



National Energy Education Development Project



# 2009-2010 RESOURCE CATALOG

Putting Energy into Education

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# THIS IS NEED

## PUTTING ENERGY INTO EDUCATION FOR 30 YEARS

The NEED Project includes innovative K-12 educational materials, teacher and student training programs, evaluation, and recognition. NEED materials and training conferences are designed to provide comprehensive, objective information about energy production and consumption and the major energy sources—how they are used and their impact on the environment, economy, and society. The program emphasizes the development of critical thinking and problem solving skills using hands-on activities that encourage students to consider the trade-offs inherent in energy use.

NEED materials have been designed to meet the needs of teachers and students, and are correlated to the National Science Education Content Standards and many state standards. Activities are available at all grade levels—from kindergarten to 12th grade—and incorporate NEED's Kids Teaching Kids approach to education by encouraging students to teach others. The NEED Project has a Teacher Advisory Board to ensure that all curriculum materials are objective, up-to-date, scientifically accurate, and meet the requirements of national and state standards.

NEED also publishes two newsletters. Energy Exchange is published four times a year to keep teachers and sponsors informed about new curriculum materials, current energy issues and opportunities available for teachers and students. Career Currents is published four times a year to provide students with information about a variety of careers in the energy industry. The newsletters are distributed to all NEED teachers, partners and sponsors, and are also available on the NEED website at [www.NEED.org](http://www.NEED.org).

NEED works with school districts and teachers across the country to design and implement individualized energy programs to meet their education goals and objectives. In many areas, NEED materials are incorporated into the formal curriculum at many grade levels. NEED has the flexibility to tailor programs to meet the specific requirements of individual states, schools districts, and teachers.

### PROFESSIONAL DEVELOPMENT

The NEED Project conducts workshops and professional development programs throughout the year to meet the needs of school districts and individual teachers. These training programs provide comprehensive energy information and introduce educators to NEED materials and other energy education resources. Information about upcoming conferences, workshops and other events is available on NEED's website at [www.NEED.org](http://www.NEED.org). To discuss hosting a training program, call NEED Headquarters at 1-800-875-5029.

### LEADERSHIP DEVELOPMENT

NEED encourages student energy leadership by sponsoring a Youth Awards Program for Energy Achievement. Students and teachers who coordinate outstanding energy projects are recognized at statewide awards programs and the National Recognition Ceremonies held each June in Washington, DC.

As students learn about energy during the year, they put their knowledge to good use. Our students are leaders. Since the NEED Project began in 1980, students have been learning and leading others to an understanding of energy in the world. They are teaching the next generation to make good energy decisions. The Kids Teaching Kids approach works.



## THE NEED MISSION

The National Energy Education Development (NEED) Project is a 501(c)(3) nonprofit education association incorporated in the Commonwealth of Virginia. The mission of NEED is to promote an energy conscious and educated society by creating networks of students, educators, and business, government and community leaders to design and deliver objective, multi-sided energy education programs. Established by Presidential Proclamation in 1980, NEED is a dynamic force in thousands of schools nationwide.



# NEED RESOURCE PACKET



Any educator can become a part of NEED's dynamic network of schools across the nation participating in innovative energy education programs. NEED Educators receive a 2009-2010 NEED Resource Packet, subscriptions to Energy Exchange and Career Currents newsletters; access to NEED conferences, workshops, and the Youth Awards Program for Energy Achievement; and the opportunity to personalize classroom programs by ordering free curriculum units and supplemental materials using the Order Form on page 28. All materials are available online.

NEED Resource Packets are provided by sponsors to all educators who attend NEED workshops. Each packet includes the following materials:

## ENERGY INFOBOOKS

NEED's Energy Infobooks are provided on primary, elementary, intermediate, and secondary reading levels. The booklets provide resource information on the sources of energy, electricity, transportation, conservation and efficiency, and consumption. The Infobooks are used in the classroom as resources for many NEED activities and class sets of the elementary, intermediate, and secondary versions are available. The primary version is a flipbook for teachers to read to students. The Infobooks are revised every year to provide complete, up-to-date information. They are also available on the website as individual factsheets.

## ENERGY GAMES & ICEBREAKERS

This booklet contains introductory energy activities and games, including Electric Connections, Energy Chants, Bumper Stumpers, Energy Bingo, and America's Most Wanted Energy Wasters.

## BLUEPRINT FOR SUCCESS

This booklet was designed to help educators develop effective energy education programs. It provides an outline of a basic energy curriculum unit, and a matrix of all curriculum options. To help teachers plan their own custom energy unit a brief description about all of NEED's curriculum materials can be found in this resource. Included in the booklet are the Energy Polls on four levels for pre/post assessment evaluations.

## ENERGY PROJECTS & ACTIVITIES

This booklet includes a sample workplan and suggestions for energy outreach activities to other classes, schools, families, and communities, as well as the Youth Awards Program Guide and Application Form.

2009-2010 NEED Resource Packet: \$ 35.00

# NEED CURRICULUM

The Curriculum Matrix is designed to assist teachers in planning an individualized energy unit. All NEED materials are listed by grade level and by where the majority of information in the material fits into NEED's Energy Education Steps. Descriptions of the curriculum can be found starting on page 7.

It is important to note that many curriculum pieces overlap steps. NEED Energy Infobooks are the foundational piece of any energy education unit. Written at four different levels - primary, elementary, intermediate, and secondary, each Infobook has in-depth information on the major energy sources. Topics also covered in the Infobooks include Electricity (Step Three) and Energy Efficiency and Conservation (Step Five).

Individual books on specific sources used to generate electricity often include background information on electricity and magnetism. This is the case in NEED's curriculum series on solar energy, hydropower, wind energy, and nuclear energy.

Whether ordering a Basic NEED Unit or choosing individual curriculum pieces, teachers should thoroughly review all materials and plan their units according to the needs of their students and their classroom timing and sequencing.

## BASIC CURRICULUM UNITS

### ORDERING BASIC CURRICULUM UNITS

The Teacher Advisory Board has designed basic NEED curriculum units at four levels to help new teachers implement energy units in their classrooms. These units are designed to meet the National Science Content Standards for each level by teaching the science of energy, sources of energy, electricity & magnetism, transportation, and energy efficiency and conservation. Synthesis, reinforcement, evaluation, and recognition activities are also included.

A teacher may choose to receive the booklets in a basic unit as shown below by level, or may choose six supplemental booklets. The booklets in italics are not available in print; they are only available to download from the NEED website at [www.NEED.org](http://www.NEED.org). To order a basic unit, check the appropriate box on the order form. Descriptions of all NEED curriculum guides are in the Blueprint for Success in the NEED Resource Packet.

