

Students Leading the Way



2009-2010

## Energy Saving Success Stories From Southern California



ALLIANCE TO SAVE ENERGY'S  
**Green Schools Program**  
Empowering Schools Through Energy Efficiency



ALLIANCE TO  
**SAVE ENERGY**  
*Creating an Energy-Efficient World*

## Sponsors

The Southern California Green Schools Program is funded by California utility customers and administered by **Southern California Edison** under the auspices of the California Public Utilities Commission.



**ALLIANCE TO  
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*Creating an Energy-Efficient World*

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## Introduction to Green Schools

This has been an extraordinary year for the Alliance to Save Energy's Green Schools Program. With school districts in California facing sharp budget cuts, families across the country shouldering ever-increasing energy costs, and the risks of climate change continuing unabated, the need for increased energy efficiency at school and at home could not be greater. During the 2009-10 school year, our Green Schools have been working hard to address all three of these challenges, all the while advancing student learning and leadership. As a testament to the remarkable success of this year's program, 54 schools across all three participating school districts – Murrieta Valley, Temecula Valley, and Lake Elsinore – **reduced energy use by an average of 15.5%**, more than any other year of the program. Collectively, the **2009-10 Green Schools saved 5.7 million kilowatt hours of electricity, equivalent to \$911,693 and preventing 3,156 tons of carbon dioxide from being emitted into the atmosphere!**

Green Schools students have proven to be the true leaders in spreading the energy efficiency message in a variety of ways—giving presentations at school assemblies, developing energy policies, organizing poster contests with innovative award incentives, producing skits to perform in front of peers and parents, and allowing students to grow into leaders who are trained to make effective change within their communities.




The Green Schools Program also opens pathways to “green” careers, a rapidly growing sector of the job market. This year, students were exposed to various green career opportunities through presentations from professionals in the field, career fairs, instruction in the classroom, and experiential, hands-on learning. By participating in Green Schools activities, students gained practical and valuable job skills, such as how to conduct an energy audit, calculate and analyze data, present results to a broader audience, and train and educate their peers, school, and local community about important environmental issues.

The Alliance to Save Energy established the Green Schools Program in 1996 to help school districts save on energy costs and empower students to become environmental stewards and energy-efficiency advocates in their schools, homes, and communities.

**The goals of the Green Schools Program are to:**

- **Educate students and the school community about energy efficiency and its relationship to the environment and the economy;**
- **Provide immediate energy savings in schools through no-cost behavior and operations changes, and promote longer-term savings through efficiency retrofits;**
- **Strengthen academic learning by engaging students in hands-on learning projects; and**
- **Build a pathway to green jobs**

The California Green Schools Program began in Los Angeles County in 1999 and now includes about 65 schools each year throughout Southern California. The Alliance to Save Energy commends these schools for their accomplishments and for their contributions to *Students Leading the Way 2009-2010: Energy Saving Success Stories from California*.

		
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## California Green Schools Management

The success of the Green Schools Program is a credit to the California Local Project Leaders Rick Thomason and Lorraine Gutierrez, whose diligent leadership has inspired and encouraged the efforts of teachers, students, custodians, and school administrators.

The Southern California program is led by the Alliance to Save Energy, in partnership with Willdan Energy Solutions.



### California Green Schools Management Team:

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We would also like to thank our creative and energetic Green Schools teachers for submitting these descriptions of their schools' activities.

## EXEMPLARY 6-STRAND PLAN SUCCESSES

Each semester, school Green Teams, composed of teachers, custodians, administrators and students, formulate unique plans for implementing the program in their schools, utilizing the Green Schools resources. The plans include activities in the following six key areas, also known as “strands”: Instruction, Action, School Involvement, Residential and Community Involvement, Custodial Involvement, and Green Jobs. The following pages highlight outstanding success stories from our 2009-2010 Green Schools.

### INSTRUCTION: INTEGRATING ENERGY INTO INSTRUCTION

The Green Schools Program strengthens students’ knowledge of the link between energy, the environment, and the economy. Through hands-on lessons that are aligned to California educational standards, students engage in energy-saving activities that link classroom learning to real world issues. Green Schools lessons are multidisciplinary, affording academic learning in math, science, language arts, and technology. Here are some examples of creative ways schools integrated energy into instruction.

#### **Hesperia Valley Unified School District**

##### ***Ranchero Middle School***

Ranchero Middle School teachers brought the discussion about energy efficiency into the English classroom this year. Students had the opportunity to show off what they learned about energy conservation and alternative energy sources in the annual school-wide persuasive essay writing activity. One of the essay prompts asked students to convince the reader why they should conserve energy and use alternative energy sources. After learning about these issues in their classrooms, students who chose this prompt used their expertise to convince even the most skeptical reader to conserve energy.

#### **Lake Elsinore Unified School District**

##### ***Lakeland Village Middle School***

Lakeland Village Middle School found innovative ways to teach energy efficiency to the students. Green Team teachers taught a lesson on energy efficiency to the 8<sup>th</sup> grade science classes as part of their chemistry unit. Students built models of common greenhouse gases, such as carbon dioxide and methane, conducted research on how the molecules are human-produced, and why the concentration of carbon dioxide and methane has increased during the past century. As a follow-up activity, the students collaborated on ways to reduce the concentration of these gases and began implementing their ideas at school and in their homes. The Green Team was thrilled to see students discover the connections between chemistry and protecting the environment.

##### ***Ortega High School***

The Green Team at Ortega High School harnessed the creative energy of all the school’s teachers to come up with the most effective ways to teach energy efficiency to students. At the beginning of the year, the team introduced the Green Schools Program to teachers at a staff meeting and asked them to come up with creative ways to include energy savings into the curriculum. One idea was to integrate journal writ-

ing into the Green Team's classroom visits. During their visits, the Green Team asked students to journal about "Green Topics" ranging from saving energy to the impact of oil disasters due to our dependence on oil and energy. Next year, English classes will conduct a similar exercise and focus writing prompts on the topic, "What green initiatives and actions can you do to make the school more energy efficient?"

