Development: San Diego K-12 STEM Model School Collaboratory

San Diego STEM Schools Collaboratory is an Investing in Innovation (i3) Development proposal to implement a nimble and interactive countywide partnership, led by the San Diego County Office of Education (SDCOE) in partnership with 14 independent school districts[1], the San Diego Science Alliance, the San Diego Economic Development Corporation and 50 additional private sector partners[2]. The **San Diego STEM Schools Collaboratory** will impact approximately 60,000 K-12 students through the involvement of 180 K-12 science, technology, math, English language arts and academic support teacher *leaders*, 300 additional K-12 science, technology, math, English language arts and academic support teachers, and 50 Science, Technology, Engineering and Math (STEM) private companies, informal education institutions and non-profit organizations, by the end of the four-year grant period. The interactions among learners at all levels will be delivered through a customized, cloud computing collaborative environment to support both the creation of content and also communication or sharing of existing content in the Collaboratory.

San Diego STEM Schools Collaboratory responds to community and national calls for definition of quality and the indicators for innovative STEM education in public schools. The Collaboratory will develop a seamless alignment of K-12 STEM requirements and classroom collaboration from volunteer STEM professionals. "Just-in-time," infusions of expertise from local industry, research, informal and non-profit sectors engage and inform teachers and students on 21st Century priorities. The Collaboratory will engage teachers, students and community partners in content learning, critical reasoning, problem-solving skills and awareness of college and career opportunities through community agreements and partnerships to prepare the next generation of innovators. As a result, the **San Diego STEM Schools Collaboratory** will produce a K-12 STEM Model School quality design criteria and a replicable delivery system of learning and leadership that integrates STEM content and pedagogy in every school.

The key elements of the **San Diego STEM Schools Collaboratory** builds upon two years of community dialog and collaboration on San Diego's economic climate and STEM education in K-12 public schools. A plan, responsive to 21st Century issues has been developed just-in-time to present San Diego's readiness for Investing in Innovation. The outcomes are intended to scale equitably for all schools in the greater San Diego area with resources to improve teacher and principal quality, student achievement and college and career readiness in STEM fields and present a replicable model for other communities. The following program activities will contribute to a K-12 STEM Model School design; 1) District and STEM collaborators commitment of time and resources to design and develop STEM School criteria, curriculum innovation, assessment system, classroom collaboration with STEM professionals and an incentive program. 2) Teacher and principal teams participate in year round professional development programs facilitated by K-12 STEM content and curriculum experts in collaboration with qualified STEM industry partners. Teachers will be engaged in STEM industry immersion experiences, an intensive set of design requirements to bridge the STEM disciplines and research-based pedagogy to engage all learners. An emphasis on aligning Common Core Standards to support grade-span specific STEM models will be a significant outcome. 3) In Years 3 and 4, qualified STEM Schools in the Collaboratory will provide demonstration, support and training for an additional 300 teachers. 4) Each year, each participating teacher will be supported for collaboration with volunteer STEM industry professionals to support classroom instruction, out-of-school programs and community events. 5) A K-12 STEM Model School quality criteria and evaluation model will be developed for replication and dissemination.

This Investment in Innovation has an evidence-based advantage for student success. The development of communities of practice focused on rigorous STEM content, teacher and principal quality and student engagement will erase discipline silos to allow for innovative 21st Century teaching and learning.

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[1] Bonsall, Cajon Valley, Carlsbad, Coronado, Encinitas, Escondido Elementary, Escondido HS, Grossmont, La Mesa Spring Valley, Lemon Grove, Poway, Ramona, Santee, Vista

[2] insert list of partners here