Basic NEED Units	Basic Primary Unit (K-2)	Basic Elementary Unit (3-5)	Basic Intermediate Unit (6-8)	Basic Secondary Unit (9-12)
<b>INTRODUCTORY ACTIVITIES</b>	← ..... Energy Games and Icebreakers ..... →			
<b>STEP ONE: Science of Energy</b>	Primary Science of Energy	Science of Energy EnergyWorks	Science of Energy	Secondary Science of Energy
<b>STEP TWO: Sources of Energy</b>	← ..... Energy Games and Icebreakers ..... →			
	Primary Energy Stories and More	Energy in the Balance	Debate Game	Energy Enigma
<b>STEP THREE: Electricity &amp; Magnetism</b>	Exploring Magnets	ElectroWorks	ElectroWorks	<i>Mission Possible</i>
<b>STEP FOUR: Transportation</b>	Primary Energy Stories and More	What Car Will You Drive?	The Future is Today	The Future is Today
<b>STEP FIVE: Conservation &amp; Efficiency</b>	Building Buddies Saving Energy Flipbook	Monitoring and Mentoring	Monitoring and Mentoring	Learning and Conserving
	← ..... Energy Conservation Contract ..... →			
<b>STEP SIX: Synthesis &amp; Reinforcement</b>	Primary Carnival	Energy Carnival	Energy Carnival	Energy Carnival
	← ..... Energy Jeopardy ..... →			
<b>STEP SEVEN: Evaluation</b>	← ..... Question Bank ..... →			
	← ..... Energy Polls (Blueprint for Success) ..... →			
<b>STEP EIGHT: Recognition</b>	← ..... Youth Awards Program (Projects and Activites) ..... →			

# NEED CURRICULUM MATRIX

	PRIMARY (K-2)	ELEMENTARY (3-5)	INTERMEDIATE (6-8)	SECONDARY (9-12)
<b>INTRODUCTORY ACTIVITIES</b>	Energy Games and Icebreakers	Energy Games and Icebreakers	Energy Games and Icebreakers	Energy Games and Icebreakers
<b>STEP ONE: Science of Energy</b>	Primary Science of Energy	EnergyWorks Energy Flows Science of Energy	Science of Energy Energy Flows EnergyWorks	Science of Energy Energy Flows Thermodynamics
<b>STEP TWO: Sources of Energy</b>	Primary Energy Flipbook Primary Flipbook Activities Primary Energy Stories and More The Sun and its Energy Wind is Energy Water and Energy	Elementary Energy Infobook Elementary Infobook Activities Energy Source Expo Energy in the Balance Energy from the Sun Energy on Public Lands Great Energy Rock Performances LNG Primary Energy Stories and More Wonders of Wind Wonders of Water U.S. Energy Geography	Intermediate Energy Infobook Intermediate Infobook Activities Energy Enigma Energy Source Expo Energy of Moving Water Energy from Uranium Energy from the Wind Energy on Public Lands Exploring Solar Energy Fossil Fuels to Products Great Energy Debate Great Energy Rock Performances LNG Marine Energy U.S. Energy Geography Ocean Energy	Secondary Energy Infobook Secondary Infobook Activities Energy Enigma Energy Source Expo Exploring Hydroelectricity Exploring Nuclear Energy Exploring Wind Energy Fossil Fuels to Products Great Energy Debate Great Energy Rock Performances LNG Marine Energy Photovoltaics U.S. Energy Geography
<b>STEP THREE: Electricity &amp; Magnetism</b>	Exploring Magnets	Exploring Magnets ElectroWorks	ElectroWorks Current Energy Affair Mission Possible	Mission Possible Current Energy Affair
<b>STEP FOUR: Transportation</b>	Primary Energy Stories and More	What Car Will you Drive? Biodiesel Ethanol Transportation Fuels Expo Transportation Rock Performances	Biodiesel Ethanol H <sub>2</sub> Educate The Future is Today Transportation Fuels Debate Transportation Fuels Enigma Transportation Fuels Expo Transportation Rock Performances What Car Will you Drive?	Biodiesel Ethanol H <sub>2</sub> Educate The Future is Today Transportation Fuels Debate Transportation Fuels Enigma Transportation Fuels Expo Transportation Rock Performances
<b>STEP FIVE: Conservation &amp; Efficiency</b>	Building Buddies Climate Change Flipbook Saving Energy Flipbook Today in Energy Trash Flipbook	Building Buddies Energy House Energy Conservation Contract Monitoring and Mentoring Saving Energy Expo Talking Trash This Week in Energy Conservation Today in Energy Saving Energy at Home and School	Energy Conservation Contract Energy House Monitoring and Mentoring Museum of Solid Waste and Energy Saving Energy Expo This Week in Energy Conservation Understanding Climate Change Saving Energy at Home and School	Energy Conservation Contract Exploring Climate Change Learning and Conserving Museum of Solid Waste and Energy Saving Energy Expo School Energy Survey This Week in Energy Conservation
<b>STEP SIX: Synthesis &amp; Reinforcement</b>	Primary Carnival Energy Fair NEED Songbook	Energy Around the World Energy Carnival Energy Fair Energy House Energy in the Balance Energy Jeopardy Energy Math Challenge Energy on Stage Energy Rock Performances Exploring Energy Global Trading Game Greek Mythology and Energy Mystery World Tour NEED Songbook This Mine of Mine Yesterday in Energy	Energy Analysis Energy Around the World Energy Carnival Energy House Energy in the Balance Energy Jeopardy Energy Math Challenge Energy on Stage Energy Rock Performances Exploring Energy Global Trading Game Greek Mythology and Energy Mystery World Tour NEED Songbook This Mine of Mine Yesterday in Energy	Energy Analysis Energy Around the World Energy Carnival Energy Jeopardy Energy Math Challenge Energy on Stage Energy Rock Performances Global Trading Game NEED Songbook Yesterday in Energy
<b>STEP SEVEN: Evaluation</b>	Energy Polls (Blueprint for Success) Question Bank	Energy Polls (Blueprint for Success) Question Bank	Energy Polls (Blueprint for Success) Question Bank	Energy Polls (Blueprint for Success) Question Bank
<b>STEP EIGHT: Recognition</b>	Youth Awards Program (Projects and Activities)	Youth Awards Program (Projects and Activities)	Youth Awards Program (Projects and Activities)	Youth Awards Program (Projects and Activities)



# HANDS-ON ENERGY KITS

## PRIMARY SCIENCE OF ENERGY KIT

Grades 1-3

**Science of Energy & Forms of Energy:** This booklet includes background information and hands-on experiments to explore the fundamental concepts of energy. Students explore the science of motion, heat, sound, and light with a series of simple activities that incorporate both English and metric measurements, using safe student thermometers, balances, rulers, measuring tapes, beakers and graduated cylinders. Primary students learn to make observations, measure, record results, compare and contrast, categorize, make predictions, analyze and graph results, and draw conclusions.

The Primary Science of Energy Kit includes a comprehensive, step-by-step Teacher Guide with background information on the energy topics covered, transparency masters, and detailed instructions for each activity; a class set of 30 Student Guides; and the materials needed for the students to conduct the experiments. Replacement equipment can be purchased separately so that the kit can be used for many years. A price list for replacement parts is at [www.NEED.org](http://www.NEED.org), or can be obtained by calling 1-800-875-5029.



<b>Levels:</b>	Primary
<b>Grades:</b>	1-3
Set of Teacher and Student Guides	\$ 5.00
Primary Science of Energy Kit	\$ 300.00
Class set of 30 Student Guides	\$ 50.00



## SCIENCE OF ENERGY KIT

Elementary/Intermediate Guide (Grades 5-8)  
Secondary Guide (Grades 9-12)

**Science of Energy & Forms of Energy:** Hands-on experiments explore the different forms of energy and how energy is transformed from one form to another. Groups of students master six stations, then teach others about the energy transformations at their stations. Teacher demonstrations are included to introduce the unit. Reinforcement activities are also included. The stations include equipment to teach transformations focusing on kinetic and potential energy, heat, light, motors, batteries, and electromagnetism.

The kit comes with BOTH Elementary/Intermediate (6th grade reading level) and Secondary (9th grade reading level) Guides that have detailed teacher instructions with demonstrations, student instructions for the six stations, laboratory safety rules, and the laboratory equipment necessary to conduct the experiments. The Secondary Guide has more detailed scientific explanations of the experiments. The Science of Energy Kit is available for sale or rental.

A Class Set of Consumables contains 8 lightsticks, 8 handwarmers, 1 jar of calcium chloride, 10 balloons, 1 toy car, 10 rubber bands, 1 set of nails and wires, 1 solar cell, 1 live wire, and 1 candle. Replacement parts can be purchased separately so that the kit can be used for many years. A price list for replacement parts is available at [www.NEED.org](http://www.NEED.org) or by calling 1-800-875-5029.



