



December 8, 2008

Sierra STEM Community Collaborative Grant Goal

The Sierra College Workforce Development Division was awarded \$600,000 in grant funding for 2008-09 from the California Community College Chancellor's office to expand career technical education (CTE) and promote science, technology, engineering and math (STEM) education. The goal is to work with educators, businesses and communities to develop hands-on integrated academic programs that are sustainable. The projects should meet state standard requirements, engage students with applied academics and introduce students to technical careers.

Teacher Tips

If you are looking for a way to show students the practical application of academic skills, check out www.thefutureschannel.com. In one movie, a designer of Mattel's Hot Wheels cars describes how he uses math to design and produce a toy that is exactly 1/64 of the size of the real car. You can search for movies and activities by grade level and subject.

You may find these career web sites useful as well: www.roadtripnation.com/, www.whodouwant2b.com, www.californiacareers.info/ccpg, www.careerzone.org and www.realgamecalifornia.org.

Sierra College STEM projects

The www.sierracollegeetraining.com website offers information about current STEM programs such as the CNC Machining iDesign at Lincoln High School, the South Placer Robotics Club and the Tech-Explorer Catapult project. Click on Tech Ed.

How to Inspire a Skilled STEM Workforce

The following ideas were generated by the STEM Advisory Committee at the meeting held on October 29, 2008. They answered this question: "You live and work in the region. From your perspective, professionally and personally, what do you think needs to happen in K-14 education that will result in a highly-skilled STEM-related work force?"

Employer/Education Connection

- Communication between employers and education with skills/education leading to specific employment – Feedback loop.
- Teachers going out to see how businesses use academic concepts.

Project Based Learning

- Marry the concepts of testing and performance. Project-based lessons motivate kids to study and do their homework.

- Understand what the standards are at each grade level, and then use “hands-on” projects for an applied academics learning experience.

Education Pathways to Prepare Students for STEM Careers

- Start with 7th & 8th graders; show them how to schedule CTE into their H.S. classes.
- Focus on middle school (kids self-select out of math, not believing they can do it, as early as 6th grade!)
- Bring CTE back to middle school
- Changing the counselor message of: “You don’t need science/math if you’re going to community college.”
- Help students see career and educational possibilities.
- Increase awareness of what needs to be done in H.S. to get to the next step in any selected career pathway.
- K-8 students need to have career exploration components integrated throughout the curriculum.
- Need to emphasize math and science skills to middle and high school students as prep. for CTE courses
- Break down barriers (e.g. girls don’t do math) for students looking at career paths
- Need to make CTE accessible to all students.
- Need to look beyond the “one shot” events (e.g. career fairs) and integrate career concepts into all classes

Marketing/Image

- Improve our marketing efforts – We need to change the culture, make parents made more aware that CTE leads to high skill, high wage careers.
- Read “Other Ways to Win”!
- Publicize our success stories.
- Communicate what jobs are needed and pass that information on to students. For kids that don’t have direction, offer CTE college feeder programs.
- Change the culture – make it OK for parents to be proud of kids who excel in hands-on classes.

Integrate CTE & Academics across Disciplines

- Integration of STEM into courses and career paths. Ex: Placer Union HSD Math/Science teachers collaborative hands-on applications.
- Stop teaching subjects as separate disciplines – do away with “silos” and integrate projects to get multiple topics exposure.
- Increase relevance – e.g. Math is needed to be a carpenter.

Instructional Support and Professional Development

- Teachers who go on internships develop curriculum that other teachers can use.
- Support teachers who create curriculum and post it on the web as a resource for other teachers.
- Support extracurricular projects – e.g. Clubs/After school classes to overcome the barrier of “Not enough time.”
- Need community leadership to “blaze the trail” and create proven / workable models.
- Share resources at the district/college level.