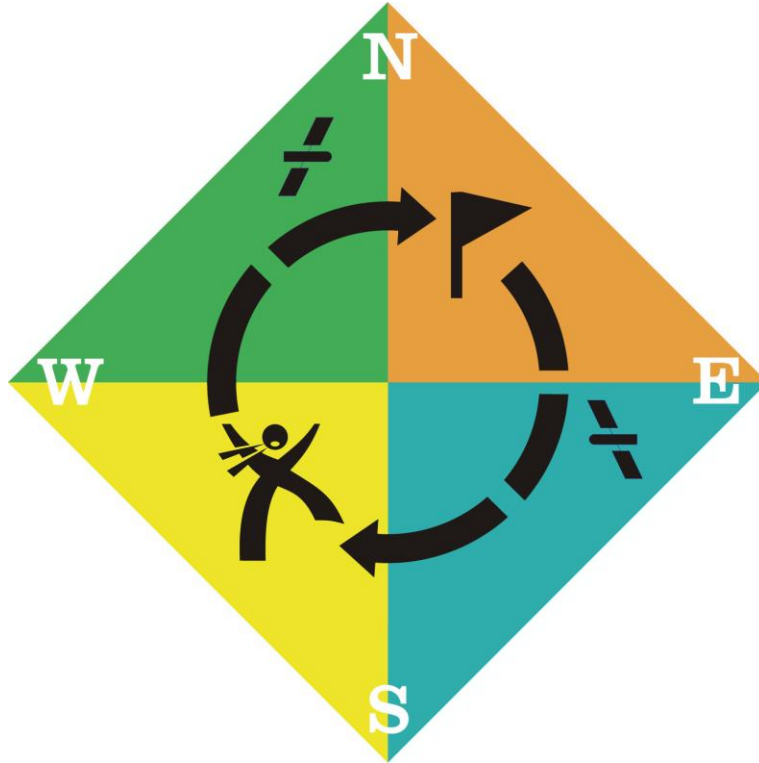# Geocaching Camporee

AM activities

The following is a complete lesson plan for a one-day course that will fulfill most of the requirements for the Geocaching Merit Badge.

Materials you will need:

- GPS units (1 unit per 2-3 scouts)
- Topo map of the local area (Download for free at USGS web site - http://store.usgs.gov/b2c_usgs/usgs/maplocator/%28ctype=areaDetails&xcm=r3standard pitrex_prd&carea=%24ROOT&layout=6_1_61_48&uiarea=2%29/.do)
- Copy of the Geocaching Merit Badge Worksheet
- Nearby pre-existing geocaches (locate caches at Geocaching.com)
- Geocaching containers for scouts to hide (any small container can be used for this)

Lesson Plan for Geocaching Merit Badge Event

A. Introduction to Geocaching

1. Objective: Define geocaching and review the plan for today's event
2. Time: 10 minutes
3. Subjects Covered: Definition of geocaching, brief review of requirements for geocaching

merit badge, review of what requirements will be met today, and what requirements the scouts must complete on their own

Notes: There are some topics listed in the Geocaching Merit Badge requirements that are addressed by other merit badges, or that are less relevant to geocaching (injury prevention and treatment, use of the buddy system, etc). These are not included in the lesson plan. The requirements that will be completed by the end of this lesson are #2-6, with instruction on how to complete #9.

B. GPS and map/compass skills

1. Objective: Teach scouts how to use a GPS unit for geocaching
2. Time: 45 minutes
3. Subjects Covered: How the GPS system works, basic operation of the unit, creating and editing a waypoint, "going-to" a waypoint, changing field functions and coordinate system, using a map in conjunction with the GPS, and plotting UTM and lat/long coordinates on a map

The easiest way to teach navigation with the GPS is to have everyone create a waypoint at the current location, walk 100 yards in any direction, and navigate back to the current location using the GPS. It's a good idea to point out that the GPS will only take the user to within 20 feet or so of a specific point, so they might not end up on the exact spot where the waypoint was created.

The scouts can use the USGS topo map you provide to plot lat/long and UTM coordinates from the GPS unit.

C. Geocaching Basics

1. Objective: Cover the rules of geocaching, including the knowledge areas the scouts will be responsible for to fulfill the geocaching merit badge requirements
2. Time: 30 minutes
3. Subjects Covered: How to hide, post, maintain, and dismantle a geocache (including guidelines from geocaching.com), what should and should not be included in a geocache, difficulty and terrain ratings, hints, definition of key terms

Notes: There's a lot of material to cover in this section, so find a comfortable spot for everybody to sit down for a little bit while you discuss geocaching. Keep the group engaged in the conversation--for example, ask the scouts what they would and wouldn't put in a geocache, and where they would and wouldn't hide a geocache. Consider reading descriptions and hints from geocaches you'll look for in the next section as an example. The best (and official) source of information on the topics in this section is Geocaching.com. Since that site is updated with the most current information, we recommend using that as your main source.

