

energy EXCHANGE

A publication of the National Energy Education Development Project

March 2002



NEW ACTIVITIES

The Greek god Poseidon had dominion over all the waters. He used his trident to stir up the oceans, causing great tidal waves and storms. The ancient Greeks made up elaborate myths and gods such as Poseidon to explain natural phenomena that they did not understand.

Donna Quillen, a NEED teacher at Prospect Elementary School in Monroe, NC, has developed a curriculum unit that incorporates Greek mythology and NEED's **EnergyWorks** unit. Students learn about the forms of energy—how they are understood today and how they were explained in ancient Greece.

The **Greek Mythology and the Forms of Energy** unit, with a Teacher Guide and supporting materials, is on the NEED website at www.need.org.

We have also added to the website a variety of **Science Fair Projects** in experimental design format, developed with funding from the National Network of Energy and Environmental Education Professionals. *See pages 4-6 for sample science projects.*

New on the website are **Teacher Guides** and **Student Workbooks** with activities to reinforce the information in the **Primary, Intermediate, and Secondary Energy Infobooks**.

Pam Proctor Joins KyNEED

The KyNEED Project is pleased to announce that **Pam Proctor** has joined the NEED Team to coordinate Kentucky's EnergySmart Schools program. Pam will be working on a part-time basis to coordinate energy efficiency and conservation activities as a joint Rebuild Kentucky and Kentucky EnergySmart Schools initiative. Funded by the KY Division of Energy and U.S. Department of Energy, the program will be piloted this year in six Northern Kentucky Counties.

Pam brings seven years' experience as the Community Relations Coordinator for the Northern Kentucky Sanitation District No. 1, as well as energy and excitement to her new position. She attended NEED's National Energy Conference for Educators in Williamsburg, VA, last summer, where she got her official introduction to the NEED program. You can contact Pam at pproctor@need.org to welcome her to our extensive NEED family.

DATES TO REMEMBER

April 15, 2002	Awards Projects Due
June 21-24, 2002	Youth Awards Program Washington, DC
July 13-17, 2002	NEED Summer Conference Galveston, TX
July 20-24, 2002	NEED Summer Conference Charleston, SC

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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.

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Call 1-800-875-5029 for information on NEED programs in other states.

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CALENDAR OF EVENTS

For more information, contact info@need.org or 1-800-875-5029.

March

- 7 Michigan NEED Workshop - Lansing, MI
- 11 KyNEED Workshop - Pikeville, KY
- 13 KyNEED Workshop - London, KY
- 14 KyNEED Workshop - Frankfort, KY
- 18 RI Energy Wise Workshop - Cranston, RI
- 27 NEED Session - NSTA - San Diego, CA
- 28 NEED Reunion - NSTA - San Diego, CA (Contact mspruill@need.org to RSVP)
- 30 NEED Short Course - NSTA - San Diego, CA

April

- 1 Energy Conferences for Educators Applications Due
- 12-14 NEED Teacher Advisory Board Meeting - Middletown, VA
- 15 **Youth Award Projects Due to State Coordinators or National Headquarters**
- 15 ILEED Energy Training Certification Evaluation Packets Due
- 15 ILEED Youth Energy Leadership Award Applications Due
- 19-21 ILEED Camp KEEP Training - Bloomington, IL
- 21 NEED Session at the National Hydropower Association/Hydropower Research Foundation Annual Convention
- 23 IL EnergySmart Schools Conference - Chicago, IL
- 24 IL EnergySmart Schools Conference - Springfield, IL

May

- 1 ILEED Youth Awards Luncheon
- 7 KyNEED Youth Awards Luncheon
- 20 Ohio Energy Project Youth Awards Luncheon

June

- 15-20 NEED Sessions at Solar 2002: National Convention of the American Solar Energy Society
- 21-24 National Youth Awards for Energy Achievement - Hyatt Regency Crystal City, VA

July

- 6-11 ILEED Camp KEEP (Kids for Energy and Environmental Protection) - Algonquin, IL
- 8-12 KyNEED Energy Conference for Educators
- 13-17 NEED National Energy Conference for Educators - Galveston, TX
- 13-19 ILEED Camp KEEP (Kids for Energy and Environmental Protection) - Cantrall, IL
- 20-24 NEED National Energy Conference for Educators - Charleston, SC

August

- 4-8 NEED Sessions—8th Annual International Symposium on Renewable Energy Education - Orlando, FL. For more information or to register: www.doce-conferences.ufl.edu/isree8/

* for a listing of Ohio workshops, see www.ohioenergy.org/workshops2.htm



YOUTH AWARDS PROJECTS ARE DUE APRIL 15th!!

