

Promising STEM Programs and Initiatives

TEACHER PREPARATION

- The National Math and Science Initiative's [UTeach](#) program, sponsors science and math undergraduate teacher recruitment and preparation programs at universities nationwide. [CalTeach](#) is the California affiliate of the UTeach initiative, seeking to address the shortage of qualified math and science teachers in California. CalTeach works with current undergraduate math and science majors to recruit them into the STEM teaching profession and provides rigorous training in both content knowledge and pedagogy.
 - For example, at [San Diego State University](#), the San Diego State University Math/Science Teacher Initiative (MSTI) is a collaboration between the College of Education and the College of Sciences to significantly increase single subject credential recommendations in mathematics and science.
 - At the [University of Texas at Austin](#), UTeach started in 1997 as a new way to prepare secondary science, math and computer science teachers. Its strength lies in the unique collaboration between the Colleges of Natural Sciences and Education. All students enrolled in the UTeach Natural Sciences Program have the opportunity to participate in a paid internship. [read more](#)
- [University of California](#) --With its *California Teach* program, the University of California system will put a thousand new science and math teachers annually into California classrooms. This initiative will encourage new UC students interested in science, math or engineering to consider teaching as a career and create courses to help them become great teachers--Campuses at: Berkeley, Davis, Irvine, UCLA, Merced, Riverside, San Diego, Santa Barbara, and Santa Cruz.
- The [100K in 10](#) initiative, an effort of the UTeach program, aims to train 100,000 high-quality science, technology, engineering, and math teachers over the next decade. Launched in 2011 at the Clinton Global Initiative, the 100Kin10 movement seeks to expand the nation's STEM teaching force, in order to not only increase the number of highly qualified mathematics and science teachers, but to also improve their practice and keep them in the classroom.
- President Obama's 2010 [Educate to Innovate](#) initiative brought together corporate partnership investments of \$250 million for multiple STEM programs and initiatives, one of which seeks to prepare 10,000 new math and science teachers and to provide training to 100,000 current STEM teachers.
- [Florida PROMiSE](#) is a partnership among the three Florida Public Research - Flagship Universities (USF, FSU, & UF), four large school

districts (Miami-Dade, Hillsborough, Duval & Seminole), educational consortia (Heartland Educational Consortium (HEC), North East Florida Educational Consortium (NEFEC) & Panhandle Area Educational Consortium (PAEC)), Florida Virtual School, and Horizon Research, Inc.

- [UNCF Math and Science Teacher Education](#) --This multi-faceted program addresses the math and science teacher shortage in urban communities

EARLY INTEREST, EXTRACURRICULAR ACTIVITIES, MENTORSHIP PROGRAMS

- The California Afterschool Network's [STEM In Out-of-School Time Initiative](#) works with over 250 programs throughout the state of California to provide STEM curricula, training, and professional development in order to increase high quality STEM opportunities for youth in after-school programs. This project is part of a broad effort to build innovative STEM programs for students in grades K-8 across California.
- [NASA Explorer Schools](#) works with elementary through secondary STEM educators to provide resources to “inspire and engage future scientists, engineers and technicians that NASA needs to continue our journey.”
- [FIRST \(For Inspiration and Recognition of Science and Technology\)](#) is an international robotics competition that involved more than 45,000 high school students in 2010. FIRST has four programs that serve students from ages 6-18, and aims to help students discover untapped passions for science and engineering in a fun and challenging environment.
- [Massachusetts Institute of Technology](#) offers a variety of model K-12 STEM educational outreach programs in order to advance STEM interest and literacy.
- [Digital Promise](#) is a national research center that focuses on developing new technologies like software and games for teaching and learning in public schools. Digital Promise's purpose is to "to support a comprehensive research and development program to harness the increasing

capacity of advanced information and digital technologies to improve all levels of learning and education, formal and informal, in order to provide Americans with the knowledge and skills needed to compete in the global economy.”

- The [Engineering is Elementary](#) project fosters engineering and technological literacy among children. The project has created a research-based, standards-driven, and classroom-tested curriculum that integrates engineering and technology concepts and skills with elementary science topics.
- Google's [Building Opportunities for Leadership & Development](#) (BOLD) Diversity Internship Program is designed to provide exposure into the technology industry for students who are historically under-represented in this field.
- [Project Lead The Way](#) is a national not-for-profit educational program that helps give middle school and high school students the rigorous ground-level education they need to develop strong backgrounds in science and engineering.
- [Google RISE](#) - Roots in Science and Engineering - Awards are designed to promote and support Science, Technology, Engineering, Mathematics (STEM) and Computer Science education initiatives. Google provide awards to organizations working with K-12 (primary & secondary schools) and university students to provide enrichment programs in these fields.
- [Great Minds in STEM](#) The mission of Great Minds is to inspire and motivate underserved students to pursue careers in STEM and to enlighten and engage families, educators, communities and employers to assist underserved students pursuing STEM careers. Two main programs are [STEM Up](#) and [Viva Technology](#).

