



Bechtel Foundation

Proposal for Funding of the Summer Science Pilot Project (shortened from original version)

EXECUTIVE SUMMARY

The Partnership for Children and Youth (PCY) is requesting support to build a set of summer learning programs focused on high quality, project-based science in low-income communities and supported by technical assistance in quality summer programming and in science, technology, engineering, and mathematics (STEM) teaching. The project combines the resources and experiences of PCY's Summer Learning Initiative and Techbridge's Afterschool Science Learning Community. It also links to the statewide STEM initiatives of the California Afterschool Network (CASN) and the California STEM Learning Network (CSLNet).

The Summer Learning Initiative is a statewide collaborative, managed by PCY and focused on expanding and improving summer programming for low-income youth. Created in 2009 with Packard Foundation support, the initiative has two main strategies – 1) direct support for communities and technical assistance through a growing number of pilot communities, and 2) public awareness and policy through strategic partnerships with a variety of organizations interested in advocating for increased summer opportunities for youth.

Need for Summer Science Programs

Research has found that young people who do not have opportunities to learn in the summer experience summer learning loss. A meta-analysis of 13 studies that examined the effects of summer vacation on standardized achievement test scores found that "on average, children's tests scores were at least one month lower when they returned to school in fall than scores were when students left in spring." The report further showed that students from low-income families experience larger drops in test scores than middle-class students.¹ Learning loss builds over time, widening the achievement gap between students of higher and lower socioeconomic status. A 2007 study found that about two-thirds of the achievement gap between 9th grade students of high- and low-socioeconomic status was linked to differences in the students' learning over the summer months during their elementary school years. The students from low socioeconomic status experienced more learning loss in the early years and later demonstrated less favorable indicators of academic achievement, such as placement in college preparatory high school courses, completing high school and attending a four-year college, than their higher socioeconomic peers.²

While the impact of summer learning loss is clear, the opportunities for children, particularly low-income children, to be engaged and learning in the summer are limited. Over the past two years, summer school has been eliminated or drastically reduced in most California school districts. Remaining summer school slots are targeted to children needing intensive remediation or high school youth trying to recover credits for graduation. Beyond summer school, summer enrichment programs are also limited. A 2009 scan of summer programs in five cities in California found that only 25 percent of children could be. In fact, a study of five California cities revealed that nearly 75 percent of children and youth are not served by the most common

¹ Harris Cooper and others, "The Effects of Summer Vacation on Achievement Test Scores: A Narrative and Meta-analytic Review." *Review of Educational Research* 66 (3), (1996)

² Karl L. Alexander, Doris R. Entwisle, and Linda Steffel Olson, "Lasting Consequences of the Summer Learning Gap." *American Sociological Review* 72 (April 2007): 167-180.

providers of summer programming. A survey of Oakland youth found that 43 percent were taking care of themselves for all or most of the summer. Only 41 percent reported participating in any summer program.³

Science is a particularly rich and promising area of focus for summer programs. With decreasing budgets and an emphasis on reading and math test scores, most schools have eliminated or severely reduced science education. Schools spend too little time teaching science and many teachers are ill prepared to teach the subject. A study conducted by the Lawrence Hall of Science showed that 80% of teachers in Bay Area schools spend one hour or less teaching science and 16% do not teach any science in their elementary school classes.⁴ Summer learning programs offer more time and flexibility for science. The setting is particularly well suited for hands-on, inquiry-based learning as teachers, staff and youth have the freedom to extend and broaden activities in response to participants' questions and interests. Through these authentic projects, young people not only experience science in meaningful ways, they are also exposed to reading, writing and math as essential skills relevant to topics and ideas they care about.

Project Description

This Summer Science project has two phases – planning and implementation. The planning phase would yield strategies and action steps for developing pilot Summer Science programs and technical assistance in Oakland and one other Bay Area community. The implementation phase would fund Summer Science pilot programs serving at least 300 elementary school children for at least 120 hours in each of these two communities.

The proposed 18-month pilot would inform a model for replication of Summer Science programs that includes training in hands-on science, technical assistance to support overall program quality, and a process for on-going improvement. In the long run, we envision a high quality set of STEM-focused summer programs around the state that are linked to statewide systems of technical assistance and advocacy provided by the STEM in OST Initiative, CSLNet, and the Summer Learning Initiative. The Summer Learning Initiative is a statewide collaborative, managed by PCY and focused on expanding and improving summer programming for low-income youth.

Staff will be trained on a variety of topics, including teaching inquiry-based science, promoting science career exploration, engaging families and community, and supporting equity in science programming. Furthermore, strategies will include how to scaffold science content material so that students build upon their knowledge and skills, as well as how to choose individual lessons that are relevant to one another.

