Putting STEAM into Your District's Summer

A Planning Guide for School District Governance Teams

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The California School Boards Association envisions a state where public schools are widely recognized as the foundation of a free and democratic society, where local citizen governing boards are fully vested with the means to advance the best interests of students and the public, and where the futures of all children are driven by their aspirations, not bound by their circumstances.

Introduction

Given our complex and changing world, we need tomorrow's citizens to be equipped to meet our modern challenges.

Learning in science, technology, engineering, art, and math—the subjects called "STEAM"—builds the knowledge and skills needed to reason through tough problems and come up with creative, effective, and reasonable solutions. By its very nature, STEAM supports project-based learning and fosters students' ability to think critically, communicate, and collaborate.

Research makes clear that the availability of STEAM experiences outside of the traditional classroom can result in stronger student outcomes across these disciplines and skills. Experts urge school districts to consider summer learning programs as an important strategy for achieving those goals, particularly for students whose families can't afford to provide them.

This planning guide is for local school district governance teams interested in putting STEAM into summer in their communities. It uses a framework that has emerged in places where such efforts have been successful. Using this guide will help your district identify the needs, opportunities, and challenges to consider as you create and strengthen local summer programs that address your district's and community's STEAM learning goals.

Is it STEM or STEAM? In this guide we use them interchangeably.

Use of the term STEM to designate learning in science, technology, engineering, and math became widespread in education, business, and government circles about a decade ago. A search of the internet reveals a plethora of articles and organizations devoted to STEM education.

More recently, STEM is often expanded to STEAM. The impetus for this change came from two directions. One was concern that the arts must also be an integral part of the curriculum. The other was more nuanced, reflecting a strong belief that STEM and the arts are closely related.

As *The STEAM Journal*, published by Claremont Graduate University, explains, "Although there is a long history of the interaction of the sciences with the arts, STEAM is a new acronym that has … a multitude of definitions and approaches. Some of the main themes of STEAM are fostering innovation, the need for twenty-first century skills, and divergent and convergent thinking."

An article on Slate.com put it this way: "STEAM says we can be better engineers by learning how to think artistically, and we can re-engage artists with science by letting them see how STEM can work in the arts. …In STEAM, creativity is the central tenet. It … addresses, through real-world projects, why the STEM subjects should matter to everyone. And that's how we should all be learning."

Officialdom got into the discussion, and perhaps settled it, in November 2015, when the Congressional committee drafting the language for the Every Student Succeeds Act (ESSA) expanded STEM-focused funding to encompass and embrace the idea of STEAM.

Summer Programs Activate STEAM Learning for Students and Adults Alike

In the informal atmosphere of summer programs, children and youth get the chance to experiment with STEAM ideas in real-world situations, explore concepts through hands-on activities, and choose experiences that connect to their interests and their local community. Such opportunities help ignite curiosity, especially for those who might not think of themselves as "math and science kids."

Similarly, adults can develop confidence and capacity around STEAM, including mastery of content and new instructional approaches such as project-based learning. Teachers and staff can enhance their own skills and knowledge when they use summer programs to innovate, developing interesting and practical challenges that empower students to use STEAM methods, tools, and ways of thinking.

Throughout California, school districts are embracing summer as a time to provide engaging and challenging STEAM experiences for children and youth—and for educators. Often these programs offer summer learning opportunities to young people who would otherwise miss out.

Framework to Support Local Planning and Implementation

To successfully use a summer learning program to give students a head start or a leg up on STEAM topics, school districts need to plan thoughtfully and put several key components into place.

