



## **Organization’s History and Mission**

STEAM:CODERS, a 501(c)(3) nonprofit organization, teaches underrepresented and underserved elementary, middle and high school students the fundamentals of STEAM: Science, Technology, Engineering, Art and Math. Our goal is to unlock the potential of each student, through a curriculum focused on logic, critical thinking and problem-solving – providing students with access to learning opportunities and attainable pathways to academic and career success.

STEAM:CODERS was launched in July 2014 to meet the demands of disadvantaged K-12 students throughout Los Angeles County, who are interested in learning STEAM-related skills (i.e., robotics, coding, art and design), but have limited access to technology and other essential resources.

Our students come, primarily, from socioeconomically challenged households and attend Title 1 schools critically lacking much-needed support (i.e., equipment, curricula and skilled instruction). Approximately, 50 percent of our students have limited to no opportunities and resources (i.e., computers, tablets, cable, internet and Wi-Fi) neither at home nor at school. Essentially, they are “off the grid.” At one site, over 40 percent of the students live in foster care. These factors, among many others, are major barriers-to-entry and create undue obstacles to student achievement.

## **Current Programs, Activities and Accomplishments**

STEAM:CODERS uses staff, volunteers and idle resources to bring STEAM classes to students, utilizing computer labs and classrooms at partner sites after-school, weekends and during the summer (weekly camps). Field trips to locations such as Google LA, California Science Center and NASA’s Jet Propulsion Laboratory, allow students to learn directly from scientists and engineers in “real-world” settings. These collective experiences help students imagine how they can turn what they learn into something practical. Students leave the course with something tangible they’ve created – an app, a robot – and a chance for them to use and show others innovation in action. Parents praise the program for introducing their students to exciting opportunities.

Year-round programming is offered in weekly modules. Sessions take place after-school (1.5 hours each day) or Saturday mornings (3 hours). Summer Camps sessions take place Monday thru Friday, 3 hours each day, providing participants with a total of 15 hours of hands-on learning. We limit class sizes to 20 students, allowing for individualized attention from the staff and volunteers. Using a curriculum that is both age and grade appropriate, students engage in computer science modules like: Computer Science, Robotics, Mobile App and Video Game Development, Art and Design.

STEAM:CODERS has served over 2,500 students in Los Angeles County, since inception, in 2014.

Recent accomplishments include:

- Named 2016 “*Non-Profit of the Year*” in California’s 27<sup>th</sup> Congressional District
- Computer Science: Altadena, Inglewood, Long Beach, Pasadena, Pomona, and South LA
- Field trips: Google LA, California Science Center and NASA/Jet Propulsion Laboratories
- Hour of Code for over 500 students in the Pasadena Unified School District
- Relationships with the Pasadena, Inglewood and Long Beach Unified School Districts

## **Why is STEAM:CODERS Needed?**

Despite all the buzz about the impact of STEM/STEAM and computer science in school curricula, not everyone is participating – and benefitting. In 2013, only 3.7 percent of African-American and 8.1 percent of Latino students sat for the Advanced Placement Computer Science exam. The U.S. Census Bureau estimates that approximately half of all jobs based on STEM competencies in the United States involve computing proficiency (Mason, 2014). This achievement gap in the STEM areas (computing, science and math) for students of color creates major obstacles in academic performance and future employment. As a result, students miss out on countless opportunities.

Now more than ever, proficiency in computing and STEM disciplines is crucial to ensuring personal economic security. The U.S. Department of Education projects computer science and STEM-related career fields will grow exponentially over the years, far outranking other skilled labor categories. Despite this data, African-Americans, Latinos and females are underrepresented in STEM education programs and the related workforce. The changing demographics of the U.S. require that all people are prepared to solve the country's challenges (i.e., healthcare, environmental preservation and national security). Without diversity, the U.S. and the global community will suffer a talent deficit.

## **How STEAM:CODERS Helps: Program Goals, Objectives and Tactics**

In our computer science modules, we expect students to become familiar with the basic principles of computer science. Our goal is to increase their range of computer languages (i.e., Scratch, HTML, JavaScript, Python, etc.). Robotics combines the elements of science, technology and engineering. For the majority of our students this will be their first encounter with any aspect of computer science or robotics. We are their entrée to STEAM. Bringing opportunities to these students is crucial.

## **A Cost-Effective Model**

When compared to the expenses associated with staffing, benefits, curriculum development, and equipment, our program is cost-effective. Coursework and field trips can be added or reduced as needed, without significantly affecting the overall impact of the program. Our program delivery is adaptable, offering a customized plan to meet the needs of schools and community organizations. Our package includes staff, materials, t-shirts, backpacks, snacks, refreshments and field trips.

## **Collaborating Agencies**

We receive support from educational institutions (ArtCenter College of Design, Caltech, Harvey Mudd College, Pasadena City College, UCLA, USC and the University of La Verne), corporations (Alexandria Real Estate Equities, Apple, AT&T, Blue Shield of California, City National Bank, codeSpark, Enbroaden, Fremantle, Google, Idealab, Kinder Morgan, Northrop Grumman, Union Bank, US Bank, Southern California Edison, Spokeo, Supplyframe DesignLab, Xerox and Warner Bros.) and nonprofits (The California Endowment and Pasadena Community Foundation).

## **Expected Results and Measures of Success**

For this opportunity, STEAM:CODERS will help underserved and underrepresented K-12 students:

- ✓ **Discover** that science, technology, engineering, art and math (STEAM) can be fun
- ✓ **Develop** logic, problem solving and critical thinking skills
- ✓ **Stimulate** continued learning across all disciplines
- ✓ **Spark** interest in the world around them
- ✓ **Overcome** stereotypes and self-doubt