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Da Vinci students find energy savings add up

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High school students in Davis are taking home watt meters and finding out just how much electricity their family's refrigerator, computer and lighting fixtures are using. The students are using these findings to figure out a plan to reduce their personal energy use, then filming public service announcements aimed at spreading the message in the community.

The Energy Program Youth Corps is an initiative of the UC Davis Center for Regional Change. Students in science classes at Da Vinci High School took part in the home energy audits during late February and early March. Students at Davis and Woodland high schools will be doing audits in coming weeks.

Most students come into the project with very little idea of how much energy their family uses. Their parents have typically made most of the decisions in this regard — such as whether to buy energy-efficient kitchen appliances, or replace old-style incandescent lighting with compact fluorescents.

Until they do an energy audit in a "real life" context, most students haven't really studied their household's monthly energy bill — or thought about how much they might save by changing a few everyday habits.

For students in Da Vinci High science teacher Zach Ronneberg's classes, the do-it-yourself energy audit was an eye opener.

"I was surprised how many incandescent bulbs we had — a lot more than I'd expected," said Brian Jones. "My dad runs a business out of our house, and his computer is huge. I found that it draws more power than two plasma TVs. I told him he should turn it off when he's not using it."

Jones said he was "surprised at how many of our household appliances didn't have an Energy Star rating (which indicates they are energy-efficient). We are looking into getting a new washer and dryer for the laundry; I will try to persuade them to get energy-efficient ones."

Christine Bowlus found that a surprising amount of energy "is used by smaller appliances that get left on. I used to let the computer 'sleep' at night; now I shut it down. My parents have an espresso machine that gets left on; I turn it off for them. These small things really added up in my energy audit."

"For instance, I had been leaving my (laptop) computer charger plugged in for months," Bowlus said. "Now, I unplug the computer charger when I'm not using it. The same for the cell phone charger, and the TV."

Keith Hughes did some experiments at home, turning appliances on and off while checking the electric meter on the side of his family's home to see how fast the meter's main wheel was turning. The more appliances were on, the faster the wheel would turn. And the more idle appliances that Hughes unplugged, the slower it turned.

Tristan Thorpe said his parents just remodeled their home and replaced most of the older appliances with new Energy Star-rated appliances, cutting the monthly energy bill substantially.

Other students found that compact fluorescents really do use a lot less electricity than old-style incandescent bulbs. One found that the cable TV box used more electricity throughout the day than the television it was attached to, since the cable box was always on. And they found that the electric toaster sucked up a surprising large amount of energy when it was in use.

Students also found that shorter showers (which use less hot water), setting the thermostat at a lower temperature in the winter (saving on heating costs) and a higher temperature in summer (saving on air conditioning) were ways to save.

Hanging the laundry on a clothes line was another suggestion — though one student found, to his surprise, that some Davis neighborhoods actually have homeowners association rules that forbid outdoor clotheslines.

Groups of students wrote and designed pamphlets describing their findings, and produced videos illustrating ways to save energy. Some of these videos are expected to be screened for the Davis school board — most likely at Thursday's school board meeting.

The program starts with in-class orientation, including online forms that give students an idea of which appliances they should be checking for energy consumption.

"We have students take watt meters home and monitor stand-by power and how much energy various appliances use," said Gwynn Benner, project director of the Energy Program Youth Corps. Stand-by power is the energy used by idle televisions, cell phone chargers and other household devices.

Ronneberg, the science teacher, said, "I think students came away from this project with a good sense of what the major energy consumers are in their own households, and many have taken steps toward lowering their own household's energy use. I am excited that students have taken this opportunity to actually convince their families to make changes, to be an advocate for environmental (or fiscal) responsibility.

"I truly hope they come away from the project with a sense that they can help make change in the world rather than just wait for someone to tell them what to do."

John Mott-Smith, a member of the school district's Green Schools Initiative who helped evaluate the student presentations at Da Vinci, said, "Davis students are amazing — and this type of classroom activity is exactly what the Green Schools Initiative wants to encourage."

Added board trustee Richard Harris, who helped organize the Green Schools Initiative, said, "Getting the kids involved is a key to success." He credited support from PG&E for providing funding for the watt meters used by students to do the home energy audits.

The Energy Program Youth Corps also gets support from the Knowles Science Teaching Foundation, which gave Ronneberg a five-year teaching fellowship that included mentoring, professional development and opportunities to network with other science teachers nationwide. The foundation supports 136 teachers in 31 states.