The program specifics depend on many local variables, but whether a program serves 40 elementary students in rural Tehama County or 400 middle graders in Oakland, district leaders can use the same framework to guide their decision-making process. That framework includes:
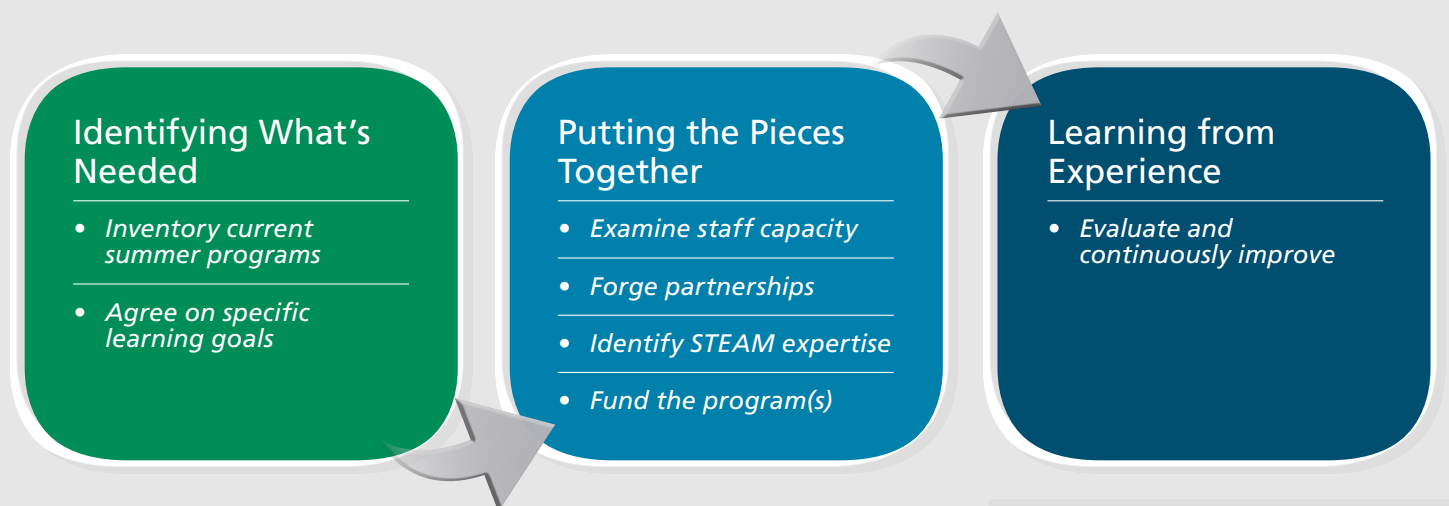
Identifying what's needed

- Take an inventory of current summer programs

- Agree on specific learning goals

Putting the pieces together using collaboration and creativity

- Examine staff capacity around summer instruction, particularly informal instruction

- Forge, support, and manage partnerships

- Identify appropriate and accessible sources of STEM/STEAM expertise

- Find and commit the resources needed to fund the program(s)

Learning from experience

- Evaluate and continuously improve

Identifying What's Needed

- *Inventory current summer programs*

- *Agree on specific learning goals*

Putting the Pieces Together

- *Examine staff capacity*

- *Forge partnerships*

- *Identify STEAM expertise*

- *Fund the program(s)*

Learning from Experience

- *Evaluate and continuously improve*

Identifying What's Needed

Take an inventory of current summer programs

Given the variation in size, location, community resources, and approach to expanded learning time among California's over 950 school districts, summer learning programs with a STEM/STEAM focus are wildly diverse.

Knowing the size, shape, and nature of the summer programs going on in your schools and in the larger community is a logical place to start. An environmental scan can be informal or systematic, depending on the needs in your district.

Guiding Questions:

» Within your district—how many sites provided summer programs in recent years? How many students (by grade level) were served?

» What types of summer programs are they and have they included STEAM learning—or could they?

» What is the make-up of the staff in terms of credentials, youth development expertise, and subject matter knowledge? What is the ratio of staff to students?

» Who decides when, where, and what related to summer programs? What does it take to make it happen? Who is responsible for their management?

» What is the cost per student and what are the funding sources? Do families pay a fee? Are there in-kind resources used such as through local public library or museum programs?

» What information is available about the goals, attendance, and success of these programs?

» What summer learning opportunities are available outside of the district through, for example, other school districts, community organizations, government agencies, or colleges?

> 66 Take a really good look at what your assets are as a school district. Every district has perhaps a summer meals program or a library program. Perhaps there are partnerships out there with the local colleges or other groups. You have to build on what is there. Think about the partners you can work with. There are lots of opportunities out there if we're willing to take a look and see what's possible for our kids. 99
>
> Lillian Maldonado French, Superintendent, Mountain View Elementary School District

Identifying What's Needed

Agree on specific learning goals

Summer STEAM programs can be a valuable strategy for helping students catch up to their peers, providing engaging enrichment opportunities, addressing social-emotional learning goals, and empowering students with the chance to explore their special interests.

