



Science Education to Prepare Underrepresented Minorities for Science, Technology, Engineering, Math (STEM) Careers

Innovation and discovery are essential for high technology businesses to be competitive in a global economy. The economic resilience of the County of San Mateo is dependent on these industries.

- A 2008 Bayer Corp. report states that 95% of Fortune 1000 STEM executives are concerned that the US is in danger of losing its global leadership position in science and technology because of a shortage of qualified STEM manpower.
- Nine out of ten executives agree that training more women and minorities for STEM fields will help solve the U.S. manpower shortages

We need to provide hands-on, experiential science education that engages student interest and applies scientific critical thinking skills to real projects. The Redwood Environmental Academy of Leadership (REAL) program at Redwood High School is designed to educate and prepare African American, Hispanic American, Pacific Islanders, Women (underrepresented STEM minorities) for STEM careers through restoration of Cordilleras Creek.

REAL program students are:

- WIA eligible youth
- Include Single teen parents, youth with Juvenile records and Foster youth
- 67% Latino, 40% English Language Learners
- At high risk of dropping out of high school due to poor attendance and lack of credits

Unique Aspects of the REAL Program:

- **Ecology based curriculum developed at Stanford-** river ecosystems, plant-animal interactions, environmental justice and stewardship
- **Collaborative teaching-** Redwood High School teachers, Stanford professors, graduate students and science experts, various non-profit environmental and energy groups
- **Environmental/Ecology Green Career Preparation-** Weatherization, Forestry, Waste Water Management, Electrical/Solar, Environmental Health & Safety
- **International Collaboration-** connect REAL and Mexican students engaged in a comparable river restoration project via SKYPE, Internet, high technology pens
- **Diverse Collaborators-** Non-profit (JobTrain, Student Conservation Agency, Save the Bay, John Gardner Center), Government agencies (Workforce Development, San Mateo County parks), Stanford University (Ecology, Education and Jasper Ridge), Business (Intel, S&G Construction)

REAL Accomplishments:

- **Recognition by Springboard Schools** in the Best Practices report: Serving At-Risk Youth: It Takes A System, Ida Oberman and Leah Barta, 2008
- **Students increase in self esteem** increased from a self rating of 3.8 to 7 (highest rating) by the end of the program from a report by an independent evaluator
- **Student belief there is a place for them in environmental work** (3.47 point growth)
- **Parents changed attitude towards supporting REAL program** where they now volunteer their time to clear the garden and work on outdoor classroom. Parents are from Redwood city, East Palo Alto and other Sequoia Union District cities.
- **Scholarships for three REAL students** (Edgardo Velasco, Logan Patterson, and Evelyn Strauter) and two teachers, to attend the week-long Youth Empowerment Environmental Leadership Conference in Mammoth in September

