



Annual Report

2019-2020



CONTENTS

- 5 Letter from Our CEO
- 7 Our Mission
- 8 Our Story
- 9 The Challenge
- 11 By the Numbers
- 13 Our Programs
- 14 Get Coding
- 16 Academy
- 18 Research
- 20 CS Education Heroes
- 23 Our Financials
- 24 Moving Forward



“Thank you for your support that is making this whole situation easier for our children.

- Parents of Gershon, 4th grade student in the Academy, after our shift to online programming due to COVID-19.

LETTER *from* OUR CEO



During the 2019-20 school year, we have continued to make amazing progress and maintain strong relationships with our partners. It's been so inspiring to see how the hard work our staff puts into designing excellent products and services enables our students to receive an exceptional computer science (CS) education.

9 Dots works with Title I elementary schools in low-income communities to provide everything they need to implement an inclusive and transformative CS education program for their students during regular school hours, including a curriculum that is fully aligned with new state CS standards. In 2019-20, our Get Coding program saw extraordinary growth. We served over 6,500 K-6 students and over 250 teachers at 22 partner schools.

We also continued to run our 9 Dots Academy, a year round after-school and summer coding program hosted at our site for local Title I school students in grades 3-8. During the academic year, the Academy offers an innovative Advanced Placement Computer Science Principles (AP CSP) course. Five of our 6-8 grade students passed the AP CSP exam at the end of the school year, an amazing achievement—this exam is normally taken in high school!

Additionally, a small team of 9 Dots researchers, learning designers and software developers worked closely this past year to develop a prototype of a new immersive,

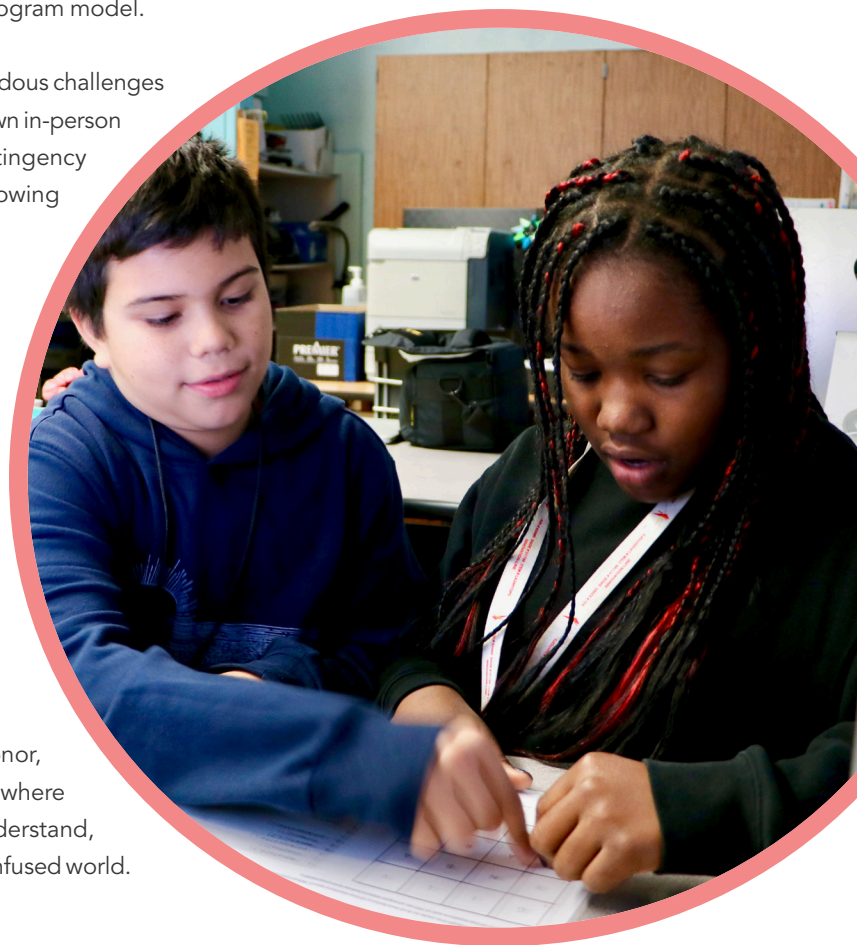
narrative-based CS learning model, the goal being to more effectively engage and support students and their teachers in the classroom. We are incredibly inspired by what they have accomplished in such a short period of time, and we are excited to integrate their insights and learnings into future iterations of our Get Coding program model.

