Gee, What HaPpened on This Spot?

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Subject: U.S. History

Estimated time: 2 class days; 1 ½ weeks non-class time

Grade Level(s): Middle School or High School U.S. History

Purpose: In order to teach students the fundamentals of global positioning systems and of GPS applications, students will research significant historical events in their county, relate said events to the broader, national happenings, and collaborate with a local historical group to produce a functional map from the GPS data of local historical sites.

Background:
Students learn about major events in their U.S. History classes. Often overlooked are relevant, local events, locations and individuals that were affected or had an effect on the national history. By making students find these places, plot them with a GPS unit and catalogue them on a computer map/GIS, students will become more aware of local significant events while learning how to use a GPS.

Objectives: Upon completion of this activity, students will be able to:
- explain how GPS works,
- effectively use a GPS unit,
- explain the various measurements of longitude and latitude,
- compare and contrast rural and urban,
- explain significant historical events of their county, and
- estimate the amount of difference small amounts of movement in latitude and longitude.

National Geography Standards:
1. How to use maps and other geographic representations, tools, and technologies to acquire, process, and report information from a spatial perspective
6. How culture and experience influence people's perception of places and regions.
12. The processes, patterns, and functions of human settlement
17. How to apply geography to interpret the past

Indiana History and Geography Academic Standards:
USH 9.2
WG 1.1, 1.3

Materials Needed:
- An aerial photograph and map of the county where the school is located
- Four GPS units (or more if available)
- Computer software that allows loading of GPS data onto map (many free, on-line packages that are easy to use)

Procedures:
Overview
Students will learn about global positioning systems and about utilizing a GPS unit. Students will then "check out" GPS units, individually, locate a pre-chosen local historical site, and mark the site in the GPS unit. The students will return the unit with the plotted location and the teacher will download it into software containing the local county's map and aerial photography. At the end, a class map of plotted points will be created. From

this map, human aspects of the community can be discussed. The data can also be shared with the local GIS (geographic information systems) specialist.

Day One:

- Students will be given a lecture on the basic concepts of global positioning systems.
- There will be a quick review of longitude, latitude, degrees, minutes and seconds.
- Students will divide into groups.
- Teacher will go through how to use the GPS units with the students utilizing the instructional guide.
- Class will go out to the school yard and perform some basic plotting functions on GPS. The teacher may want to have some areas already plotted for them to find -- a mini-geocaching activity.

Day Two:

- Students will brainstorm significant, local historical events. The events, people, sites will be displayed in the classroom on a flip-chart.
- Teacher will display a map and aerial photograph of the county and explain the goals of the activity.
- From the map and aerial photograph, students will estimate the latitude and longitude (degrees, seconds, and minutes) of the historical sites. This is a great review.
- Students will choose one historical site from the list (or more), find the site's location, and take a GPS reading at the site on their own time (This will require them to check out a unit for the night they are to go to the site).
- If possible, students can take digital images of the site, write a brief essay about the site, and conduct a first-person interview with someone who knows about the site.
- Students will have seven days to complete task - GPS units will be checked out to students each night.
- Students will be encouraged to do this with their parents.
- Students will be encouraged to teach their parents GPS basics and to share information about the historical site.

For the Next Seven Days

- Students will return GPS units to class and download GPS readings as they are accomplished.
- The teacher will use software to plot points on local map.
- The students will analyze the differences in their estimations vs. the actual locations. Remind the students that a GPS may not be exact.
- Students will create a historical sites map of the county.
- Students will create a display for the hallway or entry to the school.
- Students will share the data (GPS locations, site names, essays, interviews, digital images) with the local GIS specialist to become part of the county's GIS database.

Assessment:

A small quiz or examination would be given as a follow up and could be encompassed in or a part of a larger test for that particular unit and would allow the students to:

- discuss a historical event, place or person that they learned about from their county,
- explain how GPS works,
- identify the difference in latitude and longitude,
- explain the different degrees of measurement, and
- discuss the significance in the patterns to the location of markers (rural? urban? Why are they located there? What relationship do the locations have with each other? What relationship do the locations have with other aspects of the community?)

Modifications or Extensions

- Students will do further research on the story presented by the historical marker.
- Students will create a mosaic of stories in addition to the plotted map.
- Class will collaborate with the local historical agency to create a map that will be professionally created and available to the community.