Unit Plan: Creating a Geocache
Grade Level: 8
Subject: Communications
Unit Timeline: Varies**,** but Lesson Plan 1 and 2 will take a total of 2 hours
Author: Bradley A. Lavite

Unit Summary - Students will learn about Geocaching and create their own cache. Cache data collection and analysis will be combined with various forms of technology and software applications. Technology and software applications will then be used in conjunction with website exploration and material research to achieve the desired outcome of creating a classroom cache.

Unit Description - Students learn how to use handheld computers as data-collection tools to learn about Geocaching. Research over Geocaching will be conducted using FlingIt for Palm and a concept map will be created using Inspiration for Palm. Cache concept maps will then be "beamed" to the teacher and other students for further analysis and review. Students will also be briefly introduced to a Garmin Handheld Global Positioning System and how it is a key tool used in geocaching.

After the Geocaching research and concept maps are complete students will then create a classroom weather proof cache that will then be filled with information about this project and placed in a location on city property. The gps coordinates will then be uploaded and listed on the Geocaching website, so other cache hunters who are in the area can locate, explore the contents of the cache, and review the students learning experiences over the course of completing this instructional unit.

There are many other resources available for use with handheld computers to collect Geocaching data efficiently and accurately. After learning the basics of Geocaching, students can learn to use other software available to assist them in learning more about Geocaching. Other software packages available to students to expand learning can be located below under Handheld Productivity Tools and Desktop Productivity Tools.

Throughout this unit students will can create their own learning experiences by collecting data from various sources in order to find answers to newly formed questions. The handheld devices will help foster independent learning and build student interest in exploring the world around them and the technology within it.

As a result of completing this unit, I hope students will learn responsibility when using the technological devices in the classroom. In addition to becoming more responsible, I am anticipating an increase in student collaboration because they will be sharing their research, concept maps, and the project with their peers, others throughout the community, and future cache hunters who locate our cache.

Essential Unit Questions Answered - What is Geocaching, how is the game played, what is required to play, how are caches created, and how do you track caches when found?

Unit Lesson Plans

Lesson Plan 1	**Lesson Plan 2**

Unit Research Resources

Unit Effectiveness Journal	Handheld Technology Blog

Handheld Productivity Tools

GSAK Geocaching Management Tool	Plucker Web and E-book Viewer
FlingIT for Palm	Inspiration for Palm
GPX Spinner	MobiPocket Reader
Mapadvisor	Adobe Palm Reader
CacheMate	Cetus GPS

Desktop Productivity Tools

Google Earth	Pluker Desktop
Quakemap	Adobe Reader

Purchase Additional Unit Reading Resources

Idiot's Guide to Geocaching	The Geocaching Handbook

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Lesson Plan 1 - Researching Geocaching
Grade level: 8th
Subject: Communications
Lesson Plan 2 Time: 1 Hour
Author: Bradley A. Lavite

Lesson Summary: Students will research the key elements of Geocaching using FlingIt website viewing software for Palm.

Lesson Objective: Given a Palm handheld device loaded with FlingIt for Palm website viewing software, students will research Geocaching Key Terms and Definitions, the rules of Geocaching, and how to create a Geocache.

Materials or Additional Resources:

1. Palm handheld devices loaded with FlingIt for palm. (Download FlingIt for Palm)
2. Geocaching Website downloaded on the Palm.

Lesson Prerequisites:

1. Students will have received general instruction over how a PDA works and watched tutorial movies over some basic operations and skills in using a Palm handheld device and built in applications.
2. Students will have been introduced to FlingIt using the FlingIt quick start guide.

Lesson Procedures and Tasks:

Introduction

Introduce your lesson with a general discussion about scavenger hunts, hid-en-go-seek, or easter egg hunts. Ask the students to think of things that are required to play any of the games listed above. After a brief discussion using the above games ask the students to imagine having a world-wide scavenger hunt or easter egg hunt. Tell them that Geocaching is a game that combines aspects of all three games and is played world-wide. In order to motivate the students and keep their attention, tell them that they are going to participate in a world-wide scavenger hunt and they will track players who find the cache we hide via the internet. Next introduce the students to the key terms and definitions as well as the rules associated with Geocaching. Continue the lesson by having the students review how to create a Geocache by visiting the Creating Your First Geocache webpage located on the Official Geocaching Website. Students can also review the official Geocaching Brochure and Business Card to further their understanding if needed.

