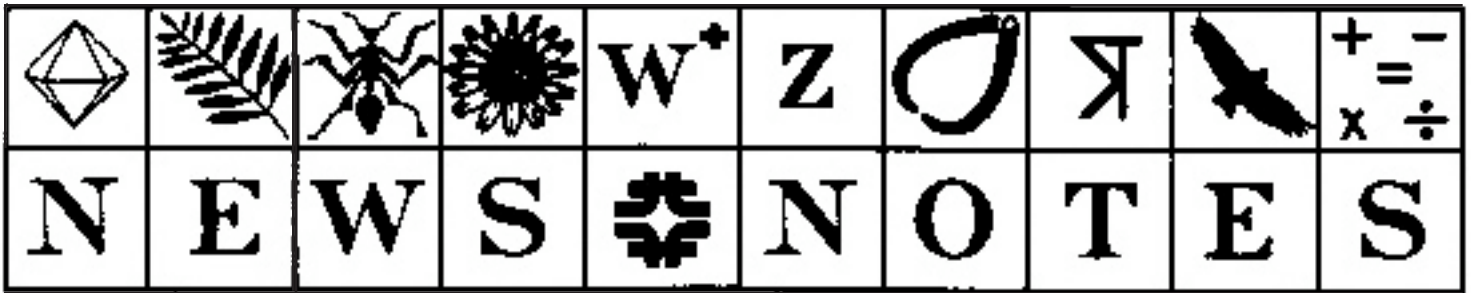


Fermilab Friends for Science Education



P.O. Box 500, MS 226 Batavia, IL 60510-0500

Winter, 2007

Prairie Program Updated

For the past year and a half, a team of teachers and Education Office personnel have been rewriting the prairie program for students in grades 3 to 5. Formerly known as “From Beneath the Ashes,” the program emerged with a new title, “The Prairie—Our Heartland,” (POH); a new focus, stewardship; and an extensive new program guide.

“We took a good program and updated it,” said teacher Glenda Peck, one of the authors of the revised program. “We took the core and added to it to align it more with how teaching is done and to make it more interdisciplinary.”

A primary goal of the revision was to make the material more user-friendly for classroom teachers. The new format benefits teachers who might not be able to use the entire POH program, but who might want to integrate portions of it into their classes. It is now much easier for them to pull out a section and use it as a self-contained unit.

POH addresses five main topics: prairie soil, prairie organisms, prairie history, value of the prairie, and prairie restoration. Each unit contains background information and a variety of activities.

The authors took great care to align the program

with Illinois Learning Standards, noting all connections explicitly in the appendix. In addition, they added new material to connect prairie investigation with other curriculum areas. The revised program seamlessly integrates areas such as language arts, math, literature, and social studies into students’ exploration of the prairie.



Interdependence of ecosystem components remains a central theme of the program, but there is new emphasis on the need for stewardship to keep prairie restorations flourishing. POH field trips will now include stewardship activities such as seed spreading or harvesting, and removal of invasive species.

One feature of the revision that has already drawn acclaim is the extensive list of resources in the back of the teacher’s guide. One teacher reports that the POH guide was an invaluable resource when her school revised their curriculum. She plans to suggest to the school district that they use it as well.



Authors of the revision are teachers Patricia Franzen, Amy Fehrman, Cindy Lange and Glenda Peck.

They received assistance from Priscilla Meldrim of the Education Office and docents Dee Huie, Mary Jo Murphy and Sue Sheehan. LaMargo Gill and Alicia Seifrid served as editors.

Thank you to members new and old!

Our heartfelt thanks go out to new and renewing members of FFSE. Your generosity and commitment to supporting science education programs, especially when government budgets are tight, makes an enormous difference in our local community and beyond.

Your donations enable students to experience the excitement of science, and support dedicated teachers in their work of bringing science to a new generation.

We welcome newest members Pier and Barbara Oddone, and are especially thankful for their generosity as contributors to the "Tree of Knowledge."

With your support, we look forward to another year of excellence in educational opportunity and innovation.



2007

Symposium on the Nature of Science

Fermilab will present the 2007 Symposium on the Nature of Science on May 21, thanks to a generous grant to FFSE from an anonymous donor.

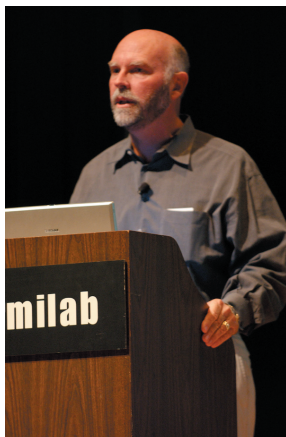
At this daylong event, prominent scientists in the fields of biology, chemistry and physics will talk to high school students about their work and engage in question-and-answer sessions with them.

Previous symposia have been well-received and well-attended. Teachers have expressed their appreciation for the opportunity to expose students to the excitement of meeting scientists at the forefront of their fields.

Invitations to this year's symposium will be sent to Chicago-area science teachers in early spring. There is no fee for the symposium and lunch will be provided.

For more information and streaming videos from previous symposia, visit <http://ed.fnal.gov/symposium/>.

