

# energy EXCHANGE

A publication of the National Energy Education Development Project

MAY 2004

## OPPORTUNITIES FOR TEACHERS

### A+ for Energy Awards

BP, a global energy company, has developed a great opportunity for California teachers! The **A+ for Energy** awards program, launched on May 10, 2004, will provide California classroom teachers with grants of up to \$10,000 to create innovative energy education programs for their schools. Applications will be available in mid-April.

Classroom teachers in grades K-12 are invited to submit applications by the end of June. Applications will be reviewed and awards presented in October 2004. California educators looking for a great way to fund exciting energy education programs are encouraged to apply. Even better, have your students come up with ideas to implement! NEED is partnering with BP to provide science kits and classroom curriculum materials to schools participating in the program. Visit [www.aplusforenergy.com](http://www.aplusforenergy.com) for more information.

Space is also still available for the NEED Energy Conference for Educators in Long Beach in July 2004. Contact NEED or go to [www.need.org](http://www.need.org) for information and application.

### Make a Difference

The **Make a Difference Kit**—a collection of materials to encourage students in grades 7-12 to learn about the environmental impacts of products they use in their everyday lives, initiate school or community reuse and recycling programs, and find volunteer and service-learning opportunities—is available from the Environmental Protection Agency. The kit contains posters, booklets to promote service-learning, school waste reduction handbooks, solid waste resources for teachers and students, recycled oil information, and more. For more information, visit [www.epa.gov/epaoswer/osw/edurec.htm](http://www.epa.gov/epaoswer/osw/edurec.htm).

### Energy Hog

Do you have Energy Hogs sneaking around your house? The Ad Council and Energy Outreach Colorado have created a partnership sponsored by state energy offices, the U.S. Department of Energy and several private companies to help students understand energy conservation at home. NEED is creating the companion materials for teachers to help them connect the classroom to the living room. For more information visit [www.energyhog.org](http://www.energyhog.org).

## NEED IS GROWING!!

We are excited to announce two additions to the NEED staff. Annie Rasor of Columbus, OH joins us to assist in curriculum development and training. Annie worked for several years with the Ohio Energy Project. Her knowledge of energy education and her background in science and professional development make her a great addition to the team.



Troy Hill joins us in our Northern Virginia headquarters. Before coming to NEED, Troy provided support to the U.S. Department of Energy's Rebuild America program. Troy's knowledge of energy efficiency and experience in outreach are valuable assets to our expanding programs.

NEED is also excited to have Bekki Lamb and Megan Thoma returning for the busy summer months. Bekki and Megan are both alumnae of the ILEED program sponsored by the Illinois Department of Commerce and Economic Opportunity.

The NEED Project would also like to wish David Graham the best as he graduates from college and begins his career. Dave has worked with NEED since middle school and has been an energetic part-time staffer at NEED Headquarters for four years. He even met his fiancée, Beth Richards, while helping out at ILEED's Camp KEEP. Dave will be heading to Illinois after graduation to join Beth and begin a career in administration of justice.



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# The NEED Project

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*The NEED Project is a 501(c)(3) nonprofit education association providing professional development, innovative materials correlated to the National Science Education Content Standards, ongoing support and recognition to educators nationwide.*

*A list of NEED sponsors is available on our website and in our Annual Report.*

## NATIONAL STAFF

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*Energy Exchange* is published four times a year and is available on NEED's website.

Educators may reproduce articles and activities for classroom use.

# CALENDAR OF EVENTS

**For more information, email [info@need.org](mailto:info@need.org) or call 1-800-875-5029**

## April 2004

- 20 IL Sustainable Education Project Energy & Environmental Workshops - Charleston & Bloomington, IL  
Oklahoma NEED Workshop - Tulsa, OK
- 21 Oklahoma NEED Workshop - Oklahoma City, OK  
Illinois Energy and Environment Workshop - Chicago, IL
- 22 NEED Take Your Kid to Work Day Workshops
- 23-24 NEED participation in the NY State Technology Student Association Annual Event - Oswego, NY
- 26 Youth Awards projects due to NEED Headquarters.
- 27 NEED Schools Going Solar Workshop - Indianapolis, IN  
Illinois Energy and Environment Workshops - Champaign & Atkinson, IL  
Alabama NEED Workshop - Montgomery, AL
- 28 Youth Awards Project Review - Washington, DC  
Illinois Energy and Environment Workshop - Carterville, IL  
Alabama NEED Workshop - Montgomery, AL
- 29 Illinois Energy and Environment Workshop - Macomb, IL