<b>Levels:</b>	Elementary Intermediate Secondary
<b>Grades:</b>	5-8, 9-12
Elementary/Intermediate or Secondary Guide	\$ 3.50
Science of Energy Kit	\$ 400.00
3-Week Rental of Science of Energy Kit	\$ 150.00
Class Set of Consumables	\$ 35.00



## EXPLORING MAGNETS KIT

Grades 1-4

**Science of Energy, Magnets & Magnetism:** This booklet includes background information and hands-on experiments to explore the basics of magnets and magnetism. The Exploring Magnets Kit includes a Teacher Guide with background information, transparency masters, demonstration materials, and instructions for each activity; Student Activity Sheets, and the materials needed to set up five centers. Replacement parts can be purchased separately so that the kit can be used for many years. A price list for replacement parts is at [www.NEED.org](http://www.NEED.org), or can be obtained by calling 1-800-875-5029.



Exploring Magnets Guide	\$ 3.00
Exploring Magnets Kit	\$ 120.00

Levels:	Primary Elementary
Grades:	1-4

## ELECTROWORKS KIT

Grades 4-7

**Electricity:** A background and hands-on experiments explore the basic concepts of atomic structure and electricity. Included are center-based experiments on static electricity, batteries, magnets, electromagnetism, and circuits. The kit comes with a detailed Teacher Guide, a class set of Student Guides, and most of the equipment necessary to conduct the experiments. The materials not included in the kit are readily available in the classroom or at home.



Set of Teacher & Student Guides	\$ 5.00
ElectroWorks Kit	\$ 350.00
3-Week Rental of Kit	\$ 150.00
Class Set of 30 Student Guides	\$50.00

Levels:	Elementary Intermediate
Grades:	4-7

## ENERGYWORKS KIT

Grades 4-8

**Science of Energy & Forms of Energy:** Background information and hands-on experiments explore motion, light, sound, heat, growth, and powering technology. Teacher Demonstrations are also included. The kit comes with a Teacher Guide, a class set of Student Guides, and most of the equipment necessary to conduct the experiments. The materials not included in the kit are readily available. Replacement parts can be purchased separately so that the kit can be used for many years. A price list is available at [www.NEED.org](http://www.NEED.org), or by calling 1-800-875-5029.



Set of Teacher & Student Guides	\$ 6.00
EnergyWorks Kit	\$ 400.00
3-Week Rental of EnergyWorks Kit	\$ 150.00
Class Set of 30 Student Guides	\$60.00

Levels:	Elementary Intermediate
Grades:	4-8

# HANDS-ON ENERGY KITS

## SOLAR ENERGY KITS

Grades K-12

**Solar Energy:** Backgrounders and hands-on experiments explore solar energy and photovoltaics at four levels.



### THE SUN AND ITS ENERGY KIT

Primary

Comes with a flipbook and classroom-based activities, including thermometers, a solar oven, a solar house kit with solar cells, a solar balloon, solar beads, and more.



### THE ENERGY FROM THE SUN KIT

Elementary

Comes with Teacher Guide, class set of Student Guides, and equipment to conduct the experiments, including two solar cookers, four solar house kits with ceiling fans and lights powered by PV panels, thermometers, solar balloons, radiometers, and more.



### THE EXPLORING SOLAR ENERGY KIT

Intermediate

Comes with Teacher Guide, class set of Student Guides, and five sets of equipment to conduct experiments, including radiation cans, thermometers, solar concentration mirrors, PV kits, and more.



### THE PHOTOVOLTAICS KIT

Secondary

Comes with Teacher Guide, class set of Student Guides, and six sets of equipment to conduct experiments, including multimeters and PV cells.

Set of Teacher & Student Guides (Any Level)	\$ 5.00
The Sun and Its Energy Kit	\$ 200.00
Energy From the Sun Kit	\$ 350.00
Exploring Solar Energy Kit	\$ 350.00
Photovoltaics Kit	\$ 350.00
Class Set of 30 Student Guides (for elementary, intermediate and secondary levels)	\$ 50.00

<b>Levels:</b>	Primary Elementary Intermediate Secondary
<b>Grades:</b>	K-12

## WIND ENERGY KITS

Grades K-12

Wind Energy: Backgrounders and hands-on experiments explore wind energy at four levels.



### THE WIND IS ENERGY KIT

Primary

Comes with a non-fiction read aloud, and a class set of science notebooks designed specifically for this unit. The kit includes wind measurement tools and a KidWind Weightlifter Windmill for inquiry investigations.



### THE WONDERS OF WIND KIT

Elementary

Comes with a Teacher Guide, class set of Student Guides with built-in science notebooks, and equipment to conduct investigations including a KidWind Weightlifter Windmill and KidWind Turbine.



### THE ENERGY FROM THE WIND KIT

Intermediate

Comes with Teacher Guide, class set of Student Guides, and equipment to conduct the experiments, including two KidWind Turbines, a Genecon, and more.



### THE EXPLORING WIND ENERGY KIT

Secondary

Comes with Teacher Guide, class set of Student Guides, and equipment to conduct the wind experiments, including KidWind Turbine components for two turbines, a Genecon, and more.

### KIDWIND PROJECT

KidWind Turbines are included in all NEED Wind Kits.

For more information about these turbines and other wind resources, go to [www.KidWind.org](http://www.KidWind.org).



Set of Guides (Any Level)	\$ 5.00
Wind is Energy Kit	\$ 250.00
Wonders of Wind Kit	\$ 300.00
Energy from the Wind Kit	\$ 425.00
Exploring Wind Energy Kit	\$ 425.00
Class Set of 30 Student Guides	\$ 50.00

Levels:	Primary Elementary Intermediate Secondary
Grades:	K-12



# HANDS-ON ENERGY KITS

## HYDROPOWER KITS

Grades K-12

**Hydropower:** Backgrounders and hands-on investigations exploring hydropower at four levels.



### THE WATER AND ENERGY KIT

Primary

This primary kit comes with a Teacher Guide and a class set of Science Notebooks designed specifically for this unit. Includes materials for classroom investigations that focus on water as a solid, liquid and gas, and an inquiry activity that demonstrates water can do work.



### THE WONDERS OF WATER KIT

Elementary

For elementary classrooms, a Teacher Guide and class set of Student Guides which include non-fiction reading, and a built-in science notebook are included. The kit includes materials to carry out investigations which show the relationship between land and water and the ability of water to do work. Also included are materials for a teacher demonstration on electricity generation.



### THE ENERGY OF MOVING WATER KIT

Intermediate

This intermediate kit comes with a Teacher Guide, class set of Student Guides, materials to learn about electricity and equipment for students to make and investigate water-powered turbine generators which actually generate electricity.



### THE EXPLORING HYDROELECTRICITY KIT

Secondary

This secondary kit comes with a Teacher Guide, a class set of Student Guides, and equipment to conduct investigations. Included are materials for students to build hydropower turbines with inquiry opportunities to change variables that will affect how much electricity is generated.