#### ***Ronald Reagan Elementary School***

The Green Team at Ronald Reagan Elementary School empowered students to teach their peers. The Green Team identified twelve 5<sup>th</sup> grade student leaders from the Student Council to join the Green Team and teach other students about energy and energy efficiency. The Green Team held regular sessions for the student trainers to enable them to teach lessons from the Green Schools Instructional Resource Guide to nearly all 180 upper grade students.

#### **Temecula Valley Unified School District**

##### ***Chaparral High School***

AP Environmental Science students at Chaparral High School became energy experts by the end of the school year. The students learned about sources of renewable and nonrenewable energy, as well as how to calculate kilowatt hours and how to read voltage labels on appliances. For a hands-on project, the students first learned about passive and active solar strategies for homes, and then built their solar designs into a 3-D model. When the AP exam rolled around, students were not only prepared to take the test, but they had also become extremely knowledgeable about energy and how energy conservation can be applied in their everyday lives.

##### ***Great Oak High School***

Great Oak High School students rose to the energy efficiency challenge. Five students in the AP Science class participated in this year's Edison Energy Challenge, a competition sponsored by Southern California Edison (SCE) that is open to middle and high school students within the SCE service territory. As part of the challenge, students were asked to come up with a sustainability project that addresses energy or conservation issues. The student participants chose five topics to address, two of which focused on producing energy through water and wind power. Each project required students to develop and teach a lesson plan for similar grade levels, put together a project proposal and budget, develop a campaign to educate the community, and finally present the project. Although the Great Oak Green Team did not place in the competition, they gained invaluable knowledge and skills while investigating sustainable solutions to real life problems.

##### ***Pauba Valley Elementary School***

Fourth grade teachers at Pauba Valley Elementary applied energy efficiency concepts to help cover a variety of grade-specific standards. During the graphing unit, for example, students created a graph to show electrical usage over time, recording and comparing monthly electricity costs to energy use. Students demonstrated their mastery of compare and contrast by writing an essay comparing the costs and benefits of going green to not going green. Through this creative application, teachers bolstered their students' math skills, while reinforcing their understanding of energy efficiency.

## **ACTION: SAVING ENERGY IN SCHOOL**

The Green Schools Program encourages students and staff to take action to save energy in their schools, a critical part of the program. Green Schools students lead the way to identify how their peers, faculty and staff can be more energy efficient by engaging in fun, energy-saving activities that produce impressive results. Here are some highlights of the energy -saving activities conducted in 2009-2010, which resulted in a truly remarkable outcome – an average 15% energy savings, totaling to 5.5 million kWh saved, \$884,253 in energy cost saved, and 2,789 tons of carbon dioxide emissions avoided!

### **Lake Elsinore Unified School District**

#### ***Butterfield Elementary School***

Students in room 12 at Butterfield Elementary School penciled energy savings into their school day. They traded in their wooden pencils that needed to be sharpened daily for mechanical pencils - no sharpening required. The switch allowed them to eliminate three electric pencil sharpeners, which had been plugged in all day, every day. Students no longer needed to wait in line for the pencil sharpener, and the class eliminated a major electricity drain. A win-win for Butterfield!



#### ***Cottonwood Canyon Elementary School***

The student Green Team at Cottonwood Canyon Elementary came up with an easy solution to prevent excessive light usage. They went around the entire school and taped down one light switch in each classroom, making it easy for teachers to remember to only use the necessary number of lights. This simple step had long lasting effects, and it was one of many actions that helped Cottonwood Canyon significantly trim their electricity bill as compared to the previous year.

#### ***Lakeside High School***

At Lakeside High School, the Green Team put on their detective hats to investigate school buildings for energy inefficiencies. To their surprise, they discovered unoccupied buildings and building areas busily consuming energy during the day! These buildings and building areas included parts of the library, most of the theatre building (excluding the department's academic buildings), the Student Café, a maintenance building, and the football concession stand. The team wisely decided to put these areas on "manual override air," meaning they could manually turn off the air conditioning, when not needed. This action alone saved the school quite a bit of energy, as previously the air in the unoccupied buildings had been blowing 5 days a week for 12 hours a day. To save even more energy, the team was successful at getting facilities staff to turn off all unnecessary hallway lights in all the academic buildings, the athletic facility, and in the Administration building, saving the school a lot of energy!

#### ***Luiseno Elementary School***

The Luiseno Elementary School Green Team thought of a generous incentive program to make their classrooms more energy efficient. After weekly energy conservation audits of each classroom, the Green Team persuaded the administration to give extra recesses to the greenest class in each grade level. Before long, students happily turned off lights and unplugged unused appliances, earning the privilege of an extra break!



### ***Terra Cotta Middle School***



SEAT Trainer Elric Boardman shows students the difference between incandescent bulbs and compact fluorescent lights

At Terra Cotta Middle School, ten 6<sup>th</sup> grade students participated in the Alliance to Save Energy's Student Energy Auditing Training (SEAT). Arriving ready to learn in their brand new Green Schools t-shirts, provided by Southern California Edison, Terra Cotta students became skilled at conducting basic energy audits of areas in their school. Following the SEAT workshop, Green Team members formed a club to increase student energy conservation activities at the school, such as energy patrols and classroom competitions. The club convened for monthly meetings, during which they discussed what was going well and what needed improvement. Club members also used their meeting time to walk around campus and visit classrooms to monitor energy usage. Every month, the Green Team also voted for "The Greenest Teacher" and awarded winners with gift bags and certificates.

### **Temecula Valley Unified School District**

#### ***Abby Reinke Elementary School***

Students at Abby Reinke Elementary enthusiastically engaged in energy saving activities. Green Team teachers assigned students specific classroom jobs – e.g., closing doors, turning off lights, checking thermostats, and unplugging classroom equipment – that put students in charge of ensuring "green behavior" and saving energy on a daily basis. Educating students about the benefits of energy conservation and making them responsible for monitoring their own behaviors fostered leadership and responsibility, and of course resulted in significant energy savings!

#### ***Jackson Elementary School***

Jackson Elementary took advantage of the huge energy savings opportunities during long school breaks. The Green Team made an extra effort to guarantee unnecessary appliances were unplugged before the long winter and spring breaks by distributing a holiday shutdown checklist to all teachers and custodians. Immediately before students and staff were dismissed, the team conducted sweeps to make sure computers were shut down and that staff lounge appliances and surge protectors were shut off. They even removed the laminator fuse to guarantee the machine was not consuming energy over the long breaks.