Of course, like all educational organizations, we have faced tremendous challenges due to the COVID-19. Although the pandemic forced us to shut down in-person operations, our resourceful staff members quickly created contingency plans and adapted to the new distance learning environment, allowing our students to close out the school year on a strong note.

Even though we'll be working remotely for the 2020-21 school year, we will continue to serve 90% of the schools we served in 2019-20. I believe this speaks to the high quality of our product and services, as well as the powerful relationships we've built with our partner teachers and administrators.

As we move into the 2020-21 school year, we look forward to exploring new ways of delivering impactful CS learning experiences, supporting teachers in their own CS learning journey, and continuing to build students' sense of identity and belonging in the CS classroom.

I'd like to personally thank every student, teacher, principal, donor, and partner for being a part of this ongoing effort to build a future where every child has the CS knowledge and passion they need to understand, succeed in—and ultimately shape—our increasingly technology-infused world.





OUR MISSION

9 Dots' mission is to provide transformative computer science education for every student. We are a community of educators, researchers, and engineers committed to bringing computer science to all students, particularly those from underserved communities. We believe in creating learning environments that engage every student, foster joy, and promote fearlessness in problem solving. We aim to empower students by transforming the way they voice their ideas, understand their world, and imagine their futures.



OUR STORY

Named for a classic critical thinking puzzle with an “out of the box” solution, 9 Dots was founded in 2011 as a small after-school program at a Hollywood elementary school designed to teach STEM skills in a fun, engaging way. In the following years, 9 Dots has explored and test-piloted a number of innovative STEM and computer science (CS) exposure and engagement approaches, including tech equity and leadership workshops (Lead LA), summer and weekend coding camps (DevY) and partnerships with community-based organizations for after-school robotics and coding programs (Tech & Tape).

As 9 Dots began working more closely with local school administrators, the need for equitable access to a high-quality, in-school CS education for students in low-income communities throughout Los Angeles informed a narrowing of our focus. In 2014, 9 Dots launched our flagship Get Coding program, partnering with administrators and educators at Title I schools in low-income communities to provide CS and coding classes during the regular school day.

Initially rolled out in partnership with Code.org as a K-12 program, Get Coding is now exclusively focused on providing K-6 schools with everything they need to offer their students an early foundation in the computational and critical thinking skills they will need to pursue 21st century educational and professional opportunities in the future.

9 Dots’ approach to curriculum development and educator training centers around building CS classroom environments where all students can participate and learn to solve problems fearlessly.

Our work is grounded in pedagogical theory and informed by findings from our own research initiatives, conducted in partnership with UCLA, and UC Berkeley and with the support of the National Science Foundation (NSF): “Debugging Failure: Fostering Youth Academic Resilience in Computer Science,” and “Programming as a Context for Making Problem Solving Visible: An Equity Focused K-5 Research Practice Partnership,” which includes UCLA and three local elementary and middle school partners.

In 2018, we opened the 9 Dots Academy, a free after-school coding program hosted year-round in our on-site classrooms. The Academy provides students with an accelerated coding curriculum and offers an Advanced Placement Computer Science Principles (AP CSP) class that prepares students to pass the AP CSP exam as early as the 6th grade.

