

10th Annual

TEACHING WITH THE OUTDOORS



Environmental & Field Science Workshop for K-12 Educators

Friday, May 7 & Saturday, May 8, 2004

Michigan Tech Ford Forestry Center ~ Alberta, Michigan

Registration Deadline ~ Wednesday, April 21, 2004

SB- CEU's, NMU & MTU Credit Available

10th ANNUAL TEACHING WITH THE OUTDOORS

Western U.P. Center for Science, Mathematics & Environmental Education
Michigan Technological University
1400 Townsend Dr.
Houghton, MI 49931-1295

Non-Profit Organization
U.S. POSTAGE PAID
Permit No. 11
Houghton, Michigan
49931

Teaching With The Outdoors ~ Workshop Program

FRIDAY, MAY 7 (Choose ONE full-day session OR TWO half-day sessions)

FULL-DAY SESSIONS ~ 9:00 AM – 4:00 PM

(1) Brockway Mountain Hawk Migration (K-12) Meet at Michigan Tech in Houghton

Dr. David Flaspohler, School of Forest Resources & Environ. Science, Michigan Tech Univ.
After getting a brief overview of bird migration and raptor ID at MTU, participants will visit several birding sites in the Keweenaw Peninsula as they travel to Brockway Mountain, a hot spot for migrating raptors. The high ridges near the tip of the Keweenaw Peninsula concentrate the flight paths of spring migrants. When winds are out of the south, hundreds or even thousands of migrating raptors can be seen in a single day!



(2) Geologic Teaching Sites of Porcupine Mountain State Park (Gr. 3-12)

Meet at Michigan Tech in Houghton

Robert Sprague, Ranger, Porcupine Mountain State Park

Visit interesting geological sites in Porcupine Mountain State Park to view evidence of igneous rocks (volcanism), sedimentary rocks, and plate tectonics as you gather ideas for classroom field trips.

AND

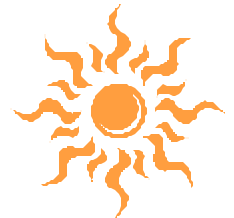
Caledonia Mine Tour

Richard Whiteman, owner, Red Metal Minerals

Mine for copper, and explore future field trip possibilities with your class at this privately-owned mine near Mass City.

(3) Creative Ways to Teach Probability, Statistics and Data Analysis (Grades 5-9) Meet at Ford Forestry Center in Alberta

Shawn Oppliger, Western UP Center for Science, Mathematics and Environmental Education
Teachers will explore hands-on activities from AIMS (Activities that Integrate Math and Science) and GEMS (Great Explorations in Math and Science) to teach probability, statistics and data analysis. All participants will receive a notebook of activities.



(4) Energy and Resources (Gr. 6-9)

Meet at Ford Forestry Center in Alberta

Heather Luoto, Science Education Consultant

What kind of energy do most people use? Are there alternatives to traditional oil, nuclear and coal? Can conservation and energy efficiency really make a difference? Participants in this session will conduct activities from Michigan's *NEW* Environmental Education Curriculum: *Energy and Resources* and gain some very useful information about energy sources, energy use, and pollution prevention. Participants may purchase the Project Learning Tree activity guide (\$25) and/or the new Energy & Society guide, CD & video (\$25).

HALF-DAY SESSIONS ~ 9:00 AM – Noon ~ Meet at Ford Forestry Center in Alberta, MI

(1) Michigan's Major Ecosystems (Gr. 3-6)

Pamela Schmidt, Western UP Center for Science, Mathematics and Environmental Education

What are the principal ecosystems of Michigan and how did they come to exist as they do today? Participate in activities from Michigan's *New* Environmental Education Curriculum: *Michigan's Changing Ecosystems*. This project-based, interdisciplinary unit for grades 4-6 will address Michigan science and social studies content standards. Concepts include ecosystems, biodiversity, exotic species, food chains & food webs, biological amplification, interdependence, and succession.