## May 2004

- 1 Houston NEED Workshop - Houston, TX
- 5 LaFourche Parish NEED Workshop - LaFourche Parish, LA
- 6 Illinois Youth Awards Program - Springfield, IL  
Louisiana NEED Workshop - New Orleans, LA
- 6,13 Energy Industry Study Program - Energy Information Administration - Washington, DC
- 10 Kick-off of **A+ for Energy** Program - Sacramento, CA
- 12 Illinois Energy and Environment Workshop - Belleville, IL
- 12-13 Magic of Energy Program - Fort Smith, AR
- 13 Illinois Energy and Environment Workshop - Rockford, IL
- 17 North Carolina EnergySmart Schools Conference - Asheville, NC
- 18 North Carolina NEED Workshop - Asheville, NC  
Illinois Energy and Environment Workshop - Springfield, IL
- 20 NEED Biodiesel Education Conference for Decision Makers - Louisville, KY
- 26 Kentucky NEED Awards Luncheon - Frankfort, KY  
NEED presentations at the West Virginia Energy Expo - Beckley, WV

## June 2004

- 7 Arkansas Energy Workshop - Fort Smith, AR
- 8-9 Florida NEED Workshop - Marion County, FL
- 10-12 Illinois Sustainability Workshop - Eagle Creek Resort & Conference Center, IL
- 10 Arkansas Energy Workshop - Branch, AR
- 14-18 Kentucky NEED Energy Conference for Educators. For more information, contact Karen Reagor at [kreagor@need.org](mailto:kreagor@need.org).
- 25-28 NEED Youth Awards for Energy Achievement - Washington, DC
- 28 NEED Board of Directors Meeting - Washington, DC

## July 2004

- 11-16 Illinois Camp KEEP - Cantrall, IL
- 11-15 NEED Energy Conference for Educators - Hyannis, MA
- 17-21 NEED Energy Conference for Educators - Galveston, TX
- 19-24 Illinois Camp KEEP - Algonquin, IL
- 25-29 NEED Energy Conference for Educators - Long Beach, CA

# NEED NEWS

## Michigan

St. Patrick's Day was energizing this year for 24 teachers in the Western Michigan area. This is the second energy seminar presented at Grand Valley State University's Regional Math and Science Center. GVSU was so impressed by the response to the fall seminar that the spring workshop was added. The teachers in attendance enjoyed participating in the Science of Energy stations presented by students from the North Rockford Middle Schergy Club. Even the musically challenged proved that they could really rock with their Energy Rock Performances. Everyone appreciated the kids teaching kids (teachers) approach of the NEED materials. The students from Rockford truly demonstrated the leadership potential of the NEED materials.

## Thematic Integration of Energy

The Michigan NEED Project received a Michigan Energy Office grant to develop a model for thematic integration of energy education throughout the elementary curriculum. The pilot school for the Energy Education Integration Project is Post Oak Elementary in Lansing, Michigan. Students in grades 2-5 are using NEED materials to learn about the science of energy, sources of energy, electricity, energy efficiency and conservation. Teachers are using NEED to help students master language arts, mathematics, social studies and science objectives. As a culminating event, each class will use NEED Energy Management kits to conduct energy audits of their classrooms and school facility. By creating a real-world learning laboratory within the school community, the project gives students the opportunity to learn and develop personal responsibility through practical application.

## Biodiesel

With a grant from the U.S. Department of Agriculture, the National Biodiesel Board and the NEED Project are hosting school decision-maker workshops and educator workshops focusing on biodiesel and its applications. The first decision-maker workshop is scheduled for May 20 in Louisville, KY. If you or your agency are interested in co-hosting a workshop, please contact Mary Spruill at NEED. To learn more about soybeans and biodiesel, visit the Illinois Soybean Association's website featuring Captain Soy on Soy Island at [www.ilsoy.org](http://www.ilsoy.org).

## Illinois

Thanks to a grant from the Governors' Ethanol Coalition, the NEED Project and its partners are creating new outreach and education materials for schools focusing on ethanol. NEED will be working with the Illinois Department of Commerce and Economic Opportunity and members of the Governors' Ethanol Coalition to produce educational materials and conduct several teacher education workshops.

## NSTA – Atlanta, GA

The NEED Project and its partners hosted several successful sessions at the National Science Teachers Association Convention in Atlanta, Georgia. NEED works with the Interstate Renewable Energy Council, the U.S. Department of Energy, and the U.S. Minerals Management Service to provide workshops and resources to teachers attending the convention.

