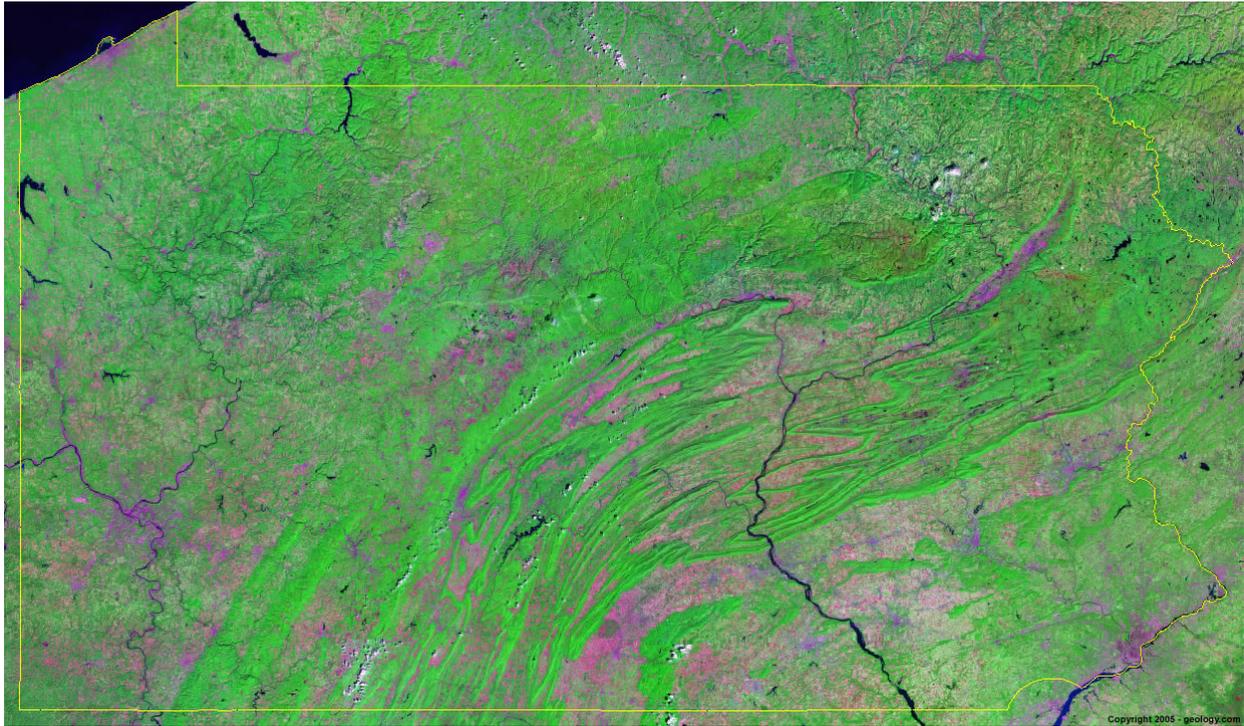


Pennsylvania 4-H GIS CURRICULUM



The Pennsylvania State University

*Phillip Hoy
Paul Webster
Carlee DiMarzio
Teresa Batterson
Dr. Daniel F. Perkins*

**Youth Engaged in Technology Program
(YET)**



PA New Community Project: Youth Engaged in Technology

Geospatial Information System (GIS) Site Coordinator Preparation

Preparation is the key to effectively teaching youth about Geospatial Information System (GIS). Several different types of documents and media will be used throughout this curriculum. Please review the documents and media to make sure they work in the room you will be presenting in. To help you prepare, we have provided some background information and documentation to help keep you ahead of the members while teaching this curriculum.

Here is a list of site coordinator preparation documents that you need to review before working with the members:

- PSU_GIS_Book1.pdf
- PSU_GIS_Book2.pdf
- PSU_GIS_Book3.pdf
- PSU_GIS_leadersGuide.pdf
- “PSU_GIS_vol2” folder
- “PSU_GIS_vol3” folder

Please review these documents and data sets before you start the curriculum with the youth. These documents can be downloaded from the Penn State Land Analysis Lab Website: http://lal.cas.psu.edu/Research/edTraining/4h_GISprojectBooks.htm

Resources

Youth Engaged in Technology (YET): <http://cyfar.cas.psu.edu/>

The YET project is a program that uses technology as a tool to engage young people in learning and contributing. Through YET involvement, youth enhance their marketable job skills as well as develop leadership skills. The major focus of the meetings is technology such as robotics, GPS/GIS, web page development, and nano-fabrication. Club members participate in community service activities related to technology. The YET program also increases the likelihood that the youth will be successful and have a sense of belonging to their community.

The Penn State Land Analysis Lab (LAL): <http://lal.cas.psu.edu/>

The Penn State Land Analysis Lab (LAL) specializes in the use of GIS and related advanced geospatial / information system technologies for environmental assessment, agriculture, land management and planning. The LAL is developing a series of geospatial education modules (GIS project books) for 4-H participants. The modules will cover the fundamental concepts of GIS including map making principles, GIS data types basics, GIS application in every day life and the basic GIS program interface. This module will use the free GIS software called ArcExplorer as the primary program for its exercises and activities. Another module will cover the basics of Global Positioning Systems (GPS) utilizing low-end affordable GPS units.

