

ANALYSIS REPORT
BY: DIANE E. MAIN

Description of Problem:**Families do not know:**

- what kind of GPS receiver to use and where to obtain one
- what geocaching is
- where to go geocaching
- how to stay safe while geocaching
- the benefits of geocaching

Parents and their children need healthy activities to engage in together. By doing activities together, parents spend more time with their children and are therefore more involved in their lives in general, which is frequently a problem faced by teachers of K-12 students. In addition, children frequently learn how to use gadgets such as GPS receivers more quickly than their parents do, so this is an opportunity for children to teach their parents something and gain satisfaction and confidence as a result.

The instruction will consist of a lecture-format discussion at the start, explaining geocaching, basic GPS use, and some safety information. We will then embark on a hike from there along which we will find geocaches that have been hidden by others (in a park) or by the instructor (on the school campus). Along the way (between cache finds), we will discuss what the participants view as the benefits of geocaching. At the end of the class time, information will be distributed giving information about how to log one's finds online, how to find other geocachers in the area, and a link to a website with information about where else one could go geocaching.

Step 1: Audience Analysis

Title	Audience
Geocaching for Beginners	Parents and children from Milpitas Christian School, plus other families they know (friends and family)

Characteristics	Description
Number to be trained	<ul style="list-style-type: none"> • Class size limited to six groups where each group consists of an adult with one or two children • If there are larger groups, the class size may be limited to fewer groups. • The ideal ratio of participants to instructor would be about 15:1, not to exceed 20:1.
Location of audience(s)	Mostly San Jose, Milpitas, and Fremont area
Experience level	Some participants may already have experience using GPS receivers, but lack of experience will not hinder enjoyment or learning.
Education level	No specific education level required, but children younger than five will lack basic required skills

Prerequisite knowledge	<ul style="list-style-type: none"> • Few, if any, prerequisite skills • English proficiency will be necessary for adults and/or older children who can help translate if necessary. • Safety requires that all participants can understand communication from the instructor, and instruction will only be available in English.
Reading level	4th grade English for most printed materials, with some technical terms to be explained for both adults and children at appropriate levels
Native languages	<ul style="list-style-type: none"> • Various • Proficiency in English required • Many of the school's families have parents for whom English is not the native or even primary language. But many of these adults function well in a mainly English-speaking work setting, so English fluency should not be a problem.
Attitude towards training	<p>The audience will generally not be known to the instructor beforehand, so it is impossible to discern the learners' attitudes. However, this course is voluntary and recreational, so it is safe to assume that the learners will welcome the instruction.</p> <p>Children prefer, and do best with, hands-on instructional experiences. It will be important to make sure adults and children take part equally in the hands-on aspect of the course so no one feels left out or "bossed around."</p> <p>Many of the school's families, especially those from Asian cultures, emphasize academic achievement and getting good grades. The activities in this course are not graded and are non-competitive. It may take a "shifting of gears" in the minds of some participants to view this as both learning and recreation.</p>
Other	An adult, ideally the child's own parent, must accompany each child.

Step 2: Environmental Analysis

Factor	Description
Access to computers	Most families in the target audience do have computers at home with high speed Internet. In addition, the children who attend MCS have access to lab computers at school.
Available learning technologies	<ul style="list-style-type: none"> • “Geocaching with Kids in the Bay Area” website made by instructor • GPS receivers (up to 20) for use by each group within the class • geocaching.com website is used after the class at home • flip chart with “slides” from presentation – presentation also available online for later review
Network bandwidth	<ul style="list-style-type: none"> • This varies, but high-speed (cable or DSL) exists in 70% or more homes of students. • At the school, in the computer labs, there is a local area network sharing a T1 line.
Support tools available	<ul style="list-style-type: none"> • Links, additional instructional files, and online support groups available (found on “Geocaching with Kids in the Bay Area” website) • Computers are not used during the class time, but are available in the days that follow (at the school).
Time for training	<ul style="list-style-type: none"> • Classes will take place either on the MCS campus or in a public park in the Santa Clara County area. • We will not meet inside a classroom, so space constraints are not really an issue. • Our time together will be at least three hours, so time of year, weather, and sunset times must be considered in planning a class meeting.
SME Input	<ol style="list-style-type: none"> 1. Learners must bring water, sunscreen, and snacks for their own groups, and they must dress appropriately (using layers) for all possible weather scenarios for that season. 2. We will work outdoors, so a group cannot be so large that participants have trouble hearing the instructor. 3. If we meet at a park, elevation gains and losses along a trail could present problems for younger children or any person with mobility issues. 4. During the class itself, we will not use computers, but participants will use computers afterward to “log their finds,” get more information, and plan future geocaching outings. 5. Groups need to be encouraged to allow all participants to feel the accomplishment of “finding” a geocache. Recommend that everyone who spots a hidden geocache moves away from the group until everyone (or at least every child) is given a chance to find it too.

