

PLP Innovation and Technology Opportunity Grant Program Application

1. One paragraph project summary.

The idea behind the Unplug: STEM Kits for Infants through Preschool Children proposal was inspired by the California Academy of Sciences STEM classroom kits. The Academy's kits are intended for older school-aged children and the library would like to adapt this concept for infants, toddlers, and preschoolers. STEM learning for this age group happens best through play, which is informal and intentionally child-directed. With this grant, we would develop STEM kits to loan to families who can use them to "unplug" from screen time and learn and play with their children. Each STEM kit will vary in its contents depending on theme (Science, Technology, Engineering and Math), and age (infants, toddlers, and preschoolers). The kit could include many or all of the following items: developmentally appropriate books, activity sheets, and items for experimentation, investigation and exploration. We hope these kits will provide families the opportunity to expose their young children to STEM learning through play, and in turn will inspire them to think of STEM in a more simple and easy to understand way.

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

South San Francisco Public Library's Five Year Strategic Plan calls for providing innovative, new and trending tech to our community. Our Makerspace achieves the tech goal, especially for older children, teens, and adults, and we would like to provide more opportunities for families to connect, discover, explore and play with younger children. This project will provide our families with STEM experiences and learning opportunities that require them to unplug and engage with their young children. One of the survey questions to the community in our strategic plan asked, *What would you like to be able to do at the library, but currently cannot?* The number 2 answer was "a place to play". Unplug: STEM Kits for Infants through Preschool Children will help expand our original Makerspace model to younger children and connect basic STEM learning with Makerspace and Technology learning.

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

Unplug: STEM Kits for Infants through Preschool will be a year-round STEM and early literacy program that encourages an interest in STEM topics for young children through informal education. Similar to how traditional library materials are lent in house or at home, patrons will be able to use them in house or they can check them out for three weeks at a time. The program will be open to all SSF Library card holders.

We will start with five kits per theme (Science, Technology, Engineering and Math) per age group (infants, toddlers, and preschool) with a total of 60 kits available for circulation. The intent is to encourage families that attend our regular Bouncing Babies,

Toddler and Bilingual and Family Storytimes to continue engagement with their child using the STEM kits. Parents and caregivers can help infants and toddlers learn by encouraging exploration and curiosity in a safe environment, through trial and error, collaboration, asking open-ended questions and problem solving.

Science concepts covered include nature, animals, weather/seasons, gravity, solar system/space, bugs, shades of color, senses, land and water, and texture. Technology concepts to be explored include simple machines and “tools” such as gears, pulleys, levers, wheel and axels, screwdrivers, plastic hammers, compound machines, kid-safe scissors, large tweezers, tongs and magnifying glasses. Engineering concepts that will be included in the age groups are small manipulative objects such as different types of blocks, Magnetiles, LEGOs, pegs with holes, natural material (card board boxes, plastic cups, cardboard tubes, sponges, etc.) and wooden cars. Math concepts that will be included in the age groups are counting, stacking, sorting, same/different, patterns, measuring, creating texture, shapes and volume.

To engage parental and caregiver support, there will be talking points and activity guides included in the kits. Items that can be kept by families will be labeled as such, which will be informational bookmarks, early literacy tips and a suggested STEM reading list based. We will offer four Q & A sessions with parents and caregivers every year, and four training sessions a year on a different concept.

A majority of the households in South San Francisco include families. Along with racial and ethnic diversity, families with children is one of the dominant characteristics of South San Francisco neighborhoods. For most of these families, education and opportunity for their young ones is paramount.¹ The importance of family and education drives the community’s use of children’s services, programs and collections. These collections and services are seen as the most important function of the library.²

38.4% of the South San Francisco population are Asian; 36.2% are Caucasian; 33.9% are Hispanic or Latino; 12.1% are other. We foresee, parents and caregivers of infants to preschool that attend our regular programs will be checking out the STEM kits. Although we plan to circulate the STEM kits at both library locations, we plan to focus the kits at our Grand Avenue branch in the Old Town area where majority of our patrons are from low income families and Title I schools.

¹ South San Francisco Public Library. (2016). South San Francisco Strategic Plan 2016-2020.

² Ibid.

4. Goals and objectives of the project.

Goal 1: Create the pilot Unplug: STEM Kits for Infants through Preschool Children at both SSF Library locations.

- Objective 1a: Identify, acquire and process materials for two pilot collections.
- Objective 1b: Promote the collection through existing programs for infants through preschool in high-need populations.
- Objective 1c: Evaluate the pilot collection through circulation statistics and surveys.

Goal 2: Help build a foundation for school readiness and success

- Objective 1a: Provide informal early learning opportunities through STEM Kits
- Objective 1b: Encourage parents and caregivers to engage in STEM learning with their young children.
- Objective 1c: Increase awareness that STEM learning is possible for infants to preschool children through assessment and reporting of STEM Kit outcomes

5. Project timeline (activities).

Tasks	Month(s)
Develop contents for each kit and create a logo	November 2018 – January 2019
Order container, books and supplies/materials for each kit	February 2019
Develop surveys and catalog kits	March 2019
Design bookmarks, flyers, and create reading lists and early literacy tips	April 2019
Promote the kits and train staff to be familiar and assist with each kit	May 2019
Circulation of the STEM Kits and evaluations	Continuous
Q & A and training sessions	Quarterly for two year starting July 2019

6. Evaluation of the project.

The project will collect both quantitative and qualitative data to identify program strengths and areas for program improvement. We will track how many times it has been checked out and have a sign in sheet for in house use. Each kit will include a pre-post survey, which we will collect each time the kit is borrowed/returned.

Results will be shared with the PLP community, and SSF Library looks forward to presenting program outcomes at a future ALSC Institute or CLA conference.

7. Project budget.

Item(s)	Cost	PLP cost	Local In-Kind Cost
Sturdy carrying case for each kit	60 at \$10/each	\$600	
Hardcover books for each kit	3/kit at \$15/each	\$2,700	
Select developmentally appropriate toys	3/kit at \$50/each	\$9,000	
Furniture to display collection		\$2000	
Pilot Infant/Toddler Play Mats	2 at \$120/each	\$240	
Printed flyers, bookmarks, surveys, activity sheets, and booklists			\$1000
Staff time (developing concepts, cataloging, and creating promotional material)			\$5,000
Other			\$500
Total		\$14,540	\$6,500

8. Sustainability analysis.

We will review the statistical data we collected through our evaluations and assess how we can add this cost sustainably to our budget, especially if we will replace lost/damaged items or if we plan to add to the collection. The STEM toys can be used for many years to come. Books may need to be replaced, but this is an expense more manageable once the startup costs have been covered.