Key Terms and Definitions

1. Geocaching: Is an entertaining adventure game for gps users. The basic idea is to have individuals and organizations set up caches all over the world and share the locations of these caches on the internet. GPS users can then use the location coordinates to find the caches. Once found, a cache may provide the visitor with a wide variety of rewards. All the visitor is asked to do is if they get something they should try to leave something for the cache.

2. Global Positioning System (GPS): A GPS unit is a electronic device that can determine your approximate location (within around 6-20 feet) on the planet. Coordinates are normally given in Longitude and Latitude. You can use the unit to navigate from your current location to another location. Some units have their own maps, built-in electronic compasses, voice navigation, depending on the complexity of the device. Learn more about how GPS actually works by playing the interactive GPS Shockwave game.
3. Cache: Pronounced "cash" - In geocaching it is a hidden container filled with a log book and pencil/pen, and possibly prizes. Caches were often used by explorers, miners, etc. to hide foodstuffs and other items for emergency purposes. People still hide caches of supplies today for similar reasons. Geocaching comes from the terms "geo" and "cache" to explain the sport. Some caches have cash in them, but there is no pun intended :-)
4. Hitchhiker: A hitchhiker is an item that is placed in a cache, and has instructions to travel to other caches. Sometimes they have logbooks attached so you can log their travels. A Travel Bug is an example of a hitchhiker.
5. Letterboxing: Letterboxing is similar to Geocaching, but you use a series of clues to find a container. Once you find the container (or letterbox), you take a carved stamp from the box and stamp your personal logbook. You then take your carved stamp and stamp the letterbox's log book. See Letterboxing North America for more info.

Geocaching Rules

1. Take something from the cache.
2. Leave something in the cache.
3. Write about it in the logbook.
4. Begin your search of caches around your town.
5. Continue your quest to find caches as you travel or while you are on vacation.

Creating Your First Cache

Tell the students that there are primarily five steps that need to be accomplished before they can begin to play Geocaching and track their own cache that they will create. Go over each step of creating a Geocache, but only provide a short description to the students, let them explore the webpage themselves using the Palm. Tell them that a more detailed description of each step can be found by visiting the Geocache Website and reviewing the Creating Your First Geocache page. The Creating Your First Geocache page provides written descriptions about what each step actually entails and this is where the students will gather the information needed to create their concept map in Lesson 2.

Five steps to creating a cache

Step 1 - Research a cache location.
Step 2 - Preparing Your Cache.
Step 3 - Placing Your Cache.
Step 4 - Report the Cache.
Step 5 - Maintain the cache.

Final Product: Tell the students that after everyone has completed their research over how to create a cache that they will have a quiz over Lesson 1 at the beginning of next class period.

Individual Assessments:

1. Lesson 1 Quiz

Conclusion: By successfully completing this lesson, students will have a better understanding of Geocaching and the various online resources that they will use in Lesson 2: Mapping out a Geocache of this Unit Plan to create a concept map. Students will utilize Lesson 1: Researching Geocaching as a foundation to build from and as a point of reference to guide them through to the completion of the entire Unit Plan. In another class period a final combined concept will be used to depict how they will proceed as a class towards completing the project. The final product will be a

classroom concept map, made using Inspiration, that sorts through all of the research data and focuses in on the key parts needed to create a class cache.

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Lesson 1 Quiz: Mapping out a Geocache

Name:_____
Hour:_____

Briefly describe using complete sentences the Terms and Definitions listed below?

1. Geocaching:

2. Global Positioning System:

3. Cache:

4. Hitchhiker:

5. Letterboxing:

Circle the following that are not rules in Geocaching?

1. Take the entire cache home with you once you locate it because it is yours to keep.
2. If you find a cache write about it in the logbook.
3. It is not recommended that you leave something in the cache should you take something from it.
4. If you find a cache you should take the logbook because it is your proof that you located the cache.
5. Geocaching is a game that can be played as you travel or while you are on vacation.

Place the following 5 steps to creating a cache in the correct order?

Step _____ - Report the Cache.
Step _____ - Preparing Your Cache.
Step _____ - Research a cache location.
Step _____ - Placing Your Cache.
Step _____ - Maintain the cache.

Extra Credit

What is a Travel Bug and what is the purpose of it?

Lesson Plan 2 - Mapping out a Geocache
Grade level: 8th
Subject: Communications
Lesson Plan 2 Time: 1 Hour
Author: Bradley A. Lavite

Lesson Summary: Students will layout the key elements of creating a Geocache using Inspiration for Palm graphic organization software.