Set of Guides (Any Level)	\$ 5.00
Water and Energy Kit	\$ 150.00
Wonders of Water Kit	\$ 150.00
Energy of Moving Water Kit	\$ 400.00
Exploring Hydroelectricity Kit	\$ 350.00
Class Set of 30 Student Guides (Any Level)	\$ 50.00

<b>Levels:</b>	Primary Elementary Intermediate Secondary
<b>Grades:</b>	K-12



## H<sub>2</sub> EDUCATE KIT

Grades 6–12

**Electricity & Transportation:** This intermediate/secondary kit introduces students to hydrogen as an important energy carrier both as a fuel for distributed generation and as a transportation fuel. Students conduct experiments in electrolysis, learn about atomic structure and the periodic table, make element models, simulate how a fuel cell works, learn what a hydrogen economy may look like through a cooperative learning jigsaw activity, and explore a hydrogen fuel cell car kit. The kit includes Teacher Guide, class set of Student Guides with backgrounders, eight sets of electrolysis apparatus, sodium sulfate electrolyte, element modeling materials, fuel cell simulation materials, and a model hydrogen fuel cell car kit with detailed manual.

<b>Levels:</b>	Intermediate Secondary
<b>Grades:</b>	6-12
Set of Guides	\$ 6.00
H <sub>2</sub> Educate Kit	\$ 500.00
Class of 30 Student Guides	\$ 50.00



## SAVING ENERGY AT HOME AND SCHOOL KIT

Grades 4-8

**Energy Management:** Upper elementary/intermediate students learn about energy sources and energy efficiency through classroom activities. Hands-on activities cover energy sources, lighting, insulation, weatherization, electricity use, and water heating. Students and families install measures from the Home Energy Efficiency Kits corresponding to the lessons learned in the classroom and discuss their own energy use. The kit includes a Teacher Guide, class set of Student Guides, class set of Energy Savers Booklets, one set of Transparencies, radiation cans, lab thermometers, insulation materials, incandescent light bulb, compact fluorescent light bulb, Kill-A-Watt meter and a class set of thirty Home Energy Efficiency kits (Flow meter bag, hot water gauge, bathroom sink aerator, refrigerator thermometer, roll of Teflon tape, nightlight, outlet and switch plate gaskets, low-flow showerhead, thermostat temperature guide, kitchen sink aerator, CFL).

<b>Levels:</b>	Elementary Intermediate
<b>Grades:</b>	4-8
Set of Guides	\$ 6.00
Saving Energy at Home and School Kit (Includes 30 Home Energy Efficiency kits)	\$ 800.00



Home Energy Efficiency Kit

The NEED Project and Niagara Conservation have partnered to create the Home Energy Efficiency kits provided in this curriculum. For over 30 years, Niagara Conservation has provided the highest-quality water and energy conservation products and award-winning efficiency services. A worldwide industry leader today, Niagara's mission is to promote the efficient, sustainable use of the earth's resources without sacrificing product performance or appearance. For more information visit [www.niagaraconservation.com](http://www.niagaraconservation.com).

## BUILDING BUDDIES KIT

### Grades 2–3

**Energy Management:** The lower elementary program introduces students to basic concepts of energy use and conservation, beginning with activities focused on home energy use and extending to school energy use and conservation measures. Students monitor outdoor weather conditions, record indoor and outdoor temperatures, and evaluate their energy conservation behaviors daily. Individual students and classrooms are recognized for energy-saving habits and being good Building Buddies. The kit includes Teacher Guide, class set of Student Guides, indoor/outdoor thermometer, immersion thermometer, and neck pouches, buttons, stickers, CFL and incandescent bulbs, and certificates.

Set of Teacher and Student Guides	\$ 5.00
Building Buddies Kit	\$ 175.00
Class Set of 30 Student Guides	\$ 50.00



Levels:	Primary Elementary
Grades:	2-3

## MONITORING AND MENTORING KIT

### Grades 4–6

**Energy Management:** The upper elementary/intermediate program introduces students to methods of measuring energy usage, determining costs, and quantifying environmental effects through a series of activities that includes reading electric and natural gas meters, EnergyGuide labels, and electric nameplates. Students conduct surveys of the school building and school energy consumption—gathering, recording and analyzing data, and monitoring energy usage. The kit includes Teacher Guide, class set of Student Guides, indoor/outdoor thermometer, hygrometer, immersion thermometer, Flicker Checker, Kill-A-Watt meter, light meter, radiation cans, insulating materials, CFL and incandescent bulbs, and more.

Set of Teacher & Student Guides	\$ 6.00
Monitoring and Mentoring Kit	\$ 350.00
Class Set of 30 Student Guides	\$50.00



Levels:	Elementary Intermediate
Grades:	4-6

## LEARNING AND CONSERVING KIT

### Grades 7–12

**Energy Management:** Intermediate and secondary students learn about energy consumption and conservation by reading utility meters and utility bills, comparing EnergyGuide labels, and exploring electric nameplates. Students conduct comprehensive surveys of the school building and school energy consumption—gathering, recording and analyzing data, and monitoring energy usage. Students work in groups to develop comprehensive energy management plans for the school that include suggestions for retrofits, systems management, and conservation practices. The kit includes a Teacher Guide, class set of Student Guides with backgrounders, indoor/outdoor thermometer, hygrometer pen, immersion thermometer, Flicker Checker, Kill-A Watt meter, light meter, lamp, and CFL and incandescent bulbs.

Set of Teacher & Student Guides	\$ 6.00
Learning and Conserving Kit	\$ 300.00
Class Set of 30 Student Guides	\$ 50.00



Levels:	Intermediate Secondary
Grades:	7-12

# STEP ONE

## THE SCIENCE OF ENERGY

### PRIMARY SCIENCE OF ENERGY

Grades 1–3

Background information and hands-on experiments explore the fundamental concepts of energy, including motion, heat, sound and light with a series of simple activities.

Levels: Primary, Elementary

Set of Teacher & Student Guides \$ 5.00

See page 7 for kit details and price

### SCIENCE OF ENERGY

Grades 5–12

Two guides at 6th and 9th grade reading levels provide background information and hands-on experiments that explore the different forms of energy and how energy is transformed from one form to another. Both guides are included in the kit.

Levels: Elementary/Intermediate, Secondary

Either Level Guide \$ 3.50

See page 7 for kit details and price

### ENERGYWORKS

Grades 4–8

Backgrounders and hands-on experiments explore the basic concepts of energy and the tasks energy performs, including motion, light, sound, heat, and growth.

Levels: Elementary, Intermediate

Set of Teacher and Student Guides \$ 6.00

See page 8 for kit details and price

### ENERGY FLOWS

Grades 5–12

This hands-on activity explains forms of energy and energy transformations to students in grades five to twelve. It can be used as a stand-alone activity or a companion activity to the Science of Energy Kit.

Levels: Elementary, Intermediate, Secondary

Online Only

### THERMODYNAMICS

Grades 9–12

Teacher and Student Guides to hands-on experiments that explore concepts of thermodynamics, including molecular structure, conduction, convection, radiation, specific heat, heat of fusion and heat of vaporization.

Levels: Secondary

Online Only

### NADA SCIENTIFIC

The NEED Project is pleased to work with NADA Scientific as a source for many of its hands-on kit components. NADA has components from NEED kits and much more.

Visit: <http://www.nadasci.com/> to learn more about the tools and equipment available from NADA.



# STEP TWO

## SOURCES OF ENERGY

### ENERGY INFOBOOKS

Grades K–12

Energy Infobooks are the resource for many NEED activities and include an introduction to energy, information on major sources of energy, new technologies, energy conservation, electricity, climate change, and other energy information. They are available on four reading levels and are revised and up-dated annually.

**Levels:** Primary, Elementary, Intermediate, Secondary

Primary Flipbook	\$ 2.50
Elementary Infobook	\$ 2.50
Class Set (30) Elementary Infobooks	\$ 50.00
Intermediate Infobook	\$ 2.50
Class Set (30) Intermediate Infobooks	\$ 50.00
Secondary Infobook	\$ 3.00
Class Set (30) Secondary Infobooks	\$ 60.00

### INFOBOOK ACTIVITIES

Grades K–12

These booklets are companion student activity books for the Energy Infobooks. They are available on four reading levels to correspond to the Infobooks and include Teacher Guides and answer keys.