Beginning in 2019, we launched a new initiative dedicated to redefine our current game mechanics, characters, narrative, and learning pedagogy. We put together a team of learning designers, engineers, artists, and game designers to reimagine learning computer science from a place of direct problem solving. The core vision of the work was creating an immersive learning experience that grows resilient CS problem solvers. The team’s research and development has impacted the entire organization. Moving forward, our Get Coding program has now incorporated hints in every coding challenge. We are testing the impact of features in classrooms before adding those features to Get Coding, for example: locking student screens during class instruction, a pacing timer for teachers, and a student progress map.

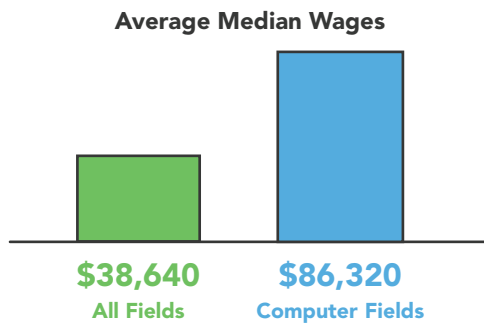


THE CHALLENGE

CS and technology represent the highest paying, highest growth jobs in our economy but schools in California's low-income communities struggle to offer quality CS classes to their students. A lack of trained teachers is the most common reason cited by Principals for why CS is not offered at their schools.

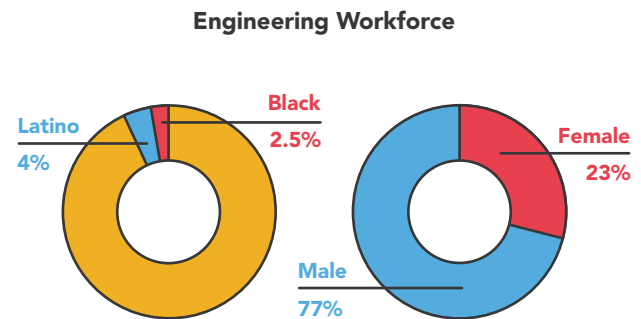
THE CHALLENGE

CS and Technology Workforce



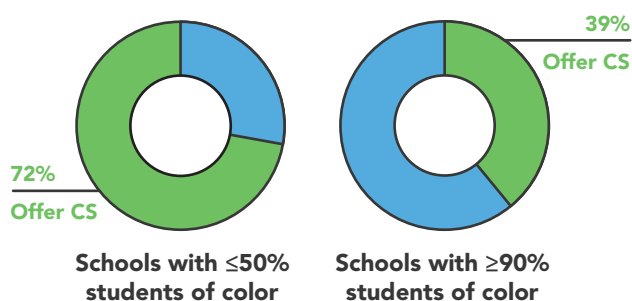
Computer science and technology occupations are among the fastest-growing and most highly paid jobs in the current economy, with median salaries more than twice the average for all other jobs (Bureau of Labor Statistics 2018).

Lack of Diversity in Tech



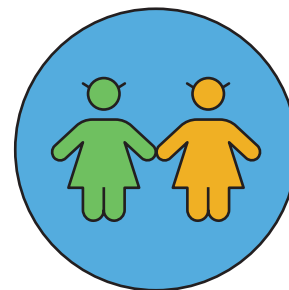
Despite this high growth and opportunity, diversity in the CS and technology fields remains stagnant. Self-reported statistics across ten major tech companies show that on average, only 23% of management and tech positions at these companies are held by women, while only 4% and are held by Latino and 2.5% by Black professionals (Recode, 2018).

Lack of CS Education Access



Only 39% of California's high schools offer CS, with stark racial disparities: 72% of schools with low enrollment rates of students of color (50% or less) offer CS courses, while only 39% of schools with high enrollment rates of students of color (90% and above) offer CS. (Kapor Center, 2019).

Early Impact of Stereotypes



Gender stereotypes about CS participation and ability begin in elementary school (Master, Cheryan, et al, 2017). A lack of early and inclusive exposure to CS education prevents young underrepresented students from building foundational computational thinking skills and limits interest in and pursuit of a future in CS and related fields (Kapor Center, 2019).

