**ROYAL CANADIAN ARMY CADETS**

**GREEN STAR**

**INSTRUCTIONAL GUIDE**

**SECTION 1**

# EO M122.01 – IDENTIFY TYPES OF MAPS

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-701/PG-001, *Green 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.

### PRE-LESSON ASSIGNMENT

Nil.

### APPROACH

An interactive lecture was chosen for TPs 1, 2 and 3 to introduce the cadets to the purpose, the various types, and the maintenance of maps.

A demonstration and performance was chosen for TP 4 as it allows the instructor to explain and demonstrate the folding of a map while providing cadets the opportunity to practise under supervision.

## INTRODUCTION

### REVIEW

Nil.

### OBJECTIVES

By the end of this period the cadet shall be expected to identify different types of maps, care for maps, and properly fold a topographical map sheet.

### IMPORTANCE

It is important to know the different map types and their uses in order to select the correct map for the task. Also, knowing how to fold and maintain these maps properly will keep them serviceable and in good condition.



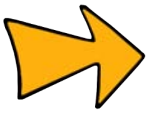
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**Teaching point 1** **Explain the purpose of a map.**

Time: 5 min Method: Interactive Lecture

## PURPOSE OF A MAP

The purpose of a map is to pass on specific information. A map is a scale, or proportionately smaller, representation of the ground that uses internationally accepted symbols to represent both physical and man-made features found on the ground. They identify locations such as towns, lakes, and rivers by name. Map designs reflect the individual needs of the users (e.g. urban planners, travelers, education and cadets).



The art and science of making maps is called cartography. The oldest known maps are preserved on Babylonian clay tablets from about 2300 B.C.

## CONFIRMATION OF TEACHING POINT 1

### QUESTIONS

Q1. The purpose of a map is to present a picture of what?

### ANTICIPATED ANSWERS

A1. The ground as it exists.

**Teaching point 2** **Describe the various types of maps.**

Time: 5 min Method: Interactive Lecture



During this lesson, the first four map types (denoted with an asterisk) are a must know, as they are the ones cadets will use most often. The remainder are additional maps to which a cadet may be exposed.

## * TOPOGRAPHICAL MAP

This type of map is commonly used by the military. The purpose of a topographical map is to present a picture of the ground as it really exists. Topographical maps show as much detail as the scale allows, generally 1:25 000, 1:50 000, or 1:250 000.

- **Physical features** of the ground, such as **natural features** (i.e. rivers, woods, and hills with the heights and shapes) as well **man-made features** (i.e. roads, railways, towns, villages and buildings etc.) are shown.
- **The names of specific features** such as towns, villages, rivers, and descriptive names of general features such as railways, fords and post offices are also found on topographical maps.

## * ORIENTEERING MAP

Through the International Orienteering Federation (IOF), specific rules and standards have been set for the production of orienteering maps, including colour, symbols, and scales. They are much more detailed than regular topographic maps, both with reference to vegetation and landforms.



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*** STREET AND ROAD MAP**

Street and road maps are designed to assist commuters and tourists to locate key site such as roads and highways, police stations, fire halls, hospitals, schools, parks and more.

*** RELIEF MAP**

Relief maps are a three dimensional representation, usually of terrain. The terrain elevation is usually exaggerated by a factor between five and ten. This helps to visually recognise the terrain features.

**DIGITAL MAP**

Digital maps, such as those found on computer programs and when using a GPS, are useful as reference tools as they are updated regularly. This allows for a generally more accurate reference.

**POLITICAL MAP**

Political maps show countries, provinces or other political borders (e.g. globes and atlases).

**STATISTICAL MAP**

Statistical maps show statistical information such as the production levels of crops or minerals across a country.

**OUTLINE MAP**

Outline maps show only borders, rivers, coastlines, etc.

**AIR PHOTO MAP**

Air photomaps are actual pictures used in reconnaissance or to create many of the maps listed.




Where local resources are available, the instructor may show actual copies of the above listed types of maps to cadets.

## CONFIRMATION OF TEACHING POINT 2

**QUESTIONS**

Q1. What type of map is most commonly used by the military?

Q2. Orienteering maps are similar to, though more detailed with references to vegetation and landforms than, what other type of map?

Q3. What is a street and road map used for?

**ANTICIPATED ANSWERS**

A1. Topographical maps.

A2. Topographical maps.

A3. Assist commuters and tourists to locate key sites.



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**Teaching point 3** **Describe the care of a topographical map.**

Time: 5 min Method: Interactive Lecture

## CARE OF THE MAP

Some maps being produced are already waterproof; however, most maps are printed on normal paper. Paper maps are expensive and easily damaged. You must take precautions to protect them from water, dirt and wind. Maps, when exposed to water, will become soggy, deteriorate and tear.