#### ***La Vorgna Elementary School***

Teachers at La Vorgna Elementary initiated turning off lights to turn up savings. Over half of the teachers in the school reduced the number of light banks they used in their classrooms from three to one or two. During bright, sunny days, teachers turned their lights off completely, and let the sun provide natural light to the classrooms. By adopting these practices, students and teachers learned that it can be easy to save energy without compromising comfort.

***Pauba Valley Elementary School***

Students at Pauba Valley Elementary put their creativity to work by making draft worms. The draft worms (socks that are stuffed and decorated to look like worms) were used at the bottom of classroom doors to prevent drafts from coming through. This student project promoted learning, fun and creativity while also producing real energy efficiency benefits for the school. Additionally, students could easily implement this idea in their homes.

***Rancho Elementary School***

At Rancho Elementary, students took the tedium out of monitoring electricity use in the school computer lab. To achieve the greatest amount of energy savings for computers, monitors should be turned off during the day when they are not in use, and computers should be shut down and unplugged nightly. So this task did not fall on one person's shoulders, classes that used the school computer lab were asked to turn off the monitors as they left the room. The Green Team even rotated the responsibility of shutting down the computer lab each night from class to class, allowing more students to get involved. By sharing the responsibility of monitoring one of the more energy intensive rooms in a school, the Green Team maximized the energy saving benefits, while minimizing the work. Now, that's efficiency!

***Temecula Middle School***

Temecula Middle School's Green Club identified energy use at its source! This year, the Green Club interviewed every teacher on campus about the energy use in his or her classroom. Students compiled a list of teachers and tracked their energy saving behaviors, such as plugging appliances into power strips and turning them off at the end of the day. The Green Team provided power strips to teachers who needed them, and gave teachers a list of easy energy savings tips to use as a guideline throughout the day. Knowing teachers have busy schedules, students designed reminder cards to place by the teachers' computers to ensure equipment is shut down at the end of the day.

***Temecula Luiseno Elementary School***

Temecula Luiseno Elementary School is definitely in the know about saving energy! The Green Team included energy saving tips in the school's daily bulletin, "In the Know," to remind staff members to keep as many lights off in classrooms as possible and to turn off and/or unplug appliances when not in use. The team also made daily announcements to remind students to keep doors closed when the air conditioner was on and asked them to report to their teachers when doors were left open around the campus. During the lunch hour once a week, student council members checked for lights that had been left on, and kept a running checklist for each classroom.

***Tony Tobin Elementary School***

The Green Team at Tony Tobin Elementary spurred their school into action by identifying "5 Easy Ways to be Green." For example, turning off lights before leaving a room or unplugging appliances. Students created colorful posters to advertise the campaign school-wide and conducted an energy assessment of each classroom using the five goals as a checklist. Classes that implemented ALL "5 Easy Ways to be Green" received the "Green Classroom" award, a green emblem recognizing the class for their savings achievements. The Green Team invited teachers who came up with alternative ways to be green to share their ideas by placing them in the "Green Basket" located in the school office. The Green Team read these suggestions aloud during each Friday Flag salute.

### ***Vail Ranch Middle School***

Vail Ranch Middle did not “dog around” when it came to taking action to conserve energy! The Green Team Bulldogs used single room audit checklists during energy patrol inspections of each classroom to ensure teachers were taking the most energy efficient measures in the classroom. The Bulldogs’ recommendations included using natural lighting; turning off lights, computers, printers, and copiers when not in use; ensuring ventilation units are free from obstructions; and closing doors and windows when heating or air conditioning are in use. The team then analyzed their findings and provided energy saving reminders to teachers who could use some improvement. In addition, the team posted reminders in every classroom to maximize exposure to students and staff.

## **SCHOOL INVOLVEMENT: INVOLVING THE WHOLE SCHOOL IN ENERGY EFFICIENCY**

With energy savings activities under way and energy use data collected and analyzed, the time is ripe for the Green Team to share this information with the whole school and inspire everyone to get involved! Here are a few of the countless ways that Green Schools involve their school community in their efforts to save energy. Success does indeed “take a village!”

### **Lake Elsinore Unified School District**

#### ***Butterfield Elementary School***

The Butterfield Elementary School Green Team realized they could make a big difference in saving energy. They unplugged electrical appliances after using them and learned this had a huge impact on their energy use. In an effort to spread their knowledge to the whole school, students and teachers walked through classrooms carrying signs and chanting reminders to turn off electronics. Their message even made it to the school-wide assemblies where the Green Team reminded parents, teachers, students and staff to be energy efficient. Green



Team students wore green shirts to promote living green and prepared a small skit to present to staff and students, encouraging them to be more energy conscious by turning off lights and appliances when they are not in use. To practice what they preached, students even took their skits outdoors to take advantage of natural sunlight rather than indoor lighting!

#### ***Canyon Lake Middle School***

At Canyon Lake Middle School, Associated Student Body students jumped at the chance to educate their peers about energy efficiency. Throughout the year, they visited every classroom to encourage their fellow students to get excited about saving energy and money for the school. The student Green Team also attended an all-staff meeting to share their energy efficiency message and inspire teachers to get involved.

### ***David A. Brown Middle School***

The Green Team tirelessly worked together to save energy at David A. Brown Middle School. In an effort to assess and rate each classroom's energy expertise, the team developed a checklist of ways that classrooms can be energy efficient, such as turning off lights, unplugging electronics when not in use, and closing doors to regulate room temperature when appropriate. Using the checklist during bi-weekly classroom inspections, students from the Green Team made sure teachers turned off their lights and appliances after leaving the room. If a teacher did an outstanding job keeping their classroom energy efficient, the Green Team handed him or her "green bucks." In exchange for the "green bucks," teachers were entered into a raffle for prizes.

