



UC Santa Barbara's Gevirtz School presents

Building Bridges in STEM: Central Coast STEM 2012 Annual Forum





Friday, October 12, 2012 9:00 am – 4:00 pm UC Santa Barbara, Corwin Pavilion

Agenda

9:00 Registration and light buffet breakfast

9:30 Welcome

> Jane Close Conoley, Dean and Professor Gevirtz Graduate School of Education, UCSB John Keller, Director Center for Excellence in Science and Mathematics Education California Polytechnic State University, San Luis Obispo

9:45

Next Generation Science Standards

Susan Salcido, Deputy Superintendent Santa Barbara County Education Office

Brad Schultz, Assistant Superintendent, Educational Support Services San Luis Obispo County Office of Education

10:00

Schools and Communities Coming Together: Everybody Wins David Cash, Superintendent Santa Barbara Unified School District

Volunteers in the Classroom: A Model for Maintaining Relevancy in, and Political Support for, Public Education

Ben Romo, Executive Director Santa Barbara County Education Office

10:30 *Now Let's Do It!: Building a Successful Program*

Moderator: Michelle Magnusson, Program Development & Accountability Manager Partners in Education, Santa Barbara County Education Office

Panel Members: Kathy Abney, Principal of La Cuesta & Alta Vista High Schools Theresa Huerta, Raytheon, Manager, Communications & Community Relations Lee Ann Knodel, Coordinator of the Dons Net Cafe

Dave Messner, General Manager & Vice President, ATK Space Systems

Gary Simpson, member of the Dos Pueblos Engineering Academy Foundation Board (Partner Relations)

12:00

Luncheon Speaker

Building the Nation's STEM Workforce: Economic and Social Imperatives Jeff Henley, Chairman Oracle Corporation

1:30

The STEM Landscape: Schools and Community Programs Displays located outside Corwin Pavilion

2:50

Take Away Charge: Engage Your Passion

Jane Close Conoley & John Keller

Jeffrey O. Henley is Chairman of Oracle Corporation. He has held this position since January 2004. Henley was Oracle's Chief Financial Officer and an Executive Vice President from March 1991 to July 2004, and he has been a member of Oracle's Board of Directors since June 1995. He also serves on Oracle's Executive Management Committee. Prior to joining Oracle in 1991, Henley served as Executive Vice President and Chief Financial Officer at Pacific Holding Company, a privately held company with diversified interests in manufacturing and real estate,



and as Executive Vice President and Chief Financial Officer at Saga Corporation, a multibillion-dollar food service company. He also served as Director of Finance at Memorex Corporation in its large storage division, and as Controller of International Operations at Fairchild Camera and Instrument Corporation. Henley is a member of the Board of Governors for the Boys and Girls Clubs of America and serves on both the Chancellor's Advisory Council and the International Advisory Council of the Engineering College for UC Santa Barbara. He is also a member of the Board of Directors of Digital Consumer Solutions Inc., which operates a digital-out-of home signage network for retail advertisers, and serves on the Advisory Board of InTouch Technologies, a provider of remote presence solutions for healthcare providers. Henley has a BA in economics from UCSB and an MBA in finance from UCLA. In 2004, he received the UCLA Anderson School's Outstanding Alumnus award. In addition to major pledges to UCSB, Henley and his wife actively support a number of Santa Barbara organizations including United Boys and Girls Clubs of Santa Barbara County, The Scholarship Foundation, Sansum Clinic, Cottage Hospital, and The Santa Barbara Bowl. A particular passion of the Henleys is the pilot program called Hardy Brain Training. They started at Boys and Girls Clubs in Oxnard, then added Portland, Oregon and Santa Barbara County. This fall they start the program in Coachella Valley with a goal to train 1,000 kids in 2013.

STEM Landscapes

Center for Science and Engineering Partnerships (CSEP) at UCSB and Santa Barbara Schools

After School Clubs (Xtreme Science) and Family Ultimate Science Exploration (FUSE) programs are both collaborations between the Center for Science and Engineering Partnerships (CSEP) at UCSB and Santa Barbara Schools. Xtreme Science provides opportunities for students at la Cumbre and Santa Barbara Junior Highs and Adelante and Harding University Partnership School to have contact with positive, scientist role models and mentors from UCSB, while increasing student understanding in science through hands-on experiences. FUSE in the community is a biannual evening program offered at Santa Barbara junior high schools. Young students and their families rotate through three science activity sessions related to physics, chemistry, and biology, all led by UCSB students.