**Waterproofing a Map**. Preparing a map for the elements is a vital step to prolong the life of the map. Ways to prepare a map for waterproofing include:

- **Zipper Bag Method.** This method requires a large heavy weight zipper bag and waterproof tape (duct or packing tape). Cut enough tape to completely adhere to one edge of the bag from corner to corner. Stick one half of the tape from corner to corner. Flip the bag over and fold the tape down on itself and the other side of the bag. Perform each step twice more to the other sides of the bag.
- **Contact Paper (Map Tac).** Covering the map with contact paper will waterproof the map; however, it will become very stiff. A permanent marker or grease pencil will be required to write on the map. Use rubbing alcohol to remove permanent marker from the contact paper.
- **Chemical Coatings.** Chemical coatings will be effective in waterproofing maps; however, they must be handled carefully in a well-ventilated area. They are applied with a brush, to a map on a flat surface, and must be allowed to fully dry before attempting to use them.

**Drying a Map.** If a map gets wet, let it dry completely on a flat clean surface.

**Opening a Map.** A map should never be fully opened in a strong wind. It should be opened to the area you are using, and refolded along the original fold lines.

**Writing on a Map.** Use only pencil to mark your maps and erase all markings gently. Maps that are protected by plastic can be marked using grease pencils or fine tipped markers.

**Storing a Map.** Maps should be stored in a dry place, rolled, folded, or laid flat.




Instructors should demonstrate examples of waterproofed maps, as resources permit.

## CONFIRMATION OF TEACHING POINT 3

### QUESTIONS

Q1. What are three things we should protect maps from?

Q2. What can we use to write on maps?

Q3. How are maps to be stored?



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**ANTICIPATED ANSWERS**

A1. Water, dirt and wind.

A2. Pencil, if protected with plastic, then grease, pencil or erasable marker.

A3. Maps should be stored in a dry place, rolled, folded, or laid flat.

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**Teaching point 4** **Explain and demonstrate how to fold a map.**

Time: 10 min Method: Demonstration and Performance

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**FOLDING A MAP**

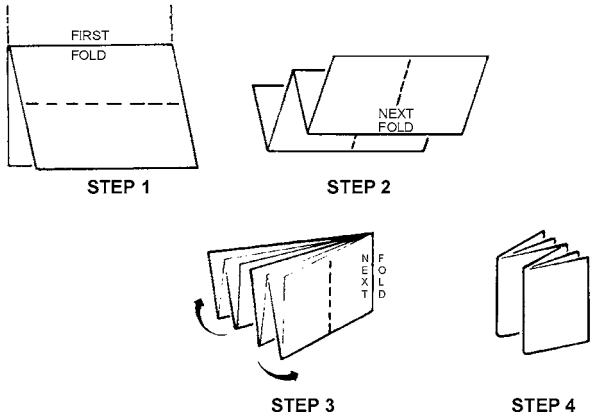
To properly fold a map, the following steps are to be followed:

1. Lay the map face up, then fold map in half by bringing the top (north) of the map sheet down to the bottom (south) of the map sheet. Crease where the bend in the map has occurred; this is the centre of the map (see Figure 1, Step 1).

2. Fold the top half of the map sheet into half again, then turn the map over and fold the bottom half to match the top half (see Figure 1, Step 2).

3. Fold the ends of the map into half from left to right (see Figure 1, Step 3).

4. Fold each of the open ends back into half again so that the map name and index to adjacent map sheet appears on the outside (the map should look like the letter M). (see Figure 1, Step 4).




*A-CR-CCP-121/PT-001, Royal Canadian Army Cadets Reference Book*

Figure 1 Folding of a Map

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**CONFIRMATION OF TEACHING POINT 4**

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Have each cadet practice folding the topographical map sheet (located in the Green Star Handbook) in the method described above. An easy way to remember how to fold a map is north to south, south to north, east to west and west to east.



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## END OF LESSON CONFIRMATION

### QUESTIONS

Q1. What are some of the common maps discussed during this lesson?

Q2. How do we dry a map when it gets wet?

Q3. Using a piece of paper, fold it as you would a map.

### ANTICIPATED ANSWERS

A1. Topographical, orienteering, street and road, relief, political, statistical, outline and air photo.

A2. Lay flat on a dry clean surface, and let dry completely.

A3. Demonstrate.

## CONCLUSION

### HOMEWORK/READING/PRACTICE

The instructor shall have cadets practice folding a piece of paper as they would a map.

### METHOD OF EVALUATION

Nil.

### CLOSING STATEMENT

It is important to know the different map types and their uses, so that cadets can select the correct map for their needs. Also, knowing how to fold and maintain maps properly will keep them in good condition for a long time.

### INSTRUCTOR NOTES/REMARKS

Types of maps will be limited to what is available at the corps level. Instructors should attempt to obtain as many examples as are available. Where local resources allow, products such as clear contact paper and chemical coating may be demonstrated.

Actual maps are not required to practise folding a map. A topographical map worksheet, 8-1/2-inch by 11-inch sheet of paper, newspaper, or retail flyer may be used to represent a map.

## REFERENCES

A2-004 B-GL-382-005/FP-001 Canadian Forces. (1976). *Maps, Fields, Sketching, and Compasses* (Vol. 8). Ottawa, ON: National Defence.



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