9 DOTS BY THE NUMBERS

OUR REACH 2019-2020

Get Coding and the 9 Dots Academy



7,080

K-8 Students



252

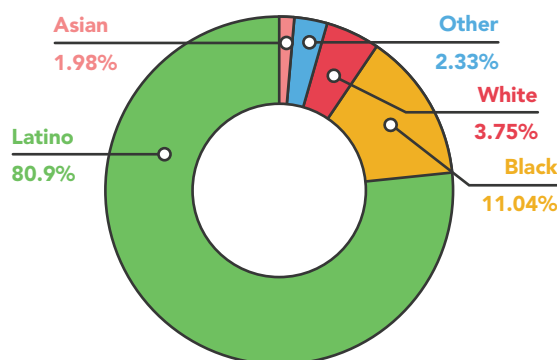
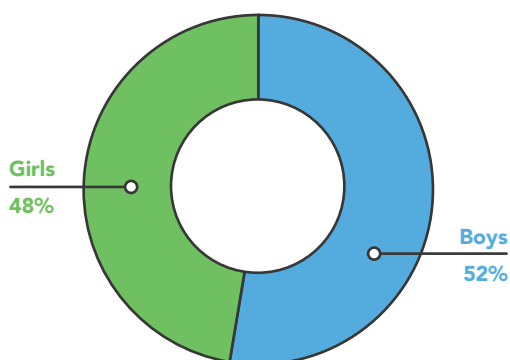
Teachers



