PLANNING GUIDE

March 9-10, 2012
Friday 9:00-3:00, Saturday 10:00-3:00
Prairie Research Institute • University of Illinois
Natural Resources Building
607 East Peabody Drive, Champaign, Illinois 61820

Experience over fifty exhibits, hands-on activities, and demonstrations to help you discover more about science and our state. You’ll interact with scientists who work on solutions to water, energy, ecosystem, climate, technology, and cultural resource issues. For over 150 years, the Illinois State Scientific Surveys have applied cutting-edge science for the people of Illinois, to build their economy, promote public health and safety, and steward their abundant resources. Come see how we work to improve life in Illinois today and tomorrow.

Exhibits for 2012 include:

- Waste to Oil Demonstration
- Animal Bones of Illinois
- Floodplain Simulation
- Kids’ Fossil Dig
- Earthquakes Now and Then
- Honey Bees-LIVE!
- Mummy Science

and much more!

Groups, please contact Eve Hargrave in advance at eve.hargrave@gmail.com.

Earth, Wind, & Fire 5K Run and 2.5K Walk starts Saturday at 9:00 AM
www.prairie.illinois.edu/expo/5krun.shtml

Concurrent University of Illinois Events
ExplorACES (www.exploraces.org)
Engineering Open House (eoh.ec.illinois.edu)

www.prairie.illinois.edu/expo
EXHIBITS

First Floor

1 Mosquitoes and Diseases This display shows mosquitoes’ complex life cycle, their biological diversity, and their diverse breeding habitats, especially in urban areas. Learn how mosquito species transmit diseases including West Nile virus, malaria, and dengue and how researchers are exploring the ways environment influences their transmission. (Room 196)

2 All About Groundwater and Water Wells This exhibit features a working model of an aquifer, a water well, and a cut-away model of a water well. Handouts will be available for teachers, parents, and children with fun activities related to groundwater and educational materials about water wells. (West Foyer)

3 The Mystery of Mussels Come learn about the mysterious transformation of mussels! Did you know that larval mussels (glochidia) transform into young mussels on fish? Witness the mystery! (Room 171)

4 Publications Sales and Teacher Information Browse or buy our great new books on Illinois bottles, archaeological sites, geology, and birds. View our new posters on bottles and projectile points or our maps, field manuals and guides, games, and teacher materials. Enter our drawing. (Fri: Main Foyer; Sat: Room 123)

5 Exploring the Mahomet Valley in 3-D! This exhibit shows how geologists and hydrogeologists use new 3-D software to analyze and map the deposits that have filled the Mahomet Bedrock Valley. Fly high above the ground to look at landforms, or dive below the land surface to explore the sediments the glaciers have left behind. Learn about the aquifers used for water by many people in Central Illinois. (Room 139)

6 Prairie Research Institute Library The Prairie Research Institute Library serves Institute staff, the University of Illinois community, and the citizens of Illinois, providing expert research assistance and a collection that covers earth and environmental sciences, ecology, environmental education, environmental protection and conservation, pollution prevention, natural history, and natural resources, with a focus on topics relevant to Illinois and the surrounding region. Learn about our services, including our Educator Resource Trunks. (Main Foyer)

7 Prairie Research Institute—Home of the Illinois State Scientific Surveys For over 150 years, the Surveys have applied cutting-edge science to help the people of Illinois to build their economy, promote public health and safety, and steward their abundant resources. The Prairie Research Institute (formerly the Institute of Natural Resource Sustainability) was established at the University of Illinois in 2008. (Main Foyer)

8 Earthquakes Now and Then See a real-time display from the ISGS seismometer and real-time maps of earthquake locations around the world. Maps and posters describe the New Madrid 1811–1812 earthquakes that created waterfalls on the Mississippi River and rang bells in Charleston, South Carolina. Learn what to do when the ground shakes. (Room 122)

9 Ancient Geologic Faces of Illinois The geologic face of the state has changed over the last 400 million years. View dozens of museum-quality rock slabs showing fossil corals, gastropods, crinoids, and cephalopods. See limestone, sandstone, and granite rock retrieved from boreholes as deep as 8000 feet that are used to interpret and reconstruct ancient environments. (Outside Room 122)

10 Illinois Minerals What are tripoli, galena, sphalerite, and peat? Where are they found in Illinois? What minerals are found in your county? Find the answers to these and other mineral resource questions. (East Foyer)

11 LIVE! Honey Bees See a live queen bee and some of her workers on honeycomb frames behind glass. Come and watch the bees in action! (Room 101)