## Florida

Citrus Elementary in Orange County, Florida hosted Secretary of Energy Spencer Abraham for a tour of the NEED Science of Energy Kit. Citrus is part of a program in Orange County designed to reduce energy use in schools and education teachers and students about energy.

## Ohio

Blendon Middle School enjoyed a visit from Guy Caruso, Administrator of the Energy Information Administration in March. In a Hydrogen Outreach and Education initiative, Mr. Caruso talked with students about the benefits of a hydrogen economy and science behind hydrogen fuel cells. Thanks to the Department of Energy, Blendon received several fuel cell car kits to use in science classrooms.

## Kids Impact Community Decisions

Students in Connie Josvai's fifth grade class in Manistee, MI, have been getting first hand experience with the different types of energy sources that are available to produce energy, especially burning coal in their home town. Tondur Plant has proposed a Manistee Saltworks Development Corporation's Northern Lights Project to build a 425-megawatt coal burning plant on Manistee Lake. The students have been gathering information from workshops, open houses and the NEED Project and are educating their peers, area residents and regional residents as far as Michigan's Upper Peninsula about the pros and cons of burning coal and the use of alternative energy sources.

Six members of the fifth grade class spoke for and against the proposed project at a hearing on February 26th, 2004 in front of approximately 500 people. The students' comments were televised on Regional News Channels 9 & 10 and News 7 & 4. The students also appeared on local Channel 2 and in Grand Traverse County. The students were also filmed for a documentary on Coal Burning Plants coming into communities. This should be released by the end of June. The students also had a representative from Tondur come and present to the students. A chemist from Nalco Company conducted water experiments with the students. A representative from the Steelworkers Union talked to the students about the economic impacts of a coal power plant. On April 6, an expert discussed nuclear energy with the students.

## Kentucky

Kentucky NEED is partnering with the Kentucky Division of Energy to host the second in a series of High Performance Schools workshops on May 5 - 6 at the Marriott Griffin Gate Hotel in Lexington, KY. Last year's workshop was attended by over 150 school decision-makers, private sector architects and engineers. Experts in the field of high performance design will take lessons on HP to the next level. Schools participating in Kentucky NEED's Schools Going Solar project will participate in the Governor's Earth Week Celebrations the week of April 19-23. Solar Celebrations will be held at each school to unveil the solar installations to citizens in their communities. Project partners are the Kentucky Division of Energy and American Electric Power.

# NEED NEWS

## **Indiana Students Make Soy-Based Products for Fundraiser**

The students of Eaton Elementary in Eaton, Indiana are taking soy products and sustainability to market! As part of their fundraising, and all of the reading they've done on the NEED materials about soybeans, the students worked with a local lotion and candle maker to create a series of soy-based products. All proceeds go to funding the Eaton Elementary NEED team trip to the NEED Youth Awards in June 2004. Candles are \$5.00 each and lotions are \$3.00 for small and \$6.00 for large size with pump dispenser. Visit [www.need.org/eaton](http://www.need.org/eaton).

## **Oklahoma, Texas, and Louisiana**

Thanks to support from Dominion, Oklahoma City teachers, Houston teachers, and New Orleans teachers were treated to a day of energy education and NEED resource materials including hands-on Science of Energy kits, curriculum packets and Energy Infobooks. NEED workshops in these regions will continue in the fall to provide more educators with the opportunity to link into the NEED network. Dominion employees provided a glimpse into their business and the career paths that energy offers to the participating teachers.

## **Take Your Kid to Work Day**

NEED was really busy on April 22<sup>nd</sup>! In partnership with the Energy Information Administration, NEED provided the Take Your Kid to Work day festivities for the U.S. Department of Energy. Students were treated to energy experiments, hands-on activities, and a variety of fun. In the Chicago area, NEED and BP worked together to provide a day of fun activities for children of BP employees.

## **Alabama**

Thanks to support from the Alabama Department of Economic and Community Affairs (ADECA) and ChevronTexaco, NEED hosted two workshops in Montgomery in April. The first workshop filled in three days and a second was quickly added. Participating educators received the full complement of NEED materials. These workshops will continue to be offered to Alabama educators next school year. ADECA is also providing sponsorships for up to six teachers to attend NEED's Energy Conferences for Educators.

