



GREEN SCHOOLS / GREEN CAMPUS UPDATE NEWSLETTER

Using Energy Efficiency to Strengthen Education



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ALLIANCE TO
SAVE ENERGY

Creating an Energy-Efficient World

GREEN SCHOOLS/GREEN CAMPUS

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WATT'S NEW

UC Berkeley Beats the Clock

Sustainability Summit Sets Goals

California Assembly Bill 32, the Global Warming Solutions Act, calls for a reduction of greenhouse gas output back to 1990 levels by 2020. But students and administration at UC Berkeley have decided that 2020 is too far away, and have placed their own 1990-levels date at 2014. The new goal was announced at this year's Sustainability Summit on the Berkeley campus by Chancellor Robert J. Birgeneau. The campus has made the commitment to "play a pivotal role in California's climate strategy and action," Birgeneau said. The goal "not only meets the [American College and University Presidents Climate Commitment] ACUPCC criteria but emphasizes Berkeley's leadership in sound analysis and actionable policy. Birgeneau signed the ACUPCC in March, along with 285 other college and university presidents and UC chancellors.

A feasibility study was commissioned at last year's summit, and the results showed the resounding possibilities. The collaboration of students, staff, faculty, and administration found that the 2014 goal can be reached through increased energy efficiency and conservation efforts. Further study in the field can be accomplished with the recently awarded \$500 million grant from BP to fund the new Energy Biosciences Institute. The grant gives Berkeley an enormous role in developing new sources of energy that will create less impact on the environment. The initial focus of the Institute will be the creation of transportation fuels from plant matter (biofuels).

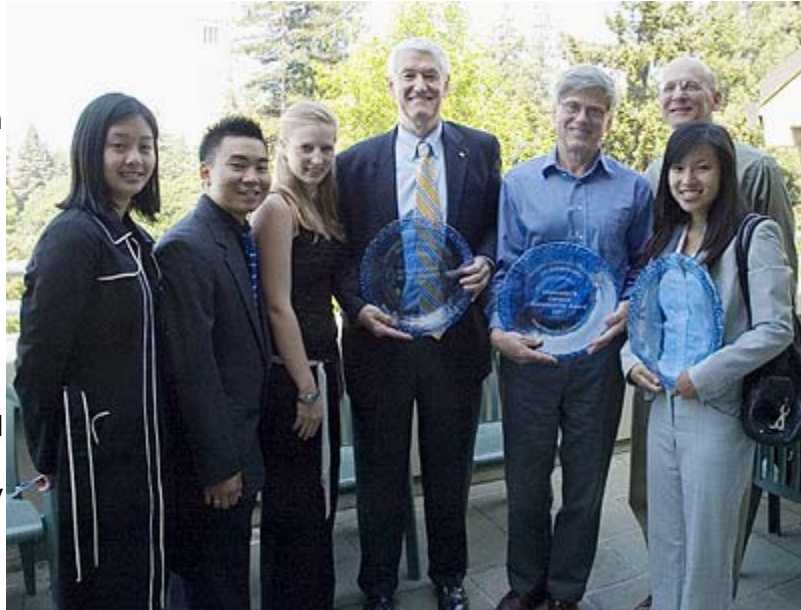
Grants to Individual Projects

Grants for environmental projects are not only going to large science institutes, though. The Chancellor also announced at the summit that the Chancellor's Committee on Sustainability will fund 13 projects proposed by individual members of the Berkeley community, students and faculty alike. This year those grants go toward the efforts of the Alliance, along with other, independent programs:

- A campus energy-saving feasibility study
- Cutting energy use in mechanical engineering faculty research space by half
- The Green Campus Program, run by the Alliance to Save Energy Green Campus Program and appointed student interns
- Minimizing the footprint left by research labs and setting core sustainability principles
- Creating sustainable practices in design studios, therefore influencing future architects, planners, and landscape architects

- Replacing all 181 incandescent lightbulbs in the Zellerbach Playhouse lobby with CFLs
- Engaging eco-friendly alumni in fundraising and support efforts
- Cultivating a 100-square-foot green plant and soil cover on a building rooftop
- Creating "outdoor classrooms" with border gardens at University Village, a large student housing complex
- Earth Week 2008 planning and publicity
- Sustaining the campus farmer's market, and working with the local farmer's market, and
- Developing a subdivided recycling receptacle for dorm rooms

This year's accomplishments were also acknowledged at the Summit: Professor of architecture Edward Arens was recognized for his work in ecological design, and integrating the topic of sustainability into his design classes; utility engineer manager of the physical plant



Paul Black was honored for his long-time commitment to energy efficiency, and embarking on projects like lighting retrofits, steam trap replacement, and efficiency testing; Rebecca Jones, a graduate student in materials science and engineering was acknowledged for her work with solar-cell research, the Green Initiative Fund, and the UN Industrial Development Organization in China.

