ROYAL CANADIAN AIR CADETS

PROFICIENCY LEVEL THREE

INSTRUCTIONAL GUIDE

SECTION 2

EO M390.02 – IDENTIFY MARGINAL INFORMATION AND CONVENTIONAL SIGNS

Total Time: 60 min

PREPARATION

PRE-LESSON INSTRUCTIONS

Resources needed for the delivery of this lesson are listed in the lesson specification located in A-CR-CCP-803/PG-001, 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.

Distribute topographical maps before beginning the lesson.

PRE-LESSON ASSIGNMENT

N/A.

APPROACH

An interactive lecture was chosen for TP 1 to introduce the details of marginal information to the cadet.

An in-class activity was chosen for TP 2 as it is an interactive way to introduce conventional signs to the cadet.

INTRODUCTION

REVIEW

The review for this lesson will be from EO M390.01 (Identify Parts of the Compass, Section 1).

QUESTIONS

Q1. What is the purpose of the sighting mirror?

Q2. What is the function of the meridian lines found inside the compass dial?

Q3. The mnemonic device “Red in the Bed” is used to remember what?

ANTICIPATED ANSWERS

A1. The sighting mirror is used to see the compass dial while taking a bearing.

A2. Compass meridian lines are used to line up the compass dial with the grid lines (eastings) on a map.

A3. The mnemonic device “Red in the Bed” is used to remember that the red end of magnetic needle is lined up within the red end of the orienting arrow.

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OBJECTIVES

By the end of this lesson the cadet shall have to identified marginal information and conventional signs found on a topographical map.

IMPORTANCE

Cadets need to be able to identify features on the map as they relate to objects on the ground. The cadets will apply this knowledge during training where any type of map is used.

Teaching point 1 **Identify and Describe Marginal Information on a Topographical Map**

Time: 20 min Method: Interactive Lecture

MARGINAL INFORMATION

The margins provide information important to the understanding and use of the map. Before using an unfamiliar map, it is important to have a good look at the information contained in its margins. The layout and contents of the marginal information is normally in the same place for all topographical maps, but will always be found within the margins. This information includes:



Have cadets point out each piece of marginal information on a topographical map as it is being described.

Name of Map Sheet. For ease of reference the name of the map is usually a major community or district located on the map (found at the bottom centre of the margin, as well as in the top or bottom right corner).

Number of the Map and Index of Adjoining Maps. A diagram showing the position of the map sheet in relation to adjoining sheets is shown near the lower right-hand margin. The diagram shows the sheet numbers of the adjoining sheets and accentuates the sheet in hand.

Date of Map Data. Helps to indicate the amount of change that may have occurred since the map was printed (found in the bottom left corner).

Map Scale. Indicates the scale of the map, most commonly 1 : 25 000 or 1 : 50 000. Scale is used to represent distances on the map in direct relation to the ground. On a 1 : 50 000 scale map 1 cm on the map represents 50 000 cm (500 m) on the ground.

Scale Bars. Used as a measuring aid for determining distance on the map (found bottom centre below the map name). The left end of the scale bars is divided into tenths for measuring distances more accurately.

Contour Interval. Indicates the vertical (height) interval between contour lines and is given in metres or feet. The contour interval is found in the bottom margin.

Legend of Conventional Signs. A table showing the conventional signs used on the sheet in their correct colours with their descriptions is shown in the bottom or side margin, plus in a more complete list on the back of the map.

Military Index Number. The index is found in the top right corner of the map sheet and used for ordering additional maps.