"Cool Inventors Association," Hollister Elementary School

The "Cool Inventors Association," Hollister Elementary School's FIRST LEGO League team, demonstrates its progress on the current season's Robot Game and research project. This international competition is growing rapidly in the Santa Barbara area, incorporating real-life scientific research, engineering with LEGO, computer programming, and friendly competition. FIRST LEGO League is a robotics program for 9 to 16 year olds that teaches science and technology through team competitions, like a science fair.

Dos Pueblos High School Engineering Academy Robotics Team

The DPHS robotics team "Team 1717" is a part of the international FIRST Robotics Competition. FIRST (For Inspiration and Recognition of Science and Technology) encourages young people to pursue educational and career opportunities in the fields of math, science, engineering, and technology. All 32 members of Team 1717 are high school seniors who take the Advanced Engineering Physics and the FIRST Robotics course offered with the support of the Santa Barbara County Education Office.

DSK Architects, George Pudlo and Mark Seiberlich

From Theory to Space: Creating spaces for emerging and evolving project based learning models. DSK will outline the transition of STEM education concepts to usable teaching environments. The presentation will briefly indicate the process involved in designing and creating the appropriate spaces to serve new educational models. Beginning with the understanding of an "educational specification," they will present how physical facilities can be created to best serve educational goals in the context of 21st Century Learning Environments. They will address what differentiates the new classroom, lab, corridor, exterior spaces, storage, etc. from the traditional spaces.

introNetworks, Mark Sylvester, CEO

NASA Educators Online Network (NEON) is presented by Mark Sylvester, CEO, introNetworks, creators of the NEON System. Mark will be demonstrating how teachers are being connected with each other and NASA scientists to develop STEM programs and best practices for STEM education. Congress has funded this project, administered by Penn State and run by local Santa Barbara company introNetworks. Sylvester will show how their matching engine helps educators find likeminded teachers for independent professional development (IPD) and will invite attendees to join the free program.

Mobile Oilfield Learning Unit (MOLU)

MOLU is a 1.2 million dollar engaging traveling exhibit. It features six self-contained learning centers with curriculum-based, hands-on activities about energy and the technologies and sciences involved with the oil and gas industry. Devon, Dominion, ExxonMobil, Halliburton, Marathon Oil Corporation, and Schlumberger are all sponsors of MOLU.

National Oceanic and Atmospheric Administration (NOAA)

Rocio Loziano presents NOAA's Multicultural Education for Resource Issues Threatening Oceans (MERITO). MERITO is a marine conservation outreach effort comprising approximately 25 regional groups that participate in ocean and watershed education programs that serve students, teachers and families. Anne Stephens from the California Department of Education presents the Long-Term Monitoring Program & Experiential Training for Students (LiMPETS). Approximately 3,500 teachers and students along California's coast are collecting rocky intertidal and sandy beach data as part of the LiMPETS network.

The Pioneer Valley High School Summer Science Institute

The Pioneer Valley High School Summer Science Institute, founded by Riccardo Magni, just completed its third annual session. Eight students participated in inquiry-based research projects that they designed. Representing PVHS today are Edith Camacho, Xavier Aguilar, Jonah Mau, and teacher Riccardo Magni. Funded by the Hardy Diagnostics, the Philips 66 refinery, and the Santa Maria Joint Union High School District, the students from the Summer Science Institute hope to compete in the 2013 Santa Barbara County Science Fair.

San Marcos High School's Automotive Technologies Program

San Marcos High School's Automotive Technologies program will be used as a model for using best practices in teaching critical thinking and problem solving within the Common Core that will cross over to many other STEM disciplines. Automotive technologies instructor Russ Granger will present work from this course.

The Santa Barbara Astronomical Unit (SBAU)

The Santa Barbara Astronomical Unit, the award-winning local astronomy club sponsored by the Santa Barbara Museum of Natural History, enjoys bringing astronomy to the public at schools, parks, campgrounds, hotels, and public venues. They offer evening star parties, classroom presentations, and safe daytime solar observing. They bring hands-on meteorites and have video eyepieces and a wheelchair-accessible telescope mounting for those who have difficulties with conventional telescopes. Their goal is to share the sky with everyone.

Santa Barbara Museum of Natural History

The Santa Barbara Museum of Natural History and Ty Warner Sea Center offer school groups unique learning experiences through various activities. Students are encouraged to develop keen observation skills, to generate questions, and to construct a personal understanding of the natural world through field, lab, and exhibit hall programs. Learn about two exciting hands-on education programs at the Santa Barbara Museum of Natural History and Ty Warner Sea Center: Nature Adventures, handson classes and camps for two to fourteen year olds, and Quasars to Sea Stars, a four year science program where teens learn through interactions with Museum curators and staff.