22

Title I Schools

DEMOGRAPHICS



ACHIEVEMENTS



79%

of students identified
as coders



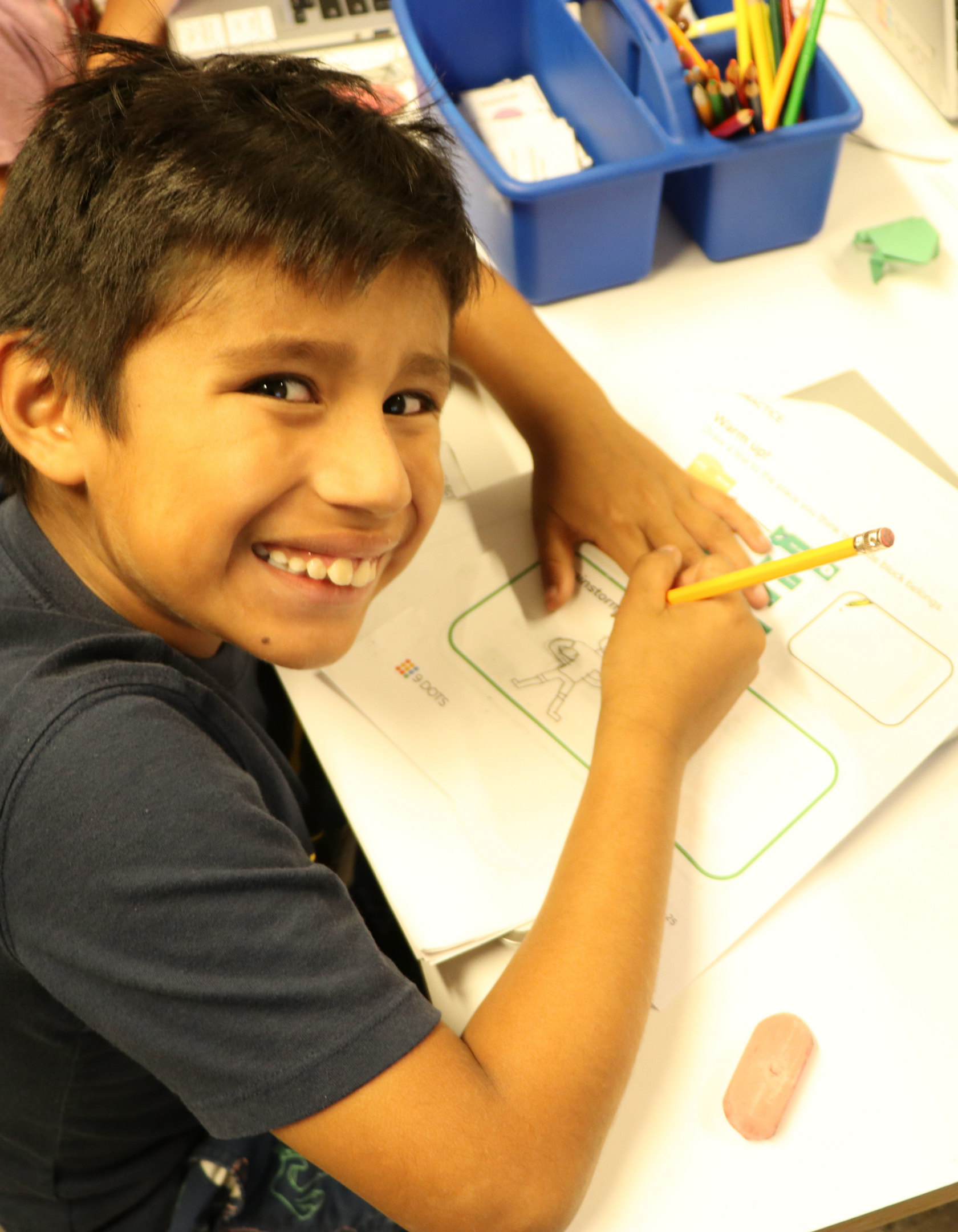
59%

of students achieved grade
level coding proficiency



60%

of teachers are now ready to
teach CS independently





OUR PROGRAMS



In order to prepare all students for a 21st century education and career, 9 Dots is committed to providing elementary school students with an inclusive, joyful, and rigorous CS and coding education, informed by cutting edge research on how students learn, during and after regular school hours.

GET CODING

Supporting Title I schools with curriculum, CS instructional training, online learning analytics, and insights into students' experiences with and attitudes towards CS.

ACADEMY

Enriched after-school coding and summer camp for students in grades 3-8 including an AP CSP course for middle schoolers.

RESEARCH

Partnerships with universities, researchers, and local schools to gain deeper insights into student learning processes and outcomes associated with coding.

❖ GET CODING ❖

Get Coding helps schools in low-income communities provide their students with a high-quality K-6 computer science education by providing curriculum, training, and on-site support to teachers.



GET CODING

6,985

K-6 students

252

Teachers

22

Title I
Elementary Schools

59%

of students demonstrated
proficient or advanced in
grade level concepts

78%

of students identified as
coders in year-end surveys

60%

teachers were ready to
teach CS independently by
the end of the school year

95%

of teachers believe
coding helps develop
problem solving skills

91%

of teachers believe coding
is important for their
students' futures

70%

of administrators would
recommend 9 Dots to a
friend or colleague

9 Dots partners with Los Angeles area Title I elementary schools and provides teachers with everything they need to offer fun and rigorous coding classes during regular school hours. Our comprehensive professional development services for teachers include training workshops, 1:1 coaching, and in-class support. 9 Dots Coding Coordinators work side by side with teachers in their classrooms as assistants and co-teachers until every teacher is ready to teach computer science independently.

“

I see coding as another subject needed to be taught on a daily basis because it is a subject as important as English and Math.

- teacher, Anderson Elementary

“

It is great for our students to have the opportunity to learn coding. It is a great enhancement to the curriculum. Math and ELA skills are reinforced. Kids learn to think and be creative.

- teacher, McNair Elementary

❖ ACADEMY ❖

The 9 Dots Academy provides accelerated after-school and summer coding classes for students in grades 3-8 with free bus transportation to our facility. The Academy includes an Advanced Placement Computer Science Principles (AP CSP) course for middle schoolers.



