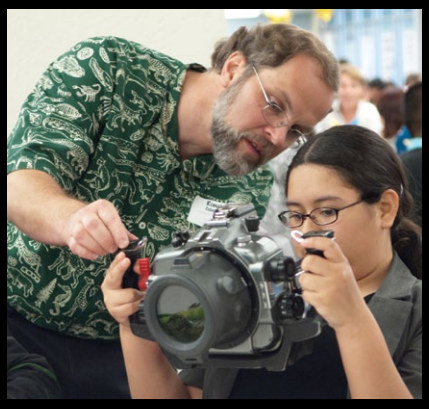
STEM²
THE POWER OF DISCOVERY

A project of the California AfterSchool Network and the California STEM Learning Network made possible with the generous support of the S.D. Bechtel, Jr. Foundation, the Noyce Foundation, and the Samueli Foundation.

STEM Program Planning Tool



STEM² THE POWER OF DISCOVERY

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STEM Program Planning Tool

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STEM Program Planning Tool

Collaboration and partnerships between out-of-school time (OST) programs, the core instructional day, business & industry, and higher education represent the power to exponentially increase quality STEM learning opportunities for California's youth. This is the foundation of **The Power of Discovery: STEM²**, a partnership effort between the California AfterSchool Network and the California STEM Learning Network made possible with generous support from the S.D. Bechtel, Jr. Foundation, the Noyce Foundation, and the Samueli Foundation.

This Program Planning Tool was created in-part by referencing the After School Education and Safety (ASES) program plan, the US Department of Education's 21st Century Community Learning Centers Implementation Planner (y4y.ed.gov), the California After School Quality Self-Assessment Tool, and the Learning in Afterschool and Summer learning principles.

The purpose of this STEM Program Planning Tool is to take the information learned through the Readiness and Needs Assessment and apply it to the creation of a comprehensive STEM Program Plan. A STEM Program Plan will meet the needs of multiple stakeholders while achieving the desired outcomes the Power of Discovery: STEM² initiative. Together you, the California AfterSchool Network and the California STEM Learning Network are working locally and statewide to help California OST programs reach their true potential, and increase program quality through the lens of STEM.

The Power of Discovery: STEM² initiative seeks to:

- Increase the quality and depth of regional and statewide partnerships in support of OST STEM learning opportunities.
- Increase frequency, intensity, duration, and quality of STEM learning opportunities for youth in OST programs.
- Increase staff competence, confidence, and motivation to facilitate STEM learning opportunities.
- Increase student interest, engagement, and knowledge of STEM processes and concepts.

Planning is an iterative process. Following the Readiness and Needs Assessment process, a draft STEM program plan can be created. This draft should be further informed by key select stakeholders that can offer input to improve and strengthen the plan. Your completed plan should be incorporated into your overall District / Local Education Agency (LEA) program plan.

There has never been a better time for STEM learning, and OST programs are perfectly positioned to offer youth engaging STEM learning opportunities. Thank you for taking the first step in this statewide effort to positively impact the lives of young people throughout California through the Power of Discovery: STEM².

Section I: Desired Outcomes

In order to have a comprehensive Program Plan, initiative implementers and key stakeholders must have an awareness and understanding of the outcomes. The following sections outline the desired outcomes for the Power of Discovery: STEM^2 initiative.

Learning in Afterschool & Summer Project –learninginafterschool.org

The Learning in Afterschool and Summer Project defines quality learning in after school and summer programs. In its position statement the project states that after school and summer programs are important places of learning that are:

- Active
- Collaborative
- Meaningful
- Supports Mastery
- Expands Horizons

The Power of Discovery: STEM^2 Visioning Team describes quality STEM in OST as:

- Student-centered activities designed to engage and nurture student interest and curiosity
- Project and inquiry-based learning
- Activities that complement the academic curriculum and incorporate the practices of the Common Core Standards and Next Generation Science Standards
- Offering integrated/ diversified subject matter
- Offering equitable access to all students (i.e., students of all socioeconomic statuses, genders, ethnicities, linguistic abilities, and exceptional needs)

Program Outcomes:

Describe the strategies to:

- Increase intensity and duration of high-quality STEM learning opportunities for youth in OST environments.
- Increase quality through assessment, reflection and planning, observation and peer learning.
- Increase quantity and depth of partnerships (with instructional school day and community resulting in OST STEM learning opportunities).