Research has also shown that students who participate in STEAM programs in "informal" learning settings, including summer programs, increase their interest and confidence in these subject areas. Experts urge districts that want to see stronger student outcomes in science, technology, engineering, arts, and math to consider summer learning programs as an important strategy for achieving that goal.

But one program can't do it all and most districts have to decide which students and learning goals are the highest priority or the best fit at the moment. The LCAP development process provides an important opportunity to look at these questions in your district.

Guiding Questions:

» Which student group(s) have opportunity and achievement gaps that the district is committed to closing (e.g. English learners, students of color, economically disadvantaged students, etc.)? And why?

» What summer learning goals are the district's highest priority? (Academics such as science and math? Student engagement and motivation around STEAM learning? Career exploration? Preventing summer learning loss?)

» How, specifically, would the summer learning program be designed to support those goals? Can district officials show why they believe their hoped-for outcomes are realistic?

» What would be optimal for the daily length of the program and total number of days/weeks? What is the minimum time for making it work? How many students could be served?

EXAMPLES: Learning goals in some successful summer STEAM programs

👍 **In rural Yolo County**, the county office, Woodland High School, the local community college, the non-profit Center for Land-based Learning, and several workforce development initiatives joined forces to create a summer program for local high school students. The focus was career exploration and preparation. It gave students a hands-on experience that helped them see how energy, water management, and the local agricultural economy fit together. The program combined classroom and field work, for which the students earned college credits.

👍 **Fresno County Office of Education** supported the summer learning goals of its districts by providing a wealth of resources to staff, and curricula customized to each district's situation.

👍 **Oakland USD** blended remediation goals with STEAM enrichment activities and field trips to provide elementary students with exciting summer experiences and a broader understanding of the world around them.

👍 **Azusa USD**, in partnership with the local university, used STEM to provide enriched learning opportunities to GATE students in grades 3-9.

👍 **Sacramento City USD** identified that many students were not successfully transitioning into either middle school or high school. The district created its Summer of Service program in part to explicitly address those transition issues.

Putting the Pieces Together

Examine staff capacity around summer instruction

Clarity around the learning goals for a summer program will help guide the decision about who will staff it. Some school districts in California use staff from their after-school programs, whether they are employees of the district or of a community partner. Other districts primarily put their credentialed teachers in charge. Many strike a balance between the two.

The staffing approach has a big impact on the cost of the program and the experiences that students have.

Summer provides an opportunity to think outside of the usual approaches to staffing and also to staff development. It's a chance to not only create new kinds of learning experiences for students, but also for the adults teaching and running the programs.

Districts that participated in the Summer Matters campaign between 2009 and 2014 found that their summer programs provided learning opportunities for teachers and staff, not just students. Teachers developed and tested new lessons, many of them project based, that supported implementation of new state standards. After-school staff learned content and also were introduced to new youth development and instructional strategies. In both cases, districts saw building staff capacity as an objective of their programs and built in both time and resources to make that happen.

Guiding Questions:

» Based on the learning goals your district has for summer, what skills and knowledge will summer staff need? Would a mix of certificated and non-certificated staff make sense?

» Who will take responsibility for hiring and preparing staff for the summer program? What is the timeline for doing so?

» Are there professional development opportunities during the school year that support the summer learning goals? If so, who has the opportunity to attend?

» How can the district take advantage of statewide professional development services and opportunities that emphasize STEAM learning in informal settings?

» Can the summer program itself serve as a staff/teacher learning opportunity related to STEM/STEAM instruction or perhaps as a way to pilot specific curricula?

The California School-Age Consortium (CALSAC) operates a trainer network focused on strengthening out-of-school-time professional development. They have between 200 and 250 trainers all over California who they have endorsed and who manage a variety of projects, including STEM in summer.