Santa Ynez Valley Union High School

Environmental and Spatial Technologies (EAST) Class will share some of its innovative and national award-winning projects. These include GIS mapping in partnership with Sedgwick UC Nature Reserve, Santa Barbara County Cliff Erosion mapping, Santa Barbara Trust for Historic Preservation and mapping of the Santa Ines Mission aqueduct. They will also present their K-20 partnerships with Cyark and the University of San Francisco introducing 3D laser scanning to high school students for the first time. Work with UCSB paleobiologist Dr. Susannah Porter will be displayed and credited in her TEDx talk. One student will showcase a project developing an approved iPhone app and mobile website.

The School Gardens Program

In partnership with Santa Barbara City College (SBCC) Center for Sustainability, the Orfalea Foundation's School Food Initiative (SFI) is supporting the creation and maintenance of gardens throughout Santa Barbara County school districts. The mission of the program is to connect students with their food and their environment through school gardens. This partnership uses Garden Educator Managers, lead teachers, and parent and community volunteers to operate an outdoor classroom where children can learn about biological processes, community building, and cooperation. Since its inception in spring 2009, the program has installed or enhanced 29 gardens and supported three schools with independent garden programs.

STAR: STEM Teacher and Researcher Program

The STEM Teacher and Researcher Program (STAR) provides 9-week paid summer research experiences in prominent national research laboratories for pre-service science and mathematics teachers from the California State University (CSU) system and for Noyce Scholars from across the nation. Over the past six years, the program has partnered with lab facilities from the Department of Energy, NASA, NOAA, and NOAO to provide 290 research placements to 230 outstanding STEM undergraduates and credential candidates from over 40 campuses, including both Cal Poly and UCSB. STAR is run by the Center for Excellence in Science and Mathematics Education (CESaME) at California Polytechnic State University in San Luis Obispo on behalf of the California State University (CSU) system. Additional material available at *www.STARteacherresearcher.org*

UCSB Department of Chemistry

SciTrek promotes the synergies between science inquiry, language arts, and K-12 California standards. They provide on-site resources for K-12 students, practicing teachers, and teachers in training to cover required grade level standards and experience the processes that form the basis of all evidence-based approaches to understanding our world. Two to three week modules cover all science disciplines and start with observations, generation of questions, design of experiments to address the question, execution of experiments that students design themselves, data collection, analysis of data and its presentation to peers. Each class experiences two modules per year and evaluation of K-12 students.

UCSB Marine Science Institute (MSI)

UCSB's Marine Science Institute claims to have been STEM before STEM was cool. The exhibit is composed of their Research Experience and Education Facility (REEF): an interactive teaching aquarium; Oceans-to-Classrooms (O2C) Mobile REEF; and an Ocean View of Marine EcosySTEMS. These exhibits bring their interactive aquariums and O2C programming directly into classrooms and community events throughout the area and use UCSB science students to provide K-12 students with an unparalleled view of the ocean planet.

UCSB Material Research Laboratory (MRL)

UCSB's Material Research Laboratory is home to the NSF-sponsored Models and Materials, a three-year teacher professional development program that brings together teams of local teachers from junior high and high school art and science. The teachers develop integrated curriculum modules that bring visual art concepts to the science classroom and science concepts to the art classroom. The program introduces materials science and but provides a new way to communicate scientific concepts to students.

CCSTEM Collaborative Core Affiliates

Allan Hancock College
California Polytechnic State University
California STEM Learning Network
Center for Excellence in Science and Mathematics Education, California Polytechnic State University, San Luis Obispo
Endeavour Institute
Gevirtz Graduate School of Education, University of California Santa Barbara
P-16 STEM Steering Committee, San Luis Obispo County
San Luis Obispo County Office of Education
Santa Barbara County P-20 STEM Council

Central Coast STEM Collaborative Forum Planning Committee

San Luis Obispo: Patricia Garrett, San Luis Obispo County Office of Education Tanja Kehler, Pac Bell Steve Kliewer, Endeavour Institute George Pudlo, DSK Architects Pam Rickard, Lompoc Valley Middle School Jerry Valdez, Cal State Fresno, Central Valley Science Project Santa Barbara:

Ellen Barger, Santa Barbara County Office of Education Wendy Ibsen, UCSB's California NanoSystems Institute Peggy Lubchenco, UCSB's Gevirtz Graduate School of Education Michelle Magnusson, Partners in Education, Santa Barbara County Education Office Meredith Murr, UCSB Office of Research Susan Salcido, Santa Barbara County Education Office Sandy Seale, Dos Pueblos Engineering Academy Foundation

> ccstem.org education.ucsb.edu/stem