Introduction to Geocaching

GIS Curriculum
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☂OVERVIEW & PURPOSE

Introduce participants into basic concepts of geocaching and the geospatial technology that makes geocaching possible.

▤OBJECTIVES

1. Participants gain an understanding of geospatial technology
2. Participants will understand basic types of the geocaches.
3. Participants will be able to locate and hide basic caches

▤MATERIALS NEEDED for GEOCACHING

1. Smartphone or other GPS enabled device (emergency calls, navigation, geocache apps with cache coordinates)
2. Closed toed shoes, long pants, bright colored shirt
3. Bug repellent (insects can be annoying)
4. Drinking water (stay hydrated especially on warm days)
5. Flashlight (some caches are in logs or other dark places)
6. Hand Sanitizer (hands will get dirty)
7. Sense of adventure!

▤MATERIALS NEEDED for ACTIVITY

1. Large plastic container
2. String
3. Flashlight

⊘VERIFICATION/ASSESSMENT

1. Can the students follow basic outdoors/hiking safety protocols?
2. Can the students identify hazardous plants such as poison ivy, oak, and sumac?
3. Does the student have a smartphone or GPS enabled device?

▢EXPLORE & ACTIVITY

Geocaching Basics

1. What do you think geospatial means? *(Answer: Geospatial relates to a specific location on Earth.*

"Geo" meaning Earth and "spatial" meaning space or location. For example, the post office can send your mail to your house using your address because your address has specific geospatial coordinates.)

2. How do you think it works? *(Answer: Geospatial data is collected by Global Positioning Satellites (GPS) that orbit the Earth. There are at least 24 satellites that orbit the Earth 24 hours a day, 7 days a week. GPS works in any weather condition, anywhere in the world. GPS satellites circle the Earth twice a day in a precise orbit. Each satellite transmits a unique signal and orbital parameters that allow GPS devices to decode and compute the precise location of the satellite. GPS receivers use this information and trilateration to calculate a user's exact location. Essentially, the GPS receiver measures the distance to each satellite by the amount of time it takes to receive a transmitted signal. With distance measurements from a few more satellites, the receiver can determine a user's position and display it electronically to measure your running route, map a golf course, find a way home, or adventure anywhere.*

3. What is geocaching*? (Answer: The Long version - Geocaching (pronounced geo-cashing like cashing a check) is an outdoor recreational activity, in which participants use a Global Positioning System receiver or mobile device and other navigational techniques to hide and seek containers, called "geocaches" or "caches", at specific locations marked by coordinates all over the world. The Short Version - It's a high tech treasure hunt!)*

4. How does it work? *(Answer: The idea is to hunt for hidden containers (geocaches) that have been placed in the landscape. Caches vary greatly in size and appearance. In the field you will see everything from large containers such as a ammo can or plastic sandwich box to film canisters to a fake rock with a secret compartment. Your GPS enabled device will guide you to your selected coordinates and is usually accurate to within 16 feet of the container. From there you will need to use your "geo-sense" to discover the location of the cache. Once you have found it, sign the logbook, replace cache as it was found, then collect a "smiley" from the app by logging the find! Many caches have room for small treasures to trade - if you take an item, be sure to leave an item in its place.)*

5. How do I get started? *(Answer:*
   A. *Create an account on www.geocaching.com or other geocaching app service*
   B. *Choose a geocaching hunting "nickname" (like Rotten Bananas, or Team 4-H, etc) - this is what you will sign the logs with*
   C. *Search for nearby geocaches*
   D. *Read past logs - some give hints as to cache location or that it had not been found recently and may be missing*
   E. *Read cache description, note cache details and "hint"*
   F. *"Hunt" for your selected geocaches*
   G. *When found, sign the logbook, trade items if desired*
   H. *Return cache to exact position and condition it was found*
   I. *Log your "find" on geocaching.com and collect your "smiley")*

Types of Geocaches

1. **Traditional -** the original type of cache, a container and a logbook at the given coordinates.
2. **Earth -** a special geological location that people can visit to learn about a unique feature of the earth. To log an EarthCache, you will have to provide answers to questions by observing the location.
3. **CITO** - A CITO is a Cache In Trash Out event aimed at cleaning up and preserving the natural areas that we enjoy while geocaching. These events focus on litter clean up, removal of invasive

species, planting trees, and trail building.