### ***Donald Graham Elementary School***

The Green Team at Donald Graham Elementary School rallied the whole school to get involved with their energy saving efforts. Starting with a few classes, the team piloted a small-scale energy saving poster contest. The project was such a success that the team decided to open the contest to the whole school. Dozens of students entered from every grade, and the winning posters for each grade level were displayed in the school's front office. The Green Team also demonstrated how to use the temperature gun from the Green Schools Tool Kit to show the temperature differences between compact fluorescent and incandescent light bulbs. Using the watt meter, students charted the amount of energy that certain electronics use when they are plugged in. After collecting their data, the students presented their calculations and the results of their findings during an assembly for the upper grades. The upper grade students were impressed by their peers' work and learned how easy it is to save energy!

### ***Earl Warren Elementary School***

To involve more students in saving energy, each month a different class was selected to take charge of the energy conservation efforts at Earl Warren Elementary. Student Green Team responsibilities included Friday Flag announcements, writing and submitting articles for the school newsletter (for upper grades), turning off computers in the labs, making posters that artistically represented the Green Schools goals, and monitoring classrooms for use of half lights or no lights. Students handed out notices to each classroom, "graded" with a happy or sad face depending on their progress in reducing energy use, and included detailed feedback. The Green Team also invited the Storm Baseball team to put on a school-wide assembly during which each student was given a booklet with tips and reminders to save energy, such as turning off lights when leaving the room and turning off appliances when not in use.

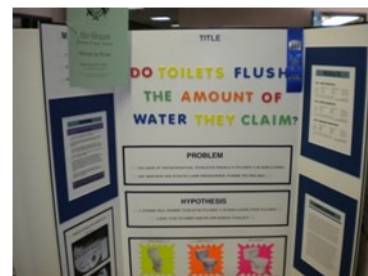
### ***Elsinore High School***

Elsinore High School found effective outlets for plugging in whole school involvement. Elsinore High's Student Green Team took their Weebly website (<http://elsinorehigh.weebly.com>) to the next level, using it as a tool to share their Green Schools efforts with the school community. On the website, the team posted their energy use data and a Power Point presentation they created to publicize their mission to save energy, along with tips to be more energy efficient at school and home. As a result of their hard work to increase energy conservation efforts on campus, the principal recognized the Student Green Team during morning announcements.



### ***Luiseno Elementary School***

At Luiseno Elementary School, the Green Team encouraged students to design environmental science projects for their science fair. As a result, the top three winning science projects all addressed environmental topics such as recycling, energy efficiency and water conservation. One student went all the way to the Riverside County Science Fair where she was recognized by the Elsinore Valley Municipal Water District and mentioned in several local news outlets, including the Press Enterprise and the North County Times.



A Luiseno Elementary School science project entitled, "Do Toilets Flush the Amount of Water They Claim?"

### ***Machado Elementary School***



Energy Hog and Hog Buster perform at Machado Elementary School.

The Alliance to Save Energy's Energy Hog and Hog Buster presented simple ways to save energy at Machado Elementary School. Students at Machado Elementary School were paid a visit by the infamous Energy Hog, the Alliance to Save Energy's "spokes-villain" who tries to convince students that wasting energy is cool, while the Hog Buster works to dispel this evil myth! Over 300 students attended the Energy Hog presentation to learn about the importance of using more efficient lights such as compact fluorescent lamps (CFLs) and unplugging "energy hogs" to save energy. The assembly offered a fun and entertaining opportunity to get students to think about their energy use. To recognize them for their participation, each class received a Hog Buster certificate. And, classes that actively busted energy hogs in their classrooms were rewarded with Energy Hog bookmarks and tattoos.

### ***Nicolas Valley Elementary School***

The Green Team used several marketing strategies to spread the efficiency message at Nicolas Valley Elementary. Students designed Green Schools t-shirts and partnered with the student council to sell them. Both groups benefitted from the collaboration, allowing the student council to raise funds for their activities, and the Green Team to spread the word about the importance of saving energy. To remind the whole school community to be more energy conscious, the school designated every Wednesday as "Green Day," a day when all students were encouraged to wear green to school. The Green Team also put up posters on campus buildings to remind students and staff to shut down equipment at the end of the day and educate classes about "phantom loads," appliances that are powered off but still use a small amount of energy because they are plugged in.

### ***Ortega High School***

The Green Team created Mr. "Kill-A-Watt," a humorous and brightly dressed energy-saving character, to encourage staff to get involved in energy efficiency at Ortega High School. Donning a green jumpsuit, hat, and goggles, Mr. "Kill-A-Watt" talked to all of the teachers during a staff meeting early in the school year to inform them that the student Green Team will be going to all classrooms on campus to check on energy usage on a weekly basis. If rooms used "half lights," all unused computers were turned off, and no wasteful devices were left on, the room would receive a brightly colored "Kill-A-Watt" award with the

message “Simple, Consistent, and Efficient,” next to their light switch. It didn’t take long for teachers to notice the eye-catching placards, and for the program to develop into a friendly competition. One day, the Green Team student audit team reported every single classroom earned the award! Green Team students also wrote and submitted an article that was published in their school’s newsletter summarizing their activities throughout the year. Students wrote, “Changes in the year have come in many different ways. These efforts on our campus have shown that saving energy is definitely possible, but it takes everyone on campus to make it possible.”

#### ***Tuscany Hills Elementary School***

Tuscany Hills Elementary School students enjoyed being caught green-handed! The Green Team organized lunchtime student energy patrols who observed whether or not classes were using half lights, turning off lights in empty rooms, and shutting down computers when not in use. The Green Team students recognized classes that demonstrated good energy behaviors with a “Green Award” that was displayed prominently on their classroom door. Winners of the “Green Award” were announced during weekly Friday flag salutes. To encourage greater participation within the whole student body, students created posters outlining energy saving tips and energy efficient activities and posted them on campus buildings and on the school website.

#### ***Wildomar Elementary School***

To tackle energy waste, the Green Team at Wildomar Elementary successfully instituted an energy efficiency policy to ensure sustainable energy efficient behavior. Aiming the campaign at the whole school community, all students and staff are expected to implement four major steps to reduce energy consumption at their school site as follows: 1) Turn off half of all classroom lighting and use natural lighting where possible, 2) Turn off electrical appliances in class at the end of the day, before long breaks, and on Fridays, 3) Turn off lights when leaving the classroom, and 4) Commit to selecting one hour each week to conduct class without the use of power. These strategies proved very effective and led to a substantial amount of savings for the school, and can continue to save energy for years to come.

