

OKLAHOMA ROCKS!

Mapping: Treasure Hunting

Grid-based systems help scientists, oil and gas workers, county tax assessors and many other professionals meet business needs every day by pinpointing locations on the Earth's surface, but coordinate systems also can be used for "treasure hunting!"

Geocaching is a high-tech version of treasure hunting that requires the use of handheld Global Positioning System (GPS) receivers. Individuals and organizations establish and maintain what are known as caches. A cache is a waterproof container that typically contains a log book, pencil and trinkets. The coordinate locations of these caches are published online, and "treasure hunters" can use this information, along with a GPS, to find each one. When they do, they sign the log book and can trade the items inside. Many individuals engage in geocaching just for the thrill of the hunt and will write in the log books "TNNL," meaning "took nothing, left nothing." As individuals pursue a "treasure hunt," they may come across landmarks important to surveying, such as a stone marker set by government surveyors in the 1800s from which all modern surveys are based.

Earthcaching is a similar activity in which participants use a GPS device to locate, examine and learn about the geology of a certain place. Earthcaching evolved from geocaching, but unlike geocaching, earthcaching is purely educational. No objects are hidden, nor are any objects taken from the site – knowledge alone is the treasure. Participants conduct activities at each

site, such as measuring the size of the geologic feature and collecting data such as mineral composition of the feature.

Geocaching and earthcaching both involve being outside and developing skills that surveyors use in their jobs every day. Professional surveyors can channel their skills and interests toward boundary and construction surveying (above ground), hydrographic surveying (underwater), geodesist surveying (related to astronomy and used to guide and track ships), photogrammetry (aerial photo mapping), and forensic surveying (to collect evidence, especially after auto accidents).



Courtesy Garmin International



Activities:

1. Think of a place in Oklahoma that would be a good location to create a geocache or earthcache site. Why do you think it would make a good geocache or earthcache location?
2. There is an earthcache located in the Redbud Valley at latitude/longitude N 36° 13.159 W 095° 47.864 (degrees decimal-minutes) and UTM (GPS coordinates) Zone 15S E 248516 N 4011903, between Catoosa and Owasso. What geologic formation occupies the most area between these two towns?
3. Visit www.geocaching.com and www.earthcache.org. What is the closest geocache site to your school? The closest earthcache site?
4. Visit www.geocaching.com and read about benchmarks. What is a benchmark? Using the National Geodetic Survey's webpage at www.ngs.noaa.gov, identify at least one benchmark in your county.

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