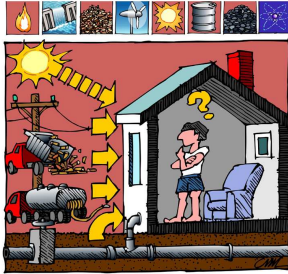


## Energy Thinking

### Description

# ENERGY THINKING



Energy—where we get it and how we use it—can be expected to change radically during the lifetimes of our children. The world’s ability to produce oil fast enough to meet rising worldwide demand is being stressed. This situation can only be expected to grow worse over the lifetime of our students, unless we shift away from a dependence on oil. Rising carbon dioxide emissions, mainly from burning fossil fuels (our primary energy resources) are a major cause of global climate change. It is increasingly clear this will exact a considerable cost on the world’s environment and population, especially on future generations unless vast changes are made to our energy systems and ways we use energy.

Through activities in this unit, students will implement an easy-to-use structure—the *Energy Thinker’s Diagram*—to analyze and evaluate energy use in their lives and propose changes that could reduce unwanted consequences of energy use that students consider important. Reduced risks of global climate change, energy price fluctuations, or lessened impacts of energy use on the environment or human health are just a few examples.

Along the way, students examine the scientific concepts of energy sources, forms, transformations, efficiency, and heat transfer (conduction, convection, and radiation). Students experiment with electric generators powered by wind, water, and light; they also conduct tests heating model buildings with different types of insulation (thermal and radiant barriers) and sealing leaks.

Steeped in state specific standards and statistics, students investigate the concept and applications of energy and the percentage of types of energy forms utilized by their state.

### Meeting Standards for Learning

Massachusetts Standards in Science, Technology/Engineering and Ecological Health

Pennsylvania Standards in Environment and Ecology, Science and Technology

### Availability

Currently hard copies in book format are all sold out. To order a CD version of this curricular unit, please download an order form and send it with a check for \$12 to: NESEA, 50 Miles St., Suite 3, Greenfield, MA 01301. Please specify which state, MA or PA.

If you are interested in energy curriculum that can be matched to your State standards and statistics, contact NESEA so that we can develop an energy science curriculum specific to your state. Contact the K-12 Education Department at [nesea@nesea.org](mailto:nesea@nesea.org) or 413-774-6051 x. 21.