#### **Murrieta Valley Unified School District**

##### ***Vista Murrieta High School***

Vista Murrieta High School had a keen eye for tracking energy consumption. As the school’s experts on energy efficiency, the Green Team monitored school energy use utilizing the Utility Management Services Energy Tracker website, collected the monthly data, and distributed the information to every staff member on campus. Their efforts kept staff and students apprised of the school’s energy use and costs, and encouraged the whole community to look into new ways to improve the school’s overall efficiency. Due to the successful implementation of the program last year, the Green Team earned enough money from their energy savings to purchase 140 liquid crystal display (LCD) monitors for the school computers! The less intensive LCD monitors replaced the older, inefficient cathode ray tube (CRT) monitors previously used school-wide. The Green Team gave a new LCD monitor to all staff members and encouraged them to refer to the monthly energy reports to see the overall change in the school’s energy use.

## **Temecula Valley Unified School District**

### ***Abby Reinke Elementary School***

Students and teachers at Abby Reinke put in a lot of legwork to spread the message about energy efficiency throughout their school. Two students, dressed up in funky green costumes, gained the attention of many students while they distributed handouts with ideas and information to make Abby Reinke “green,” or energy efficient. The Green Team leader ensured that all of the teachers in the school were on board by visiting every classroom to explain the program goals and entertain any concerns the teachers might have about saving energy in their classroom. This outreach effort bolstered faculty investment in saving energy school-wide.

### ***French Valley Elementary School***

The French Valley Flyers continued to achieve great savings this year! Every class on campus created a poster of the top three ways to save energy and posted them in their classrooms. To inspire even greater student involvement, students participated in two exciting assemblies about energy efficiency throughout the year. In the winter and spring respectively, the Green Team invited “Thunder,” the Lake Elsinore Storm Baseball team’s mascot and the “Green Power Girl,” an energy efficient super hero, to talk to the student body about saving energy and taking care of the planet. Through these fun, interactive, and educational presentations, students learned a multitude of energy saving tips that could be used in the classroom, at home and in the community.

### ***La Vorgna Elementary School***

The Lake Elsinore Storm minor league baseball team’s mascot, Thunder, visited La Vorgna Elementary to make some noise about living an environmentally friendly lifestyle! Every year, students look forward to his annual visit, and he did not disappoint. This year, the big green dog chose to focus his message on energy conservation and the importance of preserving our resources for future generations. He informed students about changes they could make both in school and at home to save energy and help the environment. Thunder has a special talent at getting through to the students because he is so well known and respected in the community – and left the audience with great energy saving tips.

### ***Temecula Elementary School***

All levels of the school community participated in raising awareness about conserving energy at Temecula Elementary. In order to qualify to be a part of the Green Team, students had to serve as a role model by being in good academic standing and by volunteering part of their lunch hour each week to conduct energy patrols. During Friday flag salutes, Green Team students presented the “Green Team Tiger” award to the classroom that saved the most energy and demonstrated their efforts to help other classes become more efficient. Even the school principal did her part to inspire efficient behavior by sharing ways every student and teacher can conserve energy during morning announcements.

### ***Temecula Middle School***

This year, Temecula Middle School launched several successful campaigns to get the whole campus involved in conserving energy. To raise awareness about energy efficiency, Green Club members created a Power Point presentation outlining tips on how to conserve energy, recycle, and promote conservation. Each weekly morning video announcement featured a slide from the Power Point about at least one sustainable message to keep students thinking about sustainability throughout the year. To keep the focus on

energy efficiency, the Bobcat Ambassadors, another student organization, created a Power Point about electricity that was also shown during morning video announcements. Their presentation included music and an informative message about energy use and misuse, and it informed students and staff how to conserve electricity. The Green Club also promoted three art contests using different media – poetry, photography, and posters. All contests featured an environmental theme such as “mother earth,” “the beauty of nature,” and “energy conservation.” The Green Club invited teachers to allow time during their Professional Learning Communities class for students to work on their entries. The entries were displayed in the library and students voted on the best entry in each category. The Green Team proudly awarded winners with a Green Schools t-shirt.

#### ***Vail Elementary School***

This year, the Vail Elementary Vikings focused on energizing the student body to save energy, and came up with several creative ways to spread the Green Schools message. Students created short energy conservation messages that they played during morning announcements on Vail Viking Television (VVTV). The Green Team also distributed Green Schools t-shirts to all students and asked them to wear the shirts every Wednesday as a reminder of their commitment to saving energy. Members of the Watt Watchers, the student energy patrol team, participated in the annual Vail Talent Show, and performed a skit about how easy it is to save energy.

#### ***Ysabel Barnett Elementary School***

Playground students took pride in saving energy at Ysabel Barnett Elementary School. The student council sponsored an energy conservation competition, awarding the coveted green playground ball to the class that demonstrated the most effort or innovation in saving energy in their classroom each week. Winning classrooms shut down lights at the end of the day, turned off computers, and unplugged refrigerators and microwaves. Every Friday, students looked forward for the winner to be announced, and the winning class celebrated all week by being the only class to use the green ball on the playground.

### **RESIDENTIAL/COMMUNITY INVOLVEMENT: TAKING THE ENERGY MESSAGE HOME AND INTO THE COMMUNITY**

Once Green Schools students and staff have explored ways to save energy in school, they can take that information home and into the broader community, generating a powerful ripple effect on energy and money savings. Here are some ways that schools took their knowledge and skills into the community.

#### ***Lake Elsinore Unified School District***

##### ***William Collier Elementary School***

The Green Team at William Collier implemented a number of innovative ideas to educate their community about energy efficiency. This year, the team designed and constructed an energy themed float for a community parade. With the Parent Teacher Association’s assistance in constructing the float, the students designed and built their float to feature energy efficiency displays, renewable resources such as solar and wind energy, and a “recycling bin” for onlookers to throw their recyclables as the float passed by. The annual “Science Night” also featured an electricity theme in which students and parents created open and closed circuits using batteries and wires. And lastly, the local waste management company, CR&R Waste Services, recognized a Green Team student publically at the Lake Elsinore Storm Stadium for lead-



ership in recycling and energy efficiency.