## **Evaluation**

As part of NEED's ongoing evaluation of its programs and offerings, Dr. Darryl Lang of Lang and Associates evaluated NEED's workshops in 2003-2004. A detailed report of the findings is available at [www.need.org](http://www.need.org). To help us expand our programs and serve teachers and students better, please complete the evaluation form included in this newsletter and return it to NEED via fax at 800-847-1820 or simply email your comments to [info@need.org](mailto:info@need.org).

## **NEED Teacher Advisory Board**

NEED is lucky to have a Teacher Advisory Board of committed educators interested in helping NEED grow better each year, and in helping expand the NEED network to more regions and to more teachers. In March, the group met in Corolla, North Carolina to plan NEED programs for the coming school year. Watch for some of their efforts when you return to school!

Some of those include a detailed NEED EnergySmart Schools manual to help school districts create energy management and conservation programs, new fact sheets on Energy Efficiency and Conservation for the NEED Energy Infobooks, a new offering on careers in the energy industry, more information about literacy links to energy, and much more on hydrogen. The group provides extraordinary support to NEED curriculum development and training programs. A list of the Teacher Advisory Board is included in all NEED curriculum materials, on the website, and in the Annual Report.

## **2004-2005 NEED Membership and Materials**

It's not too early to be planning for fall! Make sure you request the new 2004-2005 NEED Membership Packet and new curriculum materials. All of the materials are being revised and updated with the most current figures from the Energy Information Administration of the U. S. Department of Energy. New materials on alternative fuels and solar energy are being developed, and the Energy Management curriculum is also being expanded.

When you receive your new packet, spend some time going over the catalog—there are so many new materials available to help you teach your students about energy in innovative ways. All of the materials will also have information on the front to show the social studies, math, language arts, and technology connections.

And if you are changing schools, make sure you let us know your new address and contact information, so we can get the materials and newsletter to you.

## **Fall Science Kit Rentals**

If you requested a Science of Energy Kit or other kits for early fall, watch your mail in August. You'll receive a postcard to confirm that you still want the kit on the dates you requested. If you haven't ordered a kit for fall, but know when you would like to receive one, let us know now and we'll put you on the schedule.

The NEED kits have become so successful that we are opening a new warehouse to handle the volume.

## **The 24<sup>th</sup> Annual NEED Youth Awards for Energy Achievement**

In June, over 500 students and teachers will be in Washington, DC to receive awards for their energy education efforts. Their project summaries will be posted on [www.need.org](http://www.need.org). They will provide lots of great ideas for planning your 2004-2005 programs.

In 2005, NEED celebrates its 25<sup>th</sup> Anniversary. We hope you'll participate by expanding your energy education programs in your school! If you have any amazing ideas for ways that NEED can celebrate our anniversary, please let us know.



# PRIMARY ACTIVITY: A Slide Is A Simple Machine

**Concepts:** Simple machines make work easier.  
An inclined plane makes it easier to lift things.  
An inclined plane reduces the force needed to move an object, but increases the distance.

**Time:** One class period

**Materials:** 1 playground slide                      4 heavy books  
1 long rope (25 feet)                      1 sturdy canvas bag with handles  
1 measuring tape

**Procedure:**

- 1 Put the books in the bag and tie the rope to the handles.
- 2 Loop the rope across the top of the slide as shown in Diagram 1. Lift the bag to the height of the bottom of the slide.
- 3 Have a student lift the bag straight up through the air by the rope. Ask the student to observe the force it takes to lift the bag.
- 4 Measure the distance the bag was lifted.
- 5 Place the bag at the bottom of the slide and have the student pull the bag to the top of the slide, as in Diagram 2. Ask the student to observe the force it takes to pull the bag to the top.
- 6 Observe the distance the bag was moved.
- 7 Have each student conduct the experiment in turn.

**Results:** Have the students write or draw an explanation of the experiment. Have them compare the force needed in each situation, as well as the length of rope.

**Conclusion:** An inclined plane reduces the force needed but increases the distance.

**Extensions:** Discuss ways that inclined planes are commonly used.

**Assessment:** Have students draw a picture of someone using an inclined plane.  
Have the students find inclined planes in pictures.