Lastly, the students behind Berkeley's Green Campus program were commended for their dedication to campus education and leadership in conservation projects: Desirae Early, Vi Do, Jessica Huang, and Kameron Kitajima ran numerous projects, events, and competitions this year to encourage sustainable behavior in multiple aspects of student life. Chancellor Birgeneau received a special recognition for his leadership in sustainability, and for his commitment not only to act locally but to work globally as well.

Howard County Students Grace Silver Screen

Film Festival Celebrates a Successful Year

The Howard School District in Maryland held its end-of-the-year celebration on June 7 with a film festival and dessert party. Students and teachers attended the event to see their films and mark their accomplishments, along with proud parents who had served as directors and camerapersons during the making of the masterpieces. The

films were made to demonstrate students' knowledge of energy efficiency after a year of participation in the Green Schools program. District administrators were also present to show their support for the kids and the Green Schools program. All seemed very excited about the results.

Seven videos were turned in from six of the district's eleven Green Schools

participated in a film competition, in which students were challenged to present a message of energy efficiency in a creative way. Each film presented similar information in a unique way, a testament to the Alliance's belief that the creative thinking of young people will drive the efforts toward energy efficiency. At the celebration, the winning films were shown, and the schools behind the scenes were presented with an energy efficiency library and a certificate for an ice cream party for participating students. The library included books on several aspects of conservation, including a written version of Al Gore's "An Inconvenient Truth." Every school involved in the Green Schools program this school year received a congratulatory plaque in recognition of their hard work. Happily, representatives from most of the schools were present to accept. For a few schools, the students stepped forward to represent their teachers and clubs in accepting the plaques.



On occasion, schools in the program have asked the Alliance how to read their energy bills to best calculate how much energy and money has been saved. Often, there were not the savings that schools had expected, given their effort. In response, before the awards were announced and the films were shown, Alliance team member Emily Curley gave a presentation addressing such questions. She spoke about how schools could best measure their energy savings, and what to account for in cases where, despite efforts, it appeared that energy use had not decreased. Often in these cases, a school's square footage increased, or a winter was colder, to name some examples. She made sure that participants understood that the figures schools received were not weather normalized or adjusted, and that practicing energy efficiency will never raise the cost and amount of energy used. She also stressed that the continuity of the effort looks optimistic, because green middle schoolers influence elementary schoolers, and become green high schoolers.

And now, the moment you've all been waiting for: Patapsco Middle School won first place with "Conserving Around the House," in which a very cool superhero teaches an everyday homeowner how to conserve energy and lower his bills. The film is funny, and made great use of special effects that the students created themselves. Just imagine incandescent bulbs turning into CFLs, right before your eyes! Clarksville Middle School



Clarksville Middle School

placed second with "Every Day is Earth Day," in which the whole school got involved in a montage of energy-saving enthusiasm. The film sent the message that anyone can help save the Earth, and that it can be fun. River Hill High School placed third with "We've Got Trouble," a well-written duet rap about the potential problems of climate change, the locality of those problems, and possible ways to help. Honorable mention goes to Elkridge Landing Middle School with "Extreme Energy Makeover," a clever spoof of the television show "Extreme Makeover" in which a team of energy experts revamp the home of an energy waster. All the students showed a strong motivation toward green living, working knowledge of energy issues and their solutions, and remarkable creative spirit.

GREEN SCHOOLS & GREEN CAMPUS INNOVATIONS

UC Irvine Diversifies Approaches

In the Green Room



Students at UC Irvine are currently finishing up two exciting projects. Green Campus Interns and the Green U club organized a public grand opening for their Green Room, a sustainable living showcase located in an unoccupied dorm room in campus housing. Opening day visitors included campus administrators, the mayor of Irvine, an Irvine city council member, and reporters from area press outlets.

The UC Irvine Green Room was featured in an article in the Orange County *Register*.

The Green Room has to be relocated due to University housing needs, but the Green U club expects that by 2008 there will be an entire sustainability themed hall. In the meantime, the club will spend the summer working with freshman RAs to follow up on their success with energy-saving programming in dorms. The club is also looking to assign a Housing Energy Management and Sustainability Intern for the first time this summer to continue work with dorm life.

