Pacific Library Partnership
Innovation and Technology Opportunity Grant Program

Due Tuesday, December 10, 2013

Please provide the following information in a Microsoft Word document. Send the completed form to Linda Crowe, PLP Executive Director, 2471 Flores Street, San Mateo, CA 94403 or email crowe@plsinfo.org.

1. Title of Project Code It!

2. Library/Committee applying for funding Sunnyvale Public Library

   Name Wendy Silver and Rachel Collier

   Email wsilver@sunnyvale.ca.gov rcollier@sunnyvale.ca.gov

   Mailing Address Sunnyvale Public Library
   665 W. Olive Ave Sunnyvale, CA 94086

3. Amount of funding requested $11,000

PLP Innovation and Technology Opportunity Grant Program

1. One paragraph project summary.

Code It! is designed to introduce Sunnyvale students from needy families to basic computer programming in a coding camp taught by professional educators. This coding camp would promote STEM (Science, Technology, Engineering, and Mathematics) and create an opportunity for the youth to explore this hands-on technology outside of the current school curriculum. Participants will use the inexpensive build-it-yourself computer, Raspberry Pi, and will collaborate on interactive projects that are later displayed in the Library. Camp attendees will demonstrate their projects at an event such as a Library Coding Fair and meet professionals in STEM fields.

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

This project aligns with Sunnyvale Public Library's overall mission.

"**Nurture a dynamic environment**": The Library must both stay abreast of current technology and pursue endeavors that inspire and promote technoliteracy by helping its users learn and love the technology that is available to them. Computer programming for kids is a hot topic worth pursuing now, and using Raspberry Pi devices will introduce students to a new technology they might not see otherwise. By creating a hands-on environment for students to learn and experiment with the basics of coding and introducing them to real computer programming professionals, the Library will be helping the youth develop skills that are conducive to Silicon Valley's dynamic tech savvy environment.

"**A gateway to lifelong learning and enrichment**": Sunnyvale Public Library purchases popular materials and builds programs that interest everyone from babies to seniors. Over the years, Library programming has transitioned from purely informational to increasingly skill-based learning and creative design. The semi-monthly "Computer Basics" program addresses the need for self-selected customers to learn basic computer skills, and in almost a year, over 200 people have received one-on-one computer training. In addition, over 1300 customers have attended the following hands-on classes: 3D Design using SketchUp, letterpress programs, tween and teen maker programs (button makers, sushi, duct tape wallets, and more), and monthly craft events for adults.

The response from the community has been overwhelmingly supportive, especially when the program includes the ability to be creative. This proposed *Code It!* program will support the Library's maker movement and allow students to experiment and build "mini computers" and be creative in an informal environment with experts. This open forum will cultivate their ability to focus on troubleshooting, foster collaboration with peers, and introduce methods of observation and analysis.

"**Support formal education and independent learning**": Traditionally, Sunnyvale Public Library has been the go-to place for gathering materials for school reports. Currently, the Library also offers assistance with formal test prep by partnering with Kaplan Test Prep and hosting practice PSAT and SAT tests at the Library. The Library wants to give students further

opportunities for independent learning outside of the school curriculum. By offering this *Code It!* program, Sunnyvale Public Library will give students real-life coding experience, allow them to interact with professionals in the field of design and computer engineering, and imagine the potential to take the next step with more challenging projects.

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

Sunnyvale Public Library proposes to sponsor a 5-session hands-on coding camp for students at Columbia Middle School. *Code It!* is designed to introduce tweens to basic computer programming and promote STEM (Science, Technology, Engineering, and Mathematics) using the cheap build-it-yourself computer, Raspberry Pi. The Raspberry Pi Foundation was started as a way to address a gap in computer programming skills taught in school. Their goal is for the Raspberry Pi device to be a launching point for kids to learn about computers and programming and to think about careers in computer science and engineering. With grant funding, the Library wishes to partner with professional educators and purchase at least 20 Raspberry Pi devices and related accessories for *Code It!*.

During the camp, participants will collaborate on an interactive display called "Light It Up" based on a project originally called "Color My Desk" (willmakesthings.com/color-my-desk/). The premise is that the students will program strings of lights that can be scheduled via the Internet to turn into different colors. The display will become a community art project featured in the teen area of Sunnyvale Public Library.

The camp would end with an event, such as a "Coding Fair" held at the Library for participants to show off their projects and showcase what they learned during the camp. After the camp, the Library would also host a panel of designers, programmers and engineers so the general public and camp attendees could learn more about technology careers.

Since this project supports the "Maker Movement," the Library also wants to send each participant and a caregiver to the Bay Area Maker Faire (makerfaire.com) in the spring of 2014. Students would have the opportunity to see limitless possibilities of computer science, coding, and engineering projects based on the introductory camp.

