Abstract

Project Title. Leadership of STEM: The PreK-12 Pathway (*PreK-12 STEM*).

Type of Grant Requested. Early-phase grant.

Absolute Priorities. 1 (Rationale) and 3 (Promoting STEM and Computer Science).

Total number of students to be served in the project. 15,500 students.

Grade levels served by this project. All, grades PreK-12.

High needs students. In this project's STEM context, high need students include Latino, African American, English Language Learners, female students, and students living in poverty.

Project description and activities. *PreK-12 STEM* provides students a STEM project-based curriculum that is engineering- and computer science-centered. It ensures that every student has a STEM learning trajectory that progresses through elementary, middle, and high school. Moreover, it increases the number of high needs, underrepresented students engaged in STEM learning. Activities include fundamentally redesigning the curriculum, training teachers in new pedagogical approaches, and providing classroom and field-based STEM learning experiences to students.

Summary of objectives and expected outcomes.
   (1) Increase student academic growth in STEM disciplines—with increased student performance in English, math and science.

   (2) Increase college- and career-readiness—with increased IB/AP enrollment of girls, students of color and low-income students; higher rates of completion of University of California college admissions requirements.

   (3) Develop and deliver project-based learning STEM curriculum—with all curriculum units meeting Buck Institute's project-based learning design requirements.

   (4) Increase rigor, relevance and student engagement in STEM classroom instruction—with 90% of classrooms at advanced levels on measurement rubrics.

Special project features. *PreK-12 STEM* has three special features:
   (1) Placing engineering and computer science at the center of student learning.

   (2) Implementing STEM as a PreK-12 pathway.

   (3) Integrating STEM into the core curriculum to serve *all* students.

Organizations partnering with this project. Community Training and Assistance Center, Tracy Unified School District, University of the Pacific–College of Engineering and Computer Science, Abt Associates, and more than 30 leading employers in STEM-related fields.