ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL FOUR

INSTRUCTIONAL GUIDE

SECTION 4

EO M490.04 – NAVIGATE TO A WAYPOINT USING A GLOBAL POSITIONING SYSTEM (GPS) RECEIVER

Total Time: 120 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-804/PG-001, *Proficiency Level Four 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.

Photocopy the GPS receiver's Functions Image and the GPS receiver's Function Key Uses pages from the GPS manual for each cadet.

Photocopy the Waypoint Form located at Attachment A and cut it in two.

Mark off five specific waypoints. The waypoints should be at a physical object (eg, tree, fence post, street marker, telephone booth, etc.). Each waypoint should have a small container or plastic bag containing an object or written clue. The waypoint should be marked to indicate it is part of this lesson. The waypoints should be between 200–500 m apart.

Test and ensure the GPS receivers and hand-held radios are functional and have fully-charged batteries.

PRE-LESSON ASSIGNMENT

Nil.

APPROACH

A demonstration was chosen for TP 1 as it allows the instructor to demonstrate and explain how to navigate to a waypoint using a GPS receiver.

A practical activity was chosen for TP 2 as it allows the instructor to introduce the GPS receiver while providing an opportunity for the cadets to practice navigating to a waypoint using a GPS receiver under supervision.

INTRODUCTION

REVIEW

Nil.

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OBJECTIVES

By the end of this lesson the cadet shall have navigated to a waypoint using a GPS receiver.

IMPORTANCE

It is important for cadets to experience navigating with a GPS receiver so that they have basic knowledge of how a GPS receiver works, enabling them to use a GPS in a survival situation. The skills learned in this lesson parallel the civilian sport of geocaching.

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Teaching point 1 **Explain and demonstrate turning on the GPS receiver, selecting the waypoint list, selecting a waypoint, and using the GPS receiver to move to a waypoint.**

Time: 30 min Method: Demonstration



Due to the variety of available GPS receivers, the information in this TP should reflect the model used by the cadets.



Distribute a photocopy of the GPS receiver's Functions Image and GPS receiver's Function Key Uses and explanations to each cadet.

TURNING ON A GPS RECEIVER, SELECTING THE WAYPOINT LIST AND SELECTING A WAYPOINT

Follow the GPS manual for instructions on how to turn on, select a waypoint list and select a waypoint.



Demonstrate to the cadets how to turn on the GPS and select a waypoint.

USING THE GPS TO MOVE TO A WAYPOINT



Follow the GPS manual for instructions on how to move to a waypoint.



Have the cadets practice using the GPS receiver, to include:

- turning the unit on;
- selecting the waypoint list;
- selecting a waypoint; and
- moving to the waypoint.

CONFIRMATION OF TEACHING POINT 1

The cadets' participation in using the GPS receiver will serve as the confirmation of this TP.

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Teaching point 2 **Have the cadets practice navigating to a waypoint using a GPS receiver.**

Time: 80 min Method: Practical Activity

ACTIVITY

OBJECTIVE

The objective of this activity is to have the cadets practice navigating to a waypoint using a GPS receiver.

RESOURCES

- GPS receiver,
- Waypoint containers,
- Waypoint locations,
- Hand-held radio (one per group),
- Waypoint Form located at Attachment A (one per group), and
- Pen / pencil.

ACTIVITY LAYOUT

Prepared waypoints as per pre-lesson instructions.

ACTIVITY INSTRUCTIONS

1. Divide the cadets into groups of four.
2. Distribute the equipment to the cadets.
3. Have the cadets perform a radio check.
4. Demonstrate to the cadets how to complete the Waypoint Form. A sample is located at Attachment B.



The waypoints may be indicated on the Waypoint Form as either the actual waypoint or the title of a waypoint that was previously entered into the GPS (eg. Lat / Lon, or Alpha Seven).

5. Have each cadet lead the group to one of the waypoints using the GPS receiver. It is possible that one or more cadets will lead to more than one waypoint.
6. Before moving to the next waypoint, have the cadets indicate the object or written clue on the Waypoint Form.
7. Have the cadets move through the five waypoints.
8. Gather the equipment.
9. Debrief the cadets on the activity.

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SAFETY

- Each group will have a separate instructor during the navigation activity.
- Ensure cadets observe pedestrian safety during the navigation activity.

CONFIRMATION OF TEACHING POINT 2

The cadets' participation in the activity will serve as the confirmation of this TP.

END OF LESSON CONFIRMATION

The cadets' participation in navigating to a waypoint along a predetermined route using a GPS receiver will serve as the confirmation of this lesson.

CONCLUSION

HOMEWORK / READING / PRACTICE

Nil.

METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-804/PG-001, *Proficiency Level Four Standard and Plan*, Chapter 3, Annex B, 490 PC.

CLOSING STATEMENT

The GPS receiver is a very powerful navigational tool which, like so many current technologies, continues to appear in other endeavours with a revolutionary effect. If a GPS is available in a survival situation, you can move effectively to safety or rescue.

INSTRUCTOR NOTES / REMARKS

Several waypoints should be set up before this lesson.

The waypoints should be indicated on the ground or object by a marker.

The waypoints should be 200 m–500 m apart.

Cadets who are qualified Survival Instructor may assist with this instruction.

REFERENCES

C2-143 ISBN 1-58923-145-7 Featherstone, S. (2004). *Outdoor guide to using your GPS*. Chanhassen, MN: Creative Publishing International, Inc.

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WAYPOINT FORM

TEAM				
NO	WAYPOINT	CLUE	START TIME	END TIME
1				
2				
3				
4				
5				

Cut Here

WAYPOINT FORM

TEAM				
NO	WAYPOINT	CLUE	START TIME	END TIME
1				
2				
3				
4				
5				

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EXAMPLE OF COMPLETED WAYPOINT FORM

WAYPOINT FORM

TEAM				
NO	WAYPOINT	CLUE	START TIME	END TIME
1	60° 40' 30"N 135° 08' 30"W	Purple plastic elephant	1400 hrs	1412 hrs
2	48° 19' 50" N 070° 59' 47" W	Grey plastic army man	1415 hrs	1424 hrs
3	54° 24' 18" N 110° 16' 46" W	The word yellow	1429 hrs	1437 hrs
4	44° 16' 18" N 079° 54' 43" W	Orange peel	1445 hrs	1455 hrs
5	44° 59' 04" N 064° 55' 01" W	Blue plastic airplane	1458 hrs	1505 hrs

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