4. **Puzzle or Mystery -** requires solving a puzzle or riddle to determine the correct coordinates of the cache
5. **Multi -** these caches involve 2 or more locations with the final location being the physical container with logbook
6. **Event -** a gathering of local geocachers or geocaching organizations. Event caches specify a time, date and coordinates to the location.
7. **Virtual -** is about discovering the location rather than a container. You may be required to answer a question about the location, take a picture, complete a task, etc. (You will find a lot of virtual caches on federal property such as national parks and monuments. For example there is a virtual cache at the Lincoln Memorial in Washington DC)
8. **Adventure Lab -** is a new app and platform that allows you to create, play, and share location-based experiences and games. The Adventure Lab app guides players through the process of finding clues, solving puzzles, and completing Adventures one location at a time. If you're already a Geocaching member, these Adventure Lab Caches count towards your Geocaching.com statistics and total finds. In contrast to other cache types, Adventure Lab Caches are virtual (without a container), can be indoors, and do not require a minimum distance to other geocaches.
9. **Letterbox Hybrid-** uses clues instead of coordinates. Containers will contain a stamp for cachers to record their visit. This is a tribute to an older kind of container search called letterboxing which began in 1854 - long before GPS!
10. **Wherigo -** an application that allows you to play interactive cartridges in the real world. Explore new locations, solve puzzles or immerse yourself in a fictional story using your GPS-enabled device.

Apps Available

➔ Geocaching from Groundspeak and Geocaching.com (for IOS and Android)
➔ Cachly (for IOS only)
➔ C:geo (for Android only)
➔ Wherigo uses the Wherigo app for iPhone and Where You Go app for Android
➔ Geocache Placer (for Android and only for placing new caches)
➔ Adventure Lab app is available from Groundspeak (for IOS and Android)

ACTIVITY: Group Hide and Seek a Cache

Time: 1 to 2 hours

What you will learn • Ways to hide and how to search for different sized containers.

What you need • A small to large plastic container from home (such as empty peanut butter or mayonnaise jars, sandwich containers, 35 mm film canisters) • A piece of fine wire or string long enough go around your container and still have a good size length to loop over a tree branch or other object • Flashlight

Instructions

1. Meet with your project group in a park or lightly wooded area.

2. Discuss what types of plants, animals or insects to watch out for. If you need to, look at any pictures in the booklet your group created to remind yourself what certain plants, animals or insects look like.

3. Show your container to everyone, and look at the containers they brought – you'll be looking for their containers, so pay attention to what they look like!

4. Take a walk with the whole group around the area. See if you can spot a few places that might be a good spot for the container you brought – but don't tell your group members which spot you're thinking of using! With the wire or string, you can also plan to hang or hook your container onto something.

5. While the rest of the group turns their backs, one or two members hide their container. Be patient – it will take them a while (and your turn is coming!).

6. When the hiders come back, everyone heads off to try to find a container. The hider goes with them and leads a game of hot/cold. When a seeker is heading in the right direction, the hider says, "(Seeker's name) is warm!" When a seeker is very close to the containers hiding spot (a few steps away), the hider announces, "(Seeker's name) is getting hotter!" When the seekers move away from the hiding spot, the hider announces, "You're getting colder." When the container is found, another member gets a turn to hide a container.

7. Continue playing until everyone has had a turn to be a hider.

Reflect & Review

1. Which containers were more difficult to find? Was it because of their size, the way they were hidden, their colour, or some other reason?
2. How easy was it for you to hide your container? Do you think you would use this type of container for a real geocache? Why or why not?
3. Which do you like better: hiding or seeking?
4. What did you learn today that you didn't know before about geospatial technology and geocaching?
5. What did you find "cool" from todays adventure?

GOOGLE DRIVE RESOURCES

VIDEO RESOURCES

- [Geocaching Vlogger](#) on TikTok: Combination videos of someone finding different geocaches.

RESOURCES

- Geocaching website
  - https://www.geocaching.com/play
- Geocaching Blog
  - https://www.geocaching.com/blog/
- Geocaching Project Book and Activity guide from 4-H Canada
  - https://www.gov.mb.ca/agriculture/rural-communities/4h/pubs/geocaching-members.pdf
- 4-H Learning Network
  - https://4hlnet.extension.org/what-is-geocaching/
- Geocaching Hiding Guidelines

- o https://www.geocaching.com/play/guidelines
- Letterboxing North America
    - o https://www.letterboxing.org/
- Wherigo
    - o https://www.wherigo.com/player/

✚EXTENSIONS

- Check out www.geocaching.com/play/guidelines for further details and information about hiding caches