D. Geocaching Demonstration

1. Objective: Find a few local geocaches, paying attention to how they were hidden, what the contents are, and how well the description matches the location

2. Time: 45 minutes
3. Subjects covered: How to find and log geocaches

Notes: Ideally, you'll be holding this event in a place that has a few pre-existing geocaches within a 10-15 minute walking distance (city parks are usually great for this). If possible, try and pick a few different types of geocaches for this exercise (i.e., different-sized containers, difficulty levels, etc). It's best if you (the event leader) can locate each geocache you'll be using before the event, just to make sure they're still there and are "findable" in a short amount of time.

When the scouts find a geocache, be sure to point out any trackable items it contains, and look at past entries in the logbook.

E. Lunch Break
1. Time: 30 min. (Scoutmasters grilling hot dogs, serving chips, beans, apples, lemonade) (donations from stores??)

Notes: This concludes the "education" portion of the day. The afternoon session will be spent putting into action what has been learned in the morning session.

F. Geocaching Implementation

1. Objective: Scouts will learn how to hide their own geocache
2. Time: 1 hour 30 min.
3. Subjects covered: Hiding geocaches and leading geocaching events (required for the merit badge)

a. Scouts will divide into 4-5 teams (depending on the number present). Each team will hide a "geocache" (temporary for this event only) using containers and GPS units provided, and mark a waypoint at the cache location. Caches will be located close together within an area of a few hundred square yards

b. Each team will provide the GPS coordinates of their cache, a brief verbal description, and a hint to the group.

c. The group will hunt for the geocache hidden by each team, one at a time. When found, the group will critique the placement of the cache, and the hints and description provided by the team.

d. The group will discuss how the scouts can apply the lessons learned in this exercise to leading their own geocaching event, a requirement for the merit badge.

Notes: This portion of the exercise is designed to help the scouts prepare for two of the requirements they'll have to meet on their own: creating a public geocache (optional), and personally leading a geocaching event in their community (mandatory).

Ideally, each team should be limited to 2-4 people, with one GPS unit and one container per

team. Any type of small container can be used; just make sure that it's not something that can be mistaken for trash and accidentally thrown away or left behind. You don't even need to put anything in the containers--the main point here is to practice the hiding and searching.

Other Potential Activities:

Capture the Flag 1
The organizer hides the flags and gives the 2 teams the co ordinates for their own flags. Once each team locates its flag they will also receive the coordinates to the enemy flag. The game then proceeds as usual.

Capture the Flag 2
Many flags are hidden in each area and the teams have ½ an hour to find as many as possible of the correct colored flags.

Alternative PM Activity

"The Amazing Race".

On "Go", teams rip open their clue envelopes, which reveal GPS coordinates to their next clue. It is basically a giant multi-waypoint geocache, with events, twists, or other clues in between. Not every waypoint is given with GPS coordinates, some can have word clues based on scout knowledge and skills or other puzzles (see "Puzzles" pages). Some clues can be hidden inside green ammo boxes, Geocaching-style. Others can be hidden under wooden benches, inside a birdhouse attached to a tree in the woods, etc. Some waypoints should require teams to do some activity, like eat an entire box of Oreos before continuing; shooting five targets (balloons, clay pigeons, etc.) with slingshots, demonstrating a scout skill.

The race should take 2-3 hours to complete. The winning teams get their pick out of a treasure chest full of Geocaching-style swag (donations from Cabela's, Bass Pro, Walmart, Meijer, etc.)

Geocaching Puzzles

A scout in the backwoods is no good without being able to get to his destination. This event will challenge a team to hike cross country in order to get to the next station. Participants will start at the main station at the Inter Patrol Competition Area. They will be assigned a GPS, given a piece of paper, and a coordinate. Then they will go to coordinates given to them. There they will find a word to write down and another coordinate to go to. The steps will keep repeating until the team goes through all the stations and comes back to the main station. Once at the main station, the team must arrange their words collected to form a phrase. After they complete the phrase, the main station will have their time ended written down. The team will turn in their GPS, and then are free to go. The fastest time for the day wins.

