

Geography Program

This course will be a hands-on introduction to freely available resources to assist teachers, in grades 5-12, with the Pennsylvania Academic Standards for Geography. This course will provide an introduction to geographic information systems (GIS) with a focus on the types of data a GIS uses and the information it can provide. Using a topographic map, we will explore map scale, contour lines, landuse characteristics, and area calculations. Participants will also develop a topographic map based on a National Geographic lesson plan. Lastly, we will explore the use of the global positioning system (GPS) and how it is utilized as a tool for GIS; we will collect data in an outdoor geocaching adventure and overlay the information on an aerial photograph.

Understanding topographic maps

- Map Reading A & B
- Clay mountain exercise
- Lesson Plan – Contour Maps with DOGSTAILS
 - <http://www.nationalgeographic.com/xpeditions/lessons/01/g68/dogstails.html>
- Delineating a Watershed and measuring its area – quick look at Terrain Navigator Pro
- Finding oneself on a topographic map using a compass, in field when we go out for GPS session

Where to get/view topographic maps

- <http://terraserver-usa.com>
- <http://www.topozone.com> (tim.eichner@keystone.edu, keystone)
- <http://mapserver.maptech.com/homepage/index.cfm>
- <http://www.globexplorer.com>
- <http://nationalmap.gov/gio/viewonline.html>

What is Geographic Information Systems (GIS)

- www.GIS.com
- Dive in – Using ArcExplorer Java Edition for Education (AEJEE)
 - <http://edcommunity.esri.com/software/aejee/>
 - Using AEJEE to explore the Lewis and Clark Expedition
 - http://gis2.esri.com/industries/education/arclessons/search_results.cfm?id=238
 - Exploring ArcIMS Data Services with AEJEE
 - Geography Network
 - <http://www.geographynetwork.com/>
 - Other Services: <http://edcommunity.esri.com/data/arcims/>
 - <http://maps.pasda.psu.edu>

Understanding Projections

- Short presentation on why we use projections
- Globe Projector
 - <http://www.nationalgeographic.com/xpeditions/hall/1/x1/home/t-merc-phys.html>
- National Geographic – Round Earth Flat Maps
 - <http://www.nationalgeographic.com/features/2000/exploration/projections/index.html>

Having fun with a light-weight GIS

- Google Earth Introduction and Overview
 - <http://earth.google.com/>
- Google Earth Community – Unleash the power of Google Earth
 - <http://bbs.keyhole.com> – Lewis and Clark, Earthquakes, etc.

Having Fun in the Field with GPS – Geocaching

- <http://www.geocaching.com>
- Find a geocache on Keystone's Campus
- Log waypoints and tracks
- Download GPS data onto computer and display in Google Earth and AEJEE

Additional Information

Using ArcWeb Services for Educators

- <http://www.arcwebservices.com>
- Generate a report for Lackawanna County

National Geographic Map Machine

- <http://plasma.nationalgeographic.com/mapmachine/>