



**NATURALLY ILLINOIS EXPO**  
INSTITUTE OF NATURAL RESOURCE SUSTAINABILITY

**2011**  
**FIELD BOOK**

CREW

DATE

WEATHER

COMPLETED

## 1. BACKYARD DIVERSITY— INSECTS OF ILLINOIS AND BEYOND

What do Monarch butterfly caterpillars eat?

- a. Corn   **b. Milkweed**   c. Oak   d. Pizza

What kind of mouthparts do grasshoppers have?

- a. Chewing**   b. Piercing/sucking  
c. Sponging   d. Siphoning

## 2. FOSSIL INSECTS

What is the oldest fossil insect?

- a. Rhyniognath hirsti**   b. Homo simpson  
c. Homo sapiens   d. Bellatina exquisite

What is amber?

- a. Fossilized honey   **b. Fossilized plant resin**   c. Rock

### 3. THE STREAM TEAM: REPRESENTATIVES OF NATIVE ILLINOIS FISH

What is the Illinois state fish?

- a. Rainbow darter    b. Channel Catfish  
c. Bluegill    d. Largemouth bass

Fish use \_\_\_\_\_ **gills** \_\_\_\_\_ to breathe.

### 4. CRAYFISH: KEYSTONE SPECIES OF CENTRAL ILLINOIS STREAMS

What is the scientific term for crayfish claws?

- a. Mandible    **b. Chelae**    c. Rostrum

Crayfish have how many pairs of walking legs?

**5**

## 5. ILLINOIS MUSSELS: LIVERS OF THE RIVERS

What does a mussel eat?

**Tiny things!**  
**Algae, bacteria, plankton**

Some mussels have teeth! Do they use them to chew their food?

**No**

## 6. MOSQUITOES AND DISEASES

Adult male mosquitoes feed on \_\_\_\_\_ and female mosquitoes feed on \_\_\_\_\_ to produce eggs.

- a. Blood & nectar    b. Blood & blood  
c. Nectar & nectar    d. Nectar & blood

How many mosquito species are there in Illinois?

- a. 20    b. 40    c. about 60    d. 100

## 8. INRS LIBRARIES

The INRS Libraries have information about which topic(s)?

- a. Orchids    b. Recycling    c. Climate    d. Historical artifacts  
e. Minerals    f. All of the above

Members of the public are welcome to visit the Illinois Natural History Survey Library weekdays during regular business hours—no appointment necessary.

TRUE FALSE

## 9. INRS PUBLICATION SALES AND TEACHER INFORMATION

What is the Illinois State Mineral?

- a. Coal    b. Sand    c. Fluorite    d. Lead

What is the Illinois State Bird?

- a. Robin    b. Cardinal    c. Blue Jay

## 10. STORM WATER FLOODPLAIN SIMULATION SYSTEM

What natural disaster causes the most damage in Illinois?

**Flooding**

How does development within the watershed impact storm water runoff and flooding within the watershed and floodplain areas?

**Increases it**

## 11. EARTHQUAKES NOW AND THEN

Earthquakes occur in California but not in Illinois.

TRUE

**FALSE**

What should you do during an earthquake?

**If indoors, drop to the floor, take cover and hold on. If outdoors, move away from buildings, streetlights and utility wires.**

#### 14. UNDERGROUND CAVE DISPLAY AND CAVE EXPLORATION

Cave exploration can be fun, but also can be extremely

\_\_\_\_\_.  
**dangerous**

Cave formations are formed  
by dripping \_\_\_\_\_ containing  
dissolved minerals such as calcite.

**water**

#### 15. UNDERSTANDING GROUNDWATER AND WATER WELLS

Is water from a deep well always protected from contamination?

Yes **No**

Does the water from the sand aquifer ever reach the stream?

**Yes** No

## 16. MAPPING IN 3-D

Glaciers smoothed the land surface.

☒ TRUE ☐ FALSE

Building maps in 3-D is like:

- a. Solving a puzzle    b. Doing detective work  
c. Fun    ☒ d. All of the above

## 17. BUILD ILLINOIS

The muddy forested delta in ancient Illinois produced what valuable natural resource?

- a. Water    b. Iron    ☒ c. Coal    d. Oil

What major geologic process completely rearranged and rebuilt the landscape of Illinois in the last 2 million years?

- a. Earthquakes    ☒ b. Glaciers  
c. Volcanoes    d. Shallow tropical ocean



## 18. ILLINOIS HEIGHT MODERNIZATION PROGRAM

Name a use for LiDAR imagery.

Flood insurance maps, highway planning,  
find your house or a location,  
archaeological mounds, etc.

What do surface topography maps show?

Elevation information, high and low points  
in a county, geologic features at the earth's  
surface, natural and human-made features

## 19. THE CLIMATE OF ILLINOIS

What is the coldest temperature ever reported in Illinois?

- a.  $-10^{\circ}\text{F}$    b.  $-36^{\circ}\text{F}$    c.  $-96^{\circ}\text{F}$    d.  $-127^{\circ}\text{F}$

What is the hottest temperature ever reported in Illinois?

