Pacific Library Partnership
2016-17 Grant Program

Due Friday, September 30, 2016 by 5:00 p.m.

Please provide the following information in a Microsoft Word document. Please email the completed form to Wendy Cao at caow@plsinfo.org.

1. Title of
   Project   Learning By Doing: Easy PC-Building Workshop

2. Category (A or B)   A

3. Library applying for funding   Berkeley Public Library
   Name   Anh-Vu Doan
   Email   adoan@ci.berkeley.ca.us
   Mailing Address   2090 Kittredge St., Berkeley, CA 94704

4. Amount of funding requested $15,000

PLP Innovation and Technology Opportunity Grant Program

1. One paragraph project summary.

In a two-part workshop-style class of 10 students, staff will lead patrons in a hands-on workshop on how to assemble a desktop PC from component parts and install the Linux Ubuntu 16.04 operating system.At the end of the workshop, students will understand the functions of the parts of a PC and gain skills and confidence in how PCs work. After the workshop is complete, the PCs will be disassembled and stored for the next workshop session. The workshop is intended to be a continuing program that can last as long as the PC kits are properly maintained and functional.

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

The Berkeley Public Library (BPL)'s 2015-2016 Strategic Plan states that, for the fiscal year of 2015-2016, BPL's plan is to:

- Bolster LITERACY in all its forms to bridge the achievement gap
- Foster a culture of flexibility by optimizing OPERATIONAL EFFICIENCIES
- Raise awareness of Library through MARKETING
- Leverage resources through PARTNERSHIPS for greatest impact:
- Utilize TECHNOLOGY to strengthen digital presence and bridge digital divide

Therefore, the PC-building workshop will support BPL's strategic directions in the following ways:
1. It will build **electronic literacy** by teaching students what function each component of a PC performs, how these components relate to a PC's operating system, and foster empowerment through hands-on learning.

2. BPL offers numerous opportunities for the public to enrich, enlighten and entertain themselves with its many cultural and literary offerings, which are marketed through social and print media. With Berkeley's highly educated community of self-directed learners, the PC-building workshop would be effective marketing for the library, since patrons would be intrigued and tantalized by the program and take it as an opportunity to increase their skills and knowledge.

3. BPL's greatest asset is its proximity to the UC Berkeley campus. By partnering with academic bodies such as the UC Berkeley Department of Electrical Engineering and Computer Science, which has a dedicated outreach and education program, the Lawrence Hall of Science, and other community science resources, this project will pool together local contacts to market itself and library services to a wider community and pull in non-traditional library users.

4. The PC Building Workshop directly addresses BPL's goal to bridge the digital divide, and will market itself specifically to non-"tech-savvy" audiences. Due to the streamlining of technology, many young people are unaware of what goes into the functional hardware of PCs, while many older people continue to struggle with basic computer skills. By giving library users an opportunity to "get their hands dirty", so to speak, the digital divide can be bridged as students gain familiarity and confidence in their skills at troubleshooting hardware and software problems.

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

Description
In this project the Berkeley Public Library will use grant funds to purchase 10 Dell PCs in unassembled kit form, including monitors. The PCs will be used in a staff-led workshop in which patrons would be taught how to assemble a PC from basic parts and install the Linux Ubuntu 16.04 operating system.

The workshop would consist of two three-hour sessions, each session being held once a month. In the first session, students would learn how to handle and install hardware components of a PC. This would include an overview of each part – motherboard, power supply, graphics card, CPU, CPU fan, hard drive, and so on – and the function it performs, as well as basic safety, care, and handling of hardware components.

Having assembled the PC, in the second session, students will install the Linux Ubuntu 16.04 operating system and learn the basics of navigating Ubuntu, including basic GUI functions, the file system, downloading and installing drivers for hardware, and some basic command terminal functions.

At the end of each session, the PCs will be disassembled and put back into kits and stored for the next workshop. This is designed to be a recurring program led by staff who are familiar with PC assembly and operation, and the PCs are to be used indefinitely as library equipment.

Workshop 1 Lesson Plan:

Introduction

Safety and handling procedures

- Motherboard
- CPU and CPU Fan
- RAM
- Power Supply
- Hard Drive
- Graphics Card
- Optical Drives
- Case Fans

Part 2: Guided hands-on assembly

Workshop 2 Lesson Plan:

Introduction

Part 1:
Presentation on Linux Ubuntu Operating System
What is Open-Source?
Why use Ubuntu?
How does an OS control a PC?
What are software drivers?