Efficient Labs

Back in fall of 2005, Interns at UC Irvine launched the Fume Hoods Campaign to educate the users of on-campus labs about the high energy consumption rates of these pieces of equipment. The campaign is still going strong, and this year, 180 stickers were printed, one for each fume hood. The stickers read, "By keeping this sash closed you help prevent lab accidents, eliminate energy waste, and save energy \$\$\$," encouraging users to close the fume hood sash when they finished. The Interns



have made presentations to 125 TAs to encourage them to insist that their students close sashes and have solicited the help of five stockroom managers who have agreed to close sashes left open unnecessarily.

Fume hoods are meant to trap toxic fumes so that those working in the lab don't breathe them in, but they are often the least efficient piece of equipment in a lab, and are often left on when they are not needed. They can, however, be used both safely and efficiently. Interns worked with staff from Environmental Health and Safety (EH&S) to measure the average sash position of unused fume hoods before, during, and after the competition. The sash position is the amount of open area that lab-users have to put their arms into so they can work with the materials in the fume hood, so it must be open far enough to be comfortable. All labs showed a decrease in the average sash position of unused fume hoods during the competition, and the winning lab reduced its sash height by almost 77% compared to baseline (over 2.5 inches). Green Campus Interns also held a three week-long competition between different labs in the Natural Sciences 1 building at Irvine. The competition was meant to jump-start energy efficient behaviors in the labs, especially proper use of laboratory fume hoods.

The Interns have recognized that fume hoods, while significant, are only part of the energy efficiency potential of labs. To assess other areas that can be improved, they conducted energy audits of several labs. They approached professors and lab managers to ask questions about lab practices and policies, and which equipment could be more energy efficient, and have asked professors if they are willing to have their real-time energy use monitored. They have worked with Facilities Staff to install a temporary sub-meter on the floors of Natural Sciences 1 building that reads kW and kWh on multiple circuits using a PC. The results will help the Interns to further gauge how effective the inter-lab competition was in fostering energy efficient behaviors. They feel that this is an important feature of their work because the labs are a big part of life on campus, use two-thirds of the campus's energy, and bring together members of the community from every level-- administrators, professors, graduate, and undergraduate students. The club looks forward to fine-tuning the competition for repetition next fall, basing their optimism on this year's success.

CFL Update: At the writing of this newsletter, 13,939 lightbulbs have been exchanged by our Green Schools this year! Assuming that 60-watt incandescents were replaced by 13-watt CFLs, that saves 6,216,794 pounds of carbon dioxide over the life of bulbs.

UC Santa Barbara LEEDs the Way

Recreation Center is Almost There

The Green Campus Program seeks to reach every aspect of campus life, and at UC Santa Barbara, students are taking this challenge as far as they can. They have developed the ambitious goal of earning every building on campus LEED certification, and making them all official Green Buildings. To work towards this goal they have performed walk-throughs and energy audits of each building, and reviewed every

aspect of energy use within them, from florescent bulbs to window lighting. The review of the recreation center included such points as light switches, work conditions, and how the building is heated. The center was found to be no more than a few points short of LEED criteria, and is quickly working its way toward certification. Those involved in the project predict that the center will be LEED certified before long.

Students are also taking a different approach, namely the construction of buildings that are green to begin with. There is a new green residential hall in the works, and students are taking a leading role in deciding its features. Green Campus Interns and Environmental Studies students are studying blueprints and plans to make sure the building is as sustainable as possible.

Good for Your Heart, Good for the Earth

Take the Stairs Day is another project run by the Santa Barbara Green Campus program. The purpose of the one-time event was to promote energy efficient behaviors in members of the campus community--and maybe get some exercise while they're at it. Green Campus Interns staffed tables in high traffic areas to spread the message that taking the stairs instead of the elevator is better for the planet, and better for us. They asked students and faculty members to sign pledges saying that they would only take the stairs that day, and not elevators. In two hours, over 150 people, including the campus's Chancellor, Henry Yang, signed the pledges. Elevators consume energy at an average of about 30 kWh per day, so taking the stairs can create a true dent in the amount of energy used in a building. If elevators are the only option, such as for handicapped individuals, delaying the elevators for longer between floors, rather than using the "close doors" button can also save energy.



Health tip: Taking the stairs can burn 163 calories a day. So increase your own "energy use!"

