

## ON LINE REPLICATION KIT FORMAT



Linking 4<sup>th</sup> Graders to Resources in Indiana Geography: National GIS Program

2003

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**1. Description of Primary Learners:** fourth grade students, ages nine to ten

- |  |  |
|--|--|
| <input type="checkbox"/> Early Learners              | <input type="checkbox"/> High Schools      |
| <input type="checkbox"/> Primary Schools             | <input type="checkbox"/> Young Adults      |
| <input checked="" type="checkbox"/> Upper Elementary | <input type="checkbox"/> Adult Learners    |
| <input type="checkbox"/> Middle Schools              | <input type="checkbox"/> Intergenerational |

**2. Subject/Topical Areas of Inquiry:** geography, social studies, science, environment, habitat

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Science/Technology | <input type="checkbox"/> Daily Life Skills  |
| <input checked="" type="checkbox"/> Social Sciences    | <input type="checkbox"/> Business/Economics |
| <input type="checkbox"/> Arts/Humanities               | <input type="checkbox"/> Local Community    |
| <input type="checkbox"/> Personal Development          | <input type="checkbox"/> Home, Garden, Auto |

**3. Library Resources/Media Formats Used:** books, web, internet, digital

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Reference Books | <input checked="" type="checkbox"/> Databases |
| <input type="checkbox"/> Periodicals                | <input type="checkbox"/> Collections          |
| <input checked="" type="checkbox"/> Web Sites       | <input type="checkbox"/> Videos, Art Forms    |
| <input type="checkbox"/> Production Tools           | <input type="checkbox"/> Production Equipment |

## ON LINE REPLICATION KIT FORMAT

Linking 4<sup>th</sup> Graders to Resources in Indiana Geography: National GIS Program

**Program Description:** This is a 4-week learning experience on habitats for fourth grade students that sets a learning context from using library research skills, in-class discussions, a hands-on project, and culminating in a field trip, which incorporates geo-technologies and online resources. The field trip to University Library introduces students to technologies and resources specific to Indiana geography.

This learning experience was developed specifically by an Indiana library media specialist and fourth grade teachers for the National Geographic Society's Geography in Action Program's theme for 2003, Habitats. The experience concluded with a half day of activities at IUPUI University Library during National GIS Day in November during which students further explored the use of technology as demonstrated by geography professionals and educators.

**Program Benefits:** This program teaches learners to use geography resources available in their library and geo-technologies available on the Internet.

Past participants valued the program because it provided opportunities to teach library research skills in geography and technology to fourth grade students; it provided new areas for collaboration between the library media specialist and teachers; and finally, it established a connection with IUPUI as a source for providing online resources and technology for use in elementary school curriculum.

**The Roles the Librarian Plays** (check all that apply):

- Information Specialist
- Instructor in Information Literacy/Inquiry Skills
- Partner to Teachers/Instructors/Subject Experts
- Program Advocate and Administrator

## ON LINE REPLICATION KIT FORMAT

Linking 4<sup>th</sup> Graders to Resources in Indiana Geography: National GIS Program

### LEARNING OBJECTIVES FOR PRIMARY LEARNERS

Learning Dimension	Content Objectives	Information Literacy Objectives
<b>Concepts</b>	<p>Students will learn how to conduct research using library research skills.</p> <p>Students will have an understanding of the physical environment of a habitat and the mankind's impact on that habitat. (IS Science 1: 4.1.7)</p> <p>Students will understand the comparing/contrasting the concepts of fantasy versus reality. (IS English 2: 4.2.4 &amp; 4.2.5)</p> <p>Students will learn about online geography resources and geo-technology (IS Social Studies 3: 4.3.9 &amp; 4.3.10)</p>	<p>Indiana Academic Standards Fourth Grade-- Related to Program's Concepts and Practices</p> <p><b>NOTE:</b> See 3.1 for full explanation of Indiana Academic Standards referenced in objectives</p>
<b>Practices</b>	<p>Students access information in a variety of formats.</p> <p>Students compare/contrast fantasy and reality settings for selected habitats.</p> <p>Students create posters on fantasy/reality habitat settings based on library research and classroom discussion.</p> <p>Students use technology to interpret maps, historical aerial photography, and environmental data</p>	
<b>States of Being</b>	<p>Students are confident in using library for research and know what geography resources are available (print, online, people)</p>	

These objectives correlate with established State standards.

### **3.1 Indiana Academic Standards**

#### **Indiana Academic Standards**

#### **Fourth Grade**

<http://www.doe.state.in.us/standards/grade04.html>

#### **Science**

##### **Standard 1**

The Nature of Science and Technology

Technology and Science

**4.1.7** Discuss and give examples of how technology, such as computers and medicines, has improved the lives of many people, although the benefits are not equally available to all

#### **English/Language Arts**

##### **Standard 2**

READING: Comprehension

**4.2.4** Evaluate new information and hypotheses (statements of theories or assumptions) by testing them against known information and ideas.