ACADEMY

95

3rd to 8th grade students served

17

schools represented through our
Academy students

88%

of Academy students identify
as a coder

87%

of Academy students reported a
sense of belonging

5

middle school students passed
the AP CSP exam in 2020

The 9 Dots Academy is a free after-school and summer program hosted at 9 Dots that provides an enriched coding curriculum for students in the 3rd through 8th grades. 9 Dots provides bus transportation to our facility for Academy students at no cost.

In 2018-2019, 9 Dots piloted a high-school level Advanced Placement Computer Science Principles (AP CSP) course for 6th through 8th grade Academy students. The AP CSP course emphasizes hands-on projects, giving students the opportunity to create their own apps and prepares students to pursue advanced CS classes in middle and high school. During COVID-19 Stay At Home orders, the 9 Dots AP CSP course continued online and prepared students to turn in coding and research projects for the modified AP CSP exam and five students passed. This is an extraordinary accomplishment; early exposure to the AP CSP course and exam can help disrupt the effects of structural and social barriers that prevent underrepresented students from pursuing CS but fewer than half-a-percent of students below the 9th grade level take, much less pass, this challenging exam.

“

I'm shocked because this is my first time taking the class. This was my first time, we had to switch two teachers, and I was able to pass the test. I'm shocked!
- Dania, AP CSP Student

“

I'm excited because I passed the AP! I was pretty excited and nervous.
- Alvin, AP CSP Student



❖ RESEARCH ❖

RESEARCH

The 2019-20 school year marked the completion of our NSF grant-funded research initiative, “Debugging Failure: Fostering Youth Academic Resilience in Computer Science.” Based on the findings of this research, we were able to provide meaningful recommendations for how to utilize the debugging process as a means of fostering teacher-student communication about critical thinking in the classroom.

Over the past school year, 9 Dots has continued our work in partnership with UCLA on our NSF grant-funded multi-year research project, “Programming as a Context for Making Problem Solving Visible: An Equity Focused K-5 Research Practice Partnership.” Our research team worked with a UCLA professor, a doctoral candidate and four local classroom teachers to co-design lessons that situated computationally rigorous problems in real world settings.

In partnership with teachers, we gained real-time insights into students’ problem solving processes as they progressed through coding exercises. We learned more about how to develop a classroom culture around problem solving. In order to create a space for meaningful discourse, each coding activity was aligned to the teacher’s definition of equity in CS while also leveraging cross-curricular materials students were learning in real time. The team saw incredible spikes in engagement from both students and teachers as a result of this approach to lesson and learning design. Over the rest of this year we will be analyzing the data collected and creating professional development materials to build on the practical findings. We plan to share our findings with teachers, principals, and interested stakeholders, to support them in effectively bringing tech into their classrooms.





CS EDUCATION HEROES



CS EDUCATION HEROES



Awardee Cara Fields

Principal at
Beethoven St Elementary



Awardee Lee McMillan

TK-K Teacher at
Yorkdale Elementary



Awardee Claudia Frutos

4th Grade Teacher at
Tibby Elementary



This Spring we celebrated our second annual Computer Science Education Heroes Awards. Due to Stay At Home orders, the event transitioned into a two month virtual campaign (#CSSuperHeroes), where we shared photos submitted by our community that highlighted the importance of CS education and the learning that continued at home. The awards honored the dedication and hard work by exceptional educators who create learning environments that engage every student, foster joy, promote fearlessness in problem solving, and perseverance in coding.

Our 2019-20 CS Education Heroes awards were awarded to three extraordinary Los Angeles (LAUSD) and Compton Unified Schools District (CUSD) educators: Ms. Cara Fields, Principal at Beethoven Street Elementary (LAUSD), Mr. Lee McMillan, TK-Kindergarten grade teacher at Yorkdale Elementary (LAUSD), and Ms. Claudia Frutos, 4th Grade Teacher at Tibby Elementary (CUSD).