Online Only

### PRIMARY ENERGY STORIES & MORE

Grades K–5

This booklet contains a series of stories and hands-on activities for primary teachers or upper elementary students to use to introduce basic energy concepts and the major energy sources to primary students.

**Levels:** Primary, Elementary

Stories & More \$ 3.50

### GAMES & ICEBREAKERS

Grades K–12

Games and Icebreakers offers entertaining activities to introduce energy sources to students and to reinforce energy information presented. Activities can be adapted for many grade levels.

**Levels:** Primary, Elementary, Intermediate, Secondary

Games \$ 2.50

### GREAT ENERGY ROCK PERFORMANCES

Grades 4–12

Student rock bands write songs and sing about energy sources, electricity, and conservation and efficiency in this entertaining activity. Audiences learn more from these energy rock stars as they tell their stories to interviewers out to get the latest energy scoops. Teacher and student instructions included, along with twelve sample songs and interviews.

**Levels:** Elementary, Intermediate, Secondary

Online Only

### ENERGY ON PUBLIC LANDS

Grades 5–8

Students learn and teach others about how energy resources on public lands are managed with background information and hands-on activities.

**Levels:** Elementary, Intermediate

Online Only

### ENERGY SOURCE EXPO

Grades 3–12

Students work in groups to develop exhibits and make presentations on the major energy sources to develop an expo to teach others. Teacher and student instructions and background resources are included.

**Levels:** Elementary, Intermediate, Secondary

Online Only

### MISSION POSSIBLE: ENERGY TRADE-OFFS

Grades 7–12

Mission Possible is an activity in which students are challenged to develop an energy plan for a growing country. Students consider the advantages and disadvantages of the energy sources available for them to use so that they can increase electricity production while maintaining environmental quality and quality of life.

**Levels:** Intermediate, Secondary

Online Only

### ENERGY ENIGMA

Grades 7–12

Students put on their detective hats to uncover the mysteries in Energy Enigma. Teams use reading, brainstorming, and organizational skills to hide the identity of their energy source while trying to guess which energy sources the other teams represent. Teacher instructions and transparency masters are included.

**Levels:** Intermediate, Secondary

Enigma \$ 2.50

### WIND CURRICULUM

Grades K–12

The wind curriculum includes background information and hands-on kits at primary, elementary, intermediate, and secondary levels.

**Levels:** Primary, Elementary, Intermediate, Secondary

Set of Any Level Guides \$ 5.00

See Kit Details and Prices on Page 10.



## SOLAR CURRICULUM

### Grades K–12

The solar curriculum includes background information and hands-on kits at primary, elementary, intermediate, and secondary levels.

**Levels:** Primary, Elementary, Intermediate, Secondary

Set of Any Level Guides \$ 5.00  
See Kit Details and Prices on Page 9.

## HYDROPOWER CURRICULUM

### Grades K–12

The hydropower curriculum includes background information and hands-on kits at primary, elementary, intermediate, and secondary levels.

**Levels:** Primary, Elementary, Intermediate, Secondary

Set of Any Level Guides \$ 5.00  
See Kit Details and Prices on Page 11.

## H<sub>2</sub> EDUCATE

### Grades 6–12

This intermediate/secondary unit introduces students to hydrogen as an important energy carrier both as a fuel for distributed electricity generation and as a transportation fuel.

**Levels:** Intermediate, Secondary

H<sub>2</sub> Educate Guides \$ 5.00  
See Kit Details and Prices on Page 12.

## OCEAN ENERGY

### Grades 5-8

In this activity, students learn and teach others about sources of energy (such as tides, waves, winds, and ocean currents) found in and under the ocean.

**Levels:** Elementary, Intermediate

Online Only

## GREAT ENERGY DEBATE GAME

### Grades 6–12

Students evaluate the advantages and disadvantages of the major energy sources in a debate game format. Each student group represents one of the energy sources and develops arguments on the merits of its energy source over the other energy sources. Teacher instructions and transparency masters are included.

**Levels:** Intermediate, Secondary

Debate \$ 2.50

## FOSSIL FUELS TO PRODUCTS

### Grades 7–12

Students learn about exploration, production, refining, chemical manufacturing, transportation, marketing, and uses of petroleum, natural gas, and their products in the industrial sector.

**Levels:** Intermediate, Secondary

Online Only

## ENERGY FROM URANIUM- NEW

### Grades 6-8

Energy From Uranium provides students with background information on the chemistry and physics of the uranium atom, the history of nuclear energy and its role in producing electricity. Hands-on activities include radioactive decay modeling, separation of materials, and a culminating assignment writing a persuasive letter for or against nuclear energy.

Online Only

## EXPLORING NUCLEAR ENERGY- NEW

### Grades 9-12

Exploring Nuclear Energy provides students with an understanding of fission, the history of nuclear energy, and nuclear energy's role in generating electricity. Hands-on activities include radioactive decay modeling, separation of materials, and a culminating mock Nuclear Regulatory Commission hearing.

Online Only

## LIQUIFIED NATURAL GAS: LNG- NEW

### Grades 5-12

Students learn about chemical properties of natural gas, energy flows, and the natural gas chain from production to market through activities and background reading.

Online Only

## U.S. ENERGY GEOGRAPHY

### Grades 4-12

This resource includes U.S. maps covering all ten energy sources, energy production, energy consumption, and more! These transparency masters are an excellent resource for any energy-related discussion or activity.

**Levels:** Elementary, Intermediate, Secondary

Online Only





## STEP THREE

### ELECTRICITY & MAGNETISM

#### ENERGY INFOBOOKS & INFOBOOK ACTIVITIES

Grades K-12

Energy Infobooks have extensive information on electricity. Infobook Activities have student worksheets to accompany the electricity factsheets. All levels of the Energy Infobooks are in the NEED Resource Packet. The Energy Infobooks are online as separate factsheets and the Infobook Activities are online according to topic.

**Levels:** Primary, Elementary, Intermediate, Secondary

Primary Flipbook	\$ 2.50
Primary Activities	Online Only
Elementary Infobook	\$ 2.50
Class Set of 30 Elementary Infobooks	\$ 50.00
Elementary Activities	Online Only
Intermediate Infobook	\$ 2.50
Class Set of 30 Intermediate Infobooks	\$ 50.00
Intermediate Activities	Online Only
Secondary Infobook	\$ 3.00
Class Set of 30 Secondary Infobooks	\$ 60.00
Secondary Activities	Online Only

#### ELECTROWORKS

Grades 4-7

A backgrounder and hands-on experiments explore the basic concepts of atomic structure and electricity.

**Levels:** Elementary, Intermediate

ElectroWorks Guides	\$ 5.00
See Page 8 for Kit Details and Prices	

#### EXPLORING MAGNETS

Grades 1-4

Background information and hands-on experiments to explore the basics of magnets and magnetism.

**Levels:** Primary, Elementary

Exploring Magnets Guide	\$ 3.00
See Page 8 for Kit Details and Prices	

#### PRIMARY ENERGY STORIES & MORE

Grades K-5

This booklet contains a series of entertaining stories and hands-on activities for teachers and upper elementary students to use to introduce basic energy concepts, energy sources, and electricity to primary students.

**Levels:** Primary, Elementary

Stories & More	\$ 3.50
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#### GAMES & ICEBREAKERS

Grades K-12

Games and Icebreakers offers activities to introduce energy and electricity to students, as well as reinforce the information that has already been presented.