12 Backyard Biodiversity: Insects of Illinois and Beyond There are more species of insects in Illinois than all other species of animals and plants combined, and new species continue to be discovered here. Come and see examples of insect specimens from our collection, which houses more than 7 million insects and related arthropods. You will also have a chance to see live insects. (Room 101)

13 Build Illinois Witness a brief “reconstruction” of the last 500 million years of Illinois geologic history. Using a map of sand, a few props, and our imagination, we journey back in time to see the Illinois landscape change from tropical ocean, to steaming swamp, to the frosty wastes of the Ice Age. Understand why Illinois looks like it does today! (Room 101)

Second Floor

14 Rocks and Minerals Under a Microscope What makes a rock a rock? Come and see a microscopic view of a rock and be wowed by its beautiful components. Learn why it’s absolutely critical to study rocks under a microscope. (Room 273)

15 High-Resolution Shaded Relief Maps of Illinois View many county-scale, high-resolution shaded relief maps developed from airborne LiDAR imagery in Illinois. Examine some of the many uses for these new data, including public safety, scientific research, and economic applications. Individual information sheets will be available onsite and from our website. (Outside Room 266)

16 Extreme Weather … Illinois Style Illinois is a big state known for its exciting weather. Do you ever wonder how hot or how cold it can get in Illinois, or wonder who has had the most snow and when? Come check out the extreme weather of Illinois. (Room 261)

17 Weather on Your Birthday—Midwestern Regional Climate Center Have you ever wondered what the weather was like on the day you were born? Come find out and take home a certificate showing the weather conditions for your birthday on that day. Also, visit our exhibit to discover the steps to making your own instruments to measure precipitation at home! The Midwestern Regional Climate Center maintains records of past weather data and climate information for the entire country, especially the Midwest region. (Room 261)

18 New Geologic Maps Completed for the 2011 ISGS STATEMAP Effort This display includes six geologic maps completed for the USGS National Cooperative Geologic Mapping Program’s STATEMAP component August 31, 2011. (Outside Room 222)

19 Fun with Gases, Liquids, and Solids Watch simple, fun experiments that demonstrate some of the physical properties of liquid nitrogen and dry ice. See their effects on the atmosphere that surrounds us and on some familiar everyday objects. Observe demonstrations of how rapid changes in the temperature and phase (liquid to gas) of a substance can quickly affect the pressure of its surroundings. Learn how and why geochemists use dry ice and liquid nitrogen in the laboratory to help purify and separate the different gaseous products from one another during geochemical analyses. (Room 223)

20 The Many Wonders of Carbon Dioxide Come explore the wonders of CO2. This odorless, colorless gas is very important to life on planet Earth. Essential for plant photosynthesis, this gas is frequently in the news for its role as a major greenhouse gas. (Room 211)
EXHIBITS continued

Tent 1

21 Winged Creatures That Go Bump in the Night
Have you ever wondered about those strange sounds you hear at night, or those silhouettes that you see in the night sky? Come learn more about nocturnal birds, bats, and squirrels that can glide through the night.

22 Illinois Plants Ever wonder how many different kinds of plants live in Illinois? How do they provide food and shelter for humans and wildlife? How do scientists study plants? Learn about the diversity of plants, the habitats they provide, and how plant habitats are studied.

23 Woodland Wildflowers in Your Yard
Woodland wildflowers are adapted to the shady conditions found in forests. These shade-tolerant native plants are suitable for landscaping in shady areas around homes and buildings. This exhibit has photos of plants, some living examples, and basic information on the natural history of several species.

24 What’s in a Wetland? Come and explore wetlands with us and discover why they are important! Demonstrations, including how wells are used and a floodplain model, will help you learn about wetlands without getting your feet wet. You will learn how wetlands provide many resources, including things we eat!

25 Floodplain Simulation System To better understand the effect of human development in floodplains, scientists use hands-on manipulation and observation of realistic experiments to illustrate how floods happen and what impact they have on the environment. This dynamic, hands-on simulation model clearly demonstrates the critical role of floodplains and how development within the watershed can impact stormwater runoff and flooding within the watershed and floodplain areas.

26 Big River Fisheries Come see live, big fish and fish found in Illinois! Learn about biodiversity and how biologists sample fish populations. (Outside Tent 1)

27 Stream Critters—Fish and Crayfish Found in Our Streams This exhibit contains small aquariums filled with common types of fishes and crayfishes found in Illinois streams. It will also contain several preserved examples of larger, less common (and rarely seen) fishes found in Illinois.