Lesson Objective: Given a Palm handheld device loaded with Inspiration for Palm graphic organization software, students will create an concept map, using no more than a 25 visual diagrams, depicting the items found within a typical Geocache.

Materials or Additional Resources:

1. Palm handheld devices loaded with Inspiration for palm. (Download 30 day free trial)
2. High speed internet access for viewing shockwave videos. (Download Macromedia Shockwave Player)

Lesson Prerequisites:

1. Students will have received general instruction over how a PDA works and watched tutorial movies over some basic operations and skills in using a Palm handheld device and built in applications.
2. Students will have learned how to use the beaming feature of the Palm handheld device.
3. Prior to creating the concept map students will have read about concept mapping via the Inspiration Website, viewed the Inspiration for handheld's interactive demonstration, and viewed the view tutorial movies over how to use basic features of Inspiration.
4. Students will review an example of a concept map to gain an understanding of what their final project may resemble.
5. Students will have practiced making concept maps using Inspiration on desktop computers in the Jr. High Computer Lab.
6. Students will have completed Lesson Plan 1 Researching Geocaching.

Lesson Procedures and Tasks:

Introduction

Introduce your lesson by recreating the concept map example on the blackboard as a refresher for students. Have the students open the example on their palm pilots, so they can refer to it as they create their own concept map.

Creating the Concept Map

Quickly review each step of creating a Geocache from Lesson 1: Researching Geocaching.

Explain to student that they will have 6 visual diagrams that consist of central diagram bubble and then one diagram bubble extending out from the central bubble that represents each of the 5 steps needed to create a cache. Each of the 5 bubbles will in turn have more offshoots that will expand until they have a complete concept map that properly lays

out all the steps of creating a cache. Tell the students that some diagram bubbles will be more detailed then others and will therefore have more offshoots. For example, Step 2 - Preparing Your Cache will probably require more offshoots then say Step 4 - Reporting Your Cache. This is because Step 2 is a critical aspect of creating a cache and this is the step where student are asked to physically create a product. Assist the students by modeling your own concept map over creating a cache on the blackboard or using a Proxima projector connected to a Palm device.

Five steps to creating a cache

Step 1 - Research a cache location.
Step 2 - Preparing Your Cache.
Step 3 - Placing Your Cache.
Step 4 - Report the Cache.
Step 5 - Maintain the cache.

Final Product: Tell the students that after everyone has completed their own concept map over how to create a cache that they will beam one another and the teacher their completed concept map. A copy of the student created concept maps will be saved on the network drive and printed off for further discussion in the regular classroom.

Individual Assessments:

1. Mapping out a Geocache Multimedia Project Rubric.

Conclusion: By successfully completing this lesson, students will have a better understanding of Geocaching, various software tools, and various other online resources that they will use to complete this Unit Plan. Students will utilize the concept map created as a point of reference to guide them through to the completion of an actual cache. During future class periods, a final combined concept map maybe crated using aspects of all the student concept maps. The combined concept map can be used to depict how they will proceed as a class towards completing the project of creating a class cache.

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Multimedia Project : Mapping out a Geocache

Teacher Name: **Mr. Lavite**

Student Name: _____

CATEGORY	4	3	2	1
Organization	Content is well organized using concept bubbles with headings to group related material.	Uses concept bubbles with headings to organize, but the overall organization of topics appears flawed.	Content is logically organized for the most part.	There was no clear or logical organizational structure, just lots of facts.
Attractiveness	Makes excellent use of the Inspiration Software graphics, effects, etc. to enhance the presentation.	Makes good use of the Inspiration Software graphics, effects, etc. to enhance to presentation.	Makes use of the Inspiration Software graphics, effects, etc. but occasionally these detract from the presentation content.	Use of the Inspiration Software graphics, effects, etc. but these often distract from the presentation content.
Content	Covers topic in-depth with details and examples. Subject knowledge is excellent.	Includes essential knowledge about the topic. Subject knowledge appears to be good.	Includes essential information about the topic but there are 1-2 factual errors.	Content is minimal or there are several factual errors.
Requirements	All requirements are met and exceeded.	All requirements are met.	One requirement was not completely met.	More than one requirement was not completely met.

Implementation & Presentation – Students will implement their handheld unit and lessons into their classroom. During implementation, students will journal about the experience and then develop a presentation to share with the class regarding the unit effectiveness. To be included in the presentation are elements that went well, elements that "crashed and burned", and lessons learned through the process of developing and implementing this unit.

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