Remember Ralphie from **"A Christmas Story"** and his eagerly anticipated Little Orphan Annie Secret Decoder Pin? That much-valued premium was a code wheel, a tool that has been used in the spy industry for years. In its simplest form it consists of a wheel inside another wheel, both containing letters A-Z and numbers 1-0. By turning the wheels and realigning the numbers and letters you can come up with over 1000 possible code combinations. The inner wheel can provide the encoded letters and the outer the actual message.

See next page for a copy of the code wheel.

Your use of the code wheel can be as simple or as complicated as you want. For example, the code key **"A4″** would translate the phrase, **"You will find the cache at N 39? 22.119 W 087? 21.576″** as **"6V2 4PSS MPUK 1OL JHJOL H1 U0F? 99.88F 4GED? 98.BDC."** All it would take for the coordinates to be decoded is a printer and a few minutes of work with the wheel.

If that's too easy then hide the proper code key somewhere on the page or don't give it at all. A little logic should be all it takes for people to discover that in the coordinates *"U"* must be *"N"* and *"4″* must be *"W."* To complicate it further use the code wheel in conjunction with a multi-cache and change the code key for each step. That should keep people busy!
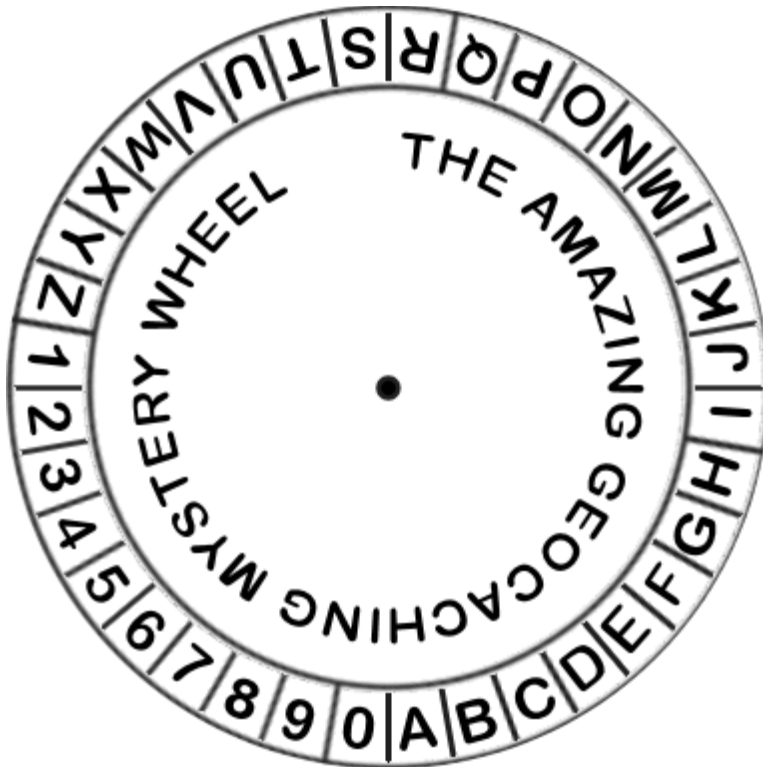
Print this sheet and cut out the two wheels, then pin them together as in the example below. They should be held tightly together but still turn freely. Turn the inner wheel to adjust for encoded messages. For example, line the outer "A" up with the inner "8." Your code key is now "A8." Use the offset to encode your messages.
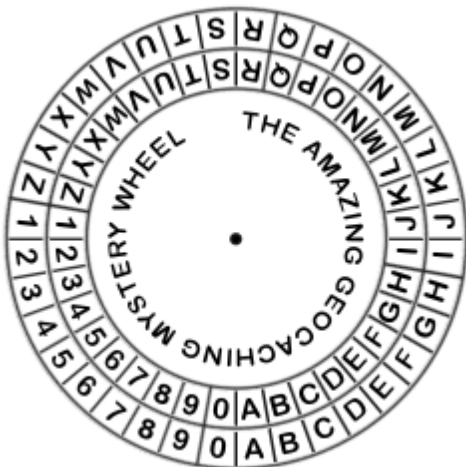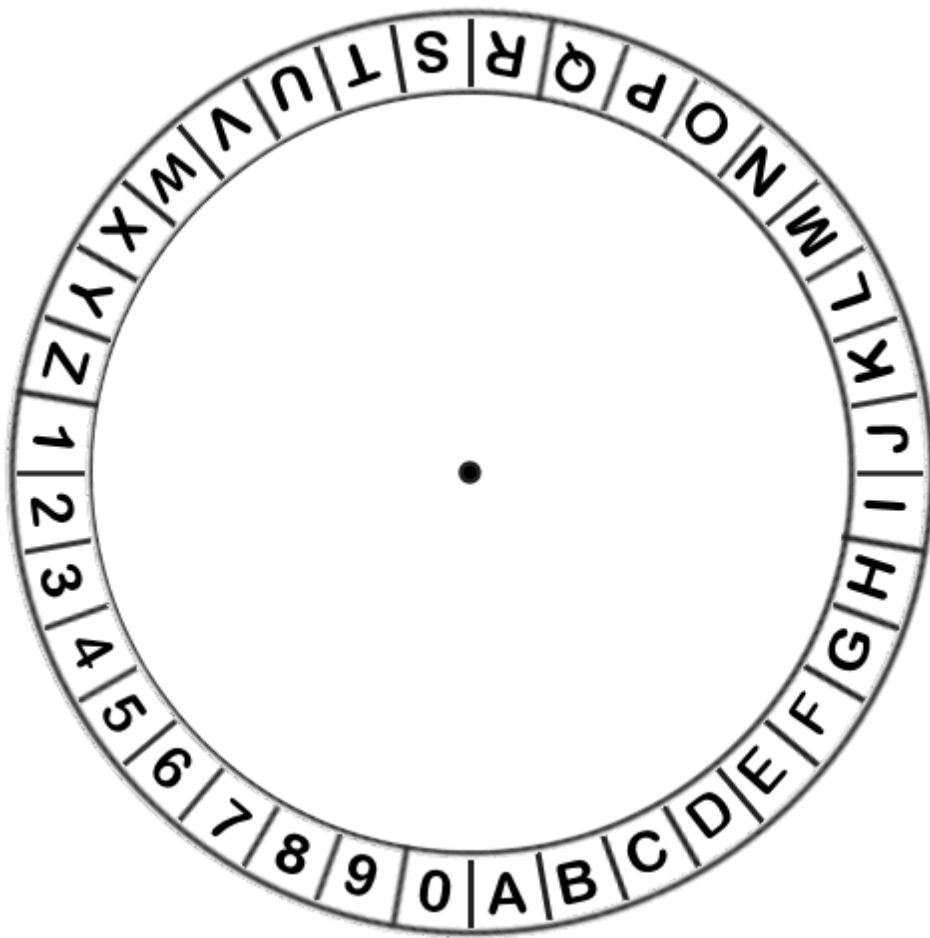
Sometimes a mystery cache is all about finding the coordinates, other times it's all about trying to get into the container. One option is to use a combination lock and provide the combination through one or more other steps.