Sunnyvale is a highly diverse community – culturally, educationally, and socio-economically. Data from the 2010 census show that over half of all residents speak a language other than English at home and nearly 44% are foreign born. While 56.2% of adults over age 25 have a college or advanced degree, 31.2% of adults have not finished high school. Median family income exceeds $100,000, yet over 8400 individuals are at poverty level. Further, the northern portion of the City is bounded by a railroad track and a major freeway. It could be said that there are two Sunnyvales.

Over the years, the Library has found ways to partner with the community, including its sister department Community Services. The Library has performed outreach at Hands on the Arts, Family Fun Night at Columbia Middle School, semimonthly Lunchtime Librarian visits at the Sunnyvale Senior Center, and Lunchtime Librarian visits to the Middle and High Schools. Recently, the most engaging presentations have been where Sunnyvale Librarians have presented 3D Printing Demonstrations at Columbia Middle School and the Senior Center.

This grant reaches out to students at Sunnyvale's Columbia Middle School, which is located next to Columbia Neighborhood Center, part of the newly merged Library and Community Services Department. According to California School Ratings, Columbia Middle School is ranked at 3 out of 10, and 68% of students qualify for a free or reduced price lunch. For more information about the population served by Columbia Middle School, please visit http://school-ratings.com/school_details/43696906049241.html.

4. The goals and objectives of the project.

Goal 1: Introduce Columbia Middle School students to computer programming using the inexpensive computer Raspberry Pi.

Objective: Sunnyvale Public Library will partner with the local organization TechLab Education to offer a 5-session coding camp for middle school students.

Goal 2: Engage students in exploring the scientific method in an informal and fun environment.

Objective: Students collaborate on several programming-based projects.

Objective: Students create at least one interactive display to be featured at Sunnyvale Public Library.

Objective: The Library will host an event, such as a Coding Fair, for students to demonstrate what they learned at *Code It!*.

Goal 3: Sunnyvale Librarians will become more familiar with basic programming languages and capabilities of Raspberry Pi Devices and extend STEM programming throughout the Library

Objective: Librarians will attend an introductory training session about programming Raspberry Pi Devices.

Objective: Librarians will present an information session about mini computers and the possibilities of at home exploration and experimentation

Goal 4: Establish at least three partnerships with local high tech companies.

Objective: Library will host a panel of designers, programmers, and computer engineers so the general public and camp attendees can learn more about technology careers.

5. The project timeline (activities).

Activity	2014											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Purchase Raspberry Pi, Monitors, and necessary supplies			x	x	x							
Collaborate with partners at TechLab Education to schedule Coding Camp and brainstorm potential projects			x									
Purchase Maker Faire Bay Area Tickets			x									
Create a marketing plan for Coding Camp			x	x								
Promote *Code It!* to teachers at Columbia Middle School during faculty lunch				x								
Students and Caregivers attend Maker Faire Bay Area					x							
Schedule Coding Fair at the Sunnyvale Library			x	x								
Seek professional mentors in the local tech industry for the Tech Mentor Panel			x	x	x	x						
Secure areas for interactive Raspberry Pi displays			x	x	x	x						
Create surveys for Library staff and camp				x								
Educate Librarian Staff about Basic Coding					x							
Code It! Camp						x	x	x				
Complete and analyze surveys								x	x	x		
Install interactive Raspberry Pi displays								x	x	x		
Ongoing marketing for interactive displays								x	x	x	x	x

6. The evaluation of the project.

- The primary instrument to measure success is a student survey given before and after the camp. Before the camp, participants will assess their coding knowledge and identify possible career goals. After the camp, the participants will answer the same survey and Adult Services Librarians will assess whether participants learned more about computer programming from the camp, as well as whether the camp informed career choices toward possible careers in STEM.

- Secondary measures include:
    - One Raspberry Pi-based interactive display in the Library.
    - An event such as a Coding Fair held at Sunnyvale Public Library where students demonstrate their projects and at least 75 people in attendance.
    - A panel of professionals in STEM fields (Science, Technology, Engineering, and Math) hosts a discussion about their careers. At least 50 people attend.

- Finally, Adult Services Librarians will also take surveys before and after the grant period to measure familiarity with mini computers and their application in public libraries.

7. The project budget.

At least 20 Raspberry Pi Education Bundles, which includes the Raspberry Pi device and other components that would normally need to be purchased separately for the device to work.	$2,000 + tax
20 monitors	$2,000 + tax
Additional peripherals, such as 20 wifi adapters, cables, cameras, LED Lights for interactive display, and installation equipment for project	$2,500 + tax
Professional coding educators for Library Staff training and instruction for *Code It!* Camp - Tech Lab - https://techlabeducation.com/	$3,500
20 sets of tickets for 1 adult and 1 student to attend Maker Faire Bay Area in Spring 2014	$1,000

Total requested: $11,000