The curricula selected for the Summer Science Project are tailored to help students build on and revise their knowledge and abilities over time and projects will build upon each other over time so that kids can learn the basics of a topic and extend their understanding with more in-depth projects in subsequent units. Scientific inquiry and engineering design are not only embedded into the activities, but are also integral to this framework.

Over the past three years, the number of pilots has grown from three (Gilroy, Oakland and Fresno) to five (plus San Francisco and Whittier) to eight (plus Santa Ana, Los Angeles and Sacramento). The communities each serve from 300 to 1000 k to 8th grade youth. Specific program providers in each community vary from school districts to county offices of education to non-profit organizations. Each community is matched with a local technical assistance provider who works with the communities to improve their program quality. Through the pilot work, the Summer Learning Initiative has developed and refined a technical assistance model for assessing and building the quality of summer programs. Training in using this model is being offered to programs and

³ "Investments in Summer Learning: A Scan of Public Funding for Summer in California," National Summer Learning Association, 2009

⁴ Dorph, R., Goldstein, D., Lee, S., Lepori, K., Schneider, S., Venkatesan, S. (2007). *The status of science education in the Bay Area: Research brief*. Lawrence Hall of Science, University of California, Berkeley; California.

technical assistance providers beyond the pilot communities. Funding for the communities comes from the Packard Foundation, supplemental portions of the state and federal after school funding streams, and small additional public and private grants at the local level.

On the public awareness and policy strategy, the Summer Learning Initiative has been building relationships with a variety of stakeholders, including the k-12 education community, the business community, and policymakers. PCY, as part of the Initiative's work, has co-sponsored two pieces of legislation to increase flexibility of state and federal funding for summer programming. It also staffed the state's Legislative Task Force on Summer and Intersession Enrichment which generated recommendations for increasing and improving summer programming for the California Department of Education, the Legislature and the Governor's Office. These recommendations define much of the Summer Learning Initiative work moving forward. Funding for the Initiative comes primarily from the Packard Foundation, which has a seven year commitment until 2016 to this summer work. PCY's summer work is also supported by Kaiser Permanente.

Outcomes and Evaluation

The outcomes of the project are to:

- Increase young people's interest in STEM learning and knowledge of specific STEM topics within the 2 target communities.
- Develop a replicable and sustainable system of technical assistance for summer STEM programs in other communities in California, in particular understanding the level of training and support needed to pair content-specific STEM training with technical assistance designed for overall quality improvement.
- Define how this system integrates with the developing STEM in OST and CSLNet infrastructure.
- Prepare Bay Area summer programs as showcases for high quality STEM education.

Through this work, the project will also strengthen advocacy for both summer and informal STEM education by increasing the number of stakeholders committed to these two linked movements. Progress towards these outcomes will be measured through surveys and documents with support and advice from an external evaluator.

Proposed Grant Request Amount and Grant Period

PCY is requesting \$200,000 over 18 months to support a total budget of \$419,607. We are proposing that each community receive \$100,000 per summer for programming and planning costs. The majority of the remaining total budget would pay for PCY technical assistance and coordination, Techbridge planning and training, and the participation of our district and city partners in the planning process.

Timeline

Month	Activities/Deliverables	Partners Involved
August – December, 2011	Project planning Meet with STEM in OST and CSLNet staff	PCY, Techbridge, OUSD after school and summer offices, 2 nd Bay Area community STEM in OST and CSLNet
December, 2011	Sites identified	PCY, Techbridge, OUSD after school and summer offices, 2 nd Bay Area community

	CHECK IN WITH FUNDERS	Funders
January – May, 2012	Summer program quality improvement technical assistance	PCY, Summer Planning Teams from OUSD, SF DCYF and sites
January – May, 2012	STEM training	Techbridge, line staff from sites
June – August, 2012	Programs in operation SITE VISIT/CHECK IN WITH FUNDERS, STEM in OST and CSLNet staff	Sites STEM in OST and CSLNet Funders
June – August, 2012	Quality assessment (CASP)	PCY
June – August, 2012	On-site coaching for science lessons	Techbridge
September – October, 2012	Debrief and aggregate lessons learned into best practices guide CHECK IN WITH FUNDERS	PCY, Techbridge, OUSD after school and summer offices, 2 nd Bay Area community Funders
November – December, 2012	Project planning for summer 2013 Meet with STEM in OST and CSLNet staff	PCY, Techbridge, OUSD after school and summer offices, 2 nd Bay Area community STEM in OST and CSLNet