ROYAL CANADIAN ARMY CADETS

GOLD STAR

INSTRUCTIONAL GUIDE

SECTION 6

EO C422.03 – DISCUSS MAP SOFTWARE

Total Time: 30 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-704/PG-001, *Gold Star Qualification Standard and Plan*, Chapter 4. Specific uses for said resources are identified throughout the instructional guide within the TP for which they are required.

Review the lesson content and become familiar with the material prior to delivering the lesson.

If available, provide an example using a global positioning system (GPS) receiver that is capable of connecting with a computer complete with the manufacturer's software.

If the resources are available, connect to the Internet and access Google Earth. Provide a simulation on how to upload information from a GPS receiver to Google Earth.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

An interactive lecture was chosen for this lesson to introduce the cadet to map software for GPS receivers.

INTRODUCTION

REVIEW

Nil.

OBJECTIVES

By the end of this lesson the cadet shall have discussed map software.

IMPORTANCE

It is important for cadets to know that map software is available and GPS receiver units are capable of networking with a computer and web-based software. The combination of map software and GPS receivers has the ability to enhance planning and tracking capabilities. Cadets can plan their route on a computer, review their route with more detail, print usable maps and download prepared routes with waypoints and points of interest (POIs). The ability to perform these functions may allow the cadet to plan and design the navigation component of a day hike or expedition with meticulous scrutiny.

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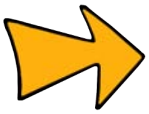
Teaching point 1 **Describe GPS manufacturer software features.**

Time: 15 min Method: Interactive Lecture

SOFTWARE FEATURES

GPS receiver manufacturers have developed a number of software products that allow the user to access the GPS receiver's map on a computer. The ability to work with the map on a computer allows the cadet to plan and prepare routes and study the terrain along the route.

Every GPS receiver's make and model is typically sold with a different base map (preloaded map that comes with the purchase of a GPS receiver). These maps can be added to commercially available maps / software to upload a different map. This allows new and improvised benefits like increased detail, different styles of maps (eg, topographical, nautical) or updated maps.



Different manufacturers' GPS receivers are similar, but have specific differences that separate one from the other.

The following points identify a GPS receiver's software functions when connected to a computer. Most GPS receivers have these common features:

Setting POIs. Software packages have POIs such as restaurants, stations and geographic features shown on the maps that may be viewed with a computer or GPS receiver. These POIs can be set while using the computer and later downloaded to the receiver for use while travelling along the planned route.

Printing maps on a personal computer. The maps from a GPS receiver with the manufacturer's computer software allow the user to view and print maps, measure distances, and plan trips. The ability to print the map provides a hard copy of the planned route, reducing the requirement to purchase additional maps of the area.

Uploading maps, waypoints, routes and tracks to GPS receivers. One purpose of mapping programs is to upload maps to the GPS receiver. The maps appear in colour and are the same on the computer and the GPS receiver screen, although the GPS receiver displays smaller portions of the map compared to the computer screen. Once a map is uploaded to the computer, waypoints, routes, and tracks can be uploaded from the computer to a GPS receiver. The user can plot several waypoint locations on the computer map and then transfer them to the GPS receiver.

Downloading GPS receiver data to a personal computer. With GPS mapping software, information that has been recorded with the GPS receiver, such as waypoints, routes, and tracks, can be downloaded. This data can then be viewed as an overlay on the maps displayed on the computer or stored on the computer's hard drive for future reference.

CONFIRMATION OF TEACHING POINT 1

QUESTIONS:

Q1. What common software features are available for computers and GPS receivers?

Q2. What is the benefit of having the ability to print a map from the computer GPS receiver software?

Q3. What information can be downloaded from a GPS receiver to a computer?

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ANTICIPATED ANSWERS:

A1. The common software features available for computers and GPS receivers are options that allow the users to:

- set POIs;
- print maps on a computer;
- upload maps, waypoints, routes and tracks to GPS receivers; and
- download GPS receiver data to a personal computer.

A2. The ability to print the map gives the user a hard copy of the planned route, reducing the requirement to purchase additional maps of the area.

A3. The information that has been recorded with the GPS receiver, such as waypoints, routes, and tracks, can be downloaded. This data can then be viewed as an overlay on the maps displayed on the computer or stored on the computer's hard drive for future reference.

Teaching point 2 **Describe web-based resources.**

Time: 10 min Method: Interactive Lecture

WEB-BASED RESOURCES



During this TP explain to the cadets how GPS receivers are now being used for many different purposes other than navigation. Allow the cadets to comment and express their experiences and ideas to help develop and support the information presented.

GPS receivers are used for more than just navigation. Entrepreneurs have developed many ways to use a GPS receiver to help with tracking, locating, measuring, and positioning. These applications are available through the Internet.

The Internet provides the GPS receiver user with many sites where they can access and upload their treks. Google Earth is a program provided free by Google (www.google.com) that allows the GPS receiver user to link with the program and upload their trekking history, including start and finish locations, waypoints and POIs. This program then maps out the trek and displays it on a overlay of the map provided by the program. The program is also capable of providing real-time tracking.



Information that is uploaded is surrendered to the website and the data then becomes available for anyone to view and use.

This is just one example of a web-based resource that is available to GPS receiver users. Other web-based resources can be used for:

- pet and animal tracking,
- personal safety locators and trackers,
- theft deterrence devices for automotive vehicles,
- cell phone tracking,

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- child monitoring and communications, and
- athletic training tracking.

CONFIRMATION OF TEACHING POINT 2

QUESTIONS:

Q1. What other websites exist for GPS users?

Q2. What can a GPS receiver user do when they access the program Google Earth?

Q3. What other web-based resources exist for GPS receiver users?

ANTICIPATED ANSWERS:

A1. The answers provided will be based on the cadets' experience with web-based resources.

A2. A GPS receiver user can upload their trekking history, including start and finish location, waypoints and POIs. Google Earth maps out the trek and displays it on a overlay of the map provided by the program. The site is also capable of providing real time tracking.

A3. The other web-based resources can be used for:

- pet and animal tracking,
- personal safety locators and trackers,
- theft deterrence devices for automotive vehicles,
- cell phone tracking,
- child monitoring and communications, and
- athletic training tracking.

END OF LESSON CONFIRMATION

QUESTIONS:

Q1. What are three software features of GPS receiver manufacturer software for computers?

Q2. What is the main purpose of mapping programs on a computer?

Q3. What website can be used to interface with a GPS receiver and provide an overlay of a persons trek?

ANTICIPATED ANSWERS:

A1. Three features of GPS receiver manufacturer software for computers can include any of the following:

- set POIs,
- print maps on a computer,
- upload maps, waypoints, routes and tracks to GPS receivers, and
- download GPS receiver data to a computer.

A2. The main purpose of mapping programs on a computer is to upload maps to the GPS receiver.

A3. Google Earth can interface with a GPS receiver.

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CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

Nil.

CLOSING STATEMENT

GPS receivers have many capabilities. Cadets are able to access the Internet and link the GPS receiver with the computer, uploading information from the GPS receiver to obtain a visual representation and description of the areas travelled. This information can be shared with other cadets who wish to retrace a route that someone has already travelled.

INSTRUCTOR NOTES / REMARKS

Nil.

REFERENCES

C2-142 ISBN 0-7645-6933-3 McNamara, J. (2004). *GPS for dummies*. Hoboken, NJ: Wiley Publishing, Inc.

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