### **Murrieta Valley Unified School District**

#### ***Rail Ranch Elementary School***

Students at Rail Ranch Elementary focused their energy on educating their community on the importance of energy conservation. This year, students participated in the annual “Earth Day Grocery Bag Project” with their local grocery store, Stater Bros. Students designed brown paper bags with energy saving tips and messages that urge patrons to do just one thing to protect the environment. The students passed their bags out to customers to take home their groceries. Staff from Stater Bros enjoyed seeing the students get excited about helping their community. To promote energy saving behaviors at home, the Green Team invited students to participate in an essay contest to write about, “How are you Green at Home?” The authors of the top 5 essays were awarded a Green Schools t-shirt.

### **Temecula Valley Unified School District**

#### ***Chaparral High School***

Students at Chaparral High School put their knowledge of energy efficiency to work in their homes. Students in the AP Environmental Science class learned how to complete energy audits in class, and then used this knowledge to complete an audit of their own homes. After completing the audit, they pledged to cut back their electricity usage, and worked closely with their families to implement their plans. In an effort to monitor their progress, the families kept a daily log of their electricity usage. The goal was for families to cut electricity usage 10% each month, and almost every family successfully achieved this goal.

#### ***Crowne Hill Elementary School***

The Royal Greenies at Crowne Hill Elementary know the importance of saving energy at school AND at home! To educate their families about saving energy, the monthly “Royal Newsletter” featured at least one energy-saving tip that families could easily implement at home. Students also participated in a home “Energy Thief Scavenger Hunt,” which led them to discover appliances and behaviors that waste energy, discuss solutions to improve their efficiency, and report their findings to their class.



#### ***Pauba Valley Elementary School***

At Pauba Valley Elementary, students and their parents signed up to conserve energy by making a simple pledge. As an easy and time-effective way to inform students and their families about the Green Schools Program and garner their support, students brought home an energy pledge asking parents to commit to making a few changes in their lifestyle. Suggestions included simple behavior changes, such as switching to energy efficient light bulbs, washing clothes in full loads, and ensuring their homes are properly insulated. The pledge helped to promote learning in school and inspired families to save energy at home.

## **CUSTODIAL INVOLVEMENT: INVOLVING THE SCHOOL FACILITIES STAFF IN SAVING ENERGY**

Day and night custodians are key members of the Green Teams and critical to Green Schools success! Because custodians maintain and operate schools on a daily basis, including before and after school hours, they are well positioned to sleuth out the energy hogs. Here are some great examples of ways schools maximized their energy savings through custodial involvement.

### **Hesperia Valley Unified School District**

#### ***Ranchero Middle School***

Custodians at Ranchero Middle School put technology to work, making saving energy a snap. They took a leading role in saving energy at their school by installing a timer for each of the computers in the computer lab. By investing the front-end time to install these devices, the custodians saved both time and energy – they no longer needed to monitor the computers individually, and shutting them off automatically resulted in significant energy savings.

### **Lake Elsinore Unified School District**

#### ***Donald Graham Elementary School***

The Green Team custodian at Donald Graham Elementary School took a lead role in making his school more energy efficient. He posted stickers and signs next to all of the light switches in the school reminding people to turn off the lights as they left for the day. He also worked with the facilities staff to turn the air conditioning on later in the morning and off sooner in the afternoons, which saved huge amounts of energy! He also helped remove the old, energy guzzling refrigerator out of the staff lounge and replaced it with an energy efficient refrigerator and limited the times the campus lights were on.

#### ***Lakeside High School***

Custodians played a crucial role in saving energy at Lakeside High School. To ensure the new district-wide automated computer shutdown system was functioning properly, the custodians asked all teachers to contact the Green Team Lead if any computers did not shut down properly at the end of the day as programmed. The Team Lead then followed up with the technology department to notify them and ensure all computers were in operating in compliance, saving loads of energy!

#### ***Ortega High School***

Ortega High School's Green Team custodian worked extensively with the student green team to assess energy use throughout the school. She worked closely with students to conduct an audit of all classrooms and appliances and helped them come up with solutions to address energy waste around campus. She also supported fellow team members to present the "Mr. Kill-A-Watt" program at a staff meeting (see School Involvement section above for details) and worked with the students on a weekly basis to audit rooms and appliances for the "Kill-A-Watt" award, as needed. With help from the students, she coordinated efforts with night custodians and office staff and kept a close eye on classroom energy usage that allowed great improvements in the school's overall efficiency.

## **Temecula Valley Unified School District**

### ***Paloma Elementary School***

At Paloma Elementary School, custodians saw the benefits of working together and rewarded the students for being energy savvy. During daily energy sweeps, the custodians observed classes that consistently turned off their lights and unplugged appliances when not in use and awarded them with a “Golden Trash Can” filled with energy bucks. Classes traded in energy bucks to earn a pizza party, donated by the local Pizza Factory. To save even more energy, the custodians shut down the school air conditioner when the school closed every Friday and over long weekends to prevent it from needlessly guzzling electricity.

### ***Day Middle School***

By identifying big energy suckers, custodians at Day Middle School were able to make small changes with big results. They discovered that copiers and printers used tons of electricity, even when not in use, so they made a practice of unplugging them daily by 3:30pm. They also noticed that lights were often on when they were not in use. By utilizing timers in the hallways, parking lot, and entryways, they cut back significantly on unnecessary usage of lights. The energy savings achieved (11.6%) made it evident that these seemingly small changes were really not small at all.

### ***Gardner Middle School***

Custodians at Gardner Middle School used holiday and summer breaks as opportunities to achieve a lot of savings. In preparation for the periods off, custodians asked teachers to unplug everything in their classrooms. Ultimately, custodians were responsible for completing a thorough shutdown of the school before each break, and they were also the primary reason for the large energy savings their hard work provided!

### ***La Vorna Elementary School***

Custodians at La Vorna Elementary faced off with big electricity consumers and came out victorious! They identified unused computers and vending machines as large sources of energy use, and they attacked the problem from multiple angles. They removed computers that were no longer functioning properly or not being used, as well as unnecessary lights from vending machines, and they made sure all of machines were unplugged when everyone left for the day. By taking out these energy hogs, custodians won big energy savings for their school.