**4.2.5** Compare and contrast information on the same topic after reading several passages or articles.

#### **Social Studies**

##### **Geography**

##### **Standard 3**

Environment and Society, Uses of Geography

**4.3.9** Create maps of Indiana at different times in history showing regions and major physical and cultural features; give examples of how people in Indiana have modified their environment over time.

**4.3.10** Read and interpret thematic maps — such as transportation, population, and products — to acquire information about Indiana in the present and the past.

## ON LINE REPLICATION KIT FORMAT

### TOOL KIT 1: INSTRUCTIONAL GUIDE

This is a guide for the **librarian, teacher, and/or subject expert** to follow when replicating the program.

#### TABLE OF CONTENTS

This Instructional Guide contains these components, in order of use:

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3. Introduction to GIS, National GIS Day Activity: University Library GIS Specialist	4.3
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4. Human impact on habitats, National GIS Day Activity: Geography Educators Network of Indiana (GENI)	4.4
5. Lilly Arbor Project, National GIS Day Activity: Center for Earth and Environmental Science	4.5
6. Think Map Software, National GIS Day Activity: WTH Engineering, Inc.	4.6

#### **4.1 Library Media Specialist: Habitats Research Session**

Prep time: varies based on resources available in library. Library media specialist should plan on approximately a half day (4 hours) for selection and short presentation preparation.

Each class chooses one habitat to study, for example, desert, tundra, rain forest, ocean. Teacher should communicate choice to library media specialist

Prior to classroom visit, the library media specialist prepares display of habitat books based on the class selections and resources available in the school library.

Library media specialist gives each class a short presentation about the library resources available and the rest of the library time (30-40 minutes) is spent on researching their chosen habitat. Library media specialist should be available to assist students as they conduct their research.

## 4.2 4<sup>th</sup> Grade Teacher: Classroom Activity Guide

### Indiana State Academic Standards: 4<sup>th</sup> Grade

#### Science: Standard 1

#### The Nature of Science and Technology

#### Technology and Science

**4.1.7** Discuss and give examples of how technology, such as computers and medicines, has improved the lives of many people, although the benefits are not equally available to all

#### English/Language Arts: Standard 2

#### READING: Comprehension

**4.2.4** Evaluate new information and hypotheses (statements of theories or assumptions) by testing them against known information and ideas.

**4.2.5** Compare and contrast information on the same topic after reading several passages or articles.

**Time:** 3 classroom sessions

#### Materials:

- One piece of paper per student, poster-sized, divided into two sections
- Choice of crayons, colored pencils, markers, paints
- Classroom or space with desks or tables for students to work on posters

#### Cost:

- Pack of 25, white, 22" x 28" poster board, \$22.75

The classroom teacher leads two separate discussions on the chosen habitat after the library research session. (30 to 50 minutes depending on classroom schedule).

- The first classroom discussion is about the fantasy world the students envision for the habitat. Questions posed may include scenarios such as putting a McDonald's under the ocean. Would it work?
- The second discussion focuses on the real environment in the habitat. What is reality under the sea? Ask students to reflect and talk about predators and prey, climate, shelter, food and other factors of the habitat.

The last session is used to create habitat posters and write paragraphs about the chosen habitat.

#### Poster Criteria:

First section is a fantasy habitat

- Choose from Urban, Forest, Ocean/Coast, Prairie, Freshwater, or Extreme setting
- Fantasy section must include:
  - Animals ( any animal will suffice for the fantasy)
  - Food (this could be all McDonald's if they want)
  - Water (could be soda if they want)

- Shelter
- Plus any other items they want to include
- Fantasy picture can be labeled if description of items is necessary
- If picture does not contain labels it must be clear what the habitat contains and how it functions
- Must be colored

The reality side of the habitat poster must be based on the same habitat setting as the fantasy picture

- Reality section must include:
- Predators
- Prey
- Decomposers
- Shelter
- Food
- Water
- Must be a functioning habitat supporting all animals and plant life in the habitat
- Must be colored

All animals and plants that are in the reality section must be correctly placed, meaning you can't have a shark in a freshwater habitat, etc.

- Reality pictures can be labeled if description of items is necessary
- If picture does not contain labels it must be clear what the habitat contains and how it functions
- Students must label both sides of the poster either reality or fantasy
- Students must put their names, ages, school and grad on the back of the posters

Display posters in classroom or contact Robin Crumrin, [rcrumrin@iupui.edu](mailto:rcrumrin@iupui.edu), to arrange for display at IUPUI University Library National GIS Day Event.

### **4.3 Introduction to GIS, National GIS Day Activity: University Library GIS Specialist**

Presenter: Jenny Johnson, GIS Specialist

Session time: 20-30 minutes

Resources: classroom or meeting room with Internet connection, computer and display unit

IUPUI University Library will provide classroom and technology. Contact Robin Crumrin, rcrumrin@iupui.edu.

#### **Introduction to GIS**

##### **Indiana Academic Standards: 4<sup>th</sup> Grade Social Studies-Geography Standard 3 Environment and Society, Uses of Geography**

**4.3.9** Create maps of Indiana at different times in history showing regions and major physical and cultural features; give examples of how people in Indiana have modified their environment over time.