Efficiency Has Us On the Edge of Our SEATs

Student Energy Audit Training Successful

The Alliance team finished a successful year with the new Student Energy Audit Training program with the help of students from three California high schools: Desert Trails brought in 9 participating students, San Geronimo had 8 participating students, and Glenview was represented by an impressive 16 participating students.



The SEAT program, which teaches students how to test energy use in their schools, is comprised of a series of PowerPoint presentations and a set of activities correlated to standards of instruction that give teachers and students the tools to conduct an energy audit of a select area of their school. The curriculum is designed to take approximately six hours or one full school day to complete, demonstrating that it doesn't take a lot of effort or money to make energy-savings changes, while at the same time providing valuable real-world experience and knowledge that can be taken home and shared with the rest of the school community.

This month, the students wrapped up the school year by writing up complete reports on their findings. Among other findings, the students at San Geronio High School discovered that 80 classrooms in their school still had T-12 fluorescent lightbulbs, and calculated that if they were switched to more efficient T-8's, the overall savings to the district would add up to \$7,862 during a 10-month school year!

Plans are in the works for students from the three participating schools to present their findings and recommendations to their district administrators and/or their school boards next fall. In the meantime, the Alliance's subcontractor, Intergy Corporation, will review the student reports and add more detailed information to them so that the students can give a more complete and "professional" presentation to their districts.

Fresh Green Eating at UC Santa Cruz

The Crown/Merrill Dining Hall on the UC Santa Cruz campus has just been awarded Green Certification from the city of Santa Cruz in a ceremony led by Mayor Emily Reilly. Though the accomplishment is the achievement of many people working on the project, it could not have been done without the motivation and direction of the student Green Campus team. Led by Intern Lauren Mills, the Green Campus interns conducted walk-through audits of the dining hall. They identified opportunities for equipment upgrades and more energy-efficient practices. Thanks to the walkthroughs, frozen food is now thawed naturally, rather than in a microwave or under hot water, and trips to the walk-in freezer are limited to keep the cold in.

More visible, consumer-side changes have been made as well, and are proudly listed on the UC Santa Cruz dining website:

- Fresh organic produce is grown on the 25-acre UCSC Farm, and additional produce is purchased from ALBA, a local organic collective that creates greater economic opportunities for small farms while promoting ecological land management.
- The pioneering Community Agroecology Network (CAN) coffee program goes beyond Fair Trade and links Latin American coffee growing communities directly to consumers.
- The dining team works cooperatively with campus programs, such as the Center for Agroecology and Sustainable Food Systems (CASFS), to find ways to continually improve.
- Educational efforts encourage students to reduce waste in the all-you-care-to-eat dining halls by trying small samples of unfamiliar foods and to "take what you want, but please eat what you take."

- All paper products used in dining operations, from napkins to takeout containers, are compostable. The installation of modern pulping machines reduces both solid waste and impact on landfills.
- Oil and grease are disposed of properly.
- Liquids may no longer be thrown into the trash

Even such issues as paper waste were considered. Everything printed at offices in this dining hall is now in smaller font to decrease paper waste, and dining hall staff have taken the effort to remove themselves from junk mail lists. As in residential halls, the dining hall has been retrofitted with water-efficient faucets, helping UC Santa Cruz have the lowest per-student water usage of similar-sized universities. Green Campus also assisted UCSC Dining in applying for incentives for energy efficient equipment upgrades for the facility. They have even helped in funding a limited number of highly efficient trial products.

The program emphasizes pollution prevention, water conservation, energy efficiency, recycling, and waste reduction, said Clint Jefferies, the food service manager at Crown/Merrill dining hall, and the man behind the project. Though the Crown/Merrill is the first Green Certified building on campus, and the only Green Certified restaurant in Santa Cruz, he hopes that the case will change soon. He expects another campus dining hall, the Porter, to be Green Certified in a couple weeks, and wants all of them that way by the end of 2007. There are over 150 guidelines that must be followed, creating a certain challenge for buildings. According to director of dining and hospitality services Scott Berlin, it took Crown/Merrill almost a year to meet all of them sufficiently. But UC Santa Cruz Dining prides itself on being one of the most progressive campus dining services in the country, and plans to continue improving.

The students of the UC Santa Cruz Green Campus team recently received honorable mention for Best Practices in Student Energy Efficiency, from the UC/CSU/IOU Energy Efficiency Partnership in part due to their efforts to improve the efficiency of the dining facilities on campus. The award will be announced at this year's Sustainability Conference at Santa Barbara. The award recognizes a student or group of students who are, "engaged in campus activities that seek to leverage student interest and commitment to sustainability in order to increase energy awareness on campus; realize environmentally-friendly campus policies and commitments; and involve students in efficiency activities that compliment their campus' goals and that result in measurable energy savings."