In the area of STEM specifically, CALSAC provides a variety of training programs that are described more fully on their website at https://www.calsac.org/academicsandenrichment

Separately, CALSAC also operates a summer technical assistance network. This network takes a six-month intensive approach to helping programs gear up for summer, an effort that was originally supported by the grant-funded Summer Matters Initiative.

Click2Science is an interactive, professional development site for trainers, coaches, site directors, and frontline staff/volunteers working in out-of-school-time STEM programs. Information is available at www.click2sciencepd.org.

EXAMPLES: Districts use summer to build staff capacity and develop STEAM curriculum

👉 **Mountain View School District,** in the city of El Monte, worked closely with partner organization THINK Together to create a summer learning program that did double duty, providing a rich summer learning experience for both teachers and students.

Students experienced a wealth of camp-style activities plus instruction from certificated teachers. Teachers participating in a summer professional development program got an immediate, hands-on chance to work with students, apply what they had learned, and participate in peer coaching that strengthened their training experience.

Putting the Pieces Together

Forge, support, and manage partnerships

Summer learning programs that offer the most authentic, engaging STEAM experiences to students invariably involve partnerships with other organizations.

School districts work with their own staff plus various outside organizations to put key components together, including:

- curriculum and subject matter knowledge,

- well-prepared staff to work with students based on that knowledge,

- elements of an informal learning environment, such as themes and field trips,

- facilities and transportation, plus

- funding to put all the pieces together.

Throughout California, a multitude of community-based organizations partner with school districts to design, staff, and deliver summer learning programs, some of which access state and federal funds. In many cases, the partnerships begin with afterschool programs, adding summer to support district needs and priorities. Traditional youth-serving organizations like the YMCA and Boys and Girls Club often function this way, along with relative newcomers like THINK Together.

To coordinate these sometimes complicated partnerships, a staff person or organization needs to be assigned clear responsibility for bringing the components together and keeping everyone informed. In large and mid-size districts, a district office official generally plays this role. In smaller districts and rural communities, officials often look to organizations that administer multiple programs and already have connections to regional partners. This is often but not always the county office of education.

Guiding Questions:

» Is it more appropriate to place responsibility for your summer learning programs under the district's school day or expanded learning leadership? HINT: this decision should be consistent with the agreed-upon learning goals.

» In either case, how will this summer program be managed and by whom?

» Can and should the program development, implementation, and support be shared between the district and one or more outside partners?

» Does your district already have connections or partnerships to build on as it creates a summer program? For example, are there strong existing partnerships with your after-school provider(s), local businesses, local government agencies such as library and parks departments, or a nearby postsecondary institution?

» Alternatively, are there other districts, county offices, or community-based organizations nearby that are

EXAMPLES: Managing summer partnerships looks as different as the regions of California

👍 **THINK Together** is the largest provider of expanded learning programs in California. They work with school districts throughout Southern California and the San Francisco Bay Area and have created customized summer learning programs and STEM academies based on the goals of their client districts. Thanks to their size and centralized management approach, they are able to provide high-quality curricular services and staff training.

👍 **Through its Youth Development office, Sacramento City USD** sets the learning goals and then coordinates multiple partnerships to provide summer programs at more than 30 elementary, middle and high school sites.

👍 **In Whittier City School District**, a district administrator and her staff manage the personnel and partnerships that make the after-school and summer programs work.

👍 **Tehama County Office of Education** coordinated a summer program that served students from multiple small school districts and benefitted from the active support of the local business community.

👍 **Silicon Valley YMCA**, which has strong connections to the local tech community, developed and operated summer programs for several districts at school sites where they also provide after-school services.

👍 **San Francisco USD** entrusts school site leaders with deciding on the partners and theme for their summer learning programs.

connecting organizations and/or managing partner-ships to provide summer STEAM?

Putting the Pieces Together

Identify appropriate and accessible sources of STEM/STEAM expertise

Throughout California, many organizations outside of the K-12 system possess STEAM expertise that they are eager to share with local schools.

• In larger communities these often include museums dedicated to various STEAM topics, from computer technology to oceanography.

• In more rural areas they are more likely civic or industry groups that include local businesses, from agriculture to public utilities.

• Throughout the state, outreach programs at local colleges and universities are interested in supporting STEAM learning among K-12 students, from helping with curriculum development to providing on-campus programs for underserved children and youth.