Step 3: Function Analysis

ID	Function	Description
1	Enter coordinates into a GPS receiver.	Given latitude and longitude, participants will manually enter the coordinates into the GPS receiver, making use of the unit's built-in interface and buttons.
2	Use GPS receivers to locate an item at specified coordinates.	Using pre-entered coordinates, participants will stay moving and follow the directional arrow and distance information to the hide location.
3	Locate hidden geocaches using both the GPS receiver and one's own senses.	Once at the hide location, participants will use their five senses and any clues provided to find the hidden geocache container.
4	Avoid potential dangers caused by plants, animals, and the elements.	Participants will be informed of common risk factors and how to avoid them, such as poison oak, rattlesnakes, dehydration, sunstroke and sunburn, and heat exhaustion. These vary depending on class location, but general information and guidelines will be given.
5	Use geocaching.com website to set up account, log geocache finds, and plan future outings.	After the class, participants will set up free accounts on geocaching.com and use the site to log their finds. They can also use it to plan future geocaching adventures close to home, in other parks, or in locations they visit.

Step 4: Task Analysis

ID	Function Title
1	Enter coordinates into a GPS receiver. (All these tasks are described using a Garmin eTrex Venture HC GPS handheld receiver.)

ID	Task	Description
1	Turn on GPS receiver. Wait for the unit to acquire a "lock" on at least four satellites.	Use the power button located on the right side of the unit, as you face the unit. It is the lower of the two buttons on that side of the unit. The first screen shows when satellites have been acquired. If it does not, ask the instructor to help you get to that screen.
2	Use buttons to navigate through unit's interface.	The "page" button is the upper button on the right side of the unit, above the power button.
3	Use the joystick/button to navigate to the "Mark" icon in the Main Menu screen.	The joystick/button is on the upper left area of the face of the unit. It protrudes slightly from the surface of the unit, and it is both a navigation tool and a button that can be depressed.
4	Click the joystick/button on the "Mark" icon.	This will take the user to a screen with many options that can be changed.
5	Use the joystick/button to modify the name of the waypoint, then move to and select the coordinates section.	Changing the name requires use of an on-screen interface containing the alphabet, numbers, and other symbols and functions, such as space and capitalization.
6	Use the joystick/button to modify the coordinates of the current location to be the coordinates given by the instructor.	Changing the coordinates requires use of an on-screen interface containing arrows and numbers, as well as letters to change N, S, E, or W as part of the coordinates.
7	Use the joystick/button to move to the OK button, and click it to save the coordinates.	There are other on-screen "buttons" near OK, so be careful which you select.
8	Repeat process for all coordinates needing to be entered.	With practice, this process goes very quickly. The closer your location is to the location of the coordinates you are entering, the less data you need to change.

ID	Function Title
2	Use GPS receivers to locate an item at specified coordinates. (All these tasks are described using a Garmin eTrex Venture HC GPS handheld receiver.)

ID	Task	Description
1	Turn on GPS receiver. Wait for the unit to acquire a "lock" on at least four satellites.	Use the power button located on the right side of the unit, as you face the unit. It is the lower of the two buttons on that side of the unit. The first screen shows when satellites have been acquired. If it does not, ask the instructor to help you get to that screen.
2	Use buttons to navigate through unit's interface.	The "page" button is the upper button on the right side of the unit, above the power button.
3	Use the joystick/button to navigate to the "Waypoints" icon in the Find screen.	The joystick/button is on the upper left area of the face of the unit. It protrudes slightly from the surface of the unit, and it is both a navigation tool and a button that can be depressed.
4	Use the joystick/button to navigate to and select the name of the geocache being sought.	The instructor will tell you which name to choose, or will give you the option of choosing the nearest or certain names from the list. These coordinates have been entered in advance by the instructor or entered in the previously described function by the student.
5	Use the joystick/button to navigate to and select the "Go To" button on the screen.	This begins the navigation function of the GPS receiver.
6	Move in the direction the arrow points, changing direction as necessary to continue having the "distance to" number decreasing toward zero.	In order for the GPS receiver to maintain an accurate fix, the user must keep moving. The "distance to" number should be trusted more than the arrow, as the built-in compass is less accurate when movement is slow or stopped, or when other factors inhibit the unit's accuracy. Another member of the group should help guide the student who has the GPS receiver, and the student operating the GPS unit should also look up periodically to avoid accident or injury.
7	When the "distance to" number is at or very close to zero, begin looking for the geocache in the location you have come to.	For more information, refer to the next function in this analysis.

ID	Function Title
3	Locate hidden geocaches using both the GPS receiver and one's own senses.