EXIT

Showcase
Today



OUR FINANCIALS

Statement of Financial Position June 30, 2020

ASSETS

Cash and Cash Equivalents	\$1,144,988
Receivables	373,285
Investment	342,841
Prepaid Expenses	27,506
Property and Equipment	39,728
TOTAL ASSETS	1,928,349

LIABILITIES AND NET ASSETS

Liabilities

Accounts Payable	\$304,480.92
Accrued Payroll	224,270
Deferred Revenue	25,833.35
Total Liabilities	554,584

Net Assets

Without Donor Restrictions	1,372,932
With Donor Restrictions	833
Total Net Assets	1,373,765

TOTAL LIABILITIES AND NET ASSETS	1,928,349
---	------------------

Statement of Support, Revenue, Releases and Expenses, and Changes in Net Assets Modified Cash Basis — For the Year Ending on June 30, 2020

SUPPORT, REVENUE, AND RELEASES	Unrestricted	Temporarily Restricted	Total
Contributions	\$2,587,413	\$8,285	\$2,595,699
Grants	378,000	497,667	875,667
Government Contracts	209,188	6,000	215,188
Program Income	398,750	-	398,750
Other Revenue	73,107	-	73,107
Net Assets Released from Restrictions	533,917	(533,917)	-
TOTAL SUPPORT, REVENUE, AND RELEASES	4,180,375	(21,965)	4,158,410
EXPENSES			
Program Services	2,984,361	-	2,984,361
Fundraising	151,546	-	151,546
Management	593,241	-	593,241
TOTAL EXPENSES	3,729,148	-	3,729,148
CHANGE IN NET ASSETS	451,226	(21,965)	429,262
NET ASSETS, BEGINNING OF PERIOD	595,988	348,515	944,503
NET ASSETS, END OF PERIOD	1,047,214	326,550	1,373,765

MOVING FORWARD



Despite the vast uncertainty that has come as a result of the COVID-19 pandemic, we have managed to maintain strong community partnerships to ensure our sustained impact into the upcoming school year and beyond.

9 Dots' Get Coding program supports genuine transformations, in classroom dynamics as well as in students' self-concept of how they relate to CS and technology, and imagine their futures. Next year, Get Coding will serve over 8,000 K-6 students in 20 Title I schools in low-income communities throughout Los Angeles. We will be focusing our energy on supporting our Get Coding partner schools to ensure that they can provide rigorous and engaging CS learning experiences for their students, regardless of whether classes are taking place remotely or in-person. Our team has done an amazing job adjusting to the difficult circumstances surrounding the sudden shift to distance learning, from creating new and exciting video content to implementing a new hint system to support students while they're coding independently. We hope to continue making adjustments to our

curriculum and services in order to continuously improve our support for all students in a variety of learning environments.

We are so proud of what our Academy students have achieved in the past year. Although we have had to close down our Academy program for the time being, we are so grateful that we've been able to build and maintain such strong relationships with our Academy students and their families. We will continue to monitor state health guidelines, and will continue to make student health and safety our number one priority as we develop plans for re-opening the Academy space.

With computer science and technology playing an increasingly dominant role in our economic, social, and civic lives, we must ensure that every child is prepared to navigate the demands of this rapidly evolving new world. We need gifted problem solvers in CS and technology, and in every field, to work on pressing issues across the globe, to discover solutions, and to dream alternatives. When low-income students, girls, and students of color lack inclusive access to CS education, we are perpetuating systemic inequities and doing an injustice to our students and to our shared future. We do not yet have all the answers we need to address the urgent challenges we face, but given the right tools, the coming generations of diverse young students might.





931 N. HIGHLAND AVE, LOS ANGELES, CA

INFO@9DOTS.ORG

(323) 524-8328