A staggering wealth of STEAM curricula and activities designed specifically for out-of-school-time programs is also available online. Organizations such as the National Aeronautics and Space Administration (NASA) and the Discovery Channel have substantial resources available for free. The same is true for several universities as well as other private and nonprofit organizations.

The topics covered by these curriculum providers are sometimes given the general label of STEAM or STEM. In other cases they cover specific subjects like biology, ecology, robotics, design, programming, etc. This typically reflects the given organization's area of expertise.

For instance, the PG&E-supported Energenius program focuses on energy, whereas Autodesk's Design for the Future Us focuses on computer-aided design. As might be expected, 4-H STEM programs emphasize agriculture, but the organization offers other programs as well.

The grade levels covered by different initiatives also vary. Some organizations like iDTech provide resources for elementary through high school, whereas NASA's Summer of Innovation was designed for middle schoolers only.

Many organizations provide high-quality curricula free or at a low cost. However, some organizations charge fees that can be considerable. The latter often provide staff and materials and in some cases the site where programs will be held, which contribute to the cost.

Guiding Questions:

» What offerings are available from a given organization, including topics and grade levels? Do the offerings include lesson plans, materials, and professional development support of some type?

» What information will the district use to make sure the curriculum is high quality and appropriate? Who prepared the curriculum? What resources were used to create it? Were scientific advisors involved? Is the content up to date?

» If there are problems or questions about the content or design of the curriculum, what support will the provider offer?

» Are there nearby programs that are already using the curriculum for a summer program? If so, what are their opinions?

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66 [STEM is] about showing students how technical concepts relate to real-world situations and providing them with hands-on projects and problems that help them apply concepts in a new context. It's about nurturing students' curiosity and helping them develop creativity, problem solving and critical thinking skills. STEM isn't simply the subjects in the acronym. It's an engaging and exciting way of teaching and learning… 99

Vince Bertram, President and CEO, Project Lead the Way

EXAMPLES: Where to go for STEAM/STEM content and expertise

👉 **STEM Learning Ecosystems**: Five California regional collaborations have been funded through a national initiative. According to a 2014 paper, "a STEM learning ecosystem encompasses schools, community settings such as after-school and summer programs, science centers and museums, and informal experiences at home and in a variety of environments that together constitute a rich array of learning opportunities for young people." These ecosystems are located in the Bay Area, Los Angeles, Orange County, San Diego, and Ventura County. More information is available at http://bit.ly/2ymQ2iO.

👉 **NASA Summer of Innovation:** NASA's education specialists have developed themed units and camps designed to make summer programming both exciting and meaningful. NASA describes the units and camps as providing "specific, hands-on, problem-based activities that are appropriate for the summer learning setting … and designed to actively engage students." More information available at https://go.nasa.gov/2f6Blru.

👉 **STEM Competitions**: A wide variety of STEM competitions are held annually in California and nationally, covering the gamut of topic areas and grade levels. Summer may be the ideal time to provide the extra support students and staff need to participate in these motivating and high-visibility events. For example, Los Angeles USD used summer to help high school students learn some of the basic skills they need to compete in both the state and national "CyberCup" competition, a program focused on cyber security. The Orange County STEM Initiative provides a list of competitions on its website at http://bit.ly/2yaiiE6.

👉 **Power of Discovery Resources:** This vetted and well-organized web page features STEM curriculum offerings suitable for after-school and summer programs. It was compiled in 2014 as part of California's Power of Discovery initiative. The directory page, which has multiple links, is available at http://bit.ly/2x9KuKu.

👉 **STEMworks:** This national source for high-quality STEM education programs includes many suited for use in summer. Each program in STEMworks has been independently vetted for quality. The site is sponsored by Change the Equation and includes the ability to search for programs by state. Go to http://bit.ly/2w45X3T.

» Is the format of the curriculum specifically designed for summer learning, after-school, or both?

Putting the Pieces Together

Find and commit the resources needed to fund the program(s)

Two issues hold equal weight when a district considers what summer programs it can provide. One is determining the specific costs—including staff and other expenses—of implementing the program your district envisions. The other is to explore what funding and in-kind resources are available, both within the district and from partners, in order to realize that vision.