ID	Task	Description
1	Use a GPS receiver to arrive at the specified location.	(See previous two functions.)
2	When the "distance to" number is at or very close to zero, begin looking for the geocache in the location you have come to.	Use all senses, and do not assume that because something appears to belong in that location, that there is not something under it or inside it.
3	Refer to any hints provided and descriptions of the size and type of container hidden, when available.	Geocache pages from the geocaching.com website usually include the size and type of container, and often contain an encrypted hint to help the finder.
4	Move items as needed, but always replace them. Do not dig. No geocache should ever be buried.	Geocaches are often camouflaged using available natural materials, paint, or even key-hiders that look like rocks. Some geocaches are built into bricks, fence posts, and other items that appear to belong there.
5	When you find the geocache, open the container and sign the log, using the name you or your group has decided to use.	All geocaches must contain, at the very least, a log book or log sheet. They may or may not include a pen or pencil, so it's a good idea to have one with you.
6	If there are "trade items" in the geocache, you may take something if you leave something else in its place.	DO NOT leave food, beverages, weapons, alcohol, drugs, cigarettes, or any material that pushes and agenda or might be offensive.
7	If there are "trackable items" in the geocache, you may take them only if you plan to move them along in another geocache soon.	Travel Bugs (TBs) and geocoins are two types of trackable items sometimes found in geocaches. Each has its own page on the geocaching.com website, where it lists the mission or goal of the item. These are not to be kept or collected. They belong to someone else.
8	Put everything back in the geocache and re-hide it exactly as you found it.	Be aware of the environment. Don't hide a geocache "better" than it was hidden unless it was in plain sight and its description indicates that it should have been harder to find. It's a good idea to make a note of anything unusual to report to the cache owner later. Also, try to avoid damaging plants and earth in the vicinity of the geocache. If there is garbage around, pick it up and take it away to dispose of properly.

ID	Function Title
4	Avoid potential dangers caused by plants, animals, and the elements.

ID	Task	Description
1	Apply and re-apply sunscreen before and during your hike.	SPF 15 is the recommended minimum. Sweat can often make these products less effective, so re-apply every few hours.
2	Drink water before and throughout the hike.	Carry one water bottle for each member of your group, plus an extra supply to refill those as necessary. If you feel thirsty, you are already beginning to dehydrate.
3	Bring high-energy snacks to consume during the hike. Keep all wrappers and other trash in your possession.	Protein and carbohydrates, eaten together, are perfect trail food. Trail mixes made of nuts and dried fruit serve this purpose. Sandwiches, fruit, and power bars or granola bars are also easy to transport. Do not leave food or containers behind.
4	Wear appropriate clothing, with layers to add or remove as needed in response to changing weather. Cover your head.	Cover as much of your body as you can while still remaining comfortable. This helps protect you from sun and insects. Hiking boots or walking shoes (closed-toe only) are ideal for trail walks or hikes. A hat with a brim in the front can protect your eyes from sunlight, or a brim all the way around can protect your ears and neck as well. Hats also keep in warmth when it is cold.
5	Be able to identify and avoid contact with poison oak in all seasons. Know what hemlock looks like and avoid ingesting any part of the plant.	(This could apply to poison ivy or poison sumac in other locations.) The instructor will provide descriptions and pictures of these plants.
6	Use a stick or hiking pole to poke into areas before putting your hands in. If a rattlesnake is encountered, slowly move away from the animal and avoid agitating it.	Rattlesnakes typically hide in rock piles and under logs and rocks. They also come out in cooler weather to sun on rocks or even right in the middle of the trail. They are cold-blooded, so if it is warm outside, they will be hiding to cool off, and if it is cool outside, they will come out to bask in the sunlight. You may not always hear a rattlesnake, and young ones can be deadly for two reasons: their rattles are not fully developed and therefore can't warn you, and they cannot control their flow of venom, so if they bite you, you get it all.
7	Read all posted signs as you enter a park area.	These will typically tell you how to avoid rattlesnakes, mountain lions, and other animals known to live in an area. They will also tell you what to do if you encounter an animal. They may also tell of specific hazards or even historical landmarks.
8	Inspect clothing, hair, and skin for ticks and other insects (or their bites) upon leaving the park. Do not wait until you get home to begin inspecting.	Ticks are common in outdoor areas. Long pants and sleeves can help you avoid getting them on your skin, but you should inspect outside your clothing, and near your neck and hairline immediately, then inspect all over your body when you arrive home.

ID	Function Title
5	Use geocaching.com website to set up account, log geocache finds, and plan future outings.

ID	Task	Description
1	Use a computer and web browser to access the website www.geocaching.com	
2	Set up a free account (or a paid premium account for \$30 a year). Use a geocaching name of your choosing.	You will have options for setting up a profile with your location, occupation, e-mail address, and other information. These are optional.
3	Use the "hide & seek a cache" link to search for the geocaches you found during the class hike.	(If they were public geocaches in a park, and not hidden by the instructor only for that class session.)
4	Use the website's links and navigation system to log finds for each of the geocaches you found.	You can also post a note or post a "did not find" log for a geocache. In your note, describe what happened during your search, without giving too much away.
5	Use the website's "trackable items" section to "pick up" any travel bugs or geocoins you found.	This is also where you can make notes about the items when you "drop" them into other geocaches.
6	Use the website to read about geocaches located close to your home or in places you plan to visit in the near future.	There are many search options in the "hide & seek a cache" section of the website.
7	Use the website's other resources for communicating with other geocachers, learning more about using the website with your GPS receiver, and using the website's data with Google Earth.	The website has many links and resources available for you to learn more.
8	Consider purchasing your own GPS receiver if you do not have one already. Use your web browser to visit thegba.net to meet other geocachers in the area and get advice.	The Geocachers of the Bay Area is a local group of geocachers, and they are very helpful with advice on a number of topics, including places to go geocaching and GPS receiver models you might want to consider buying.