- ... formulate goals
- ... conduct great energy activities
- ... document with photos & charts
- ... evaluate activities
- ... compile your scrapbook

see NEED's *Projects and Activities* booklet for guidelines

NEED NEWS

Wake County Students Spread the Word

Wake County students, sponsored by the EnergySavers program, gathered to show their expertise in energy to citizens from around the state at the North Carolina Green Conference. The S.T.A.R. team from Knightdale Elementary and S.U.N. team from Lockhart Elementary demonstrated NEED experiments and hosted an energy game they had designed.

Lockhart Students Make a Difference!

Lockhart Elementary's Science Team, the S.U.N. Kids (Student's Understanding NEED), of Knightdale, NC, have teamed up with Energy Star, Lowe's and Hill and Knowlton to encourage every household in the Knightdale and Raleigh area to change their incandescent lightbulbs to compact fluorescent bulbs.

The S.U.N. Kids received a donation of 700 compact fluorescent bulbs from Lowe's. These bulbs have been distributed to every school family member, as well as to people in the community. NEED's **Monitoring & Mentoring** and **Energy Infobooks** were great resources for educating the school family and community on the economic and environmental benefits of CFLs. This project will save the people of Knightdale \$17,500 in energy bills. Lockhart's Science Club is sponsored by the EnergySavers Program of Wake County Public Schools.

Madison Middle School - Albuquerque, NM

Madison Middle School, one of the Albuquerque NEED program schools, hosted their 1st Annual Energy Fair for local elementary schools. It was a great success. The 7th grade class prepared the exhibits and created sixty-one booths for the Fair. This project is part of an energy management and education program sponsored by PNM and the Albuquerque Public Schools. Many thanks to Diane Kraus and Cheryl Mattison.

Great Things in Kentucky!

The KyNEED Project completed a successful fall workshop season conducting eleven workshops across the state. On September 22, KyNEED held its first Student Leadership Training Workshop for student facilitators from Northern Kentucky, a workshop that is sure to become an annual event. Spring workshops are scheduled for Frankfort, London, and Pikeville. Mark your calendars now for the KyNEED Youth Awards Luncheon to be held May 7, 2002. On July 8-11, 2002, KyNEED will host the first Kentucky Energy Conference for Educators. Twenty-four Kentucky teachers will travel by bus on a four-day learning experience on the road, visiting energy sites in Eastern Kentucky. The conference is sponsored by the Kentucky Coal Council, the Kentucky Division of Energy and American Electric Power. Three hours of graduate credit will be offered from Northern Kentucky University. For more information, contact Karen Reagor at KyNEED at 859-578-0312 or KPreagor@aol.com.

NEED Week Activities

NEED Week is March 18-22, 2002, with NEED Day on Friday, March 22. Conduct an energy activity in your classroom or school every day of NEED Week or on NEED Day, let us know what you did, and we will send you a certificate of recognition. Suggestions for NEED Week Activities are included on page 7 of the newsletter. If the students surveyed their families, communities, or classmates, email us the results at info@need.org.

NEED Day was established by Congressional Resolution in March 1980, so this will be the 22nd celebration of NEED Day.

TEACHER RESOURCES

- www.awea.org: American Wind Energy Association.
- www.acf-coal.org: American Coal Foundation.
- www.nma.org: National Mining Association.
- www.nei.org: Nuclear Energy Institute.
- www.hydro.org: National Hydropower Association.
- www.ases.org: American Solar Energy Society.
- www.propanecouncil.org: Propane Education and Research Council.
- www.npga.org: National Propane Gas Association.
- www.biomass.org: American Bioenergy Association.
- www.geotherm.org: Geothermal Energy Association.
- www.geothermal.marin.org: Geothermal Education Office.
- www.api.org: American Petroleum Institute.
- www.ipaa.org: Independent Petroleum Association of America.
- www.ngsa.org: Natural Gas Supply Association.
- www.ingaa.org: Interstate Natural Gas Association of America.
- www.fuelcells.org: Fuel Cells 2000.
- www.eei.org: Edison Electric Institute.
- www.noia.org: National Ocean Industries Association.
- www.hmns.org: Houston Museum of Natural Science (go to site map, exhibits, energy to get to the Wiess Energy Hall).
- www.ase.org: Alliance to Save Energy.
- www.nrel.gov: National Renewable Energy Lab.
- www.epa.gov: The U.S. Environmental Protection Agency has lots of resources.
- www.eia.doe.gov/kids: The EIA Kid's Page is updated regularly with new information about energy.
- www.eren.doe.gov: DOE's Energy Efficiency and Renewable Energy Network has many resources for teachers and a kids page, too.
- www.energy.gov: The Department of Energy's **EnergySmart Schools Program** has a CD-ROM available—*Get Smart About Energy*—with lessons for students covering energy sources, production, environmental impacts, and how to save energy with new technologies and behavior modification.