Staff Outcomes:

Describe the professional development plan to support the three identified STEM goals.

- Increase staff knowledge of effective practices and resources to implement STEM learning opportunities.
- Increase staff competency to implement STEM learning opportunities.
- Increase staff beliefs and attitudes (i.e. interest) to deliver high-quality STEM learning opportunities in OST programs, and pursing STEM and/or STEM teaching careers.

Student Outcomes:

Describe the process to implement student-centered, project-based and inquiry-driven STEM opportunities to:

- Increase meaningful student engagement in STEM learning opportunities.
- Increase student interest in additional STEM learning opportunities and careers.
- Increase student knowledge and application (i.e. behavior change) of STEM content and processes in OST and communities.

Section II: Process

In order to assess your programs needs and capacities, use the **Readiness and Needs Assessment** document to self assess with input from various stakeholders. Input from stakeholders should also be utilized as part of the planning process. The steps below describe the process of the Readiness and Needs Assessment and the Program Plan. In order to utilize this tool properly, it is recommended to:

Plan your process

- Create a list of professionally diverse stakeholders to participate in the process
- OST Program: (District and community based organization) leaders, students and staff, teachers, prinicpals, partners and stakeholders

Assess with input from key stakeholders

- Complete a self-assessment **utilizing the Readiness and Needs Assessment Tool**
- Ensure your assessment is informed by a variety of professional perspectives

Create a comprehnesive STEM program plan

- Create a comprehensive program plan, **utilizing the STEM Program Planning Tool** to advance high-quality STEM learning opportunities for youth and increase staff capacity.
- Ensure your plan includes regular opportunities for reflection and planning for improvement.
- Ensure that your plan considers which key individuals and partners will be essential in advancing and sustaining the program plan in future years.

Implement and continually assess and improve quality

- Implement program plan and consistently assess and plan for improvement.
- Assess quality at the point of service.
- Provide ongoing professional development, coaching, and support to staff
- Review, revise and adapt your STEM program plan on a regular and ongoing basis.

Section III: Program Overview and Goals

Out-of-School Time STEM Program Plan

Agency: _____ Program Director: _____

Phone: _____ Email: _____

District/ LEA Grant Manager: _____

Phone: _____ Email: _____

Program Support Goal #	
Targeted program component (i.e. Professional development, mentoring, coaching, scheduling, etc.).	Data to be collected toward this goal:
Means of assessing progress toward this goal:	How will you share your progress with important stakeholders?
Student Support Goal #	
Targeted Student Groups to participate in this goal:	Data to be collected toward this goal:
Means of assessing progress toward this goal:	How will you share your progress with important stakeholders?
Staff Support Goal #	
Targeted Staff Groups to participate in this goal (i.e. site coordinators, informal educators, administrative staff):	Data to be collected toward this goal:
Means of assessing progress toward this goal:	How will you share your progress with important stakeholders?

Getting Started

By now you have worked to understand the desired goals of multiple stakeholders in a STEM Program Plan. You have considered a select number of goals, target student populations, and target staff populations. Now you will want to consider which sites to begin implementation of your STEM Program Plan.

It may be beneficial to begin implementation at a select number of sites with a plan to apply the valuable lessons you learn this school year to an increased number of sites in the future. In selecting your early implementers you may want to consider those sites with:

- Stable site leadership
- Enthusiastic staff
- Collaborative relationships with core instructional day teachers and site leaders
- Stable and effective community partnerships

As part of this planning process, you will also have the opportunity to plan expansion of your STEM Program Plan.

Site Name	Grades Served	Grades targeted for STEM learning	Site Coordinator	Site Phone Number	Site Email

Site Name	Grades Served	Grades targeted for STEM learning	Site Coordinator	Site Phone Number	Site Email

Section IV: Programmatic Planning

Student Outcomes

During this section, you will be planning according to the identified needs and capacities. This piece should be completed in collaboration with all necessary stakeholders. Under the key questions are question numbers that are linked to the Readiness and Needs Assessment.