The LAL has developed Pennsylvania 4-H GIS project books. They can be downloaded from their 4-H GIS project book site at:

http://lal.cas.psu.edu/Research/edTraining/4h_GISprojectBooks.htm

Teamwork & Teamplay

Cain, J., & Jolliff, B. (1998). *Teamwork & Teamplay*. Dubuque, IA: Kendall/Hunt Publishing Company

A Guide to cooperative, challenge and adventure activities that build confidence, cooperation, teamwork, creativity, trust, decision making, conflict resolution, resource management, communication, effective feedback and problem solving skills

<http://www.teamworkandteamplay.com/>

United States Geological Survey: <http://www.usgs.gov/>

The USGS serves the Nation by providing reliable scientific information to describe and understand the Earth; minimize loss of life and property from natural disasters; manage water, biological, energy, and mineral resources; and enhance and protect our quality of life.

As an unbiased, multi-disciplinary science organization that focuses on biology, geography, geology, geospatial information, and water, we are dedicated to the timely, relevant, and impartial study of the landscape, our natural resources, and the natural hazards that threaten us.

Everybody wins: 150 Non-Competitive Games for Kids

MacGregor, C. (1998) *Everybody wins: 150 Non-Competitive Games for Kids*. Avon, MA: Adams Media Corporation

PA New Community Project: Youth Engaged in Technology GIS Project **Week 1**

1st and 2nd Session

- *Team Building Activities* – start off with some team building activities to get the students to know each other and so they will be comfortable working with each other. Just use one or two for the first session and use the others when needed. They are found in the books “Everybody Wins!: 150 Non-Competitive Games for Kids” by Cynthia MacGregor and “Teamwork & Teamplay” by Jim Cain and Barry Jollif. Both of these books are full of great group activities that can be used at anytime.
 - Insta Messages, page 2 – Everybody Wins!
 - Rules of Life, page 12 – Everybody Wins!
 - Family/Friends Memory Challenge, page 18 – Everybody Wins!
 - Walk 'n' Roll, page 112 – Everybody Wins!
 - The Paper Chase, page 185 – Teamwork & Teamplay
 - Under the Doormat, page 194 – Teamwork & Teamplay
 - Do As I Say Not As I Do, page 310 – Teamwork & Teamplay

- *About GIS*– Using *GIS Basics: Mapping Fundamentals – Book 1* start with chapter 1. The paragraphs in this book are fairly short and easy to read. Have the members take turns reading paragraphs out loud to the group. Start some discussion about what they are reading. The GIS Leader’s Guide is a very helpful book. As the leader you need to read this book before you start the session so you can field the questions that the members have. This should take you the 1st and 2nd sessions to complete.
 - Have the members read the paragraphs out load to the group and discuss the information. This will probably be their first interaction with GIS
 - Give the students 10 – 15 minutes to brainstorm of ways they think GIS is used everyday.
 - **Topics for Discussion** – Lead the students through a discussion on how GPS and GIS work together.

PA New Community Project: Youth Engaged in Technology GIS Project **Week 2**

1st Session

- *About Mapping* – In Chapter 2 members start to learn about maps. Bring in a map of Pennsylvania and a map of their county. You can also want to show them the MapSource software for the GPS units. Here you can zoom in to the school and area around the school.
 - Have the members take turns reading the paragraphs to the group. Discuss different types of maps and show them the Pennsylvania and county map, along with the MapSource software.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2A. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - Give the students time to search maps on the internet or use the MapSource software to find a map of interest to them.
 - ***Topics for Discussion*** – Start a discussion with the members of how they have used maps in the past. If they haven't ask if their parents use maps.

2nd Session

- *About Mapping (cont.)* – Continue to read about mapping in this chapter. Make sure you are prepared to the activities in this chapter. Use the GIS Leaders Guide as your reference to all the activities.
 - Have the members take turns reading the paragraphs to the group. Discuss different types of maps and show them the Pennsylvania and county map, along with the MapSource software.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2B. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - Give the students another chance to search maps on the internet or use the MapSource software to find a map of interest to them.
 - ***Topics for Discussion*** – Make sure all the members understand the properties of Activities 2A & 2B.

PA New Community Project: Youth Engaged in Technology GIS Project **Week 3**

1st Session

- *About Mapping (cont.)* – Continue to read about mapping in this chapter. Make sure you are prepared to the activities in this chapter. Use the GIS Leaders Guide as your reference to all the activities.
 - Have the members take turns reading the paragraphs to the group.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2C-1. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2C-2. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - *Topics for Discussion* – Start a discussion with the members about how learning GPS might help them learn about GIS.

2nd Session

- *About Mapping (cont.)* – Continue to read about mapping in this chapter. Make sure you are prepared to the activities in this chapter. Use the GIS Leaders Guide as your reference to all the activities.
 - Have the members take turns reading the paragraphs to the group.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2D. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - *Topics for Discussion* – Make sure all the members understand the properties of Activities 2C & 2D.

PA New Community Project: Youth Engaged in Technology GIS Project **Week 4**

1st & 2nd Session

- *About Mapping (cont.)* – Continue to read about mapping in this chapter. Make sure you are prepared to the activities in this chapter. Use the GIS Leaders Guide as your reference to all the activities.
 - Have the members take turns reading the paragraphs to the group.
 - Use the information in the GIS Leaders Guide to guide the members through Activity 2E. Have the members answer the questions. Review the answers with the whole group once everyone has finished.
 - ***Topics for Discussion*** – Have a discussion about the GIS Book 1. Did they understand the concepts of GIS and mapping? Is there anything that you need to review with them?