(2) Using ROV Technology to Conduct Shipwreck & Maritime Investigations (Gr. 6-12)

Mark Gleason, Director, Isle Royale Institute

Using historical information and technology, students will gather data about Lake Superior maritime history and local shipwrecks using a Remotely Operated Vehicle (ROV). Participants will learn how an ROV works, participate in a ROV demonstration in nearby Ford Lake, and gather ideas for classroom activities that illustrate ROV research techniques.

Noon-1:00 PM

LUNCH

HALF-DAY SESSIONS ~ 1:00 - 4:00 PM ~ Meet at Ford Forestry Center in Alberta, MI

(1) Caring About the Future (Gr. K-8)

David Kronk, Education Outreach Coordinator, Pictured Rocks National Lakeshore

Learn about this excellent resource for meeting K-8 science and social studies content standards by teaching environmental education. All participants will receive a copy of this useful curriculum alignment tool.

AND

MDNR Environmental Education Trunks for Teachers Program (K-6)

Ann Wilson, Michigan Department of Natural Resources

Find out about the MDNR's three traveling trunks on wolves, wetlands, and wildlife furs.



(2) Going Batty in the Classroom: A Teacher's Field Guide (K-12)

Laura Kruger, School of Forest Resources and Environmental Science, Michigan Technological University

Explore the contents and activities contained in the Center's new hands-on learning kit filled with bat specimens, lessons and enrichment materials to add fun and depth to your unit on bats.

Friday, May 7 – Teaching With the Outdoors ~ Workshop Program, cont'd.

(3) Teaching About Lake Superior (Gr. 4-8)

Karen Bacula, Bothwell Middle School, Marquette, MI

Participants will have fun doing some of the excellent science and social studies lessons related to Lake Superior and the Great Lakes from the *Lake Superior* curriculum/activity guide (available @ \$10 each).

4:00-6:00 PM Free Time

Hike Canyon Falls Tour of Alberta Sawmill
Hike around Ford Lake School Gardening Idea Exchange
Canoeing/kayaking on Ford Lake

6:00 PM DINNER

7:00 PM EVENING PROGRAM - *Spiders of the North Woods*

Larry Weber, author of *Spiders of the North Woods*, *Butterflies of the Northwoods*, and *Backyard Almanac*; and a teacher at Marshall School in Duluth, MN. Spiders are a unique and virtually unknown inhabitant of our north woods ecosystems. Participants will learn about the behavior, ecology, and identification of the members of this group that can be found in Michigan's Upper Peninsula. Bring spiders for Weber to identify!

9:00 PM **Spider Night Hike** – Larry Weber OR **Frog Calling Surveys** – Joan Chadde

* Bring flashlights or head lamps and dress warmly, as we'll be walking around in the dark.



SATURDAY, MAY 8 (Choose ONE half-day session)

HALF-DAY SESSIONS ~ 8:30 AM -12:30 PM

Ford Forestry Center

(1) Mathematics in Nature (Gr. 7-12)

Kristan Schuster, Gr. 9-12 Math Teacher, Hancock High School

Fibonacci numbers, symmetry, patterns...participate in some fun outdoor activities that will enhance your students observation skills and help them to see and appreciate math in the natural world.

(2) Global Change (Gr. 6-12)

Andy Burton, School of Forest Resources and Environmental Sciences, MTU
Warmer temperatures, altered precipitation patterns, elevated carbon dioxide and ozone concentrations, and atmospheric nitrogen deposition, all have the potential to alter the composition and productivity of forest ecosystems. An overview of potential species and ecosystem responses to these interacting global change factors will be given, and a visit to chronic nitrogen deposition research plots (if snow is gone!).



(3) Can You Survive a 24-Hour Wilderness Experience With Your Students? (Gr. 4-12)

Chuck Delpier, Science & Environmental Studies Teacher, Negaunee Middle School

Participate in hands-on activities that you can do with your students during a 24-Hour Wilderness Experience. Participants should dress for the weather and be ready for three hours of movement as we set up tents, light fires without matches, hang bear ropes, cook on portable stoves plus some CHALLENGING activities! You will leave ready to implement this program with *your* students!

