California STEM Learning Network

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Common Core Implementation Dollars

With the upcoming implementation of the Common Core State Standards (CCSS) and anticipated adoption of the Next Generation Science Standards (NGSS), California is poised to radically shift what our students and teachers need to know and be able to do. The biggest shift will be in how learning takes place. The emphasis will be on helping children become innovators through observing, thinking, exploring, experimenting and analyzing. Topics will reach across subjects, helping children understand and experience the interconnectedness of life and learning. Traditional classroom settings will at times be transformed into laboratory-like environments and learning will no longer be limited to the regular day, but expand from early morning into the evening.

This change in standards requires the building of a new infrastructure that will provide leadership and support. This is the perfect opportunity, as the late southern philosopher Walker Percy said, to take a 'leap of faith'. It is an unprecedented opportunity to create a new vision for education.

Collective Impact

Using the model of Collective Impact we can bring together cross sector leaders and experts in PK-12, higher education, business and industry and science rich education institutions (SREI) to collaborate and create. As everyone knows, we are better off together. Together we have more experience, more expertise, more support and more resources.

"Under conditions of complexity, predetermined solutions can neither be reliably ascertained nor implemented. Instead, the rules of interaction that govern collective impact lead to changes in individual and organizational behavior that create an ongoing progression of alignment, discovery, learning, and emergence. In many instances, this progression greatly accelerates social change without requiring breakthrough innovations or vastly increased funding. ('Embracing Emergence: How Collective Impact Addresses Complexity' by John Kania & Mark Kramer. Stanford Social Innovation Review, January 21, 2013.) The Five Conditions of Collective Impact include: Common Agenda, Shared Measurement, Mutually Reinforcing Activities, Continuous Communication, and Backbone Support.

Education Funding

Two things are happening in the California budget this year that will affect the implementation of Common Core Standards: 1) Governor Brown's move to the Local Control Funding Formula (LCFF); and 2) the allocation of $1.25 billion for the implementation of CCSS. For the first time, individual school district boards will have the authority to decide how the money will be used. Governor Brown sees this as

another step in his Principle of Subsidiarity – shifting responsibility from the state to the local level. The LCFF Base Grant provides on average $7,643 per student over the eight-year funding period. It also allocates additional monies through a Supplemental Grant for students who are English Language Learners, low income and foster children, and a Concentration Grant for districts where more than 55% of the students are from the categories listed above. According to the governor, moving to this local funding control model will treat "unequals in a more equal way." Funding for the implementation of the yet to be adopted Next Generation Science Standards is included in AB 86, as can be seen in the languaging that explains how the funds are to be spent:

- Professional development that is aligned to the CCSS, NGSS for California, and/or ELD Standards. This can be provided for teachers, administrators, paraprofessional educators, or other classified employees directly involved in instruction.
- Instructional materials aligned to the CCSS, NGSS for California, and/or ELD Standards.

- Integrating the CCSS/NGSS through technology-based instruction, such as expenses relating to support of computer-based assessment (e.g. high-speed internet connection, etc.)

An additional $1.25 billion will be provided to specifically support the implementation of Common Core: $1 billion for the 2013-14 school year and $250 million the following year. AB 1186 introduced by Assemblywoman Susan Bonilla, who is also the Chair of the Committee to Highlight Need for Stronger STEM Education, would increase that amount to $1.5 billion. "The grants that are proposed in my bill will allow schools to broadly use these funds for professional development, technology and instructional materials they need in order to be successful in this transition," said Bonilla. (asmdc.org, May 30, 2013).

AB 1186 stipulates that each district must develop and adopt a plan explaining how the block grant funds will be spent. That plan will be presented at a regularly scheduled public meeting of the school district's governing board, county board of education, or governing body of the a charter school before it is adopted. A report that details the expenditures, for example information on how many educators received professional development and how many computers were purchased must be submitted to the Department of Education by January 1, 2015. The bill was adopted by the State Assembly and now awaits Senate approval. (Referred to Standing Committee of Education June 13; 1st hearing cancelled June 25 'at request of the author')

