

PLP Grant Replication Program

1. One paragraph project summary, including description of the unique aspects of the project.

Robots and Inspiring Summers will enable San Mateo County Libraries to enhance the STEM curriculum for its Big Lift Inspiring Summers program by adding robotics lessons. Inspiring Summers is a full-day, five-week camp program serving low-income rising Kindergarten through 3rd graders, with San Mateo County Libraries providing project-based, hands-on STEM learning activities; healthy meals; exciting field trips; and, books to fill home libraries. Robotics will join other curriculum units on growth mindset and community, math, fairy tale engineering, and creative chemistry. Robotics is a wonderful way to reinforce skills and concepts from the other units, such as resilience, design thinking, and math, while also introducing coding. The equipment purchased for this program will be able to be used in library programming during the school year as well.

2. Explain what grant was selected to replicate and why.

We are seeking to replicate Santa Clara County Library District's (SCCLD) *STEAM Powered Robots and Beyond* project, funded in 2015. We selected this grant because the program covers our target age group, and fits in perfectly with the STEM curriculum we've already developed for Inspiring Summers. SCCLD has indicated to us that their project was successful, met its objectives, and that their program for younger children would be a fit for the Inspiring Summers program.

3. Explain how this project fits with the library's strategic directions.

The San Mateo County Libraries strategic plan states that "we are leaders in establishing a foundation for early literacy and supporting exploration and growth at every stage of life. This means we will... engage children and families in high quality, research-based learning experiences." The Inspiring Summers program is aligned with this aspect of the plan, and the addition of robotics curriculum will further the program's ability to "bridge the digital divide by building skills and providing access to technology."

4. A description of the proposed project including the population served and the demographics of that population.

Inspiring Summers consists of academic learning in the morning, provided by our school district partners, and exploratory STEM enrichment experiences in the afternoon, provided by San Mateo County Libraries. Our curriculum was developed in partnership with the Bay Area Discovery Museum's Center for Childhood Creativity and focuses on the hands-on, child-directed, risk-friendly activities that get children excited about learning. *Robots and Inspiring Summers* will leverage successes of the *STEAM Powered Robots and Beyond* and Big Lift Inspiring Summers programs.

We will use the same platform – Dot & Dash – used by SCCLD as a base to incorporate a week-long robotics unit into the STEM curriculum for an estimated 460 3rd graders in 23 classrooms throughout the County. Our rising 2nd grade curriculum contains a Robots and Machines week, that introduces children to robotics concepts through age-appropriate activities such as a role-playing game where students take turns being the "programmer" and the "robot" to learn about sequencing commands; making basic "draw bots" and hover crafts; and working with simple circuits. These students will be prepared to work with more technically challenging Dot & Dash platform in the summer before 3rd grade. We will develop a week-long robotics curriculum based on existing Dot & Dash resources; train lead permanent staff and our intern Facilitators to implement the curriculum; and after Inspiring Summers is over, have Inspiring Summers staff train other staff to use Dot & Dash in regular library programming.

The larger Inspiring Summers program consists of full-day, five-week camps, with San Mateo County Libraries providing: project-based, hands-on STEM learning activities, healthy meals, exciting field trips, books to fill home libraries, and of course, library cards! In summer 2016, 119 college-aged intern facilitators worked with 753 rising Kindergarten and first grade students at six schools. In summer 2017, we added rising second graders and worked with 177 facilitators at 11 schools to serve 1,367 children. We anticipate serving 2,000 children in summer 2018.

Robots and Inspiring Summers will reach low-income children in San Mateo County. Currently only 55% of San Mateo County kids read proficiently in 3rd grade; Latino, African American and Pacific Islander kids are even further behind, with only 25% reading proficiently ([The Big Lift](#)). The Big Lift is a countywide collective impact effort to help 80% of San Mateo County kids read proficiently in 3rd grade. As a part of this effort, San Mateo County Libraries has offered two years of free Big Lift Inspiring Summers camps to low-income children, working in partnership with the County of San

Mateo, Silicon Valley Community Foundation, San Mateo County Office of Education, Building Educated Leaders for Life (BELL), South San Francisco Public Library, and Redwood City Public Library. Major partners also include seven local school districts which host the program and lead the academic portion in the mornings – Cabrillo Unified, La Honda-Pescadero Unified, South San Francisco Unified, Jefferson Elementary, San Bruno Park Elementary, Redwood City Elementary, and Ravenswood City Elementary School Districts. This multi-organizational effort is focused on stopping the “summer slide,” the two-month loss in reading and math skills that low-income children experience on average.

Our partner districts serve student populations that are on average more likely to be Latino (56.2%) than San Mateo County overall (37.9%); for example, Ravenswood City serves a population that is 83% Latino. Students in our partner districts are also more likely to be English Language Learners (55.6%) than the county overall (39.4%) ([California Schools Directory](#)). Families who enroll their children in Big Lift Inspiring Summers must meet income guidelines based on Housing and Urban Development's definition of low-income for San Mateo County, which is \$105,350 for a family of four ([HUD FY 2017 Income Limits Documentation System](#)); 80% of Big Lift Inspiring Summers families make \$50,000 or less annually. The living wage in San Mateo County is higher than the national and statewide averages at \$84,521 for a family of four ([MIT Living Wage Calculator](#)).

Results from Inspiring Summers have been impressive. Children in the Inspiring Summers 2016 program gained an average of one month of reading skills, a remarkable net gain of two to three months.

5. Goals and objectives of the project. (Include here any rationale for changes to the original grant application).

Changes to the original project goals include removal of goals and objectives related to serving older children as *STEAM Powered Robots and Beyond* did, and editing to better fit the Inspiring Summers program. Some goals are added to better reflect the overall Inspiring Summers program, and the current goals and measures in place; new goals and objectives are underlined below.