**Levels:** Primary, Elementary, Intermediate, Secondary

Games	\$ 2.50
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#### CURRENT ENERGY AFFAIR

Grades 7-12

Students act as TV correspondents to report on electric power generation. They explore how electricity is made and transported, what energy sources are used to make it, the history of electricity, and more. Teacher instructions and backgrounders are included.

**Levels:** Intermediate, Secondary

Online Only	
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#### MISSION POSSIBLE: ENERGY TRADE-OFFS

Grades 7-12

Mission Possible is an activity in which students are challenged to develop an energy plan for a growing country. Students consider the advantages and disadvantages of the energy sources available for them to use so that they can increase electricity production while maintaining environmental quality and quality of life.

**Levels:** Intermediate, Secondary

Online Only	
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# STEP FOUR

## TRANSPORTATION

### WHAT CAR WILL YOU DRIVE?

Grades 4–6

Students explore conventional and alternative transportation fuels such as petroleum-based fuels, ethanol, electricity, biodiesel, compressed natural gas, and propane. Student backgrounders and suggested activities are included.

Levels: Elementary, Intermediate

What Car? \$ 2.50

### THE FUTURE IS TODAY

Grades 7–12

Students explore conventional and alternative transportation fuels such as petroleum-based fuels, ethanol, electricity, biodiesel, compressed natural gas, and propane. Student backgrounders and suggested activities are included.

Levels: Intermediate, Secondary

Future is Today \$ 2.50

### TRANSPORTATION FUELS EXPO

Grades 4–12

Students work in groups to develop exhibits and make presentations on conventional and alternative transportation fuels. Teacher and student instructions are included.

Levels: Elementary, Intermediate, Secondary

Online Only

### TRANSPORTATION FUELS DEBATE

Grades 6–12

Students evaluate the advantages and disadvantages of conventional and alternative transportation fuels. Teacher instructions and transparency masters are included.

Levels: Intermediate, Secondary

Online Only

### TRANSPORTATION ENIGMA

Grades 7–12

Students put on their detective hats to uncover the mysteries of transportation fuels in this cooperative learning activity. Teams use reading, brainstorming, and organizational skills to hide the identity of their transportation fuel while trying to guess which fuels the other teams represent. Teacher instructions and transparency masters are included.

Levels: Intermediate, Secondary

Online Only

### TRANSPORTATION FUELS ROCK PERFORMANCES

Grades 4–12

Student rock bands write songs and sing about alternative fuels in this entertaining activity. Audiences learn more from these energy rock stars as they tell their stories to interviewers out to get the latest scoops. Teacher and student instructions are included, along with sample songs and interviews.

Levels: Elementary, Intermediate, Secondary

Online Only

### BIODIESEL

Grades 4–12

Students explore biodiesel with backgrounders on three reading levels and suggested activities.

Levels: Elementary, Intermediate, Secondary

Online Only

### ETHANOL

Grades 4–12

Students explore ethanol with backgrounders on three reading levels and suggested activities.

Levels: Elementary, Intermediate, Secondary

Online Only

### H<sub>2</sub> EDUCATE

Grades 6–12

This intermediate/secondary unit introduces students to hydrogen as an important energy carrier for the future, both as a fuel for distributed generation and as a transportation fuel.

Levels: Intermediate, Secondary

H<sub>2</sub> Educate Guides \$ 6.00

See Page 12 For Kit Details and Prices.



# STEP FIVE

## CONSERVATION & EFFICIENCY

### SAVING ENERGY FLIPBOOK

Grades K-1

Introduces students to basic concepts of energy use and conservation at home with a flipbook and suggested activities.

Levels: Primary  
Saving Energy Flipbook \$ 5.00

### BUILDING BUDDIES

Grades 2-3

Introduces students to basic concepts of energy use and conservation, beginning with activities focused on home energy use and extending to school energy use and conservation measures.

Levels: Primary, Elementary  
Building Buddies Guides \$ 5.00  
See Page 13 for Kit Details and Price.

### MONITORING & MENTORING

Grades 4-6

Introduces students to methods of measuring energy usage, determining costs, and quantifying environmental effects. Students conduct surveys of the school building and school energy consumption--gathering, recording and analyzing data, and monitoring energy usage.

Levels: Elementary, Intermediate  
Monitoring and Mentoring Guides \$ 6.00  
See Page 13 for Kit Details and Price.

### LEARNING & CONSERVING

Grades 7-12

Students learn about energy consumption and conservation and conduct surveys of the school building and school energy consumption--gathering, recording and analyzing data, and monitoring energy usage, then develop an energy management plan for the school.

Levels: Intermediate, Secondary  
Learning & Conserving Guides \$ 6.00  
See Page 13 for Kit Details and Price.

### SCHOOL ENERGY SURVEY

Grades 9-12

Students conduct a comprehensive energy audit of their school.

Levels: Secondary  
Online Only

### TODAY IN ENERGY

Grades 1-4

This primary/elementary activity introduces students to the concepts of choice, trade-offs, and costs, using math and critical thinking skills.

Levels: Primary, Elementary  
Online Only

### TRASH FLIPBOOK

Grades K-2

Primary students are introduced to trash and energy, with an emphasis on recycling.

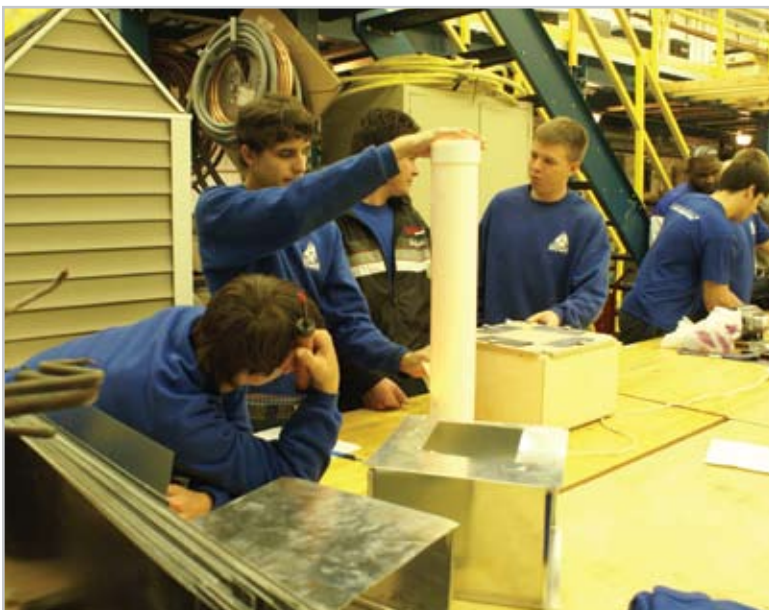
Levels: Primary  
Online Only

### TALKING TRASH

Grades 3-5

Elementary students learn and teach others about trash, natural resources, energy, recycling, landfilling, and incineration. Background information and suggested hands-on activities are included.

Levels: Elementary  
Online Only





## SAVING ENERGY AT HOME & SCHOOL

### Grades 4–8

Upper elementary/intermediate students learn about energy sources and energy efficiency through classroom activities.

Levels: Elementary, Intermediate

Saving Energy Guides \$ 6.00

See Page 12 for kit details and price.

## MUSEUM OF SOLID WASTE

### Grades 6–12

Students create exhibits on solid waste and energy topics, such as recycling, landfilling, and burning of waste. Teacher and student instructions, backgrounders, and evaluation tools are included.

Levels: Intermediate, Secondary

Museum \$ 3.00

## SAVING ENERGY EXPO

### Grades 4–12

In this cooperative learning activity, student groups create eight expo exhibits on ways to save energy.

Levels: Elementary, Intermediate, Secondary

Online Only

## CONSERVATION CONTRACT

### Grades 4–12

In this outreach activity, students ask their families to sign contracts in which they agree to save energy at home and on the road for a one month period, then calculate the energy savings.