**4.3.10** Read and interpret thematic maps-such as transportation, population, and products-to acquire information about Indiana in the present and the past.

Basic concepts to be covered:

What is GIS?

- Geographic Information System

What does it do?

- Uses geography and other data together to give us more information about the world around us.

What is data?

- information
- collection of known facts, measurements
- records of observations – anyone can be an observer
- can be processed by a computer

Using GIS we can make models of places (cities, states, the whole earth).

- Lets us see a picture instead of just read words and numbers on paper. Easier to understand when we use a picture.

Different kinds of models used for different purposes:

Geographic

- **roads**
- **rivers, lakes, streams**
- **railroad tracks**
- **locations of businesses/schools/houses**

## Ecological

- **trees and other plants**
- **air quality readings**
- **weather related data**

## Other

- **population**
- **age, education, income of people**
- **age of buildings**

At IUPUI we have **several different models** of the counties in central Indiana.

- EACI -<http://atlas.ulib.iupui.edu>
  - o Available data (brief):
    - Census – some kinds of data available on the site – people can download this data to use in GIS software
      - Total population
      - Age
      - Education
      - Income
    - Environmental data
      - Soils
      - Trees
      - Watershed areas
  - o Historic atlases (brief):
    - See who owned land more than 100 years ago
    - Family research
  - o Aerial photos
    - Locate features and compare different year sets.
- Educational Resources
  - o County Locator
    - Find a county by pointing to it's name
    - Find county name by pointing to area on the map
    - Underlines mean we have more info on that county
  - o Climate data
    - Two forms – scanned from printed reports, digital calendar
    - Years of coverage are different – digital has older data
    - Check birthdate or other dates in history
  - o Satellite imagery
    - What is satellite imagery?
    - Zoom in on area of interest
    - Identify features the students might know
  - o Tornado data
    - Identify feature – shows data about a particular touchdown
    - Address finder – locate school

#### **4.4 Human impact on habitats, National GIS Day Activity: Geography Educators Network of Indiana (GENI)**

Presenter: Kathy Kozenski, GENI

Session time: 20-30 minutes

Resources: classroom or meeting room for 20-30 students

IUPUI University Library will provide classroom. Contact Robin Crumrin, rcrumrin@iupui.edu.

#### **Indiana Academic Standards: 4<sup>th</sup> Grade Social Studies-Geography Standard 3 Environment and Society, Uses of Geography**

**4.3.10** Read and interpret thematic maps-such as transportation, population, and products-to acquire information about Indiana in the present and the past.

Session covers an abbreviated version of the lesson plan, FRED the FISH. The entire lesson plan is included for the convenience of the participating librarian(s) and teacher(s). Presenter will cover procedures 1. through 2.j. for the purposes of the National GIS Day activity.

**Hint:** Students love this activity. Be prepared for an enthusiastic response and some spills. Provide some paper towels!

### **FRED the FISH**

From: Environmental Education Coalition

Fort Wayne, IN; adapted from Karen Lind by Kate Ferguson

Updated Fall, 2002

**Purpose:** A fun activity to engage students in the study of human impact on environmental systems (specifically rivers), and a great activity to further students' exploration of a variety of themes or topics.

#### **National Geography Standards:**

2. How to use mental maps to organize information about people, places and environments in a spatial context.
4. The physical and human characteristics of places.
14. How human actions modify the physical environment.
15. How physical systems affect human systems.
16. The changes that occur in the meaning, use, distribution, and importance of resources.
17. How to apply geography to interpret the past.
18. How to apply geography to interpret the present and plan for the future.

**Indiana Social Studies Academic Standards:**( A variety of standards across all disciplines could be addressed depending upon the direction that you want to take this activity.)

First Grade – 1.1.6, 2.5, 2.6, 3.4, and 3.8

Fourth Grade – 4.3.10 and 5.5

Eighth Grade – 8.2.12, 3.5, 3.8, 3.9, and 3.11

High School World Geography – 1.3, 1.5, 1.7, 2.3, 2.7, 3.10, 4.3, 4.17, 4.19, 5.1, 5.6, 5.9, and 5.10

**Objectives:** (Objectives may vary depending upon the direction you take the activity.)

Upon completion of this lesson/activity, students will be able to...

1. Retell the story of Fred the fish.
2. Create a story from their own imagination of a similar nature.
3. Identify a real-life situation, in their own community, similar to the Fred the fish situation.
4. Identify the causes of the situation in their community.
5. Evaluate the community's situation.
6. Develop possible solutions to the community's situation.
7. Engage in activity to resolve the community's problem.