Jefferies will be recognized for his progressive work at the Terra Fresca restaurant above the College 9/10 Dining Hall. He is also the recipient of the Sustainable Food Heroes award. The achievement of Green Certification is the recognition of a long-term goal of his, and something he should be extremely proud of.

SCHOOL & CAMPUS RESOURCES

Contests and Opportunities

Healthy Sprouts Award



In this society, it's tough to know where our food comes from, how it was grown, and what pesticides were used. The way most food is grown is also an enormous energy drain. The average bite of food that an American eats has traveled 1500 miles to reach them, and frozen vegetables take ten times the amount of energy of fresh vegetables to produce. The growth, harvesting, packaging, and shipping of food wastes huge amounts of energy that could be saved if more food was grown locally. School gardens are a great way to introduce kids to where their food comes from and encourage a healthy diet, all the while moving towards energy efficiency.

The National Gardening Association Healthy Sprouts Award helps support the growth of health-focused school and youth garden programs that teach about nutrition and the issue of hunger in the U.S. To be eligible, a school or organization must plan to start a garden in 2008 with participation from at least 15 children, ages three to eighteen. 25 programs will win \$200 gift certificates to Gardener's Supply and a curriculum package from the National Gardening Association.

The deadline to apply for the gift certificate is October 17, 2007. For more information, visit <http://assoc.garden.org/grants/>.

K-12 Environmental Excellence Awards

The Seaworld/Busch Gardens/Fuji Film Environmental Excellence Awards program rewards K-12 students & community groups working at the grassroots level to protect and preserve their local environment. The awards recognize the outstanding efforts of students and teachers across the country who are working to protect and preserve the environment. In the past decade, \$1.5 million has been awarded to more than 135 schools in 35 U.S. states/territories.

Eight projects will be chosen. Each will receive:

- \$10,000 to benefit the award-winning project
- All-expenses-paid trip for three students and one adult leader to an Anheuser-Busch theme park for a special awards event
- Fujifilm digital camera for use by award-winning group
- 100 T-shirts to share with school and community partners
- Award trophy and certificates for every student/group leader participant

For more information, visit <http://www.seaworld.org/conservation-matters/eea/about.htm>

Play it Cool this Summer, and Save Some Water Too

Summer's here, and that means we're all thinking about one thing: Water! But before you jump in the pool, it's important to know that our water resources face huge challenges right now. Water shortages are occurring all over the world, and many parts of the US face droughts. The average American uses 100 gallons of water a day, and it takes lots of energy to provide us with, heat or chill, and clean the water that comes into our homes. In fact, 19% of the energy used in California goes to pump, treat, distribute, and heat water. Here are ten tips for saving water and playing it cool this summer:



1. Interestingly, more plants die from overwatering than underwatering. Your lawn doesn't need to be watered every day; one in three is enough. To see if your lawn needs it, do the Footprint Test: Take a few steps in the grass, and if you leave footprints, it's time to water.
2. Set up your sprinkler right where your lawn needs it most. Water plants in the evening, and set a timer to remind you when to change the sprinkler.
3. School's out, so you have the time to get your hands dirty. Mulching your plants holds water in, keeps roots moist and stops the growth of competing weeds, so you don't have to water as often. Try starting a compost heap, and save gallons of water by not using the garbage disposal. Information on how to compost can be found at www.compostguide.com.
4. Use cold water to wash dishes and clothes, and take cooler showers in the summer heat. It saves the energy that would go to heat the water.
5. Wash your car and pets outside near plants, and in the evening. That way, water goes straight to the plants and doesn't evaporate. For cars, use a hose nozzle instead of letting the water run, or patronize a commercial carwash that you know recycles water. We don't recommend these methods for pets, though.
6. Avoid water toys that require a continual water flow. Stick to the Super Soakers!
7. If you have a pool, use a grease pencil to mark the water level. Check it the next day. If your pool has lost more than a quarter inch of water, there's probably a leak. It is worth checking this out.
8. Throw extra ice from cold drinks, or water from cooking onto plants, instead of down the drain. Even clean water goes through the treatment process, which is a huge energy waster.
9. Keep a bucket in the shower to catch warming water. Use it to water your plants.
10. Turn the water off while you're shampooing, shaving, brushing your teeth, and scrubbing the dishes. A faucet releases 2.2 gallons of water per minute, so stopping your running tap can save hundreds of gallons over very little time.
11. Remember: You have the power to help solve the water shortage!