- a.  $98^{\circ}\text{F}$    b.  $117^{\circ}\text{F}$    c.  $136^{\circ}\text{F}$

## 20. COMMUNITY COLLABORATIVE RAIN, HAIL, AND SNOW NETWORK —COCORAHS

What do CoCoRaHS volunteers measure?

**Rain, snow, hail, precipitation**

What instrument is used to measure rain?

**Rain gauge**

## 21. WEATHER ON YOUR BIRTHDAY— MIDWESTERN REGIONAL CLIMATE CENTER

How many Regional Climate Centers are there in the U.S.?

**6**

Name at least three subject areas where climate data is used.

**Agriculture, energy, transportation,  
risk management, water resources,  
environment, health**

## 22. NEW ISGS STATEMAP GEOLOGIC MAPS

What two types of geologic maps are shown in this exhibit?

**Surficial geology  
and bedrock geology**

Name two geologic units shown on the legends and maps.

**Cahokia, Equality, Glasford, Banner,  
Tradewater, or Kinkaid Formations;  
Palestine Sandstone; Menard Limestone;  
New Albany Shale and Pennsylvanian Bedrock**

## 23. FUN WITH GASES, LIQUIDS, AND SOLIDS

What happens when liquid nitrogen warms up?

- a. It contracts   **b. It expands**   c. Nothing

What is dry ice?

- a. Frozen water   b. Frozen ginger ale   **c. Frozen carbon dioxide**

## 24. FUN WITH WATER CHEMISTRY

Solutions with a pH of less than 7 are called what?

- a. Acidic   b. Neutral   c. Basic

The word "polymer" means what?

- a. Large volume   b. Colored solution   c. Many parts

## 25. THE MANY WONDERS OF CARBON DIOXIDE

Carbon dioxide ( $\text{CO}_2$ ) is a colorless and odorless gas.

TRUE FALSE

Levels of carbon dioxide in the atmosphere are higher now than they were 100 years ago.

TRUE FALSE

## 26. KIDS' FOSSIL DIG

How old are these geodes?

**Mississippian age  
(~315–345 million years old)**

What is a fossil?

**Any evidence of past  
animal or plant life**

## 27. BIOMASS TO BIOFUELS AND BIOCHAR

Is it possible to make biofuels and biochar from your yard waste?

**Yes** No

Can we substitute these biofuels to run our cars?

**Yes** No

## 28. WASTE NOT, WANT NOT— BIOFUELS WITHOUT BORDERS

Where can biofuels come from? Circle as many as apply.

- a. Rocks    b. Waste oil    c. Plants

Jatropha grows in what type of climate?

**Tropical; hot and humid; warm**

## 29. MONITORING CONTAMINANTS IN HUMBOLDT PENGUINS

On what continent is Peru located?

**South America**

Scientists can measure contamination in birds by analyzing the

- a. Feathers    b. Blood    c. Feathers and blood

### 30. PHARMACEUTICALS AND HORMONES IN ANIMAL FARM RUNOFF

Where can pharmaceuticals or hormones be detected?

- a. Animal waste
- b. Human waste
- c. Animal and human wastes**

Pharmaceutical residues are emerging contaminants and their disposal is becoming an environmental issue.

**TRUE** FALSE

### 31. PLANTS OF ILLINOIS

Name 3 or 4 habitats where plants live.

**Forest, savanna, prairie, wetland  
(swamp, marsh, stream, fen, seep),  
urban (yards, parks, gardens)**

How many different kinds of plants live in Illinois?

**3248 separate species of vascular plants  
(2279 are native and 969 are non-native)**

### 32. TURTLES OF ILLINOIS

Which of these turtle species is not found in Illinois?

- a. Eastern box turtle
- b. Spotted turtle
- c. Common musk turtle
- d. Green sea turtle

All turtles lay eggs in water.

TRUE FALSE

### 33. IMPACTS OF LEAD FISHING TACKLE

Name one of the animals or plants you saw  
or learned about at this exhibit.

Loon, Daphnia (water fleas), Hyalella  
(amphipod), Asiatic clam (Corbicula),  
Elodea (pond weed)

Name a type of product that contains chemicals  
that may harm the environment.

Fishing sinkers, bathroom cleaner,  
drain cleaner, etc.



### 34. MUD TO PARKS: BENEFICIAL USE OF SEDIMENT AS SOIL

Muddy sediment from many Illinois rivers and lakes can be used as \_\_\_\_\_ when it dries.

- a. glue    **b. soil**    c. paint

Sediment washed from central Illinois farms and cities into rivers and lakes looks most like \_\_\_\_\_ after it settles.

- a. chocolate milk    b. oil    **c. mud**

### 35. NAME THAT BIRD: DIFFERENT APPROACHES TO IDENTIFYING, OBSERVING, AND RECORDING BIRDS

Why does a hawk need sharp talons?

**To capture and eat its food**

Why do birds sing?