## **GREEN JOBS: EXPOSING STUDENTS TO GREEN CAREERS**

“Green” jobs that focus on environmental sustainability are on the rise, but are lacking enough trained people to fill them. Green Schools students learn about a variety of green career opportunities, including information on specific green jobs and what is required to get them. In addition, by engaging in hands-on energy saving projects, students learn important technical and non-technical skills that help prepare them to enter the workforce. Here are a few examples of how schools exposed their students to green career opportunities.

## **Hesperia Valley Unified School District**

### ***Ranchero Middle School***

This year, Ranchero Middle School painted their annual Career Day green! They introduced their students to the new wave of green careers by focusing the whole day on careers in green technology. Stu-

dents heard from a diverse group of green professionals, including an architect who specialized in green buildings, an aerospace engineer who focused on alternative fuels, and a representative from South Coast Air Quality Management District. Speakers told students about their jobs, what makes their jobs “green,” and what skills and qualifications are required to obtain such positions.

## **Lake Elsinore Unified School District**

### ***Elsinore High School***

The Alliance to Save Energy’s Student Energy Auditing Trainer (SEAT) Tony Malone, discussed green jobs during the SEAT workshop with a group of 30 students, including 20 learning disabled science students and 10 general education science students. Mr. Malone discussed green jobs in the context of energy auditing and different energy professions that promote saving energy in buildings. In addition to leading the discussion on green jobs, Mr. Malone outlined types of energy, defined phantom loads, instructed students how to calculate energy use and cost, and trained students to use audit tools such as the light meter, watt meter, and infrared thermometer. Students learned energy auditing skills during the training that could be applied toward a career in energy efficiency. For example, the students used their new skills to create a map of the light levels in the classroom, measure the energy use of various appliances, and analyze the data they collected in order to make recommendations for improved efficiency to their school and district.



SEAT trainer Tony Malone demonstrating how the tools in the Green Schools tool kit can measure heat output of appliances.

### ***Lakeside High School***

At Lakeside High School, the Green Team took their green career discussion out of the classroom and into the school’s very own Heating, Ventilation and Air Conditioning (HVAC) plant. The Green Team walked the students through the school’s HVAC plant and informed them about how the plant works and the types of green jobs that go into maintaining and operating the plant efficiently. The team informed students that positions such as a Facilities Director/Operator, HVAC Contractor/Manufacturer, and Mechanical Engineer are lucrative careers in the energy industry that specifically address building maintenance, operation, and energy efficiency.

### ***Ortega High School***

Students at Ortega High School conducted research on green careers and programs offered at local colleges that offer training to enter the green workforce. Students also kept abreast of federal grants that have increased environmental training programs for green jobs at the community college level, programs that are emerging from new green technologies and incentives from the federal government’s green initiatives in 2010. These students presented on their findings to several classes in their school. They also worked with the career center counselor to integrate green careers as options for graduating seniors. The Green Team also began collaborating with the Virtual Enterprise Business class to research environmentally friendly business opportunities and investigate how companies can improve their social, economic, AND environmental values.

### ***Terra Cotta Middle School***

The Green Team used the power of the internet to increase student exposure to green careers by utilizing an online career survey (<http://www.cacareerzone.org/index.html>). The career assessment survey asked students questions about their likes and dislikes which allowed students to explore careers based on their interests. The survey also provided information related to utility costs and how much money can be saved by energy efficient behaviors when the students begin living on their own.

Not only did the Terra Cotta Green Team use the internet to spread the message about green careers, they also invited Southern California Edison (SCE) representatives Jasmine Hall and Nam Le to talk to students about the green workforce. The SCE representatives spoke about the importance of having an education, in addition to the different job opportunities that are available to students after they graduate, such as obtaining an internship with utility companies such as their own. Many students were very interested in the topic and asked the presenters questions about their career choices, or about what they need to do to earn a decent salary in the future.



Terra Cotta students listen to Southern California Edison

### **Murrieta Valley Unified School District**

#### ***Vista Murrieta High School***

Vista Murrieta High School took a great leap forward in raising awareness about green career opportunities. The Green Team researched several green jobs including solar and wind manufacturers, waste management staff, and energy auditors, as well what type of training and education are required to obtain those jobs. They presented their research to the career and college centers on campus, both of which gladly accepted the information and began providing green career information to students.

### **Temecula Valley Unified School District**

#### ***Rancho Elementary School***

Students at Rancho Elementary School were exposed to green careers by going through an often untapped resource, their parents! Teachers came up with the idea to invite parents with green careers into the classroom to talk about their job, explain what they do, what makes their job green, and what training and education they pursued to obtain their position. Everybody benefited from the presentation – teachers had a readily accessible resource to inform students about green careers; parents had an opportunity to talk about their jobs and contribute to students' education; and, most importantly, the students learned firsthand about green career opportunities while finding out that some parents help to save our planet.

#### ***Rancho Vista High School***

Green Team students at Rancho Vista High School were not only trained to conduct energy audits, but they also learned how these skills can be utilized in a lifelong career. This spring, the Green Team heard from two green professionals from the local community. A Community Relations Recycling Coordinator from CR&R Waste Services talked to students about recycling and green job opportunities, and a representative from Mount San Jacinto College informed the class about technical certificates that are available for students interested in becoming solar installers and wind turbine technicians, both green jobs in renewable energy.

### ***Red Hawk Elementary School***

To educate students about green careers early on, Red Hawk Elementary posted a year-long display in the library featuring books for students to check out regarding careers in environmental sciences, conservation, and ecology. During library story time, the librarians made a special effort to inform students that aside from being a doctor, fireman, or teacher, they can also strive for a career in the sustainability field and help protect the environment!

### ***Temecula Middle School***

To raise awareness of green job opportunities at Temecula Middle School, the Green Team put together a Power Point presentation outlining ten green career pathways including environmental law, green construction and design, organic farming, ecotourism, and alternative medicine. The team included information about career opportunities in those areas and a resource to contact for details about each position. The team made the presentation available for teachers to use during their Professional Learning Communities hour with their class.



