

## Professional Development for K-12 teachers (CenSURF and SCSP)

The Center for Sustainable Use of Renewable Feedstocks (CenSURF) engaged the public and K-12 students & teachers in hands-on science activities that inspired them to ask questions, conduct investigations and share findings.

Over the last three years sponsored professional development institutes for >150 elementary teachers, that in turn serve >4500 students per year in Santa Barbara and Ventura counties.

We partnered with SciTrek (directed by Dr. Darby Feldwinn) to develop an inquiry-based respiration module on the sources and sinks of CO<sub>2</sub>. This is an 8 hour student-centered inquiry-based activity for 4<sup>th</sup> and 5<sup>th</sup> grade students. Over a two week period, students design and carry out experiments, draw conclusions, revise experiments to obtain more data, and present the results on posters to the class.

We sponsored Science for Community Events at the San Francisco Bay Area Science Festival, a two-day Family Science Days event at the AAAS national meeting in San Jose and at the Santa Barbara Zoo.

The professional development program works primarily with schools that serve large numbers (50-90%) of underrepresented minorities, English Language Learners, and economically disadvantaged students.

**Summer Science Institutes:** We provide professional development for elementary teachers in the form of summer science institutes. Our professional development program is a collaborative partnership funded by CenSURF, Science Matters, the South Coast Science Project (SCSP), the RORD Foundation, and the B P Moser Trust. We partner with Science Matters and District Teacher Leaders to provide engaging and thought-provoking learning opportunities for K-6 teachers from Santa Barbara and Ventura Counties.

For summer 2014, all institute teachers participated in the respiration module. One of the teachers who attended the summer institute and participated in the respiration module indicated:

*"The blue solution (CO<sub>2</sub>) investigation was amazing. It was so powerful to experience it from a student's point of view and to be able to work on a problem over an extended period of time. Also amazing was the leads modeling both as scientist, verbalizing scientific thought processes, and as a teacher, modeling how to ask questions to help students think deeper."*



One of the teachers indicated that a highlight during our summer science institute was: *"Experiencing the whole scientific process, especially the design and implementation of our own experiment; and the challenge to cite readings and experimental results to back up a concept/claim."*

**Press Release:** The summer institute was featured in the news on The UCSB Current and the Science Matters website. <http://www.news.ucsb.edu/2014/014412/understanding-science>



Understanding the Science | The UCSB Current  
Teachers immersed themselves in lessons they can bring to their own classrooms in conjunction with the National Research Council's Next Generation Science Standards

**Press Release:** Summer Institute August 2014! Success! <http://sbsciencematters.com/>

### **The Goals of Summer Institutes include the following:**

**Increase Science Content Knowledge:** We will provide opportunities for teachers to interact with content specialists to build content knowledge.

**Integrate Scientific Practices into Lessons:** The Next Generation Science Standards (NGSS) shift how science is taught and learned from memorizing facts to carrying out scientific processes. NGSS aligned inquiry-based lessons will be provided that can be taken back into the classroom.

**Build Science Literacy:** Building science literacy is important for English Language Learners as well as native English speakers. In addition, the Common Core State Standards (CCSS) require integration of mathematics, science, and language arts. During summer institutes, teacher leaders and content specialists present lessons aligned with NGSS and CCSS with special attention given to lessons that integrate across content areas.

**Build Teacher Leaders:** In order to have a sustainable program and build capacity, we must build teacher leaders both for the summer institute and for associated programs that support teachers during the year.