

Taking the sun's power into the classroom

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A bunch of California teachers will have plenty to write about in their "What I Did on My Summer Vacation" essays.

The two dozen or so educators took part last week in the 5th annual [Solar Schoolhouse](#) Summer Institute for Educators, an energy education program developed by the non-profit Rarus Institute. It was held at Midland School in Los Olivos.

The teachers, including two from nearby Family School, spent the week doing tasks more usually suited to the youngsters they instruct. They built a complex cardboard village of their model passive solar homes; they used small solar panels and rubber wheels to crafted tiny solar go-carts; they used blowtorches and soldering irons to make copper solar fountains, and then delighted when their concoctions sprouted water from the tubes. They fashioned pizza and shoe boxes into small-scale solar cookers, and some vowed to use the stoves when they returned home, since they are designed to heat food to 300 degrees.

The program was created for kindergarten-through-high school teachers, to provide them with knowledge about conservation and energy resources.

"It's providing them the teaching tools to take and integrate into their classrooms," said Tor Allen, executive director of the Rarus Institute, based in Martinez, Calif. "There's a connection to the real world. These things are happening in their own lives. They're also doing the activities so they can get the kids excited about learning."

For many, the \$1,050 cost of the program was covered by their respective school districts or city councils. Family School teachers Sandy Hanes and Lissa Samuel applied for a grant and received half their tuition; the Family School paid for the remainder.

"It gives us an opportunity to talk to people and share ideas, and learn new techniques," Ms. Samuel said as she paused from soldering her copper fountain.



Family School teacher Lissa Samuel and her solar-powered fountain -- a Solar Schoolhouse alternative energy project.

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She had a grand time, she said, crafting her fountain so her students could make the water spout in a myriad of ways, simply by putting caps over the top of some of the tubes. The knowledge they gained at the solar camp, she said, fit in perfectly with the reusable energy credo of their school.

"This is a natural," she said. "It's not the answer for all; it's one piece of the puzzle."

Jennifer Kubik teaches 11 children in a one-room schoolhouse in Garberville. Many of her kindergarten-through-third grade pupils already live "off the grid," meaning they live in homes that rely on renewable energy rather than on public utilities. Her week at camp was sponsored by Alternative Energy Engineering, a company near her Redway home that sells renewable energy products.

"I can go back home and teach other teachers how to teach about solar in the classroom," Ms. Kubik explained, as she finished her solar fountain. She appreciated what she called the "doability" of many of the tasks. "I've been thinking this whole time how to do this in the classroom and how to incorporate this in my own life, to have a more sustainable energy system in my house," she explained. "It's given me great ideas."

Teacher Scott Gates is already living off-the-grid in his home, in the town of Biggs, about 90 miles north of Sacramento. His city offered to send any educator to the workshop, so "we could educate kids about alternative power." "The neat thing about this program, every time they put something in your hand, you take it home," said Mr. Gates, who teaches about eight students in grades 5 through 8, who have been expelled from school.

He scurried around the Midland campus barn, showing off a solar pizza box oven and his solar cardboard home -- modeled after his own residence. The small model had south-facing windows to incorporate more sunlight into heating the home, a fire pit outside for cooking and a "trombe wall," a heavy secondary sun-facing wall made of masonry to act as a solar thermal collection point.

Mr. Allen said projects like solar villages are concepts that can easily be reproduced in classrooms. The teachers took time to include special details, such as those created by Mr. Gates.

Jose Reyes of Indio teaches special education 5th and 6th graders, and felt the students would enjoy such tasks. "It's good to have hands-on education," Mr. Reyes said. "This is a game for them when they learn."

That aspect appealed to Jannine Tuttle, a teacher at Santa Barbara's Marymount School. "They've got a lot of innovative, hands-on activities for the kids to understand solar energy. It's a great comprehensive education."

Projects like the solar go-cart and the village, she said, will "captivate the kids. They love being able to build or create."