**Materials Required:**

- one clear plastic tub filled 1/3 with water
- a straight, strong wire with a "fish" on the end (a piece of heavy, white cloth works well)
- a canister filled with the appropriate items (salt, oil, soap,...)
- access to on-line resources
- local newspapers

**Procedures:**

1. Briefly introduce the session to the students as a study of human and environment interaction. Request for two volunteers: one to be Fred the Fish and one to be the "polluter".
2. Teacher to read the following text while Fred the Fish and the "polluter" act accordingly.
  - a. Imagine a clean river as it meanders through a protected wilderness area. In this river lies Fred the fish. How does Fred feel? Fred has lived in this stretch of the river all of his life, but now he decides to go on an adventure and explore the area downstream. (Fred should be happily swimming in the clean water.)
  - b. Fred swims into farm country. He passes a freshly plowed riverbank. It begins to rain, and some soil erodes into the river. How does Fred feel? (The soil should be dumped into the river.) (Silt and soil are one of the top "pollutants" of water-ways.)
  - c. Fred nears a suburban housing development. Some fertilizer from the farms and the lawns washed into the river a while back. The fertilizer made the plants in the river grow very fast and thick. Eventually, the river could not furnish them with all of the nutrients that they needed. The plants died and are starting to decay. Their decomposition is using up some of Fred's oxygen. How does Fred feel? (The fertilizer should be dumped into the river. Use paprika as the color and odor are effective.)
  - d. Fred swims under a highway bridge. Some cars traveling across the bridge are

leaking oil. The rain is washing the oil into the river below. How does Fred feel? (The oil should be dumped into the river. Use syrup.)

e. During a recent cold spell, ice formed on the bridge. County trucks spread salt on the road to prevent accidents. The rain is now washing salty slush into the river. How does Fred feel? (The salt should be dumped into the river.)

f. Fred swims past the city park. Some picnickers did not throw their trash into the garbage can. The wind is blowing the trash into the river. How does Fred feel? (The trash should be dumped into the river. Paper dots from a 3-hole punch are easy.)

g. A family is boating near the park. They are throwing their empty cans of soda into the river. How does Fred feel? (The soda cans should be dumped into the river. Pop tops.)

h. Several factories are located downriver from the city. Although regulations limit the amount of pollution the factories are permitted to dump into the river, the factory owners do not always abide by the regulations. How does Fred feel? (The factory waste should be dumped into the river. Soapy water with lots of bubbles.)

i. The city's Waste Water Treatment Plant is also located along this stretch of the river. The pollution regulations are not as strict as they should be, and a section of the plant has broken down. How does Fred feel? (The Waste Water should be dumped into the river. Two drops of red food coloring.)

j. Finally, Fred swims past a hazardous waste dump located on the bank next to the river. Rusty barrels of toxic chemicals are leaking. The rain is washing these chemicals into the river. How does Fred feel? (The toxic chemicals should be dumped into the river. Two drops of green food coloring.)

3. Discuss the activity. Introduce the students to several real-life situations that exist similar to the Fred the Fish simulation: Environmental Protection Agency Superfund Sites in Fort Wayne along the river; new housing developments in the community with soil runoff during a rain due to lack of land coverage (straw); trash along the streets to and from school; and other grade appropriate situations (local, state, national, and global).

4. Visit the local wastewater treatment facility. These are well educated, hard-working people dealing with a variety of environmental, political, corporate and financial constraints.

5. Find out "where" your trash goes. Invite a representative from the local land-fill / incinerator to come to the class and answer questions and provide students with solutions. Or visit the land-fill / incinerator. Personally seeing the quantity of trash accumulated by the community will definitely make an impact.

6. Devise alternative or additional solutions to a local environmental issue. Take action. Write to the mayor, newspaper, governor,... Research similar situations (and possible solutions) in other communities. Take out an advertisement in the newspaper encouraging the community to become involved.

7. Follow-up this activity with the "To Zone or Not To Zone" activity from Project WILD – Elementary Book, pgs. 193 and 194. This activity introduces a human land-use scenario that is appropriate for all grade levels. Tie the land in question to Fred's river. (Project WILD web site [www.in.gov/dnr/fishwild/about/edcenter/projectwild.htm](http://www.in.gov/dnr/fishwild/about/edcenter/projectwild.htm))

## 4.5 Lilly Arbor Project, National GIS Day Activity: Center for Earth and Environmental Science

Presenter: Kara Salazar, CEES

Session time: 20-30 minutes

Resources: classroom or meeting room for 20-30 students.

IUPUI University Library will provide classroom. Contact Robin Crumrin, rcrumrin@iupui.edu.

### Indiana Academic Standards: 4<sup>th</sup> Grade Social Studies-Geography Standard 3 Environment and Society, Uses of Geography

**4.3.10** Read and interpret thematic maps-such as transportation, population, and products-to acquire information about Indiana in the present and the past.

This session gives an overview of Lilly Arbor Project. See project description below. The main premise of the presentation is a hands-on introduction to “portable” geo-technology through Global Positioning Satellite (GPS) Units. Students are introduced to several different types of GPS units and discuss how use of this technology in everyday life and in improving the habitats of Indianapolis, specifically.

Additional information on the Lilly Arbor Project from the CEES web site, <http://www.cees.iupui.edu/Research/ARBOR/index.htm>.