28 River Otters in Illinois The river otter is making a comeback in the aquatic ecosystem of our state. Learn more about this charismatic and playful predator.

29 Electronic Waste—Defining the Problem, Considering Solutions Learn about the environmental issues associated with electronic products (computers, cell phones, TVs, etc.), what happens to those products at their end-of-life, and efforts to make electronics more sustainable. We will have information on how to recycle electronics and on the new Illinois e-waste landfill ban.

30 Fun with Water Chemistry See how much fun science can be! Join us for demonstrations and hands-on activities that highlight water chemistry. You’ll get to use indicators and meters to study the pH of water and other household materials, observe properties of supersaturated solutions, and use polymers to make “slime.”

Tent 2

31 Fossil and Mineral Dig Visit the fossil and mineral dig where kids (and parents) can dig to find fossils and minerals found right here in Illinois. Dig for as many as you like, and keep the one that you like best. Guides will be on hand to help you identify your find!

32 Metal As a Fuel See how metal is used as a fuel in a special battery to generate power for your electronic devices, learn what materials are used, and think about the potential of using metal as a fuel in future vehicles.

33 Biofuel and Biochar Come and learn how to make biochar from yard wastes, how biochar can improve soil quality and clean up pollutants, and how biochar may mitigate global warming.

34 Waste to Oil “Turning waste into energy” is our motto. We will demonstrate a pyrolysis process to show its usefulness in converting waste materials (e.g., plastic, used tires), waste lipids (e.g., waste fryer oil, animal fat, soapstock, trap grease), and biomass (e.g., corn stover, algae, defatted seedcakes, lignins) into fuels (drop-in fuels and bio-crude oils).

South Drive Lawn

35 Timetable A slice of a 108-year-old Hackberry tree from downtown Champaign will be on display and will provide visitors with the history of the U.S., Illinois, and Champaign at a glance. The annual rings of the tree are keyed to major events, life-changing inventions, devastating natural disasters, and the evolution of entertainment from 1901 to 2009.

36 Flintknapping We will demonstrate how to make arrowheads from chert (flint) using a technique called flintknapping that was developed by early humans and Native Americans. This ISAS-ISGS exhibit was organized collaboratively to illustrate the close relationships between archaeology and natural resources.

Tent 3

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37 Zooarchaeology: Animal Bones of Illinois Zooarchaeology is the study of animal bones from archaeological sites. This hands-on exhibit lets you learn about animal remains, bone and shell tools, and how these things can teach us about the past. Discover how people interacted with their environment hundreds and thousands of years ago in Illinois.

38 Mummy Science New CT scans of the Spurlock Museum’s only human mummy confirm that the mummy was a child from a wealthy family living in Egypt during the Roman period (about AD 100). Spectacular new images of the teeth and leg bones illustrate how scientists determined that the mummy was about 8.5 years old, and computer reconstructions show the child’s face.

39 Rocks, Bones, Pots, and People: What Does It All Mean? What can archaeology tell us about the past? Learn about how people lived in Illinois for the past 10,000 years. See an archaeological dig, excavate for artifacts, look at animal bones, draw an artifact, and learn how archaeologists study past peoples.
EXHIBITS continued

**Tent 5**

**40 Water Corrosion and Scale** Hidden minerals in water cause scale to form on surfaces. Look at 45 examples of scale and corrosion. Learn about the causes of scale buildup on the pipes in your home. You will be able to measure the minerals in water from different locations in Illinois.

**41 Filling the Barrel—Drop by Drop** When the University of Illinois at Urbana-Champaign signed on to the American College & University Presidents’ Climate Commitment in 2008, one of the targeted goals was to reduce drinkable water consumption on campus 20% by 2015 and 40% by 2025. Cooling towers use over 20% of the total campus water. A greater understanding of how water is used and how much is used at these locations opens opportunities for increased operating efficiency and water savings.

**42 Nab the Aquatic Invader!** Players read a “Top Secret” folder describing an aquatic invader. From the clues about impacts and spread, the players decide which invader on the big board is the one described in the folder. They toss a dart at the invasive suspect they have identified. Preserved aquatic invasive species specimens will be available to get a close-up look.

**43 Environmental Impact of Antibacterials** Antibacterials, such as Triclosan, are common ingredients in a wide range of consumer products. Hand soaps marketed as antibacterial are among the most common. These compounds are non-toxic, but their widespread use has many potential environmental impacts. Learn more about them!