Diagram 1

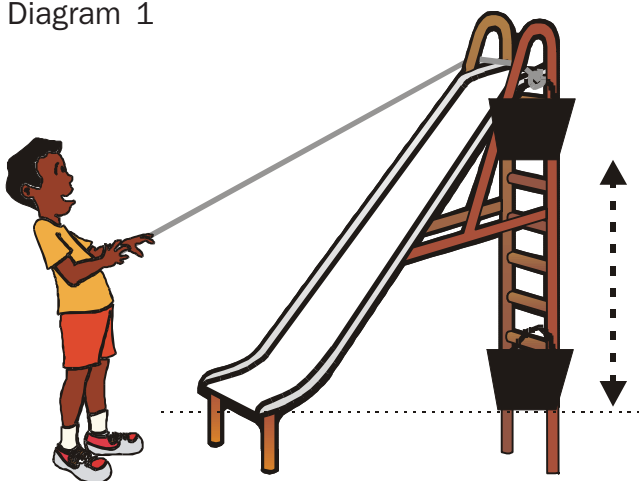
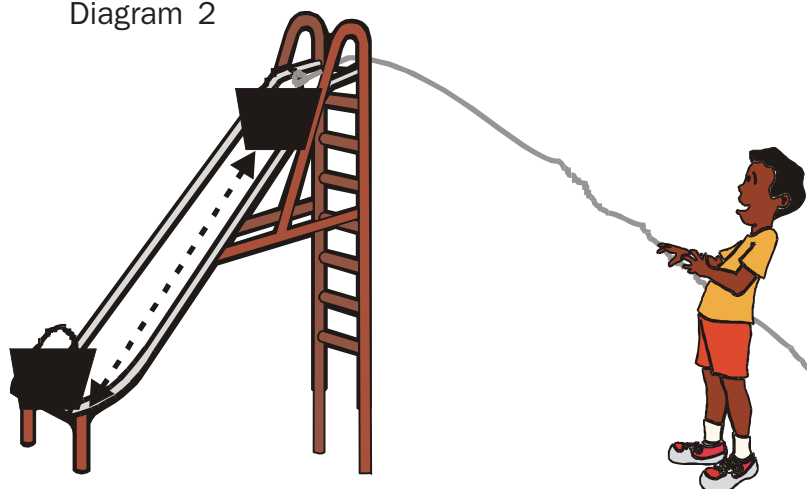
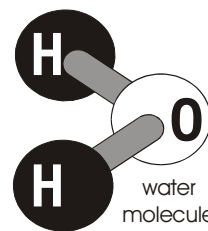


Diagram 2



# ELEMENTARY/INTERMEDIATE ARTICLE: Hydrogen



Hydrogen is the simplest element known to man. Hydrogen as a gas ( $H_2$ ) doesn't exist on earth. It is always attached to other elements. Combined with oxygen, it is water ( $H_2O$ ). Combined with carbon, it makes different compounds such as methane ( $CH_4$ ), coal, and petroleum. Hydrogen is also found in all growing things—biomass.

Most of the energy we use today comes from fossil fuels. Only about six percent comes from renewable energy sources. But people want to use more renewable energy. It is usually cleaner and is replenished in a short period of time. Renewable energy sources—like solar and wind—can't produce energy all the time. Renewable sources can't always make energy when or where we need it. Hydrogen can store energy until it's needed and move it to where it's needed.

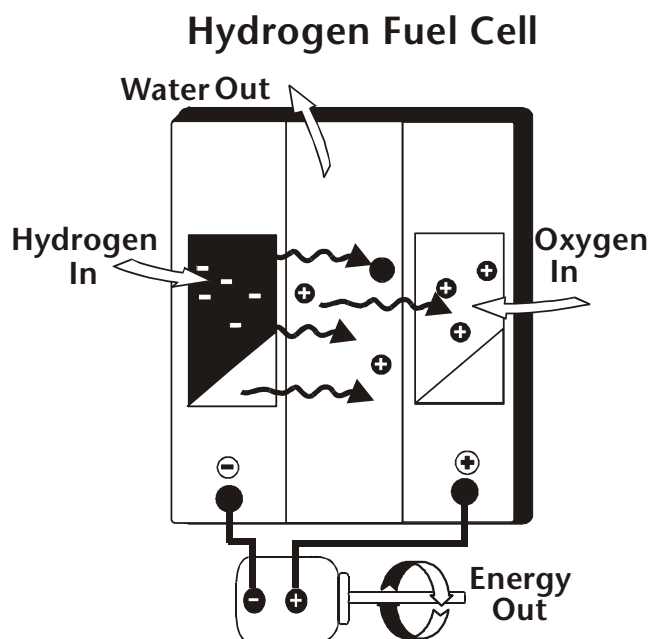
Every year, we use more energy to make electricity. Electricity is a secondary source of energy. Secondary sources of energy—sometimes called **energy carriers**—store, move, and deliver energy to consumers. We convert energy to electricity because it is easier for us to move and use. Life would be really hard if we had to burn the coal, split the atoms, or build our own dams. Energy carriers make life easier.