PRIMARY SCIENCE PROJECT: Sun or Shade?

Background: On a hot sunny day, we often go into the shade to get cool.

Question: Is the air really cooler in the shade?

Hypothesis: The air is/is not cooler in the shade.

Materials: Thermometer and string

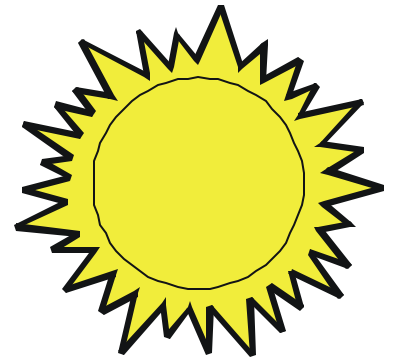
Procedure:

1. Hang the thermometer in the shade for five minutes. Record the temperature of the air.
2. Hang the thermometer in the sun for five minutes. Record the temperature of the air.

Analysis and Conclusion: Is the air really warmer in the sun?

Why does it feel like it is warmer in the sun?

Is the sun's energy hitting your skin?



WHERE IS
IT
COOLER?

ELEMENTARY SCIENCE PROJECT: Heavy Backpacks

Background: Doctors say it isn't healthy for students to carry more than ten percent of their weight in their backpacks.

Question: Are the students in your school carrying too much weight in their backpacks?

Hypothesis: Students are/are not carrying too much weight in their backpacks.

Materials: Weight scale

Procedure:

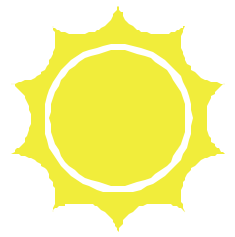
1. Make a chart with the names of all the students in your class, as shown in the diagram below.
2. Weigh all of the students in your class and calculate ten percent of their weight. Record this on the chart.
3. Weigh all of the backpacks before the students go home every day for a week. Record the weights on the chart.
4. Circle the backpacks that are overweight.



Analysis and Conclusion: How many students in the class carry overweight backpacks? Are heavy backpacks a problem in your class? Discuss with the class ways to remedy the problem.

Student Name	Weight (lbs.)	10% of Weight	Weight of Backpacks				
			M	T	W	T	F
Sarah	80	8	10	7	12	8	9
Jorge	100	10	5	6	12	5	9
May	65	6.5	10	9	12	9	10

INTERMEDIATE SCIENCE PROJECT: Solar Distiller



Questions: Can you distill clean water from muddy water?
Can you distill clean water from salty water?

Hypotheses:

You can/cannot distill clean water from muddy water.

You can/cannot distill clean water from salty water.

Materials:

Two large plastic or glass containers

Clear plastic wrap

Masking tape

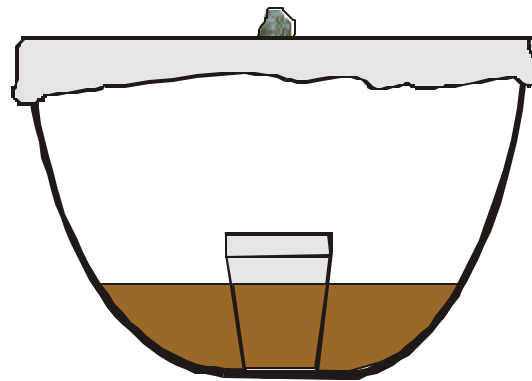
Two small rocks

Two small glasses

Two tablespoons of dirt

Two tablespoons of salt

Water



Procedure:

1. Fill both large containers with one inch of water. Mix the dirt into the water in one container and the salt into the water in the other container.
2. Place one empty glass upright into the water in the middle of each plastic container. Make sure the glass remains empty.
3. Cover both plastic containers tightly with plastic wrap and seal them with tape. On both containers, place a rock in the middle of the plastic wrap directly over the glass but not touching it.
4. Place the containers in a sunny place for two hours. Examine any water that forms in the glass. Record your observations.

