

**CALIFORNIA STATE LIBRARY
LIBRARY SERVICES AND TECHNOLOGY ACT (LSTA)**

**Final Program Narrative Report
(LSTA Form 9)**

Grant Information

Library Jurisdiction	Los Angeles Public Library
Project Title	Full STEAM Ahead
Grant Award #	40-8254
Grant Period	July 1, 2013 - June 30, 2014
Amount of Grant Award	\$77,000
Amount of Grant Expended	\$77,000
Local Match	
In-Kind	\$55,658
Total Amount of Project (amount expended + match + in-kind)	\$132,658
Number of Persons Served (should not include total population of service area or potential population to be reached)	1,400

Project Director

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This report is due on the date listed in the LSTA Grant Guide for this project. Follow this link to view the Grant Guide. <http://www.library.ca.gov/grants/lsta/manage.html>

Email this report in "word format" to lsta@library.ca.gov then mail ORIGINAL and 2 copies to:

California State Library
P.O. Box 942837
Sacramento, CA 94237-0001
Attention: Fiscal Office - LSTA

SIGNATURE: _____ **DATE:** _____
(Please sign in blue ink)

Project Final Report

A final narrative report is required on the use of federal Library Services and Technology Act (LSTA) funds following the completion of a project during each project year. The information you report will be used to complete the California State Library report of how funds were expended. Excerpts from this report may be submitted to the Federal government in their evaluation, or may be published by the State Library or shared with other institutions. Please answer all of the questions thoroughly. Please attach any reproduction copies of photographs of project activities or media produced for the project.

Project Purpose

Include your program purpose statement here

The Full STEAM Ahead project offers interactive, fun, learning-based science, technology, engineering, art and math (STEAM) programming to children ages 8 to 13 in 12 branches of the Los Angeles Public Library that are in low-income neighborhoods plus Central Library, so that these children will develop interest and skills in and knowledge of STEAM-related topics.

This project provides staff development to children's and young adult librarians in order to build our library's capacity to continue to offer meaningful STEAM programming.

Finally, the project provides the Los Angeles Public Library with equipment and supplies that will support this year's programming and will allow us to offer STEAM programming in the years to come.

Project Activities and Methods

How did you accomplish the project? What were the steps involved? How did you engage the target audience?

We worked with individuals, organizations and institutions to offer a variety of STEAM programming throughout the year in all 13 participating libraries. While some of the programs, such as the Collaborative Lego Mural and the 3D Printing Workshop, were "one-offs" taking place over the course of an hour or two, most workshops were offered as a series of three to five programs, giving participants a solid dose of hands-on STEAM knowledge and skills.

In order to spread STEAM programming beyond the 13 participating locations and into the coming years, children's and YA librarians from all branches were given the opportunity to attend a variety of hands-on STEAM workshops, aimed at giving them the ability and confidence to offer STEAM programming to the youth in their communities.

We also purchased equipment and supplies that supported the programming not only at the 12 participating branches and Central Library, but at all the other branches as well in order to continue to offer such activities after the grant year is over.

Project Outputs

What was created for the project and how much? (For instance three promotional brochures were created and 75 copies distributed; or three training classes were designed; two sessions of each were held, and 80 people were trained)

We created a logo and website - www.lapl.org/steam

We offered 8 hands-on staff development workshops; total attendance was 290, and every one of our approximately 150 Children's and YA Librarians attended at least one workshop. Six of these workshops were offered by partners (such as 9 Dots, Iridescent Learning, and Mobile Film Classroom) and two were peer-taught. Topics included light-up electric greeting cards, Lego motorized machines, Squishy Circuits, littleBits circuitry kits, space science, engineering and more.

At least 110 hands-on STEAM programs were offered to children and teens in 13 libraries, with over 1,400 kids and teens participating (total attendance, not unique participants). The topics ranged from robotics to 3D printing to stop-motion animation to film-making to engineering to circuitry to the science of art - and so much more!

