

Activity B3 GPS Nature Trail

Note: the procedures described below are for use with the yellow Garmin eTrex GPS receivers (the model supplied in the basic Virginia 4-H GPS Educational Kits). The instructions can easily be altered for use with other GPS receiver models.

Introduction:

The trouble with most nature trails is that you actually need a trail! Often, existing trails are not located near the most notable biological and geological features in a given area. New trails are expensive to build and exhausting to maintain. However, with a GPS Nature Trail, this is not a concern, as long as the terrain is not too rugged, because the trail stations (waypoints) are linked electronically, rather than by a foot-path.

Creating a GPS Nature Trail is a great 4-H club or class project. Your learners search the designated area for interesting rock formations, plants, animal signs, and scenery. They mark the coordinates with GPS receivers, flag each station, and plot the locations on a topographic map. After a little research, the group decides which natural features should be included on their nature trail. Then they create a "GPS Nature Trail Guide" with coordinates and natural history information for each station.

Time Involved: Variable

Materials Needed: GPS receivers, nature field guides, location markers, topographic maps

Getting Started:

A few questions need to be considered before you and your group delve into the GPS nature trail activity:

- Is the nature trail just for your group, or is it to be designed for use by a larger audience?
- Is it to be designed primarily for nature education, for practicing navigational skills, for hiking and exercise, or a combination of uses?
- Will you be providing trail users with GPS receivers, or will they bring their own?

With these questions in mind, see what suitable areas might be available for your group's nature trail. They might be located on school grounds, a 4-H camp or educational center, a town park, private property, or other area that fits your situation. Develop a plan to involve your group in the site and station selection, the trail design, and the trail guide booklet activities that are described in the sections following.

Also see "*Preparing GPS Receivers for Group Activities*"

Do the Activity:

SITE AND STATION SELECTION

- Unless the general location has already been determined, involve your group in selecting the site for the GPS nature trail. This might involve field trips to several areas to evaluate each site's potential.
- Within the selected area, the group members should search for notable geological, botanical, or zoological features. They should mark the coordinates with GPS receivers, flag each location, and note what was found.
- Work with your group to plot all the potential stations on a paper and/or digital topographic map. This geospatial perspective will help them make decisions about the selection and sequence of trail stations.
- Have the learners search for information about natural features that were found and decide which ones should be included on the nature trail. Then they should create written descriptions of the selected sites for the trail guide.

GPS TRAIL DESIGN

Depending on your situation, any of three GPS navigational functions could be used to guide users to trail stations:

1. GoTo – a trail user would be provided with the coordinates of each station. These could be printed in the trail guide. The coordinates are manually or electronically entered into the user's GPS receiver. The user activates a GoTo to find each station.
 - Advantages: Any GPS receiver can be used; user has choice of stations and sequence.
 - Disadvantages: Coordinates are tedious to enter individually into a GPS receiver; however, electronic transfer from a waypoint management or digital mapping program would solve this problem.
2. Saved Track – a GPS track log could be recorded by traveling the circuit of stations, then saving the track in a suitable waypoint management or digital mapping program. Using a suitable electronic mapping program, the track could then be transferred electronically (see Resources) to the trail users' GPS receivers.
 - Advantages: This option allows the trail user to closely follow the path, thus avoiding terrain obstacles.
 - Disadvantages: Limits the trail users' choice of stations and sequence; requires electronic transfer to users' GPS receiver.
3. Route – a GPS route could be created to link the stations in sequence. Using a suitable electronic mapping program, the route could then be transferred

electronically to the trail users' GPS receivers, or trail users could create the route in their receivers, using the waypoints entered in option 1 above.

GPS NATURE TRAIL GUIDE BOOKLET

The "GPS Nature Trail Guide" is a booklet or fact-sheet designed to help people explore and enjoy the nature trail. It can be as simple or elaborate as you and your group desire. Basic information might include coordinates and natural history notes for each station. A sketch or topographic map showing the location and name or number of each station would be a nice addition. More elaborate booklets could include sketches and photographs, brief essays, quizzes, and other interesting material created by the learners.

Background Information:

Educational trails can be great teaching tools. They take people out of the classroom, or away from the TV, and place them in situations where all of their senses can be used in the learning process. Typically, they are used in environmental, historical, and cultural interpretation. Trail visitors can see the vibrant colors of wildflowers, feel the heat of the barren battlefield, smell the organic aromas of a pioneer homestead, taste the sweet tartness of wild blackberries, or hear the late summer symphony of crickets and cicadas. The best interpretive trails do not overwhelm the visitors with facts and data, but instead invite them to use their senses and imagination to explore their surroundings.

Typically in state and national parks, these trails are graveled walking paths, following the lay of the land. They may include wooden boardwalks through wetlands or other environmentally sensitive areas. More and more trails are handicap-accessible – wide, level, and paved. Interpretive auto-trails are becoming common too, complete with AM radio or cassette tape/CD narration (which tends to limit using the five senses!). But a GPS trail is different. Although incorporating the latest navigational technology, following a GPS nature trail, with no tangible path, can be a primitive experience requiring physical exertion, navigational alertness, and awareness of the natural surroundings.

Note: Comments and suggestions regarding this activity and other components of the Virginia 4-H GPS curriculum are appreciated. Please contact Mike Clifford at: mjc4h@vt.edu / 804-561-5411 / 11131 Amelia Springs Rd., Jetersville, VA 23083