

ENERGY EXCHANGE

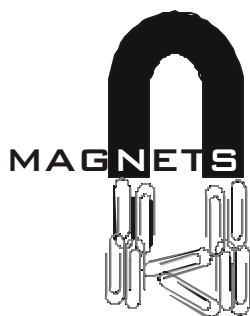
A publication of the National Energy Education Development Project

May 2002

NEW ACTIVITIES

EXPLORING MAGNETS

What kinds of materials do magnets attract? How can you block the force of magnets? Why does the needle of a compass point North? These are some of the questions that students can explore in NEED's new **Exploring Magnets** unit.



Designed to meet the K-4 Standards for Science, this hands-on unit includes a Teacher Guide, a class set of Student Workbooks, and materials for five centers. The **Exploring Magnets Kit** will be available in August 2002. To preview the teacher guide and student workbook, email info@need.org. (See page 3 for a sample activity from the Student Guide.)

ALTERNATIVE TRANSPORTATION FUELS

Petroleum isn't the only way to get from one place to another. What do you know about CNG, E85, HEVs, and biodiesel? The Kentucky Clean Fuels Coalition wants students to know they have transportation options and has provided funding for NEED to develop a secondary unit on alternative transportation fuels.

Alternative Transportation Fuels: Fueling the Future provides extensive background information and resources on alternative transportation fuels for today and tomorrow—for personal transportation as well as fleet vehicles. The booklet also includes suggested activities for students in grades 7-12. To preview the booklet, email info@need.org.

The 2003 Honda Civic Hybrid being introduced this year will get 50 mpg.



How Are We Doing?

Please Let Us Know!

As the school year comes to a close, please take a moment to let us know how you think NEED is doing by completing the **Evaluation Form** inserted in the newsletter and returning it to us. You can mail it or fax it to our new toll-free number:

NEED
PO BOX 10101
MANASSAS, VA 20108

FAX: 1-800-847-1820

We depend on your evaluations to improve our materials and let our sponsors know that schools are benefiting from their contributions.

* * * * *

New Discussion Forums

The NEED website - www.NEED.org - now has several discussion groups for teachers. The groups are divided into grade levels so that teachers can talk to others who are conducting the same energy units. If you're having trouble with an activity or need additional resources, this is the place to come. NEED staff will also be on hand to offer suggestions and answer questions. Check it out!

Inside this issue....

What's New	1
NEED Info & Calendar	2
NEED News	2
Primary Activity	3
2001-2002 Evaluation	Insert
NEED Sponsor List	Insert
Short Circuits	Back

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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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NEED's website - www.NEED.org.

Educators may reproduce articles and
activities for classroom use.

CALENDAR OF EVENTS

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

May

- 1 ILEED Youth Awards Luncheon
- 2 KyNEED Workshop - Jenny Wiley State Resort Park, Prestonsburg, KY
- 7 KyNEED Youth Awards Luncheon - Frankfort Country Club, Frankfort, KY
- 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
- 8-11 KyNEED Energy Conference for Educators - Touring Conference
- 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

NEED NEWS



High Flying Teachers

Thanks to Chevron support of our Florida and Alabama programs, teachers from Escambia County, FL, and Baldwin County, AL, toured oil facilities in the Gulf of Mexico. Lead Teacher Carolyn Wuest led the expedition aboard a Chevron helicopter to the Genesis production platform and the Discoverer Deep Seas Drillship. We extend our appreciation to Chevron representatives David Duplantier, Sandra Fury, and David Sander for arranging this trip.

Congratulations to the Winners

On April 30, 2002, national winners in NEED's Youth Awards for Energy Achievement were selected at the Primary, Elementary, Junior, and Senior Levels. Rookie awards were also selected. The list of award winning schools is available at www.NEED.org. NEED schools recognized for state and national awards are invited to participate in the NEED National Recognition Ceremonies in Washington, D.C. from June 21-24, 2002. NEED can provide participants with information related to air travel security and new things you might need to think about as you plan your travel to Washington, D.C.

Great Sessions and Lots of Fun!

NEED staff and teachers enjoyed five days of science education and excitement at the National Science Teachers Association Annual Convention in San Diego, CA. NEED conducted four workshops and trained 200 teachers to use NEED materials in their classrooms. A reunion of NEED teachers gave everyone a chance to share their NEED experiences. Watch for more information about NEED sessions at the 2003 NSTA Annual Convention in Philadelphia, PA.

California Teachers Get Energized

The California NEED Workshop hosted by Venoco Inc. and the U.S. Minerals Management Service was a great success. Forty-five teachers from Ventura and Santa Barbara Counties participated in the event. Teachers received training to use NEED materials and went home with everything they'll need to implement NEED programs in their classrooms.

Summer's Coming!

If you haven't registered for the National Energy Conferences for Educators, you may be too late! Charleston, SC, and Galveston, TX, have 170 teachers registered. Field trips and travel arrangements are being scheduled now. If you need assistance making your travel plans, just let us know. NEED continues to work on sponsorship for educators who want to attend. Watch www.NEED.org for more information and contact NEED if you have questions. A list of conference sponsors is also on the website.

MAKE A COMPASS

Can you make a compass?

A compass points to the Earth's North pole because its needle is a magnet.

WARNING: KEEP THE COMPASS AWAY FROM THE MAGNETS.