In many communities these two aspects of funding are symbiotic. For example, a summer nutrition program is integral to a quality program and also provides needed resources.

The specific costs

The design of a summer learning program is central to determining its cost. That said, summer learning programs that include camp-like activities often cost less per pupil than traditional summer school. Having a mix of certificated and classified staff members is a primary reason for this. In addition, working with community partners can help reduce direct costs to a school district.

Making Summer Learning Affordable

In a survey of 10 high-quality summer learning programs in California in 2016, the average cost per student was $37.15 per 8-hour day or $185.77 for a five-day week. By contrast, parents in California reported paying an average of $307 per week for private summer learning programs.

Thus, even if they need to charge a fee to cover some costs or for some families, school districts have the capacity to put quality summer programs within reach for more of their students.

It's not surprising that program staff wages almost always represent the largest portion of spending. However, virtually every aspect of program design affects those staffing costs, from the number of weeks a program runs and the length of the program day, to the balance of academic instruction and youth development activities, to the youth-staff ratio. These can all be adjusted to match your goals and your available resources while still providing a high-quality program.

Thus, even if they need to charge a fee to cover some costs or for some families, school districts have the capacity to put quality summer programs within reach for more of their students than would otherwise have them.

Sources of funds and in-kind support

Summer learning programs in California that serve low-income students generally get most of their funding from public sources. These public funds come largely from After School Education and Safety Supplemental (ASES) Grants, 21st Century Community Learning Centers, and more recently through allocations included in Local Control and Accountability Plans.

In regard to the latter, investing in summer learning programs is an impactful and appropriate use of the supplemental and concentration grant funding school districts in California receive for low-income students and English learners. Throughout the state, many districts are using their LCFF funds to support summer programs that combine much-needed academic content with fun, engaging activities.

With the flexibility now afforded them, districts can use these funds to provide free access for children in the identified LCFF groups. They can also subsidize fee-based programs if that helps make programs possible, or team up with other local districts if they are too small to mount a viable program alone.

The most exciting summer programs, however, typically look beyond the resources and expertise that local school districts can provide on their own. Private foundations and local community partners, including city governments, libraries, and museums, may have initiatives that are intended to provide services and STEAM opportunities to local children in the summer. The same is true of some colleges and universities. Most of these organizations welcome the chance to work with school districts to

increase the effectiveness of their programs and make sure they are reaching all the children and youth in the community.

Often, when districts and outside organizations pool resources, it takes the form of in-kind contributions such as facilities, transportation, and knowledgeable staff.

Guiding Questions:

» What district revenues could be used to support a summer program that aligns with district goals or supports a student group (such as English learners)?

» In what ways could an investment in summer learning do double duty by strengthening the school year program as well (e.g. professional development, STEM curriculum development, or developing new community partnerships)?

» Are there contract or political considerations related to employee groups that are constraining ideas that would "break the mold" related to summer? If so, have district officials discussed creative solutions with those groups?

» If the initial program budget is not affordable, what changes has the district considered in order to at least be able to put some kind of program together? Could the number of students, sites, or days be reduced? Are there community partners that might help?

» What economies of scale are possible that might help reduce costs (e.g. consolidating sites, sharing transportation costs, or working with another district to provide professional development)?

> ❝ Nobody has enough funding to do it all alone, but when we all pool our resources we can pay for it and everyone gets more bang for their buck. We put solar energy and agriculture together because we are an agricultural area. The right program might be right there sitting in front of you. ❞
>
> Deborah Bruns, Educational Services Division, Yolo County Office of Education

EXAMPLES: Funding of summer learning programs reflect community resources and needs

👍 **Azusa USD** officials were confronting the typical student attitude about summer school: "I don't want to be here." They asked themselves, "Can we make summer fun?"

The district used its LCAP money plus some Title I funds to support a 16-day program for elementary and middle school students. The STEM-focused program was taught by credentialed teachers but provided a summer camp style experience using a hands-on science curriculum. The funding represented allocations that would otherwise have been used for intervention programs during the school year.

"Some people might say that we're 'cheating them out of interventions,' but they gain so much if they're enthused and invested in what they're learning," said Arturo Ortega, Assistant Superintendent of Education Services. "Our program is about access and equity. We want to give all kids this experience."

