporting Science/Engineering for Students) program, where GA employees perform education activities in K-12 settings, are reimbursed for STEM purchases, and are provided with a charge numbers for their time. Through December 2021, over 685 employees have participated in the Foundation’s GASSSS outreach program, which has provided over 2500 outreach hours to GA staff and over \$182,000 in funding to schools and programs for STEM supplies and support. Click [here](#) to apply for support via the GASSSS program.

The Foundation also provides support for employees to participate in the TutorMate program to tutor at-risk first graders in reading from their office computer. For additional details, visit the [GASSSS](#) site.

To support employees involved in education outreach and the GASSSS program, there is now a GASSSS resource room in A20/2008 that has a large amount of outreach resources and is open to all employees. For additional information, contact Larry Woolf at Lawrence.Woolf@ga-asi.com