### The Project

Approximately 1,400 trees have been planted in an eight-acre strip of land between 10th Street and New York Street along the White River in downtown Indianapolis as part of an experimental floodplain reforestation program. The 1-mile stretch of riverbank is now evolving into a wildflower meadow and shrub/sapling habitat as the trees grow and other species gradually recolonize the area. The massive experiment will test the best way to restore riverbanks by comparing the three most common methods for planting trees to restore native forests. A minimum of five years of monitoring and assessment will provide valuable data on reforestation strategies.



### Planting Styles

There are currently three commonly used methods for floodplain or bottomland forest restoration in the Midwest. Each method is utilized in two one-acre plots and compared to two unplanted control plots. The site is divided into a North and South section, each with four one-acre plots. The trees have been planted in the following ways:

- Control Plots a) Mow and herbicide b) No planting
- Containerized plants a) Mow and herbicide a) 310 trees in 3 gallon containers planted on 12 foot centers

- Bare root seedlings a) Mow and herbicide b) Cut turf in random pattern c) 400 seedlings planted on 12 foot centers
- Bare root seedlings a) Mow and herbicide b) Cut turf in rows c) 400 seedlings planted on 12 foot centers d) Weed inhibitor mat around trees e) Native wild rye grass between rows to control competition f) fertilize

## Tree

## Species

## Planted

The 12 tree species utilized in the experiment are based on an inclusive riparian tree list recommended to the Lilly ARBOR Project Advisory Board and include those species whose geographic range occur within the Tipton Till Plain Natural Region. The Advisory Board further excluded extremely rare or habitat restricted species (ie. rock elm and blue ash) as well as American elm due to Dutch elm disease killing the tree before it gets to canopy height.

## Educational Impact

The educational impact of the Lilly ARBOR Project is far-reaching and exciting. It offers a much-needed outdoor classroom and study area. Environmental education and outreach programs have been designed to reach K-12 teachers and students, the campus and surrounding community, and environmental professionals. Through teacher professional development workshops, children’s camps, and school group instruction, the Lilly ARBOR project site provides outdoor ecological field experience with a watershed, a riparian system, and wetlands as well as exposure to research techniques on topics such as population studies of flora and fauna and water quality analysis. Through the CEES service learning program, IUPUI faculty and staff from four schools and professional environmental managers work with area high school and middle school students, IUPUI students, other Indianapolis-area university students, and community members to conduct research and maintain the restoration.



Corporate groups and environmental professionals also utilize the restoration site for employee volunteer days and group tours. The interdisciplinary collaboration and use of the Lilly ARBOR project has permitted several hundred individuals to contribute to the research and maintenance of the site while educating them about the importance of maintaining biological diversity and participating in environmental stewardship. *“We’re building a forest – and we’re doing it with scientists, students, teachers, civic groups, and corporate and community volunteers.”*

## **4.6 Think Map Software, National GIS Day Activity: WTH Engineering, Inc.**

Presenter: Ben Narwold, K-12 Outreach coordinator, WTH Engineering, Inc.

Session time: 30 minutes

Resources: classroom with computer workstations for 20-30 students; Think Map software

IUPUI University Library will provide classroom and technology. Contact Robin Crumrin, rcrumrin@iupui.edu.

### **Introduction to GIS**

#### **Indiana Academic Standards: 4<sup>th</sup> Grade Science, Standard 1-The Nature of Science and Technology Technology and Science**

**4.1.7** Discuss and give examples of how technology, such as computers and medicines has improved the lives of many people, although the benefits are not equally available to all.

Students learn about the use of geo-technologies and mapping through hands-on activities incorporating local county data sets within the Think Map software. Students gain a different perspective of their own habitat: trees, buildings, aerial photography, roads, airports, etc.

Think Map is software developed by a local engineering firm, WTH that allows the user to view, find, analyze, and make changes to GIS data. The Think Map activity allows students to act as 911 emergency dispatchers sending out emergency vehicles to their local airport. This provides students with a real-life situation of the use of a geo-technology and its use to improve the lives of many people.

## ON LINE REPLICATION KIT FORMAT

### **TOOL KIT 2: LEARNERS' MATERIALS**

There are no special learners' materials to be distributed for this program.

## ON LINE REPLICATION KIT FORMAT

### TOOL KIT 3: PROGRAM ADMINISTRATION

This is a guide for the librarian or primary partner who is taking responsibility for initiating the program, coordinating the efforts of all partners, and tabulating and reporting the evidence-based program measures

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## 6.1 Promotion and Advocacy Tools: National GIS Day Overview

According to the GIS Day™ website, <http://www.gisday.com>:

*GIS Day is part of the National Geographic Society's exciting new initiative, [Geography Action](#), which is a year-long initiative encompassing key educational achievements such as GIS Day and Geography Awareness Week. The theme for 2003 was "Habitats." In addition to events such as GIS Day and Geography Awareness Week, there will also be many worldwide activities supporting geography action, with their goal being to engage people in learning and caring about geography.*

*The National Geographic Society has sponsored Geography Awareness Week since 1987 to promote geographic literacy in schools, communities, and organizations, with a focus on the education of children. GIS Day 2003 was held on Wednesday, Nov. 19, 2003. Geography Awareness Week 2003 was held November 16-22, 2003.*

The GIS Day™ website supplied us with all of the tools we needed to plan the day including pointing us to a topic, giving sample lesson plans, referring us to the national standards and, most importantly, connecting us to a handbook, [How to Host a Successful GIS Day™ Event](#) that was invaluable in planning the IUPUI University Library event.