List stakeholders who will offer input to this section of the plan (name, position, organization):

Key Questions	Considerations	Strategies/ Approaches
What students will be receiving STEM at each of your sites? (Q: **9**)	A specific grade/ group of students, scaffold (each grade has a unique learning opportunity), student choice, clubs	
When will STEM be implemented?	Enrichment, clubs, specific days of the week	
How many minutes per site will be committed to STEM activities? (Q: **24**)	61-120 minutes, 121-180 minutes, 181-240 minutes, 241-300 minutes	
How will curriculum for the OST program be chosen? Who will be choosing what curriculum is implemented? (Q: **31, 32**)	Needs of LEA, price, ability to acquire. OST program leadership, districts, county offices of education, collaborative process	
What curricula will be utilized? (Q: **7, 30**)	Science, technology, engineering, mathematics, a variety, other	

Key Questions	Considerations	Strategies/ Approaches
What other types of STEM learning opportunities (beyond curricula) will be implemented? (Q: **34**)	Service learning, project-based learning, opportunities for inquiry	
How will approaches to STEM learning incorporate real world contexts?	Authentic engagement in real science activities, project based or service learning opportunities, connection with: higher education, STEM industry, expert/ role models, collaborative problem solving activities, making/ tinkering	
How will your approaches to STEM learning create career awareness, incorporate external expertise, role models, etc.? (Q: **41**)	Guest speakers from STEM fields, partnerships that will provide awareness, incorporating STEM career possibilities in every lesson	
What culminating events will you plan to showcase your student's work in STEM?	Science Fair, STEM competitions, student showcase, align with school event, family night	
How will STEM programming help support the practices of the Next Generation Science Standards/ Common Core Standards?	Ensure standards are identified in lesson plans, create a plan to ensure alignment, have standards on hand at every site, provide trainings on: alignment/ Common Core State Standards/ Next Generation State Standards	
How will English Language Learner strategies be incorporated into the STEM plan?	Staff professional development around English Language Learner strategies, collaboration with the school staff/ LEA, planning	

Student Outcomes Action Plan

Task	Action Steps	Who's Responsible?	Timeline	Resources

Staff Outcomes

During this section, you will be planning according to the identified needs and capacities. This piece should be completed in collaboration with all necessary stakeholders. Under the key questions are question numbers that are linked to the Readiness and Needs Assessment.

List stakeholders who will offer input to this section of the plan (name, position, organization):

Key Questions	Considerations	Strategies/ Approaches
How will site level staff understand the overall STEM program plan and how can they adapt it to be most successful at their unique site?	Providing an informational meeting to ensure understanding, providing coaching and assistance in planning for implementation with site coordinators, providing sites with site tools (i.e. Y4Y, QSAT)	
How often will site staff get the opportunity to reflect on their site level plan and adapt the plan to improve quality?	Weekly, every month, staff meetings, program meetings, communities of practice	
Which staff will be implementing the STEM learning opportunities at the site level? (Q: **25**)	High school students, informal educators, college students, instructional day teachers, museum staff, volunteers	
What training does your staff need? (Q: **10, 13**)	Facilitation, curriculum implementation, alignment, lesson planning, Common Core State Standards, Next Generation Science Standards, What is STEM? What is project-based learning? What is inquiry-based learning? Student-centered instruction, integrated studies, service learning	
What other professional development opportunities will your staff participate in? (Q: **13, 18, 19**)	Coaching, mentoring, external observations, staff meetings, communities of practice, peer mentoring, peer observations, staff collaboration around lesson planning, staff meetings, continual assessment opportunities	
How many hours will be budgeted to professional development for staff per year? (Q: **11, 14, 15, 23**)	10-20 hours, 20-30 hours, 30-40 hours, 40-50 hours, 50-60 hours, 60+ hours	
What staff will be mandated to take part in the professional development offered? (Q: **12**)	Site coordinators, informal educators, administrative staff, all staff	