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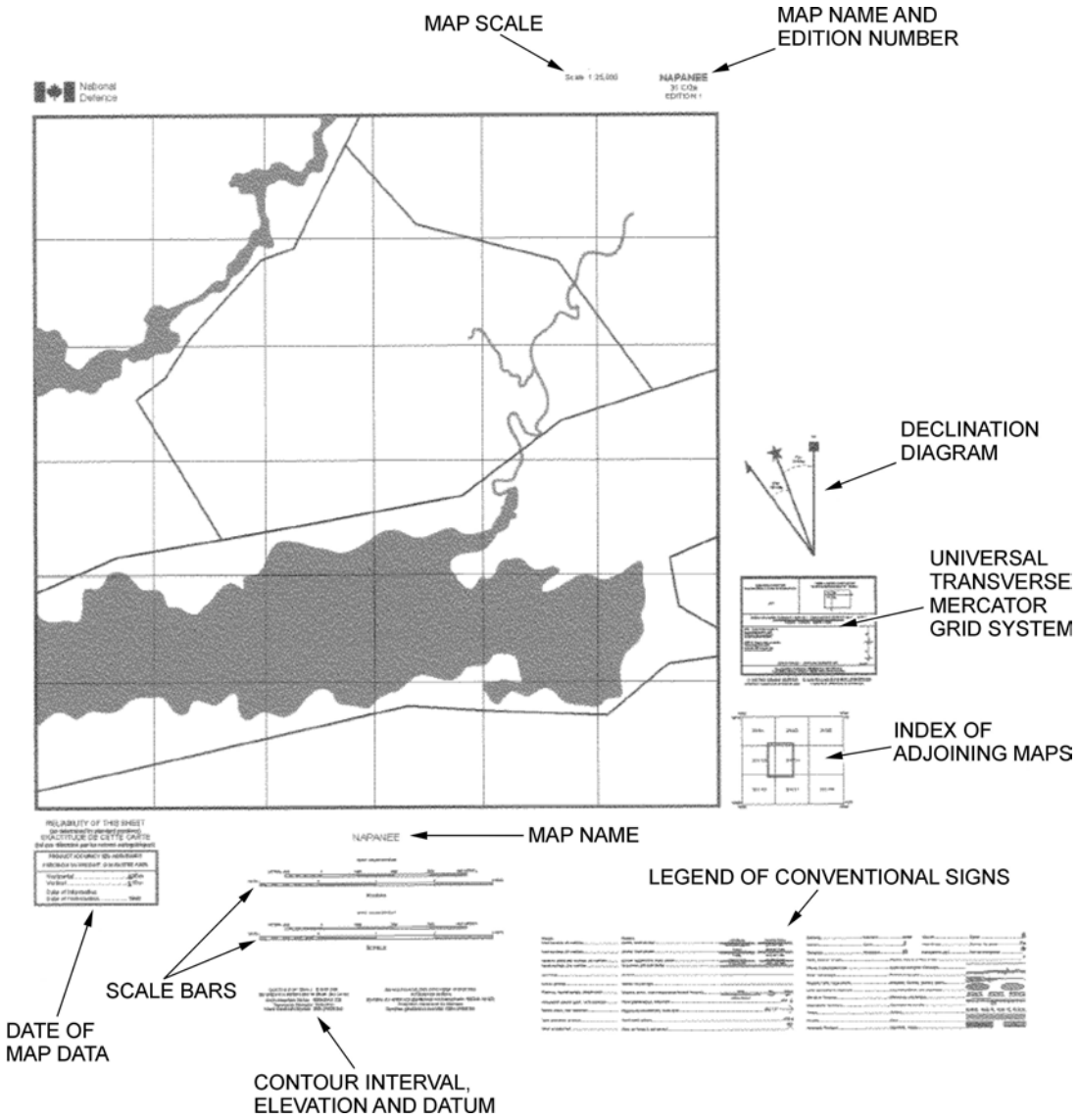
Declination Diagram. Contains the information for the map on how true, grid, and magnetic north relate to each other. This information is given in the form of a diagram with explanatory notes. The diagram is in the right side margin.

Universal Transverse Mercator Grid System (UTM). The UTM grid system divides the earth's surface into zones, each covering six degrees of longitude and eight degrees of latitude. The 60 longitude bands are numbered and the 20 latitude bands are lettered. Each grid zone is one rectangle of the grid pattern, established by the bands and designated by the figures of the longitude band followed by the letter of latitude band.