## Comprehensive Table of Energy Savings

	School	Period	tons CO <sub>2</sub> saved	kWh saved	\$ saved	% saved
Lake Elsinore USD	Ranchero Middle School (Hesperia Unified School District)	9/10-6/10	101.92	203,830	\$34,204	17.2%
	Butterfield Elementary	9/09-6/10	17.98	35,968	\$5,740	10.1%
	Canyon Lake Middle	9/09-6/10	36.21	72,422	\$10,776	10.3%
	Cottonwood Canyon Elementary	9/09-6/10	31.88	63,755	\$10,576	17.5%
	David Brown Middle	9/09-6/10	38.86	77,714	\$11,930	13.6%
	Donald Graham Elementary	9/09-6/10	48.62	97,246	\$16,248	23.4%
	Earl Warren Elementary	9/09-6/10	21.77	43,545	\$6,800	13.1%
	Elsinore Elementary	9/09-6/10	22.08	44,169	\$7,919	16.6%
	Elsinore High	9/09-6/10	155.56	311,120	\$47,153	15.7%
	Elsinore Middle	9/09-6/10	35.01	70,020	\$11,444	12.9%
	Lakeland Village Middle	9/09-6/10	67.03	134,056	\$18,966	19.8%
	Lakeside High	9/09-6/10	196.39	392,775	\$48,746	14.8%
	Alternative Ed Center	9/09-6/10	0.19	388	\$32	0.3%
	Luiseno Elementary	9/09-6/10	24.65	49,301	\$9,289	17.1%
	Machado Elementary	9/09-6/10	27.27	54,539	\$9,582	14.5%
	Ortega High	9/09-6/10	27.13	54,257	\$10,056	18.2%
	Railroad Canyon Elementary	9/09-6/10	17.20	34,390	\$6,125	11.0%
	Rice Canyon Elementary	9/09-6/10	22.50	44,992	\$7,503	12.4%
	Ronald Reagan Elementary	9/09-6/10	28.37	56,735	\$9,127	16.4%
	Temescal Canyon High	9/09-6/10	67.91	135,814	\$18,829	8.1%
	Terra Cotta Middle	9/09-6/10	25.17	50,334	\$8,891	8.9%
	Tuscany Hills Elementary	9/09-6/10	19.44	38,876	\$7,395	16.3%
	Wildomar Elementary	9/09-6/10	9.66	19,317	\$2,960	4.9%
	William Collier Elementary	9/09-6/10	21.00	41,992	\$6,517	12.5%
	Withrow Elementary	9/09-6/10	26.84	53,686	\$8,628	14.7%

## Comprehensive Table of Energy Savings (Cont.)

			CO <sub>2</sub> saved (tons)	kWh saved	\$ saved	% saved
Murrieta Valley USD	School	Period				
	Dorothy McElhinney Middle	10/09-6/10	80.79	161,577	\$19,016	17.3%
	Lisa J. Mails Elementary	9/08-6/10	46.98	93.962	\$14,105	15.4%
Temecula Valley USD	Abby Reinke Elementary	9/08-6/10	56.93	113,868	\$18,412	21.8%
	Bella Vista Middle	9/08-6/10	50.29	100.574	\$16,642	14.4%
	Chaparral High	9/08-6/10	89.87	179,745	\$25,319	7.2%
	Crowne Hill Elementary	9/08-6/10	34.14	68,286	\$11,968	15.5%
	French Valley Elementary	9/08-6/10	56.38	112,768	\$20,077	22.1%
	Gardner Middle	9/08-6/10	50.08	100,164	\$15,537	14.4%
	Great Oak High	9/08-6/10	155.14	310,297	\$41,358	12.0%
	Jackson Elementary	9/08-6/10	13.65	27,304	\$4,399	6.4%
	James Day Middle	9/08-6/10	38.50	77,009	\$12,388	11.6%
	La Vorgna Elementary	9/08-6/10	34.67	69,338	\$12,190	14.8%
	Margarita Middle	9/08-6/10	135.58	271,158	\$44,680	26.0%
	Nicolas Valley Elementary	9/08-6/10	61.75	123,504	\$24,518	24.0%
	Paloma Elementary	9/08-6/10	40.30	80,602	\$15,293	20.1%
	Pauba Valley Elementary	9/08-6/10	51.94	103,877	\$18,946	24.2%
	Rancho Elementary	9/08-6/10	39.68	79.350	\$6,732	21.8%
	Rancho Vista High	9/08-6/10	20.13	40,250	\$16,518	12.2%
	Red Hawk Elementary	9/08-6/10	41.03	82,052	\$18,693	21.9%
	Temecula Elementary	9/08-6/10	48.65	97,299	\$12,891	22.1%
	Temecula Luiseno Elementary	9/08-6/10	36.61	73,213	\$22,073	17.3%
	Temecula Middle	9/08-6/10	65.54	131,079	\$73,536	17.1%
	Temecula Valley High	9/08-6/10	260.13	520,265	\$18,313	20.2%
	Tony Tobin Elementary	9/08-6/10	56.29	112,579	\$19,898	21.8%



## Comprehensive Table of Energy Savings (Cont.)

Temecula Valley	School	Period	CO <sub>2</sub> saved (tons)	kWh saved	\$ saved	% saved
	Vail Elementary	9/08-6/10	53.56	107,116	\$19,898	25.0%
	Vail Ranch Middle	9/08-6/10	56.88	113,753	\$20,216	14.9%
	Vintage Hills Elementary	9/08-6/10	43.75	87,505	\$14,719	19.9%
	Ysabel Barnett Elementary	9/08-6/10	59.30	118,602	\$22,061	23.9%
	<b>Totals &amp; Avg. % ‡</b>		<b>3,156.09</b>	<b>5,738,337</b>	<b>\$911,693</b>	<b>15.5%</b>

## A Note on Energy-Saving Data

Electricity savings are calculated against a weather-normalized baseline of electricity use that is adjusted for changes in square footage, retrofits, and other factors that affect energy load at each school. Utility Management Services provides a well-documented model of possible savings based on actual utility bills, but it cannot account for all the differences between one year and the next.