Importance of Partnerships

This shift in fiscal responsibility to locally controlled funding is, according to Michael Cohen of the State Department of Finance, the most flexible stream of monies the state has ever seen. (Ed Source Webinar on Common Core) It will for the first time require school district boards to decide what it means to provide a STEM education for their students. Education is not just the purview of educators; it must include and represent the diverse members of each community. California school boards are made up of elected members representing business and industry, non-profits, community members, parents and others who are committed to ensuring that all students have

access to high quality education. However, when envisioning a new educational infrastructure to meet a community's needs as well as the needs of individuals in the community, the best results will be achieved when these boards reach out to and include others who have a vested interest in education, and more specifically in STEM, to come together. The infrastructure-building partnership should include, but not be limited to, regional and local leaders from PK-12, higher education, business and industry, and science-rich education institutions. Each of these partners must have equal input in the conversation, sharing their views and expertise on an ongoing basis.

Through the implementation of CCSS, these new partnerships have the opportunity to assess the current situation, envision what the future will look like in their region, and create a plan to directly address the educational, workforce and community needs and dreams.

With the infusion of between seven and nine-billion dollars from Proposition 30 and $1.5 billion for the implementation of CCSS, many are asking how, after so many years of cuts to education, we can build back the schools and return to the way it was before. Now is not the time to go backward. CCSS is focused on the future – the future of our children, the future of our state, and the future of our nation. This new emphasis requires a new vision that is innovative and pushes the boundaries of how we teach and how we learn.

STEM Literacy

In *The Case for STEM Education: Challenges and Opportunities*, author Rodger W. Bybee says that education should contribute to a STEM-literate society, a broad workforce that has 21st-century competencies, and an advanced research and development workforce that is focused on innovation. He also notes that there are competencies that everyone should have including the knowledge and abilities to explain the natural and designed world and draw evidence-based conclusions about STEM-related issues; understand the characteristics of STEM disciplines "…as forms of human knowledge, inquiry, and design"; be aware of how STEM subjects affect our environments; and a willingness to "… engage in STEM-related issues..." (Bybee, Rodger W., *The Case for STEM Education: Challenges and Opportunities*, CITY NAME NTSA Press, 2013.)

The CCSS implementation process cannot be looked at in isolation. While it is the first set of new standards to be implemented, the Next Generation Science Standards (NGSS) will follow closely behind and there is communality between the two. Both CCSS and NGSS provide a new way to teach and learn based on hands-on, experiential and real life opportunities that take place across subjects. Ensuring that our students will graduate with the knowledge and skills they need to succeed in college, careers and daily life will only be possible if we join forces and build a bridge that extends from pre-school through high school and on into college. Not one of the mentioned sectors has the ability to do that alone. But together we can innovate a new infrastructure that will guide, support and inspire our educators and students.

Regional Networks

The California STEM Learning Network (CSLNet) Regional Network is well positioned to play a leading role in the creation of a new infrastructure by providing guidance at

the local level on how to get the best impact from Common Core Implementation Block Grant funding.

The nine Regional Networks reach from northern California to the southern tip of the state. They are made up of STEM leaders and innovators from PK-12, higher education, business and industry, science rich learning institutions, governmental organizations and non-profits.

Their work is based on the Collective Impact model that we call Levels of Network Behavior:

Levels of Network Behavior	
Behavior	**Definition**
Collaboration	Working together to achieve a shared goal by sharing knowledge, learning, results. The work of the entities together is greater than the total of their separate contributions.
Cooperation	Process of working together to reach the same end; parts of coordination and sharing of resources are used in cooperation.
Coordination	Bringing together different elements of a complex system or activity to reach a specified objective or common goal. The sharing of information through open communication is required.
Resource Sharing	The sharing of knowledge and information with another party or parties. Resource sharing is an important part of collaboration.
Networking	A like-minded group recognizing, creating, sharing information, opportunities, or services in order to cultivate relationships for mutual benefit.