Analysis and Conclusion: Did the solar distillers produce clean water? Can you devise a test to determine if there is any salt in the distilled water?

Can you explain how a solar distiller works?

Can you imagine a situation in which this knowledge could save your life?

SPECIAL ACTIVITIES: Celebrate NEED Week – March 18-22, 2002

Low/No Energy Week

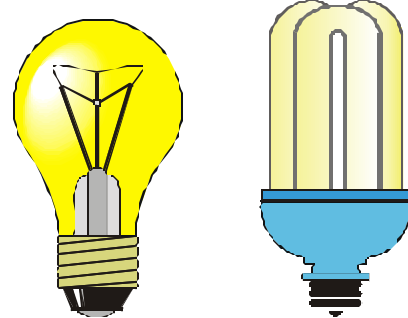
Monday	Low/No Electricity Day
Tuesday	Low/No Paper Day
Wednesday	Low/No Water Day
Thursday	Low/No Lunch Waste Day
Friday	Low/No Heat Day

Teach Others Week

Monday	Intercom Energy Tips
Tuesday	Energy Posters
Wednesday	Energy Rock Songs
Thursday	Energy Play
Friday	Energy Carnival

Save Energy at Home Week

Monday	No Television Day
Tuesday	No Video Game Day
Wednesday	No Computer Day
Thursday	No Electronic Music Day
Friday	No Lights Day
Bonus	Convince your parents to change one lightbulb from an incandescent to a compact fluorescent.



NEED Week Surveys

At School	CONDUCT AN ENERGY AUDIT OF YOUR SCHOOL What does your school do to conserve energy? What changes have been made to the building to make it more energy efficient?
At Home	CONDUCT AN ENERGY AUDIT OF YOUR HOME What does your family do to conserve energy? What changes have been made to your home to make it more energy efficient?
Personal	CONDUCT A PERSONAL ENERGY AUDIT How do you waste energy? What steps can you take to conserve energy? What one habit will you really try to change to save energy?

See the *NEED* website - www.need.org - for home, school, and student surveys and audits.

Short Circuits

Table Talk - A Great Idea from a Great Teacher

Ruthanne Aves, NEED Teacher at Oakdale Elementary in Normal, IL, makes copies of this **Short Circuits** page from each newsletter and has her students take them home to discuss with their parents. She adds a short list of main ideas for the "table talk" and a signature line at the bottom of the page for parents to acknowledge that they spoke with their children about the topics. Student who return the signed form receive a reward.

Mountain Top Reclamation Site Turned into Golf Course

A new public golf course will open this summer on a reclaimed mine site on a mountain top in Mingo County, West Virginia. The mine land was donated by Pocahontas Land Corp., and the links-style course was developed with funding from Pocahontas, Mingo Logan Coal Company and Premium Energy Corp. The partnership believes that with good management, mountaintop mining can help ensure a strong future economy for the state by making flat land available for the development of recreational facilities, schools, industrial parks or housing developments. "This will give the public an opportunity to come out and have a first-hand look at what can be or what can happen if mining is done in an environmentally responsible manner and proper reclamation is performed on mountaintop removal sites," said James M. Mullins, general manager of Mingo Logan.

Yucca Mountain, Nevada Recommended for Nuclear Waster Repository

On January 10, 2002, in accordance with the Nuclear Waste Policy Act, Secretary of Energy Spencer Abraham notified Nevada Governor Kenny Guinn and the Nevada Legislature that he will recommend to President Bush that he approve the Yucca Mountain site as the nation's long-term repository for nuclear waste. Abraham stated that the site is scientifically sound and suitable for development, and will help ensure America's national security and the secure disposal of nuclear waste, provide a cleaner environment, and support energy security.

Nevada officials have indicated that they will oppose development of the repository at Yucca Mountain, which is located about 80 miles from Las Vegas.

At the present time, waste from nuclear power plants is stored on site in temporary facilities in 31 states. The terrorist attacks of September 11 have brought about increased security at these sites, but have also heightened awareness of the need for a permanent repository for the radioactive waste.

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