



Energy Efficiency in Schools

Schools spend more on energy than on computers and textbooks combined. Reducing energy use is an effective way to help cash-strapped schools funnel more money into the classroom instead of the local utility. Just as important, the concept of energy efficiency provides multidisciplinary learning opportunities in math, science, and language arts.¹ CERTs teams around Minnesota are starting to gather resources to bring energy efficiency into the classroom to save energy while helping students build vital real-world skills.

How can you get your students interested in energy? Although energy issues have a global impact, the local school environment provides an excellent starting point for energy awareness. There are many ways to get students involved and interested in energy issues through energy projects, conducting energy audits, assigning research reports and more.

Visit fun energy websites such as:

Dr. E's Energy Lab- <http://www.eere.energy.gov/kids/>

EIA's Kid Page - <http://www.eia.doe.gov/kids/>

ProjectPower - <http://www.kidsenergy.org/>

GreenNet for Kids - <http://www.gn.apc.org/kids/energy.html>

What are some basic topic areas for teaching about energy efficiency?

- **General energy information:** This includes having students learn the forms of energy (light, sound, thermal or heat, electrical, nuclear, elastic, mechanical, gravitational, magnetic, and chemical), energy transformation, the law of conservation of energy and energy transformation efficiency.
- **Energy Sources:** This includes having students learn the changing sources for energy over time, various uses for energy, and the sources of energy (solar, fossil fuels, nuclear, wind, water, hydroelectric, tidal, biomass, geothermal). It can also introduce the concept of renewable and non-renewable categories for energy sources.
- **Energy Options:** This includes having students investigate the various energy options for the future: the use of non-renewable energy sources, the use of renewable energy sources

¹ Text used comes from the Alliance to Save Energy website. Retrieved on February 10th, 2005, from: <http://www.ase.org/section/audience/educators/>.

and conservation. Each option can be examined for environmental, social, and economic affects on the local and global communities. ²

What is a High Performance School? "High Performance School" refers to the physical facility. Good teachers and motivated students can overcome inadequate facilities and perform at a high level almost anywhere, but a well-designed facility can truly enhance performance and make education a more enjoyable and rewarding experience. A high performance school is healthy; thermally, visually, and acoustically comfortable; energy, material, and water efficient; safe and secure; easy to maintain and operate; commissioned; has an environmentally responsive site; is a building that teaches; a community resource; is stimulating architecture; and is adaptable to changing needs.³

Can improved student performance really be linked to high performance schools? Yes, evidence is growing that high performance schools can provide learning environments that lead to improved student performance. For example, recent studies have shown that effective daylighting has contributed to improved student test scores by 10 to 20%. Besides the studies, it is intuitive that quieter, comfortable classrooms with adequate lighting and good air quality yield better students and teachers. Low- and no-emission building materials can reduce odors, sensory irritation, and toxicity hazards associated with indoor air pollution. Efficient windows also reduce outside noise distractions; improved heating and cooling systems permit students to hear the teacher better and avoid huge room temperature swings; adequate lighting improve the students ability to read books and the blackboard; and more.

Links:

Rebuild America: <http://www.rebuild.org/sectors/ess/index.asp>.

National Energy Education Development (NEED) Project: <http://www.need.org/>.

Hallberg Engineering Schools for Energy Efficiency:
<http://www.hallbergengineering.com/front.htm>.

Johnson Controls Academy of Energy Education: <http://www.johnsoncontrols.com/cg-education/academy.htm>.

Marion County Public Schools Energy Management website:
<http://www.marion.k12.fl.us/dept/emg/>.

SchoolFacilities.com: <http://www.schoolfacilities.com/home.asp>.

Energy Star: http://www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12.

California's Flex Your Power Program: <http://www.fypower.org/>.

² The last three questions and answers listed come from the Rebuild America "Energy Education" link. Retrieved on February 10th, 2005, from: <http://www.rebuild.org/sectors/SectorPages/EnergyEducation.asp>.

³ The last two questions and answers listed come from the California Division of State Architect "Sustainable Schools" link. Retrieved on February 14th, 2005, from: <http://www.sustainableschools.dgs.ca.gov/SustainableSchools/faq/faq.html>.