If planning a GIS Day of your own, we highly recommend consulting the following GIS Day™ materials available on the Web:

- GIS Day™ website: <http://www.gisday.com>
- [How to Host a Successful GIS Day™ Event](#), handbook, [http://www.gisday.com/cd2002/whitepaper/hosting\\_a\\_successful\\_gisday.pdf](http://www.gisday.com/cd2002/whitepaper/hosting_a_successful_gisday.pdf)
- [GIS Day™ Media Guide](#), [http://www.gisday.com/cd2002/mediaguide/media\\_guide.pdf](http://www.gisday.com/cd2002/mediaguide/media_guide.pdf)

## 6.1.A Sample National GIS Day Announcement

### The IUPUI University Library Gateway eNews

#### IUPUI To Observe GIS Day With Showcase Of High-Tech Geography Tools

The IUPUI University Library will showcase high-tech tools that let users visualize geography in ways that bring lots of information about a place to life, whether it's mapping traffic congestion or tornado touchdowns and their paths across Indiana.

It's all part of GIS Day on November 19, a special day set aside nationwide to let the public explore Geographic Information Systems (GIS). GIS a tool that helps users visualize and analyze large amounts of geographic data. It is widely used in fields such as health care, government, transportation, and environmental protection.

The GIS Day program at IUPUI University Library will run from 9 a.m. to 3 p.m. The library is located at 755 W. Michigan St., Indianapolis, IN. Parking is available at the North Street garage, 819 W. North Street. The event is free to the public.

Nationally, GIS Day is sponsored principally by the National Geographic Society, the Association of American Geographers, University Consortium for Geographic Information Science, the United States Geological Survey, the Library of Congress, Sun Microsystems, Hewlett-Packard, and ESRI.

IUPUI's GIS day program includes posters, software applications and research presentations by local organizations involved with GIS data and applications. Presenters include:

- Qihao Weng, Indiana State University, who will speak about "Urban Heat Islands."
- Jim Stout, City of Indianapolis, who will present on the use of LiDAR data in the creation of contour maps of Indianapolis.
- Kevin Edmondsun, WTH Engineering, who will discuss uses of Think Map software for Marion county data.

The day will also feature IUPUI research including presentations from the Center for Earth and Environmental Science, The Geography Educators Network of Indiana (GENI), and the IUPUI University Library, which will showcase tornado data from its Electronic Atlas of Central Indiana.

Central Indiana Tornado Statistics was created by the IUPUI Digital Library using data compiled by the National Oceanic and Atmospheric Administration (NOAA), retrieved from their web site in May 2001. Tornado touchdowns and paths in central Indiana from 1950 to 1995 have been plotted to create a county-by-county view of tornado activity in the region. A statewide view of touchdowns in Indiana and surrounding areas has been created by the IUPUI Department of Geography. It covers the period from 1950 to 2001

and is based on data from the National Climatic Data Center's Severe Storms Database.

A fourth-grade class from Mount Comfort elementary school will round out the event with a poster presentation of habitats.

Local support is provided by the IUPUI University Library, The City of Indianapolis, WTH Engineering, Indiana State University, The Geography Educators Network of Indiana and the IUPUI Center for Earth and Environmental Studies.

For more information consult the IUPUI GIS Day website:

<http://atlas.ulib.iupui.edu/gisday/gisday.html>

## 6.1. B Example of Post-Event Website Featuring Student Posters

<http://atlas.ulib.iupui.edu/mtcomfort/>

### GIS Day 2003 at IUPUI

On November 19, 2003, fourth grade students from Mt. Comfort School in Hancock County, Indiana visited IUPUI for GIS Day 2003. During their visit they were introduced to [Think Map](#) software from [WTH Engineering, Inc.](#), the [Lilly Arbor Project](#) of the [Center for Earth and Environmental Science](#) and the [Geography Educators' Network of Indiana \(GENI\)](#), as well as the University Library's own [Electronic Atlas of Central Indiana](#).



Following introductory sessions, the students viewed their own artwork on display in the lower level of University Library and had an opportunity to ask questions one-on-one of the presenters.

Finally, they attended a wrap-up session where they were quizzed on what they had learned about GIS during the day and prizes were awarded to those with the quickest correct answers.



Media Specialist, Dana Hochstedler, who had arranged the field trip, accepted free Think Map software from Ben Narwold of WTH Engineering, Inc. for the students to use back at school.

Get a closer view of the [habitat pictures](#) the students drew.

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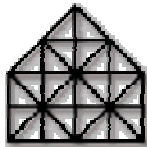
**Created:** 13 January 2004, BAS

**Updated:** 16 January 2004, BAS

**Comments:** Jennifer Johnson, [jennajoh@iupui.edu](mailto:jennajoh@iupui.edu)

This page is sponsored and maintained by IUPUI University Libraries.