Project Outcomes (if applicable)

Please state the outcomes and the results of your evaluation.

Our two main tools for evaluating outcomes are a survey taken by all participating children at each workshop and an outcomes form that is completed by the librarian observing each workshop. We also surveyed librarians who attended staff development workshops.

Our desired outcomes were that 85% of youth who attended a program would develop an interest in STEAM learning activities; 80% of youth who attended a program would develop capacities to productively engage in STEAM learning activities, and that 85% of librarians who attended a STEAM staff development workshop would feel well-prepared to offer a STEAM library program to children and/or teens.

Happily, we have met our goals! We received a total of 957 completed surveys from kids. When asked "Did you like this program?" and given a choice of choosing from 1 (Not at all!) to 5 (A lot!), 82% chose 5 and an additional 12% chose 4, for a total of 94% choosing 4 or 5.

When asked "Did this program make you want to know more about science and technology stuff?" and given a choice of choosing from 1 to 5, 63% chose 5 and 22% chose 4, for a total of 85% choosing 4 or 5.

Most tellingly, kids and teens responded to "Please tell us something you learned or liked" with a variety of answers that demonstrate interest in STEAM activities and/or skills and knowledge gained. Just a few examples:

I learned about the three main parts of an insect.

I liked making a plushie with a light. I learned how to modify the simple circuit for this project.

I liked making a bracelet with a circuit in it. Although it was challenging at first, I got it in the end

I learned that art sometimes is science.

I learned about how to work a digital camera and how to build a scene. I liked that we got to use cameras and got to make scenes and take pictures.

I liked filming today and now we are able to film and edit.

I liked fiddling with my robot to attempt to make it work- I needed to do so a lot.

Something I learned was codepen. I had no idea of how people made apps. That was something interesting.

I like that with the skills taught we have opportunities to do many different things and many job openings. Creating visual and physical art is really exciting and interesting.

I learned that graphite can conduct electricity through your skin.

I learned how to design many things. I also learned how to use a 3D printer

I learned how to make a strong bridge.

In addition to the children's surveys, we asked librarians to fill out an "Outcomes and Learning Objectives" form after each program, stating the intended learning objectives, describing how they would be met, and asking if the program was successful in meeting this. Librarians stated overwhelmingly that the learning objectives were met - children were engaged and asked questions, they completed hands-on projects, they checked out related library materials, and kept coming back to programs.

Librarians enjoyed the workshops they attended as well. We received 100 completed surveys. Participants loved the interactive, hands-on nature of the workshops: 98% agreed (7%) or strongly agreed (91%) with the statement "class participation and interaction were encouraged." The workshops were considered useful: 94% agreed (38%) or strongly agreed (56%) with the statement "I will be able to apply the knowledge learned." All in all, our librarians rated the workshops highly, with 98% rating the workshops as good (18%) or excellent (80%).

We created "program kits" based on several of these workshops, using materials purchased with Full STEAM Ahead grant money. Examples include the "Squishy Circuits Kit," the "E-Card Kit" and the "LittleBits Kit." These have been requested numerous times by both children's and YA librarians.

Additional Project Outcomes

Please state any additional intended or unintended outcomes and what data sources you used.

An additional outcome was to attract more boys to our programs, since the number of boys at programs tends to drop off quite a bit once they hit elementary school age. Although we did not tally the actual number of boys and girls at programs, we did ask for gender on the surveys. Success! 52% of survey respondents were boys and 48% were girls.

Our targeted ages were children and teens ages 8 to 13, sometimes known as "tweens." We didn't turn away anyone and so we had an actual range from age 4 to 17, according to the survey responses. However, 68% of survey respondents were between the ages of 8 and 13. The most common age was 10, with 8 being a close second. It would have been great to attract more 12 and 13 year olds (only 16% were 12 or 13); this is something we'll work on.

It was wonderful to see how enthusiastic children were, not just about the program topics themselves, but about the experience. The series format, the hands-on structure and the small number of attendees at many programs meant that children got to know instructors, librarians and most of all their fellow participants well. As a result, they seemed to feel valued and welcomed. Some comments from the surveys:

Being with kids who LIKE me for who I am.

