



A R C H E S

Program Overview



Integrating Academic and Career Education
through Regional Collaboratives

Today's job market isn't just local, it's global — and it's more competitive than ever. As technology evolves, keeping up with the demand to produce qualified technical professionals, especially engineers, is critical for California educational institutions.

Couple that demand with the increasing challenge of inspiring and engaging California teens — in 2007 one in four kids quit school. As a result, California educators and employers have some major hurdles to overcome as they seek to reengage students to reverse the dropout rate, increase college going rates, and refresh the technical and professional workforce, especially for African American and Latino students.

Enter the newest effort by ARCHES: Integrating Academic and Career Education through Regional Collaboratives. With a goal of reengaging students in a rigorous program leading to college and technical careers, ARCHES regions seek to increase student achievement for all students, but especially those historically under served.

Through project based learning and integrated curriculum strategies these three year programs seek to increase the number of California science, technology and engineering graduates and professionals. It's a tall order, but ARCHES regions are bringing together resources from both public and private P-16, as well as industry and community based organizations to bring 21st century relevancy to the classroom.

Funded by The James Irvine Foundation, the Alliance for Regional Collaboration to Heighten Educational Success (ARCHES) is working with six regions to combine traditional, core academic courses with Pre Engineering and Green career technical education at the middle and high school levels. Students and teachers are excited about reinforcing academic concepts by applying them to real world applications and projects.

"Through ARCHES, local leaders will come together to find ways to improve student achievement. It is my hope that ARCHES will help lead the way to regional collaborative efforts throughout California."

— Jack O'Connell,
State Superintendent of Public Instruction

This Multiple Pathways approach is built on the fundamental insight that career education — which used to be called "vocational education" — can be academically rigorous. In November, 2008, six regions were selected by ARCHES to receive a Planning Grant. In the fall of 2009 all six regions embarked on a new path of combining academic and career technical education with a cohort of 9th or 10 grade students using Engineering or Green Technology themes to bring relevancy to the classroom.

While in the very early stages, high schools are redesigning the academic core, the technical core, support services and work based learning experiences. Based on the research and models created by Connect Ed and Career Partnership Academies, these regions have a three year plan to make both college and a technical career options for students.

Each collaborative is held accountable for achieving measurable student outcomes by leveraging resources and expertise throughout the academic, professional, and civic communities. By delivering relevant, motivational and exciting instruction to reinforce and enhance science, technology and math curriculum, ARCHES Collaboratives hope to build the foundation that will provide a competitive and qualified workforce in tune with emerging work realities.

ARCHES offers support to its regional and district grantee/participants through:

- Training and Team Building
- Liaison Support
- Inter-collaborative Exchange
- Evaluation

"ARCHES can be summed up as 3 R's focusing on Regional Issues by leveraging Resources to achieve measurable student Results."

— Lorena Hernandez,
California Regional Director of
Communications, Comcast Corp.

Facilitated by the ARCHES team, participating Collaboratives learned about successful, existing Multiple Pathways programs and then developed their program concept and strategies. Throughout the duration of the ARCHES program, Collaboratives will continue to meet and refine their programs.

For each collaborative, ARCHES identified an experienced educator to serve as a liaison in establishing and sustaining regional alliances. Each local collaborative has an ARCHES liaison to assist with integration of the P-16 collaborative support in establishing a new pathway at participating school sites. Additionally, ARCHES helps the cross-pollination process by arranging for ARCHES Collaboratives to visit existing successful multiple pathways programs throughout California.

As with any new program, evaluation is essential both to ensure optimal development and establish the potential for replication. Improving, and closing the achievement gap among student groups is one of ARCHES most important goals. To that end, Collaboratives are collecting unique data that will allow them to better assess changes in student achievement, the value of the multiple pathway approach, and success in eliminating the achievement gap.

Understanding the role and impact of the ARCHES program on the school site and district is fundamental to assessing the program's effectiveness. Collaboratives and the program evaluation team are tracking the unique and important aspects of the multiple pathways effort on teachers, counselors, administrators and, most importantly, students and parents of the local school.

Each Regional ARCHES grantee has taken

a unique approach in establishing a multiple pathways within the framework of a local P-16 collaborative that reflects their individual context and needs. Here are snapshots of the six ARCHES multiple pathways grants in their first year of operation.

The Merced County P-16 Education and Community Council has established an Engineering Academy at Buhach

Colony High School in the Merced Union High School District.

Program objectives include improving math test scores, school attendance rates and the grade point averages of participating pathway students.

The Academy challenges students to solve real world engineering problems by applying their knowledge and skills in mathematic, science, and technology.

The program of study includes well-designed, interdisciplinary problem- and project-based learning experiences that seamlessly integrate standards-based academic and technical curricular so that students have a full range of options upon graduation.



Pathway students will lead teams, speak in public, conduct research, study and understand real-work impacts, get involved in the community, analyze data, and learn both in and outside the classroom.

The Council includes representatives from the public schools and high education in the region, numerous businesses, economic development organizations, and community and family support organizations that have pledged to support this effort.

The Monterey Bay Education Consortium's objective is to engage and motivate Watsonville High School students to connect college preparatory curriculum with demanding career and technical education via a new Engineering Academy.

Specific goals of the collaborative include increasing the number of students completing the full college preparatory course sequence and, therefore, the college-going rate. The collaborative also wants to raise mean scores on the California Standards Test in mathematics by 10% over the next five years. Additionally, the Collaborative hopes to expand the number of Latino students prepared to succeed in college and careers.