Levels: Elementary, Intermediate, Secondary

Contract \$ 1.50

## ENERGY HOUSE

### Grades 4–8

In this activity, students insulate a cardboard box house with a variety of insulating materials, learning about energy conservation, energy savings, and diminishing returns.

Levels: Elementary, Intermediate

House \$ 1.00

## CLIMATE CHANGE- NEW

### Grades K–12

With four separate books for primary, elementary, intermediate and secondary, our new climate change curriculum addresses current concerns about climate. Students will understand why we use the sources we do, and how their use is impacting the world. Students will reflect on their daily habits and decide what steps they can take to lessen their carbon footprint.

Levels: Primary, Elementary, Intermediate, Secondary

Online Only



# STEP SIX

## SYNTHESIS & REINFORCEMENT

### ENERGY FAIR

Grades 1–5

This activity is a guide to teaching students experimental design with an emphasis on developing energy-related science fair projects. Sample science projects are available on the NEED website.

Levels: Primary, Elementary

Online Only

### THIS MINE OF MINE

Grades 2-6

This activity, developed by the Ohio Energy Project, allows students to explore the formation, geology, recovery and uses of coal, as well as reclamation of mine sites.

Levels: Primary, Elementary, Intermediate

Online Only

### ENERGY IN THE BALANCE

Grades 3-5

This activity introduces elementary students to the advantages and disadvantages of the major energy sources through a series of charting and graphing activities.

Levels: Elementary

Balance \$ 2.50

### ENERGY ON STAGE

Grades 4–12

Plays and poems on energy sources and energy conservation, with individual teacher guides that have expanded vocabulary and extensions.

Levels: Elementary, Intermediate, Secondary

On Stage 3.50

### ENERGY CARNIVALS

Grades K–12

NEED's popular carnival games are an excellent way to encourage students and adults to think about energy. The Energy Carnival contains complete instructions for ten carnival games including Energy Pictionary, the Wheel of Energy, Top Five, Energy Knockdown, and Energy Taboo. The Carnival is ideal for elementary or middle school students and makes an excellent activity for an energy fair or Earth Day celebration. The Primary Energy Carnival contains nine games appropriate for students in grades K-3.

Levels: Primary, Elementary, Intermediate, Secondary

Primary Carnival (K–3) 5.00

Energy Carnival (4–12) 5.00

### PROJECTS & ACTIVITIES

Grades K–12

This booklet includes a workplan and suggestions for energy outreach activities to other classes, schools, families, and communities, as well as the Youth Awards Guide and application form.

Levels: Primary, Elementary, Intermediate, Secondary

PROJECTS 2.50

### GAMES & ICEBREAKERS

Grades K–12

Games and Icebreakers offers entertaining activities to introduce energy, efficiency, and conservation to students, as well as reinforce the information that has already been presented.

Levels: Primary, Elementary, Intermediate, Secondary

GAMES 3.50

### EXPLORING ENERGY

Grades 4–6

This booklet contains articles and hands-on explorations on energy-related topics such as composting, solar cooking, refrigeration, microwaves, and the greenhouse effect.

Levels: Elementary, Intermediate

Online Only

### MYSTERY WORLD TOUR

Grades 4–8

In this activity, developed by the Ohio Energy Project, students create 12 murals depicting energy sources and terms as they learn about how other countries use energy.

Levels: Elementary, Intermediate

Online Only

### ENERGY MATH CHALLENGE

Grades 3–12

The Energy Math Challenge strengthens students' math and critical thinking skills while increasing their knowledge of energy. Students work individually and in teams to solve energy math problems.

Levels: Elementary, Intermediate, Secondary

Online Only





### MARINE ENERGY

Grades 7–12

Students construct topographical maps of the U.S. that shows the major land and underwater formations. Students also conduct hearings on the development of energy resources and/or minerals in offshore areas.

Levels: Intermediate, Secondary

Online Only

### ENERGY AROUND THE WORLD

Grades 5–12

This booklet includes maps and energy information for 60 countries. Student groups research assigned countries and make presentations to the class.

Levels: Elementary, Intermediate, Secondary

Online Only

### ENERGY ANALYSIS

Grades 7–12

This activity emphasizes research and analysis of information in graph format to discern energy trends using the Energy Information Administration’s Energy Perspectives publication and a Teacher Guide with additional graphs.

Levels: Intermediate, Secondary

Online Only

### ENERGY JEOPARDY

Grades 4–12

Students enjoy NEED’s spin on the popular game show. Jeopardy categories include More MPGs, Famous Americans in Energy, and Leading Nations.

Levels: Elementary, Intermediate, Secondary

Jeopardy 2.50

### YESTERDAY IN ENERGY

Grades 4–12

This activity allows your students to travel back in time without leaving the classroom. Students conduct interviews and do research to learn and make exhibits about energy use in the good old days.

Levels: Elementary, Intermediate, Secondary

Online Only

### GLOBAL TRADING GAME

Grades 4–12

In this activity developed by the Ohio Energy Project, students become economic advisors, geologists, and miners as they learn about their assigned country’s resources and needs, then trade resources with other countries.

Levels: Elementary, Intermediate, Secondary

Online Only

### NEED SONGBOOK

Grades K–12

Sing along to NEED’s favorite songs, including the NEED Clap, E-N-E-R-G-Y, and What Do You Do With An Energy Waster?

Levels: Primary, Elementary, Intermediate, Secondary

Online Only

### GREEK MYTHOLOGY & ENERGY

Grades 4–8

This guide provides resource materials and a teacher guide for incorporating Greek mythology into your science curriculum relating to forms of energy. This innovative interdisciplinary activity was developed by Donna Quillen of NC.

Levels: Elementary, Intermediate

Online Only

# STEPS SEVEN & EIGHT

## EVALUATION & RECOGNITION

### ONLINE QUESTION BANK

Grades 1–12

The **Online Question Bank** provides questions for each of the NEED Program Steps: Science of Energy & Forms of Energy, Sources of Energy, Electricity, Transportation, and Conservation and Efficiency. Questions are written at four grade levels: primary, elementary, intermediate, and secondary. Under each topic at every grade level questions are included on three learning levels—knowledge, comprehension and application. You can access the question bank at [www.NEED.org](http://www.NEED.org).

Levels: Primary, Elementary, Intermediate, Secondary  
Online Only

### BLUEPRINT FOR SUCCESS & ENERGY POLLS

Grades K–12

The Blueprint for Success contains the Energy Polls, which are designed to assess basic understandings about energy before and after energy units in the classroom. Energy Polls are available on four reading levels—primary (K-2), elementary (3-5), intermediate (6-8), and secondary (9-12). The polls include knowledge, attitude, and behavior questions and are included in the Blueprint for Success or can be taken on-line with results e-mailed to the teacher. E-mail [info@need.org](mailto:info@need.org) for more information about using the online poll option.

Levels: Primary, Elementary, Intermediate, Secondary  
Blueprint with Energy Polls \$ 2.50

### YOUTH AWARDS GUIDE

Grades K–12

The Youth Awards Guide gives students and teachers step-by-step instructions and an application form to participate in the Youth Awards Program for Energy Achievement. The Youth Awards Guide is included in Projects and Activities.

Levels: Primary, Elementary, Intermediate, Secondary  
Projects and Activities \$ 2.50  
2010 Youth Awards Conference Registration \$ 525.00

## ADDITIONAL MATERIALS

### ENERGY EXCHANGE & CAREER CURRENTS NEWSLETTERS

NEED's Energy Exchange newsletter is published four times a year and sent to NEED members and sponsors. Successful NEED programs and activities are highlighted in the newsletter, as well as new NEED curriculum. The Career Currents newsletter is published four times a year and sent to NEED members and sponsors. Careers in the energy industry are spotlighted. Back issues of both newsletters are available on the NEED website in PDF format.