MATERIALS NEEDED: Bar Magnet Plastic Disk
Large Darning Needle Compass
Bowl of Water Tape

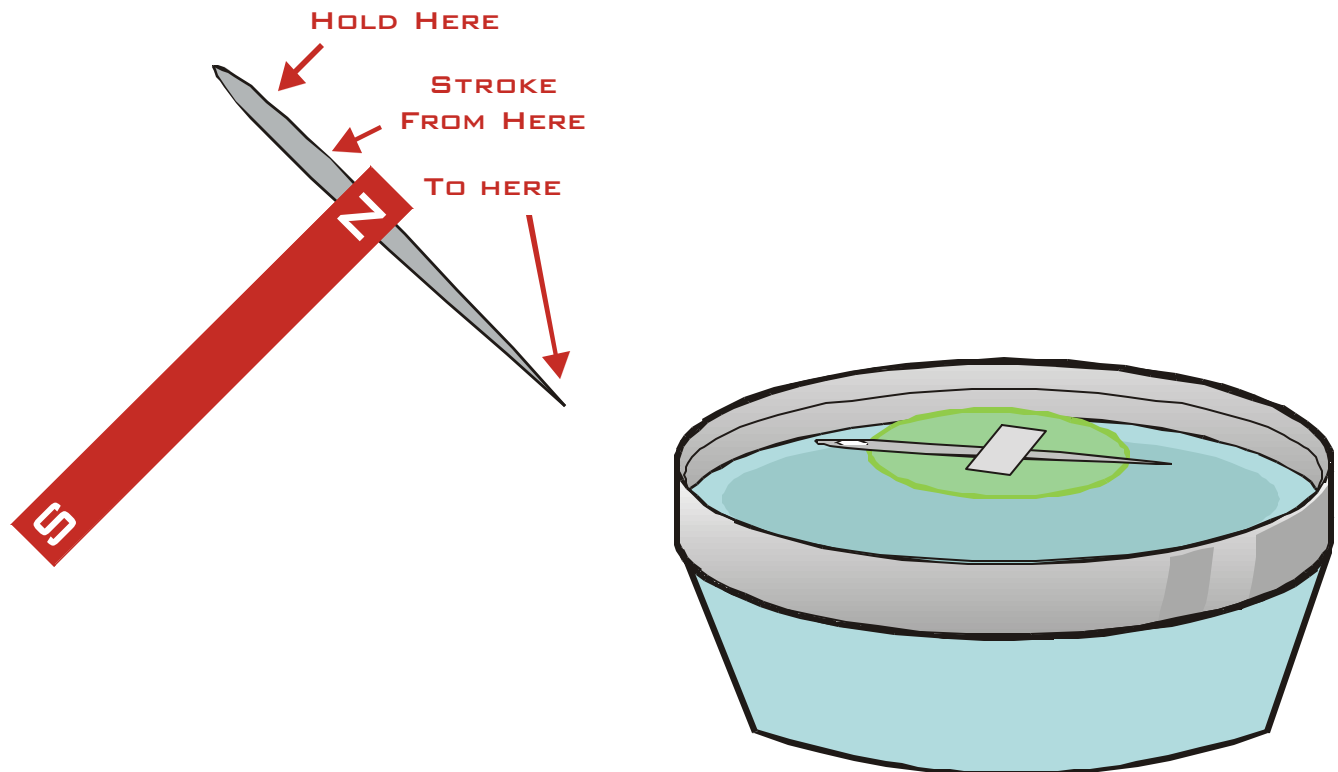
STEP 1: Hold the needle very carefully between your thumb and index finger.

STEP 2: With your other hand, stroke a bar magnet down the needle from your finger to the end of the needle. Do not stroke up the needle. Stroke the needle 10 times.

STEP 3: Place the needle across the middle of the plastic disk and tape it, like in the picture below.

STEP 4: Fill the plastic container with water. Carefully place the plastic disk on the surface of the water so that it floats.

STEP 5: Compare the direction of your needle with the direction of the compass needle.



Short Circuits

Daylighting

Everybody loves windows and natural light—so why are so many buildings designed without them? Many schools are designed without windows because administrators are concerned that students will be distracted from their lessons if they can look outside. There is no evidence to support this; in fact, there are studies that refute this assumption.

A study by Heschong Mahone Group, "Daylighting in Schools", found that in one California School District, the students with the most daylighting in their classrooms progressed 20 percent faster on math tests and 26 percent faster on reading tests in one year than those students with the least amount of daylight. The study controlled other influences for validity.

There are many reasons for the increased success in schools with daylight. Higher light levels increase visibility. Daylight improves color rendition and produces natural angles of light, allowing teachers and students to have better visual communication. Also, changing light during the course of the day creates dynamic interest as the day progresses. If students and teachers can see outside, the landscape and sky allow them to relax. As one teacher stated in the study, "When I've had it with the kids and I can't answer another question, I just take a minute, look out the window at the view and then I'm OK. I'm calm and ready to go back into the fray."

Other reasons given for minimizing windows include building and energy costs. It is true that energy-efficient windows add to the initial construction expense of a building. Over 30 years, the initial building cost accounts for only two percent of overall costs. When increased productivity and decreased lighting costs are considered, the cost of adding windows is insignificant.

Windows do not necessarily add to the cost of heating and cooling a building either. When windows are designed correctly, they can actually decrease the mechanical system loading. Designs should maximize daylight on the southern and northern exposures, which are the best orientations for maximum light gain and minimum heat gain.

Building costs are not the only economic consideration. In another study by the same group, "Skylighting and Retail Sales," researchers looked at 108 grocery stores. The study concluded that an average store would have 40 percent higher sales with the addition of skylights, with a range between 31 and 49 percent.

*Summarized from an article by Nancy Clanton in the March 2002 issue of **Energy Decisions** magazine.*

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