By supplementing the "college knowledge" and connections for students between academics and real-world career opportunities, the collaborative hopes to empower students to ultimately succeed in today's competitive job market.

The effort to enhance existing pathway academies at Watsonville High School is led by the University of California Santa Cruz's Educational Partnership Center and Cabrillo College, and is a strategic alliance of educational institutions representing the public schools, community colleges, and universities. Additionally, the program includes an advisory committee of education, business, and community leaders.

San Bernardino County Superintendent of Schools and Upland Unified School District Alliance for Education has

initiated an *Engineering Pathway* that spans grades 7-12.

The *Engineering Pathway* is built on the *Project Lead the Way* model with rigorous curriculum for these grade levels to ensure that students have mathematical, scientific, and technological competence to continue their

education and participate successfully in industry learning opportunities. The initial program cohort includes 225 high school and middle school students.



The primary goal of the Engineering Pathway is to establish a pathway in which all students complete the course requirements for admission to the state's public universities, and develop all pathway courses such that they are certified as college or technical preparatory requirements for college or the work force.

This initiative intends to monitor the following outcomes:

- Percentage of students who score at the Proficient or Advanced levels on the California Standards Test in English-Language Arts and mathematics
- Number of courses articulated with Chaffey College and local colleges and universities
- Number of students completing two or more pathway courses
- Percentage of students participating in each type of work-based learning experience

Additionally, the collaborative plans to gather information on the *Engineering Pathway* program impact by examining the percentage of students and teachers reporting positive student-teacher interactions, and the number of students participating in pathway interest groups.

Currently, the Alliance and Upland Unified School District are collaborating with California State Polytechnic University Pomona, University of California, Riverside, California State University San Bernardino, Loma Linda University Medical Center, community colleges, Kelly Space and Technology, Northrop Grumman, and BEA Systems in establishing the pathway at Pioneer and Upland Junior High Schools and Upland High School.



Regional Collaboratives at Work

The San Luis Obispo P-16 Council, Atascadero Solar Advisory Committee, and the ARCHES Planning



Grant Design Team have developed the *GreenHound Academy* at Atascadero High School.

The GreenHound Academy seeks to expand the mathematical, scientific and technological literacy of students so they develop a thorough understanding of environmental issues as a solid foundation for further study and career exploration. The initial ninth grade cohort includes 60 students.

GreenHound Academy Goals include:

- 95% of program participants graduate from high school in 2013
- 92% of tenth graders pass the California High School Exit Examination in 2010 - 2011
- 80% of Academy students continue in this program of study beyond the first year
- Period absences decline by 50%
- Behavioral referrals decrease
- California Standards Test proficiency rates rise by 10% overall and for all subgroups;
- 15% more students complete the college preparatory course sequence
- Double the amount of Hispanic students completing the college preparatory course sequence

Additional collaborators are the San Luis Obispo County Office of Education, Atascadero Unified School District, California Polytechnic State University San Luis Obispo, Cuesta College, several local companies involved in renewable and sustainable energy.

The Santa Ana Partnership has established the Santa Ana Career Academy Scholars Program to implement a collaborative program of study in four high demand career fields: Digital Media, International Business, Automotive Mechanics, and Welding.

The Santa Ana Career Academy Scholars Program, while connected to high school and career technical education faculty and staff, is centered primarily on college credit occupational courses that are linked to academic and career training pathways at the high schools. The program enrolls 100 students yearly. Importantly, the proportion of Latino students in each of the pathways will equal their representation at the participating high schools—currently estimated to be more than 95 percent. The Santa Ana Career Academy Scholars Program objectives are:

- An average of 75% of participating students will complete each year of the program and will re-enroll at a similar rate
- 90% of participating students will graduate from high school
- 90% of graduating students will enroll in college

The Santa Ana Career Academy Scholars Program leadership team consists of Santa Ana Unified School District, Santa Ana College, and Regional Occupation Program executives, including broad involvement from their administrators, teachers, and student services staff. The Greater Santa Ana Business Alliance and the Business and Industry Academic Advisory Committees at participating high schools are involved as well.

The Ventura County Regional P-16 Council is developing a new Engineering and Design Career Pathway at Hueneme High School that follows the California Partnership Academy model. Through the ARCHES program, the collaborative seeks to provide a rigorous academic program that includes hands-on, skilled-based and motivational enrichment activities in addition to student and family support services. The initial student cohort will include 40 students. As a point of reference, 63% of the 2,000 students at Hueneme High School are from low-income families and 29% have limited English proficiency. The student outcomes objectives for Engineering and Design Career Pathway are:

- California Standards Test scores will rise by 5% per year
- All participating students will pass the California High School Exit Examination
- The mean grade point average will grow by 0.25 points each semester
- The proportion of participating students meeting the course requirements for admissions to the state's public universities will be 90% by high school graduation
- Participating students will have at least a 95% attendance rate
- At least 95% of entering students will remain in this program until high school graduation

The partners committed to providing Engineering and Design Career Pathway program resources, including mentoring and workplace learning, are the Ventura County Office of Education, Oxnard Union High School District, Oxnard College, California State University Channel Islands, University of California Santa Barbara, Port Hueneme and Point Mugu Naval Bases, and the Ventura Economic Development Association.