Canadian Forces, Maps, Field Sketching, Compasses and the Global Positioning System, Department of National Defence (p. 11)

Figure 1 Marginal Information

Military users, refer to this map as:	SERIES **A901** MCE 320 EDITION 1

Canadian Forces, Maps, Field Sketching, Compasses and the Global Positioning System, Department of National Defence (p. 12)

Figure 2 Military Index Number

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CONFIRMATION OF TEACHING POINT 1

QUESTIONS

Q1. Besides the margins, where else may the legend of conventional signs be found?

Q2. How is a map usually named?

Q3. What is the purpose of the declination diagram?

ANTICIPATED ANSWERS

A1. The legend of conventional signs may also be found on the back of the map.

A2. A map is usually named for a major community or district located on the map.

A3. The declination diagram contains the information for the map on how true, grid, and magnetic north relate to each other.

Teaching point 2 **Conduct an Activity Where the Cadets Identify Conventional Signs by Colour**

Time: 30 min Method: In-Class Activity



Discuss the information with the cadets prior to the commencement of the activity outlined below.

CONVENTIONAL SIGNS

A number of symbols are used to indicate an object or item of detail that cannot be shown either by outline or by a line symbol. Most have been established through long usage and standardization agreements. The meaning of most symbols is obvious. However, if there is doubt consult the table of conventional symbols located on every map. Located on the back of most maps you will find many additional conventional signs.

Map-reading not only involves the ability to interpret the symbols shown on the map and to understand the information given in pictorial or written form, but it also involves a true understanding of the ground portrayed and an appreciation of the reliability and value of the particular map being used.

Where the symbol may have more than one meaning, the sign or symbol will be accompanied by a descriptive word (eg, tank or tower).

The use of colour aids in distinguishing details.

Red. Used to identify paved roads and highway numbers. Red is also used to shade in areas of urban development.

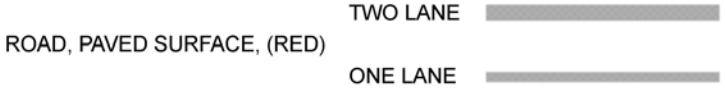

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Figure 3 Red Conventional Signs

18-M390.02-4

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Orange. Used to represent unpaved roads.

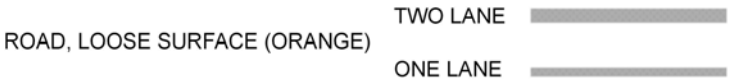

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Figure 4 Orange Conventional Signs

Black. Used for cultural features, toponyms (place names), some symbols and precise elevations.

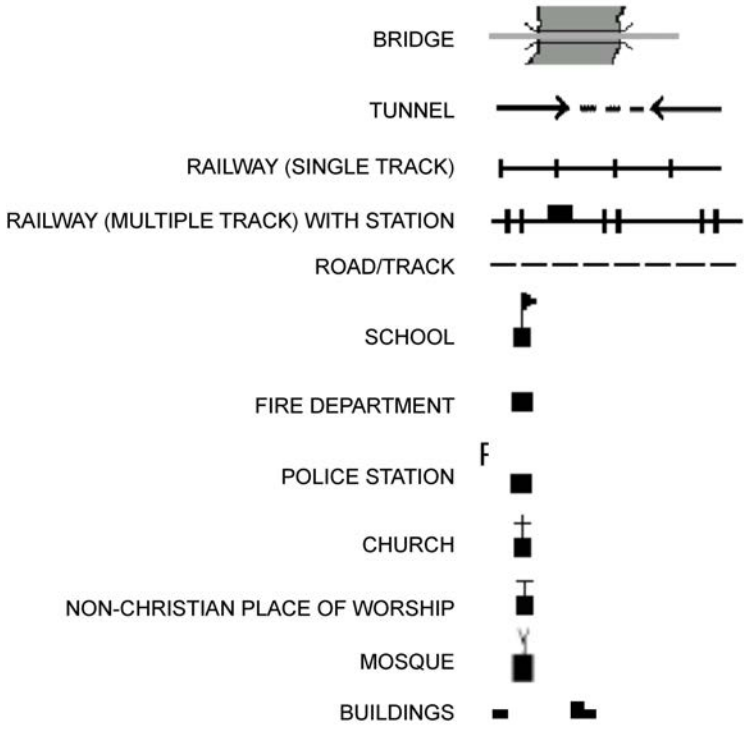

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Figure 5 Black Conventional Signs