Hydrogen is an energy carrier for the future. It is a clean, renewable fuel that can be used in places where it's hard to use electricity. Sending electricity a long way over power lines costs much more than shipping hydrogen by pipeline.

Since hydrogen doesn't exist on earth as a gas, we must make it. We make hydrogen by separating it from water, biomass, natural gas or coal. Scientists have even discovered that some algae and bacteria give off hydrogen. It's very expensive to make hydrogen right now, but new technologies are being developed all the time.

NASA has used hydrogen for years in the space program. Hydrogen fuel lifts the space shuttle into orbit. Hydrogen batteries—called **fuel cells**—power the shuttle's electrical systems. The only by-product is pure water, which the crew uses as drinking water.

Hydrogen fuel cells make electricity. They are very efficient, but expensive to build. Some day, small fuel cells could power electric cars. Large fuel cells could provide electricity in remote areas. Because of the cost, hydrogen power plants won't be built for quite a while. Hydrogen may soon be added to natural gas, though, to reduce pollution from existing power plants.



Hydrogen can also be added to gasoline to reduce pollution. Adding just five percent hydrogen to gasoline can significantly lower emissions of nitrogen oxides ( $NO_x$ ), which contribute to ground-level ozone pollution. An engine that burns pure hydrogen produces almost no pollution. It will probably be 20 years, though, before you can walk into your local car dealer and drive away in a hydrogen-powered car.

Before hydrogen can take its place in the U.S. energy picture, many new systems must be built. We will need systems to make hydrogen, store it, and move it. We will need pipelines and fuel cells. And consumers will need the technology and the education to use it.

The goal of the U.S. Department of Energy's Hydrogen Program is for hydrogen to produce ten percent of our energy by the year 2030. Hydrogen could provide clean, renewable energy for the future.

# ELEMENTARY/INTERMEDIATE EXPLORATION: Electrolysis

**Background:** Electrolysis is the process of using an electric current to separate water molecules into hydrogen ( $H_2$ ) and oxygen ( $O_2$ ) gases.  $H_2O$  is the formula for water. Every molecule of water has two atoms of hydrogen and one atom of oxygen.

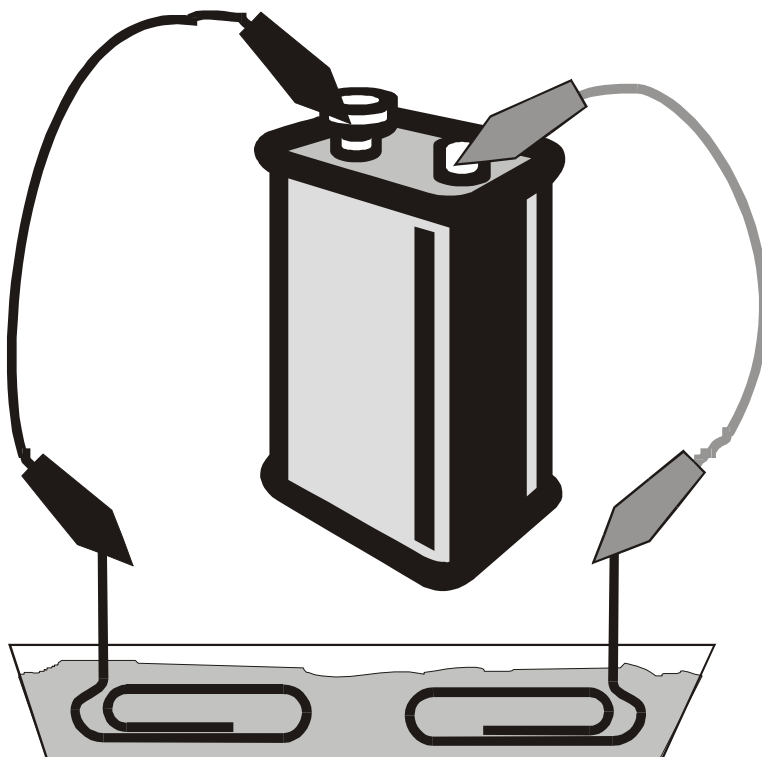
**Materials:** 100 milliliters (ml) warm water  
2 cubic centimeters salt (the salt helps the electric current move through the water)  
6-volt battery (do not substitute another size battery)  
2 sets of alligator clips and wires  
2 large metal paper clips  
1 small flat plastic dish  
safety glasses

**Procedure:** Mix salt and water in dish until salt dissolves.  
Bend each paper clip as shown in the diagram.  
Connect one alligator clip to each battery terminal.  
Connect the other ends of the alligator clips to the paper clips.  
Place the two paper clips in the salt water so they do not touch.  
Observe the paper clips.