- a. To attract a mate    b. To teach their young  
c. To establish a territory    **d. All of the above**

### 36. WHAT HAPPENS TO YOUR ELECTRONIC WASTE?

Electronic waste such as discarded computers, TVs, cameras, printers and cell phones can contain materials such as lead, mercury, gold or silver.

☒ TRUE ☐ FALSE

What percent of electronic devices are recycled after they are taken out of service while the rest are disposed of in landfills?

☒ a. 15% ☐ b. 20% ☐ c. 25%

### 37. MAMMALS

How many kinds of mammals live in Illinois?

60

All mammals have hair or fur at some time in their life?

☒ TRUE ☐ FALSE

### 38. WHAT'S IN OUR RAIN?

How have the concentrations of these two chemical species in rain changed over time? (Circle one for each)

a. Sulfate ion:

Increased

Decreased

b. Ammonium ion:

Increased

Decreased

Chemicals such as mercury can increase in concentration as larger creatures eat smaller ones in the food chain. What is this called?

**Bioaccumulation**

### 39. CLEANER COAL FOR ILLINOIS

It is important for a better environment to remove CO<sub>2</sub> and mercury from coal power plant emissions.

TRUE FALSE

Illinois has abundant coal resources for electric power generation.

TRUE FALSE

## 40. COAL IN ILLINOIS

Illinois coal is burned to generate \_\_\_\_\_ and \_\_\_\_\_.

**electricity and heat**

Coal is made up of the compressed remains of

- a. Dinosaurs   **b. Plants**   c. Animal bones

## 41. GET TO THE CORE: STEAMY SWAMPS AND ICE AGE GLACIERS

The core on display contains sand, silt, and clay deposited by glaciers. How old are they?

- a. **Less than 100 years old**   b. More than 500 million years old  
c. **21,000 to 1 million years old**   d. Less than 20,000 years old

Coal forms over millions of years as plant material accumulates and is compressed. Where would coal most likely form?

- a. Tropical swamps, bogs & wetlands**  
b. Mountain tops   c. Deserts

## 42. FIELD GEOLOGISTS DECIPHER HIDDEN LANDSCAPES AND SEASCAPES IN ILLINOIS

Geologists need to know where they are when doing fieldwork.  
Which three tools do geologists use to navigate?

**Topographic map,  
compass, GPS**

Geologic maps are very colorful.  
What do the different colors represent?

**Different rock formations  
(rock layers)**

## 43. NATURAL RESOURCES THROUGH TIME —SALT PRODUCTION

Saline springs are natural sources of \_\_\_\_\_ used by  
Native Americans and early settlers.

**salt**

Salt is used to preserve \_\_\_\_\_.

**food or meat**

#### 44. NATURAL RESOURCES THROUGH TIME —FLINT KNAPPING

Flint knapping is a technique used by early humans and Native Americans to make \_\_\_\_\_ for hunting game for food.

arrowheads

What materials are used during flint knapping?

Flint/chert, antler, rocks

#### 45. ROCKS, BONES, POTS, AND PEOPLE: WHAT DOES IT ALL MEAN?

What do archaeologists find when they excavate a site?

- a. Stone and bone tools
- b. Pottery
- c. Animal bones
- d. All of the above

Archeology can teach us how people lived in the \_\_\_\_\_.

past

#### 46. SLOTH SAYS.....ICE AGE, WHAT?

What are the rocks called that came from Canada carried to Illinois by glaciers?

- a. Cobbles    **b. Erratics**    c. Limestone    d. Crystals

What is the name of the modern-day ridges on the Illinois landscape that were deposited by glacial ice?

- a. Hills    b. Sand dunes    **c. Moraines**    d. Boundary lines

#### 47. GLACIAL GEOLOGY OF ILLINOIS

Did the Mississippi River once flow through the middle of Illinois?

**Yes**    No

Scratches left by glaciers on some rocks in Illinois are called:

- a. Marks    b. Leftovers    c. Planed surfaces    **d. Striations**

#### 48. CORROSION SHOWCASE

Looking at different kinds of water, can you see the minerals that are dissolved in the water?

Yes ☒ No

Can water dissolve metal pipes?

☒ Yes No

#### 49. WHAT'S IN A WETLAND?

What are 3 things you need to identify a wetland?

**Wetland soils,  
wetland plants, water**

Name one product that comes from a wetland.

**Cranberries**



## 50. HOW STREAMS WORK

What is a delta?

The triangular land area  
at the river mouth

What is a watershed?

The area of land where all of  
the water that is under it or drains off it  
goes into the same place

## 51. TRAVELING SCIENCE CENTER— ILLINOIS BIODIVERSITY AND EXOTIC INVASIVE SPECIES

What is the most diverse group of species on Earth?

- a. Plants    b. Mammals    c. Insects

Which of these is a way exotic species can be moved by people?

- a. Releasing net fish and live bait  
b. Taking firewood from home to a campground  
c. Attaching to your boat  
d. All of the above

# INSTITUTE OF NATURAL RESOURCE SUSTAINABILITY

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