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Two boys and three girls sneak through the forest, ducking away from the watchful eyes of the other 150+ campers... They peer occasionally at a small electronic device resembling a cell phone, as they call out to one another. "I got 287 feet that way!!" says Zach, pointing eagerly across the small stream. From the back of the pack, Elliot calls out "315 feet across the ravine! How we gonna get there?" "This way!!" calls out Sabrina, leading the way and rock-hopping across the water. The group follows her, and quickly swarms around a fallen tree, a rotten stump with a hollowed out trunk. They begin peeking and prodding as if looking for buried gold, mp3 players, or candy bars. Shortly, Jessica shrieks with glee, pulling a 50-caliber ammo can from underneath a pile of sticks just a few feet away. The group congregates around her and opens the olive-drab green metal box and immediately pore through it's contents. Yo-yos, postcards, rubber stamps, bouncy balls, and other assorted knick knacks spill out, and a worn and weathered notebook, stuffed inside a Ziploc baggie, rests at the bottom of the can. With all the excitement, you'd think they'd won the lottery!

You might be wondering, where are their COUNSELORS?!? But right behind them, Angus, a Senior counselor at 4-H Camp Bristol Hills, is watching over them with a smile on his face. Just what is going on? What have they found?

The campers have just discovered their first geocache (pronounced JEE-oh-cash), and now it's time to see what's inside, make their trades and sign the logbook to let others know they've been here. The activity is part of the GPS Explorers program in its debut performance at 4-H Camp in New York State this year. Over thirty children participated in the one-week program, offered during two separate weeks at camp in 2007. In 2008, the camp will offer the program for five weeks.

The program is one of the latest manifestations of the 4-H Science, Engineering and Technology initiative, allowing youth to experience, first hand, Global Positioning System (GPS) technology. They've just learned some very valuable skills in using the GPS receiver including marking, editing, selecting and navigating to a waypoint, a very specific location on the face of this big blue-green planet we call home. Later in the

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week, they will use these skills to collect data for the first ever geospatially referenced trail map.

Geocaching has been referred to by some as the “gateway” to geospatial science. It’s easy to see why, when you have five very happy campers tearing through a hidden treasure chest and finding all sorts of cool stuff! But it’s also important to realize that geocaching is only the tip of the iceberg. This is going to be a busy week for these GPS Explorers. On Wednesday they will be walking the trails, collecting data for the new trail map, and on Thursday, they will be downloading their datasets, importing them into a computerized mapping software package (Geographic Information System, GIS), adding a legend, a neat line, a north arrow and all of the necessary components for a finished map. And Friday? Friday they will have a chance to hide their own cache for the other ‘cachers to find. And in the end, each of them will get a copy of the trail map to take home as a souvenir of their program.

GPS and GIS technologies are rapidly becoming a major component of our daily lives. Modern cell phones automatically give GPS location information to 911 dispatchers in the event of an emergency, airline pilots have relied on GPS technology for years, and now, many cars are being outfitted with navigation systems. As for GIS mapping, every time you punch in your address on Mapquest®, or check out your house on Google™ Earth, you are using GIS technology. Researchers, community planners, law enforcement and emergency services rely on GIS mapping to help make decisions on a daily basis. Today’s youth will soon be expected to have a working knowledge of this technology, much like the cell phone and the Internet have become a regular part of our lives for most Americans. 4-H is preparing our youth for careers in these high-tech fields by giving them real-life opportunities to use them.

Late in 2006, Cornell Cooperative Extension received a three-year grant to support geospatial literacy in New York State. In 2007, the grant focused on helping 4-H Camps develop curricula for geospatial programming in the camp setting. A training was held at Cornell University in June of 2007, and approximately 15 staff from the various 4-H camps throughout the state got their first experience using GPS receivers, collecting data, and working with GIS maps. In addition, the grant also supported the creation of three mobile kits that are available to those camps not having their own equipment. These kits consist of 10 handheld GPS units (Garmin Etrex Legends). A laptop computer (with GIS software) and a digital projector were also acquired and provided for the classroom setting or public presentations. Within Ontario County and 4-H Camp Bristol Hills, additional support was received from two Assemblymen, Brian Kolb and Joseph Errigo, allowing 4-H Camp Bristol Hills to build their own geospatial kit consisting of the handheld units, laptop computers, digital projector and a color printer. In 2007, four camps were able to provide geospatial programming (4-H Camp Bristol Hills, 4-H Camp Wyomoco and 4-H Camp Wabasso, Dorothy P. Flint 4-H

Camp), while still more camps are scheduled to begin geospatial programming in the 2008 season. This year, the grant will again pay for a camp staff training, but there will also be another training aimed at 4-H afterschool programs. This training, organized by Stephen Smith (Cornell IRIS) and Chip Malone (Genesee County), has been incredibly helpful in establishing the geospatial program in 4-H camps in New York State, and will continue to support the camp and afterschool programs through 2009.

Here in Ontario County, we have received a grant from Environmental Systems Research Institute (ESRI), which provides us with all of the ArcGIS software, technical support, and written materials (enough books to build an exhaustive GIS library!). Through this grant, we have started a new 4-H Club, going by the name of "GeoSeekers" to take part in a community-mapping project of our county. The club currently consists of five boys and two girls, ranging in age from 13-18 years. The club meets monthly and has been working on a project that will ultimately result in a map of our county, showing a variety of agricultural resources. This map will be posted on our website, and will be interactive, meaning that visitors to the website will be able to select a data set (U-Pick farm markets, feed stores, veterinarians, etc) and then see a map showing all of the places in Ontario County that meet that criteria (ie. a map of all of the U-Pick farm markets). 4-H members will also collect user information about each of those facilities, including pictures, contact information, products or services available and website if available. When a visitor clicks on a given roadside stand, they will see a picture of the facility, and all the related information about that facility. We are working with our Agriculture Economic Development Specialist to build a map that will not only provide our youth with a positive learning experience, but also be a valuable tool for Ag Tourism in Ontario County.

Geospatial science is clearly a growing field, and it is exciting to be a part of it. Youth involved in geospatial activities now will have an advantage in school and in their careers when they get older. 4-H is a perfect opportunity for youth to become familiar with the technology, ask questions, experiment and grow. Whether it is a simple day of geocaching or collecting data for building useful maps, 4-H geospatial science is a fun, rewarding opportunity for youth to make a positive contribution to their communities. I look forward to continuing the program in Ontario County, and I encourage you to get involved in your own community. Make a difference!