**URL:** <http://atlas.ulib.iupui.edu/mtcomfort/>



[IUPUI University Library](#)



[IUPUI Home Page](#)

### **6.1.C Sample Agenda: National GIS Day at University Library**

Participants: 4 4<sup>th</sup> grade classes (120 students), teachers, library media specialist

10:00 Students arrive at University Library (2<sup>nd</sup> floor entrance). They are greeted by the Event Coordinator (may include 2-3 library staff volunteers) and ushered to the session rooms (2115E, G, J and UL 1130)

10:15-12:15

Morning activities are divided into 4 mini-sessions beginning at 10:15. Each session lasts approximately 25 minutes with a 5 minute passing period. Each mini-session is repeated for each 4<sup>th</sup> grade class.

2115E GENI presentation

2115G IUPUI University Library presentation

2115J CEES presentation

1130 WTH Engineering presentation

12:15-12:30

At 12:15 students and teachers gather in lower lobby to see their posters displayed on lobby walls. Group pictures may be taken. Students may visit booths in lobby manned by campus participants there for other National GIS Day activities.

12:30-12:45

A brief wrap up session for all participants is held at 12:30 in the University Library Auditorium (UL 0130). Students are given small bags with pencils, GIS Day buttons and assorted inexpensive gifts.

12:45

Students return to buses for brown bag lunches. Buses return students to school.

## 6.2 Partners' Role/Descriptions

- Project Manager (IUPUI University Library Director of Digital Initiatives): Obtains appropriate approval from IUPUI University Library Dean; prepares and monitors budget; creates and monitors time line; gathers and tabulates measures; writes reports
- National GIS Day Event Coordinator (IUPUI University Library GIS Specialist): Plans National GIS Day event schedule; arranges participation of students and teachers through the Library Media Specialist; arranges for participation of Subject Experts; arranges for display of student projects at library;
- Library Media Specialist (elementary school): Prepares and conducts library research instruction; coordinates field trip with school, University Library and teachers, and assists with setting schedule of activities with National GIS Day Event Coordinator; obtains appropriate approvals for students' participation and travel to National GIS Day event (may include coordinating travel by school bus, arranging for chaperones, arranges brown bag lunch for students if trip covers the lunch hour)
- Teacher(s) (fourth grade): Prepare and conduct classroom activities, supervise students during field trip, provide feedback on field trip activities
- Subject Experts: Design and present age-level appropriate activities for students; participate in National GIS Day event at University Library
- IUPUI University Library Dean: grants approval for hosting event
- Elementary School Principal: grants approval for school's participation in event

## 6.2.A Subject Experts Contact Information

The following subject experts may be contacted for information concerning a habitats-themed event or for other geography-related educational programs.

**Kathy Kozenski**, Director, GENI

[geni@iupui.edu](mailto:geni@iupui.edu)

<http://www.iupui.edu/~geni/>

Geography Educations Network of Indiana

GENI:

- Promotes the value and importance of geography in Indiana Schools.
- Provides a forum where teachers can exchange ideas.
- Encourages an excellence in the teaching of geography through classroom techniques.

To carry out its mission, GENI:

- Sponsors workshops and summer institutes.
- Holds conferences and meetings with high-interest programs.
- Recognizes excellence in teaching by giving awards and grants.
- Distributes the GENI Newsletter with news of workshops, meetings, and classroom ideas.
- Maintains a file of maps, lesson plans, and other classroom materials for use by GENI members.

**Kara Salazar**, Education Outreach Coordinator, CEES

[salazark@iupui.edu](mailto:salazark@iupui.edu)

<http://www.cees.iupui.edu>

Center for Earth and Environmental Science

Discovery Based Education

The Center for Earth and Environmental Science (CEES) at IUPUI is an interdisciplinary academic center that seeks to promote awareness of earth and environmental science in Indiana and improve the science aptitude of Indiana residents.

CEES is located in downtown Indianapolis. The city, as well as other areas in Marion County, are currently undergoing extensive urban renewal and rapid expansion into surrounding rural communities.

CEES' academic programs are designed to raise awareness of opportunities for sustainable interactions with the environment by highlighting the sensitivities and interconnectedness of our natural surroundings and the importance they have for our well being.

Ben Narwold, Educational Outreach Coordinator, WTH Engineering, Inc.  
<http://www.wthengineering.com/>

WTH Engineering, Inc.  
567 W. Westfield Blvd  
Indianapolis, IN 46208  
Ph: 317-259-0105  
888-225-5984  
Fax: 317-259-1423

WTH Engineering, Inc. was established in 1967 and provides quality Engineering & GIS Services to municipalities and private industry. Currently has a staff of over 40 people in two divisions that compliment each other to create one company that has the insight to create integrated solutions for our customers. WTH has added an Education Outreach Coordinator to its staff.