Part 2:
Installation of Linux Ubuntu
GUI introduction
Installing drivers
Command-line overview
Downloading and installing software via the command line

Demographics

The population of Berkeley numbers 118,853 residents as of the 2013 census, of whom 38,204 are students of UC Berkeley. Over 68.2% of residents have completed a Bachelor's degree or higher, while 35.1% of residents have completed a graduate or professional degree. Berkeley's patrons are highly motivated self-learners, pioneering, and highly educated.

Population: 118,853
Median resident age: 31.7
Median income: $61,960
Racial statistics:

White Only	55.2%
Asian Only	20.5%
Hispanic	9.9%
Black	8.6%
Two or more	4.8%
Hawaiian/Pacific Islander	0.4%

For population 25 years and over in Berkeley:

- High school or higher: 94.2%
- Bachelor's degree or higher: 68.2%
- Graduate or professional degree: 35.1%

4. Goals and objectives of the project.

Goals & Objectives

This project has four goals, the objectives of which are described alongside. They are:

1. *Inspire innovation.* This project hopes to inculcate a "do it yourself" ethic in workshop participants by giving them the fundamental skills and familiarity with software and hardware that will allow them to push the envelope and open up avenues of inquiry that can lead to innovation and improvements.

2. *Promote life-long learning.* This project aims to facilitate life-long learning by developing workshop participants' understanding of computer systems. With an excellent baseline of experience derived from hands-on assembly and critical evaluation of the functioning of modern PC technology, participants will be able to apply such experience to further learning and more advanced hands on electronics projects.

3. *Promote the library as a science resource.* Currently, BPL hopes to promote itself as a science resource in the community by offering hands-on technical programs with a science/engineering focus that diverge from the library's traditional repertoire of literary and artistic events. As such, this program will dovetail neatly with this pivot.

4. *Bridge the digital divide.* By showing that with the right skills, anyone could build a decent, working PC for less than the price of a manufactured store-bought machine. This workshop will also help develop confidence in computer troubleshooting and repair.

5. Project timeline (activities).

January 2017 – Draw up purchase orders, purchase equipment; receiving equipment, inventory of items.
February 2017 – Creation of lesson plans; Marketing and publicity.
March 2017 – Marketing and publicity for program; sign up workshop participants.
April 2017 – First workshop begins first week of April, continues in third week of April.
May 2017 – Gathering and synthesizing participant feedback.

6.   Evaluation of the project.

The project will be evaluated using a participant feedback survey issued to participants at the end of the second class. The survey will ask participants to rate their experience on a scale of 1 to 10, and solicit for written responses on what the patrons felt like they learned. The survey data will be collected and tabulated in a spreadsheet for reporting purposes.

7.   Project budget.

$10,000 – 10 All-in-one DIY PC kits
$ 2,000 – Equipment and assembly tools
$ 500 – Marketing, promotion and outreach
$ 1,500 – Replacements, backup, and spare parts for long-term maintenance

8. Sustainability analysis

The sustainability of this project is built-in to the design of the workshop itself, which is set up to be a recurring program. As long as the machines can be properly maintained, disassembled, and stored, the workshop can continue indefinitely if given a staff leader for the program that has the requisite technical skills *vis-à-vis* PC hardware and software. If there is sufficient interest, additional staff could be trained as a preliminary test audience during the set up of the workshop in the basic hardware skills needed to lead the sessions. This would ensure that the program could be continued in the event of staffing changes.

Therefore, the chief concern is to maintain public interest levels and attendance – this can be done via BPL's current multi-pronged public relations and media outreach contacts. A second item for continued forward sustainability is to seek avenues for possible expansion and advancement, if the program is successful in the community. One possible next step in subsequent workshops may be to seek additional grant funding to purchase a set of server racks and lead a more advanced workshop on how to set up a dedicated home server, with details on setting up firewalls, SQL databases, HTTP and FTP servers, and networking security.

Alternatively, a follow-up set of workshops could be designed around gaming PCs, with details concerning graphics processors, CPU choices, and custom cooling systems for optimizing performance.