(4) Michigan's Water (Gr. 4-8)

Joan Chadde, Program Coordinator, Western UP Center for Science, Math and Environmental Education

Try out some of the new science and social studies activities from the *NEW* middle school curriculum, *Michigan's Water* which includes lessons on the Great Lakes, streams/ivers, watersheds, groundwater, and civic responsibility.

(5) Teaching A Phenology-based Science Class (K-12)

Larry Weber, author of *Backyard Almanac*; science teacher, Marshall School, Duluth, MN.

Larry has taught a phenology-based science class for the last 22 years. He has found phenology, the study of recurring natural events, to be a very effective way to teach. Participants will learn what, where, when, and why to use phenology in the classroom. Any teacher of any grade level could benefit from this workshop. The workshop will begin indoors, and includes a walk outdoors.

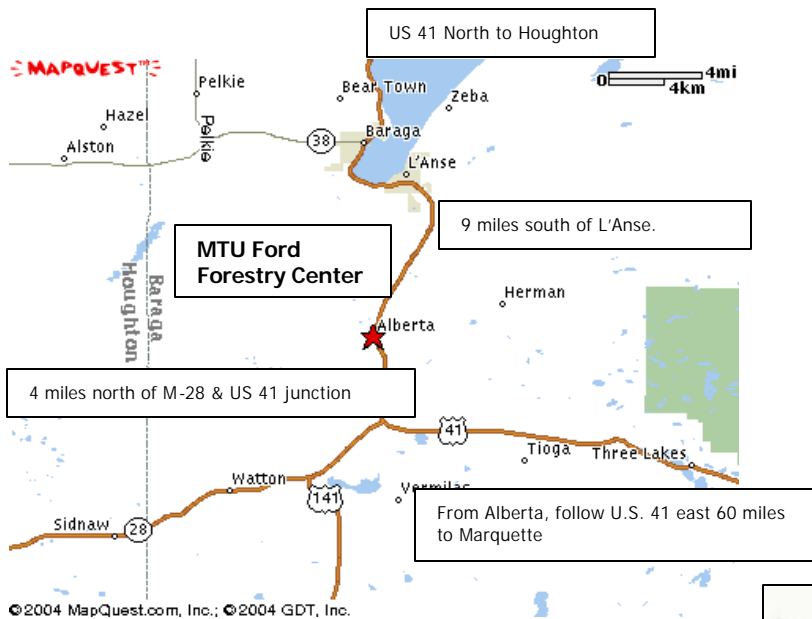


12:30 Evaluations. Workshop ends. LUNCH (optional)

1:00-2:30 PM Informal Meeting of UP Environmental Educators (Optional ~ All invited)

Location & Directions

This two-day workshop will be take place in the beautiful forested setting of Michigan Tech University's Ford Forestry Center **located on the east side of US 41, 8 miles south of L'Anse , 40 miles south of Houghton, and 4 miles north of M-28 Junction.** The Ford Forestry Center is a 4,547 acre facility used for research and education. It is the historic site of the restored Ford lumber mill; and offers lake, wetland and forest ecosystems for field activities, along with many hiking/biking trails and canoeing on nearby Ford Lake. Facilities include a modern 50-room dormitory, several historic homes, a dining hall, four classrooms, a computer lab, and a large conference room. The Center is one mile from the spectacular Canyon Falls of the Sturgeon River. To learn more: <http://forest.mtu.edu>



SB-CEU's, NMU & MTU Credit Available

Teachers will have the option to take the workshop for 1.0 SB-CEU, or for university credit through Northern Michigan University (1.0 ED 989 credit) or Michigan Technological University (1.0 ED 5540 credit). Credit registration information will be sent to you with your confirmation letter. Credit costs are the responsibility of the participant.