### 6.3 GIS Day Timeline

#	Activity	Activity Owner			Spring/Summer	September Column1	October Column2	November Column3	December Column4
		PM	PC	Collab					
1	LMS arranges to participate in National GIS Day	x	x	x	x				
2	Activity approved by Dean Lewis	x			x				
3	Recruit GIS Day Subject Experts (GENI, WTH, CEES)	x	x	x	x				
4	Plan activities; set tentative agenda	x	x			x			
5	Reserve UL facility	x	x			x			
6	Prepare GIS day agenda		x	x			x		
7	LMS/teachers/students work on GIS day projects			x			x		
8	Finalize trip plans with LMS & teachers		x	x				x	
11	Plan room logistics for GIS Day		x					x	
9	Publicize event & send out invitations	x	x					x	
10	Arrange for refreshments & prizes		x					x	
11	Hold event	x	x	x					x
12	Send out thank yous	x	x						x
13	Send out follow-up surveys (measures)	x							
14	Compile data & write report	x	x						
<b>Space:</b>		student classrooms, UL technology classroom & meeting rooms, UL lobby for display of student projects							
<b>Equipment:</b>		computers/projectors for GIS Day activities							
<b>Materials:</b>		prizes, refreshments							
<b>Other Resources:</b>		GIS software							

### 6.3.A Library Media Specialist & Teachers Timeline

#	Activity	Activity Owner		Spring/Summer	September Column1	October Column2	November Column3	December Column4
		LMS	Teacher(s)					
1	Contact UL for GIS Day participation	x		x				
2	Recruit teachers	x		x				
3	Plan library instruction & classroom activities	x	x		x			
4	Obtain approval for UL field trip & travel arrangements	x	x		x			
5	Complete library & classroom activities (includes pre/post-testing)	x	x			x		
6	Participate in National GIS Day at UL	x	x				x	
7	Report pre/post-testing results to UL	x	x		x			x
<b>Space:</b>		school library, student classrooms						
<b>Equipment:</b>		library materials for research, posterboard (1 per student), crayons						
<b>Materials:</b>		supplies for student projects (to create posters), prizes, refreshments						
<b>Other Resources:</b>		buses for transportation to UL						

### Key to 6.3 & 6.3.A

PM=Project Manager  
 PC=National GIS Day Event Coordinator  
 LMS=Library Media Specialist  
 UL=IUPUI University Library

## **6.4 Measurement Guidelines: Student Measurements**

The intent of the pre-test is to assess the students' understanding of the chosen habitat prior to the library and classroom instruction sessions. It is also to assess what resources they would consult (reference books, the Internet, etc.). The post-test is to test their ability to contrast/compare mankind's impact in the chosen habitat. The post-test goal is to have 85-90% of the students be able to consider the ramifications of development in the environment (fantasy versus reality). Another goal is to have 85-90% of the students use library resources to answer questions about the chosen habitat, consult a librarian or a geography professional.

### **Pre-Test**

1. What animals live in [chosen habitat]? What do they eat? How do they live?
2. Name two places you could find answers to the question above.

### **Post-Test**

1. What would happen to the animals in the [chosen habitat] if you opened a MacDonald's there? Name the animals and tell what you think might happen.
2. Where would you look to find an answer to that question? Who might you ask?

#### **6.4.A Questionnaires: National GIS Day at IUPUI University Library**

The following questionnaires may be used by the event planners to evaluate library media specialist and teacher satisfaction with the event and to make plans for future events.

##### **Teacher Questionnaire**

1. What did you learn by working on the National GIS Day project?
2. Would you participate again?
3. What were your major insights that you would use in other projects?
4. What do you wish could be changed if you were to participate in the future?
5. Do you see new possibilities to work with your library media specialist? If so, what would those be?

##### **Library Media Specialist Questionnaire**

1. What did you learn by working on the National GIS Day project?
2. Would you participate again?
3. What were your major insights that you would use in other projects?
4. What do you wish could be changed if you were to participate in the future?
5. Do you see new possibilities to work with your teachers? If so, what would those be?

## 6.5 Project Resources with Budget

### National GIS Day Budget

**Note: Event costs were waived by IUPUI University Library & Subject Experts**

CEES Outreach Coordinator (2 days prep / 1 day presentation)	\$600.00
WTH Outreach Coordinator (2 days prep / 1 day presentation)	\$1,000.00
GENI Director (2 days prep / 1 day presentation)	\$300.00
Event Give-aways (covered pencils & small gifts for 120 students)	\$150.00
Refreshments (doughnuts & juice for presenters)	\$25.00
University Library Computer Classroom	\$400.00
University Library Meeting Rooms (3 @ \$200 each)	\$600.00
National GIS Day Event Coordinator (4 days prep/ 1 day presentation)	\$1,125.00
Program Manager (4 days prep/ 1 day presentation)	\$1,590.00
<b>Total In Kind Contribution</b>	<b>\$5,790.00</b>

### Student Project Costs

Posterboards (supplied by schools; 4 packs @ 22.75 each)	<b>\$91.00</b>
See p. 4.2: 4 <sup>th</sup> Grade Teacher: Classroom Activity Guide for details	