Thank you for letting me come inside and learn.

I liked my new friends here and it's cool learning stop motion animation.

I liked working with other people, making project and sharing projects.

The project outcome that may end up having the most impact is an increased enthusiasm about and willingness to offer STEAM programming on the part of Children's and YA librarians. All staff development workshops "sold out" within days of being offered, and librarians have been clamoring for more. Many libraries that were not part of the grant began offering STEAM programming, using our new program kits or using the online resources we provided. One formerly science-averse children's librarian proudly offered a Squishy Circuits program to the kids in her branch, and reported overwhelming success. Another librarian has been getting hordes of kids to his previously sleepy inner-city branch by offering hands-on engineering challenges such as "build a skyscraper that can stand up to both earthquakes and wind." It's a joy to witness, and it means that our second year of STEAM programming, when we expand to more branches, is sure to be a success.

Anecdotal Information

Tell us a story. Give two or more examples of how the project has helped an individual or group in your community.

Besides the wonderful comments that children made about the programs on the surveys they filled out, some of the best evidence of the success of these programs comes from the objects the kids created during the workshops. Please see this webpage -<http://www.lapl.org/steam/welcome> - for photos of children beaming with pride while working on their projects. On this webpage - <http://www.lapl.org/steam/kid-created> - are Public Service Announcements and stop-motion animation films created by kids.

On their Outcomes and Learning Objectives forms, librarians reported on the success of the programs: (on a Science of Art workshop conducted by the Los Angeles County Museum of Art) - "This was a great class! Seamless connection between science and art... The families who attend our weekly art classes do such beautiful work."

(on an engineering challenge Make a Suspension Bridge conducted by Iridescent Learning) - "Oh, my goodness, questions and collaboration and play. The test of suspension was how many coins a "bridge" could hold in a paper cup before collapsing. The kids counted up the numbers in unison. The room was loud. The activity was wild. A very special blend of learning and play... Felipe "scientists" are to be commended for their creativity and commitment."

(on a 4-session digital storytelling series called Photo Stories conducted by Venice Arts) - "Students ended the session with a good sense of camaraderie and support for each other's work. Many of the participants wished the workshop was continuing, and they are all looking forward to seeing the finished product displayed. Several of the parents mentioned throughout the workshop that they were very appreciative of the opportunity for their children to learn photography."

One thing we had hoped for from these workshops was a greater awareness of STEAM careers. A YA librarian whose library offered an 8-session coding workshop series told me that a few weeks before the workshop, she had a conversation with a couple of teen girls about future careers. The girls said they wanted to be probation officers or social workers (they saw a lot of both in their community). After attending a few sessions of the coding workshop, they chatted about the possibility of working for Google or creating a best-selling app using coding skills. The librarian was thrilled! (though she did wonder why they didn't mention "librarian" as a possible career - and suggested it to them)

Exemplary Project

If you feel your project was exemplary and others could learn from it and replicate it, please tell us why.

This project is an exemplary one for the following reasons:

1. We offered amazing, free, hands-on STEAM programming to youth in communities where such an opportunity just doesn't exist.
2. We sparked a love and appreciation of STEAM in children and a desire and ability to offer STEAM programming in librarians.
3. We created new relationships with a wide variety of STEAM educators, organizations and individuals - these have already created opportunities for new grants, programs and partnerships.
4. With all we have learned and with the equipment and supplies we have purchased, we will be able to expand Full STEAM Ahead to more branches and more communities in 2014/2015.

FEEDBACK FOR THE CALIFORNIA STATE LIBRARY ON THE GRANT PROCESS

We want to learn and improve our grant processes. Please let us know what worked and what we could do differently to make it a better experience. Thank you!

The grant process was straightforward and painless. Special thanks to grant mentor Laura Mitchell for her excellent, prompt and valuable advice at all stages of the project!

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