- Goal: Children in the Inspiring Summers program will not experience summer learning loss.



- Objective:
 - All children in the program will maintain or increase reading skills, as indicated by pre/post testing
- Goal: Enhance 3rd grade Inspiring Summers curriculum through a fun and engaging robotics program that is grounded in Common Core and Next Generation Science standards
 - Objectives:
 - 80% of participants will report a greater understanding of robotics, as indicated by pre/post testing
 - 80% of participants will report that STEAM and curriculum learning was fun, as indicated by pre/post testing
 - 90% of parents will report that their child enjoyed the program and that they would recommend the program to other families, as indicated by surveys
 - 80% of participants will report increased familiarity with STEAM topics
- Goal: Children are given the opportunity to further develop 21st century skill sets.
 - Objective:
 - 80% of participants will successfully program a robot to perform a “real world” task, putting into practice the skill set of design thinking, computer science, teamwork, and communication
- Goal: Enhance Inspiring Summers staff skill-sets by training them on all components of Dot & Dash to create a sustainable train-the-trainer model
 - Objective:
 - 80% of Inspiring Summers staff will report feeling prepared to implement robotics curriculum
 - At least 12 staff not directly involved in Inspiring Summers will be trained on Dot & Dash and will hold public programs in Fall 2018

6. Project timeline (activities).

On-going

- Regularly scheduled group and individual meetings with Districts

October 2017 – February 2018

- Curriculum Development
 - Make refinements to existing K-2 curricula

- Develop 3rd grade curricula
- Tailor Dot & Dash curriculum to fit Inspiring Summers length of day, and to strongly align to Next Generation Science Standards
- Recruit, screen and hire Facilitators

February- April 2018

- Work with school districts to recruit and enroll students
- Make refinements to existing Facilitator training and develop robotics unit training
- Order, receive and organize all program supplies
- Plan field trips
- Refine parent and facilitator surveys; create age appropriate student surveys

May 2018

- Finalize student recruitment
- Hold parent orientations
- Hold Facilitator onboarding sessions

June 2018

- Hold Facilitator trainings
- Programs launch
- District staff administer reading proficiency tests (pre)

July 2018

- Administer child, staff and family surveys
- District staff administer reading proficiency tests (post)
- Programs end with closing events for children and families.

August – October 2018

- Debrief with District, Library and other partner staff
- Analyze survey results
- Develop recommendations for summer 2019
- Develop final report
- Bundle Dot & Dash and supplies into kits that libraries can use for programming until Inspiring Summers 2019
- Train library staff to lead Dot & Dash programs as needed

7. Evaluation of the project.

Extensive evaluation practices are built into the Inspiring Summers program. District staff administer pre/post reading proficiency tests, and Library staff currently administer exit surveys to parents and facilitators. In summer 2017, San Mateo County Libraries contracted with Public Profit to evaluate program quality; we may renew the contract for summer 2018, depending on the final report's findings.

Additionally, Silicon Valley Community Foundation contracts with the Rand Corporation for an overarching evaluation of the larger Big Lift effort, which focuses on both the quality of program implementation as well as the ultimate impact on children. We plan to incorporate simple weekly student surveys in summer 2019 with 3rd graders in order to better understand children's experiences and growth with the program.

8. Project budget.

The budget for this project slightly exceeds the original budget of the *STEAM Powered Robots and Beyond* project. *Robots and Inspiring Summers* focuses on serving children in enrolled programs across multiple sites during a five week period, and therefore requires more Dot & Dash sets to serve an anticipated 460 rising 3rd graders. The below budget only reflects San Mateo County Libraries' anticipated budget for Inspiring Summers 2018, and not that of our partners.

PLP Innovation Grant Budget - Robots and Inspiring Summers					
	Cost per unit	# of units	Grant Cost	San Mateo County Libraries Cost	Total Cost
<i>Robotics curriculum</i>					
Dot & Dash Tech Center Pack (One Pack has 12 sets with accessories and includes Curriculum Guide and online Lesson Library subscription)	\$3,595	1	\$3,595		\$3,595

Dot & Dash Pack (1 set each)	\$200	27	\$5,400		\$5,400
Accessories Pack	\$40	14	\$560		\$560
iPad Mini 4	\$360	15	\$5,400		\$5,400
iPad Child's Case	\$15	3	\$45	\$180	\$225
Staff time - Curriculum development				\$2,800	\$2,800
<i>Overall Inspiring Summers Program Budget</i>					
Staff time – Regular Library Staff				\$250,000	\$250,000
Staff time – Facilitators & Meals Staff (Interns)				\$653,500	\$653,500
Staff screening costs (fingerprinting)				\$9,160	\$9,160
Field Trips				\$75,500	\$75,500
Contracts for curriculum development and training support				\$33,000	\$33,000
Other program supplies				\$75,500	\$75,500
TOTAL			\$15,000	\$1,096,640	\$1,114,640

9. Sustainability analysis

Inspiring Summers is primarily funded through Measure K sales tax funds, appropriated by the San Mateo County Board of Supervisors. Additional funding from the federal Social Innovation Fund is phasing out this year, and The Big Lift collaborative is engaging in fundraising and grant seeking in order to close the gap.

The development of curriculum to go along with the Dot & Dash platform will make this an easily replicable program beyond our summer 2018 program. Additionally, curriculum development for Inspiring Summers has both built on and helped grow and expand San Mateo County Libraries' year round in-library programming. Dot & Dash kits will be able to be used year after year, exposing many more than the first 460 children to robotics.