Registration

Workshop registration is \$85 per person (2-days) and \$45 per person (1-day) and \$45 for university students, and includes one overnight, all meals from Friday lunch through Saturday lunch, and field trips. Cost of credit and activity guides for individual sessions is additional. **Registration deadline for the workshop is Wednesday, April 21, 2004.**

For More Information

To find out more about the workshop, contact Joan Chadde at jchadde@mtu.edu or call (906)487-3341; or visit the Western UP Center's website: <http://wupcenter.mtu.edu> or <http://upenvironmentaled.mtu.edu>

Accommodations

Participants stay in modern dorm rooms (doubles) and historic houses (sleep 6-10 persons). Sheets, blankets, pillows, and towels are provided. Participants will enjoy delicious meals and snacks from Friday lunch through Saturday lunch.

What to Bring

sturdy walking shoes	pillow	water bottle
warm clothing	warm jacket	rainwear
flashlight	hat & mittens	day pack
binoculars & field guides (optional)		

Much of the workshop will take place outdoors. Participants should come prepared for current weather conditions.



Workshop Sponsors

Western U.P. Center for Science, Mathematics & Environmental Education
Northern Michigan University's Seaborg Center
Pictured Rocks National Lakeshore
Michigan Technological University
The Wege Foundation

10th Annual

TEACHING WITH THE OUTDOORS WORKSHOP

9:00 AM, Friday, May 7 to 1:00 PM, Saturday, May 8, 2004

REGISTRATION FORM

Registration deadline is Wednesday, April 21, 2004

Name_____

Address_____

School/Other Affiliation_____

Phone_____Email_____

Grade(s) Taught_____Subject(s) Taught_____

FRIDAY (choose ONE full day session or TWO half-day sessions)

Full Day: 9:00 AM—4:00 PM

- _____ Brockway Mountain Hawk Migration (K-12)
- _____ Geologic Teaching Sites of Porcupine Mtns & Caledonia Mine Tour (Gr. 3-12)
- _____ Creative Ways to Teach Probability, Statistics and Data Analysis (Gr. 5-9)
- _____ Energy and Resources (Gr. 6-9)
- _____ \$20 Energy & Society Activity Guide, video, CD
- _____ \$25 Project Learning Tree & Energy Teacher Guide

Half Day - Morning: 9:00 AM—Noon

- _____ Michigan's Major Ecosystems (Gr. 3-6)
- _____ Using ROV Technology to Conduct Shipwreck & Maritime Investigations (Gr. 6-12)

Half Day - Afternoon: 1:00 PM—4:00 PM

- _____ Caring About the Future (Gr. K-8)
- _____ Bats...Flyers in the Night Sky (Gr. 3-12)
- _____ Teaching About Lake Superior (Gr. 4-8)
- _____ \$10 *K-8 Lake Superior Teacher Guide*

Evening Program

- 7:30 PM _____ Spiders of the North Woods
- 9:00 PM _____ Bats Survey
- 9:00 PM _____ Frog Calling Surveys

SATURDAY (choose ONE half-day session)

Morning: 8:30 AM—12:30

- _____ Mathematics & Nature (Gr. 7-12)
- _____ Global Change (Gr. 6-12)
- _____ Can You Survive a 24-Hour Wilderness Experience? (Gr. 4-12)
- _____ Michigan's Water (Gr. 4-8)
- _____ Teaching A Phenology-based Science Class (Gr. K-12)

AMOUNT ENCLOSED (make checks payable to CCISD)

- _____ \$85 per person (2 days)
- _____ \$45 per person (1 day)
- _____ \$45 for university students (2 days).
- _____ Amount for optional teacher guides

_____ **TOTAL ENCLOSED**

Send Registration form and payment to:

Loret Roberts

Western UP Center for Science, Math & Env. Education

P.O. Box 270

Hancock, MI 49930

Fax: 906-482-5031

Email: loret@ccisd.k12.mi.us