There's now a new spin on this tried-and-true technique. **Wordlocks** are a unique new type of combination lock that uses letters instead of numbers. They come in a variety of colors and can be set to **100,000 possible letter combinations** including over 1000 four or five-letter words (instructions are included along with a list of sample words in case you aren't much of a speller).

The lock itself is unique enough that it offers a variety of methods of execution:

- Hide the secret word in the cache page itself.
- Design a crossword or word search puzzle to guide cachers to the correct password.
- Use a word found on a sign near the cache location.
- Write the codeword on the inside of the lid of another cache.

There are other possibilities for creating puzzles such as **Sudoku**.

Sudoku is a number puzzle that involves no math and a lot of logic (eh, it's a fair trade off). It's played on a 9×9 grid in which each number from 1-9 can appear only once in each line (horizontal and vertical) and only once in each 3×3 square. The game is either simplified or complicated by the cells that are filled in for you when you start. The more numbers they give you the fewer leaps of logic you have to take to arrive at a completed puzzle.

Sudoku (actually **"Su Doku."** Loosely translated it's Japanese for *"solitary numbers"*) naturally lends itself to puzzle caches. By assigning letters to the horizontal grid (A-I) and numbers to the vertical (1-9) you can direct cachers to individual cells within the grid *(as in the image to the right)*.

So how do you put one together? You can find a pre-made Sudoku puzzle and direct people to the squares of your choice (keep in mind, if there's a zero in your coordinates you'll need to give that one to them). Of course, it's up to you to decide how easy or difficult you want your puzzle to be. Many Sudoku sites rate their puzzles as either Easy, Medium, Hard, or Insane. It all depends on how many pre-filled squares you provide for the players.

	A	B	C	D	E	F	G	H	I
1	5	3			7				
2	6			1	9	5			
3		9	8					6	
4	8				6				3
5	4			8		3			1
6	7				2				6
7		6					2	8	
8				4	1	9			5
9					8			7	9

N 40° 0 ___ . ___ ___ ___
        (B1)   (F1)(C8)(H4)

W 087° ___ ___ . ___ ___ ___
        (F4)(G2)   (I5)(C5)(D6)