

# Energized Learning:

## EXPLORING THE MATH & SCIENCE OF ENERGY EFFICIENCY USING A VIRTUAL WEB-BASED HOME



The Energized Learning project is deploying a new educational interface for a sophisticated web-based energy calculator and home energy audit toolkit, The Home Energy Saver, which was developed by Lawrence Berkeley National Laboratory researchers.

<http://HomeEnergySaver.lbl.gov>

Using the Energized Learning website, high school students will do projects involving household- and community-scale data gathering and analysis. They will:

- Gather physical information about residences, such as floor space, window area, building orientation, appliances, heating and cooling systems.
- Input data and run the Home Energy Saver program.
- Learn how energy use of buildings and appliances is calculated.
- Calculate savings of energy and money, and reductions of greenhouse gas emissions, from implementing energy efficiency measures.
- Develop recommendations to improve the energy efficiency of homes.
- Prepare reports on community-scale energy efficiency improvements.

### Sample Projects:

**Calculate the size of the "Carbon Bubble"**

Q. How large is your carbon bubble (diameter of the equivalent sphere of carbon dioxide emissions from the energy used in your home)?  
Answer: 282 meters (946 feet) diameter

Q. How large is your carbon bubble compared to the size of your house?  
Answer: 25,299 times as large

Q. How do the emissions associated with your house compare to those of the typical car?  
Answer: 1.4 times as much

**Find 10 Ways to Reduce Heating or Cooling Costs in Your House**

Energized Learning engages students in "real science"—acquiring and applying scientific information in collaboration with practicing interdisciplinary researchers. Students will gain a knowledge of, and experience in a range of disciplines and learning skills:



- \* Visual Arts \* Earth Sciences
- \* Probability and Statistics
- \* Investigation and Experimentation
- \* Microeconomics \* Web-based communications

Mastery of the subject will also equip students to use the tool in vocational settings, for example, as energy auditors in School-to-Work programs.

Contact: Evan Mills, [EMills@lbl.gov](mailto:EMills@lbl.gov)