Brown. Used for contour lines, contour elevations, spot elevations, sand, cliffs, and other geographical features.

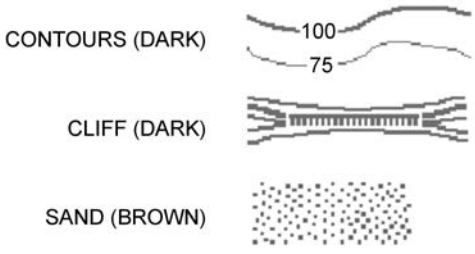

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Figure 6 Brown Conventional Signs

Blue. Used for water or permanent ice features (eg, rivers, lakes, swamps and ice fields), names of water features and the grid lines.

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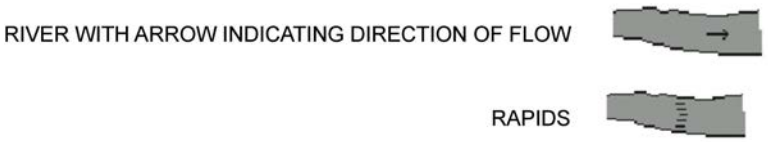

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Figure 7 Blue Conventional Signs

Green. Used for vegetation features such as woods, orchards and vineyards.

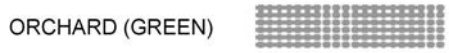

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Figure 8 Green Conventional Signs

White. Used to represent open fields.

Grey. Used for the legend of conventional signs on the back of the map.

Purple. Used for updates that are made over top of the original map information.

ACTIVITY

Time: 20 min

OBJECTIVE

The objective of this activity is to have the cadet identify conventional signs through the creation of a topographical map of Mapville.

RESOURCES

- Flip chart/whiteboard,
- Markers/dry erase markers, and
- Topographical maps.

ACTIVITY LAYOUT

The cadets should be seated in front of a flip chart/whiteboard with topographical maps available.

ACTIVITY INSTRUCTIONS

1. Draw a large outline of a topographical map on the flip chart/whiteboard at the front of the room.

2. Have the cadets approach the front, one at a time, and draw a conventional sign on the developing map of Mapville.

3. Have the cadets explain what the sign is for and why they chose to put it where they did. No sign may be used more than once.

4. Have cadets continue to add conventional signs until the time is used up.

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Based upon the number of cadets in the class, each cadet may have to add several different conventional signs to the map.

SAFETY

N/A.

CONFIRMATION OF TEACHING POINT 2

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

END OF LESSON CONFIRMATION

The cadets' participation in the creation of the topographical map of Mapville will serve as confirmation of this lesson.

CONCLUSION

HOMEWORK/READING/PRACTICE

N/A.

METHOD OF EVALUATION

This EO is assessed IAW A-CR-CCP-803/PG-001, Chapter 3, Annex B, Appendix 5 (390 PC).

CLOSING STATEMENT

Map-reading not only involves the ability to interpret the symbols shown on the map and to understand the information given in pictorial or written form, but it also involves a true understanding of the ground portrayed and an appreciation of the reliability and value of the particular map being used. This information will aid the cadet during their map and compass practical assessment.

INSTRUCTOR NOTES/REMARKS

N/A.

REFERENCES

A2-041 B-GL-382-005/PT-001 Canadian Forces. (2006). *Maps, Field Sketching, Compasses and the Global Positioning System*. Ottawa, ON: Department of National Defence.

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