Key Questions	Considerations	Strategies/ Approaches
What district/ county offices of education resources/ professional development opportunities will OST staff access/participate in? (Q: **35, 36, 37, 38**)	Professional development opportunities, staff meetings, Common Core State Standards and Next Generation Science Standards introductions/ practices	
How often will professional development be offered to support STEM implementation? (Q: **17, 18, 19**)	Weekly, monthly, quarterly, annually, on an as needed basis, summer	
What is the plan to allow staff adequate time to prepare?	Staff set aside time every day/ week to prepare, offer collaboration opportunities amongst staff, full planning days, furlough days	
What are the requirements around lesson planning?	Complete a number of weeks in advance, turn into site coordinator/ administrative staff align with school day, must include various components (set up, engaging questions, activity steps, debriefing questions, materials)	
What is your plan to provide ongoing support to the site staff? (Q: **18, 19**)	Observations, evaluations, check ins, meetings, trainings, administer survey assessing needs on the spot coaching, one-on-one check ins, reflections, peer mentoring, site visits	
What is the observation/ evaluation process like? How often will staff be observed?	Administered by STEM administrative staff, site coordinators, informal educators Weekly, bi-weekly, monthly, bi-monthly, quarterly	
How will you communicate to staff what they will be observed on and the process of observations?	Meet with staff directly after observation to debrief, gather additional resources for staff to ensure success, check back to assess progress. Staff are made aware of observation process, scheduled and unscheduled observations take place, follow-up meeting, resources provided after visit	

Staff Outcomes Action Plan

Task	Action Steps	Who's Responsible?	Timeline	Resources

Program Outcomes

During this section, you will be planning according to the identified needs and capacities. This piece should be completed in collaboration with all necessary stakeholders. Under the key questions are question numbers that are linked to the Readiness and Needs Assessment.

List stakeholders who will offer input to this section of the plan (name, position, organization):

Key Questions	Considerations	Strategies/ Approaches
Budget What is your budget for implementing STEM learning opportunities for this school year? (Q: **20, 20a**)	Who will be in charge of reviewing and assessing the budget? How much allocated for: professional development? Materials? Staff preparation? Curricula? Staffing: both administrative and programmatic?	
Partnerships How will your program and the LEA collaborate to ensure complimentary support? (Q: **26, 27, 33**)	Pacing guide, district calendar, school calendar, regular check in meetings	
What are the strategies to ensure effective communication between the OST provider and the school staff? District? (Q: **33**)	Attend staff meetings, grade level meetings, administer flyers/ newsletters, send regular emails updates, regular check-in meetings	
How will you maintain current partnerships? (Q: **42**)	Regular check in meetings, consistently review goals, assess needs and plan forward	
What is the plan to establish and maintain new partnerships based on your programs needs of your STEM program plan? (Q: **40**)	Communities of practice, communications outreach, leveraging other statewide and regional organizations and initiatives (i.e. MESA, 4H), Local Education Agencies (County Office STEM Coordinators)	

Key Questions	Considerations	Strategies/ Approaches
Programmatic Sustainability How will key stakeholders and partners assist in facilitating the programmatic sustainability of your STEM program plan?	Regular evaluation of systems/ practices, continual review of goals, continued collaboration, regular meetings to assess: progress, needs, goals, continued professional development	
What is the plan to sustain practice over time?	Systems creation, stakeholder buy in and support, assessment of current practices, planning ahead, build the capacity of key staff and stakeholders	
Fiscal Sustainability How will you expand your STEM program plan in future years? (Q: **23**)	Site mentoring, systems creation, administration planning, stakeholder buy-in and support, increase number of sites/ staff	
What is the plan to ensure fiscal sustainability of your STEM program plan?	Create a plan with: key stakeholders, partnerships, program leadership, continued efforts to find new funding opportunities	
How will funding, support, continued partnership, integration be ensured throughout the years to come?	Communication, consistent review of goals, stakeholder support and understanding of desired outcomes	

Program Outcomes Action Plan

Task	Action Steps	Who's Responsible?	Timeline	Resources

Section V: Planning Calendar

Plan when the activities below will take place. There is an additional blank calendar on the next page to add additional items.

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.
Assessment and planning for quality												
Create budget and staffing structure												
Identify materials, funding, and programmatic opportunities												
Identify and arrange necessary (ongoing) professional development												
Outline process of quality assessment and improvement												
Identify evaluation process												
Site level observations												
Opportunities for practitioner peer learning												
Reflection, continued planning with staff, core instructional day, and community partners												
Adaptation of existing STEM Program Plan												

Planning Calendar

	July	Aug	Sept	Oct	Nov	Dec	Jan	Feb	Mar	April	May	June
	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.	yr.

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