

## Shining some light on the science of solar power Stanislaus County 4th-8th grade teachers get training, class kits

Source: Nan Austin, Modesto Bee, February 4, 2015  
<http://www.modbee.com/news/local/education/article9320582.html#/tabPane=tabs-b0710947-1-1>

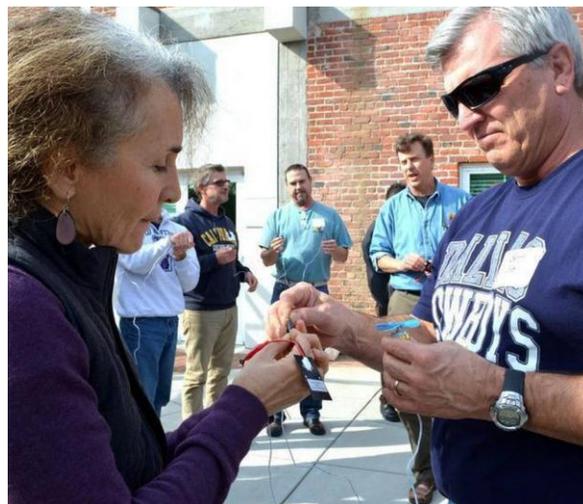
Twenty teachers eager to bring hands-on energy experiments into their classrooms spent a day trying them out and jotting down lecture notes for when they fly solo. The daylong training came about with nonprofit groups' expertise, county office coordination and community cash.

Twenty classroom kits filled with tiny solar cells, volt and amp readers, and solar car kits, valued at \$750 each, are going back to campuses around Stanislaus County with the teachers. Trainers from Solar Schoolhouse and Solar 4R Schools, the programs of two nonprofits, laid out the lessons to teach with the kits.

The [Stanislaus County Office of Education](#) organized the day and American Chevrolet picked up the \$20,000 tab, throwing in a display of alternative energy in action – its 101 mpg Volt hybrid.

“Our vision is to start to improve science education in our county, provide our students with 21st-century engineering opportunities,” said Sean Timmons, SCOE science educator. “We wanted to give kids the opportunity to excel, doing real science through hands-on – and minds-on – experiments,” he said.

The county office invited principals throughout the county to nominate teachers who would make good use of the training, Timmons said. The goal was to spread access to all schools, all students. “It’s an equity issue,” he said. Other education efforts are connecting college students and working scientists as mentors for San Joaquin Valley students, Timmons said, “so we can make those possibilities real.”



*Agnes Baptist Elementary teacher Marie David and Denair Middle School science teacher Barry Cole connect solar cells to power a tiny fan during a Stanislaus County Office of Education training on teaching solar science Wednesday in Modesto.*



*Solar science trainer Tor Allen of the Solar Schoolhouse reacts when Richard Kelly, a teacher at Creekside Middle School in Patterson, coaxes 0.57 volts out of a half-volt solar cell by shifting its aim at the sun during a Stanislaus County Office of Education training on teaching solar science Wednesday in Modesto.*

Beneath a mostly sunny sky outside the Petersen Event Center on Wednesday afternoon, teachers standing in a circle connected the nuts and bolts of solar power. Red clips went to the right; black clips connected to the left, instructed trainer Tor Allen, head of the nonprofit Rahun Institute supporting the [Solar Schoolhouse](#).



*Tor Allen helps teachers create an electrical circuit using solar cells to power tiny fans Wednesday. The exercise was part of Stanislaus County Office of Education training to help teach solar science*

Tiny blue fans whirred as the circuit closed, bringing cheers from the small crowd. Foil-covered cardboard baskets gave glittering evidence of earlier solar oven experiments. Still to come were solar notebooks and a charging station powered by the sun, said Chaun MacQueen of [Solar 4R Schools](#), a program of the Bonneville Environmental Foundation.

“I have solar panels donated by a retired biology professor, I just need to know how to utilize them,” said Marie David, fifth- and sixth-grade teacher at Agnes Baptist Elementary in northwest Modesto. Her students are researching school energy use and will present their data to the Stanislaus Union School District board in May.

David and Denair Middle School science teacher Barry Cole made a little one-volt fan twirl using two half-volt solar cells. Richard Kelly, a teacher at Creekside Middle School in Patterson, coaxed 0.57 volts out of his cell by repositioning his smaller-than-a-business-card solar panel. A meter showed the cells generated 0.37 volts even when shaded.

Debra Mobus and Jenneca Hollinger, teachers at Ustach Middle School in northeast Modesto, fiddled with tiny red and black clips to power a mini music maker, similar to those used in greeting cards.

“I just did a unit on atoms, and electrons moving to create electricity fits right in with that,” said Hollinger, who teaches math and science to special education students.

“Alternative forms of energy are part of the sixth-grade standards,” said Mobus, who teaches honors classes in math and science. “This also fits with life science, how the plants turn sunshine to energy.”

Once connected, the music maker beeped out a high-pitched tune and Mobus chuckled. “It’s ‘You Are My Sunshine,’” she said. “The kids will love this!”

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*[For more information about Solar Schoolhouse Activities, projects, curriculum, workshops, events...visit [solarschoolhouse.org](http://solarschoolhouse.org) ]*

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