👍 **Los Angeles USD and LA's BEST** is a strong and long-lasting partnership between the district and a community-based organization that pools public resources available through ASES and 21st Century Grants with a variety of community resources to provide free summer learning experiences to thousands of low-income students.

👍 **Orange USD** offered K-6 students a summer program that reinforced the district's emphasis on STEM. Summer was financed through parent fees, with some subsidies available for families that need them. The program benefitted from partnerships with local museums, including Explore Ocean.

👍 Many summer programs receive private grant funding or corporate support in exchange for addressing specific STEAM topics. The **Fresno, Tehama, and Yolo county offices of education** have all helped leverage these kinds of resources for local districts.

Learning from Experience

Evaluate and continuously improve

Behind the camp songs, games, and field trips students experience in the most effective summer learning programs, there is a serious and systematic commitment to student learning goals and to program improvement. Just as is true with evaluation during the regular school year, summer programs can draw on multiple sources for tools to measure their effectiveness and for support to improve their performance.

For example, the Summer Matters Initiative pioneered multiple assessment methods in order to gauge how much the investment in summer was delivering in terms of learning. Scores from pre- and post-testing for students not only showed that summer learning loss had been avoided, but that many of the young people who came to these summer programs gained in their academic abilities. Their engagement with school during the year often increased as well.

The evaluation data the programs collected—which included teacher, staff, and parent surveys—guided planning for the following year and informed an ongoing commitment to do more with the program and to increase the quality of student experiences. Copies of the tools used in the Summer Matters project are freely available.

Demand for Programs and Student Attendance are Valid Measures of Success

In communities throughout California, it's clear that summer learning programs are filling a need.

For example, officials in Sacramento City USD report that their summer learning programs have grown from serving 400 high school students in 2010, their first year, to about 4,000 K-12 students in 2016. Further, the program is over-subscribed, forcing the district to turn many families away each year. If funding were available, many more students would attend.

The story is the same in other districts and regions all over the state.

Specific to STEM learning, research has shown that summer learning programs can help increase students' motivation and engagement with science topics and build their confidence that STEM occupations could be a viable choice for them in the future. Critical to these results, however, was the quality of the program. Dimensions of Success (DoS) has created a program quality assessment rubric that is available to districts.

Throughout California, school districts have made long-term commitments to the new strategies and partnerships that have made summer learning programs possible. Positive feedback from students, parents, and staff members has reinforced these decisions. They find that building summer programs into their larger district efforts, aligning the programs with their student outcome goals, and learning from experience help make summer STEAM a worthwhile investment and an integral part of their program.

Guiding Questions:

» What plans have been put in place for evaluating proposed summer programs in terms of both quality of implementation and progress toward learning goals?

» What are reasonable outcome goals given the scope and configuration of the program?

» What resources and staff capacity are necessary to implement any pre- and post-session assessment in order to measure the program's impact? When will these be administered?

» To what extent can the district use previously created evaluation tools versus expending funds to create something new for this program?

» An important test of the effectiveness of summer learning programs is demand. How will the district keep count of those families who enroll their children and those that are turned away? What systems are in place to track students' attendance as well?

» What provisions are there for gaining insights—for example through surveys—that would help to illuminate any unexpected challenges, unforeseen successes, or unintended consequences related to how the program was staffed and run?

» How will evaluation findings be used as part of planning for the next program year?

EXAMPLES: Organizations that provide evaluation tools and supports for improvement

👉 **Summer Matters** is a statewide network that includes school districts, civic leaders, and community members working collaboratively to create and expand access to high-quality summer learning opportunities for all California students. Developed out of the Summer Matters Initiative, which began as a grant-funded project in 2009, the network's efforts include researching what works, establishing best practices related to high-quality summer programs, measuring program quality using data, and supporting continuous improvement through work with technical assistance providers. Summer Matters also developed a set of tools for evaluating summer programs. More information is available at http://bit.ly/2ybz45U.