ADVANCED PLACEMENT COURSEWORK

- The National Math and Science Initiative's [Advanced Placement Training and Incentive Program](#) attempts to increase access to math and science AP courses and exams for underrepresented students. Through teacher

and student support, the program also seeks to transform school college-going culture and AP expectations. Furthermore, the program provides recruitment and exam preparation designed to educate students about AP programs and improve outcomes. This program has had success in increasing the number of students taking and passing AP mathematics and science exams, particularly for underrepresented students.

- The United States Department of Education announced in August 2011 that it will award a total of \$6.6 million for 12 new [Advanced Placement Incentives Program](#) grants, with Los Angeles Unified School District recently received \$600,000 in funding under this initiative, in order to assist low-income students with increased access to and success in Advanced Placement STEM courses.

BRIDGE PROGRAMS

- Throughout ten California school districts, the [Linked Learning Initiative](#) combines strong academics, technical education, and real world field-based experience to connect learning with students' interests and career aspirations. The program allows students to follow a particular pathway that mirrors California's numerous industries, including biomedical & health sciences, engineering, and many others. On a national level, several types of STEM-focused secondary schools exist throughout the country.
- The [California STEM Service-Learning Initiative](#) supports high school and university students across the state, and works to meet local community needs through service projects. Students work with teachers, university faculty, and STEM industry advisors as they utilize service-learning to teach STEM disciplines and explore STEM fields. The initiative particularly aims to increase the number of women and students of color studying STEM and entering STEM fields.
- [Cisco Networking Academy](#) is a global education program that teaches students how to design, build, troubleshoot, and secure computer networks for increased access to career and economic opportunities in communities around

the world. Networking Academy provides courseware and instructor training to schools and other education organizations throughout the United States.

- [Engineering the Future: Science, Technology, and the Design Process](#) is a full-year course designed to introduce students to the world of technology and engineering, as a first step in becoming technologically literate citizens. The course is intended to help today's high school students understand the ways in which they will engineer the world of the future — whether or not they choose to pursue technical careers.
- [Intel Science and Engineering Fair](#) (Intel ISEF) – Intel sponsor ISEF, the world's largest pre-college science and engineering fair, that brings together over 6 million young scientists that compete for 1,500 finalists spots. These finalists compete for over 4 million in awards and scholarships.
- [LEAD Summer Engineering Institute](#) - During LEAD Summer Engineering Institutes, students reside and attend classes on-campus at six of the nation's top engineering schools for three weeks. Summer Engineering Institutes provide diverse, high-achieving high school sophomores and juniors the opportunity to explore STEM careers.

HIGHER EDUCATION PROGRAMS TO INCREASE RECRUITMENT AND RETENTION

- The California State University system is working to increase the number of graduates in STEM through their new [Service Learning Transforming Educational Models in Science, Technology, Engineering, and Mathematics](#) (STEM)² initiative. This program aims to increase the number of STEM majors and graduates, as well as the number of California State University graduates entering the STEM workplace. The program also works to prepare students to apply their STEM knowledge to service-learning projects in local communities.
- Sacramento State University's [Center for STEM Excellence](#) aims to strengthen STEM education at the school, graduate more STEM majors, and recruit more students and faculty of color.

- University of California, Riverside's [STEM Pathway Project](#) works closely with community colleges to increase the number of Latino students transferring into the STEM fields at the school, and to support Latino and low-income students who are pursuing STEM degrees.
- California State University, East Bay recently partnered with Bayer Corporation to develop a new [Center for STEM Education](#), which will work to increase student interest in STEM, as well as develop ties with under-resourced school districts, develop partnerships with local industry, and provide STEM professional development for teachers.
- With funding from the National Science Foundation, the [Model Replications Institution](#) program successfully provided three years of technical assistance to nine Historically Black Colleges and Universities, Hispanic Serving Institutions, and Tribal Colleges and Universities, which wanted to improve STEM initiatives and outcomes, in order to build STEM infrastructure components. These included faculty development, pre-college initiatives, student support, undergraduate research, laboratories & classrooms, graduate programs and science career initiatives, and curriculum development.
- [GRAD Program](#) – The National Consortium for Graduate Degrees for Minorities in Engineering and Science conducts programs to promote the participation and successful graduation of under-represented minorities at the graduate level in science and engineering. Their signature undergraduate program, called GRAD Lab (Getting Ready for Advanced Degree Laboratory), inspires close to one thousand under-represented STEM undergraduates annually to pursue a graduate degree in engineering or science.
- The [AT&T Labs Fellowship Program](#) offers fellowships to outstanding under-represented minority and women students pursuing PhD studies in the computer science field.
- The [Intel Higher Education Program](#) brings cutting-edge technology expertise to universities, encourages students to pursue technical degrees, and helps move technology out of university labs and into extended communities.