**Results:** Bubbles will form at both of the paper clips. More bubbles will form at one than the other. That is because two molecules of hydrogen ( $H_2$ ) gas are produced for every molecule of oxygen ( $O_2$ ) gas.

**Conclusion:** Which battery terminal (+ or -) produces oxygen ( $O_2$ ) gas?  
Which battery terminal (+ or -) produces hydrogen ( $H_2$ ) gas?

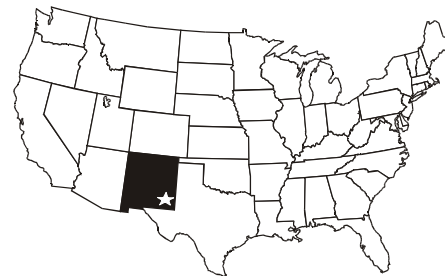
**Extension:** If 20 molecules of water are split, how many molecules of hydrogen and how many molecules of oxygen will be produced?



*Conclusion Answer: Hydrogen: - terminal; Oxygen: + terminal  
Extension Answer:  $20 H_2O = 20 H_2 + 10 O_2$*

# SECONDARY ARTICLE: WIPP—Waste Isolation Pilot Project

You have probably heard of Yucca Mountain, the proposed site for commercial nuclear waste storage in the U.S., but most people don't know that there is already a repository that has been safely storing nuclear waste for the last five years. The Waste Isolation Pilot Program, also known as WIPP, stores low-level nuclear waste from the research and production of nuclear weapons at Department of Energy sites in Idaho, Colorado, New Mexico, California, Illinois, South Carolina, Tennessee, Washington, Ohio, and Nevada.



Located in the remote Chihuahuan Desert of Southeastern New Mexico near Carlsbad, the WIPP site was chosen for its geological characteristics. The area sits on top of large beds of salt. The disposal rooms are mined areas 2,150 feet underground in a 2000-foot thick salt formation that has been stable for more than 200 million years. Today, there are over seven miles of tunnels and pathways in the disposal area. Disposal in the salt deposits was chosen for several reasons. Salt deposits have no flowing water that could move the waste to the surface and they are relatively easy to mine. In addition, rock salt heals its own fractures because of its plastic quality. The salt formations at WIPP will slowly and progressively move in to fill mined areas and safely seal the radioactive waste from the environment.

The only type of nuclear waste that WIPP accepts is transuranic waste. **Transuranic** literally means 'beyond uranium' and consists of elements (mostly plutonium) that have an atomic number greater than uranium. Transuranic waste consists of clothing, tools, rags, residues, debris and other items contaminated with small amounts of radioactive elements. The principal radiation from plutonium is the alpha particle. Alpha radiation is totally stopped by a single sheet of paper or an inch of air. They cannot penetrate even the outer layer of human skin. The risk to humans from these particles is mainly through inhalation. The reason they must be contained is that, although they are not highly dangerous, they remain radioactive for thousands of years. There have been no fatal injuries from plutonium in the nuclear industry in the United States.

Transuranic waste began accumulating in the 1940s with the development of the nation's nuclear weapons program. The waste increased significantly during World War II and the Cold War that followed. It has been stored at many sites across the country. The waste is packed in drums and special containers and shipped by WIPP trucks with trained drivers over routes approved by Federal and state regulators. Every shipment is monitored by satellite while en route.



WIPP has been accepting waste since 1999, but its development was not a quick process. In 1970 the federal government began looking for a place to store waste, and in 1974 focused on Carlsbad, New Mexico. Congress first authorized the research for WIPP in 1979. From that point, it took twenty years to conduct tests on the area, build the facilities, collect public input, and meet regulations before movement and storage of waste could begin. In 1998, the Environmental Protection Agency certified WIPP's ability to protect the environment and human health.