What Kids Can Do To Help

In a recent article about Climate Change in the Friday Forum of the *Orlando Sentinel*, eighth-grader Jordan Kerben presented this call to action: "As of now, kids cannot do much to stop it. This is why we need help from the adults."

As awesome as it is to try to get adults engaged, weat the Alliance believe there is a lot kids can do to help save energy and combat climate change! We know that you don't control the vehicle your parents drive, or the light bulbs they buy, and you certainly can't retrofit the appliances in your house (Although you can encourage your parents and schools to do that). But there are still ways for kids to be just as productive as adults towards stopping Climate Change. Here are just a few of them:

1. Use less water while showering, brushing teeth, washing dishes, etc.
2. Turn off the computer and TV, and go hang out with friends.
3. Ride your bike short distances instead of having your parents drive you.
4. Offer to do the dishes, and turn off the water while you scrub each one (your parents will love this one). While usually, washing by hand can use more water than washing by machine, it's possible to use almost no water while you do the dishes. For example, your faucet doesn't have to be on full blast to be effective. You can also use more "elbow grease" and less water. Experiment with different ways to use less water, and challenge yourself to use less. Just make sure the dishes get clean!
5. Plug appliances into power strips, and turn the power strips off when none of the appliances aren't in use. That way, the appliances aren't creating "phantom loads," or using energy even when they're off, and you don't need to unplug everything individually. Even clocks can be unplugged if you go on vacation.
6. If you're meeting your friends somewhere and biking's not possible, arrange a carpool.
7. On nice days, take it upon yourself to turn off the AC and open the windows. Remember to close them when it gets hot enough that the AC kicks on again!
8. If your parents won't buy CFLs, save up some money of your own and buy them for your own room.
9. Turn off lights when leaving the room, or if you find an empty room with the lights on.
10. Help your parents make large, inclusive shopping lists so they don't have to go to the grocery store more than once a week or so.
11. If your family has a garden, suggest mulching it in order to save water. Offer to help with the work (it might actually be fun).
12. If you have a choice between buying something that was made far away, and buying something similar from somewhere closer, buy what came from the closer location. It used less energy to get to you.
13. Recycle aluminum cans! Aluminum is extremely energy-intensive to mine and manufacture, and saving just one kilogram of it can save 14 kWh of energy (enough to power a TV for 103 hours, or nonstop for over almost four and a half days!).
14. Carry reusable bags, instead of taking plastic bags. Saying, "I don't need a bag" is an easy way to save the materials and energy it took to make and ship that bag.
15. Start a conservation or energy efficiency club at your school, and get your friends involved.

16. If you do your homework with the TV on, try turning it off. Who knows? You might get your homework done faster.
17. Be on the lookout for creative ways that you can save energy by examining your own lifestyle and choices. You'll probably think of something we missed.

KID'S CORNER

Green Schools Team Up to Teach

Topaz Elementary School recently hosted some very special guests: The students of Desert Trails High School. Green Schools team leader, Barbara Ward-Lawe, arranged for her high school students to make presentations at two assemblies, reaching the whole school, to teach their young audiences about energy efficiency. Since Topaz Elementary is in the Green Schools program as well, the kids were familiar with the topic, and listened closely and eagerly. The high school students demonstrated the Green Schools Tool Kit to the elementary schoolers, and taught them how to use each tool in the kit. The presentations were interactive, and students who answered energy conservation questions correctly were presented with prizes such as Southern California Energy t-shirts or pencils made from recycled material presented by Southern California Edison. Alliance Local Project Leader Lorraine Gutierrez attended the presentation and reported that it was enthusiastically received by the young students and their teachers (she had a good time, too!).

It's important that even the youngest kids get involved in energy conservation, and make it a life-long habit. Has your school done something lately to promote energy efficiency? Have you or your Green Schools club done something outside of school to help your family and community be more energy efficient? Let us know! Write in to KID'S CORNER and tell us what's going on. We might just publish your article.

Energy Saving Tip:

The Department of Energy estimates that in the average home, 40 percent of all electricity used to power home electronics is consumed while the products are turned off. Add that all up, and it equals the annual output of 17 power plants, the government says.

So unplug appliances when you're not using them! Especially those with clocks or lights that stay lit when the appliance is turned off.