### NEED ANNUAL REPORT

NEED's Annual Report gives summaries of the best state and national Youth Awards projects for 2008–2009, as well as information about the NEED Project and our state affiliates.

Annual Report

Upon Request





# TRAINING & PROFESSIONAL DEVELOPMENT

## ENERGY CONFERENCE FOR EDUCATORS

Every summer, NEED conducts a five-day conference for educators—teaching about energy and how to implement NEED programs in the classroom. Graduate credit is available from Virginia Commonwealth University for teachers participating in the program. For more information, contact NEED at 1-800-875-5029.



## NEED REGIONAL WORKSHOPS & CONFERENCES

NEED conferences, workshops, and in-services are conducted throughout the year in many areas of the country. For information on availability in your area, contact the NEED Coordinators listed below or NEED at 1-800-875-5029.

### CALIFORNIA

Barry Scott  
(209) 482-5663  
bscott@need.org

### COLORADO

Vernon Kimball  
(970) 946-9343  
vkimball@need.org

### GEORGIA

Karen Reagor  
(859) 578-0312  
kreagor@need.org

### INDIANA

Karen Reagor  
(859) 578-0312  
kreagor@need.org

### KENTUCKY

Karen Reagor  
(859) 578-0312  
kreagor@need.org

### MAINE

Peter Zack  
(207) 625-7833  
meep@psouth.net

Maine Public Service Company-  
NEED Programs  
Nancy Chandler  
(207) 768-5811  
nchandler@mainepublicservice.com

### MICHIGAN

Keith Etheridge  
(517) 410-8795  
ketheridge@need.org

### MISSISSIPPI

Mississippi Development Authority  
-Energy Division  
Lisa Campbell  
(601) 359-6600  
lcampbell@mississippi.org

### NEBRASKA

Nebraska Public Power District  
Diana Luscher  
(308) 236-2230  
dllusch@nppd.com

### NEVADA

University of Nevada-Las Vegas  
Lisa Davis  
(702) 895-1367  
lisa.davis@unlv.edu

### NEW YORK

Todd Rogers  
(315) 655-3507  
trogers@need.org

### NORTH CAROLINA

Amy Constant  
(919) 876-6317  
aconstant@need.org

### OHIO

Ohio Energy Project  
Deb Yerkes  
(614) 785-1717  
swenergy@infinet.com

### PUERTO RICO

Puerto Rico Energy Affairs  
Administration  
Ariel Roman  
(787) 999-2200

### RHODE ISLAND

Rhode Island Office of Energy Resources  
Charlie Hawkins  
(401) 574-9124  
chawkins@energy.ri.gov

### TENNESSEE

Department of Economic and Community  
Development, Office of Energy Policy  
Chyrall Dawson  
(615) 741-6671  
Chyrall.Dawson@tn.gov

### TEXAS

Melanie Harper  
(432) 553-7656  
mharper@need.org

### VIRGIN ISLANDS

Virgin Island Energy Office  
Leila Muller  
(340) 773-1080

### WYOMING

Vernon Kimball  
(970) 946-9343  
vkimball@need.org

# NEED MERCHANDISE



## NEED BIKE BOTTLES

NEED Bike Bottles are 20-ounce recycled, white bottles with blue pop-up spouts and the NEED 2009 logo on the side.

NEED Bottle	\$ 3.00
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## NEED T-SHIRTS

NEED T-shirts are white heavyweight short-sleeve shirts with the NEED 2009 logo on the front and the energy sources on the back. Adult sizes Small, Medium, Large, X-Large, and XX-Large.

T-Shirt (S, M, L, XL)	\$ 10.00
T-Shirt (XXL)	\$ 12.00



## NEED TOTE BAGS

NEED Totes are large, sturdy black canvas carry-alls with two pockets. The NEED logo is printed on the outside pocket.

Tote	\$ 12.00
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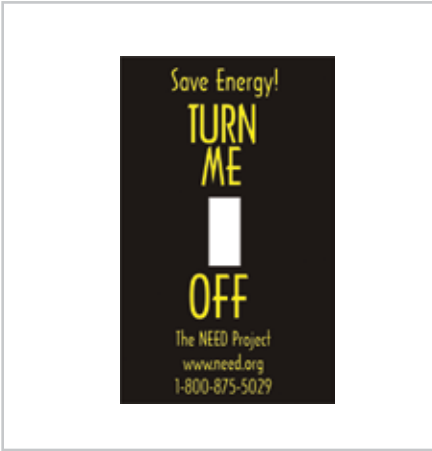


### NEED SWITCH PLATE COVERS

NEED switch plate covers are removable vinyl stickers to remind students to turn off the lights.

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Single Switch Plate Cover	\$ 1.00
Double Switch Plate Cover	\$ 1.50



### NEED BALLOONS

NEED balloons are 11-inch rounds imprinted with the Kids Teaching Kids logo shown to the right.

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Balloon	\$ 0.25
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### NEED STROBES

NEED strobes are flashing gold lightbulbs with the NEED Project website on the front, as shown to the right, and an on/off button on the back.

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Strobe	\$ 2.00
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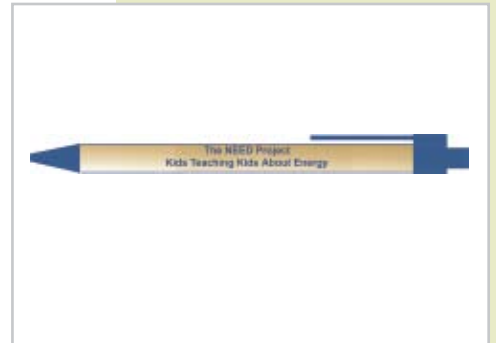


### NEED PENS

NEED pens are made from recycled cardboard and blue recycled plastic with NEED information imprinted in blue on the cardboard shaft.

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NEED Pen	\$ 1.50
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### NEED PENCILS

NEED pencils are made from recycled currency and have NEED information imprinted in white on the green pencil.

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Pencil	\$ 0.50
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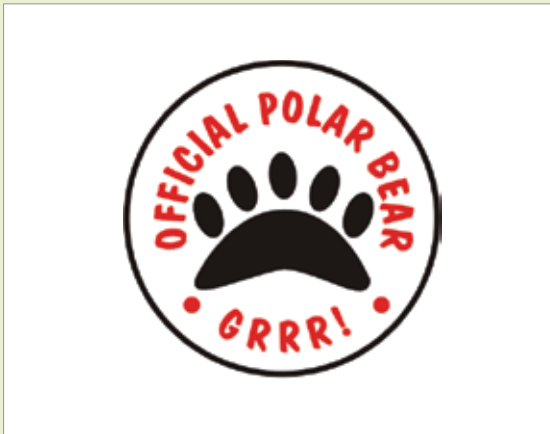
### FLICKER CHECKERS

Spin the Flicker Checker and discover whether the fluorescent lights in your school have magnetic or electronic ballasts. Which ballasts save valuable energy dollars?

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Flicker Checker	\$ 2.00
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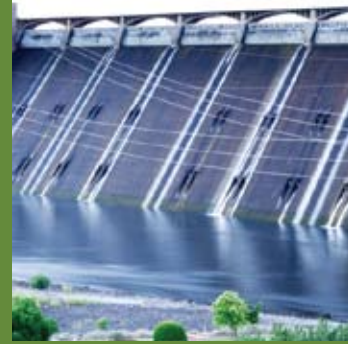
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