WIPP has had no major safety problems since it began accepting waste on March 26, 1999. More than 1,000 shipments have been received and stored so far. The Department of Energy projects that the site will be receiving old waste for the next ten years, as well as newly created waste until the 2030s, when the Department of Energy projects the site will be full. There are plans to put warnings around the site that will protect future generations for 10,000 years. WIPP is a critical step toward solving the nation's nuclear waste disposal problem by setting the standard for cost-effective, safe, and environmentally sound disposal of defense-related radioactive waste.



# NEED 2003-04 School Year Evaluation

Name \_\_\_\_\_ Grade Taught \_\_\_\_\_ State \_\_\_\_\_

School Name \_\_\_\_\_ Phone Number \_\_\_\_\_

Fax number \_\_\_\_\_ Email \_\_\_\_\_

Number of students taught this year \_\_\_\_\_ Major Discipline \_\_\_\_\_

When/How did you find out about NEED? \_\_\_\_\_

What NEED training have you attended in the last year? \_\_\_\_\_

How did the NEED training contribute to the success of your program? \_\_\_\_\_

How long (days/weeks) was your energy unit? \_\_\_\_\_

Did you use NEED materials during the 2003-2004 school year? If no, why not? \_\_\_\_\_

If yes, which materials did you use? Please circle all items you used.

Blueprint for Success	Infobooks & Activities	Games & Icebreakers	Primary Stories	Monitoring & Mentoring
Learning & Conserving	Building Buddies	Energy Enigma	Science of Energy	Exploring Magnets
Energy on Stage	Energy Carnival	Today in Energy	Marine Energy	ThermoDynamics
Transparent Energy	Energy Jeopardy	Alternative Fuels	Rock Performances	Mission Possible
EnergyWorks	ElectroWorks	Energy Expo	Current Affair	Energy Geography
Energy in the Balance	Around the World	Debate Game	Conservation Contract	Solid Waste Activities
Exploring Energy	Energy Fair	Math Challenge	Yesterday in Energy	Projects and Activities
Greek Mythology	Global Trading Game	Mystery World Tour	This Mine of Mine	Solar Kits & Activities
Ocean Energy	Energy House	Carnivals		

Is the **Blueprint for Success** a helpful guide to planning your energy unit? \_\_\_\_\_

Do you use the activities in the **Energy Exchange** newsletter? \_\_\_\_\_

Are there activities you would like to see developed or changed? What are they? \_\_\_\_\_

Have you used the NEED website **www.need.org**? Why did you use it? \_\_\_\_\_

Are there other resources you'd like to see on the NEED website? \_\_\_\_\_

Please return to NEED:

FAX: 1-800-847-1820

EMAIL: [info@need.org](mailto:info@need.org)

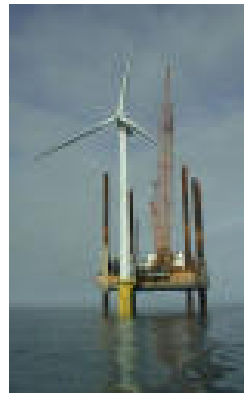
MAIL: 8408 Kao Circle \* Manassas, VA \* 20110

# Short Circuits

## Offshore Wind Energy Proponents Plan SW Louisiana Pilot Project

There are plans underway to generate electricity from wind turbines mounted on offshore Louisiana oilrigs. Developers are working on a pilot project on three rigs off the southwest Louisiana coast. New Iberia engineer Herman Schellstede of Wind Energy Systems Technology L.L.C. said the company hopes to have one of the three turbines in place by the end of the year. The 10-megawatt project off Vermilion Parish is called Grand Vent, which is French for *big wind*. Backers hope that the combination of consistent offshore wind, modern turbine technology, and unused oil platforms can produce clean, inexpensive power for Louisiana.

Today, most electricity in Louisiana is generated with natural gas and coal. Wind is a non-polluting energy source that is not affected by market prices. The wind technology can keep jobs in the area after the rigs stop producing oil. Officials are working on the wind-energy study with the Louisiana Department of Natural Resources.



## Beware of Superheating in Microwaves

Superheating is a phenomenon that can cause serious burn injuries. Superheating usually occurs when using a microwave to heat a liquid, particularly water. In a microwave, it's possible to heat water above the normal boiling point of 100 degrees Celsius. This can happen when you use a clean glass cup that doesn't have any scratches to provide a place for bubbles (steam) to form. The water remains a liquid, instead of turning into steam and releasing some of the heat. When the cup is moved or something is added to the water, the bubbles form very rapidly, expelling the hot liquid like an explosion. When heating water in a microwave, always let the cup remain in the microwave for 30 seconds before touching it.

## THE NEED PROJECT

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