**44 Pharmaceuticals and Hormones in the Environment** Learn more about the sources of pharmaceutical and hormone contaminants, how they enter into the environment from the sewage treatment plants and animal farms, and how we can minimize the pollution from these emerging environmental contaminants.

**49 A Glacial Saga: How ICE Built the Ground You Walk On** The exhibit introduces the glacial forces of ice, water, and wind that shaped the modern landscape of Illinois. You will discover how these geologic agents eroded and deposited the earth materials that are part of everyday life. Maps, samples, and demonstrations will help you follow the clues left by ancient glaciers.

**South Drive**

**50 IPRB Traveling Field Trip** Visit the “Traveling Field Trip” exhibit of the Illinois Petroleum Resource Board to see working models of oil field equipment. You’ll have a chance to learn about the importance of oil and natural gas in your daily life and increase your awareness of the science and business aspects of the Illinois oil and gas industry. For more information, visit the IPRB web site: http://iprb.org/.

**51 Illinois American Water** Stop by the Illinois American Water trailer for a free sample of drinking water from the Mahomet aquifer and check out our display on the “Water Treatment Cycle.”

**52 Traveling Science Center** This mobile classroom features informative panels and hands-on exhibits about biodiversity in Illinois. Learn about the habitats and species diversity of your region and how you can protect it.

**53 The Campus Bike Project** The Campus Bike Project serves students, faculty, and staff who are looking for inexpensive, low maintenance, and environmentally friendly transportation. The Project provides space for working on bicycles, learning from skilled mechanics, and sharing knowledge about bicycle commuting, safety, repair, and fun bike tours. This is the Campus Bike Project’s two-year anniversary.

**Tent 6**

**45 Coal in Illinois** Come and learn about the coal resources of Illinois. Visitors will discover how much coal there is in Illinois, where it is located, and how it is mined. Real Pennsylvanian-age coal swamp plant fossils will be on display for you to see up close, and you can get your hands dirty on a real piece of coal.

**46 Cleaner Coal for Illinois** See what steps are needed to make coal usable in power plants. Find out about our projects aimed to reduce the environmental impact of coal-powered electrical plants, including removing CO2 and mercury from coal stack emissions and finding alternative water sources for power plants.

**47 Energy Use in Houses—Build Tight, Ventilate Right** To reduce energy use in houses, the first thing to do is always to be smart citizens of the ecology we share. The second thing is to make the house as airtight as possible. With airtightness, though, comes the need for good indoor air and combustion safety.

**48 Geothermal Heat Pumps for Heating and Cooling** A geothermal heat pump is a highly efficient heater. A dual geothermal heat pump system is capable of providing both heating and cooling. This exhibit shows how a geothermal heat pump works and why some people call it an “energy amplifier”.


DIRECTIONS AND PARKING

FREE PARKING AND SHUTTLE
From I-74:
- Take Exit 183, Lincoln Avenue, south.
- Continue south on Lincoln Avenue approximately 2.5 miles.
- Turn right (west) onto Florida Avenue.
- Turn left (south) onto Oak Street.
- Turn left into Lot E14 (west of Assembly Hall) and park all day FREE.
- Catch a free shuttle from the south half of Lot E14
  - Naturally Illinois Expo shuttle will drop off at the Natural Resources Building at 6th and Pennsylvania for the Expo. Pick it up at the same place to return to the parking lot. *This is the shortest trip if only attending the Expo.
  - Engineering Open House/ExplorACES shuttle bus will drop off at the ACES Stock Pavilion stop on Pennsylvania which is half a block east of the Natural Resources Building and the Expo. Pick it up at the same place to return to the parking lot.

These free shuttle buses will make continuous loops from the E14 parking lot every 10-15 minutes between approximately 8:00 a.m. and 4:00 p.m. each day.

METER AND LOT PARKING
Metered on-street parking is available along Pennsylvania Avenue, Peabody Drive (between First Street and Sixth Street), and Sixth Street. Visitor parking is also available in Lot E19.

On Saturday only, visitors may also park in lot E2, E11, E13, or E15.

IMPORTANT INFORMATION FOR SCHOOL BUS DRIVERS
From Lincoln Avenue, turn west onto Pennsylvania Avenue. The bus drop-off zone is marked along the curb of Pennsylvania Avenue between the garage and greenhouse. Please drop off your group in this location to alleviate traffic congestion and then proceed to Lot E14 to park the bus. Continue west on Pennsylvania. Turn left (south) onto Fourth Street. Turn right (west) onto Kirby Avenue. Turn left (south) onto Oak Street and then park in Lot E14.