For more information about this year's symposium, contact Spencer Pasero at spasero@fnal.gov.



Biologist Craig Venter addresses the 2004 Symposium.

2006 Teacher Awards

In 2006, the FFSE Board selected teachers Michael Knapp (Marquardt Middle School, Glendale Heights) and Jeff Rylander (Lake Zurich High School) to receive the annual Distinguished Educator Award for teachers who engage students in science, provide leadership for the profession and are associated with Fermilab K-12 education programs.

Michael Knapp was cited for his "exceptional contributions to science education, including the well-prepared midlevel students he has brought to Fermilab for the past 12 years; his participation in the TRAC, Beauty and Charm, and Particles and Prairies programs; his work acquainting pre-service teachers with Fermilab education programs; and his unwavering support as an ambassador for Fermilab and the Fermilab Education Office."

Jeff Rylander's award was "in recognition of his exceptional contributions to science education by engaging students with experiments that measure cosmic rays; originating the first cosmic ray data acquisition board; providing feedback on the Cosmic Ray e-Lab," and for his role as lead teacher at the Argonne QuarkNet Center.

Each recipient received \$500 to be used toward a professional development opportunity or for classroom materials. They and their families attended the Wonders of Science Show in March, where plaques were presented in honor of their achievements.

Grant Supports Summer Institute Upgrade

A generous grant to FFSE from an anonymous donor will underwrite upgrades to the Summer Secondary Institutes in Chemistry and Physics.

These one- or two-week workshops enable master teachers to share their techniques with less experienced teachers and those teaching out-of-field.

Funds from Friends will enable presenters to develop new activities, renew old ones and update equipment.



A REMINDER THAT THE "TREE OF KNOWLEDGE" PLAQUE IN THE LEDERMAN SCIENCE CENTER CAN BEAR YOUR NAME OR YOUR FAMILY'S NAME FOR A \$1,000 DONATION.

Neutrinos at the LSC

A new addition to the hands-on exhibits at the Lederman Science Center is up and running. The interactive computer display, designed by Liz Quigg, simulates the MINOS experiment and provides background on the significance of neutrinos and their oscillations.

The display consists of a computer screen with a mouse. The screen displays a map of the path that the MINOS neutrino beam follows through the earth between Fermilab and Soudan, Minnesota. A visitor may use the mouse to click somewhere along the beam path to take a sample. The screen then displays a readout showing how many of each type of neutrino might be found at that point.

The visitor may sample the beam at different points and store data repeatedly. When finished collecting data, and having formulated a

hypothesis, the visitor clicks the mouse to display a screen with a picture of Fermilab theorist Olga Mena and a chart of her projections for neutrino oscillations. By studying her projections and comparing them to the hypothesis, the visitor may draw inferences about the ways in which neutrinos oscillate.



Education Office Technology Coordinator Waylon Meadors assisted Liz with the development of the exhibit, extracting clips for the display from VMS's *MINOS: Mining the Imagination* video. In the clip, physicist Boris Kayser explains what neutrinos are and why it is important to understand their oscillations.

The exhibit is currently a "work-in-progress." Liz and Waylon plan to add more signs and more video clips and to revise and fine-tune the exhibit in the months ahead.



Friends in Need: A Van for Classroom Visits

FFSE is looking for some generous donors to help finance the purchase of a van to transport classroom science presentations to local schools.

Fermilab's classroom outreach program has been a huge success. In 2006 alone, scientist volunteers interacted with more than 11,000 students in the greater Chicagoland area, treating them to presentations on electromagnetism, optics, force and motion, and cryogenics.

Each trip requires more than just travel and classroom time from the volunteers. Equipment, some quite large and heavy, must be taken from storage and packed into a van that has been either reserved from the Fermilab fleet or borrowed from a presenter.

With the upturn in engagements, it has become obvious that having a classroom program van would make the job much easier for our volunteer presenters. It would save time and energy that now must be spent on loading and unloading equipment.

The van could also serve as permanent storage for the program's equipment, easing the tight storage situation at the Lederman Science Center. And an

additional advantage would be that, adorned with the Fermilab logo and some nice graphics, the van could function as a billboard promoting our program and increasing Fermilab's visibility in the Chicagoland area.

The ideal vehicle would be an extended cargo van, new or lightly used, but, above all, reliable. Any business making a sizeable donation could have their name included on the side.

With the help of Fermilab friends, we hope that a visit from the science van will soon be an eagerly anticipated treat at schools throughout the area.



Volunteers Sharon Lackey and Dennis Nicklaus present *Charge! Electricity and Magnetism!* at Bridges Academy in St. Charles.

If you would like to contribute or know of a business that might be willing to contribute, please contact Susan Dahl at 630-840-3094 or at sdahl@fnal.gov.

Membership Form

Annual Dues:

Director.....\$1,000
Patron.....\$500
Sponsor.....\$250
Benefactor.....\$100
Regular.....\$50

*Please check the appropriate membership category and enclose your check made out to **Fermilab Friends for Science Education**.
Include matching funds from your company, if applicable.*

Name _____

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Address _____

City _____ State _____ Zip _____

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Matching Funds (yes) (no)

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