👉 **The Dimensions of Success (DoS)** observation tool defines 12 indicators of STEM program quality in out-of-school time (e.g., afterschool, summer camps, etc.). It was developed and studied with funding from the National Science Foundation (NSF) by the Program in Education, Afterschool, and Resiliency (PEAR). The

DoS tool allows school districts to track the quality of STEM learning opportunities and to pinpoint strengths and weaknesses. More information is available at http://bit.ly/2wtnrux.

👉 **California Department of Education – Expanded Learning Division**. The state oversees a Technical Assistance System, operated out of local county offices, that supports program implementation and builds regional capacity for effective after-school and summer programs. The Expanded Learning Division has developed Quality Standards and a continuous improvement process that is required for programs that receive ASES funds and instructive for evaluating all summer and after-school programs. One of the office's current initiatives is Power of Discovery, an effort started by the California Afterschool Network (CAN) that sets up regional centers to provide technical assistance to STEM summer programs. More information about the Quality Standards is available at www.cde.ca.gov/ls/ba/as. The division also sponsors two informational websites that provide overviews, informational videos, and other resources. They are located at www.caexpandedlearning.com and www.expandingstudentsuccess.com.

School Boards Can Get the Conversation Going and Keep Programs Improving

Research and results from throughout California, and nationally, make it clear that summer programs can play a valuable, even vital role in your district's ability to meet its STEAM learning goals.

Through their support and actions, school board members can be instrumental in a district's ability to create high-quality summer programs that live up to that promise. They can further a thoughtful planning process by asking the right questions. They can help district leaders create rich, engaging STEAM programs by reaching out to the larger community and to other, similar districts to learn more about what works. And they can insist on a disciplined, data-centric approach to evaluation that increases the value of the district's investment over time.

As this guide has described, the process for getting from intention to implementation involves multiple steps, including:

- identifying what kinds of summer programs are currently in place and what learning goals are most critical;

- using collaboration and creativity to put together the staffing, partnerships, STEAM expertise, and resources needed for a high-quality program; and

- learning from experience by evaluating programs and committing to their continuous improvement

Quality programs don't happen overnight or accidentally. Nor do they all look the same in a state as diverse as California. CSBA has created this guide, and a suite of additional resources, to help your board and district explore the possibilities and move forward with putting STEAM into summer at your schools.

Identifying What's Needed

Inventory current summer programs ☐

Agree on specific learning goals ☐

Putting the Pieces Together

Examine staff capacity ☐

Forge partnerships ☐

Identify STEAM expertise ☐

Fund the program(s) ☐

Learning from Experience

Evaluate and continuously improve ☐

TO LEARN MORE

A good place to start is the Summer Learning section of the CSBA website at www.csba.org/SummerLearning

These guides related to Summer Learning Programs provide brief research summaries plus suggestions for implementation:

• *Summer Counts: Making Summer Programs Part of the Learning Equation.* Rand Education, 2011. http://bit.ly/2xub0y8

• *NCASE Summer Learning Brief.* National Center on Afterschool and Summer Enrichment, September 2016. http://bit.ly/2xfgLO0

Here's more on the "STEM or STEAM" terminology question:

• www.stemtosteam.org

• *STEAM Rising.* Slate, June 2015. http://slate.me/2xv9yM0

Much has been written about the potential for using informal learning environments, outside of the classroom, to involve and engage students in STEAM topics:

• *Science Learning Outside the Classroom.* Education Week Special Report, April 2011. www.edweek.org/go/ScienceReport

• *Navigating the Future of Afterschool Science.* SRI Education, September 2014. http://bit.ly/2xunkhD

The Summer Matters network, at www.summermatters.net, has multiple resources related to the funding of summer programs:

• *Investing in Summer Learning: Stories from the Field.* www.summermatters.net/investing-summer-learning

• *LCFF: Leveraging Summer for Student Success.* http://bit.ly/2xdVvYJ

• *The Cost of Summer.* http://bit.ly/2xjNgfG

National organizations have developed communication strategies for explaining to district staff and parents the importance of STEAM learning in informal settings:

• *Harnessing the Power of Explanation – Talking with Schools and Families About Afterschool STEM.* National Afterschool Association. http://bit.ly/2fhCro8

• The Afterschool STEM Hub offers a compendium of research-based communication strategies at www.afterschoolstemhub.org