(Based on work from: *Collaborate: The Art of We* by Dan Sanker)

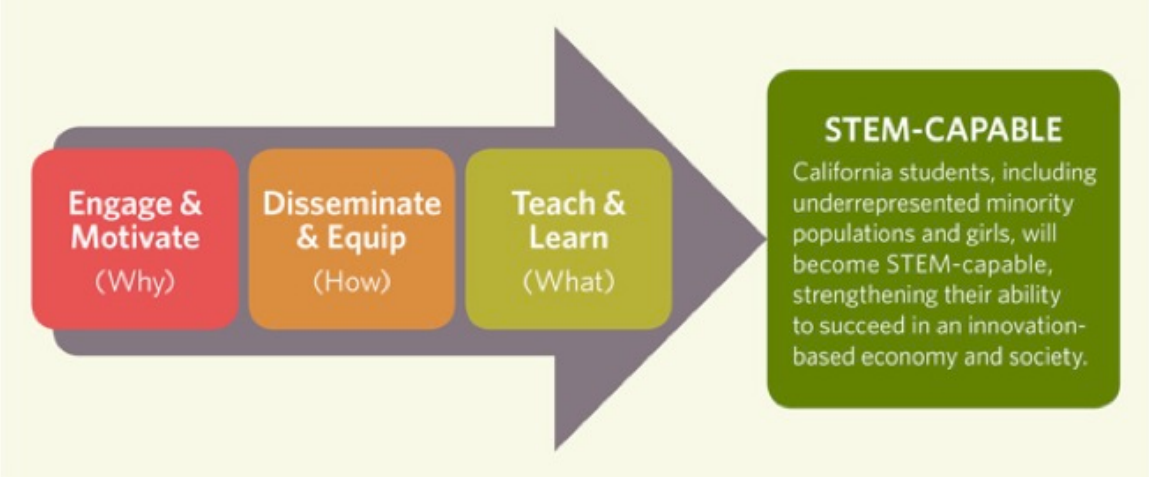
CSLNet is the backbone organization for the Regional Networks. When the networks convene, they carry out key activities such as mobilizing community leaders, advancing policy, making a case for funding, ensuring access to STEM learning and strengthening educator capacity. This work is carried out through the implementation of

Eight Levels of Critical Infrastructure:

- Strong Leadership & Commitment
- Critical Mass of Stakeholders
- Backbone Support
- Community Vision
- Shared Measurement
- Resources
- Continuous Communication
- Mutually Reinforcing Activities

With this experience, the Regional Networks are poised to become the backbone support to engage regional and local community leaders and guide the development of a well-thought-out plan on how monies could best be used during the implementation

of Common Core State Standards, and later Next Generation Science Standards, using the following Theory of Change:



Regional Networks will guide by:
Shifting the financial responsibility to the local level will also shift the role County Offices of Education play in convening educators and other partners. CSLNet Regional Networks have the knowledge and experience to help fill this gap by:

- Sharing practices worthy of attention and outcomes to educate policymakers and leaders
- Utilizing data and monitoring progress to influence thinking of leaders and stakeholders
- Defining the elements of the system
- Identifying the gaps in the system
- Making a case for funding

What Specifically Can Regional Networks Do?
The outcome of the implementation of Common Core State Standards, and down the road Next Generation Science Standards, must be to ensure that all California students and educators are STEM capable. The ability of our regions, state and nation to thrive depends on this. To reach this goal, communities and individuals must come together and take an active role in planning this new infrastructure. How the implementation dollars are spent is ultimately the decision of school districts, but if local STEM leaders come together early on to help vision a regional plan, in the end everyone will benefit: students will have the skills needed to fill STEM jobs; companies will have a qualified pool of future STEM employees; and communities will have the ability to attract new businesses to the area and keep established businesses in the region.

Steps you can take:

- Take the lead on educating your community about Common Core and Next Generation Science Standards and the positive impact it will have on students, educators and workforce needs in your region.
- Reach out to and build relationships with your local school districts.
- Gather local STEM leaders from all sectors - K-12, higher education, business and industry, science rich learning institutions, government, non-profits and philanthropies – to identify and assess your STEM needs – education, workforce and community – for future growth and success in your region.
- Include parents in your visioning and planning.
- Develop the infrastructure utilizing the Eight Level of Critical Infrastructure, Levels of Network Behavior, and the Theory of Change.
- Look at how CCSS implementation monies could best be spent within the three designated areas: professional development, technology and instructional materials, to meet your regional's STEM needs.
- Assign working groups to focus on specific tasks and report back with insights, outcomes and implementation plans.
- Identify STEM student, educator and workforce outcomes.
- Identify how to track student, educator and workforce outcomes.